Gannet Down!

Five terrifying minutes

BOB GARDNER relates how Royal Navy pilot John Middleton and his crew suffered an extremely rare double engine failure — at night — in a Fairey Gannet, and had to jump for their lives

HAVING completed two years of operational flying on the mighty Supermarine Scimitar, Lieutenant John Middleton joined 831 Naval Air Squadron (NAS) at RAF Watton in November 1963.

Seven of the squadron's aircraft deployed from RAF Watton to RNAS Culdrose in Cornwall, alias *HMS Seahawk,* on January 22, 1964, for a major naval exercise in the Western Approaches. They comprised three Sea Venoms, a Sea Prince, a Vampire and two Gannet ECM.6s, with John piloting one of the latter, XG832.

On the evening of January 23 the two Gannets flew up the North Coast to RAF St Mawgan to practise ground-controlled approaches (GCAs), taking off around 1900hr. The winter sun had set at about 1700hr (depending on one's altitude) and it was truly dark. John was teamed for the night with Observer Lt Mervyn Jones. The initial "O" of his Observer status led to him being called

THE BACK STORY
The early part of John Middleton's Fleet Air Arm career – before the dramatic Gannet incident described in this feature – was related in *From Provost to Scimitar* and *The Cutting Edge*, in July and August 2007's *Aeroplane*. For back-issues or photocopies contact Jess Marenghi, tel 020 3148 4327, e-mail jessica_marenghi @ipcmedia.com

LEFT John Middleton beside a Hawker Hunter GA.11 during his posting to 738 Sqn not long after the events related in this feature.

MAIN PICTURE
A painting of Gannet ECM.6 XG832 in its final moments over the Cornish coast, by TIM O'BRIEN GAvA, website www.timobrienart.co.uk.

The Double Mamba engine

ALTHOUGH ONLY fitted to two aircraft — the Gannet and Blackburn's Y.B.1 (designed to the same specification) — the Armstrong Siddeley Double Mamba was a fascinating achievement in aero-engine technology. Developed from the company's 1,000 s.h.p. (shaft horse-power) Mamba propeller-turbine engine, which had first run in 1946, the Double Mamba began life in 1947 and first flew in the prototype Gannet in September 1949.

The new engine consisted of two single 1,250 s.h.p. Mamba 2s driving contrarotating co-axial four-bladed Rotol propellers through a common gearbox. Each side of the engine was a separate unit with its own control system, and could be started, cruised, stopped and a prop feathered without involving the other unit. Power was transmitted from each engine by a torsion shaft which was engaged through a series of sun, planet, epicyclic and spur gears to give correct propeller-shaft rotation and an acceptable reduction ratio. Reverse-torque switches were also included to prevent overspeeding. Ram air was delivered to each engine via two kidney-shaped intakes into ten axial-flow compressors.

Although single-engine failures occurred, a double simultaneous engine failure was extremely rare.

ABOVE A factory-fresh Armstrong Siddeley Double Mamba 101 on display at the SBAC show at Farnborough in 1956. Sadly for the company, the rival Rolls-Royce Dart engine was chosen as the industry's standard turboprop.

BELOW The Double Mamba was the subject of an in-depth article in the April 1, 1949, issue of *The Aeroplane*, which included cutaway illustrations by Charles Hurford.

"Oboe" by his colleagues, in accordance with the phonetic alphabet then in use.

Observers in the Royal Navy regarded themselves as masters of several roles. Oboe was a skilled navigator, trained in the use of radar, electronic counter-measures (ECM), navigating and fighting in the all-weather de Havilland Sea Vixen (see *Database*, November 2004 *Aeroplane*) and the low-altitude bombing system (LABS) for lobbing a nuclear weapon at low level.

Only one observer was needed for the GCA night exercise, and the squadron's Senior Observer, Lt-Cdr "Lofty" Nash, took the opportunity to fly in the back seat to see how this new pilot was getting on, and how the pair were getting on as a team.

Into the night . . .

The take-off from Culdrose and the flight along the north Cornwall coast was short and uneventful. Oboe navigated by dead reckoning, with regular fixes from lighthouses. At that time there were no navaids; no Tacan, no Decca.

About 20 miles out of St Mawgan John turned inland, called up the tower and asked for a GCA. "Request Pigeons to base", was the parlance of the time. St Mawgan acknowledged. It was 1925hr.

They were now over the lunar-like landscape of the Cornish clay mines, descending gently to 1,200ft. At 1926hr a phosphor-bronze bush on the idler gear of the port engine's primary accessory drive began to fail. There was no indication of this. The moment passed unnoticed, and John turned on to the vector given by the GCA controller. By 1927hr the surfaces of the idler gear teeth began to erode, producing fine particles of metal that the lubrication system carried away. In the cockpit all seemed normal, both engines running smoothly. John was flying mostly with his head down, occasionally looking at the moonscape below with its scattered lights from the occasional house or pub.

Double trouble

Both of the Gannet's engines ran at a constant speed of 15,000 r.p.m., and responses to the throttle setting adjusted the pitch of the propellers. By 1928hr the lubricating oil had spread the fine metal particles throughout the port engine. John noticed a momentary flicker of the revolution counter. It stopped, and he rolled out on the correct heading for St Mawgan, runway 31. A few seconds later it flickered again. John noted it as a peculiarity he had not seen before. Perhaps it was spurious. Suddenly the revolutions of the damaged port engine began to fluctuate wildly. The propeller pitch mechanism reacted equally alarmingly, trying to match pitch to the violently oscillating revs and the throttle position.

For some moments John juggled with the throttle, trying to find a sweet spot where the engine would run smoothly. He noted that, apart from the violent surging of the engine, all the other instruments were normal. Having had no success with throttle juggling, he decided to shut the engine down and carry out a single-engine landing at St Mawgan; or perhaps fly back to Culdrose, where the squadron's mechanics would be waiting. He issued a PAN call (a precautionary alert) to St Mawgan, which they acknowledged. It was 1928hr.

"In the back seat, Lofty Nash had watched the engine antics and noises with mounting interest. He had never seen a Mamba do that before . . ."

In the seat behind, Oboe heard the PAN call and his thoughts turned to the loss of friends in crashes of naval aircraft, and to the routine three-monthly training in safety equipment drills, wet training, swimming and wet winching. He became aware, but no more than that, of their low altitude in an aircraft with no ejection seats. The professional part of his mind concentrated on the job in hand. He monitored the aircraft's heading, ensuring that it was still towards St Mawgan. No course correction to the pilot was needed.

John elected to shut down the port Mamba. In John's later opinion the Gannet's engine-handling procedures were too complicated for an operational Service machine. Shutting an engine down was about the easiest task, and entailed closing the throttle to flight idle, feathering and braking the propeller and finally closing the high-pressure (HP) cock. All of this took several seconds of intense concentration.

The contaminated lubricating oil was now being scavenged and returned to the common oil tank — it was now 1929hr.

With the port engine successfully closed down, John checked height, attitude, airspeed and heading and took a deep breath. In the back seat, Lofty Nash had watched the engine antics and noises with mounting interest. He had never seen a Mamba do that before.

"Bale out! Bale out!"

Contaminated oil from the central oil tank began to be pumped to the starboard engine. It was still 1929hr. Moments later John saw the same transient flutter of the starboard engine rev counter, followed quickly by the same violent surging of revs. Again he tried altering the throttle setting — again the propeller pitch setting began to vary rapidly, trying to match the throttle setting to the speed of the engine. He saw the airspeed falling away and put the nose down, trading altitude for speed.

Lofty began to contemplate what could cause both engines to stop. It had to be duff fuel, he concluded. Better get a signal out as quickly as possible, not least to their sister Gannet, 10min behind, running on the same fuel.

The aircraft was now at around 1,000ft, and it occurred to John that they might have to

831 Sqn

AN ELECTRONIC Warfare squadron, 831 Sqn was formed by renumbering 751 Sqn at Culdrose on May 1, 1958. It operated the de Havilland Sea Venom and Vampire, Percival Sea Prince and Gannet, all in the ECM role. Watton, near Thetford in Norfolk, was the RAF's ECM station, and it made sense to co-locate all the talent in this rapidly developing art. The unit's variety of aircraft, in addition to the ECM role, meant that only pilots of above-average skill were posted there.

ABOVE When the barrel-bodied Gannet entered Fleet Air Arm service in April 1954 it was the first British aircraft to combine the search and strike roles. For the full story, see *Database*, October 2003 *Aeroplane*.

Lt Mervyn "Oboe" Jones, a highly skilled ECM specialist, came to 831 Sqn from Nos 892 and 893 Sqns, having served in the notorious "coal hole" of the two units' Sea Vixens.

ABOVE Hideously beautiful or beautifully ugly? This photograph of AS.1 WN347, taken in early 1954, shows the bizarre but strangely pleasing lines of the Gannet.

The Gannet: a peculiar seabird

THE GERMAN U-boat blockade of Britain in World War Two demonstrated the need for an anti-submarine warfare (ASW) aircraft. The first to be used in the shipboard ASW role was the Fairey Firefly (see *Database*, December 2001 *Aeroplane*), initially designed as a fighter but adapted for airborne ASW with the arrival of American air-dropped sonar buoys.

In 1945, the Admiralty issued a specialised ASW aircraft Specification. Fairey's initial design called for twin Rolls-Royce Merlin engines, but the advent of the jet brought an added advantage for aircraft carriers, namely the replacement of aviation petrol by the much less flammable paraffin. The Armstrong Siddeley Mamba turboprop was chosen. It was also used in the Short Seamew, a lightweight ASW aircraft that never entered service, and the prototype Boulton Paul Balliol trainer (Service versions kept the Merlin).

Fitted with a development of the Mamba engine, the coupled Double Mamba, the Gannet had a long gestation, as rapidly advancing technology caused the Admiralty to upgrade the specification frequently. The Gannet entered service in 1954, and in airborne early warning (AEW) form remained in service until 1979.

The Gannet AS.6 was upgraded for use as an electronic countermeasures aircraft, the Gannet ECM.6, which had a crew of three, seated in tandem. Behind the pilot sat the Observer (equivalent to the RAF's Navigator), and behind him, near the tail, was the second ECM operator.

ABOVE With wings fully folded and the contrarotating propellers spinning in opposite directions, the Gannet presented a startling insect-like sight from head-on.

bale out. He wondered if there was a flat space ahead where he could put the aircraft down, and remembered they were over the mountain of china clay spoil. The aircraft lurched into a 30° pitch-down attitude as the propeller "fined off" into fine pitch. "Bale out! Bale out!" he shouted into his permanently live mike.

Oboe was ready to go. He had regarded the PAN call as "ready, steady . . .". The "bale out" command added "go" to the sequence, and he went. He pressed the lever to release his cockpit harness, pulled his canopy back and pulled himself upright by the radio aerial in front of him. He had used it before to steady himself while getting in or out of the aircraft (and now owns it as a souvenir). He left the aircraft some time ahead of Lofty in the back seat, who struggled momentarily against the slipstream.

Oboe found his parachute D-ring on the left of his chest and pulled it immediately. His parachute deployed and stabilised and he alighted gently. He saw the explosion as the Gannet piled in some distance away.

Jumping into oblivion

Lofty was a powerful 6ft 3in rugby player, and the force of the slipstream pushing him back against the edge of his cockpit slowed him for only an instant. He hurled himself out, and instantly hit one of the three fins on the aircraft's tail. He felt his left arm break. It did not delay his reaching for the D-ring, which could only be pulled with the right hand. As his canopy opened above him he noted with detached interest how the engines' exhausts glowed on the aircraft in its steepening dive below him. He glimpsed a flash of white below — perhaps the pilot's parachute opening — but then it had gone. Ten seconds had elapsed since the starboard engine had begun to surge.

John was last out. He was of slighter build, and the force of the slipstream surprised him. Pinned against the rear of his cockpit, he looked forward over the coaming, saw lights directly ahead and judged that the Gannet was in a vertical dive and beginning to bunt. He threw himself into oblivion, hit the aircraft's tail and pulled his D-ring. He also broke his left arm. The aircraft hit the ground in an explosion. John saw his canopy begin to open before hitting the ground heavily. Oboe had probably got out at 1,000ft, Lofty at 800ft and John at 600ft — or lower.

Meanwhile . . .

On the ground Oboe looked at his watch. It was 1930hr. He activated his search and rescue beacon equipment (SARBE) and began to become aware of his surroundings. He was in a field, and a night watchman rushed up. Oboe had survived without a scratch. He heard the sister Gannet circling overhead and tried to talk to them on his SARBE, but it would not transmit on voice. The night watchman from the clay company took him off for a cup of tea, from where he phoned Culdrose to report the crash.

Lofty and John landed together and soon found each other, but there was no sign of Oboe. The poor bugger had not got out. Numbing regret was waiting in the wings.

"My arm's broken. It won't work", said Lofty in exasperation as he struggled out of his harness.

"So's mine", said John, in the manner of a man who has only just thought of it.

Blossoming relief

Breathless folk emerged from the darkness, a farmer and his young son. They helped gather the parachutes, harnesses and flying helmets, then took the two officers back to their farmhouse for tea. Lofty telephoned Culdrose to report the crash and his thought that fuel must be the cause. They told him that Oboe had just telephoned in. Relief blossomed.

An ambulance came, and Lofty and John were taken to St Truro Hospital. Oboe left the china clay company, walked out to the main road and hitched a lift to the crash site from a passing motorist. There was no sign of survivors. Perhaps the others had not got out in time. He found the fire officer and learned that John and Lofty had been taken to the hospital in Truro. One of the police cars at the site offered him a lift there.

St Truro Hospital had just finished building a new state-of-the-art burns unit. When news came through that injured survivors from an aircraft crash were being brought in, the burns unit was stood to. The staff were expectant, tense and excited; anxious to look after the two airmen in this, their first test. When the ambulance arrived at the hospital the matron surveyed John and Lofty. "You're not burnt!", she complained.

Oboe arrived to find both men having their bones set. He went back outside and saw a pub. A drink would not be unreasonable in the circumstances, he thought. After two pints he returned to the hospital, armed with a couple of bottles of beer for the others.

News that all three of them had escaped from an engineless Gannet at 1,000ft in the dark and lived swept around the fleet. No one could recall a precedent. Usually at least one crewmember was killed in a Gannet crash. As a message to John from his previous squadron had said after his ejection from a Scimitar only four months previously — "Practice makes perfect!"

"Pinned against the rear of the saw lights directly ahead and cockpit, John looked forward over the coaming, judged that the Gannet was in a vertical dive . . ."

ROB GARDNER

ABOVE The aftermath of a Gannet double engine failure – the final resting place of XG832 was open moorland some six miles west of St Austell.

LEFT The three survivors photographed at John Middleton's home in January 2007. From left to right: "Lofty" Nash, Mervyn "Oboe" Jones (holding the aerial of the ill-fated XG832) and John Middleton.

Out and about . . .

Where can you see a Fairey Gannet?

***Aeroventure**, Doncaster, South Yorkshire (Gannet AS.4) — tel 01302 761616, www.aeroventure.org.uk*

***Fleet Air Arm Museum**, Yeovilton, Somerset (Gannet AEW.3 and COD.4) — tel 01935 840565, www.fleetairarm.com*

***Newark Air Museum**, Nottinghamshire, (Gannet AEW.3) — tel 01636 707170, www.newarkairmuseum.org*