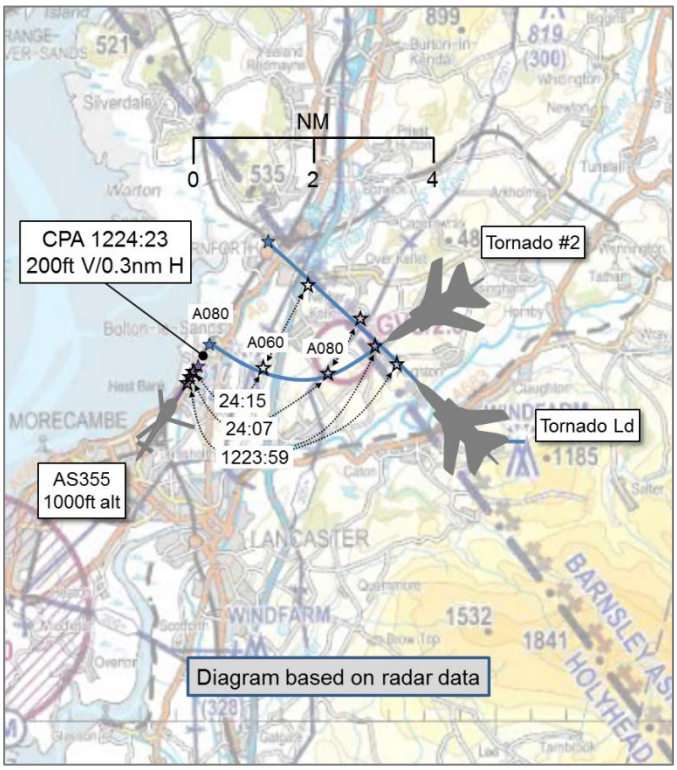
AIRPROX REPORT No 2014052

Date/Time:	29 Apr 2014 1224Z	
Position:	5406N 00248W (Morecambe Bay)	
Airspace:	Lon FIR	(*Class*: G)
	Aircraft 1	*Aircraft 2*
Type:	Tornado GR4	AS355
Operator:	HQ Air (Ops)	Civ Comm
Alt/FL:	820ft QNH (1008hPa)	1000ft Rad Alt
Conditions:	VMC	VMC
Visibility:	8km	10km
Reported Separation:	0ft V/750ft H	150ft V/60m H
Recorded Separation:	200ft V/0.3nm H	



PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE TORNADO PILOT reports conducting a low-level formation sortie as the number 2 element. The grey camouflaged aircraft had navigations lights and HISLs selected on, as was the SSR transponder with Modes A, C and S. The aircraft was not fitted with a TAS or ACAS. The pilot was operating under VFR, in VMC, not in receipt of an ATS, but in communication with the formation leader on an intra-formation frequency and also listening out on the UHF low-level common frequency on the other radio. Prior to the incident, the formation was heading west at 250ft towards Morecambe Bay and had just conducted a formation turn to put the formation leader on the right, heading 320° towards the southern end of Lake Windermere. At this point the pilot commenced a climb to 1000ft for the coast[1] and selected engines to idle due to a built up area[2]. On passing 820ft, heading 280° at 420kt, the pilot saw a black–and-yellow helicopter, possibly a Squirrel he thought, in the left 0930 position, 500ft - 1000ft away and co-altitude, which appeared to be flying straight-and-level along the coast; the WSO[3] saw it shortly afterwards. He did not take any avoiding action as his flight path was taking him away from the helicopter by that time. The pilot stated that collision avoidance with the formation leader during the battle turn had necessarily concentrated his lookout in the other direction towards the other Tornado. He noted that PINS had been notified as active for the entire route.

He assessed the risk of collision as 'Medium'.

THE AS355 PILOT reports conducting a railway survey task, The black-and-yellow helicopter had navigation, strobe lights and HISLs selected on, as was the SSR transponder with Modes A, C and S. The aircraft was fitted with a TAS. The pilot was operating under VFR in VMC, 1000ft below the cloud base and in receipt of a Basic Service from Warton. Whilst on task, heading 020° at 40kt, he was alerted to traffic by a TAS Traffic Alert. Both he and the on-board survey specialist looked right and visually acquired a Tornado at a range of about 1nm in the right 2 o'clock. The pilot commented to the survey specialist that "they are usually in pairs so look out for the second aircraft". They saw the second Tornado slightly below, which initially turned away to his right and then turned left ahead and passed clear. The pilot stated that he 'remained on the line' and did not have to take avoiding action.

[1] Local bird populations can increase significantly near the coast, therefore, in order to reduce the risk of bird-strike, coastlines are normally planned to be crossed at 90° and the aircraft is climbed from low-level to a height of about 1000ft.
[2] Population centres can be hidden in the folds of terrain when at low-level; if the area cannot be avoided due to late visual acquisition, the aircraft throttles can be brought to idle momentarily to reduce the intensity of the noise footprint.
[3] Weapon Systems Officer, the rear seat occupant

He notified Warton of the activity and was informed by the controller that both jets had only just appeared on radar and hence that no warning could have been given.

He assessed the risk of collision as 'Medium'.

Factual Background

The weather at Blackpool was recorded as follows:

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METAR EGNH 291220Z 23006KT 7000 FEW009 16/12 Q1013
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Analysis and Investigation

UKAB Secretariat

Both pilots shared an equal responsibility for collision avoidance and not to fly into such proximity as to create a danger of collision[4]. The AS355 pilot was required to give way to the Tornado[5]. In subsequent discussion with the helicopter pilot, he stated that he was not aware of the requirement for military fast-jets to climb to above 1000ft when crossing coastlines.

Comments

HQ Air Command

This incident not only serves as a stark reminder of the limitations of TCAS at low level but also of the limitations of lookout. There were four pairs of eyes in the Tornado formation yet the pilot of Tornado #2 visually acquired the helicopter very late and it seems that the crew of Tornado #1 didn't see the helicopter at all. Furthermore, by the time the pilots saw each other's aircraft the geometry was such that it was probably too late for either to have taken any action to increase the separation, with the possible exception that the helicopter pilot could have considered increasing vertical separation. Tornados routinely fly in pairs for 'mutual support'; all crews should note that this support should include, where possible, conducting lookout on behalf of the wingman, especially when in a formation turn.

Summary

An Airprox was reported when a Tornado GR4 and an AS355 helicopter flew into proximity near Morecombe Bay at about 1224 on Tuesday 29th April 2014. Both pilots were operating under VFR in VMC, the Tornado pilot monitoring the UHF low-level common frequency and the AS355 pilot in receipt of a Basic Service from Warton.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available consisted of reports from the pilots of both aircraft, radar photographs/video recordings, and reports from the appropriate operating authority.

The Board first considered the actions of the AS355 pilot. He was engaged in a Railway Line survey task and was necessarily constrained in altitude, speed and flight path by that task. His low airspeed gave him very limited options for avoiding action, and the Board noted that it was his TAS that had enabled him to visually acquire the Tornado, assess its flight path and allow him to make the decision to maintain his own flight path whilst maintaining collision avoidance. Even though the AS355 pilot was in receipt of a Basic Service from Warton, the low-flying Tornado formation was not seen by the Warton controller and so no warning could be given. The Board commented that the AS355 pilot had

[4] Rules of the Air 2007 (as amended), Rule 8 (Avoiding aerial collisions) and as reflected in Military Flying Regulations.
[5] ibid., Rule 9 (Converging).

thought that the Tornado pilot had seen him and had turned away, whereas the Tornado pilot had simply been manoeuvring to regain formation integrity and had not seen him until close to CPA.

The Board surmised that the Tornado pilot, as number 2 of a pair, would have been concentrating his lookout to his right (towards the leader), in order to regain formation integrity after the formation turn. His visual acquisition of the AS355 was at such a late stage that the Board felt that he could not have usefully increased separation, and so this was therefore an effective non-sighting by him.

The Board then considered what other warning methods might be available and, given that the AS355 pilot's TAS had warned of the Tornado traffic, the Board felt that fitment of a TAS to the Tornado would most likely also have provided a warning of the helicopter. Other than this, the Board observed that the Tornado pilot had noted that 'PINS was active' for the entirety of his route, but the blanket nature of PINS meant that the Board felt that this information would have done little to improve matters, especially since it was brought to the Board's attention that Railway Line survey tasks are not included in PINS notification; members agreed that this was highly undesirable and, being aware that the CAA is currently undertaking a review of PINS, resolved to recommend that the CAA consider the inclusion of Railway Survey Flights in its PINS review.

Finally, the Board felt that the requirement for military fast-jets to climb to above 1000ft at coastlines was not widely known by the civil aviation community and that this could usefully be shared with all airspace users who may be affected; they therefore also resolved to recommend that HQ Air Command consider liaising with the CAA to publicise military fast jet behaviours near coastlines.

The Board agreed that the cause of this Airprox was a late sighting by the AS355 pilot and effectively a non-sighting by the Tornado crew. Given the lack of manoeuvering options for the AS355 pilot, the closing speed of the Tornado, and the effective non-sighting by the Tornado crew, some Board members suggested that a risk category A was appropriate – they thought that chance had played a major part in events and that nothing more could have been done to improve matters. However, after much discussion, it was agreed that the separation had been sufficiently large (of the order of 0.3nm), and so in this case safety margins had simply been much reduced below the normal.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: A late sighting by the AS355 pilot and effectively a non-sighting by the Tornado crew.

Degree of Risk: B

ERC Score[6]: 20

Recommendations: 1. HQ Air Command considers liaising with the CAA to publicise military fast jet behaviours near coast-lines.

2. The CAA considers the inclusion of Railway Survey Flights in its PINS review.

[6] Although the Event Risk Classification (ERC) trial had been formally terminated for future development at the time of the Board, for data continuity and consistency purposes, Director UKAB and the UKAB Secretariat provided a shadow assessment of ERC.