

## AIRPROX REPORT No 2011049

Date/Time: 31 May 2011 1237Z

Position: 5155N 00215W  
(Gloucestershire Airport-  
elev 101ft)

Airspace: Lon FIR (Class: G)

Reporting Ac Reported Ac

Type: Chinook King Air

Operator: HQ JHC HQ AIR (Trg)

Alt/FL: 3000ft 3000ft  
(QNH 1021mb) (QFE 1003mb)

Weather: VMC CLBC VMC CLBC

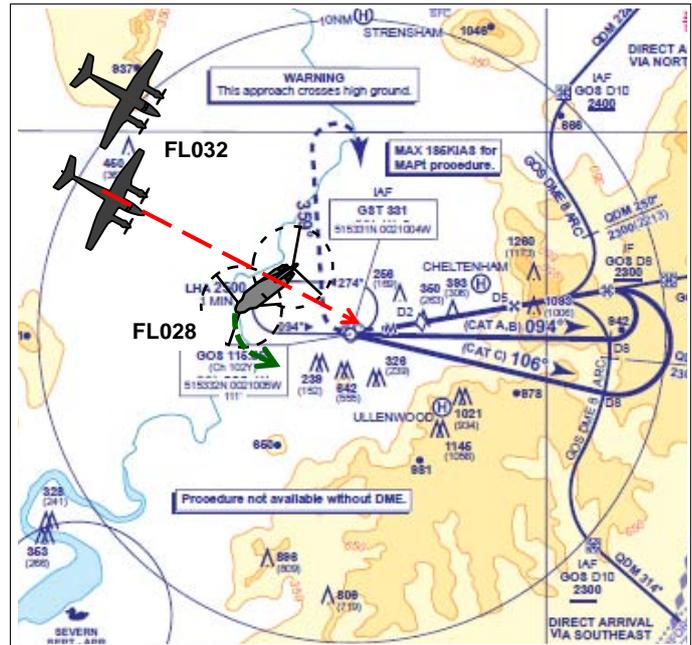
Visibility: 40km 20km

Reported Separation:

150ft V/500m H 400ft V/0m H

Recorded Separation:

400ft V/ 0.1nm H



## PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

**THE CHINOOK PILOT** reports flying an IFR approach to Gloucestershire on a training flight in receipt of a BS from them, squawking 7000 with Mode C and S in a green ac with all appropriate lights switched on but TCAS was not fitted. While established in the GST NDB hold for RW27 at 3000ft, heading 274° at 120kt, on the Gloucestershire QNH of 1021mb, a two-ship [blue and white, military] King Air formation flew over the top of their ac in straight and level flight. They were spotted initially by the HP and then the Crewman, shortly before they flew O/H and they were estimated to be less than 200ft above the ac. They tightened their left hand turn to avoid them and reported the incident on landing, assessing the risk as being high.

**THE KING AIR PILOT** reports leading a formation of two blue and white ac with all lights on, on a training flight from Cranwell to Lyneham, squawking as directed with Modes C and S and in receipt of a TS from Lyneham APP. They were heading 100° at 170kt, 5nm NW of GST, as a formation (2x King Airs) had just effected a join-up at 3000ft (QFE) utilising the TS from Lyneham and had just informed Lyneham that they were ready for radar vectors for recovery. Lyneham App called traffic in their 10 o'clock slightly below to the formation and almost immediately they received a TCAS TA from the reported traffic [see Mil ACC report below] which they quickly identified as a Chinook, estimating it to be 1.5nm away. They monitored the Chinook visually, and on TCAS, as it passed below them, the TCAS indicating that it was 4-500ft below, so he decided that the best course of action was to maintain track and altitude, as he perceived there to be no risk of collision. They then recovered to Lyneham with no further incident. He was informed of the Airprox by London Mil and assessed the risk as being low.

**ATSI** reports that this Airprox occurred at 1236:40 UTC, in Class G airspace, 2.8nm to the NW of Gloucestershire Airport (Gloster).

The Chinook was carrying out a VFR training flight and was entering the GST (Gloucestershire) NDB hold, prior to commencing an NDB approach. An Airprox report was not received by Gloucestershire until later in the day when the Chinook pilot rang ATC to report that a formation of two King Air ac had passed in close proximity while he was in the hold.

The controller was providing a combined Aerodrome and Approach Control Procedural service without the aid of surveillance equipment. The UK AIP entry for Gloucestershire, Page AD 2-EGBJ-1-6 (8 Apr 10), Paragraph 2.18, states:

'Radar services (Primary only) within 25 NM below FL80, availability subject to manning. Use of 'Radar' suffix denotes availability only. Provision of a specific radar service is not implied.'

CAA ATSI had access to radar and RTF recording, controller and pilot written reports.

METAR EGBJ: 311220Z RWY27 29010KT 9999 FEW030 16/02 Q1021=

At 1226:05, the Chinook pilot called Gloster Approach, reporting 13nm on the GLS 245 radial, climbing to 3000ft on the QNH of 1016; the pilot requested a transit through the overhead and a BS was [initially] agreed.

At 1226:31, the Chinook advised, *....change of intention we'd actually like to pick up the procedure NDB DME for runway two seven with one time hold if that's possible*"; App responded, *"(Chinook) c/s affirm still under a Basic Service IFR traffic outbound just airborne from the southwest three thousand feet is a twin squirrel"*, the pilot acknowledged and requested a TS. Approach offered a Procedural Service either at a higher level at the Beacon or, for the Chinook to provide own deconfliction against the Twin Squirrel; the pilot replied, *"er Chinook) c/s er no problem we'll remain VFR and er take a Basic Service off you."*

At 1227:11, App instructed, *"(Chinook) c/s report approaching the Golf Seirra Tango at altitude three thousand feet under a Basic Service"* and this was acknowledged.

At 1234:00, the radar recording showed the Chinook crossing the GST (NDB), tracking NE, indicating FL027 prior to commencing a left turn to enter the hold. The recording also showed two ac (later reported as the King Airs) displaying SSR codes 4501 and 4502 (Lyneham). The King Air pilot's report indicated that they were in receipt of a TS service from Lyneham App.

The two ac were indicating FL033 and FL043 respectively and the radar recording showed the ac converging; the ac squawking 4502 descended to FL027 and its transponder is turned off at 1235:00 as the ac formatted.

At 1235:22, the controller advised, *"(Chinook) c/s and erm IFR traffic is clear now er you're under a Procedural Service"*; this was acknowledged by the Chinook pilot.

At 1235:39 the radar recording showed the Chinook, 1.6nm N of GST, tracking W, indicating FL026 (converting to an alt of 2816 ft, with QNH 1021 and 1mb equating to 27ft). The recording also showed the formation 6.3nm NW of GST, indicating FL033 (converting to 3516ft) and converging with the Chinook.

At 1236:10, radar recording showed the Chinook maintaining FL028 (3016ft) and the formation indicating FL033 (3516ft) with the distance between the ac as 2.6nm.

The radar recording showed the Chinook commencing a left turn in the hold at 1236:36, with the distance between the ac being 0.5nm and with 500ft vertical separation; it was not possible to determine the level of the non-squawking ac. The last radar derived level at 1235:00, indicated FL27 (2916ft).

The ac tracks crossed at 1236:43 at a position 2.7nm NW of GST, with the vertical separation indicated as 500ft [400ft on the Clee Hill radar recording]. Radar then showed the ac tracks diverging with no change in the indicated Mode C level.

The Chinook was in receipt of a Procedural Service and the formation was unknown to the Gloster App controller. The Manual of Air Traffic Services (MATS) Part 1, Section 1, Chapter 11, Page 10, states:

'A Procedural Service is an ATS where, in addition to the provisions of a Basic Service, the controller provides restrictions, instructions and approach clearances, which if complied with, shall achieve deconfliction minima against other ac participating in the Procedural Service. Neither traffic information nor deconfliction advice can be passed with respect to unknown traffic.'

**HQ 1GP BM SM** reports that the Chinook was operating VFR, in VMC, on an NDB approach in receipt of a PS from Gloucester App. The King Airs were operating VFR, completing a formation rejoin prior to a visual recovery to Lyneham in receipt of a TS, reduced due to poor radar performance from Lyneham App.

The King Air formation was at 3000ft on Lyneham QFE 1003mb, whilst the Chinook reports operating within the GST NDB hold at 3000ft Gloucester QNH 1021mb (equating to 540ft vertical separation).

APP was operating band-boxed as APP and Zone and providing an ATS to 5-speaking units on 2 VHF frequencies.

At 1234:24, APP passed TI to King Air leader on a primary-only contact stating "*pop-up traffic err your 12 o'clock, 3 miles, similar heading, no height information*" which was acknowledged [this related to a primary only contact about 7nm NW of the Chinook]. At that point, the reporting Chinook was 10.5nm ESE of the formation and King Air (B) was 1.1nm NE of leader on a parallel track, 400ft above but descending to rejoin him. No further TI was passed to either member of the King Air formation throughout the remainder of the incident sequence.

King Air A stated in his report however that APP passed them TI on 'traffic in our 10 o'clock, slightly below [and that] almost immediately we received a TCAS TA from the same traffic which we quickly identified as a Chinook'.

At 1236:12 King Air leader reported "*holding hands, ready to accept vectors*" and at that point the Chinook was 1.2nm E of them.

The CPA occurred at 1236:41, 26.3 nm NW of Lyneham (2.7nm NW of GST), with the Chinook crossing from left to right 0.1nm in front of the King Airs.

In terms of the Airprox itself, it appears reasonable to argue that through the action of confirmation bias and because the subject of the TI passed at 1234:24 was non-squawking, the pilot of King Air (A) miss-perceived that the TI related to the contact that they could see on the TCAS display. Notwithstanding this, the King Air pilot was able to visually acquire the Chinook in sufficient time to assess that they had adequate separation and that no avoiding action was required.

Notwithstanding the distance of the CPA from Lyneham, given that the King Air formation was in receipt of a TS they were, therefore displayed on the Lyneham radar display. Moreover, it is reasonable to assume that the Chinook was also displayed on the Lyneham surveillance display given that it was only 540ft below the formation. It has not been possible to determine why APP did not pass TI to the King Airs regarding the Chinook.

In his report, SATCO Lyneham raised a significant issue by highlighting the limitations of the radar service provided by Gloster and questioning the appreciation by many crews of the level of awareness of Gloucestershire traffic not in receipt of an [App] service. In this instance, the Chinook was operating IFR in receipt of a BS, it would not have been afforded any protection whilst flying the NDB procedure, other than that provided under 'see and avoid'.

Although the result was not intended, the TI passed by Lyneham App, in association with TCAS information, allowed the King Air formation to 'see and avoid' the Chinook.

**HQ JHC** comments that it is apparent that the Chinook pilot misjudged the separation between the ac; from the radar report and the TCAS information, the vertical separation was likely to have been in the region of 400ft. However, the Chinook pilot reports that they took avoiding action and assessed the risk of collision as high. It is possible that the Chinook crew did not appreciate that a Procedural Service only gives information that, if complied with, achieves deconfliction minima on other ac participating in the Procedural Service – and does not provide deconfliction minima with all ac.

**HQ AIR (TRG)** comments that the availability of TCAS aided the King Air crew in visually acquiring the Chinook. Whilst it was assessed visually that there was no risk of collision, and it appears that the crew felt they could maintain the separation which existed, it might have been prudent to increase the vertical separation or create some lateral separation. TCAS RA was not selected, which is in law 22 (Trg) Gp and local TCAS orders and SOPs, because of the relative poor manoeuvrability of a close formation. The apparent confusion over the TI called and the traffic that was actually sighted highlights the potential for any TI to be misinterpreted and for an incorrect mental air picture to be formed; apparently, the subject of the TI was not sighted. This incident highlights the importance of a continued and comprehensive visual scan in order to pick up those aircraft that may not appear on TCAS or on the controllers radar, or which may not be passed for whatever reason. The ultimate responsibility for collision avoidance remains with the ac crews.

## **PART B: SUMMARY OF THE BOARD'S DISCUSSIONS**

Information available included reports from the pilots of both ac, transcripts of the relevant RT frequencies, radar recordings, reports from the air traffic controllers involved and reports from the appropriate ATC and operating authorities.

Members observed that Gloucestershire instrument pattern is frequently very busy with procedural, mainly training traffic, and that Gloster Radar is only available by prior arrangement and has no SSR. They agreed that it is wise to avoid the area of the approach and hold even if in receipt of a radar service from another unit; if this is not possible, pilots should call Gloster App who will advise them of the traffic situation (as they know it). Controller Members added that this advice should also be noted by controllers at adjacent units who should, if possible, route traffic away from the hold and advise that it is active.

Notwithstanding that the Chinook was arguably IFR and the King Airs were VFR, the incident took place in Class G airspace where the normal 'see and avoid' principle applies. In this encounter the opposing ac were almost head-on and both were required to give way under the RoA. The Chinook had just commenced a left turn inbound to the beacon and the pilot tightened that turn. The King Air leader recognised that he was also required to give way but considered that adequate vertical separation already existed and so he 'stood on'. While the vertical separation might seem to have been adequate, had the King Air formation made, even a small track alteration and not overflowed the Chinook, it would have signalled to its crew that the King Air crews had seen it and thus most likely removed any concern that they had. In common with most other ac, the visibility from the Chinook above and behind is limited, and therefore the ability of the crew to judge safe separation is equally limited; even more so when in a turn. It was the view of one experienced pilot Member that, despite that the King Air formation leader considered the vertical separation adequate, they had flown unnecessarily close to the Chinook.

It was observed that (anecdotally) there seemed to be widespread misunderstanding by pilots of their responsibilities when operating under a Procedural Service in Class G airspace - whether IFR or VFR in both IMC and VMC (although they may be separated from other participating traffic) pilots are wholly responsible for collision avoidance.

Controller Members endorsed the HQ 1Gp BM SM view that in the circumstances prevailing, Lyneham App should have provided TI to the King Airs regarding the Chinook, since it should have been apparent to the controller that it was in conflict, both laterally and vertically. It was fortunate however, that the TI that the controller passed regarding the other (non-squawking) contact enabled the King Air crew to acquire the Chinook visually (but apparently not the contact to which the TI referred). Notwithstanding the limitations of a TS, Members thought that Lyneham could have provided the King Airs with a better service.

The HQ Air (Trg) Member observed that there had been a number of incidents recently where military crews had not used all the information available to them (including TI and TCAS) to avoid conflicting traffic by greater margins. He informed the Board that HQ Air would be conducting an education programme to improve awareness.

The ATSI Advisor pointed out that the post incident procedure would have been much smoother had the Chinook pilot reported the incident to Gloster App on the frequency in use at the time.

When considering the risk, a majority of Members considered the normal safety standards had been maintained and therefore there was no risk of collision.

**PART C: ASSESSMENT OF CAUSE AND RISK**

Cause: The Chinook crew was concerned by the proximity of the King Air formation.

Degree of Risk: C.