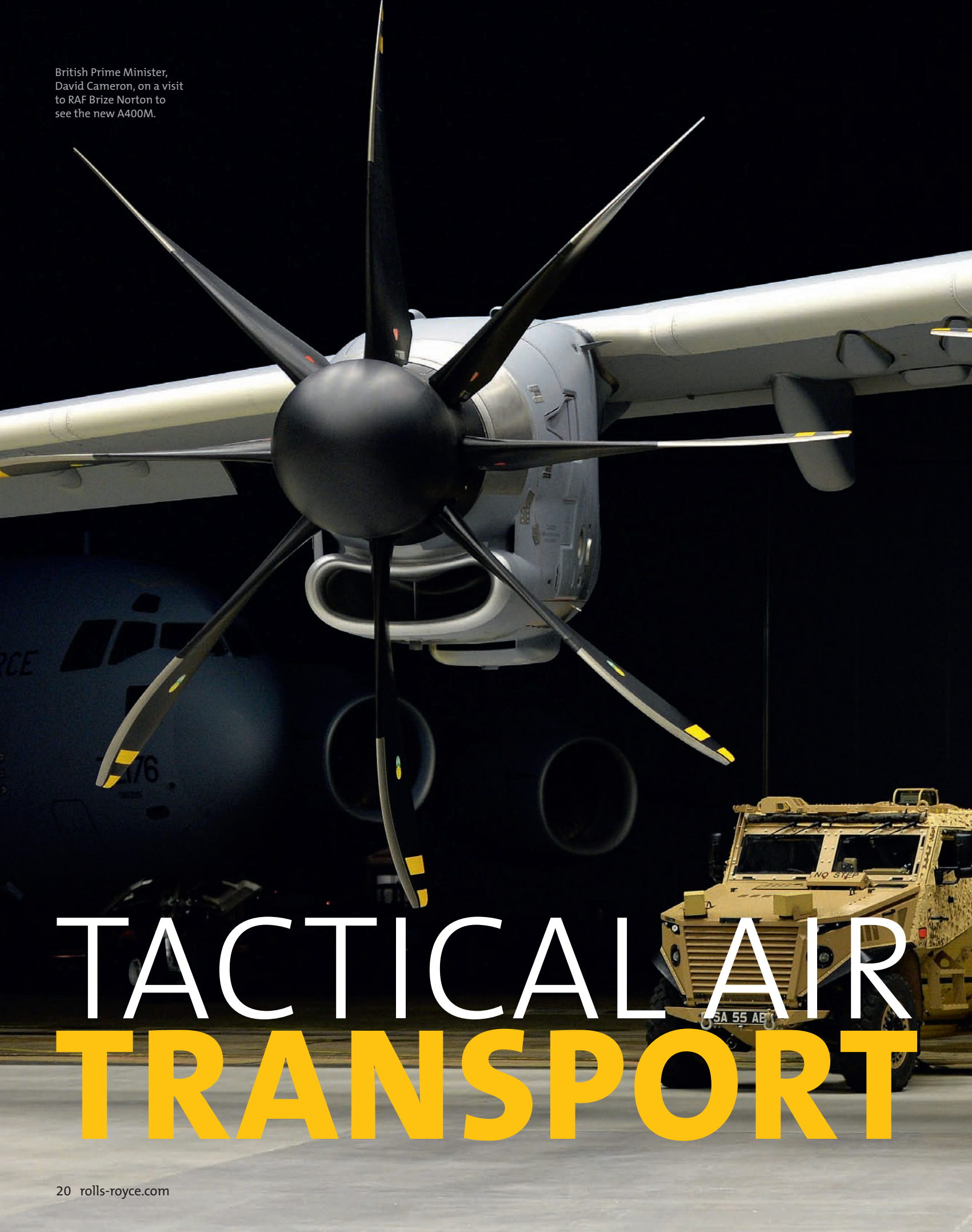
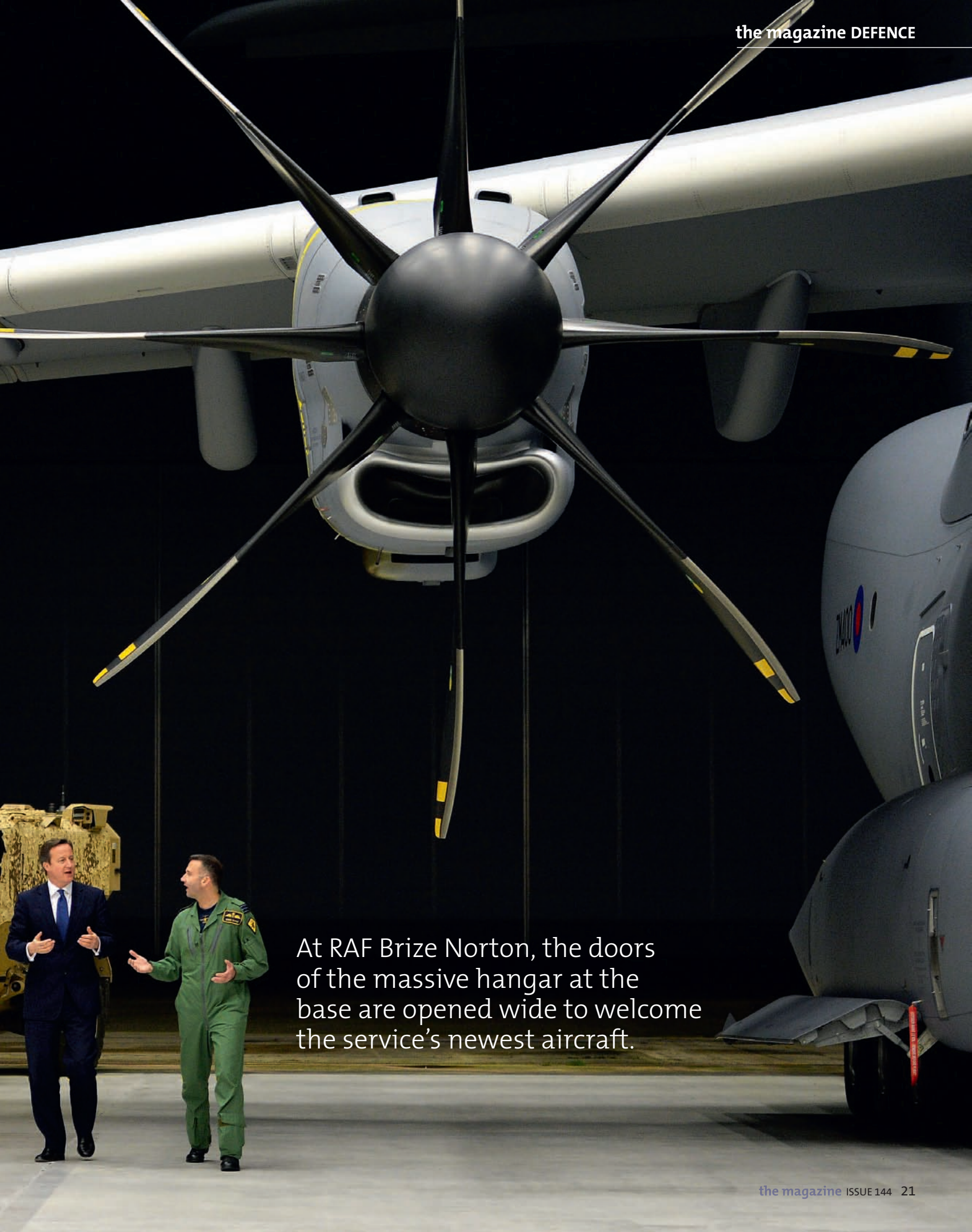
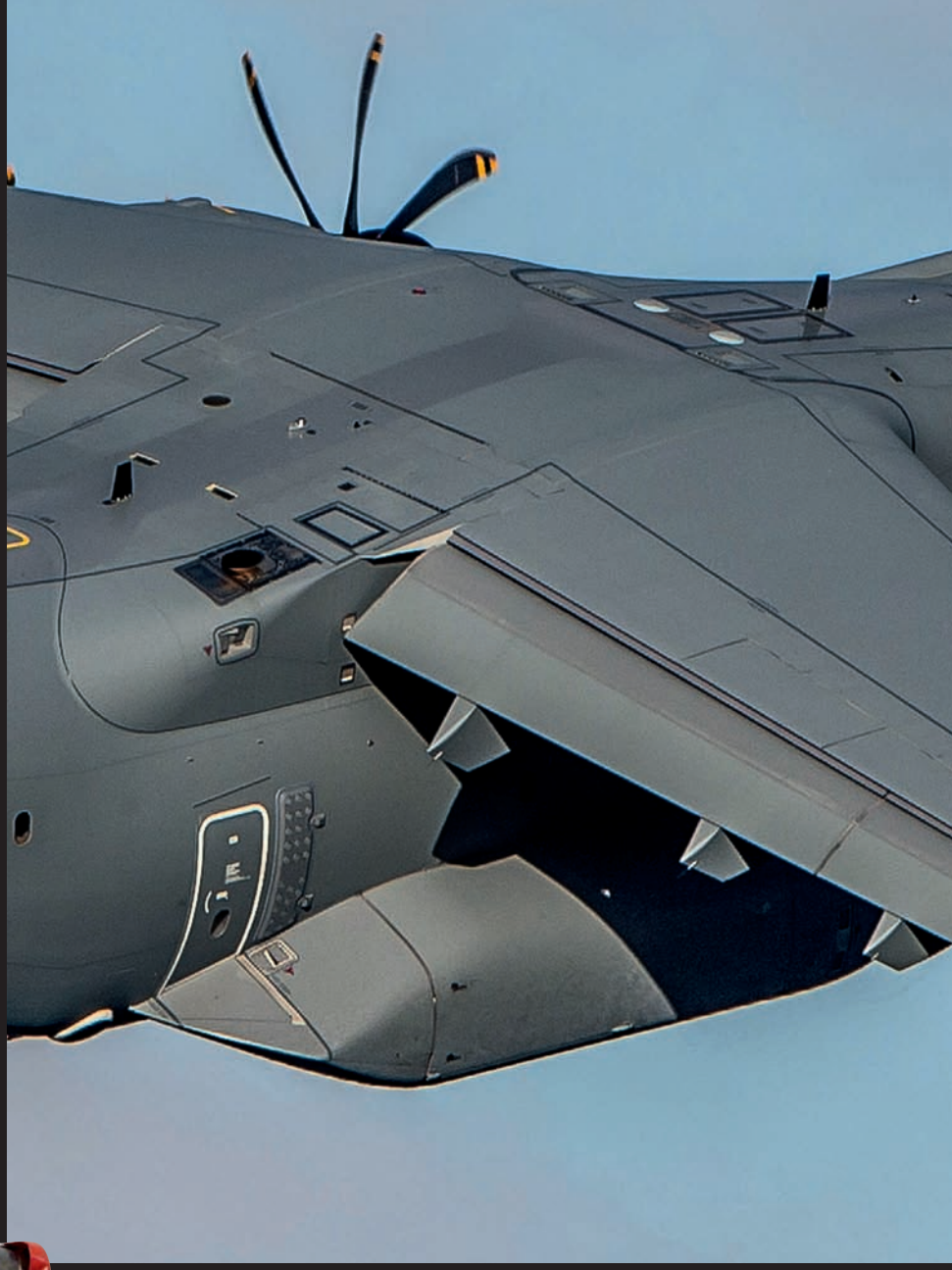


British Prime Minister, David Cameron, on a visit to RAF Brize Norton to see the new A400M.

TACTICAL AIR TRANSPORT



At RAF Brize Norton, the doors of the massive hangar at the base are opened wide to welcome the service's newest aircraft.



Flanked by one of the UK's Airbus A330 Voyager tanker/transports to one side and a Boeing C-17 strategic airlifter to the other, the recently-delivered A400M "Atlas" looks instantly at home with the types that it will be operated alongside for the next few decades.

Painted in regulation military grey, the A400M is squat and business-like in appearance. Its frontal profile is dominated by a high T-tail and fixed in-flight refuelling probe – both of which instantly mark it out as a military model – but perhaps most strikingly by the four Europrop International (EPI) TP400-D6 turboprop engines which hang from its all-composite wing.

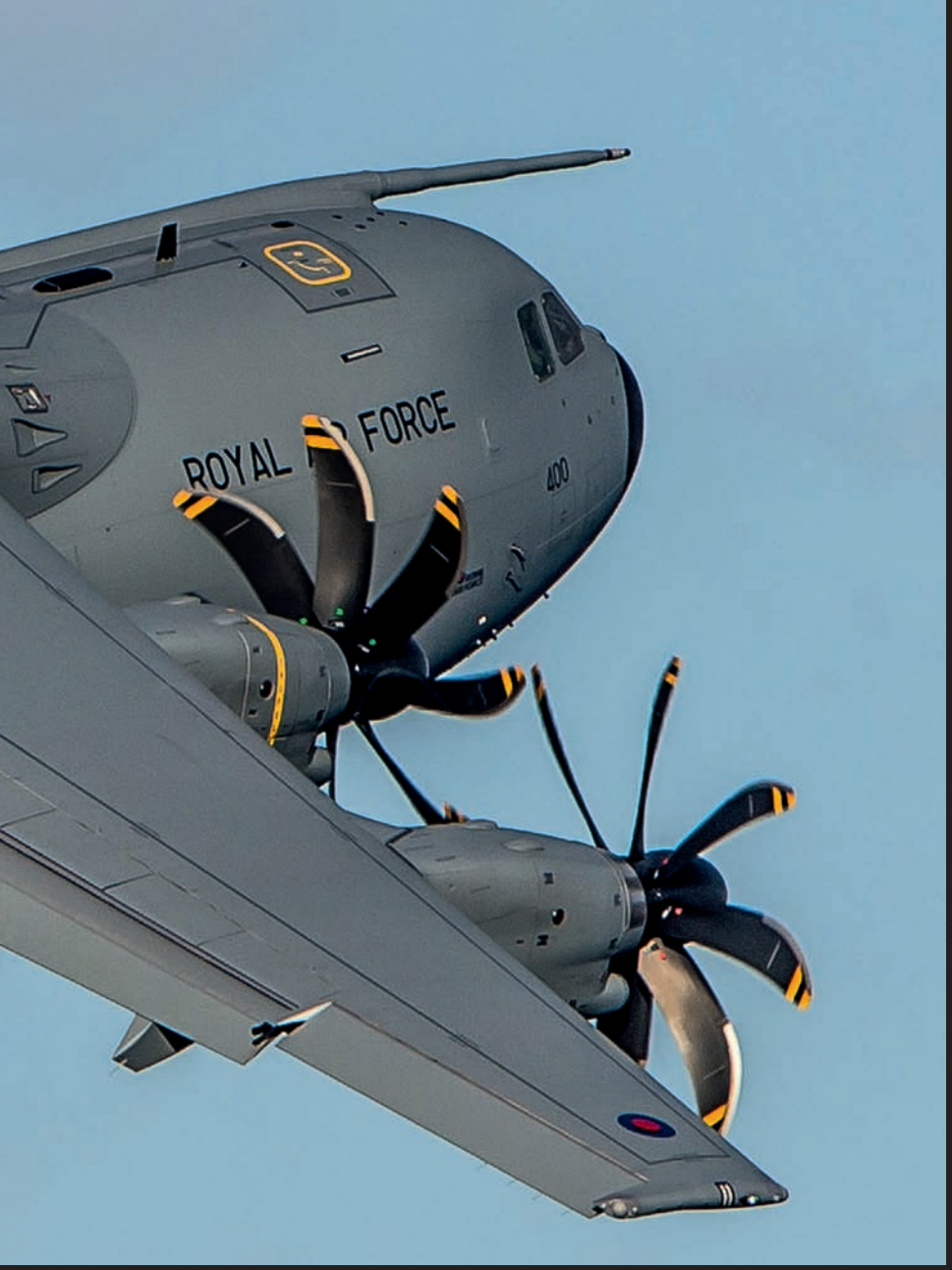
The most potent powerplant of its kind ever developed for a Western type, the TP400 drives an eight-bladed propeller with a span of over 5.3m (17ft 5in). Maximum available power is 11,000shp (8,200kW), with each total engine weighing in at 908kg (2,000lb).

The first of 22 Atlas tactical transports on order for the RAF, aircraft ZM400 has been eagerly awaited, and the service's expectations for it are sky-high. A successor to the already-retired Lockheed Martin C-130K, the A400M will, over the next few years, also progressively take over the responsibilities of the newer-generation J-model Hercules, the last of which are due to leave UK service during 2022.

RAF officials speak of the Atlas as promising a "step-change" in capability; a claim backed up by its performance statistics. The A400M has a high cruise speed of Mach 0.72 at 37,000ft – closer to the jet-powered C-17 than the C-130J's M0.55, and has a maximum useful payload capacity of 32t; some 13t more than the Hercules. In practical terms, the new aircraft will fly further and faster and carry more vital equipment and personnel to the point of need.

With a typical payload of 12t, a C-130J has a range of around 2,000nm (3,700km), according to the RAF. The A400M will carry a 30t cargo over 450nm further, with this range rising to 3,450nm while lifting a 20t load, and to a maximum ferry distance of 4,700nm.

"Equipment is getting bigger and heavier, and we need something bigger to carry it all," says Wg Cdr Dorian "Doz" James, officer commanding the 24 Sqn training unit at Brize Norton which is now preparing crews to operate the type. Importantly, the new fleet can be expected to assume some of the heavy lifting which has until now only been possible using C-17s or commercial cargo types. This includes the ability to move a large armoured vehicle weighing up to 30t, or a



The A400M is powered by four TP400 turboprops. The scale of the engine can be seen (left).

support helicopter up to the size of a Boeing CH-47 Chinook.

"Every A400M crew will be capable of worldwide operations carrying passengers, freight and the majority of the loads that we carry today," says James. Other expected tasks will include maritime reconnaissance and search and rescue support when the type is deployed to the Falkland Islands from late in 2017, and also medical evacuation.

Another key application for the A400M will be more covert, with the model to gain full capability to support special forces operations by the time that the UK's last Hercules leave use.

Ability

It will provide a genuine tactical lift capability to the UK and the other seven nations which are currently also contracted to field the Atlas. "The aircraft will give the RAF the ability to move people and equipment rapidly around the globe for military and humanitarian operations, combining the intercontinental range of the C-17 with the ability to do the tactical rough landings of the C-130," says the Ministry of Defence.

All of the UK's examples should be delivered by 2018, under an acquisition worth £2.8 billion ($4.2 billion).

With a first handful of the RAF's 24 C-130Js scheduled for retirement this year, it will not be long before the Atlas starts to perform strategic air transport tasks, from around mid-2015. The RAF is already rapidly gaining experience using ZM400, which has made visits to locations including Cyprus, Germany and Gibraltar during its short service life.

A first active UK unit – 70 Sqn – is expected to achieve initial operational capability (IOC) status later this year, with the milestone linked to the delivery of the RAF's first seven aircraft, and by the completion of training for sufficient crews to support their use.

Work to prepare the first crews is now approaching full swing at Brize Norton, with 70 Sqn having been reformed in an administrative role last October and its lead instructors having begun a conversion course in January, using the A400M Training Services-run "school house". Opened in 2014, this currently houses one of the RAF's eventual two full-mission simulators for the new airlifter, in addition to maintenance trainers and other classroom-based equipment.

Review

In January Airbus announced that a production schedule review was under way, as it adds the required extra tactical capabilities expected of the aircraft, such as its defensive aids system, on-board cargo handling equipment, airdrop functionality and clearances to undergo in-flight refuelling.

Airbus Defence & Space cites the capability being provided with the ten operational A400Ms so far handed over to France, Germany, Turkey and the UK. "The current aircraft in service are showing good performance, with the aircraft exceeding specifications in its strategic, logistical role."

The RAF's phased introduction plan calls for the first flights to be made in so-called "non-benign" inter-theatre airspace from mid-2016, and an intra-theatre deployable capability is expected by early 2017. Full tactical support duties – including aerial delivery – should be assumed towards the end of 2018, and a fully deployable capability should be declared in March 2019.

"Plans for aircraft operations will be conservative in nature, reflecting immaturities in the platform itself, limited asset availability and our operator inexperience," says 70 Sqn officer commanding Wg Cdr Simon Boyle.

Training for tactical flying will prepare crews to operate at a height of 250ft by day or night, while the most capable pilots will receive instruction in how to support special forces personnel. This will include tactical flying at just 150ft, and other operations up to high-altitude paratroop insertion from 40,000ft. In line with the type's phased receipt of responsibilities from the C-130J force, the special forces role should be operational by March 2022.

At Brize Norton, Base Hangar is a temporary home, with a purpose-built structure for the A400M being constructed.

Once the fleet has grown in size, 70 Sqn will be followed by a second unit to reform with the type after operating the Hercules.

Industry will play a key part in supporting the Atlas through its UK service life; both at its main operating base and at company facilities. Rolls-Royce in 2014 announced an £18 million investment in infrastructure at its Bristol site, which will include adapting an existing testbed to allow the TP400 to be run while off the wing. This maintenance, repair and overhaul capability will initially be used to support engines in service with the RAF, but could also assist other nations.

Supporting

"We look forward to supporting this latest (A400M) customer and its operations around the world," EPI President Ian Crawford says of the first arrival. "We look forward to delivering new levels of performance and capability to the RAF's transport fleet."

The EPI consortium has brought together Europe's leading engine suppliers to develop the A400M's three-shaft TP400-D6 and be responsible for its entire propulsion system – also including its propellers and gearboxes. Rolls-Royce has a 28 per cent stake, with France's Snecma holding 28 per cent, Germany's MTU 28 per cent and Spain's ITP 16 per cent.

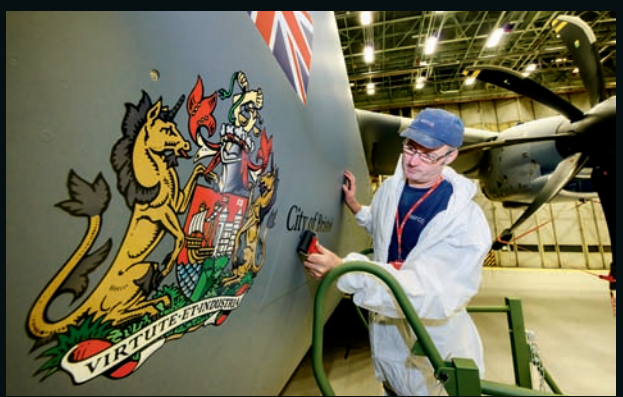
By late last year more than 100 production engines had been delivered to Airbus, and the in-service fleet had logged over 4,000 flight hours.

As ZM400 conducts regular circuits at Brize Norton, Atlas sightings are also more frequent elsewhere in Europe and beyond. The French Air Force has already used its first six examples to support training tasks, and to perform logistic transport flights to locations including Jordan, Mali and French Guiana.

Late in the first quarter of this year, Malaysia should become the fifth nation to take delivery of an A400M, also following Turkey and Germany. Kuala Lumpur is the first – and so far only – non-European customer for the type: a situation that Airbus Defence & Space is working hard to change through export campaigns in regions including Asia, Latin America and the Middle East.

With the UK's first Atlas now on the ramp at RAF Brize Norton and additional operating capabilities to be added to the A400M for its user nations over the coming years, the type's true potential is about to be realised. ℞

Author: Craig Hoyle is a defence editor for Flight International and has reported on defence aerospace programmes since 1996.



The first of the A400M aircraft in service has been named 'City of Bristol.'