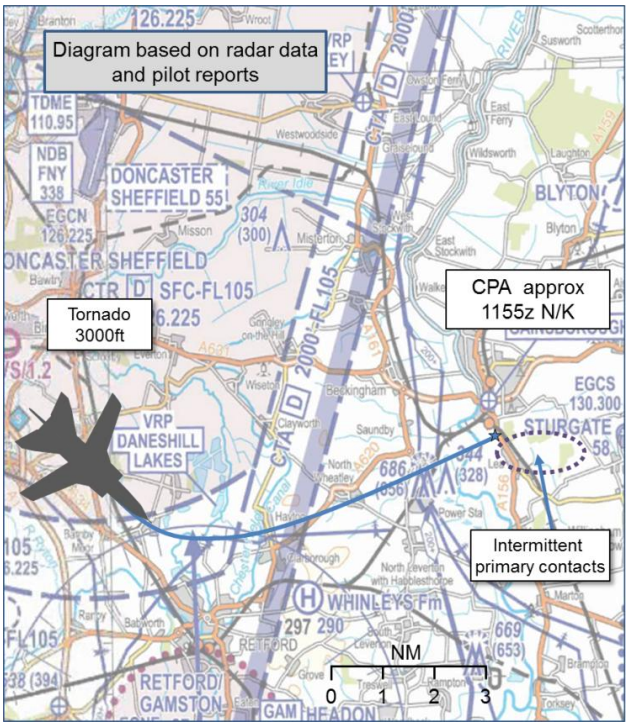
AIRPROX REPORT No 2014083

Date/Time: 12 Jun 2014 1155Z

Position: 5322N 00045W (13nm SE Doncaster)

Airspace: LON FIR (*Class*: G)

	Aircraft 1	*Aircraft 2*
Type:	Tornado	Unknown Glider
Operator:	HQ Air (Ops)	Unknown
Alt/FL:	3000ft QNH (1023hPa)	NK NK
Conditions:	VMC	NK
Visibility:	15k	NK
Reported Separation:	250ft V/500ft H	NK
Recorded Separation:	NK	



PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE TORNADO PILOT reports flying in a formation of 2: both grey aircraft had all lights illuminated and SSR transponder selected on with Mode 3A, C and S; neither was fitted with a TCAS. The formation had just completed a pairs-approach at Doncaster airport and had been handed over to Waddington. Upon establishing contact with Waddington, the controller reported traffic at a range of 2nm in their 12 o'clock, a possible glider. Approximately 15 seconds later, the lead aircraft saw a glider in their 1 o'clock, slightly elevated, at a range of 500-600ft. The lead aircraft issued a directive to the formation to turn hard left and the glider passed down the right-hand side of the lead aircraft. On turning a further glider was spotted to the left of the number-two Tornado, but this was a mile away and not judged to be a confliction. The formation elected to climb to 4500ft to get above the cloud, and the approach to Waddington was continued without further incident.

He assessed the risk of collision as 'High'.

THE GLIDER PILOT could not be traced.

THE WADDINGTON APPROACH CONTROLLER reports that the pair of Tornados were handed over from Doncaster, 18nm from Waddington. As the aircraft came on frequency the controller gave Traffic Information on a primary-only contact 12 o'clock, 4nm, height unknown, and stated that it was possibly a glider. As he called the traffic again, the Tornado lead also spoke on the frequency to call visual and advise that they were taking avoiding action and turning left. The controller gave further traffic information on another unknown contact 3nm north, again a possible glider. The formation elected to climb to 4500ft to get above the gliders and stated that they would be filing an Airprox.

He perceived the severity of the incident as 'High'.

THE WADDINGTON SUPERVISOR reports that the unit workload was medium, and the Approach Controller's workload as low-medium. She was aware that the Approach Controller was taking a handover from Doncaster on the Tornados but, at the same time, answered the Cranwell line and was then involved ascertaining traffic information for Cranwell on a LARS track that Waddington were controlling. Once she had finished the land-line conversation, the Approach controller made her aware of the Airprox, and she then assisted him in getting the Tornados clearance to route through Humberside's airspace to allow them to avoid the gliding activity.

Factual Background

The weather at Waddington was recorded as:

METAR EGXW 121150Z 25006KT 9999 SCT032 BKN350 20/12 Q1028 BLU NOSIG

Analysis and Investigation

Military ATM

All heights/altitudes quoted are based upon SSR Mode C from the radar replay unless otherwise stated. The radar replays used for the investigation were not the displays available to the controller.

At 1154:35 (Figure 1), Waddington Director identified the aircraft with Doncaster and provided the frequency for handover. No conflicting tracks were apparent to the Director at the time.

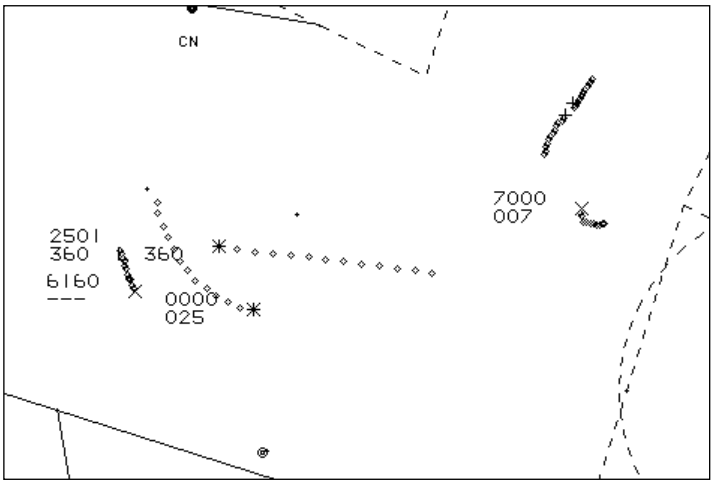


Figure 1: Geometry at Director acceptance of traffic at 1154:35 (Tornado squawk 0000).

The Tornados called on frequency at 1155:06 and at 1155:08 (Figure 2), Director transmitted, "[Tornado callsign] *Waddington Director, identified, Traffic Service, traffic twelve o'clock, two miles, er…manoeuvring, height unknown, possible glider*." The Tornados acknowledged the transmission; the glider is not showing on the radar replay.

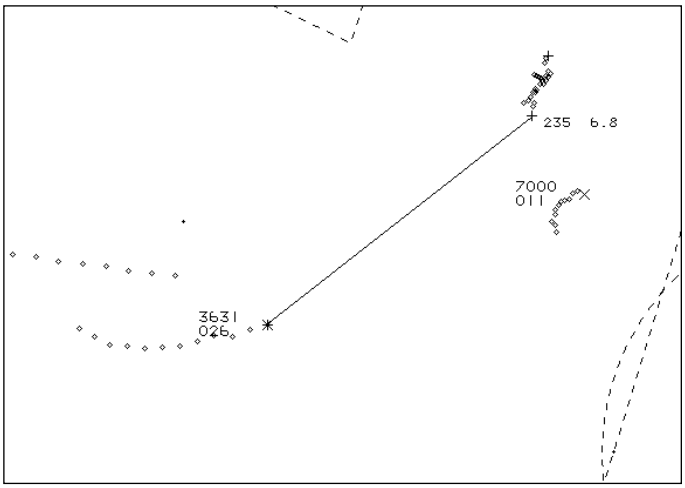


Figure 2: Geometry at 1155:08 Traffic Information (Tornado squawk 3631).

The procedure minima for ILS was passed at 1155:20 and traffic was updated at 1155:32 as (Figure 3), "*previously called traffic, twelve o'clock, half a mile, tracking south, slow moving*."

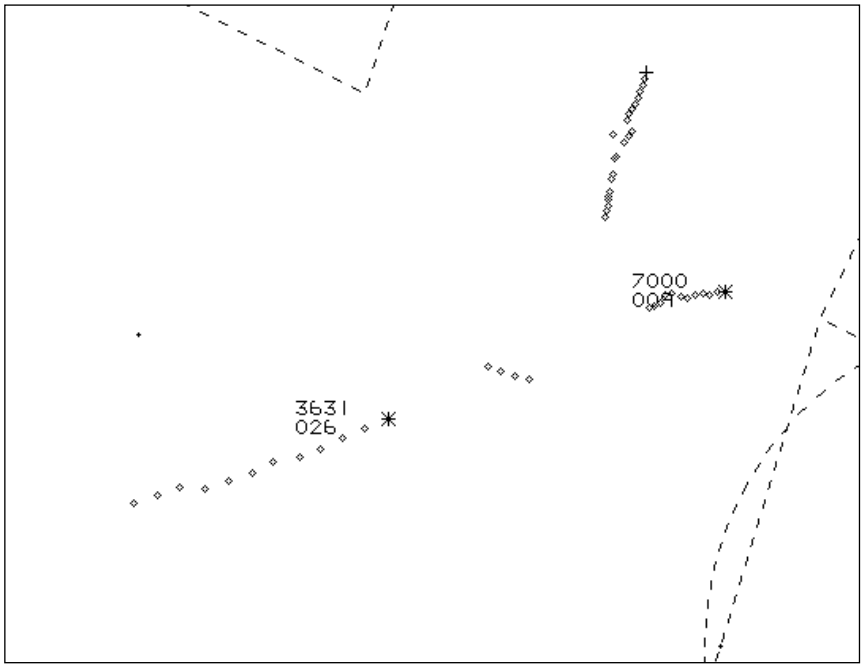


Figure 3: Traffic Information at 1155:32
(intermittent contact last showed on radar at 1.6nms).

The Tornados replied at 1155:44 (Figure 4) with, "*visual with traffic taking evading action*."

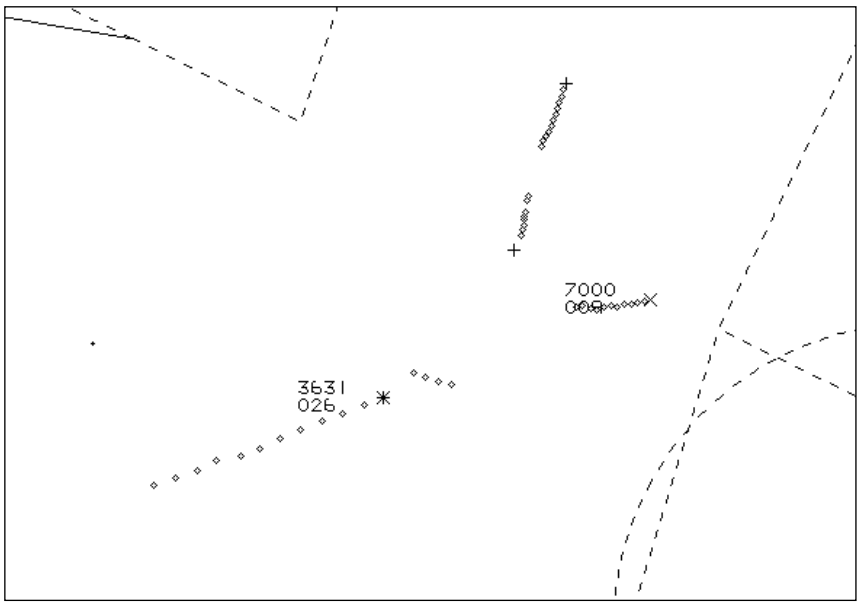


Figure 4: Tornado declaring avoiding action at 1155:44.

The Director provided further Traffic Information at 1155:50 (Figure 5) with, "*further traffic north, one mile, tracking south, height unknown, possible glider*."

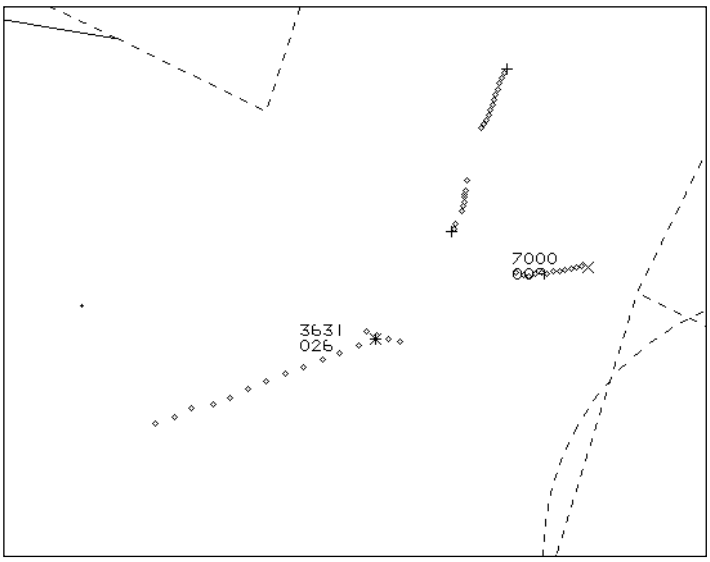


Figure 5: Traffic Information at 1155:50.

The Tornado initiated a climb to 4500ft at 1156:06 (Figure 6) and the controller acknowledged, requesting when the formation would be ready for vectors.

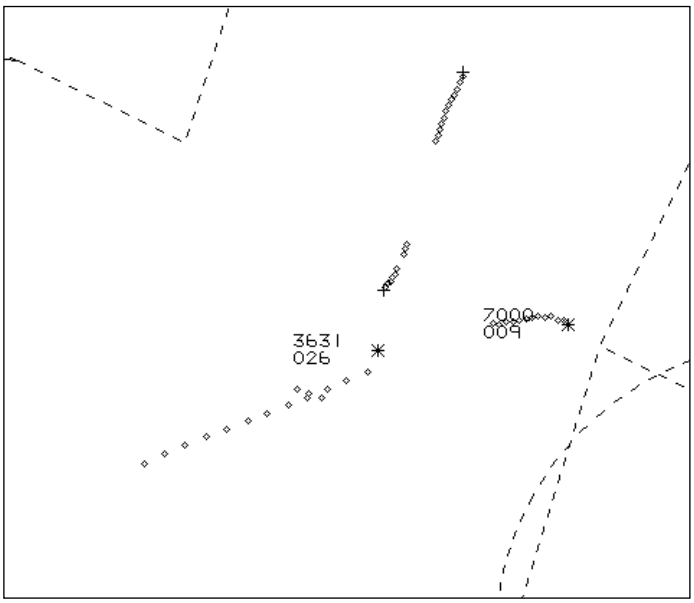


Figure 6: Tornado climbing at 1156:06.

The radar replay available for investigation does not match the one available to Waddington Director and the traffic called as southbound at 1155:32 may be the intermittent contact at Figure 3 that could have turned south following a north-westerly routing. The replay does show three slow-moving, non-transponding contacts in the vicinity, but not the primary return on the Airprox glider. Director accepted the handover, with no traffic to affect the Tornado at the time, and passed Traffic Information at ranges of 2nms and 0.5nms (the controller felt that the second piece of information may have been stepped-on by the Tornado transmitting at the same time). As the glider did not show on radar to either controller at handover, it can be viewed as pop-up traffic in Class G. Further information was passed following the evading left turn on a suspected glider to the north. The controller had reported noticing a gliding route between Doncaster and Scampton but a NOTAM was not available to provide any more amplification. Post the avoiding turn, the control team liaised with nearby agencies to deconflict a route inbound to Waddington. Both sets of information had been on a contact in the 12 o'clock position but the height of the conflictor was unknown and the glider was intermittent on radar.

The Tornado was under a Traffic Service in VMC and there are known limitations for a fast-moving aircraft to spot a slow-moving white glider, especially in haze. Traffic Information was passed at 2nms, onboard radar derived information was at approximately 1000ft and visual acquisition was at around 500ft. The climb to 4500ft, given the 4000ft cloud base, enabled the Tornado crews to transit at a height that was less likely to have glider activity.

The normal barriers to an Airprox were prevalent to an extent during this incident. The controller passed Traffic Information based on the radar display. The small radar cross-section on gliders mean that primary radars do not always detect them and the gliders in the vicinity did not appear to be equipped with transponders. The Tornado did not have ACAS/FLARM fitted but there were two crews available for a lookout and, despite the inherent difficulties in detecting a glider from a fast jet, the situational awareness from the controller and onboard radar, enabled an avoiding turn. It is not known what equipment was fitted to the glider, or if the pilot was visual with the fast jets.

UKAB Secretariat

Both pilots shared an equal responsibility to avoid a collision, and for not flying into such proximity as to create a danger of collision[1], additionally, the Tornado pilot was required to give way to the glider[2], which he did.

Comments

HQ Air Command

This incident serves to once again highlight that there are limitations to all the currently available means of detection of airborne conflicts. On this occasion it was a combination of TI on an intermittent slow moving contact (the glider), coupled with crew lookout, that enabled the Tornado pilot to visually acquire, and then avoid, the conflicting glider. Continued TI and good lookout on a further contact prevented a second Airprox from developing during the manoeuvre to break the conflict with the first. Proactive air traffic controlling (clearing airspace for the Tornado transit to Waddington), coupled with a sound decision from the Tornado formation to climb above the prevailing cloudbase, probably reduced the likelihood of the Tornado formation encountering further gliders that were not showing on radar.

Summary

An Airprox was reported on 12th June 2014 at 1155 between a formation of Tornados, who were positioning for an approach at RAF Waddington and receiving a Traffic Service, and an untraced glider. The glider did not show on the radar recording and so the exact separation cannot be determined.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available included reports from the pilot of the Tornado, transcripts of the relevant RT frequencies, radar photographs/video recordings, reports from the air traffic controllers involved and reports from the appropriate ATC and operating authorities.

In discussing the actions of the Tornado crews the Board noted that the speed of the Tornados meant that, in reality, there was probably very little time to acquire visually the glider and then avoid it; they concluded that it had been a combination of good Traffic Information and subsequent directed look-out that had enabled the lead Tornado pilot to visually acquire the glider and take avoiding action. There then followed a discussion about whether a transit at a different altitude may have averted the incident in the first place; although it was generally agreed that the Tornados had attempted to transit

[1] Rules of the Air 2007 (as amended), Rule 8 (Avoiding Aerial Collisions)
[2] Ibid., Rule 9 (Converging)

at a reasonable altitude (3000ft), the Board gliding members stated that, to be sure of not encountering gliders, pilots need to climb above the cloud base.

The Board agreed that there was little more that the controller could have done to prevent the incident because the glider was only showing intermittently on radar. They commended him for his Traffic Information, and also ATC Waddington's subsequent actions in getting clearances to allow the Tornados to transit at a higher altitude.

In considering the cause, the Board agreed that this was a straight-forward conflict in Class G, and that the risk was Category B; safety margins had been much reduced below the normal.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: A conflict in Class G.

Degree of Risk: B.

ERC Score[3]: 20.

[3] 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.