

AIRPROX REPORT No 2014010

Date/Time: 16 Jan 2014 1708Z (Night)

Position: 5349N 00017W
(5nm E Leconfield Airfield)

Airspace: London FIR (Class: G)

Aircraft 1 Aircraft 2

Type: Shadow R.1 Typhoon T.3

Operator: HQ Air (Ops) HQ Air (Ops)

Alt/FL: FL150 FL150

Conditions: VMC VMC

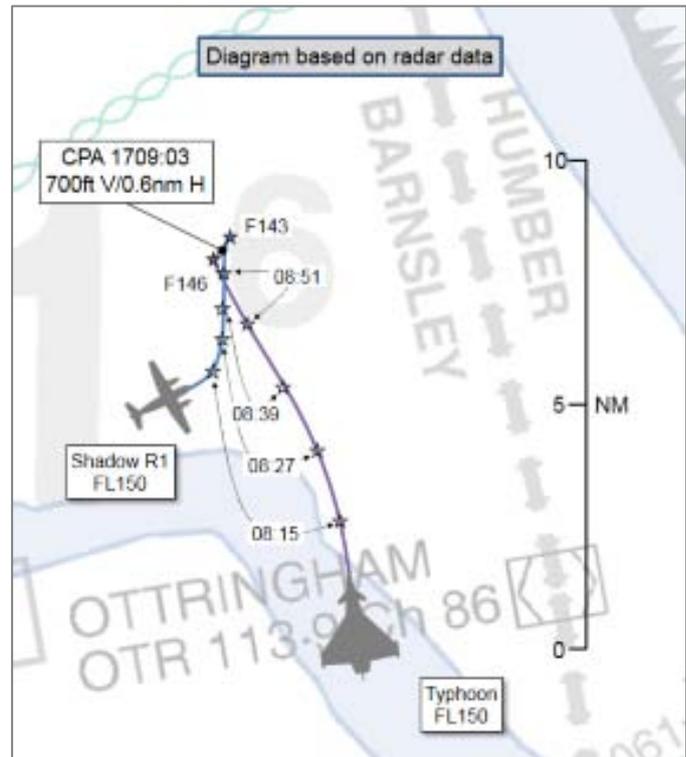
Visibility: 50km 50km

Reported Separation:

500-1000ft V 1000ft V/2nm H
1nm H

Recorded Separation:

700ft V/0.6nm H



PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE BEECH 350 (SHADOW) PILOT reports that his aircraft was coloured grey. Navigation, beacon, strobe and recognition lights were illuminated; SSR Modes A, C and S were selected; TCAS was fitted. He was operating in the area between Spurn Head and Flamborough Head, North Yorkshire, at FL150 in VMC, in receipt of a Traffic Service from Humberside Radar. The Radar controller informed him that there was a contact co-level to the south east working Swanwick Mil. At 1708 he received a TCAS TA against traffic co-level at 5nm in his 1 o'clock. Maintaining his left-hand turn the contact moved to his 2 o'clock at 4 nm when he received a TCAS RA to descend at 3500-4000fpm. The contact appeared to maintain FL150 throughout and moved through to his 4 o'clock at 3nm with a red navigation light visible. The TCAS RA then ceased and level flight was maintained at FL145. After approximately 3 sec, another TCAS RA to descend was received. As the contact passed 2nm behind, a green navigation light was visible. The TCAS RA finally ceased with the contact in his 7 o'clock closing within 2nm; he was maintaining FL140. The contact was visually acquired as it passed down the left-hand side of his aircraft at a range of approximately 1nm. Humberside Radar confirmed that the contact was a Typhoon which had been receiving a radar service from Swanwick Mil. They were in contact with Swanwick on landline throughout and reported that details would be passed to the RAF Waddington ATC Supervisor for retrieval after landing. It was presumed that the Typhoon pilot was in both visual and air-to-air radar contact throughout. However, the closure to approximately 1nm at night, un-briefed and un-coordinated, while his aircraft was at an Indicated Airspeed (IAS) which restricted manoeuvrability (135kt), did cause the Flight Safety risk of distraction and disorientation, plus an unwanted interruption to the training scenario.

He assessed the risk of collision as 'Medium'.

THE TYPHOON PILOT reports that his aircraft was coloured grey. Red anti-collision and external navigation lights were illuminated. SSR Modes C and S were selected. He was in VMC, in receipt of a Traffic Service from Swanwick Mil at FL150 and 350KDAS [Knots Displayed]. He was issued with Traffic Information about an aircraft, co-altitude, at a range of approximately 12nm. Both pilots in the Typhoon were visual with the Shadow, identified at co-altitude by its white anti-collision lights. An air-to-air radar lock was received from approximately 20nm. The initial flight-path geometry appeared that the Shadow would pass down the left side of the Typhoon for an uneventful left-to-left pass at approximately 5nm. At a range of approximately 8nm radar track information showed that the

Shadow pilot had changed his track direction with a left-hand turn, hence, turning towards the Typhoon. He attempted to increase separation by turning away and to the right (in order to fly in front of the Shadow), but the Shadow pilot continued with a left-hand turn towards his aircraft. At approximately 6nm, he realised the potential collision bearing and reversed the turn to the left in order to fly behind the Shadow and ensure flight path deconfliction. The Shadow passed down his right-hand side at an estimated range of 3nm. This was considered by both crew to be an uneventful pass. Once behind and clear of the Shadow by approximately 2nm, he turned back to the right on course and continued with his route to RAF Leuchars.

He assessed the risk of collision as 'Low'.

THE HUMBERSIDE APPROACH RADAR CONTROLLER reports that the Shadow pilot was orbiting in the vicinity of Leconfield, in receipt of a Traffic Service. Swanwick Military passed him Traffic Information about a Typhoon and reported that the pilot was visual with the Shadow. He passed Traffic Information to the pilot of the Shadow without delay, adding that the Typhoon pilot was visual with his aircraft. The Shadow pilot also reported visual. He was then content to allow the pilots to follow the normal Rules of the Air for separation. As the aircraft returns passed, the pilot of the Shadow reported manoeuvring in accordance with a TCAS descent RA. He acknowledged this message and no further Traffic Information was transmitted until the pilot reported TCAS RA action complete.

THE SWANWICK MIL NE CONTROLLER reports, over one month after the event, that at approximately 1700, he was working the Typhoon outbound from RAF Coningsby. He recalled that the pilot was routing north from Coningsby to OTA E, or RAF Leuchars, at FL150. He was not busy at the time. When the Typhoon was SE of Humberside Airport, Traffic Information was issued about an aircraft which was NE of the airport at FL150, manoeuvring. The Typhoon pilot reported that he had radar contact and if he recalled correctly, the pilot called visual with the aircraft. As both aircraft were at the same level, he telephoned Humberside ATC with Traffic Information, stating that his aircraft was visual with the other aircraft. This was carried out in enough time for Humberside to request co-ordination if required, in which he could have instructed the Typhoon pilot to climb or descend. The Humberside controller appeared to be happy with the situation, as his traffic was also under a Traffic Service and its pilot had also called visual with the Typhoon. After the Typhoon had passed the Shadow, Humberside called back to say the pilot of the Shadow was not happy with the close proximity of the Typhoon.

THE SWANWICK MIL EAST BANK SUPERVISOR reports that at the time this event occurred he remembered the controller concerned informing him that an aircraft Humberside were controlling had experienced a TCAS RA against the Typhoon. Both pilots had been informed about each other and were visual. He recorded the relevant details in the Watch Log. However, he did not recall any other details of the event as it was six weeks since the occurrence.

Factual Background

The Humberside weather was: (official night 1637):

METAR EGNJ 161650Z 16013KT 9999 FEW020 08/05 Q0987

CAP774 Flight Information Services¹, states:

'A Traffic Service is a surveillance based ATS, where in addition to the provisions of a Basic Service, the controller provides specific surveillance-derived traffic information to assist the pilot in avoiding other traffic. Controllers may provide headings and/or levels for the purposes of positioning and/or sequencing; however, the controller is not required to achieve deconfliction minima, and the avoidance of other traffic is ultimately the pilot's responsibility.'

¹ Chapter 3, Paragraph 3.1, 3.5, 3.6

'The controller shall pass traffic information on relevant traffic, and shall update the traffic information if it continues to constitute a definite hazard, or if requested by the pilot...'

'Whether traffic information has been passed or not, a pilot is expected to discharge his collision avoidance responsibility without assistance from the controller. If after receiving traffic information, a pilot requires deconfliction advice, an upgrade to Deconfliction Service shall be requested.'

Analysis and Investigation

CAA ATSI

CAA ATSI had access to Humberside RTF and area radar recordings, together with written reports from the Humberside controller and the Shadow and Typhoon pilots.

The Shadow pilot was in receipt of a Traffic Service and at 1642:50, the Humberside controller reduced the level of service, "*[Shadow C/S] reduced Traffic er Service now you're approaching an area of er poor radar performance due to clutter in the atmospheric at dusk er but er no information on non-transponding traffic in that area*", which the Shadow pilot acknowledged.

The Shadow pilot completed a right-hand orbit and took up a south-south-westerly track at 1706:21. At 1707:26 the London Military (NE) telephoned Humberside Radar and advised that the traffic southwest of Ottringham (OTR) by 5nm, tracking north on a 6052 squawk [the Typhoon] was visual with the Humberside 4270 squawk [the Shadow] – Figure 1. This was acknowledged by Humberside Radar.

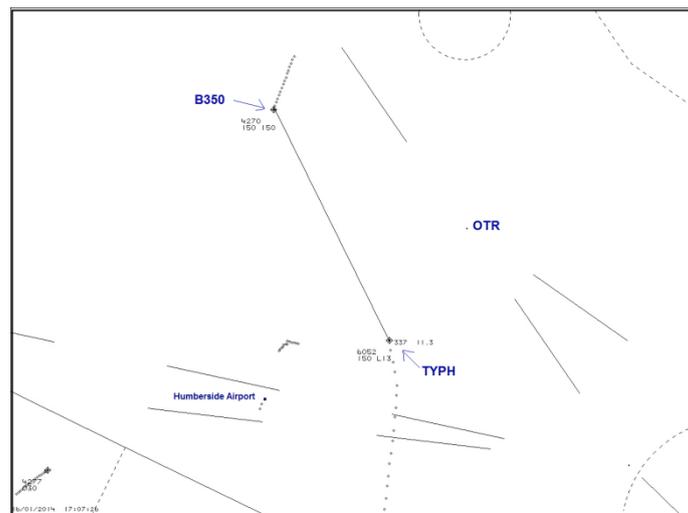


Figure 1 Swanwick MRT at 1707:26.

At 1707:40 the Shadow pilot started a left turn and the controller advised, "*[Shadow C/S] er fast jet traffic southeast of you by six miles northbound maintaining flight level one five zero and visual with you*". The Shadow pilot responded, "*[Shadow C/S] visual*" – Figure 2.

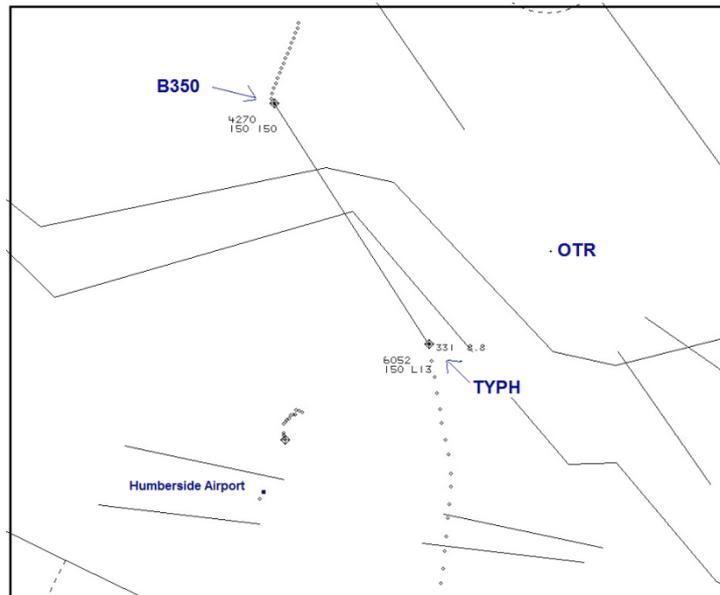


Figure 2 Swanwick MRT at 1707:40.

The Shadow pilot continued in the left turn then and rolled out on a northerly track. The radar calculated groundspeed of the Typhoon was 444kt and the Shadow was 216kt. At 1708:50 the Shadow pilot reported, “[Shadow C/S] TCAS RA descending” which the controller acknowledged with “[Shadow C/S] roger”.

At 1709:01 the Typhoon passed 0.7nm behind the Shadow which was passing FL144 in the descent – Figure 3.

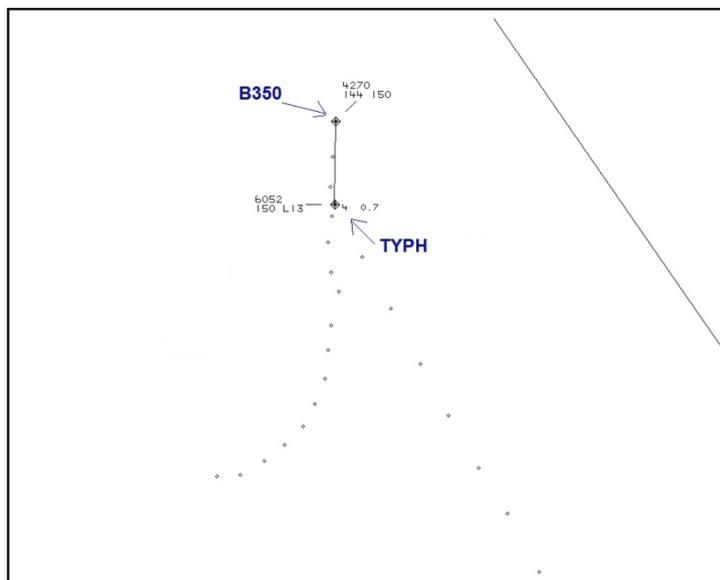


Figure 3 Swanwick MRT at 1709:01.

At 1709:06 the Typhoon passed 0.6nm southwest of the Shadow (CPA). The vertical distance between the two aircraft was 700ft – Figure 4.

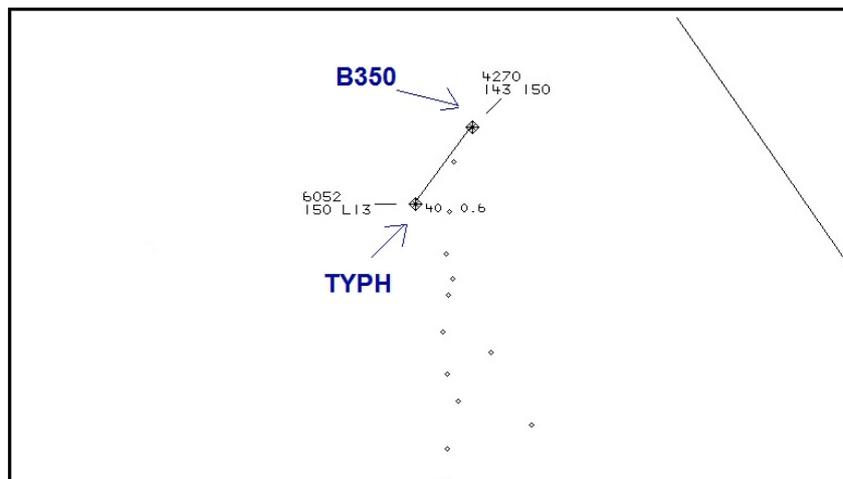


Figure 4 Swanwick MRT at 1709:06.

The tracks of the two aircraft then diverged and at 1709:14 the following RTF exchange occurred:

- Shadow *"[Shadow C/S] er clear of conflict reach-er returning to one five zero".*
- ATC *"[Shadow C/S] er roger".*
- ATC [1709:45] *"[Shadow C/S] the er fast jet traffic was working er London Mil it er they passed the Traffic Information to say he was visual with you would you like me to er pass a message back to them er asking him not to cut it that fine in future".*
- Shadow *"er ye ????? that would be quite good and we'll er we'll sort it out when we get back to base thanks [Shadow C/S]".*
- ATC *"Roger I think it was a Typhoon I'll just check with er London Mil".*
- Shadow *"Yeah it was a Typhoon.... [Shadow C/S]".*

The two pilots continued without further incident and the Humberside controller obtained details regarding the Typhoon from London Military.

Military ATM

The LATCC(Mil) NE controller wrote a retrospective report one month after the incident because the early indication was of a TCAS RA event and not an Airprox. Traffic Information was called to the Typhoon pilot, who reported radar-lock and visual. The LATCC(Mil) NE controller initiated a call to Humberside ATC to explain that the Typhoon pilot was visual although he could climb or descend if co-ordination was required. Humberside were content with the situation and also confirmed that their aircraft was under a Traffic Service.

At 1706:42, the controller cleared the Typhoon pilots direct to Leuchars, own navigation, east of Newcastle and west of 323F. At 1706:54, the controller transmitted, "[Typhoon C/S] *traffic north west 14 miles, manoeuvring, flight level 150.*" The Typhoon pilot is believed to have had a radar contact at 1707:03 and reported visual at 1707:10. Figure 1 demonstrates the aircraft geometry at 1707:18 with approximately 12nm between contacts.

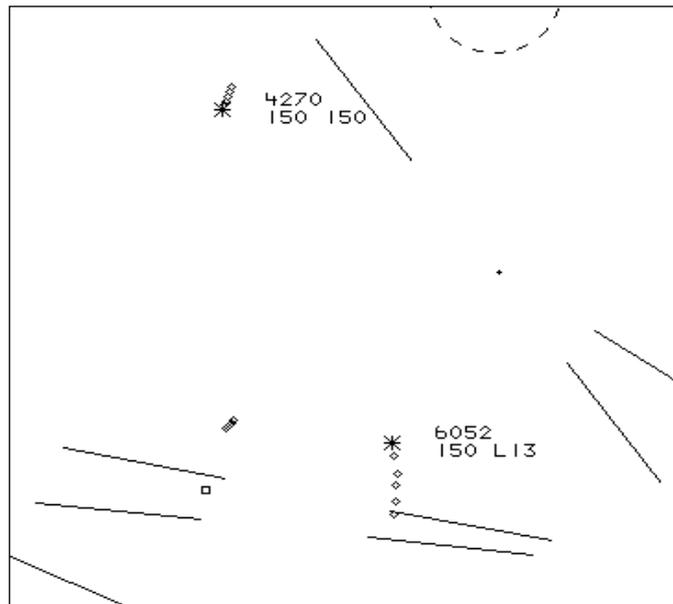


Figure 1: Aircraft geometry at 1707:18 (Typhoon squawk 6052; Shadow 4270).

At 1707:34 the LATCC(Mil) controller telephoned Humberside Radar to pass Traffic Information on the Typhoon and confirmed that its pilot was visual with the Shadow. Figure 2 depicts horizontal separation of approximately 6nm.

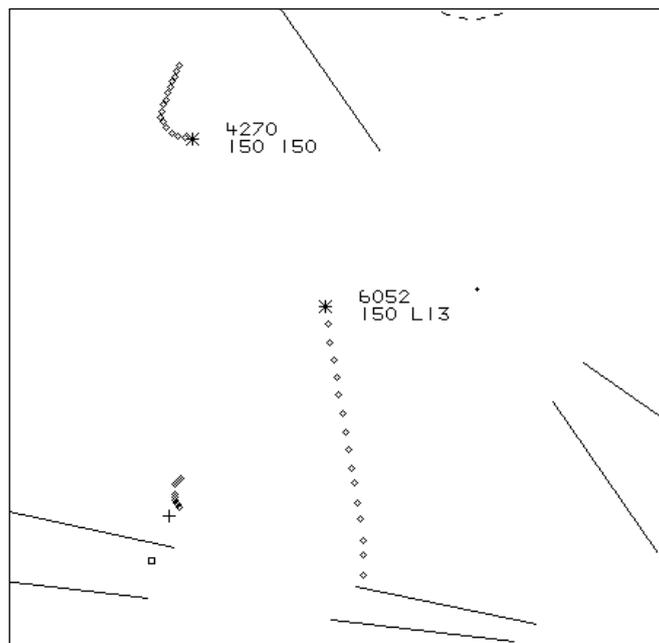


Figure 2: Aircraft geometry at 1708:02.

Figure 3 is a snapshot taken at 1708:44 as the Typhoon pilot was turning left to position behind, as the Shadow pilot was beginning his initial descent from FL150. The aircraft were 1.6nm apart.

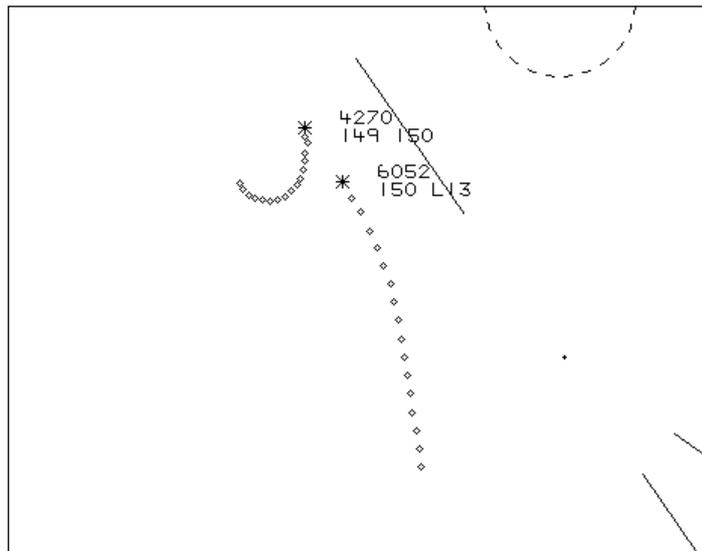


Figure 3: Aircraft geometry at 1708:44 with 1.6nm between aircraft.

Figure 4, taken at the CPA of 1709:00 has lateral separation of 0.6nm and approximately 500ft separation.

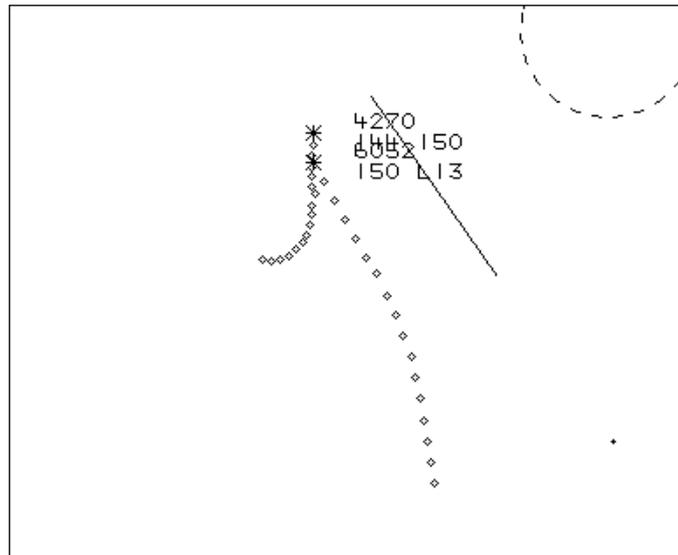


Figure 4: Aircraft geometry at 1709:00.

The Humberside Radar controller telephoned the LATCC(Mil) controller at 1711:55 to inform him that the Shadow pilot had been visual with the Typhoon but he had to manoeuvre in accordance with a TCAS RA and was going to 'file on him'.

UKAB Secretariat

Both pilots shared an equal responsibility for collision avoidance. If the geometry is considered converging, the Shadow pilot was required to give way, if it is considered overtaking, the Shadow pilot had right of way.

Comments

HQ Air Command

The Typhoon pilot attempted to use geometry to avoid the Shadow to its West, unaware that the Shadow was anchored around a fixed point and flying a mixture of right and left-hand orbits. The Shadow pilot, aware of the Typhoon approaching from the South, nevertheless turned towards it

and significantly reduced the expected lateral distance between the 2 aircraft. With both aircraft in receipt of a Traffic Service and both captains responsible for their own safe separation, the Shadow pilot's left-hand turn appears to have aggravated an otherwise benign situation. The TCAS RA and subsequent descent were entirely avoidable had the Shadow pilot maintained his SSW track until clear of the Typhoon.

Summary

The Airprox occurred when the Shadow and the Typhoon came into proximity whilst the pilots were operating VFR/VMC, in receipt of a Traffic Service whilst operating within Class G airspace. The Humberside Radar controller provided Traffic Information to the Shadow pilot on the Typhoon working London Mil. The LATCC(Mil) NE controller issued Traffic Information to the Typhoon pilot and offered the same information to the Humberside controller. The Shadow pilot received and reacted to 2 TCAS RA descent alerts. The Typhoon pilot turned to pass behind the Shadow. Both pilots reported the other aircraft in sight. The minimum separation was recorded as 0.6nm horizontal and 700ft vertical.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available included reports from both pilots, transcripts of the relevant RTF frequencies, area radar recordings, reports from the controllers concerned and reports from the appropriate ATC and operating authorities.

The Board first discussed the actions of the Shadow pilot. Some Members believed that he had made a left turn after receiving Traffic Information about the Typhoon to his SE. The ATSI Advisor pointed out that the pilot had already started to turn before the information was issued. However, it was apparent that the Shadow pilot continued to turn towards the Typhoon, which he could see.

Turning to the Typhoon pilot; the Board noted that he had reported visual with the Shadow at a range of about 12nm, having received a radar lock at 20nm. Initially he believed that the Shadow would pass down his left side. However, radar track information showed that it had turned left. He made a right turn followed by a left turn as the Shadow continued to turn towards his aircraft. His action resulted in the Shadow pilot receiving a TCAS RA descent.

The Board considered that both controllers had fulfilled their obligations to their respective aircraft operating under a Traffic Service. Both pilots had been informed about the other aircraft and they had both reported visual.

The Board then discussed the cause of the Airprox. At first it was considered that the Typhoon pilot had flown close enough to the Shadow to cause its pilot concern. However, other Members believed that the Shadow pilot, who had continued his left turn towards the Typhoon, thereby flew into conflict with the other aircraft. However, after some discussion, Members agreed that it was a combination of both aspects; it was a conflict caused by both pilots.

As to the risk; as the aircraft passed each other 0.6nm apart horizontally, the vertical separation was 700ft. This separation was established after the Shadow pilot had reacted to a TCAS RA descent and the Typhoon pilot had seen and manoeuvred away from the Shadow. Consequently there was no risk of a collision as effective and timely action was taken to prevent the aircraft colliding. Therefore the risk was categorised as C. A Civil Pilot member commented that the rate of descent of the Shadow pilot, after receiving a TCAS RA was 'exceptional', meaning that the TCAS algorithms had calculated that, at one point, there had been a 'high threat' risk.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: A conflict in Class G caused by both pilots.

Degree of Risk: C.

ERC Score²: 2.

² 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.