



Airlift Capabilities

Ten years ago, most countries simply did their own thing when it came to airlift. Now there is an organised effort to pool resources, as **Alan Warnes** explains in a four-part survey.

EVERY AIR force needs access to a capable fleet of transport aircraft. Most in Europe now tend to focus on tactical airlift, utilising C-27Js, C-130s, C-160s, CN235s or C295s. These aircraft are ideal for transporting supplies and personnel within a region. During operations, such as those led by the International Security Assistance Force (ISAF) in Afghanistan (2001-2014), tactical airlifters were deployed to Forward Operating Bases where they flew on a network of routes.

Some nations have their own strategic airlift assets: France uses KC-135s and more recently A400Ms, while the UK has A330MRTTs and C-17As in the role, and A400Ms which are currently going through test and evaluation. These types are used to transport

logistics, troops and military equipment around the world.

Airlift agreements

Unlike for fighters, there are mechanisms within Europe whereby air forces can use the assets of other countries. The need for a cohesive airlift capability within Europe was made apparent during Operation Allied Force in 1999 when NATO took on Yugoslavia over Kosovo, and was highlighted again in Afghanistan.

The European Air Transport Command (EATC) at Eindhoven Air Base in the Netherlands was established in 2010 by four members – Belgium, France, Germany and the host nation. They were later joined by Luxembourg (2012), Spain (2014) and Italy (2016). Together they work to manage their

assets under the ATARES (Air Transport & Air-to-Air Refuelling and other Exchange of Services) system. There is no money involved but credits are gained by those leasing their assets. Other countries also contribute to the ATARES providing any spare capacity for their allies.

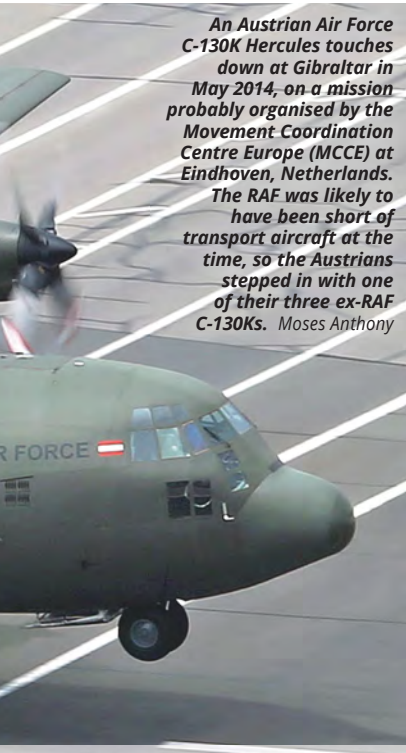
Also based at Eindhoven working alongside the EATC is the Movement Coordination Centre Europe (MCCE). This is also an international military organization aimed at providing cost-saving alternatives by utilizing all air, land and sea transport assets owned or leased by the military forces of the 27 nation members. On June 13, 2007, 15 nations signed the MCCE Technical Arrangement: Belgium, Canada, Denmark, France, Germany, Hungary, Italy, Latvia, the Netherlands, Norway, Slovenia, Spain, Sweden, Turkey and the UK. In the autumn of the same year Luxembourg, Estonia and Finland signed up, followed in 2008 by Poland, Romania and the US. Austria, the Czech Republic and Portugal joined

in 2010, Croatia in 2011, then Lithuania and Slovakia in 2015.

There is also the Strategic Airlift Capability (SAC) based at Papa Air Base in Hungary where its Heavy Airlift Wing (HAW) and its three C-17s are based. The first aircraft was delivered in July 2009 with the second and third aircraft following a few months later in September and October. It is the only operational multinational military airlift unit in the world. The SAC comprises a consortium of 12 members which have access to the annually budgeted 3,165 hours, according to a pre-agreed share: USA (32%), Sweden (17.4%), the Netherlands (15.8%), Norway (12.6%), Romania (6%), Poland (4.7%), Finland (3.2%), Bulgaria (2.1%), Slovenia (1.9%), Hungary (1.6%), Estonia (1.4%), Lithuania (1.4%). Only the Netherlands participates in the ATARES, MCCE and the HAW.

Delays to A400M

The transport fleets of the European air forces are currently going through modernisation



An Austrian Air Force C-130K Hercules touches down at Gibraltar in May 2014, on a mission probably organised by the Movement Coordination Centre Europe (MCCE) at Eindhoven, Netherlands. The RAF was likely to have been short of transport aircraft at the time, so the Austrians stepped in with one of their three ex-RAF C-130Ks. *Moses Anthony*



Some European air forces are having to prolong the lives of elderly transport aircraft as a result of delays in the deliveries of Airbus A400Ms. The French and Germans, for example, are still relying on veteran Transall C-160s to carry out strategic airlift. Some aircraft are regularly breaking down in remote locations. *Alan Warnes*

ties

programmes that for many aren't coming quick enough. Delays in the deliveries of Europe's great hope – the Airbus A400M, has meant the veteran Transall C-160s with their 1960s technologies, of France and Germany, soldier on in dwindling numbers well beyond their original out-of-service dates. Maintenance personnel of both countries are doing a great job keeping them operational. There have

been many tales of aircraft breaking down in various places all over the world – a German Transall was once stuck in Dushanbe, Tajikistan, for nearly a month! To make matters worse for the German Air Force it looks set to take delivery of only five A400Ms this year instead of the planned nine.

There are 170 A400Ms on order with European air forces, deals to buy most of them were agreed by 2000 (see *A400M Gets Boost*, August 2000, p19), when the figure required to start production was reached.

According to initial A400M plans, most of those on order should have been delivered by now, but problems – most recently gearbox issues – have caused many delays (see *Light at End of the Tunnel for A400M*, August, p16). Those militaries that are flying the A400M, admit it is a great aircraft, with huge potential but they are frustrated they can't maximise the potential. France, which has the biggest fleet of transport aircraft in Europe has

many plans for its 50 A400Ms, but only received its first tactical aircraft this summer – the earlier versions were dedicated airlifters. The French MOD has become so frustrated with the issues surrounding the air-to-air refuelling of helicopters that it has recently bought two KC-130J Hercules air refuellers and two C-130Js to bridge the capability gap. With operations in North Africa, the Indian Ocean, UAE and Jordan (the last two being the main French air hubs for the fight against Daesh) in addition to its domestic requirements, the French Air Force has its hands full trying to cater for all the tactical and strategic demands.

European 400M Orders

Country	Order	Deliveries
Belgium	7	0
France	50	9
Germany	53	3
Luxembourg	1	0
Spain	27	0
Turkey	10	3
UK	22	8

Unlike the French, the Germans don't appear to be looking for a solution to relieve its Transall issues, presumably relying on the EATC and MCCE to help out with its tactical airlift needs. But as it doesn't have too many strategic interests that probably isn't surprising.

The German Air Force is the only established NATO country that doesn't operate the C-130, probably because of its government's fierce loyalty to Europe. Belgium, Denmark, France, Greece, Italy, the Netherlands, Norway, Portugal, Spain, Sweden, Turkey and the UK have all been long-time operators of the reliable Hercules, but Germany has always held back.

In Eastern Europe, most of the old Antonov An-26 workhorses have gone. They served the former Warsaw Pact countries – Bulgaria, the Czech Republic, Hungary, Poland, Romania, Slovakia and even for a while, Germany, because they were cheap, fairly reliable and robust. Typical qualities of USSR-era machinery. Over the last five years most have been replaced either by the Alenia (now Leonardo-Finmeccanica) C-27J or Airbus C295.

It is clear that in Europe there are some countries that are prepared to co-operate and some that aren't. The UK with its sizeable fleet of A330MRTTs, A400Ms, C-17As and C-130Js, could be criticised for not doing more but it has always been there when called upon. That was apparent in 2013 when the French needed strategic airlift during the initial days of the Mali operations.



The Strategic Airlift Capability's Heavy Airlift Wing operates three C-17As out of Papa, Hungary. It is run by a consortium of 12 members with the USA being the biggest user. *HAW*

With assistance from AFM's correspondents, **Alan Warnes** reviews the transport assets of each European air force.



ALBANIA

No funding for transports

THE ALBANIAN Government has little funding for the Air Force other than helicopter operations, despite now being

a member of NATO. It is unlikely the Albanian Air Force will acquire transport aircraft in the near future.



AUSTRIA

Ex-RAF Hercs soldier on

THREE EX-RAF C-130K C1Ps, XV181 (8T-TCA), XV291 (8T-TCB) and XV292 (8T-TCC) were delivered to the Lufttransportstaffel (Flying Transport Sqn) at Linz-Hörsching in March 2003, November 2003 and February 2004 respectively. A fourth, also once with the RAF, ex-XV295 was delivered to Linz in December last year but is for spares.

All three flyable Austrian Hercules are providing good service and in excellent condition, according to one source. They are well maintained by the Austrian Air Force (AAF), which carries out the lower level maintenance. Marshall Aerospace and Defence Group of Cambridge, which worked on the aircraft

before delivery 12 or so years ago, provide their services for the heavier maintenance and one aircraft is currently at its facility being overhauled. Limited funding means the emphasis is on regular maintenance rather than aircraft replacement. Austria's priority is the acquisition of more S-70 Black Hawk helicopters, as was announced by the Minister for Defence Hans Peter Doskozil in August. Upgrades to the existing Black Hawk fleet are also needed.

The fourth Hercules has had its tail removed and is now in the maintenance hangar at Linz-Hörsching, where it will be stripped for spares.

The AAF took delivery of its first aircraft to be upgraded with a new avionics package

on January 22, 2013. The work was also carried out by Marshall Aerospace under a three-aircraft contract that started in August 2012.

Steve Fitz-Gerald, CEO of Marshall Aerospace, commented: "We're delighted to have completed the avionics upgrade and associated testing and commissioning on this first aircraft as it places us on track to have all three aircraft upgraded and returned to service by early 2015."

The avionics upgrade included the replacement of the aircraft's autopilot and radar altimeter systems, software updates to the flight management system, the installation of a standby flight display and a barometric altimeter, as well as the replacement of

analogue flight instruments with multifunction LCD displays.

The standard missions for the AAF's three C-130Ks see them travelling to Kosovo, Lebanon, Mali and the Central African Republic. But the Austrian Air Force flying missions are also flown for the European Air Transport Command's Air Transport and Air-to-Air Refuelling and other Exchange of Services (ATARES) system. In mid-August the C-130Ks were deployed to Greenland to support the Danish Air Force transport requirements. There was also a deployment to the island of Jan Mayen for the Norwegian Air Force the following week. With one undergoing maintenance at Cambridge, this meant just one was available for AAF use.



The Austrian Air Force took delivery of a fourth C-130K in December 2015, purely for spare parts. It is now hangared at Linz-Hörsching Air Base, where the tail has already been taken off. Wolfgang Jarisch

Transport ORBAT

Lufttransportstaffel Linz-Hörsching

C-130K



BOSNIA AND HERZEGOVINA

Just A Dream!

THE ACQUISITION of transport aircraft is still a dream for this relatively new state. In the event that

transporters were needed, NATO or the EU, which has a force in country, would provide the platform.

Co-operation and Modernisation

Belgium's 15th Air Transport Wing operates several VIP jets including the Falcon 20 (nearest), Falcon 900B (middle) and ERJ135 (far). The surviving Falcon 20, one of two purchased in 1973, will be withdrawn from use at the end of the year. BAC/Katsu Tokunaga



The 15th Air Transport Wing of the Belgian Air Component operates a mixed fleet of aircraft from Melsbroek Air Base performing strategic and tactical transport. Additional new roles will comprise tactical helicopter transport with NH90s and air-to-air refuelling.

No 20 Squadron operates 11 Lockheed C-130H Hercules transport aircraft (CH-01 to CH-13) of an initial order for 12 delivered in 1972-1973. As a small nation, Belgium attempts to conduct most of its defence efforts in a multinational or allied environment. All C-130s, as well as all other fixed wing transport assets, are under operational control of the European Air Transport Command (see introduction).

The Hercules fleet has accumulated 236,800 flying hours and will be replaced by seven Airbus Military A400M Atlas aircraft from 2019 onwards. Luxembourg also ordered an additional aircraft at the same time and it is assumed it will be operated in close collaboration with the Belgian fleet. Four pilots from Luxembourg are currently

working with the Belgian Air Component. They were trained alongside Belgian student pilots, spending a year at the Royal Military Academy (which resulted in an ATPL licence) and they subsequently continued flying training at Beauvechain and Avord (France). They are gaining tactical transport experience on Belgian C-130s and will undergo A400M conversion with the other Belgian transport pilots in 2018. This is a good example of Belgian international co-operation.

The new A400M has a 37 ton/120 seat/66 stretcher airlift capability and an extensive self-protection system enabling it to fulfil all the Hercules' missions in a high-threat environment. A pair of probe-and-drogue air-to-air refuelling kits will be acquired to satisfy the nation's long-range requirements for its A400M fleet.

The strategic vision of Belgium's defence requirements also envisages participating in the European Defence Agency (EDA) Multinational Multi-Role Tanker Transport Fleet initiative, which will assemble a pooled fleet of Airbus A330 Multi-Role Tanker Transport aircraft from 2019 onwards. Belgium

duties to fully fledged airports. A single Airbus A321-231 (CS-TRJ) has been leased from Portugal's Hi Fly since 2014. The present contract runs until December 31, 2017 and comprises 1,250 flying hours per year. The A321 is able to carry 153 passengers over a range of 2,690 miles (4,300km), the A321 provides strategic transport for military personnel and takes members of the royal family and the government on official duties. The Hi Fly contract also allows for the additional lease of an Airbus A330.

A pair of Embraer ERJ-135LRs (CE-01 and CE-02) and another couple of ERJ-145LRs (CE-03 and CE-04) were delivered in 2001 and have now amassed 32,200 flying hours. With a seat capacity of 34 and 49 respectively, and a range of around 1,780 miles (2,850km), the type is used mainly within Europe. Two Dassault Falcon 20E business jets were acquired in 1973 for VIP and VVIP transport for short to medium distances. One, CM-01, was withdrawn from use in 2015 and placed in storage – and CM-02 will follow suit on December 31, 2016, with each jet having accumulated just over 16,000 hours. The sole Dassault Falcon 900B (CD-01), delivered in 1995, has a similar role but for longer distances. A study is anticipated to define the future needs of the Belgian Defence commercial transport types which will examine whether these can be best fulfilled by a civil contractor or by continuing to operate its own aircraft.

Agreements with external partners complement the Air Component's own transport capabilities. It pools its assets and shares those of its partners in the seven-nation European Air Transport Command and the larger 27-nation Movement Coordination Centre Europe (MCCE). Forty hours of strategic air transport using an Antonov An-124 to carry oversized and heavy cargo are contracted for annually through the framework of a Strategic Airlift Interim Solution (SALIS). **Jos Schoofs** ✎

Inventory

Aircraft	No
Lockheed C-130H	11 +
ERJ 135LR/145LR	2/2
Falcon 20E-5	1
Dassault Falcon 900B	1
Airbus A321-231	1
Airbus A400M	7=1 ++
+12 ordered – two written off and one replacement	
++On order, one for Luxembourg	

will fund one aircraft from 2024-2027 onwards, allowing it to refuel all types of aircraft and combine this capability with the timely cost-efficient transportation of personnel and material in support of its expeditionary operations. The Netherlands and Luxembourg are also involved.

No 21 Squadron operates a varied fleet of commercial aircraft that undertake transport

Transport ORBAT

15th Air Transport Wing 20 Squadron	C-130H
21 Squadron	ERJ 135LR/145LR, Falcon 20E, Falcon 900, A321



BULGARIA



The C-27J is a superb tactical airlifter that is able to land and depart from short airfields with the ability to make steep climb outs when required.
Alexander Mladenov

A Mixed Fleet

THE BULGARIAN Air Force's (BuAF) small fixed-wing transport component comprises eight aircraft, serving the Transport Air Group at Sofia-Vrazhdebna Airport, which is subordinated to the 24th Air Base headquartered at Krumovo.

Its main workhorses are three C-27J Spartan tactical transports, delivered between 2007 and 2011. The new-generation airlifter was procured in the mid-2000s to meet an urgent requirement for the transportation of personnel and supplies to Afghanistan and Iraq, where Bulgaria had deployed sizeable troops.

The original contract signed in February 2006 between the Bulgarian defence ministry

and Alenia Aeronautica (now Leonardo-Finmeccanica) foresaw the delivery of five C-27J Spartans plus three options, priced at €92m. However, in 2011 the number of aircraft was cut to three.

All the Bulgarian Spartans feature defensive aids suites comprising missile warning sensors, radar warning sensors and chaff/flare dispensers as well as fuel tanks filled with neutral gas to prevent explosion of the fuel vapours when hit by incendiary rounds or high-speed missile fragments. Night-vision goggles (NVG) sets were procured for low-level tactical missions in darkness.

The first Spartan, wearing the serial 071, was taken from the batch originally intended for delivery to the Italian

Air Force and was formally delivered in November 2007, while the second followed in December 2008 and the third in March 2011.

The Bulgarian Spartans have seen active use in the support of all foreign missions undertaken by the Bulgarian military as well as in numerous NATO and European Defence Agency (EDA) exercises. It flew missions to Afghanistan and occasionally to Middle East and African countries, where Bulgarian citizens had been taken hostage.

In addition to its troop and military equipment carrying capability, the C-27J is also used for VIP transport on regular basis. For this role, the Bulgarian Spartans can be equipped with three roll-on/roll-off modules, each with nine seats – to transport members of the government and defence ministry during international visits.

The Antonov An-26 airlifter was also in operation with the BuAF's air transport unit until 2011, but today the survivors are kept in long-term storage at Sofia-Vrazhdebna. Two have been sold to civilian customers.

In the late 2000s the eight-strong L-410 fleet was reduced to just two aircraft (the L-410UVP-E version), which were maintained in airworthy condition until 2010. However, the BuAF plans to return these to service for use in paratroop training and light personnel/cargo transport. One of the surviving L-410UVP-Es was upgraded in 2008 with a roll-on/roll-off system to calibrate airfields' navigation aids. The other six L-410s are kept in a long-term storage.

The lone An-30 photo survey aircraft is widely known as Bulgaria's 'Open Skies' mission ship. Due to a shortage of passenger-equipped aircraft it is also frequently utilised in the passenger and VIP transport roles. The ageing An-30 underwent numerous



Transport ORBAT

Transport Air Group, 24th Air Base, Sofia-Vrazhdebna

C-27J, An-30, L-410UVP-E, An-2, PC-12/45

service life extensions in the early 2010s and is now slated to remain in active use at least until the end of 2017.

One An-2 biplane, manufactured in 1974, continues to soldier on, making it the oldest military aircraft operated in Bulgaria. It is still used as a jump-ship to train the Bulgarian Army's special operations forces. During most of 2015/2016 it was grounded for skin refurbishment work and is still not flying due to the lack of a serviceable engine.

A newly built Pilatus PC-12/45 was delivered in December 2003 for use in the VIP/passenger transport, liaison and training roles, and was also retrofitted with a locally designed medevac kit. In 2015 the PC-12/45 suffered from a gear-up landing accident during a routine training mission but was judged to be repairable. It is currently being restored by the manufacturer and is expected to re-enter service in late 2016 or early 2017. **Alexander Mladenov**

Inventory

Aircraft	No
An-30	1
C-27J	3
L410-UVP-E	2
PC-12/45	1

Bulgaria's 'Open Skies' An-30, the only surviving example in Europe, is also used for passenger and VIP roles. Alexander Mladenov



Both of Croatia's An-32Bs, acquired in 1995, were retired in 2013 but no successor has yet been identified. Croatia does not currently belong to any European airlift arrangement. *Chris Lofting*



An-32s Retired

A PAIR of Antonov An-32Bs provided the transport backbone of the Croatian Air Force and Air Defence (CAF&AD - Hrvatsko Ratno Zrakoplovstvo i ProtuZračna Obrana) up until their retirement in 2013. Acquired in October 1995 they represented a big step up from the mixed bag of Antonov An-2s, that had been pressed into military service at short notice during the Yugoslav Wars.

Both came from the civilian market and although acquired for the air force were originally registered on Croatia's civilian register as 9A-BAB and 9A-BAC. Soon after, 9A-BAC received a smart new military scheme along with the ad hoc military serial 021. At the end of the 1990s, the state finally introduced rules on the proper marking of military aircraft - 021 became 727 and 9A-BAB became 707 - both serving with the 27 Transport Aircraft Squadron (27 Eskadrila Transportnih Zrakoplova - 27 ETZ) located at Zagreb-Pleso.

The pair had spent some time in storage in the lead up to their first major overhaul which began in February 2004 when the aircraft were flown to Zhuliany, Kiev, Ukraine, to be worked on by the 410 Aircraft Repair Plant (410 ARP). ICAO compatible instrument and communications equipment was fitted during

the overhaul. Both aircraft received a Traffic Collision Avoidance System (TCAS) with compatible transponders and a Garmin GNS400 series global positioning system unit, as well as some additional Western instrumentation, including Shadin fuel flow displays, modern NAV/COM radio units and flight data recorders. As part of the overhaul they were repainted into NATO grey and radar warning receivers plus a pair of flare dispensers were fitted for self defence.

The more capable aircraft were sent overseas to support Croatian military personnel serving the Kosovo Force (KFOR) and the International Security Assistance Force (ISAF) in Afghanistan. To prepare for operations in Afghan airspace, an An-32B with a contingent of nine aircrew, was sent to Ramstein Air Base, Germany to train on 'in theatre' navigation procedures and tactics. Only one An-32B, 727, was sent for a second overhaul in early 2011 - both examples were eventually withdrawn from use by 2013. In January 2015 several air force types were put up for sale including the two Antonovs, but there was no interest. Both are currently stored on the ramp at Pleso, with 727 still having its engines run once a week.

The Croatian Strategic Defence Review published in July 2013 declared: "the An-32 transport aircraft will be withdrawn

from operational use and the acquisition of new transport aircraft will not be considered before 2020. The capability for strategic air transport will be ensured through reliance on our allies, and through multinational efforts in the context of NATO initiatives."

In recent years American C-17s have been regularly seen at Pleso transporting Croatian servicemen to Afghanistan. The review also stated the requirement for a light transport aircraft that could also be used to train parachutists. The Pilatus PC-12 was considered some time back but the small size of the cargo door may have ruled it out.

Since the retirement of the An-32Bs, the CAF&AD no longer has a fixed wing transport capability so instead must rely on the Mil Mi-171Sh to partially meet this need. However, this is far from ideal. One of the helicopters recently undertook an 18-hour return flight from RAF Fairford in England while supporting the CAF&AD's Krila Oluje (Wings of Storm) PC-9 aerobatic team after its award-winning aerobatic appearance at the Royal International Air Tattoo. It would probably have taken the An-32 a couple of hours.

The government currently uses a Canadair CL-600-2B16 Challenger 604 registered 9A-CRO for VIP duties. **Chris Lofting**



CZECH REPUBLIC

Both of the Czech Air Force's A319CJ VIP jets, which were delivered in 2007, sit on a snow-laden ramp at Kbely. Jaroslav Špaček



Busy and Diverse

THE CZECH Air Force operates its transport fleet from 24. zDL (základna dopravního letectva – 24th Air Transport Base) at Prague-Kbely Airport. The main task is to transport by air, Czech Armed Forces personnel as well as government officials and foreign state delegations. It also undertakes medevac missions for NATO, as well as Czech medical service and reconnaissance flights. The Czech Air Force has no ambitions to fulfil strategic airlift any time soon. The need to transport heavy material, for such missions as the International Security Assistance Force (ISAF) in Afghanistan (which ended in December 2014) is met by

several European agreements including SALIS (Strategic Airlift Interim Solution) or ATARES (Air Transport and Air-to-Air Refuelling Exchange of Services).

The 24. zDL comprises three squadrons, two of them equipped with fixed wing aircraft and the third with helicopters (not covered here). The 241. dopravní letka (transport sqn), referred to as the 'White' squadron is dedicated to VIP, troop and logistics transportation. Whenever medevac flights are needed, for example during the ISAF years, two Airbus A319CJs are used. One of them, with a luxurious interior for 42 people, is tasked mainly for VIP flights, and the second is modified to carry up to 98 troops. The unit

also flies two types of smaller business jets. The CL-601 Challenger, which can carry 15 passengers, was overhauled in 2015 and will continue to serve for the foreseeable future. A pair of elderly Yakovlev Yak-40s, relics from the Cold War era cover the shorter distances within Europe. They should both have been replaced by now but due to their surprisingly high reliability rate they continue to soldier on.

The 242. dopravní letka, sometimes nicknamed the 'Green' squadron is mainly responsible for troop and

cargo transportation. Four Airbus C295Ms make up the bulk of this effort and their crews have gained a lot of tactical flying experience in combat conditions over recent years. One C295M has been permanently detached to Sinai, Egypt, since November 2013 supporting the MFO (Multinational Force and Observers) mission there. The work has shown that four CASAs are not enough to meet the requirements of the Czech Armed Forces and the acquisition of another pair of C295s is being considered. The MFO aircraft are equipped with self-defence systems, and any new purchases would probably come with FLIR too, broadening their capabilities and helping to monitor the Czech Republic's international borders. The Czech Government is also looking at purchasing two larger aircraft, such as a C-130 Hercules or Brazil's new KC-390, which Czech aerospace company, Aero is involved in, providing development and production work. However, it is unlikely there will be any purchase before 2025. The smaller Czech LET L-410s are used for paratrooping, transport and photogrammetry. **Jaroslav Špaček**

Transport ORBAT

24. zDL	Prague-Kbely
241. dopravní letka (transport sqn)	A319CJ, CL-601, Yak-40, LET L-410
242. dopravní letka	C295M

Inventory

Aircraft	No
A319CJ	2
C295M	4
CL-601	1
LET L-410	****
Yak-40	2



The Czech Air Force has replaced its An-26s with the more modern Airbus C295M. One is permanently based in the Sinai desert, Egypt, supporting the Multinational Force and Observers (MFO) there. Jaroslav Špaček

Herks and Challengers

AIR TRANSPORTATION in the Royal Danish Air Force (RDAF) is handled by Eskadrille 721, based at Air Transport Wing (ATW) Aalborg, located in the northern area of Jutland. The unit has two Flights – one with four C-130J-30 Hercules, and the other flies four Bombardier CL-604 Challenger aircraft.

The first C-130J-30 (B-536) was delivered to the RDAF on March 1, 2004 with a second (B-537) and third (B-538) following on March 15 and April 5, 2004 respectively. In 2006 an option for a fourth aircraft was exercised, which led to C-130J-30 (B-583) being delivered on July 15, 2007. The Hercules Flight is responsible for the tactical transportation of cargo and troops and is heavily involved in supporting

Danish troops all over the world. It regularly flies supplies to Danish troops stationed in Greenland (see also Austria), several times each month.

The short field capabilities of the Hercules are put to good use when landing on Greenland's dirt and gravel strips.

The Bombardier CL-604 Challenger replaced the Gulfstream IV in the RDAF. The first example (C-080) was delivered to Esk 721's Challenger Flight on November 25, 1999, with two more (C-168 and C-172) delivered on November 13 and November 21, 2001 respectively. A fourth CL-604, delivered on June 6, 2014, is kept in permanent VIP configuration.

The main responsibility of the Challenger Flight is transporting VIPs, which include high-ranking government members, military officers and members of the Danish royal family. In addition to transporting personnel all over the world, one of the Challengers also performs maritime and



Four C-130Js fulfil the Danish military's tactical transport needs. They replaced three C-130Hs that were sold to Egypt after the newer C-130Js were delivered in 2004. Søren Augustesen

fishery patrols around the Faroe Islands and Greenland. When flying the maritime patrols, looking for ships dumping oil, the Challenger is equipped with a Side-Looking Airborne Radar

(SLAR) under the fuselage. The Flight also regularly participates in Operation Ocean Shield, the NATO-led mission around the Horn of Africa to hunt for pirates. **Søren Augustesen**

Inventory

Aircraft	No
C-130J	4
CL-604	4

FINLAND



One of the three C295Ms delivered to the Finnish Air Force has been converted to an ELINT platform courtesy of the Lockheed Martin Dragon Shield system. It will replace an ageing and top-secret F27-100. Jussi Kettunen

Two New Types for Dual Roles

FOR MANY years the Finnish Air Force (FAF) operated two Fokker F27s, FF-2 and FF-3, in the transport role. Both provided sterling service, operating in Finland's harsh winter climate, before FF-2 was retired on March 31, 2004 followed by the -400M, FF-3 on May 31, 2013. They have been replaced by a pair of C295Ms. A third F-27 was converted to

the sneaky-beaky Electronic Intelligence (ELINT) role in 1989. It is seldom seen, even today as it heads towards a retirement date. Such are the sensitivities over the aircraft, that the specific time is still classified. The aircraft is flown by the FAF but its operations are run by the Finnish Defence Intelligence Agency.

In the mid-2000s, the FAF started its transport aircraft

renewal programme with the F27s, earmarked for replacement by a two-engine turboprop transport aircraft. It was a choice between the C-27J Spartan and Airbus C-295M. After intensive testing, the C295M was eventually selected as the winner. Two were bought, and delivered in March, 2007 with serials CC-1 and CC-2. A third C295M, CC-3, was subsequently ordered and delivered on July 7, 2011, which allowed CC-1 to be converted to the ELINT role. The Finnish Defence Force bought the Lockheed Martin Dragon Shield mission suite to be installed in this aircraft. But, until it is operational, the old ELINT F27 soldiers on, and is likely to operate alongside the new ELINT C295M for a while.

At the same time as the FAF sought to replace the Fokkers it looked to phase out the PA-31-350 Chieftains, PA-28 Arrows and Valmet L-90TP Redigos used for liaison, in favour of a single type. There were many candidates, but

Inventory

Aircraft	No
C295M	3 +
PC-12NG	6
F-27M-400	1++
+ 1 is ELINT	
++ ELINT	

in the end the selection came down to a decision between the Pilatus PC-12NG and Beechcraft King Air 300. It also saw a face-off between a two-engined type against a single engine. The FAF eventually opted for the Pilatus PC-12NG with its very reliable PT6 engine and all were delivered in 2010.

Today the FAF operates two C295M transport aircraft and six Pilatus PC-12NG liaison/transport aircraft, which regularly fly around Europe and the Middle East to support Finnish Defence Force operations. Finland is also a partner country in European Strategic Airlift Capability (SAC) in Hungary, operating three C-17As. **Perttu Karivalo**

Transport ORBAT

Esk 721, Aalborg	C-130J/CL 604 Challenger
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ESTONIA

WHILE ESTONIA only operates a couple of elderly Antonov An-2s for local duties, it does make

a contribution to the MCCE at Eindhoven, Netherlands and the Strategic Airlift Capability at Papa, Hungary.

Transport ORBAT

Tukilentoiläivue (TukiLLv) Tikkakoski	C295M, F27-100, PC-12
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Huge Challenges

THE FRENCH Air Force (Armée de l'Air) operates a large fleet of transport aircraft, the bulk being the ageing Transalls, CN235s, C-130Hs and more recently the A400M Atlas. Given that France has sovereign interests in Africa and the Indian Ocean and is also fighting hard against Islamic militants on several fronts, it will come as no surprise that it still relies on assistance from its allies as well as lease/charter solutions.

Dwindling Transall

Only 24 C-160R Transalls (and two electronic warfare configured C-160G Gabriel) remain in service. The decreasing number means it is now only the second largest transport type operated by the Armée de l'Air, after the CN235. Few of the first-generation C-160F Transalls are still flying, the core fleet now being formed around the C-160NG with in-flight refuelling probes fitted, built after 1981 but which are all now designated the C-160R.

This ageing workhorse is used by two conventional squadrons (ET 2/64 'Anjou' and ET 1/64 'Béarn') in Évreux, one special operations force (SOF) squadron (ET 3/61 'Poitou') in Orléans, and a composite group (GAM-56 'Vaucluse') for covert missions, also based in Évreux. Three aircraft are currently overseas deployed to Djibouti (one C-160) and Niamey, Niger (two C-160s).

Hercules stalwart

The 14-strong Hercules fleet comprises the C-130H and the stretched H-30 versions. Twelve new aircraft were delivered in 1987, and another pair, purchased second-hand from Zaire, were refurbished by Sogerma in the 1990s. This number is set to increase when two new variants will be delivered between 2017 and 2019. The two C-130J and two KC-130J air tankers have been acquired through the US Foreign Military Sales (FMS) channels as a result of the A400M's restrictions in the helicopter tanking role (see *Refuelling Helicopters*, August, p16).

The SOF squadron at Orléans has the L3 Wescam MX-15 and MX-20 EO/IR turrets fitted for C3 ISTAR (Intelligence Surveillance Targeting and Reconnaissance) missions aboard Transalls and Hercules. This combat-proven configuration will also soon come with a Raytheon Griffin missile capability. The Hercules is also used to launch ECUME, the Navy Special Operations Force's RIB (Rigid Inflatable Boat). First launch test flights have been carried out this year and the initial operational capability (IOC) is expected before the end of 2016.

Very few C-130s are deployed to Africa as a result of failures with the Allison T-56 engines. Spares availability is low and the French defence ministry has terminated its working relationship with the Portuguese aeronautical

company OGMA's overhaul facility. The technical work will now be carried out at the French repair centres. The whole fleet will also be upgraded with a decision on who will do the work expected this year. At least two separate teams have submitted their proposals: Marshall Aerospace and Defence Group of Cambridge and Honeywell teamed with Sabena Technics.

A400Ms – A new dimension

Delays in the A400M Atlas deliveries has led France to buy eight CN235-300s as well as lease An-124s in recent years. The Armée de l'Air took delivery of its first Atlas during the summer of 2013 and has recently received the ninth. The fleet is being used for operations in the strategic transport role, mainly in Africa and the Middle East. The first Puma was airfreighted back to France from out-of-country operations in an Atlas in March this year, followed by a Tiger during April, and a Caracal in June. The latest Atlas delivery, during June, is the first with real tactical capabilities as it can receive and deliver fuel to other fixed-wing aircraft. However, it still unable to refuel helicopters and is certified only to offload 30 paratroopers, which is far from the 116 stipulated by the manufacturer.

Six tactical Atlas' – three brand new and three upgraded – should be delivered by the end of this year, but Airbus

must solve the propeller gear box (PGB) issues it is currently facing. Although it looks like it has rectified this with a fix that is being prototyped on the A400M c/n 0006 that flew at RIAT and Farnborough in July (*Upgraded A400M on Show*, September, p9). Regardless of these issues, the Armée de l'Air is confident in its new workhorse, which already brings a new dimension to its transport capabilities.

CN235s in demand

With an ever-decreasing Transall fleet, the CN235 has been posted out to the Ile de La Réunion (Indian Ocean) and to mainland Africa for combat operations. A CN235 will also soon replace the Transall in Djibouti. Eight Airbus CN235-300s, with the ability to fly higher, were delivered in 2010 to compensate for the Atlas delays. Two arrived at La Réunion to replace the Transalls to fly supplies out to isolated small islands. Three -200s are also used in Guyane (French Guyana, South America) to transport anti-smuggling teams. The aircraft are capable of landing on unpaved airstrips

Inventory

Aircraft	No
A400M Atlas	9 *
C-160R/C-160G	24/2
C-130H/H-30	14
CN235	26
Airbus A310	3
Airbus A340	2
Airbus A330	1
Xingu	23
TBM700	15
Twin Otter	5
Falcon 900/2000	2/2
Falcon 7X	2

* 50 on order

A French Air Force A400M is loaded with equipment at Niamey, Niger where the French military has had a significant presence since 2013 fighting the rise of Islamic militias in the region. Jean-Marc Tanguy



in the heart of the rain forests.

The CN235-200s will be upgraded with armoured protection around the cockpit by the end of the year as a result of lessons learnt by the Armée de l'Air from its operations in Africa since 2013. Three aircraft are currently serving in the utility transport and medevac role (known as the Casa Nurse) with dedicated equipment. The CN235s have always been based at Creil, north of Paris, but have now been relocated to Evreux, which is the main Armée de l'Air transport base with six different squadrons.

Make Way for the MRTT Phénix

France ordered 12 A330MRTT Phénix to replace the five civilian Airbus A310/340s in the transport role and the 11 C-135FR and 3 KC-135RG currently



The French have a sizeable VIP fleet including six Dassault Falcons in various guises. Jean-Marc Tanguy

fulfilling air-to-air refuelling missions. The first aircraft will be delivered in 2018 to Istres, near Marseilles, and a second during 2019. The remainder will be delivered at a rate of one or two aircraft per year.

These aircraft will also be fitted with systems enabling them to receive imagery, data-linked from the Rafale's RECONG reconnaissance pod while the fighter is airborne. It is

effectively being tasked with an ISTAR capability. The Phénix will be able to deliver 50 tons of fuel up to 1,250 miles (2,000km) from its base (whereas it is only 17 tons for a C-135) with four-and-a-half hours of endurance in operational zones. Phénix will also have the ability to carry 271 passengers up to 6,250 miles (10,000km) and also take over the C-135's medevac role. Up to 10 severely injured troops could be flown 7,500 miles (12,000km) from the aircraft's departure base.

The remaining fleet

The Xingu fleet based at Avord is used to train both French and Belgian students destined to join the transport fleets of their countries. The two nations share assets in the same way they do with the Alphajets for fast jet training at Tours. To ensure the Xingus, which are around 30 years old, comply with ICAO regulations, the whole fleet has been put through an avionics upgrade by the manufacturer, Daher-Socata.

Not too surprisingly, given they are built at Bordeaux, the Dassault Falcon fleet is the largest in Europe, with six aircraft of three different types, serving as VIP and medevac assets. During the Nicolas Sarkozy presidency, from 2007-2012, a plan was launched to replace the two Falcon 900s, two Airbus A319CJs and four Falcon 50s with a unique A330, two Falcon 7Xs (dubbed 'Carla One' and 'Carla Two' - referring to his wife Carla Bruni) and four Falcon 2000s. For budgetary reasons, the Falcon 900 was kept on strength, but only two Falcon 2000s were acquired. The two Falcon 2000s were upgraded with a new patient loading system this year for medevac missions. The four Falcon 50s were transferred to the French Navy to be upgraded as

surveillance assets. Both A319CJs were sold, with one going to a private owner, and the second to the Senegalese Government.

The A330, named 'Cotam Unité' (COTAM is former name of the transport command) and 'Sarko One' (after the ex-president). This aircraft also has a medevac capability and believed to house a self-protection system but no details are known.

The Twin Otters were originally bought for pick up missions led by GAM-56 Vaucluse (the French equivalent of the UK's MI-6) and High Altitude Low Opening/High Altitude High Opening (HALO/HAHO) diver training. In 2010, the Twin Otter was tested in Africa by the SOF's 3/61 Poitou, and two aircraft are now used by the unit for unpaved and short runways. French Twin Otters can also be flown for light Intelligence Surveillance Reconnaissance (ISR) missions.

Single-engine TBM700s with their four passenger seats are operated for liaison duties in France and neighbouring countries. Daher-Socata has upgraded the 27-strong fleet (including Army and tests aircraft) with a Garmin G1000 avionics suite, including automatic pilot.

Looking to Friends

France has had to borrow strategic aircraft since 1994. Up to ten An-124s were leased daily at the beginning of Operation Serval during January 2013 and the huge An-225 was also used. NATO, RAF, US Air Force and Canadian Air Forces also provided C-17s during this critical period when a full brigade was deployed to the heart of the African Desert in less than a month. The dwindling Transall fleet has also led France to charter tactical aircraft (from An-24 to An-32) for Operation Barkhane in Mali, and Op Sangaris in the Central African Republic.

Jean-Marc Tanguy



Transport ORBAT	
Base Aérienne 107, Villacoublay	
ET 60	Falcon 900 (2), Falcon 7X (2), Falcon 2000 (2)
	A330 (1), Super Puma (3)
ET41 Verdun	TBM700
Base Aérienne 110, Creil (and Roissy Airport)	
1/60 Estérel	Airbus A310 (3) and Airbus A340 (2)
Base Aérienne 123, Orléans	
1/61 Touraine	Atlas (9 a/c)
2/61 Franche-Comté	C-130 Hercules
3/61 Poitou	Transall (3), Hercules (2), Twin Otter (2)
Centre d'instruction des équipages de transport (CIET)	
Base Aérienne 105, Evreux	
1/62 Vercors	CN235-200/300
3/62 Ventoux	CN235-200/300
1/54 Dunkerque	Transall Gabriel (2)
1/64 Béarn	C-160R Transall
2/64 Anjou	C-160R Transall
GAM-56 Vaucluse	C-160R Transall, C-130H/H-30 Hercules, Twin Otter (and H225 x 2)
Base Aérienne 702, Avord	
EAT (Transport Academy): Xingu	
Overseas/French Territories	
Détachement Aérien, Ile de la Réunion (Indian Ocean)	
ET 50 Réunion: CN235-300 (2)	
Base Aérienne, Nouvelle-Calédonie (Pacific Ocean)	
ET 52 Tontouta: CN235 (2), Puma (3)	
Base Aéronavale, Faa'a, Tahiti (Pacific Ocean)	
ET 82 Maine: CN235 (2)	
Base Aérienne 368, Cayenne, Guyane (South America)	
ET 68 (composite squadron): CN235 (3), Fennec (4), Puma (5)	
Overseas/Operations	
Base Aérienne Djibouti	
ET 88 Larzac: C-160R Transall (1), SA330 Puma (2)	
Base Aérienne 101, Niamey, Niger	
Groupe de transport opérationnel (GTO): C-160R Transall (2)	
Base Aérienne, N'Djamena, Chad	
GTO: C-130H/H-30 (1), CN235 (2)	
Gao, Mali,	
GTO: 1 CN235 ('Casa Nurse')	

In this second part of a four-part review of Europe's military airlift capabilities, **Alan Warnes** along with correspondents look at Germany through to The Netherlands.

European Airlift Capabilities

Transalls to soldier on until 2021



GERMANY

DELAYS IN deliveries of the Airbus A400M have put a huge strain on the German Air Force's air transport capabilities.

The Luftwaffe has 53 of the world's newest strategic airlifter on order, but has accepted only five to date – a massive problem given that the fleet of veteran Transall C-160s, which has surpassed one million hours' service, is

its only real strategic airlifter.

The 45 or so Transalls are the survivors of 110 delivered in the late 1960s/early 1970s and time has taken its toll on the old lady.

Slow A400M deliveries

The five A400Ms have been delivered to the Lufttransportgeschwader (LTG, Air Transport Wing) 62 at Wunstorf, where they are going through operational test and evaluation.

There were plans to deliver nine this year to the GAF, but it's reportedly only willing to

accept five until outstanding issues with the engine gearbox and fuselage are resolved.

Germany took delivery of its first aircraft, 54+01, on December 18, 2014 – flown to Wunstorf by Lt Col Christian Schott and Capt Mirco Friese, who were trained on the type at Seville.

It was grounded for two months in the wake of the A400M crash in May 2015, but flew again on July 14 once it had been through the necessary checks.

While, officially, 53 A400Ms are on order, the German

Government had earlier indicated that it only plans to operate 40 and will attempt to find buyers for the other 13.

Its first real operation mission saw 54+01 fly to Dakar, Senegal, with a hefty 141 tons (127,913kg) of freight, its maximum take-off weight. The load included a water treatment plant for a GAF detachment in the region.

The A400M then returned to Germany with a nine-ton load. According to Airbus Defence and Space (ADS), if Transalls had been used, it would have



Left: The C-27J has become a popular option for European air forces and, unsurprisingly, Italy is one of five countries to buy the tactical airlifter given that Alenia Aeronautica (now Leonardo-Finmeccanica) builds the aircraft in Turin. Currently there are 33 C-27Js flying in Europe with the air forces of Bulgaria (3), Greece (8), Italy (12), Lithuania (3) and Romania (7).
Riccardo Niccoli

ties

PART TWO

Transport ORBAT

Serial	Type	Base
LTG 61	C-160D	Landsberg
LTG 62	A400M	Wunstorf
LTG 63	C-160D	Hohn
FBS	A310, A319CJ, A340-313, Global 5000	Köln-Wahn

Inventory

Aircraft	Number on order
A400M	5/53
C-160D	approx 45
A310-304	3
A319CJ	2
A340-313	4
Global 5000	4



One of two Airbus A340-313Xs acquired by the Luftwaffe in 2011 from German state airline Lufthansa. Timm Ziegenthaler

required two to three aircraft and taken up to three days. It was announced on November 17, 2014 that the airlifter will be protected by the Elbit Systems J-MUSIC multi-spectral directed infrared countermeasure (DIRCM) system – the first phase of the self-protection programme for the type.

Transall self-protection upgrades

With one of the former Transall

units re-equipped with A400Ms, two of the three German Air Force transport wings (LTG-61, 62 and 63) that originally flew the C160D soldier on for now.

Both LTG-61, based at Landsberg near Munich in southern Germany, and LTG-63, at Hohn in the north, continue to fly the Transalls.

Last December it was announced that LTG 63 would continue flying the C160D until 2021, extending its life by another

three years, while LTG 61 is expected to lose its aircraft by the end of next year.

Twenty-two C-160Ds are undergoing a ballistic protection system update by Airbus for operations in countries where there is a ground-to-air threat, such as Mali, where they are regularly used for missions with the United Nations' MINUSMA (Multidimensional Integrated Stabilization Mission in Mali) programme. ▶

By this summer, five aircraft had gone through the four-week modification by ADS. The first, 50+57, was completed in mid-January.

One of the Transalls' most common transits is to Dulles, near Washington DC, the port of entry for the German military travelling to the US. At least six pilots fly on the aircraft due to the unpredictable nature of the journeys, which can often lead them to breaking down or flying to unplanned locations.

The type used to run a regular shuttle to Afghanistan, working for the coalition and supporting the GAF detachment at Mazar-i-Sharif. Flying from a forward operating location at Termez (Uzbekistan), the service ended in November 2014 after 13 years.

Much of the tactical airlift work is thought to have been taken over by CH-53Gs, which were



Above: Four Global 5000s are operated by the FBS BMVg for short-range VIP flights. *Timm Ziegenthaler*

transferred from the German Army to the Luftwaffe on January 1, 2014. The helicopters – which are as old as the C-160Ds and have no planned replacement – are going through a major upgrade by Airbus at Donauwörth, where around 25 were being worked on in June.

Big VIP fleet

Germany operates a large VIP fleet, known as the Flugbereitschaft des Bundesministeriums der Verteidigung (FBS BMVg, Special Air Mission), based at Köln-Bonn – reflecting its position as a major power in the European Union.

The FBS BMVg is made up of a pair of formerly commercially operated A340-313s for VIP and long-range transport duties, acquired in early 2009. The first was delivered to the Luftwaffe on March 30, 2011 and the second seven months later.

An order for four Global 5000 aircraft was announced on January 17, 2008 to replace Challenger aircraft in the VIP transport role. The first, delivered on August 25, 2011, was formally accepted by the FBS BMVg a month later. The fourth was delivered on January 6, 2012.

Two A319CJs – ordered in 2009 for \$26m – arrived in 2010 to work alongside the Global 5000s. The unit also flies three A310-304s which have been upgraded to Multi Role Tanker Transport (MRTT) configuration.



Above: The Luftwaffe has 53 Airbus A400Ms on order, although only five have so far been delivered to Wunstorf-based Lufttransportgeschwader 62. *Timm Ziegenthaler* **Below:** German C-160D Transalls regularly fly to the US: this one, from Lufttransportgeschwader 63, sits on the ramp at Coolidge Municipal Airport in southern Arizona on February 14 this year during free-fall parachute training for German special operations. *Joe Copalman*





Old Hercules Struggle On



THE HELLENIC Air Force Support Command (HAFSC) provides an airlift capability for the Hellenic Air Force (HAF), Army and Navy, with a secondary role of search and rescue (SAR), fire-fighting and medical evacuation (medevac) flights.

The HAF's transport fleet is located at Elefsis Air Base on the outskirts of Athens, home to 112 Pteriga Makhis (112 PM/112 Combat Wing). Being such a large country, Greece relies heavily on its transport fleet with airlifting much-needed logistical support to its military, and 112 Combat Wing is of primary importance in the day to day operations of the HAF in particular.

Above: A Hellenic Air Force C-130Hs taxis at Elefsis, where it's based with the 356 'Iraklis' Moira. Given Greece's difficult economic conditions, only a handful of C-130Hs are believed to be operational at the moment. Mike Green/Jetwash Images

In order to accomplish its national tasks, HAFSC aircraft fly a wide range of missions, which include support for the country's obligations to the United Nations (UN), the European Union (EU) and other international institutions. For many years, the C-130 Hercules has been the mainstay of the transport fleet, with a mix of both C-130B and C-130H models operating with 356 Mira Taktikon Metaforon (MTM/Tactical Transport Squadron). Twelve new C-130H Hercules aircraft were delivered to HAF from 1975 onwards, with five older C-130B aircraft being taken on charge

in August 1992 from ex-US Air Force stocks at Aerospace Maintenance and Regeneration Group (AMARG), Arizona. The C-130Bs were added to the inventory to supplement the existing C130Hs, which had been reduced in number when two examples were lost in accidents, on February 5, 1991 and December 20, 1997.

Hercules upgraded

The HAF's C-130 fleet underwent an upgrade programme between 2006-2010, with a new self-protection suite being fitted together with improvements to the electronics. This was

completed in partnership with the Canadian company, SPAR Aerospace, which had been involved in maintaining the Canadian Air Force's fleet of C-130s for some time. The upgrade included a partial 'glass' cockpit and improvement to several other areas, in particular, the electronic flight information system (EFIS); flight management system (FMS); a new traffic collision avoidance system (TCAS); new electronic warfare (EW) systems, including a missile proximity warning system (MPWS); and a new radio and radar. Other work included GPS/inertial navigation, ▶

Transport ORBAT

Serial	Type
112 Combat Wing/Elefsis	
352 Moira	ERJ-135LR, ERL-135BJ, Gulfstream V
354 'Pegasus' ('Pegasus') Moira	C-27J
356 'Iraklis' ('Hercules') Moira	C-130H/B

Inventory

Aircraft	Number
C-27j	8
C-130B Hercules	5
C-130H Hercules	10
Gulfstream V	1
ERJ 135LR	1
ERJ135BJ	1



Above: The C-27Js, which have helped to take some of the workload off the ageing Hercules fleet, are flown by 354 'Pegasus' Moira at Elefsis, the Hellenic Air Force's transport hub. Tim Ziegenthaler



Above: The HAF's VIP fleet, operated by 352 Moira, flies this Embraer ERJ 135BJ and Gulfstream V (right) as well as an ERJ135LR. Mike Green/Jetwash Images

improved weather radar, a new auto-pilot, new Identification-Friend or Foe (IFF); a digital engine control system and an enhanced ground proximity warning system. The first three aircraft were converted by SPAR, with Hellenic Aerospace Industry (HAI) at Tanagra, completing the remaining 12 aircraft. During their upgrade the aircraft also received an overall grey colour scheme similar to that applied to the C-27J Spartan fleet.

In recent years the HAF C-130s have participated in several humanitarian and peace-keeping missions and operations, and been involved in multinational operations in Albania, Bosnia, Kosovo, Somalia and the former Yugoslav Republic of Macedonia. In addition to providing transport duties for the HAF, the C-130 Hercules assists the SAR Co-ordination Centre, which is responsible for SAR operations

throughout the Athens Flight Information Region (FIR).

The current situation with the Hercules fleet is difficult to establish, as officially it has ten C-130H and four C-130B models remaining on strength. However, at least two of the C-130Bs have languished for a number of years in open storage at Elefsis and Tanagra. The C-130H fleet is not currently flying at full strength: three were recently on programmed depot maintenance (PDM) at Hellenic Aerospace, with a further three aircraft stored on the air base at Tanagra awaiting their turn at HAI. With the current financial crisis gripping the country, there are no current plans to supplement or replace the ageing Hercules, and it is clear the HAF will need to continue to focus on maintaining the existing fleet for the foreseeable future.

Supplementary Spartans

Supplementing the Hercules

squadron at Elefsis is 354 MTM operating the C-27J Spartan, which provides medium-lift, tactical transport duties for both the HAF and other branches of the Hellenic Armed Forces. Having previously operated the Douglas C-47 Dakota and the Nord 2501 Noratlas, the Squadron re-formed in January 2005 for the arrival of the newly delivered C-27J Spartan, with the first aircraft arriving on August 4 of the same year.

The HAF initially ordered 12 of the Italian-built C-27J's, but later reduced the order to eight, with all of the aircraft still currently in service. The Spartans provide a much-needed supplement to the hard-pressed Hercules fleet. They are essential to a country the size of Greece, with its large number of small islands in the Aegean Sea. Many support HAF fighter aircraft on a detachment basis and require regular support flights from their 'home' bases to maintain their Quick Reaction Alert mission.

Flying the VIPs

Operating as the HAF's VIP transport squadron is 352 Mira Metaforas Ypsilon Prosopon (MMYP). The Squadron is equipped with a single Grumman Gulfstream V and two Embraer ERJ-135 aircraft. The Gulfstream V was delivered to 352 Mira in March 2003, supplementing the two existing Embraers. The two Embraer aircraft in service are of similar design, but are two sub-types: a single ERJ-135LR, which can carry up to 35 people and an ERJ-135BJ, with the capacity for 15. The first Embraer aircraft delivered was the ERJ-135LR, which joined the fleet in January 2000, followed in July 2002 by the ERJ-135BJ. In addition to the Squadron's primary role of providing VIP transportation to heads of state and government officials, it also has a secondary role as a medevac provider. **Mike Green**



The HAF took on five C-130Bs from ex-USAF stocks in the early 1990s. Mike Green/Jetwash Images

EC-404



The Hungarian Air Force has a single An-26 currently operational.
Dr Istvan Toperczer

Hungary set to replace An-26s?

THE HUNGARIAN Air force soldiers on with one operational Antonov An-26, although another is set to return from overhaul shortly. This small force are the survivors of ten delivered between April 1974 and 1976 and an eleventh, former

Russian Air Force example, acquired from the Ukraine in March 2004. Clearly, the fleet is in need of replacement and, according to local sources, the Hungarian Air Force is due to release a request to tender to interested companies 'soon'. Although it only has one

aircraft, the Kecskemét based 3rd Transport Squadron has been busy since late August appearing then at Linköping Air Show in Sweden, and Ostrava Air Show in Czech Republic between September 17 and 18. In the past a single An-26 has ventured to Afghanistan in 2010

when a military leader visited Hungarian units in Mazar-i-Sharif and Kabul. Last year, an aircraft supported the Gripen deployment to Šiauliai, Lithuania for Baltic Air Policing which lasted from August 31-December 30. This year, the sole aircraft participated in a medevac exercise, Argonaut 2016, at Larnaca, Cyprus in late May.

Hungary hosts the Strategic Airlift Capability (SAC) based at Papa Air Base, which runs the Heavy Airlift Wing and flies three C-17s but the host nation uses less than 2% of the service in a pre-agreed share of the aircraft (see October, p61). There is speculation that filling job vacancies with multinational personnel is proving difficult, given the location of the base in the northwest of the country close to the Croatia border.



Above: This An-26 deployed to Larnaca in late May for an international exercise which included a medevac scenario, as seen here. Istvan Toperczer

Transport ORBAT

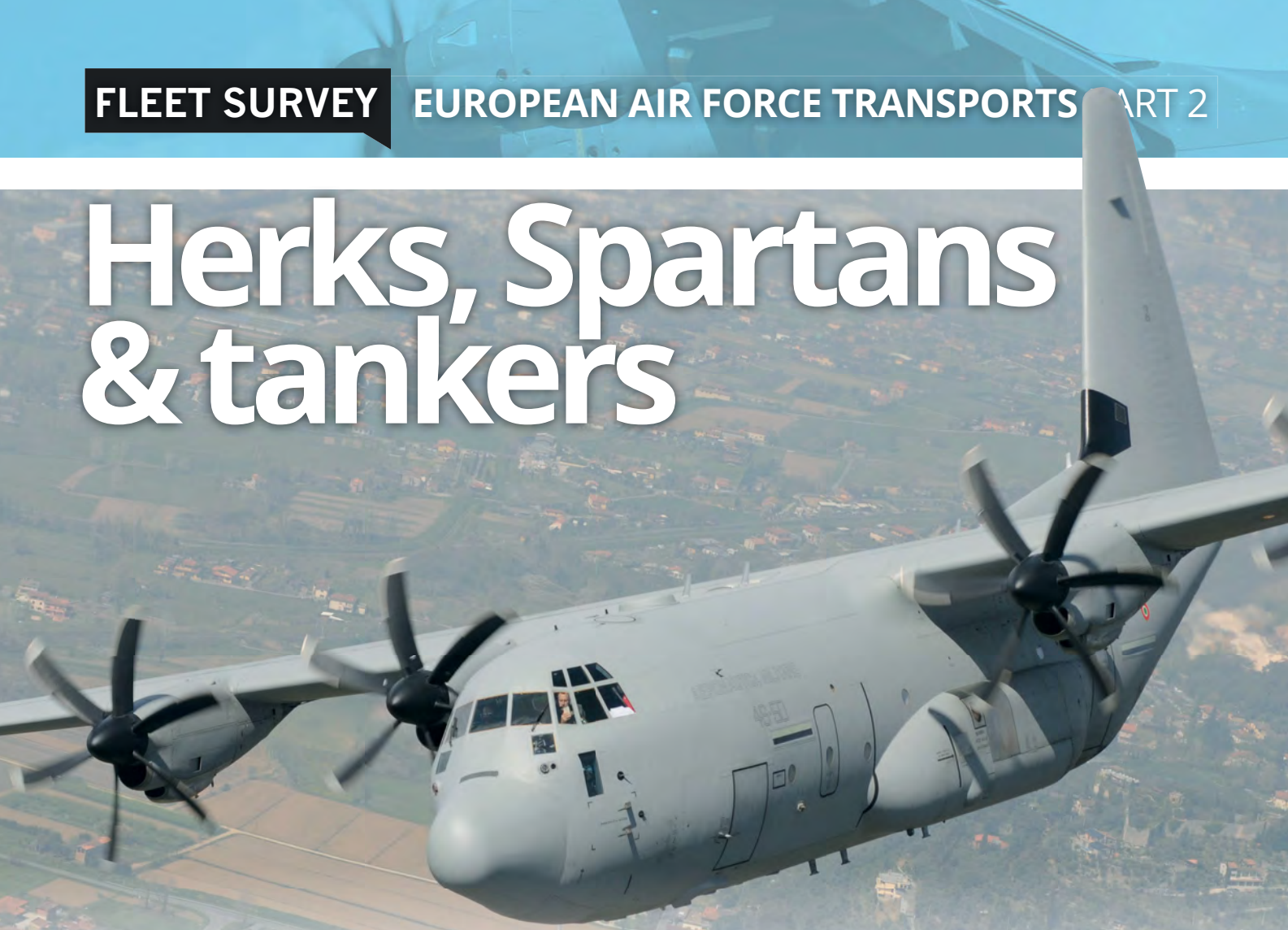
Sqn	Base/Aircraft
3rd Transport Sqn	Kecskemét An-26

Inventory

Aircraft Type	Operational
Antonov An-26	1*

*Another aircraft is set to return to service shortly

Herks, Spartans & tankers



THE ITALIAN Air Force (Aeronautica Militare – ItAF) fleet of transport aircraft is made up of eight types. The most numerous is the C-130J Hercules II tactical transport, which is operated by two squadrons (2° and 50° Gruppo) within the 46a Brigata Aerea (air brigade) at Pisa San. Giusto airport.

Eighteen were ordered in 1997 and later increased to 22. The C-130J replaced the C-130H, which was withdrawn from use in December 2002. Deliveries of the new aircraft started in July 2000, and included 12 C-130Js plus ten C-130J-30s, and ended in February 2005.

All the aircraft have a probe for in-flight refuelling operations and the ItAF also has five kits allowing the conversion of any C-130J into a KC-130J tanker. Usually two or three aircraft of the fleet are kept in KC-130J configuration.

The Italian Hercules fleet has been involved in all the recent operations and deployments in the wars against terrorism, including Iraq and Afghanistan, and reached the 100,000 hours mark as early as February 2011. Today, they have exceeded the 150,000-hour mark. Besides Pisa, some aircraft are permanently based at Herat, Afghanistan, and Al-Minhad (Abu Dhabi), the

latter housing a Task Force that operates as a ‘hub’ in support of the Italian missions in the west Asian theatres. Two aircraft have been lost in 16 years of operations, one KC-130J at Pisa, and one C-130J at Herat.

The other tactical transport type in service is the C-27J Spartan, which is assigned to the third squadron (98° Gruppo) of the 46a Brigata Aerea. This aircraft is a direct development of the G.222, which was completely retired by the squadron in May 2007.

The first of 12 were delivered to the unit in January 2007 and the last in May 2009. Two different versions from the basic transport

have been recently developed. The first, which entered service in 2012, is the EC-27J JEDI (Jamming and Electronic Defence Instrumentation), for counter-IED operations, and immediately deployed to Afghanistan. The second is the MC-27J, an ISR platform destined to support special operations under a contract for three aircraft signed in 2013.

The MC-27J has received its Intelligence Surveillance and Reconnaissance payload and control stations in the hold, while a decision on the gunship configuration has yet to be taken. The choice is between an M61 20mm Vulcan gun



Above: There are 17 Piaggio 180s light support aircraft flying with the Italian Air force. Most are operated by 14° Stormo at Pratica di Mare, with some tasked for multi-engine training. Riccardo Niccoli

Inventory

Aircraft	No
C/KC-130J Hercules	10
C-130J-30 Hercules	10
C/EC/MC-27J Spartan	12
KC-767A	4
Falcon 50 (VC-50)	2
Falcon 900 (VC-900)	3
Airbus A319CJ (VC-319)	2
A340	1
Piaggio P180 VC-180	17



Left: The Italian Air Force has been flying Hercules since 1972. Its C-130Es made way for C-130Js (seen here) in December 2002, the fleet of 22 of which have flown a total of 150,000-plus hours. Riccardo Niccoli
Below: Air-to-air refuelling is important business for most modern air arms. The Italian Air Force received the first two of its four in May 2011. They are also used for strategic air transport, and can accommodate up to 192 passengers. Riccardo Niccoli

and an ATK 30mm gun. For strategic transportation and in-flight refuelling operations, the ItAF operates four Boeing KC-767A, a version of the Model 767-200ER developed for the Italian and Japanese Air Forces, but not selected by the USAF for its new tanker aircraft programme. Italy signed a contract in 2002 with deliveries expected from 2005. However, delays and problems in completing the test

programmes forced the in-service date to move to January 2011. For transport missions the KC-767A can accommodate up to 192 passengers, or 19 pallets, or a mix. They are widely operated in support of the international missions, including Kuwait, where they are based to support the war against the Islamic State. This aircraft is assigned to the 8° Gruppo of 14° Stormo, based at Pratica di Mare.

For VIP transportation, and medical evacuation (especially in support of the civil population), the ItAF operates three types, all assigned to the 31° Stormo, based at Rome/Ciampino Airport. The oldest is the Dassault Falcon 50 (designated VC-50), it has four which were purchased between 1985-1991, two of them having been disposed of in 2006. Then, in 1999, the first of three Dassault Falcon 900EX (VC-900) was delivered and in 2005-2006 two Falcon 900EASY were also acquired. In 2015, the first two EX were retired and are due to be auctioned.

The largest type in service is the Airbus A319CJ (VC-319A), with the first of the three being delivered in March 2000. One of them was sold to Turkey in April 2005 and replaced with a new model a year later. In April 2015, one of the three has been retired, and will be auctioned too.

The latest addition to the VIP fleet is an Airbus A340-500, which was ordered by the Prime Minister's office in 2015 and received on lease from Etihad Airways in February 2016. This aircraft had a curious introduction. As a civilian aircraft it received the Italian registration (I-TALY), then reverted to its original registration (A6-EHA), and finally back to I-TALY again. ItAF aircrews completed the

Transport ORBAT

46a Brigata Aerea		Pisa
2° Gruppo	KC/C-130J	
50° Gruppo	KC/C-130J	
98° Gruppo	EC/MC/C-27J	
14° Stormo		Pratica di Mare
8° Gruppo OCU	KC-767A	
71° Gruppo	VC-180 (1)	
31° Stormo (2)		Rome-Ciampino
93° Gruppo	Falcon 900, VC-180	
306° Gruppo	Falcon 50, A319CJ	
Current overseas missions:		
Task Force Air Al-Minhad	C-130J	Al-Minhad (Abu Dhabi)
Joint Air Task Force Herat	C-130J	Herat (Afghanistan)
Task Force Air Kuwait	KC-767A	(Kuwait)
Notes: (1) Aircraft from this squadron are loaned out when required to the Centro Addestramento Equipaggi Multi Crew. (2) One Airbus A340-500 is operated by 31° Stormo crews, but it is currently based at Rome-Fiumicino airport.		

transition of the type and it began operations in July 2016.

The last transport type of the ItAF is the Piaggio P180 (VC-180) Avanti. The light, twin-engine turboprop was introduced into service from 1993 for flying personnel and materials. The first six were acquired and distributed to the liaison flights of the three Air Regions. Later, a second batch of nine was acquired, with deliveries completed in 2005. From 2012, the ItAF has also operated two P180s acquired by the Protezione Civile (Civil

Protection). Today, the fleet is assigned to the 14° Stormo (minus two, which are assigned to 31° Stormo), and some of the aircraft are destined to be used for basic multi-engine training, on behalf of the Centro Addestramento Equipaggi Multi Crew (multi-crew training centre), at Pratica di Mare.

The ItAF joined the European Air Transport Command (EATC) in January this year and contribute the use of 31 aircraft, comprising C-130J, C-27J and KC-767As. **Riccardo Niccoli** ▶

LATVIA

Latvia has no strategic or tactical airlift capabilities, although it is believed to operate a former German Air force LET L-410UVP for liaison duties. The nation is one of the 15 original members of the Movement Coordination Centre Europe (MCCE) but, with no assets, it cannot provide any aircraft.

Inventory

Aircraft	No
L-410 UVP	1

Transport ORBAT

Transporta Fosma (<i>Transport Flight</i>)	
L-410UVP	Lielvārde



LITHUANIA

OF THE THREE Baltic countries, Lithuania is the only one that appears to have invested any substantial amount in its Air Force. In June 2006, two years after joining NATO, it acquired three C-27Js in a deal worth €75m which also included logistics support. The first was delivered in December 2006, with the second following on December 6, 2008 and the third on October 12, 2009.

One of the aircraft, 07, named *Algirdas*, was deployed to N'Djamena International Airport, Chad, from April 2 to

May 1, 2014. It was sent to support France's Operation Sangaris and flew regularly between Bangul and Ndélé airfields in the Central African Republic (CAR), plus Niamey Airport in Niger and Libreville Airport in Gabon – giving aircrews valuable flying and engineering experience.

Flying in an unfamiliar environment, in conditions the personnel had never encountered, bodes well for the LAF's tactical airlift preparedness in any future out-of-area ops. The ten-man crew flew 54 sorties before arriving back at their home base at Šiauliai on May 8, 2014.

Last year Lithuania joined the Movement Coordination Centre Europe (MCCE) and also has a (1.4%) pre-share agreement in the Strategic Airlift Capability at Pápa Air Base in Hungary where the Heavy Airlift Wing is based (see October, p60).

Transport ORBAT

Transporto Eskadrile

An-2, L-410, C-27J Šiauliai

Inventory

Aircraft Type	No
C-27J Spartan	3
L-410	1
An-2	2

LUXEMBOURG

LUXEMBOURG WILL partner the Netherlands in jointly purchasing a pooled fleet of Airbus Defence and Space A330 Multi Role Tanker Transport (MRTT) aircraft. On July 28, the Dutch Ministry of Defence notified the Netherlands' parliament of the signing of a memorandum of understanding (MoU) with Luxembourg to proceed with the acquisition.

The two countries signed an initial contract with Airbus for two aircraft the same day – with options for up to six more when, as expected, other nations join the grouping. The order also covers two years' initial support.

The pair of aircraft, to be delivered from 2020, will be NATO property and stationed in the Netherlands at Eindhoven Air Base for pooling and sharing. Belgium, Germany, Norway and Poland have indicated their intention

to join the agreement at a later date. The programme will be known as the Multinational MRTT Fleet (MMF) initiative.

The Netherlands will be responsible for registering the MRTTs and monitoring their airworthiness, and a study will determine whether European Air Transport Command, also based in Eindhoven, will be able to supervise the MRTT pool. Costs and personnel will be allocated on the basis of the number of flying hours each country needs.

The expected life span of the fleet is 30 years and the investment budget is between €250m and €1 billion.

Should Belgium, Germany, Norway and Poland decide to take part in the agreement, both the MoU and the quotation given by Airbus allow for expansion and design costs will be shared with the new members, leading to lower costs for Luxembourg and

the Netherlands – which are also considering collaboration with France and the UK, among others, on training and maintenance. France is set to receive its first A330 in 2018, while the UK already has A330 MRTTs in service as Voyager KC2/3s. For more see The Netherlands, opposite.

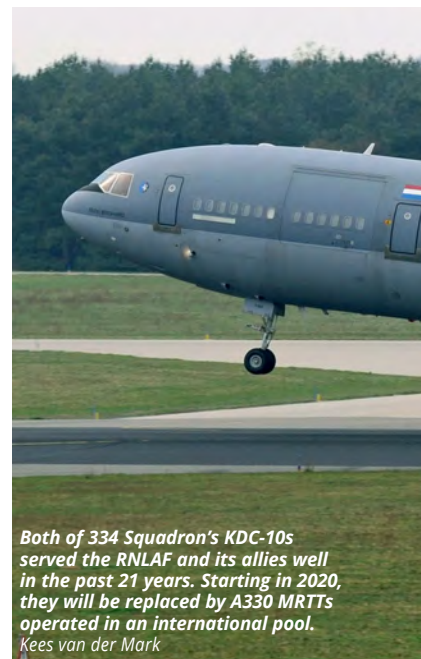
Luxembourg will also pay for one of the eight A400Ms ordered by Belgium and is already sending aircrews for training to France and Belgium (see Belgium – October, p63).

MACEDONIA

Macedonia has no tactical transports and is unlikely to buy any in the near future.

MONTENEGRO

Like Macedonia, the Montenegro Air Force has no budget for tactical aircraft and is not expected to acquire any in the near future.



Both of 334 Squadron's KDC-10s served the RNLAFF and its allies well in the past 21 years. Starting in 2020, they will be replaced by A330 MRTTs operated in an international pool. Kees van der Mark

THE KONINKLIJKE Luchtmacht (Royal Netherlands Air

Force, RNLAFF) has a small yet versatile transport fleet, which is home-based at Eindhoven. Two KDC-10 tanker/transport (T-235 and T-264) and a single Gulfstream IV VIP aircraft (V-11) are operated by 334 Squadron.

Also assigned to 334 Squadron but flying from Amsterdam Airport Schiphol are two Dornier Do228-212 maritime patrol aircraft (PH-CGC and PH-CGN) that are owned and operated by the RNLAFF on behalf of the Kustwacht (Coastguard). No 336 Squadron is responsible for tactical transport operations, using two C-130Hs (G-781 and G-988) and two C-130H-30s (G-273 and G-275).

The Netherlands is the smallest European nation to operate its own strategic tanker/transport aircraft. The increasing need for such assets was acknowledged at an early stage and by 1995 both KDC-10s – former Martinair DC-10-30CFs converted to tankers in-country – had entered service with 334 Squadron.

The RNLAFF acquired a third DC-10-30CF (T-255) in 2004 so the heavily used KDC-10s, which mainly operate in the transport role, could be tasked as tankers more often. The DC-10 acted as prototype for the Cockpit Upgrade Programme (CUP) and after much delay it eventually entered service in April 2011.

Due to defence cuts announced that same month, the DC-10 was already withdrawn from service in December 2013, after both KDC-



The Lithuanian Air Force has built up its fleet in the 12 years since it joined NATO. Taking delivery of three C-27Js in the late 2000s has boosted its capabilities considerably, one of them deploying for a month to central Africa in April 2014. Tim Ziegenthaler



Just Enough!

10 had emerged from the CUP. Efforts to sell the DC-10 failed and on April 11, 2014, it flew to Newquay Airport, Cornwall, to be dismantled. The KDC-10s are usually flown in a mixed cargo/passenger configuration, with 152 passenger seats located in the rear part of the cabin.

Replacement of the 40-year-old KDC-10s is foreseen from 2020 when delivery of the first of two Airbus A330 MRTTs (Multi-Role Tanker Transports) is scheduled. The A330s were ordered jointly by the Netherlands and Luxembourg in a contract signed on July 28. Belgium, Germany, Norway and Poland are expected to join the MRTT programme at a later stage. If they do, the NATO-operated tanker fleet – which will be home-based at Eindhoven and Dutch-registered since the Netherlands is the lead nation in this project – could comprise up to eight A330s. They are expected to serve for at least 30 years.

The Gulfstream IV joined 334 Squadron in 1995 for

(transatlantic) VIP/VVIP transport. The 2013 Defence White Paper called for retirement of the Gulfstream by January 1, 2014. However, that decision was soon reversed as demand for the jet was high – mainly due to the involvement of Dutch armed forces in international operations, including the current one in Mali that started in early 2014. Funds have now been reserved to keep the Gulfstream in service at least until January 1, 2019.

Four Fokker 60U introduced in 1996 were found to be less suited to current-day RNLAf operations. Two (U-02 and U-04) were retired in November 2006. The other pair (U-01 and U-03) were converted for maritime surveillance missions from Hato Air Base, Curaçao, in early 2005 as interim replacements for the retired Royal Netherlands Navy P-3C Orions. These too were withdrawn from use in October 2007. All four were handed over to the Peruvian Navy in 2010. Four years later the two

Fokker 50 passenger aircraft operated by 334 Squadron between 1996 and 2012 also went to the Peruvian Navy.

Compared to other European air forces, the RNLAf became a Hercules operator relatively late, when two new-build C-130H-30 entered service in 1994. A further two short-fuselage aircraft were introduced in 2010. Both are former US Navy EC-130Qs acquired in 2005, which went through an extensive rebuild, including a state-of-the-art glass cockpit, to C-130H standard by Marshall Aerospace in Cambridge, before service entry. After delivery of the C-130Hs, the 'H-30s received the same cockpit upgrade.

During their first 13 years, the Hercules were operated by 334 Squadron. The RNLAf decided to split its sole transport unit into two separate squadrons due to an increase in the number of KDC-10 and C-130 aircrews, thus avoiding 334 Squadron having more than 300 personnel. This

also enabled the new squadron to fully focus on tactical transport. Consequently, the C-130s were transferred to 336 Squadron, which was re-established on October 23, 2007.

The Netherlands is actively participating in multinational air transport projects. It is one of the founding members of the seven-nation European Air Transport Command (EATC), headquartered at Eindhoven and has put the entire RNLAf transport fleet under operational control of EATC. The country also participates in the 12-nation Heavy Airlift Wing (HAW) initiative at Pápa Air Base in Hungary, accounting for 500 flying hours of its C-17A Globemaster III fleet annually.

Throughout the years, the RNLAf transport aircraft have participated in or supported numerous NATO or UN-lead military operations in the Balkans, Afghanistan, Eritrea, Djibouti, Kyrgyzstan, Afghanistan, Iraq, Libya and more recently Mali, as well as humanitarian missions all over the world.

Kees van der Mark



Transport ORBAT

Eindhoven AB

334 Sqn	KDC-10, Gulfstream IV, Do228-212
336 Sqn	C-130H/H-30

Inventory

Aircraft Type	No
A330MRTT	2+
C-130H/H-30	4
Do228-212	2
Gulfstream IV	1
KDC-10	2
+ on order with Luxembourg	



Additional funding will keep 334 Squadron's sole Gulfstream IV flying until at least January 2019.

European Airlift Capabilities

PART THREE

Alan Warnes looks at the transport capabilities of Norway to Switzerland, with help from some of AFM's correspondents.





C-130s kept busy with UN

THE ROYAL Norwegian Air Force (Luftforsvaret) took delivery of six C-130H Hercules between June and August 1969. The fleet soldiered on until May 15, 2008 when the last two were retired. Five examples are now stored at Davis-Monthan AFB, Arizona while the sixth is preserved at Gardermoen, where the aircraft were based with the 335 Skvadron. Four were offered to Indonesia for \$66 million in September 2009 before it opted for ex-Royal Australian Air Force C-130Hs instead.

The C-130Hs were regularly used by the United Nations all over the world and flew sorties to Afghanistan supporting

the RAAF's F-16s and troops.

Four C-130J-30s were ordered in November 2007, and delivered between November 2008 and July 1, 2010. Unfortunately, one aircraft (5630) was lost on March 15, 2012 with five crewmembers, when it crashed into Mount

Kebnekais, the highest mountain in Sweden, during an exercise. A replacement C-130J-30 was subsequently purchased and delivered on October 4, 2012.

Norway, which regularly deploys troops to the UN, has seen over 60,000 of its citizens don its blue

One of four C-130Js flown by the Royal Norwegian Air Force, over Dunkeld in Scotland on a low-level sortie out of RAF Kinloss, Moray. It was pictured on May 12, 2010 during Exercise Combined Strength, which brought together C-130J operators from all over the world to share operating techniques and tactics. Chris Lofting



Above: Norwegian Air Force Falcon 20ECM serial 041 on short finals to Runway 29 at RAF Mildenhall on July 7. The jet serves with 717 Skvadron as part of 135 Air Wing based at Gardermoen. Justin Ward

beret. As a result, the C-130Js continue to play a big part flying around the globe, supporting its missions. During late 2014/early 2015 a C-130J was deployed to Sierra Leone to help support the logistical needs of the UN during the Ebola outbreak. In late February 2016, a C-130J named *Nana* was deployed to Mali as part of a Norwegian commitment that will last for ten months. Its presence will mean that the UN's Multidimensional Integrated Stabilization Mission in Mali (MINUSMA) will not have to rely on sending vulnerable convoys through the vast deserts of northern Mali. On June 20, 2016, officials from Portugal, Denmark, Sweden, Belgium and Norway signed a Letter of Intent to establish a two-year long rotation of military transport aircraft that will run until the end of 2018. The cooperation will provide air transport services based on six-month rotations. Norway intends to sustain camp facilities and camp services in Bamako for the entire two-year period. Airlifters play a critical role for the UN mission in Mali as they carry personnel and material over a large geographical area more safely and faster than other means of transportation.

There are also three Dassault Falcon 20s in the RNoAF's inventory. A 1967-built example was acquired from the civilian sector in 1977, primarily for the VIP transportation role. The Falcon was modified by German company, Aerodata AG to enable the aircraft to also undertake flight calibration tasks after a modular AD-AFIS-060 flight inspection system was installed. The Falcon was accepted back into RNoAF service, following modification, in February 2012. Two Falcon 20ECMs that have been flying with the military since 1972 are used for electronic countermeasure (ECM) tasks.

Transport ORBAT

Serial	Type
135 Air Wing, Gardermoen	
335 Skvadron	C-130J-30
717 Skvadron	Falcon 20C-5/20ECM

Inventory

Aircraft	Number on order
C-130J-30	4
Falcon 20C	1
Falcon 20ECM	2

After withdrawal from USAF service, on July 15, 2005, C-130E 70-1273 was put into storage at Davis-Monthan AFB, Arizona. It was moved from there to Waco, Texas, for refurbishment and modernisation by L-3 Integrated Systems in June 2007 and delivered to Poland on March 24, 2009, with serial number 1501. Marcin Przeworski



A Busy and Div

THE BIGGEST and most capable aircraft serving the Polish Air Force (PoAF) is the C-130E Hercules, albeit in the smallest numbers. Poland was interested in obtaining the type as early as the mid-1990s when talks were held to acquire used C-130Bs, but nothing materialised.

However, when the nation decided to send military troops to Afghanistan and Iraq during the early 2000s, the need for such a big transport aircraft became urgent. Insufficient finance prompted Poland to seek second-hand aircraft with initial interest in ex-RAF C-130Ks (five C-130Ks and one C-130K-30 for spare parts) but their poor condition combined with costly upgrade and overhaul needs led to the deal being cancelled. In 2005 discussions resurfaced and this time five ex-USAF C-130Es were purchased. The aircraft were built at the beginning of the 1970s and until their acquisition had been in active service with the USAF. The aircraft were upgraded by L3 Integrated Systems at Waco,

USA, and partly co-financed by the US under the Foreign Military Sales (FMS) programme. The first Polish C-130E (70-1273/1501) landed at Powidz on March 24, 2009. On April 26 of the following year the second aircraft, (70-1262/1502), arrived with three more: (70-1272/1503) on November 16, 2010; (70-1263/1504), September 16, 2011 and (70-1276/1505), July 23, 2012.

C-130E 72-1299/1506, which was delivered on November 2, 2009, was only in service for a short period after being badly damaged during landing at Mazar-i-Sharif in Afghanistan on February 5, 2010. Repairs were not economic so it was stripped of spares, with most of the equipment (including four engines) dismantled and freighted back to Poland. A replacement C-130E (62-1856/1507) was handed over on September 29 the same year. The aircraft was much older (produced in the 1960s) and for safety reasons flew only short, European routes. After its service life expired, the US agreed Poland could keep it as a training aid at Powidz. On May 19, 2011

another C-130E came to Poland, 62-1801/1508, but it was returned to the USA in October 2012.

Currently the PoAF has five C-130Es in service (1501, 1502, 1503, 1504 and 1505). From the beginning they have been used mostly for troop and equipment transport between Poland and its military personnel abroad as well as for paratrooping. They also participate in major military exercises. All are based at Powidz and serve with the 14. eskadra lotnicza of the 33. Baza Lotnictwa Transportowego (14th Air Squadron of the 33th Air Transport Base).

The PoAF's medium tactical transport role is also fulfilled by the twin-engined C295M which replaced obsolete Russian-built An-26s. A first contract for eight C295Ms (with four on option) was signed in August 2001. Two years later the Polish Air Force received two aircraft (Nos 011 and 012), in 2004 three examples (013, 014 and 015), in 2005 three more (016, 017 and 018). Two (019 and 020) arrived in 2007 and in 2008 another pair (021 and 022) – the latter four



erse Fleet

were the ones on option. Sadly, on February 23, 2008 C-295M 019 was lost during landing approach at Miroslawiec killing 20 – mostly high ranking – Polish Air Force officers. All the aircraft serving with the 13. eskadra lotnictwa transportowego 8. Baza Lotnictwa Transportowego (13th Air Transport Squadron of the 8th Air Transport Base) at Kraków in 2010 became part of the 8. Baza Lotnictwa Transportowego (8th Air Transport Base). Soon the Polish Air Force began to look at buying five more to boost the unit to 16. It led to an additional three C295Ms being delivered to Kraków (023, 024 and 025) in 2012 followed by two more the following year (026 and 027). All of them are operational. Between 2003 and 2013 the aircraft flew more than 35,000 hours – a figure that now stands at about 40,000.

The aircraft have fulfilled several humanitarian missions to locations such as Egypt, Sudan, Libya, Albania, Pakistan, Georgia, Algeria, Syria. They also participate in Akcja Serce ('Heart' Action) when CASA crews transport internal organs, such as hearts, where speed is critical. Just 10% of the flight

Inventory

Aircraft	Number on order
C-130E	5
C295M	17
PZL M28	23

Transport ORBAT

4. Skrzydło Lotnictwa Szkolnego (4th Air Training Wing) Dęblin

M28 Bryza

8. Baza Lotnictwa Transportowego (8th Air Transport Base) Kraków

Subordinated to 3. Skrzydło Lotnictwa Transportowego at Powidz

C295M, M28B Bryza

33. Baza Lotnictwa Transportowego (33rd Air Transport Base) Powidz

Subordinated to 3. Skrzydło Lotnictwa Transportowego at Powidz

C-130E Hercules, M28 Bryza

time is used for crew training.

The smallest fixed-wing aircraft used for transport duties in the PoAF is the M-28 Bryza. Of Russian origin (the An-28 was never made in Russia) but produced only in Poland. The PZL M-28Bs have replaced the obsolete An-2s. They are used in traditional transport and parachuting roles as well as more advanced tasks like SAR, VIP transport or medical transport during Akcja Serce. At the moment the Polish Air Force has 24 aircraft in service: 10 M-28BTDs (TD – transportowo-desantowy – transport and parachuting) of different sub variants – serialised 0203, 0204, 0205, 0206, 0207, 0208, 0209, 0210, 0211 and 0212 as well as 13 M28B/PTs (pasażersko-transportowy, passenger and transport) – 0213, 0214, 0215, 0216, 0217, 0218, 0219, 0220, 0221, 0222, 0223, 0224 and 0225. The latter eight were delivered between 2011 and 2015 in the glass cockpit configuration with digital avionics and IFF (Interrogator Friend or Foe) installed. They are now the most modern Bryzas in service. Most aircraft are used by 3. Skrzydło Lotnictwa Transportowego (3rd Air Transport Wing) and 4. Skrzydło Lotnictwa Szkolnego (4th Air Training Wing).

It is also worth mentioning that Polish Air Force crews fly one of the three C-17As participating in the Heavy Airlift Wing based at Papa Air Base in Hungary. Poland is able to use the transport fleet for a specific number of flight hours every year. **Marcin Przeworski**



Above: PZL M-28B/PT Bryza 1 0215 was originally destined for the Indonesian Navy but the deal fell through and instead it was sold to the Polish Air Force. *Marcin Przeworski* **Below:** Airbus C295M 023 was delivered to the Polish Air Force on October 6, 2012. The aircraft can accommodate 71 fully equipped soldiers or 49 paratroopers or 24 stretchered wounded/sick personnel. It serves 8 Baza Lotnictwa Transportowego (8th Air Transport Base) at Kraków. *Marcin Przeworski*



KC-390 – a Future Option



PORTUGAL

THE PORTUGUESE Air Force has three squadrons dedicated to airlift missions.

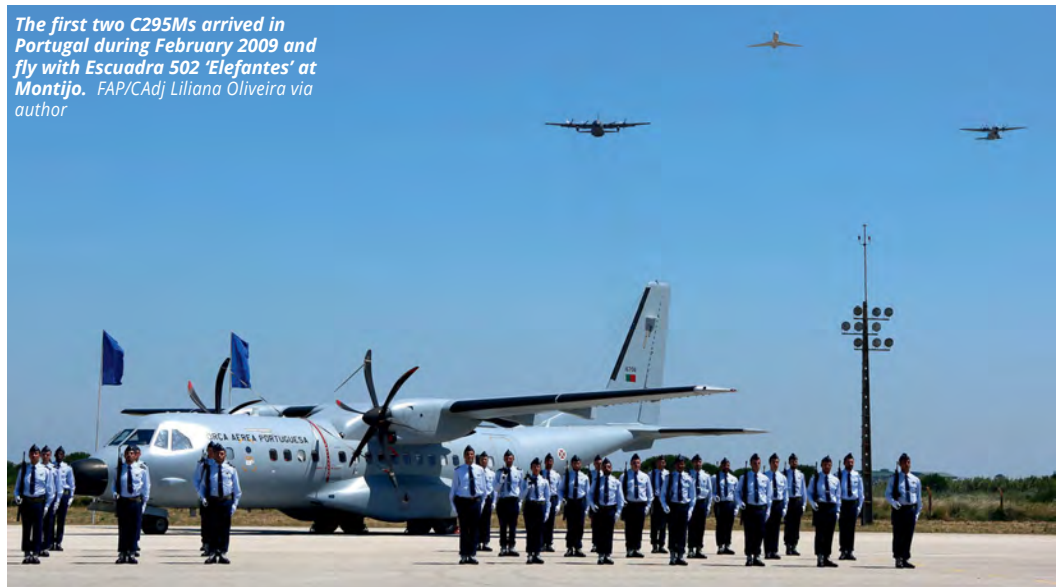
The oldest is the Esquadra de Transporte (Esq) 501 Squadron 'Bisontes' (Bisons), equipped with four C-130H Hercules and based at Montijo (BA6). The first of three C-130H Hercules was delivered to Portugal in 1977, joined by three C-130H-30s from 1991 onwards.

The fleet suffered a devastating blow at its home base on July 11 (see Attrition, September p93) with the loss of C-130H-30 16804, which claimed the lives of three crew members during a training mission. While taking off, the aircraft caught fire and crashed at the end of the base. This, the PAF's first fatal C-130 accident, leaves five others, although one is in store.

The squadron's main mission is air transport, but it also has a search and rescue (SAR) tasking for which it has two C-130Hs and two stretched C-130H-30s. They have also conducted international missions in Africa and Afghanistan, deploying to Mali in 2014 and 2015 as part of the UN's Multidimensional Integrated Stabilization Mission in Mali (MINUSMA).

The C-130s will continue to fly in the PAF until at least 2030. In 2011, the previous government's defence minister signed a letter of intent to buy six Brazilian Embraer KC-390 transport aircraft but, despite Portugal's involvement in their production, no order has materialised and the current government has opted to modernise the C-130 fleet instead.

The first two C295Ms arrived in Portugal during February 2009 and fly with Esquadra 502 'Elefantes' at Montijo. FAP/CAdj Liliana Oliveira via author



To ensure Portuguese participation in the project, Lisbon is providing a grant of €20.8m until the end of 2017. The KC-390 is partly produced at the Embraer facilities in Évora, 85 miles (135kms) east of the capital, where the company has operated since 2008, having signed an investment agreement with the Portuguese government.

The KC-390 programme is run through Portugal's Centre of Excellence for Innovation and Industry (development and testing) at OGMA in Alverca, alongside two Embraer units in Portugal. Last April, during a visit to Embraer, the country's Minister of National Defense, José Azeredo Lopes, said his government remains interested in buying the aircraft and admitted a decision "will have to be made", but he did not say when.

The PAF has been monitoring the progress of the KC-390 project, which is expected to

be certified by civil aviation authorities later this year and by the military in the second half of 2017.

Montijo hosts the other two other PAF transport squadrons: Esq 502 'Elefantes' (Elephants) operates the C295M and Esq 504 'Linces' (Lynxes) flies the Falcon 50. The first two Portuguese C295M tactical transport aircraft arrived at Montijo in February 2009, replacing the veteran C212 Aviocar.

Portugal paid €460m for 12 C295Ms in two configurations – tactical airlift (seven aircraft) and maritime surveillance (five), with three of the latter incorporating Airbus' Fully Integrated Tactical System (FITS).

The new aircraft have increased the Portuguese armed forces' tactical airlift capacity considerably, as the C295 boasts twice the range of the older C212 Aviocar – an important consideration for

missions between the mainland and Portugal's outlying islands in the Azores and Madeira.

Like the C-130, the C295s also took part in MINUSMA in 2015 as well as flying maritime surveillance missions over the Mediterranean as part of Joint Operation Triton 2016. In 2015, the PAF's 502 Squadron also participated in four EU Frontex operations to manage migration across the Mediterranean.

Meanwhile Esq 504 flies three Falcon 50s acquired in 1989 and 1991. They have a crucial medevac role transporting patients from the outlying islands to the mainland.

The jets are scheduled for upgrades to meet the requirements of the proposed Single European Sky programme to improve operational efficiency and flight safety across the continent. The C-130 will be subject to similar modifications. **José Matos**



Above: The tragic crash of C-130H 16804 at Montijo Air Base last July claimed the lives of three crew. Micael de Abreu via author.

Transport ORBAT

BA6 Montijo

501 Sqn 'Bisontes'	C-130H
502 Sqn 'Elefantes'	C295M
504 Sqn 'Linces'	Falcon 50

Inventory

Aircraft Type	No
C-130H	4+
C295M	12
Falcon 50	3
+ one in store	



Paratroop-dropping is one of the missions of the Romanian Air Force C-130s. This example was undertaking such a sortie with a special ops team at the 71st Air Base near Câmpia Turzii. Liviu Dnistran

First to Westernise fleet

THE TRANSPORT fleet of the Romanian Air Force (RoAF) was the first to start replacing its Soviet-made types, with Western-made equipment, even before Romania became a NATO member in 2004. Today the RoAF transport capability is concentrated within Baza 90 Transport Aerian (90th Air Transport Air Base) at Otopeni airport near Bucharest.

Starting from 1996, the RoAF received four ex-US C-130B Hercules (5930, 5927, 6150 and 6166), with the fleet completed a decade later by a sole ex-Italian AF C-130H (serial 6191). The C-130s form the inventory of Escadrila 901 Transport Strategic (901st Strategic Transport

Squadron) and are used mainly for long-haul flights, including rotating Romanian personnel deployed to Afghanistan.

In 2007 the Romanian MoD signed a contract with the Italian company Alenia Aeronautica (now incorporated into Leonardo) for seven brand new C-27J Spartans (2701 to 2707). The deliveries started in April 2010 and were concluded in February 2015 when the seventh aircraft arrived.

With the introduction of the C-27J into service, the ageing fleet of An-24s and An-26s was gradually retired; with only two An-30s kept active for aerial photography/Open Skies missions. All the An-2 biplanes were retired at the beginning

of 2011, with the surviving aircraft put into open storage at Boboc airfield near Buzău.

The C-27 Spartans and the An-30s are on the strength of Escadrila 902 Transport Operativ si Foto (902nd Operational Transport and Photo Recce Squadron). The unit also has a medevac capability, with Spartan (serial 2706) being configured for such missions, while uniquely, 2707 is equipped for firefighting

The Spartans are mainly tasked with providing medium-haul support to Romanian forces as well as in-country deployments. Over the past year Romanian C-27Js have also participated in several NATO exercises, including 'Carpathian Spring' (in May) at Otopeni where they joined RoAF C-130s, Italian and Bulgarian C-27Js as well as US forces. There was also 'Balkan Spartan 2016' in Bulgaria, which was co-ordinated by the European Defence Agency (EDA).

Romanian C-27Js provided support for the deployment of MiG-21 Lancers at several airshows across Europe, among them Radom 2015 (Poland), Tour de Sky 2016 (Finland) and SIAF 2016 (Slovakia).

The aircraft also flew several humanitarian missions including transferring patients who had sustained serious injuries in the deadly 'Colectiv' nightclub fire in Bucharest in late October to various hospitals across Europe.

Equipped with a modern avionics package, including a self-protection system, the Romanian C-27J provides the Romanian Air Force with a modern transport capability and fulfils the needs of the modern battlefield.

After the first Romanian pilots acquired their C-27J instructor qualifications in Spain, new pilots were trained to fly in Romania, among them at least two female officers. The new Spartan pilots either graduated as ab-initio pilots from the RoAF Academy in Braşov or converted from other aircraft types.

Being a member of the 12-nation, Strategic Airlift Capability (SAC), Romania provides aircrews for the Heavy Airlift Wing (HAW) which flies three Boeing C-17A Globemaster IIIs. By August 2016, the HAW had accumulated 20,000 flight hours. **Danut Vlad**



Above: Seven C-27Js are the newest transport aircraft of the Romanian Air Force. One of its missions is medical evacuation and it has been used countless times to transport critically injured patients in and outside the country. Liviu Dnistran

Transport ORBAT

Baza 90 Transport Aerian (90th Air Transport Air Base) Bucarest-Otopeni

Escadrila 901 Transport Strategic	C-130B/H
Escadrila 902 Transport Operativ si Foto	An30/C-27J

Inventory

Aircraft Type	No
C-130B/H Hercules	5
C-27J Spartan	7

Russia offers An-26



 **SERBIA**

THE SERBIAN Air Force and Air Defence (SAF&AD) relies on two Antonov An-26 aircraft for tactical airlift. It plans to keep them in service for as long as possible, deep into the 2020s, due to budget difficulties. Both aircraft were last overhauled in 2008 and 2009 after a gap of six years. An-26 serialled 71386, which was rolled out on December 5, 1984, was grounded in 2014. However, it was flown to Russia on May 23 to be worked on by the civilian 412th Aviation Overhaul Plant in Rostov-on-Don, where its navigation and communication avionics will also be checked out. The other An-26, 71364, is expected to go through the same process next year. The aircraft left the production line on October 23, 1975 but was grounded in October 2015. Its future depends on whether Serbia takes up Russia's donation of a single An-26, but no

Neither of the Serbian Air Force An-26s are currently flying although grounded example 71364 could be overhauled next year. Its fate depends on whether a newer aircraft is taken on from Russia. Aleksandar Radic

agreement has yet been reached. There is the budget to fly just two An-26s in the long term, so the SAF&AD will only be interested in the Russian aircraft if it is newer and in better technical condition than 71364. Once operational, the An-26s will support the 63rd Parachute Battalion and Transport unit in multinational missions. Serbian An-26s have flown very long missions, which is quite unusual for an aircraft not renowned for its range. In November 2013 an An-26 transported armament for the Serbian Autonomous Vessel Protection Detachment to Djibouti. It was participating in the EU Naval Force's Operation Atalanta, and it took 27hrs 45mins of flying time to get there, which included four refuelling stops. Both An-26s serve the 138th Transport Aviation Squadron/204th Air Brigade at the SAF&AD'S main Batajnica base near Belgrade. The unit

also has one Pa-34-220T Seneca V aircraft, acquired in 2012 for aero photogrammetry recording. Parachute training is held at the base at Niš is using an An-2TD, 70373, produced at the Polish WSK-Mielec factory, and which has been in service from January 14, 1977. The aircraft was grounded in March 2014 but went through overhaul this year and has now been returned to service. **Aleksandar Radić**

Transport ORBAT

138th Transport Aviation Sqn/204th Air Brigade, Batajnica
An-26, PA-34 Seneca V
119th Mixed Helicopter, Niš
An-2TD

Inventory

Aircraft Type	No
Antonov An-26	2
PA-34 Seneca V	1
An-2TD	1

Below: The second An-26, 71386, was grounded in 2014 but is now being overhauled at Rostov-on-Don, Russia. Aleksandar Radic



Spartan



 **SLOVAKIA**

THE SLOVAK Air Force's Transport Wing – Transportne Dopravné krídlo generála Milana Rastislava Štefánika (Milana Rastislava Štefánika; General Transport Wing) – is stationed at Kuchyňa Air Base.

The unit's 1st Transport Squadron (Dopravná letka) now has just seven L-410 turboprop aircraft in its inventory. Two An-26s have been withdrawn and will be replaced by two C-27J Spartans expected to arrive in mid-2017.

The first An-26s to be withdrawn several years ago was 3208. The second, 2506, made its last flight on March 4 this year from Kuchyňa AB to Piešťany Airport, where it's now preserved with the Museum of the Armed Forces of Slovak Republic.

In 2015, the transport squadron flew 1,657 hours in 2,635 sorties – comprising





tans on the Way



Above: Slovakia's last An-26 touches down at Piešťany airfield on its last sortie. It is now an exhibit in the co-located military museum. *Miroslav Gyürösi*
Below: The Slovak Air Force has a fleet of seven LET-410UVPs. This example taxis out at its home base, Kuchyňa. *Miroslav Gyürösi*



Toughing it out

THE EJÉRCITO del Aire (Spanish Air Force, SpAF) has only a modest capability despite the strategic demand on the country. It manages its fleet through regular updates and maintenance programmes to ensure the aircraft meet its short- and near-term responsibilities. Proof of this came last August when Spain's Council of Ministers approved €65m in contracts to cover the maintenance of some of the aircraft transport fleet. This includes the Airbus A310 and Falcon 900 of the 45 Grupo based at Torrejón de Ardoz Air Base and the Cessna Citation V operated by the 403 Escuadrón stationed at Getafe AB.

support of the Spanish armed forces by transporting personnel and cargo to overseas locations, conducting medical evacuations (medevac) and carrying out humanitarian missions.

Current budget difficulties are impeding the expansion, or at least modernisation of the fleet, although there are plans in hand to solve the problem. Over the past few years, aircraft manufacturers from this sector have given demonstrations of their aircraft - during the summer of 2015 both the Gulfstream G650 Extended Range and G550 were shown to the unit at Torrejón AB.

The three Boeing 707 transport-tankers were transferred several years ago from the 45 Grupo to the co-located 47 Grupo Mixto. Two have already been withdrawn and the third (T17-3/47-03) is expected to follow them by the end of the year. The four Falcon 20s initially used by 45 Grupo for VIP transport were



Above: In 1999, the Spanish Air Force was the launch customer for the Airbus C295M, with an order for nine aircraft. A further six have since been added, bringing Getafe-based Ala 35's fleet to 15. *Kees van der Mark*
Top: The first A400M for the Spanish Air Force lifts off for its maiden flight on September 5 from Seville-San Pablo International Airport, where the Airbus Defence and Security A400M manufacturing facility is housed. It is the first of 27 on order, although Spain will keep only 14. *ADS*



371 An-26 sorties (accruing 298 hours) and 2,264 L-410 sorties (totalling 1,358 hours). The seven L-410 Turbolets include a single L-410FG special photo-geometric aircraft, serialled 1521; an L-410UVP-E14 transport aircraft, 2311; an L-410UVP-E9, 2421; and four L-410UVP-E20s

- 2718, 2721, 2818 and 2901. The four L-410UVP-E20s, acquired from LET Kunovice in exchange for older aircraft between 2009 and 2013, are named after towns in region - 2718 'Kuchyňa', 2721 'Malacky', 2818 'Pernek' and 2901 'Rohožník'. **Miroslav Gyürösi**

Transport ORBAT
Transportne Dopravné krídlo generála Milana Rastislava Štefánika, Kuchyňa
L-410FG, L-410UVP-E9, L-410UVP-E14, L-410UVP-E20

Inventory	
Aircraft Type	No
L-410	7
C-27J	2+
+ on order	

Below: L-410UVP-E20 2901 is the latest addition to the Slovak Air Force transport fleet and was delivered in June 2013. *Miroslav Gyürösi*



also transferred some time ago to the 47 Grupo Mixto for use in navigation aids calibration and the Electronic Countermeasures (ECM)/Electronic Surveillance Mission (ESM). The first of these were retired at the end of 2015 with the rest remaining in service until a replacement is found.

The first A400M for the SpAF will join the Ala 31 at Zaragoza this year for evaluation and crew conversion. Almost half of the aircraft ordered by the Spanish Government – 13 from an order of 27 – will be offered for sale to third parties. It was the only solution for a big fleet too expensive to run against a background of constant budget cuts. The Spanish Government intends to trade some of these A400M for Airbus A330MRTT (Multi Role Tanker Transport), although this does not look as if that will be an easy solution. The strategic air refuelling needs of the SpAF will, therefore, have to rely on international agreements with other countries to use their tanker fleets.

In the meantime, the first phase of A400M hangar construction at Zaragoza, to accommodate the new aircraft, has already been completed. In the next few years the first example, which will have been delivered by the time this edition of AFM has gone to press, along with subsequent deliveries will share the ramp with the surviving examples of the 13 Lockheed C-130 Hercules. They are currently operated by the unit for troop transport, supply missions and inflight refuelling.

The Hercules fleet underwent a major upgrade programme in the early 2000s, incorporating new equipment to improve its capabilities and enhance expeditionary operations – it remains the backbone of the Spanish transport fleet. Inflight helicopter refuelling is a new



Above: Ala 31's Hercules fleet includes five tanker-configured aircraft including KC-130H TK.10-7 '31-52'. Unlike many other Spanish C-130s, it has not been resprayed in an overall grey, which is illustrated as the aircraft takes off from Leeuwarden Air Base in the Netherlands on October 5. Kees van der Mark

role that will soon be taken on. Two kits have been acquired this year for evaluation and flight tests will take place shortly with Caracal helicopters of the French Armée de l'Air (French Air Force). Complementing the Hercules are the invaluable fleets of C295M and CN235Ms tactical transporters. Initially both fleets were operated by Ala 35 Wing at Getafe, but the 20 CN235Ms have undergone role changes under the Ejército del Aire Transformation Plan.

At the end of 2006 eight aircraft were modified to the VIGMA (Maritime Patrol) configuration specialising in SAR and maritime patrol missions and currently serving with Escuadrones 801, 802 and 803 from Son San Juan, Gando and Getafe respectively. At the same time another two CN235s were converted for photographic and cartographic missions and are assigned to the Cuatro Vientos-based 403 Escuadrón. The eight remaining aircraft from the initial order (two were sold in 2012 to Jordan, where they were converted to gunships) have been assigned to the GRUEMA (Grupo de Escuelas de Matacán) at Matacán

Transport ORBAT

Aircraft	No	Type	Location
Ala 31	311 Escuadrón	C-130H/H-30,	Zaragoza
	312 Escuadrón	KC-130H Hercules, A400M Atlas	
Ala 35	351 Escuadrón	C295M	Getafe
	352 Escuadrón	C295M	
Ala 37	371 Escuadrón	C212	Villanubla
Ala 72	721 Escuadrón	C212	Alcantarilla
Ala 74	744 Escuadrón	CN235M	Matacán
CGyF+	403 Escuadrón	Citation V	Getafe
45 Grupo	451 Escuadrón	A310, Falcon 900B	Torrejón
47 Grupo Mixto	471 Escuadrón	B707, Da20	Torrejón
+ Centro Cartográfico y Fotográfico			

AB, where they are used by the transport aircraft school.

The Ala 35 operates the 13 C295M that entered service in December 2001 to replace the CN235s in the tactical airlift missions. In July the unit's C295M fleet surpassed 55,000 flight hours and is regularly deployed to numerous African and Middle Eastern nations. The Wing has two squadrons equipped with the C295M: the 352 Escuadrón is dedicated to logistical airlift and the 353 Escuadrón also covers logistical transport as well as a secondary SAO (Special Air Operations) role.

The last examples of the versatile and efficient C212 are flown by the Ala 37 at Villanubla AB and by Ala 72 at Alcantarilla AB, where they are used for paratrooping and logistical airlift, but their retirement is imminent. Since 2014 four C212 Series 200 Aviocars, belonging to the Revenue and Customs Agency and used for border patrol have been assigned to the Ala 72. This unit is destined to become the final operator of the last transport Aviocars in the SpAF, once the Ala 37 retires its last examples. **Roberto Yáñez and Alex Rodríguez**



Above: The Spanish Air Force Falcon 20D TM.11-03 '47-23', used for electronic warfare work, lands at Morón on September 20. Dietmar Fenners

Inventory

Aircraft Type	No
A400M Atlas	27 +
CASA C-212	Around 11
CN235M	8
C295M	13
C-130H Hercules	5
C-130H-30 Hercules	1
KC-130H Hercules	5
Airbus A310	2
Boeing B-707	1
Dassault Falcon 900B	5
+ On order but 13 to be sold	



Left: The Swedish Air Force operates two Saab 340s, locally designated as the TP 100. Example, TP 100C 008, converted for the Open Skies role, lands at its home base, Malmen, near Linköping.

A diverse fleet for all roles

SWEDEN HAS operated eight C-130H Hercules since receiving its first example in 1965. It was the first European customer of a transport aircraft that revolutionised the world's military's airlift capabilities. All Swedish Air Force TP 84s are assigned to the 73. Transport och Specialflygdivision (73. Airlift Wing) and are based at Skaraborgs Flygflottilj, F 7 (Skaraborg Wing, F 7), Såtenäs. The old, but well-maintained, Hercules fleet has been the transport backbone of the Swedish Air Force (Flygvapnet) for the last half century and is set to remain so for many years to come. The fleet has undergone numerous modifications and service life extensions. In 2009, the Swedish parliament opted to reduce the Hercules fleet to six from eight. It led to the first one, '841' being withdrawn from service in June 2014. The aircraft was mothballed and placed in long-term storage at Marshall Aerospace and Defence Group in Cambridge. A second aircraft, '843' joined it in November 2014 where it now awaits a final decision on its fate. There are plans to use one of them as a ground-based training platform with F 7 Wing.

One Swedish C-130H, '842', was modified as an air-to-air refuelling aircraft in 2003. It was brought into service in 2005 and developed from a test and training platform to a tactical resource, supporting air-to-air refuelling training, certification and currency campaigns for SwAF JAS 39 Gripen fighter units and for foreign customers. This capability was utilised by the SwAF during NATO's 2011 Libya campaign against Colonel Gaddafi using the Gripen's in-flight refuelling probe. Currently SwAF Hercules support Swedish MINUSMA (United Nations Multidimensional Integrated Stabilization Mission in Mali). It has not yet been decided when the Hercules will be retired, but work is under way to identify a suitable replacement. No

matter what the solution is, the Swedish Armed Forces will want to continue with an air-to-air refuelling capability. The Hercules fleet is, however, in need of a major avionics upgrade over the next few years. At Malmen Air Base near Linköping, one Saab 340, TP 100C, 100008, (008) is operated in the passenger transport role, and one TP 100A, 100001, (001) is modified and equipped for Open Skies missions. The latter was certified as the Swedish Air Force's official aircraft for Open Skies duties in 2004. Two S 100Ds designated ASC890s are used by the SwAF as Airborne Early Warning and Control (AEW&C) platforms. The ASC890 is based on the Saab 340 and fitted with an Ericsson Erieye PS-890 radar – all the Saab 340s

are based at Malmen. The SwAF is looking for another aircraft to carry the Erieye radar in the future, but no funding or decision on a replacement has been made. Two Gulfstreams – one Gulfstream IV, designated TP 102 and a G 550, TP 102D – are used mainly for VIP flights and are based at Stockholm Bromma and Stockholm Arlanda airports. There were originally two Gulfstream IVs, but one has recently been withdrawn from use and will probably be sold. Two Gulfstream IVs – known locally as S 102B SIGINTs – are flown by the Swedish Air Force and based at Malmen, but their operations are run by the FRA (the National Defence Radio Establishment), which is Sweden's national authority for signals intelligence. The Swedish Air Force's own transport capabilities are also partly met by working with other European agencies, namely the Eindhoven-based Movement Coordination Centre Europe (MCCE) and the 12-nation Strategic Airlift Capability (SAC) programme at Pápa in Hungary. The latter operates the Boeing C-17 Globemaster III for joint strategic airlift purposes. **Gunnar Åkerberg**

Inventory	
Aircraft Type	No
C-130H/TP 84	6+
Gulfstream IV/TP 102/S 102B	3++
Gulfstream 550/TP 102D	1
Saab 340/TP 100C/TP 100A	2+++
Saab 340/S 100D-ASC 890	2++++
+ one is modified to a tanker, ++ two are SIGINT, +++ one is Open Skies, ++++ two are AEW&C	

Transport ORBAT	
Aircraft	Type
Skaraborgs Flygflottilj F 7, Såtenäs	
71. Transportflygdivision	C-130H/TP 84 Hercules
Malmen, Linköping	
72. Specialflygdivision	Saab 340/TP 100C/TP 100A/S100D-ASC890
73. Signalspaningdivision	Gulfstream IV/S 102B Korpen
Stockholm Bromma Airport	
74. Transportflygdivision	Gulfstream IV/TP 102
Stockholm Arlanda Airport	
74. Transportflygdivision	Gulfstream G550/TP 102D

Transport ORBAT
Federal Air Transport Services, Bern-Belp Beech 1900D Airliner, Cessna 560XL Citation Excel, Falcon 50EX, Falcon 900EX
Flight Service/Coordination Centre for Aerial Photography, Dübendorf Beech 350C King Air, DHC-6 Twin Otter
Federal Office for Weapons Systems, Vehicles and Equipment, Emmen PC-12 Eagle
Air Transport Wing 7, Emmen PC-6/B2-H2M

SWITZERLAND - A unique fleet

There are no military airlifters serving the Swiss Air Force, however it does fly a mixture of business-type passenger aircraft. These are useful assets for this alpine country where harsh winters make it difficult to travel by road. They include a single Falcon 50EX purchased in January 1996, a Falcon 900EX acquired second-hand in May 2013, a Cessna 560XL Citation Excel, which has been operational since

January 2005, and a Beech 1900D purchased in February 2009. A PC-12 Eagle bought in 2001 is used by the Federal Office for Weapons Systems, Vehicles and Equipment (BWF) for test purposes, while a DHC-6 Twin Otter and Beech 350C King Air specialise in aerial photography. Around 12 Pilatus PC-6 Turbo Porters are used for paratrooper training and light transport requirements.

Inventory	
Aircraft Type	No
Beech 350C King Air	1
Beech 1900D Airliner	1
Cessna 560XL Citation Excel	1
DHC-6 Twin Otter	1
Falcon 50EX	1
Falcon 900EX	1
PC-12 Eagle	1
PC-6 Turbo Porter	approx 12



European Airlift Capabilities

PART FOUR

AFM's Alan Warnes and Arda Mevlütoğlu complete our survey on the airlifters flown by the European air forces.

Upgrades and A400Ms



Above: One of the two A400M Atlas tactical airlifters currently flying with the TurAF departs Konya Air Base in June, barely a month before the attempted coup. Turkish media reported that they were involved in running guns at one stage, which led to most of the crews being dismissed. Turkey has ten of these brand new aircraft on order. They are flown by 221 Filo at Kayseri-Erkilet.

THE TRANSPORT fleet of the Turkish Air Force (TurAF, Türk Hava Kuvvetleri) is undergoing a makeover, with ten Airbus A400M Atlas on order – two of which have been delivered – while its C-130s and CN235M fleets are being put through extensive avionics upgrades.

After the failed coup in Turkey on July 15, large numbers of personnel were dismissed from the TurAF, the expulsions and arrests severely impacting operations as well as morale.

The transport fleet has not been spared and it could take several years for it to return

to full operational capability.

The TurAF operates two primary transport units, plus smaller squadrons tasked with liaison and search and rescue (SAR) missions. No 11 Air Transport Main Base (11 ATMB; Hava Ulaştırma Ana Üs) in Etimesgut, Ankara, hosts two squadrons (Filos): 211 'Gezgin' ('Globetrotter') flying CN235s and 212 'Doğan' ('Hawk') flying a mix of mainly VIP aircraft. Both share the Etimesgut base with the aviation branch of the country's National Intelligence Organisation (Milli İstihbarat Teşkilatı) and its electronic intelligence/liason aircraft.

The second main unit is the 12 ATMB in Erkilet, Kayseri, with 221 'Esen' ('Brise') flying C-160Ds and the new A400Ms, while 222 'Alev'

The Turkish Air Force has applied the red and white colours of the Turkish Stars' F-5 aerobatic team to a C-130E Hercules (as seen here) and C-160D Transall. All photos, Alan Warnes unless stated



(‘Flame’) squadrons flies a mix of C-130B and C-130E Hercules.

Meanwhile the 1st and 8th Main Jet Bases (MJBs; Ana Jet Üs) also incorporate transport and SAR squadrons – 201 ‘Atak’ (Audacious) and 202 ‘Şark’ (East) respectively. Both of the latter are equipped with CN235M-100s plus UH-1H and AS532AL Cougar SAR helicopters. Training transport and SAR pilots is the responsibility of 135 ‘Ates’ (‘Fire’) squadron of 3rd MJB in Konya.

Turkey has one of the world’s largest fleets of legacy C-130B/Es. The TurAF took delivery of eight C-130Es between 1964 and 1974 and six C-130Bs between 1991 and 1992. One C-130E was lost in an accident in October 1968.

The Hercules have been going through an extensive avionics, flight control and communications upgrade since 2010 under the ‘Erciyes’ programme – named after one of Turkey’s highest mountains, which is close to Kayseri, home of 12 ATMB.

The Erciyes contract, signed between Turkish Aerospace Industries (TAI) and the Undersecretariat for Defence Industries in December 2006, includes a new central mission computer, radar, multifunction displays, control display units, air data computer, modern radios, auto flight system, IFF transponder and navigation systems.

Having aircraft undergoing the modifications led, however, to a shortage in the tactical transport fleet – so, as an interim solution, Turkey bought six C-130Es from Saudi Arabia in 2011 in a \$27.62m deal. Arriving in 2012, they were added to the Erciyes programme later that year under an additional contract. It means there are 13 C-130E and six C-130Bs on the TurAF’s inventory.



Above: Four Hercules – one C-130E and three C-130Bs – have been received the Erciyes upgrade, while three more, a C-130E, C-130B and former Royal Saudi Air Force C-130E are undergoing similar work at the TurAF’s Erkiilet facility using kits supplied by TAI. **Below:** The Transalls have been flying with the TurAF since 1971 and will be gradually phased out as the A400Ms are delivered.



The TurAF’s other tactical workhorse has been the Transall C-160D. Twenty arrived in 1971 and entered service with the 221 Filo, with three given roll on-roll off mission operator consoles, Star Safire 380HD electro-optical cameras and secure data link systems for the IMINT (imagery intelligence) role under the ‘Goren’ (‘Seer’) programme.

Less than a dozen C-160Ds are now in active service and their role is being taken over by the A400M Atlas. Turkish industry, led by TAI, is involved in the new type’s manufacture, and Turkey originally announced a requirement for 26 – but later cut the number, in a 2003 contract, to ten.

The first A400M, MSN009 (TurAF serial 13-0009), was delivered to 221 Filo in April 2014, followed by the second aircraft, MSN013

(14-0013), eight months later.

The third, MSN023, crashed during a factory test flight in Seville, Spain, on May 9, 2015 and will be replaced by MSN075 in 2017. Deliveries are expected to be complete by 2018.

Light transport duties are undertaken by CN-235M-100s, 52 of which were manufactured by TAI between 1992 and 1998. One of them, 97-140, has been modified for the medevac mission while three are used for VIP transport. Another, 97-131, is being used as an observation aircraft under the Open Skies treaty.

An undisclosed number of CN-235Ms are also equipped with an ELINT/SIGINT (electronic intelligence and signals intelligence) payload. **Arda Mevlütoğlu**

Transport ORBAT

11 ATMB, Etimesgut

211 Filo	Gezgin	CN235-100
212 Filo	Doğan	Gulfstream IV, C550 Citation II, C650 Citation VII, UH-1H, CN235-100 VIP

12 ATMB, Kayseri-Erkiilet

221 Filo	Esen	A400M, C-160D, C-160T Goren
222 Filo	Alev	C-130B/E

1 MJB, Eskişehir

201 Filo	Atak	CN235M-100, AS532AL
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3 MJB, Konya

135 Filo	Ates	CN235M-100, AS532AL, UH-1H
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8 MJB, Diyarbakır

202 Filo	Şark	CN235M-100, AS532AL
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Inventory

Aircraft	No
A400M Atlas	2+ (10)
C-130B/E Hercules	6/13
C-160D Transall	fewer than 12
CN235M-100	50
Gulfstream IV	1
C550 Citation II	2
C650 Citation VII	2

+ two delivered of ten on order



Above: One of three VIP-configured CN235-100Ms gets ready to take off. They are flown by 212 Filo at Etimesgut.



Taking the St

AIR MOBILITY FORCE (AMF) at RAF Brize Norton, Oxfordshire, is a busy place. The RAF's largest station, it's home to its strategic/tactical air transport and air-to-air refuelling forces, including nine A330 Voyagers, 24 C-130J Hercules, eight C-17 Globemasters and 11 A400Ms of 22 on order. With all these capabilities, the AMF works

to meet the UK's defence airlift requirements. Recently the AMF supported the Red Arrows' 14-country tour and the RAF Typhoon deployment to India, Malaysia, Japan and South Korea, which ran simultaneously from late September to early December. While the RAF publicised the jets flying all around the world, little mention was given to the amount of work to get them there and the logistical tail required to support them. It took two C-130J Hercules loaded with technical personnel and freight to support the Red Arrows. The Hercules also supported the eight RAF Typhoons that left Scotland for the Far East. Meanwhile a C-17 Globemaster loaded with

engineering packs headed in the same direction, as did an A330 Voyager multi-role tanker transport (MRTT) which flew all the Typhoons' personnel. The logistical requirements for Operation Eastern Venture, as this massive deployment was known (see *Mission Accomplished*, p10-11), saw the AMF work frantically for at least eight weeks. AMF's Chief of Staff, Gp Capt Martin Cunningham, explained: "We had some huge complexities in the recent Typhoon deployment east - we committed Voyager, C-17 and C-130J. "However, we had to pull the latter because we needed it here, as we had higher force generation requirements [training] in the UK. It was going to partake in a lot of

defence engagement jobs, which is a high priority but, as the programme sits today, force generation has a higher need." Cunningham, a C-130 Hercules pilot for 20 years, told me: "Our operational tempo is relentless; the only time it goes quiet is Christmas when the Army go on leave, at which point we go heavy on training." **Bidding** Spearheading AMF, Cunningham has to ensure everything is planned for and resourced, and looks after the operational elements when they're away from RAF Brize Norton. It's a big task. Not surprisingly there's a large ops office, which is his responsibility; 48 personnel were working there on the day of my

Inventory	
Aircraft Type	No
A330 Voyager KC2/3	9+5
A400M Atlas C1	11/22
BAe 146 CC2/CC3	2/2
Boeing C-17A	8
Lockheed-Martin C-130J	24
+ 9 in service and 5 in 'reserve'	



rain

Above: An A400M Atlas C1 lands at Gibraltar during a training sortie. Atlas crews regularly fly to 'The Rock' to work oceanic procedures, which are different from normal civilian air transport ways of working. Moses Anahory

Right: A 99 Sqn C-17 departs the RAF Brize Norton runway on October 20 on a training flight. The unit operates eight of the long-range haulers for strategic airlift.



Transport ORBAT

Squadron	Type	Location
10 Sqn	Voyager KC2/3	RAF Brize Norton
XXIV Sqn	C-130J/A400M Atlas C1	RAF Brize Norton
32(TR) Sqn	Bae 146 CC2/CC3	RAF Northolt
30 Sqn +	C-130J Hercules C4/C5	RAF Brize Norton
47 Sqn	C-130J Hercules C4/C5	RAF Brize Norton
LXX Sqn	A400M Atlas C1	RAF Brize Norton
101 Sqn	Voyager KC2/3	RAF Brize Norton
206(R) Sqn	all types	RAF Brize Norton
+ to convert A400M Atlas C1 in mid-2017		

visit. It oversees current ops, plans and support tasks such as those of the Air-to-Air Refuelling Co-ordinators (AARCs), which deal with daily Voyager AAR requirements for fast jets such as Typhoons and Tornados.

The Current Ops team organises airlift and AAR needs of Operation Shader, the UK's contribution to fighting Daesh, which has been running since September 2014. Meanwhile Plans ensures appropriate assets

are in place to carry out day-to-day work, and tasks such as diplomatic clearances are met.

Gp Capt Cunningham described how bidding for his assets works: "The AMF is part of the UK Defence's logistics chain. Bids from the UK Defence are put into DSCOM (Defence Supply Chain Operations and Movements) to move [personnel or equipment] by land, sea, air, rail, contract or post. They are a multi-modal logistics hub. ▶



Above: C-130Js have now been in service for 17 years and, after tireless work in Iraq and Afghanistan, have needed plenty of patching up. If the C4s, like this one, are to continue until 2035 they will need their wing-boxes replacing too. Alan Warnes

“They don’t own anything but we provide our input, advising them what we have available. It could be four Voyagers and four C-17As that day, and they build the programme for strategic ops.

“DSCOM can work with MCCE [Movement Coordination Centre Europe based at Eindhoven] at an operational level, but we operate at the tactical level. We then deliver the plan, ensuring of course that it is achievable.

“If the UK has a ‘fast-borne issue’ and we can’t get it delivered immediately, DSCOM will contact MCCE, which has a common exchange currency of C-130 flying hours – a bit like ‘bitcoins’. There’s a charging mechanism, so if you dig deep into MCCE you have to physically pay back or pay back in kind.”

As well as six operational squadrons at Brize, there’s an Operational Conversion Unit (OCU) – XXIV Sqn.

Among its responsibilities is training new multi-engined qualified pilots arriving from 45 Sqn at RAF Cranwell where they would have flown the King Air, preparing them for operations with the C-130J Hercules Force and the A400M Atlas Force.

Tactical airlift versus strategic airlift

Strategic airlift involves an aircraft flying from one location to another, either in freight or passenger configuration – while tactical work includes different capabilities, such as Airdrop.

For example, the C-130’s tactical capability ranges from low-level insert, resupply and extraction to covering the full spectrum of defence needs. On the strategic side, it can haul cargo too.

The C-17s are all strategic whereas the A400M, known as

the Atlas C1 in RAF service, will be both strategic and tactical.

“Over the last three years, the RAF’s airlift fleet has been radically transformed,” said Cunningham. “Back then it operated an elderly fleet of aircraft including VC-10s and Tristars, the average age of the aircraft being 42 years. Today that number is seven, and it’s going down as each A400M is delivered.

“The RAF has gone from a legacy fleet with legacy procedures and ops to a very modern

fleet of aircraft which are incredibly serviceable. Voyager is extremely serviceable!

“We have a patchwork quilt of capabilities and there are some platforms that have niche capabilities, but we try to knit their capabilities together – maybe with a slight overlap.”

Voyager Force

There were once 26 VC-10s and six Tristars in the fleet, and while they were unreliable towards the end of their 40-year careers there was still a lot of capability. They have been replaced by just nine A-330MRTT Voyagers in a unique PFI working agreement with AirTanker (see *Voyagers In Full Swing*, July 2016, p30-35.)

The contract, signed on March 28, 2008, has seen the RAF acquire 14 A330 MRTT Voyagers. Five are reserve aircraft and, as such, AirTanker leases them to the airline industry as passenger aircraft.

The arrangement requires that the five were fitted out with a refuelling kit at Getafe, Spain, after being built in



Above: No 99 Sqn has applied special markings to the tail of this C-17A for its 99th anniversary this year. Chris Lofting
Below: The RAF’s two tactical airlifters. The A400M is much larger than the Hercules it will replace. The two types are parked on a ramp at RAF Brize Norton. Alan Warnes





Above: One of the RAF's ten Hercules C5s lifts off from Brize Norton in May. The variant is used mainly for training, Falklands work and operations in friendlier parts of the world. Alan Warnes

Toulouse, France, but on delivery to RAF Brize Norton, it was removed by AirTanker.

One of the nine RAF jets is civilian-registered and used for the Falklands air bridge, operated by an AirTanker crew that's not allowed to fly into non-permissive environments (conflict areas). The jets are pooled but operated by both 10 and 101 Squadrons.

Personnel have had to be quickly re-educated in the way they work the new A330s and A400Ms. They're expensive aircraft and the RAF is ensuring every pound works as much as possible for them.

As Gp Capt Cunningham says: "It's not just about capability but affordability too. It's making sure what we've got really works and we've increased the Voyager crews by four to 'sweat' the asset more."

The aircraft moves quickly over longer distances and the old procedure of night-stopping somewhere is now not as common which allows the jets to reposition as soon as possible for the next sortie.

"With one covering the Falklands air bridge, it leaves us with eight in the core fleet. So, on a daily basis, we have six, gusting seven, of which we have four committed to standing tasks such as Quick Reaction Alert. It leaves us with just two to three aircraft to deliver the Defence exercise programme.

"A Voyager crew for an AAR mission includes a pilot, co-pilot and mission systems operator (MSO) looking after the air refuelling aspect of the sortie whereas an air transport (AT) mission calls for a flight deck of two - there's no MSO requirement - and a cabin of eight. This can be covered by military stewards

or civilians from Air Tanker.

"We don't have mixed cabin crews but some trips will see a full set of civilian crew in the back. If it's flying to Akrotiri [Cyprus], or not entering a threat pattern, and if we don't have a full complement of military crews, we'll use civilian rear crews."

Productivity on the Voyager Force's utility flights has increased by 20% since the outset of ops. "In terms of numbers we initially flew on average 1,250 hours a month. Now we're flying 1,500 hours a month," said Cunningham.

"That increase is due to the operational demand in Cyprus and the increase in the Defence exercise programmes. The Army isn't deployed en masse at the moment [as it used to be in Afghanistan], so they tend to exercise a lot in places like Kenya, Canada and Belize on a regular basis."

A400M Atlas

The RAF has 22 A400M Atlas C1s on order, and took delivery of the first, ZM400, at Brize Norton on November 17, 2014. Eleven have been delivered so far, all going to LXX Squadron, which formally stood up on July 23, 2015 as the first operational unit with the type.

Its current CO is Wing Commander Simon Boyle who in mid-2016 told me: "Although the RAF is employing the A400M's impressive range and payload capacity by operating it in the strategic air transport role initially, Atlas is principally a tactical airlifter.

"Its tactical capabilities will be developed over the next eight years as it assumes many of the roles currently performed by the C-130J."

In September 2015 the squadron began air transport tasking with a small cadre of trained aircrew. The Atlas will take time to mature but

Wg Cdr Boyle is proud of what has been achieved so far by his unit together with colleagues from XXIV Sqn's OCU - which trains transport crews - and 206(R) Squadron's Atlas Test and Evaluation team.

"We've covered over 120 different destinations now. We've flown through five continents and taken the aircraft on defence tasking around the globe as we continue to assess and develop its use as an air mobility platform."

The RAF has planned the way it intends to use the Atlas in line with capability release points, and the intention is for its software and hardware development to continue to meet those requirements as each point approaches.

"So far we're very encouraged by what it has to offer, but like all aircraft it will take time to mature," notes Boyle.

"The process is incremental by design. It could be up to eight years before the full array of tactical capabilities is fully integrated and it's operating at the very highest end of the range of tactical roles it was designed and bought for."

Gp Capt Cunningham says of the A400M: "In reality the aircraft was bought to replace the 24 C-130Js, which were an interim acquisition, but over time we've broadened them from a strategic role into a tactical role and it's now mainly a tactical airlifter."

Atlas Role

"You can get 18 pallets on back of C-17 and six in the back of a



Above: A crack in the gearbox of the A400M's Europrop International (EPI) TP 400 engines was discovered by the RAF earlier this year, but a truncated pinion proportion gearbox (TPPG) fix has solved the problem. Alan Warnes

C-130 – you usually ‘weight out’ before you ‘bulk out’ in the Hercules. Of course, the C-130 can be used as a strategic airlift capability, but it’s not a priority.

“While the C-130 covers a whole myriad of tactical roles, the A400M will eventually only cover the lower echelons of that, but it aspires to go into the high end of strategic capabilities.

“A400M is currently working in the AT role and is moving into NVG ops and low-level transport/dispatch and parachuting, but it’s moving slowly up the scale and we’re way off the needs of the ‘unique’ [special forces] users and green army users.”

Most of us who have visited Airbus Defence and Space and spoken to its Head of Military Aircraft, Fernando Alonso, are aware of the technical issues surrounding the A400M (see *Light at the end of the tunnel for A400M*, August 2016, p16). Cunningham responds: “There’ve been issues of parachuting as we’ve gone through development, but as far as we know that has been rectified through extensions of the strops of the static lines.

“Airbus did modifications to static lines, and we’re led to believe the challenges are now being worked through. Each of the nations has a responsibility to deliver the tactical packages, including AAR, and we’re responsible for working towards delivering the parachuting capabilities, along with the Turkish Air Force.”

The final milestones for A400M will be in 2021/22 when it reaches the full spectrum of tactical capability, which the RAF is developing now.

There’s a difference between

Right: An RAF Voyager KC2 displays its two hoses and drogues, and centreline piping works, during AAR trials with an F-35B in April.
Lockheed Martin/Dan Wiedmann



Above: Although painted in a RAF colour scheme, this isn't a Voyager but one of five reserve aircraft which are officially A330-243s. It's wearing civilian registration G-VYGL. Alan Warnes

the aircraft being cleared for it and the pilots being trained, competent and experienced for it, because sometimes the service has to manage people's enthusiasm.

Cunningham explains: “We might get the clearance release to service for the aircraft but now we’ve got to train the crews, devise the training course, deliver and pass it and accrue the experience in training we’ve given them before committing them to ops.

“Milestone IIIA is when the physical capability is declared; but Milestone IIIB is when the operational capability is declared – crews trained and experienced with a high level of confidence and low level of risk.”

The RAF's A400M fleet had flown nearly 4,000 hours by late October.

Atlas gearbox issues

The RAF discovered issues with the engine's gearboxes in early 2016 and, according to Cunningham, the French weren't far behind them. “We know that because we share a collaborative approach with France on the A400M.

“The issue has been resolved, with a truncated pinion proportion gearbox (TPPG), and we have two aircraft rectified with modifications now and a third by the end of October.”

“The A400M is a marvellous piece of engineering. All four engines rotate one way but two propellers go in one direction and two the other. Those that follow the engine direction were fine; the torque in the gearbox is relatively low but the others were going through a lot of stress. It's a feat of engineering that's never

been tried before, so problems such as this aren't unusual.

“Between Avio and Rolls-Royce and all the other partners in the engine, a fix was found within 60 days. Rolls-Royce, working with our engineers, devised an on-engine TPPG replacement procedure, so instead of detaching the engine the work was done with it still on the aircraft. Otherwise it would have been a massive job as the gearbox is an integral part of the engine.

“It initially took three to four weeks to replace the problem but we've got that down to four days now and by February we should have 13 aircraft with modified TPPGs.”

Long haul

To ‘reach out at range and pace’, the C-17 is the answer – it's the most capable of all the RAF's

transport aircraft.



No 99 Sqn operates the fleet of eight on long-haul strategic flights, although the RAF could look to expand the type's tactical roles for more options in the future and to get the most out of each one.

"We might look to expand its use in parachuting as we reconstitute the parachute capability in UK defence post-Herrick, but it wouldn't be a priority," said Cunningham.

The RAF generally only has six available because one is usually in a major depth maintenance programme and another in a local depth programme. To declare four task-lines you need six aircraft, because more often than not one is returning from a task but another will need loading around eight hours before.

"We support the French Government with C-17s on a monthly basis in Africa [for Operation Barkhane] on a bilateral agreement between the RAF and French Air Force," added Cunningham.

"The French have a lot of bilateral agreements, but with us it's one event (about a three-day cycle) a month for 12 months.

"We have Dutch and French pilots on the Voyager – who we class as 'non-reciprocal' – in a programme that will continue to 2020 when they receive their MRTTs. They allow us to expand our capacity without any additional costs to us.

"There are also US exchange officers on C-17s and C-130s,



Special markings have been applied to one of 47 Squadron's Hercules C55s to celebrate the unit's centenary in 2016. Chris Lofting

while the AMF has personnel on exchange in Australia, France, Germany, Italy and the USA."

Hercules

The C-130J was the RAF's unsung hero of Afghanistan and the workhorse of the transport fleet. Tasked as a wing, the C-130Js' work is divided up between 30 and 47 Squadrons, although the latter fulfils more specialised capabilities such as special forces support. The baseline work – tactical flying, dirt strips, parachute drops, search and rescue equipment and maritime recce – is shared between the two.

To date, only one of the 25 aircraft has been lost: ZH876 was damaged during a night landing in Maysan Province, Iraq, on February 12, 2007; safety concerns over recovery

saw the aircraft blown up.

The C-130s have been involved in major humanitarian aid tasks since Op Herrick ended in 2014. In April 2015, one aircraft and two crews supported United Nations work in South Sudan for a month. The aircraft, in UN markings, and the crews, wearing UN berets, were based in Entebbe, Uganda, flying out to Juba and Malakai.

The same month, C-130Js deployed for four weeks to Nepal in the wake of the devastating earthquake, flying many sorties into Kathmandu. Four months later, C-130Js dropped aid over Iraq's Mount Sinjar for Yezidi people just 36 hours after getting the call.

Both squadrons have had aircraft based in Akrotiri for Operation Shader since then, while a single Hercules is detached to the Middle East on

a rotational basis, supporting UK personnel in the region.

A C-130 has also been based in the Falklands since 1982, providing maritime search and rescue support for QRA Phantoms, Tornado F3s and now Typhoon FGR4s.

There are about 50 crews – with two pilots per crew – and many more air loadmasters on the C-130J wing. Five or six C-130Js are usually on permanent detachment, while others can be positioned around the globe supporting exercise programmes.

Spreading the load

Cunningham said of the C-130Js: "We were expecting to retire the first C-130Js, but SDRS [Strategic Defence and Security Review] 15 extended them and there's an ongoing discussion to extend the Mk 5, or elements of it, which is linked to the operational tempo. "When 30 Sqn transfers to A400M mid-next year, 47 Sqn will continue flying the C-130 until 2035. All the engineers are now with the unit with the pilots, making it the largest squadron in the RAF with just under 400 personnel."

The 24 C-130Js are spread over three locations – the operational area; first and second line rectification at Brize; and depth maintenance at Marshalls [Cambridge]. As a result, there are 14 to 16 of 24 aircraft available a day.

Cunningham sums up the AMF's task: "We work in a fast-paced operational tempo. Supporting the UK Defence's air transport needs, whether tactical or strategic, is tough business and it's never boring!" **Alan Warnes**



BAe 146

The two BAe146 CC2s and a pair of C3s are operated by 32 (The Royal) Squadron in the Command Support Air Transport (CSAT) role. They have excellent short-field performance, tactical approach capability and a full defensive

countermeasures suite. The two BAe 146 C3s joined the RAF in early 2013. With its discreet appearance, the BAe146 enables the transportation of high-priority personnel and cargo to high-threat areas worldwide and

is commonly seen flying around the Middle East. The two BAe 146 CC2s in the Royal or VVIP transport and communication roles. The standard operating crew for each is two pilots, two cabin crew and a ground engineer.



The RAF uses two low-profile BAe 146 CC2s to transport senior personnel around in Middle Eastern hotspots. They are flown by 32(TR) Squadron based at RAF Northolt. Chris Lofting