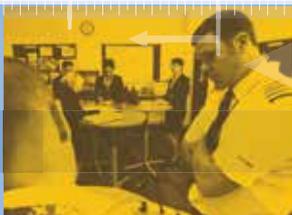




1 Project team
2 Squadrons
5 Shareholders
14 Aircraft
ONETEAM



The RAF's Voyager Force has now been flying for four years. **Alan Warnes** visited RAF Brize Norton, where AirTanker is based, to find out how industry is providing an airborne refuelling service.

Voyagers

In Full Swing



Two types

OF THE eight military registered aircraft, two Voyagers are currently configured as KC2s, with two Cobham 905 under-wing pods, which are used for refuelling fast jets. Six are configured as KC3s, fitted with the Cobham Fuselage-Refuelling Unit (FRU) to create a centreline refuelling capability, primarily to give fuel to large aircraft. All of the military registered aircraft have the ability to be configured as either a KC2 or KC3.

Having the ability to refuel two receiver aircraft from its wing pods simultaneously, Voyager gives the RAF a large capacity two-point tanking capability for the first time. The maximum flow from each wing pod is just over a ton (1,200kg) a minute and nearly two tons (1,800kg) a minute on the centreline.

Meanwhile, the five Voyagers that are being made available in the charter market have to be demilitarised. They will have their AAR equipment, including the under-wing pods and the Cobham FRUs, removed at RAF Brize Norton and the aircraft reverting to A330-243s. One has so far been chartered to Thomas Cook. ■

AIR-TO-AIR REFUELLING (AAR) aircraft, or tankers as they are generally called by the military, are worth their weight in gold. They enable receiver aircraft to fly further without the inconvenience of landing. Or, as has been in the case over Iraq, Afghanistan and more recently during anti-Daesh operations, refuelling fighters to enable them to stay longer on station in case of time-sensitive missions. Tankers are a vital lifeline for the air forces that operate them.

Revolutionary AAR

In Britain, the RAF has adopted a revolutionary method of using air-to-air refuellers: by buying the service from industry under what was known as a private finance initiative (PFI). Unable to afford the big-ticket capital investment for a new tanker fleet, the MOD put its Future Strategic Tanker Aircraft (FSTA) project out to tender in 2000.

The competition between AirTanker, offering A330MRTTs (Multi-Role Tanker Transports), and Tanker Transport Services Consortium

(TTSC) with its converted Boeing 767s, lasted around four years. It resulted in AirTanker being selected to enter into contract negotiations on January 26, 2004 and on March 27, 2008 the deal was done (*RAF Tanker Deal Finally Signed*, May 2008, p4).

AirTanker, a consortium of Airbus Group, Rolls-Royce, Thales, Cobham and Babcock, was awarded the £13 billion (\$25.8bn) PFI contract on March 27, 2008 (*RAF Tanker Deal Finally Signed*, May 2008, p4) to run for 27 years.

According to AirTanker, the consortium brings unparalleled expertise to its front-line operations, which includes a full CAA Part M and Part 145 approved engineering and maintenance facility at RAF Brize Norton, Oxfordshire, where the fleet is based.

The company also holds its own Air Operator Certificate, employing a team of civilian pilots and cabin crews drawn from leading global airline operators. Operating within the Voyager programme, these pilots also step across into a Sponsored Reservist role to deliver military air transport, air-to-air refuelling and training as part of AirTanker's military programme. It all adds up to provide the RAF with a 'trailblazing' while optimising costs. Many air forces globally are keeping a keen eye on the progress.

However, the RAF isn't getting just an AAR service. The A330MRTT aircraft, known as the Voyager, are also taking on their fair share of air mobility work by transporting military personnel or freight all over the world. ▶



An RAF Typhoon FGR4 and a French Air Force Rafale sit off the starboard wing of an RAF Voyager during Exercise Griffin Strike in March. Crown Copyright

Defence Gateway to the World

RAF Brize Norton is the RAF's largest station, with the sign at the main gate proclaiming it as Air Mobility's Defence Gateway to the World. Behind the fencing, the RAF is going about its business in such a way that is different from any other air force.

The base has gone through considerable change over the past decade. Gone are the elderly VC-10s (last operational sortie on September 20, 2013), which served an amazing 47 years and Tristars (last operational flight on March 24, 2014), which chalked up 30 years. Both were breaking down as they headed towards the end of their careers. That wasn't surprising given the age of the airframes and technologies as well as their tireless AAR/air mobility work during the wars in Iraq, Afghanistan and Libya.

The Oxfordshire base has also seen the number of C-17As increase, the 20+ strong C-130J fleet has moved in from RAF Lyneham, Wiltshire, eight A400M Atlases have been delivered by Airbus Defence and Space to date and the Voyager Force has stood up. The latter has grasped a completely new way of working, with industry and the military as one. Now, four years after the first operational RAF Voyager flight departed the base on April 8, 2012, all but one of the 14 aircraft have been delivered. ■



Above: The modern look of the flight deck with a glass cockpit. The pilot sits on the left and co-pilot on the right. The latter came to Voyager Force via the ab initio route rather than arriving from the VC10, Tristar or C-130, as have most aircrew.

AirTanker will eventually have a fleet of 14 brand new Airbus A330MRTTs, comprising nine aircraft for air-to-air refuelling and air transport with an additional five making up the 'surge' fleet. These would be made available to the RAF at its request, or potentially to allies in future.

Until that time the 'surge' aircraft can be leased by AirTanker to the civil market, with Thomas Cook already taking up one of the A330s in a three-year deal.

Interoperable

Stepping into the brand new AirTanker building, traditionalists will be surprised to see both RAF and civilians going through the same doors, into the same offices and ultimately sharing the same workload. This is the way Voyager Force works. It comprises civilians, sponsored reservists and RAF personnel working as a united force to deliver a much-needed capability.

The Voyagers are being flown by two squadrons - 10 Squadron and 101 Squadron - which, although separate entities, are interoperable. Both share the same tasks and fly together, unimaginable within many air forces. The only difference between the two units is the management duties.

Sharing the workload has seen the manning levels decrease dramatically. In the VC-10/Tristar days there were 550 personnel on one squadron, but today there are 350 personnel with the two squadrons. The Officer Commanding 10 Sqn, Wg Cdr Si Blackwell said: "It goes to show how efficient in personnel and manpower the new system is."

The enthusiastic OC 10 Sqn calls it "trailblazing" saying: "The capacity and capability of the Voyager is something else."

Having flown 101 Sqn VC-10s in the air-to-air refuelling role (AAR) and served as an AAR co-ordinator - planning tanker



The RAF's new air-to-air refueller is also playing a major role in Operation Shader, flying out of RAF Akrotiri in Cyprus. Crown Copyright

missions in the UK and overseas - he knew the VC-10/Tristar fleet well.

"There is such a huge difference between the Voyager and the VC-10/Tristar. From the serviceability, to the way it's supported, to the regulations and the interoperability."

While it's a complex set up, the operational targets being achieved by AirTanker are a significantly marked improvement on the legacy fleet.

While initial crews comprised VC10, Tristar and C-130 personnel, ab initio pilots have been joining the Voyager Force for a while now.

Wg Cdr Blackwell continued: "We have been taking on ab initio pilots for two-and-a-half to three years now. We brought co-pilots in from 45(R) Sqn where the multi-engine pilot training is done, quite quickly. We should have our first ab initio captain soon - they start their course before the end of the year. The new generation of pilots adapt very well and the pipeline is very well configured. Pilots

train on the glass cockpit before they come here."

In Together

While the global transport and air-to-air refuelling role remain the same, the Voyager Force is a step change. With the Force's RAF personnel built predominantly from people who worked on the VC-10 and Tristar - their knowledge is vast and indispensable. While they work for the squadron, the engineers are employed by AirTanker. One-third are serving service personnel in uniform, another third are sponsored reserves and the remainder are AirTanker staff.

With two-thirds of the engineers capable of supporting military operations, it enables the Voyager to go on deployed ops with a complement of uniformed, experienced RAF and AirTanker staff.

Wg Cdr Blackwell said: "Since civilians cannot be deployed to war, sponsored reserves provide a manpower-efficient way to get around that."

Although the military engineers, along with other personnel fulfilling flight ops, logistics and admin roles, work for AirTanker, they report to the RAF for admin/discipline purposes.

Each aircraft has a pilot and co-pilot with a Mission Systems Operator (MSO), responsible for operating the air-to-air refuelling equipment. Additionally, more than 120 cabin crew support the Air Transport (AT) role and, unlike their civilian counterparts in the airline world, wear flying suits.

When Operation Herrick ended in late 2014/early 2015 the Voyager Force was fulfilling its AT role to get the troops home and the refuelling element of its work dipped. During that time the MSOs usually performed purser duties.

Wg Cdr Blackwell said: "There is an annual tasking of just over 16,000 flying hours, but the work ebbs and flows to meet demand. In the wake of completing ops in Afghanistan in late-2014/2015 it was very AT heavy, but due to Operation Shader [the UK's operations over Iraq/Syria] we are now AAR heavy to meet the demands as necessary, demonstrating the inherent flexibility in this new force."

Although there are eight military aircraft, there are nine Voyagers used for military ▶



Above: Parked on the ramp at RAF Brize Norton, where the Voyager fleet is based, is A330-243 G-VYGL. This example is part of the 'surge' fleet. It is one of the five that can be sub-contracted and has been de-converted from a military airframe. It has no refuelling equipment, no missile warning system and no national insignia. All photos, Alan Warnes unless stated **Below:** The Voyager Force was used to transport military personnel back to the UK as Operation Herrick edged to a close last year. A Voyager arrives at Camp Bastion, Afghanistan, for the first time in February 2015. Crown Copyright



tasking. The ninth has no under-wing pods, no RAF roundels and carries a civil registration. It is used for the Falkland Islands airbridge flown by AirTanker crews. This enables military pilots to give their full attention to more demanding operational roles.

Current ops

The Voyager Force flew more than 3,000 hours in the last financial year (2015/16) in Operation Shader. The aircraft are usually airborne for between five and seven hours with an average offload of around five tons. The aircrews generally stay in RAF Akrotiri, Cyprus, where Voyager is based for about a week. "They use their regulatory maximum flying hours limit very quickly there, so they don't stay long. That is unlike most overseas deployments, but working this way doesn't affect their currencies."

Apart from their usual RAF Tornado, Typhoon, C-130J Hercules and E-3D Sentry traffic, the Voyagers are also refuelling multinational F/A-18s (Royal Australian Air Force and US), French Air Force Rafales and Mirage 2000s as well as USMC AV-8Bs. While no formal clearance exists, it works due to the operational imperative and a risk balance of other military users' data.

Wg Cdr Blackwell added: "The RAAF F/A-18s already work with their own A330 tankers, so it makes sense."

Recently the Eurofighters of Germany, Italy and Spain have been released to fuel from the RAF Voyager, as have Tornados of the three partner nations.

The biggest offload of fuel during one sortie, of just over 52 tons took place in late March. Wg Cdr Blackwell explained: "We always want to take on trade. We train them to be flexible, because it is very easy to be a 'tanker man', flying around the track waiting for the receiver to find you. So we try to focus on flexibility. In Afghanistan we were probably over-flexible [by straying into areas where the tankers should not have been to help the receiver], which could be classed as extreme bravery or stupidity!"

"We are all about maximising fuel, if that means offloading more so they are closer to their target area, that's great."

"It's a very busy air space during Op Shader sorties, so we stay in Blocks and they come to us – we don't wander!"

There is always one Voyager in the Falklands, which can provide support to the 1435 Flight Typhoons on Quick Reaction Alert (QRA) there and provides an aero-med standby. The passenger cabin can be configured to provide a 40-stretcher aeromedical evacuation capability. It also includes two rapidly configurable stretchers and three critical-care patient facilities.

There is also a Voyager on alert at Brize Norton to support Typhoons if called into QRA action

AirTanker Voyager KC2/KC3 Fleet

RAF Serial	Variant+	Airbus c/n	Remarks
ZZ330	KC2/3	c/n 1046	Ex G-VYGA
ZZ331	KC2/3	c/n 1248	Ex G-VYGB
ZZ332	KC3/2	c/n 1275	Ex G-VYGC
ZZ333	KC3/2	c/n 1312	Ex G-VYGD
ZZ334	KC3/2	c/n 1033	Ex G-VYGE
ZZ335	KC3/2	c/n 1334	Ex G-VYGF
ZZ336	KC3/2	c/n 1363	Ex G-VYGG
ZZ337	KC3/2	c/n 1390	Ex G-VYGH
ZZ338	A330-243	c/n 1419	To G-VYGI
ZZ339	A330-243	c/n 1439	To G-VYJ Falklands AT
ZZ340	A330-243	c/n 1498	To G-VYK/ Thomas Cook
ZZ341	A330-243	c/n 1555	To G-VYGL
ZZ342	A330-243	c/n 1601	To G-VYGM – To be cvtd
ZZ343	A330-243	c/n 1610	To G-VYGN – Not delivered

+ The variants can be subject to being re-rolled

from RAF Lossiemouth in Moray, Scotland, or RAF Coningsby, Lincolnshire, which is a regular occurrence due to Russian Air Force activity.

On board

There are two pilots and an MSO in the cockpit. While the MSOs operate the refuelling systems, they can also take on the purser's role if needed. That doesn't happen too often, but was a regular requirement during the post Op Herrick days in early 2015, when there were many flights returning UK personnel from Afghanistan and air mobility was the predominant task.

In the cabin/passenger capacity there are 291 single Economy Class seats in an eight abreast 2-4-2 configuration, which is the standard Airbus civilian seating, featuring a 34in pitch. The aircraft also have an in-flight entertainment system. There is also the capacity to carry 43 tons of freight, which is accommodated below deck. However, this does restrict the number of passengers to fewer than the 291. An automated cargo handling system is capable of loading military and civilian cargo containers.



Above: Two Mission Systems Operators sit in front of the airborne refuelling monitors, watching the fighters taking on more fuel. One is calculating the amount being offloaded, as his colleague on his right, an instructor, watches over. Below: The penultimate RAF Voyager, FSTA13/ZZ342 was delivered to RAF Brize Norton on February 24 this year. The refuelling equipment will be taken off so it can become part of the 'surge' fleet. AirTanker



On a mission



DURING THE 'Tartan 41' flight, on which AFM was invited on April 6, an MSO instructor – one of two on the Voyager Force – was checking out a fellow MSO, while a purser looked after the personnel on board. During the four-hour mission, which saw the Voyager KC3 ZZ332 depart RAF Brize Norton with 99 tons of fuel (capacity is 111 tons) it was set to refuel three Tornado GR4s from RAF Lossiemouth-based 15(R) Sqn and seven Typhoon T3s of 29(R) Sqn from RAF Coningsby. While the Tornados were undergoing operational conversion unit, the Typhoons' instructors were keeping proficient in AAR.

We transited for an hour up to north-east England where we refuelled the three Tornados, offloading around 11 tons over 15 minutes. The jets joined us on the left wing before dropping behind the refuelling pods and moving in, taking on the fuel, before heading over to the starboard wing.

We then flew down over the Lincolnshire coast to meet two formations of Typhoons: one a three-ship and then later a four-ship. The three-ship returned to top up again just before we headed home after offloading around 40 tons over the ten Typhoon refuels. The MSOs supervised the off-loading of the fuel and worked the two hose/drogue systems. ■



1: After heading northeast, 'Tartan 41' refuelled three 15(R) Sqn Tornado GR4s. 2: The back-seater of this 29(R) Sqn Typhoon T3 watches as the pilot plugs into the drogue just off the UK's east coast. 3: A Tornado GR4 takes on fuel from the Voyager, which can offload just over a ton of fuel a minute from the wing pods. 4: Having taken on fuel, this 29(R) Sqn pilot manoeuvres his Typhoon to the starboard wing and awaits the other jets in his formation. Photos, Alan Warnes



AirTanker Services

AirTanker Hub
RAF Brize Norton
Carterton
Oxfordshire OX18 3LX
United Kingdom
Tel: +44 (0)1993 873000
www.airtanker.co.uk
media@airtanker.co.uk

For more information, please contact:

Mrs Heather Cox

Head of Communications
Tel: 07718 117050 or

Mrs Sara Chubb

External Communications and Engagement Manager
Tel: 07715 040405.