Bronco Break-o ut

After years tucked away from view at Duxford, a North American OV-10B Bronco made its long-awaited public debut at Yeovilton in September, as owner TONY DE BRUYN reports. With photography and historical detail by RICHARD PAVER

THE FIRST public outing of our newly-restored North American OV-10B Bronco, 99+32, during the Royal Navy Historic Flight (RNHF) Charity Flying Day at Yeovilton on September 13, presented an excellent opportunity for an air-to-air photographic sortie with Richard Paver. It could not have been a more appropriate occasion, as it was exactly seven years ago to the day that our first OV-10B had arrived on UK soil for restoration.

The sortie thus marked the culumination of an extended effort that actually started nine years ago, with the acquisition in September 1999 of two OV-10Bs (99+26 and 99+32) from the *Technische Schule der Luftwaffe 3* (TSLw 3: Technical School of the Luftwaffe No 3) at Fassberg Air Base, near Hannover in Germany.

ABOVE Looking gloriously weather-worn, OV-10B Bronco G-BZGK/99+32 poses for Richard Paver's camera on September 13. BELOW Parked at Duxford, the aircraft exudes character.

The aircraft had been used as Aircraft Battle Damage Repair (ABDR) subjects since their arrival there in winter 1991. (An ABDR allows a military aircraft to continue to operate in wartime conditions or to be ferried to a maintenance depot for repairs.)

The ABDR exercises necessitated hacking holes in the airframe for students to repair. Luckily the damage inflicted was superficial, and limited to certain areas of the fuselage and booms; but both OV-10Bs had been subject to some minor vandalism following withdrawal from use. While they were parked outside the school buildings awaiting disposal, many cockpit instruments went missing, together with some bigger items such as an ejection seat.

A search for the missing parts started, and over a two-year period both OV-10Bs were restored to ferryable condition. Our working conditions at Fassberg were harsh, to say the least. We were denied access to any hangars and had to complete all work outside. It had therefore been decided at an early stage to prepare the aircraft there for a ferry flight to a location where a full restoration could be done.

By the book

Much to the credit of the teachers and students of TSLw 3, all of the ABDRs were found to have been completed according to the book, greatly simplifying the task of making the aircraft flyable again. Hence both OV-10Bs were ferried to the UK with all ABDRs still in place.

After arrival in the UK, just days after the world-changing events in September 2001, definitive repairs towards the issue of an unrestricted Permit to Fly were carried out at Duxford.

The restored aircraft is the first of its type on the UK register, and a number of issues had to be carefully considered and overcome, especially as it was our intention from the outset to have both Broncos cleared for operation over their full flight envelope, without any limitations. Naturally most of the hurdles involved paperwork, but some minor modification and even test flights with tufting were required too.

It must be emphasised that the co-operation of the Civil Aviation Authority (CAA) has been very positive and constructive throughout. It is indeed very reassuring to know that Permit to Fly aeroplanes in the UK are strictly controlled to a very high standard, and are in fact expected to meet similar airworthiness standards to normal type-certificated (Certificate of Airworthiness) aeroplanes — and quite rightly so.

ABOVE Tony De Bruyn, chairman of the OV-10 Bronco Association's German Wing, which owns a pair of OV-10Bs including the example seen in the accompanying first air-to-air photographs.

Restoration begins

The actual restoration process entailed the removal of all ABDRs. By adhering to the original material and process specifications the Bronco was effectively restored to original condition. To help with the repairs we were lucky to obtain copies of a complete set of OV-10 technical documentation, up to date to the

issued on November 11, 2007.

Sadly, on later flights the starboard engine developed an indication anomaly. This took additional time to fix, grounding the aircraft until July this year.

Challenging project

Although the restoration of both Broncos has been a challenging project by any standard, the time and effort has proved very worthwhile. What a joy it is seeing it in the air and, from a pilot's perspective, handling the controls. It is an agile and very pleasant aeroplane to fly, exhibiting very light control forces throughout its flight envelope. It offers truly superb visibility all round, and is a real short-take-off-and-landing aircraft, allowing operations from short grass strips. Adding even more to its versatility is a large hold with a payload capacity of over 1,500kg.

Our Bronco has been cleared throughout its envelope, with a useful speed range from 90kt to an ultimate never-exceed speed of 350kt. Its full aerobatic capability

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moment the type was taken out of active military service by the US Government. Such documentation is tremendously important, and allowed a full overhaul of all aircraft systems. Additionally, freshly-overhauled zero-time engines were obtained and installed, and the propellers were overhauled just as thoroughly.

July 11, 2007, was the big day of the first post-restoration flight from Duxford (see *Aeroplane,* August 2007). All went well on the initial and subsequent test flights, much to the credit of the engineers on the project, who have done a wonderful job. A major milestone was reached when a full Permit to Fly was

ABOVE Compare the unfaded DayGlo paint on the Bronco's undersurfaces with the corresponding areas on the top views on other pages. The aircraft is to be repainted soon.

The Bronco's bloodline BY RICHARD PAVER

ORIGINALLY DEVELOPED in the 1960s to satisfy a United States Marine Corps (USMC) requirement for a multi-purpose reconnaissance and light attack aircraft, the North American (Rockwell) OV-10 Bronco first flew in 1965. Its initial variant, the OV-10A, saw extensive service, with more than 150 examples seeing combat use in the Vietnam War. Of particular note in its design was the superb visibility for both the pilot and copilot from the huge glazed cockpit, together with its impressive capability to carry cargo, stores and supplies in its large rear compartment. Two Garrett T76 turboprop engines gave the Bronco impressive performance, with a maximum speed of 288 m.p.h.

A VERSATILE PLATFORM

The type was quickly recognised as being adaptable for a wide variety of missions — including light machine-gun- and cannon-armed gunship, forward air control (FAC), night observation and surveillance, laser targeting, target tug and infrared surveillance. In 1991 a number of OV-10As and -Ds saw active service in Operation *Desert Storm,* being used primarily for night surveillance.

Retired from American military use in 1994, the Bronco has remained in service in Indonesia, Thailand, Venezuela, Morocco and the Philippines; and converted OV-10Ds are still used by the US Department of State for drug eradication spraying in Colombia. In post-military service in the USA the Bronco has also been very successful as a fire-spotting observation aircraft. A grand total of 360 examples were built, of all variants.

Manufactured for West Germany as a target tug, the OV-10B was derived from the OV-10A but carried no weapons and was modified with a glass dome instead of a solid rear door to allow the target operator to see out of the rear of the aircraft. Six OV-10Bs and 12 OV-10B(Z)s were ordered by the West German government and they were operated for 20 years, from 1970 to 1990.

The OV-10B(Z) variant had a GE J-85-GE-4 turbojet engine mounted on the wing above the centreline of the aircraft to provide additional thrust. This increased the speed by 100 m.p.h. and greatly improved take-off and climb performance; however, this variant had a greatly reduced range and a number were subsequently retrofitted to the standard B variant specification.

In 1990 the Bronco was replaced in German service by the Pilatus PC9, and the OV-10 fleet was dispersed to various European museums and technical schools including those at Hermeskeil, Bückeburg, Villingen-Schwenningen,

LEFT One of seven prototype Broncos, YOV-10A BuNo 152884; the first of them flew on July 16, 1965, at Columbus, Ohio. Production aircraft had greater wingspan and more widely-spaced booms.

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will, no doubt, make it an excellent airshow performer too. Furthermore, the Bronco offers great potential as a camera aircraft for air-to-air photography.

Puzzling decision

On a sad note, it was quite disconcerting to be informed by Mick Martin of the Imperial War Museum (IWM) that the Broncos are to be evicted from Duxford because "they do not fit in with the IWM collection policy as the aeroplane was not involved in a major 20th-Century conflict".

It is difficult to understand this decision, as there are many aircraft of the same era on display in the American Air Museum section — aircraft which, in fact, operated side-by-side with the OV-10 Bronco in some major war theatres during the last century. Contrary to the IWM's contention, the OV-10 Bronco has indeed been deeply involved in several 20th-Century miltary conflicts, such as the Vietnam War, the first Gulf War and several smaller-scale regional conflicts in Indonesia, Morroco, the Phillipines, Venezuela and Colombia.

It seems quite inappropriate for a publicly-funded museum to make such a foolhardy decision, which is certainly not in the public interest. Historically the OV-10 is of special interest, as it is the only aircraft type developed to a unique specification in the Forward Air Control (FAC) role.

ABOVE Tony De Bruyn shows off G-BZGK's distinctive plan view to the camera. LEFT The Bronco's cockpit combines 1960s style with a superb field of vision.

Want to know more?

Watch out for a Database *section on the Bronco, coming up in* Aeroplane *soon*

The Bronco's bloodline CONTINUED

Rothenburg and Berlin-Gatow. In addition aircraft 99+25 is airworthy at Carson City, Nevada, USA, and 99+24 flies with the *Musée Européenne de l'Aviation de Chasse* at Montelimar in France. Other examples went for Aircraft Battle Damage Repair (ABDR) use.

In June 2000 the German Wing of the OV-10 Bronco Association was formed under the chairmanship of Tony De Bruyn, who had acquired two Broncos in September 1999. Registered G-BZGK (99+32)and G-BZGL (99+26) respectively, they had not flown for more than ten years. During 2000–01 they were readied for ferrying to Duxford for full restoration. The ferrying team, led by Tony De Bruyn, comprised Danny Nuydens, Holger Pehmöller, Jan Possemiers and Markus Rheinländer. On September 12, 2001, Tony ferried G-BZGL to Duxford from TSLw3 at Fassberg.

Immediately after the ferry flight Tony described it during a presentation to the OV-10 Bronco Association:

"Total flying accumulated on the ferry from Germany to Duxford was 3hr 19min, in three legs for a distance of 447 nautical miles. The Bronco behaved brilliantly throughout the whole undertaking — a tribute to the designers and builders at North American Aviation (later Rockwell/Boeing) and engine manufacturer Garrett (Honeywell/Allied Signal). This aircraft is a great piece of kit — it has definitely got the looks and flies like a marvel, as I am now proud to testify!"

The second Bronco, 99+32/G-BZGK, flew again for the first time in more than ten years on October 6, 2001, and after some local test flying it was also ferried to Duxford by Tony on October 16 that year. In the December full restoration work on G-BZGK was begun. On July 11, 2007, it took off from Duxford for the first time since its arrival in 2001. It was finally issued with a UK Permit to Fly on November 12, 2007.

LEFT Bronco G-BZGK's sister aircraft, G-BZGL/99+26, seen here at Duxford, awaits a forthcoming major overhaul.

WINTER MAKEOVER

At the time of the grant of its Permit to Fly G-BZGK was still fitted with most of its original target-towing controls, although the rear glass dome is currently replaced by a hinged solid cargo door. However, Tony is hoping to acquire an original winch and operator's seat and intends to refit this equipment in order to put the aircraft back into totally original condition in due course.

In addition, Peter Junior, owner of the Hermeskeil Air Museum near Trier in Germany (which houses static Bronco 99+16) has provided full details of the original military paint scheme for 99+32, and Tony intends to repaint it this winter in preparation to join the airshow circuit in 2009. Meanwhile Tony's second Bronco, 99+26/G-BZGL, is currently at Duxford awaiting a major overhaul which is due to start very soon.