

AIRPROX REPORT No 2013034

Date/Time: 30 Apr 2013 1429Z

Position: 5313N 00006W

(7nm NNE RAF Coningsby)

Airspace: Lincolnshire AIAA (Class: G)

Reporter: Coningsby DIR

1st Ac 2nd Ac

Type: Typhoon T3 (A) Typhoon T3 (B)

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

Alt/FL: 2000ft 2000ft

NK QFE (NK)

Weather: VMC NK VMC CLBC

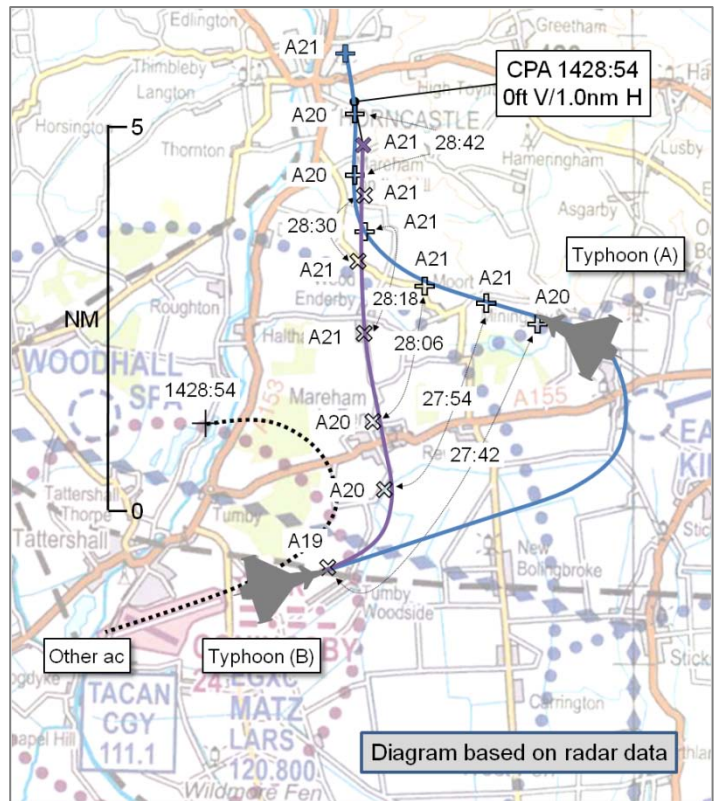
Visibility: >10km >10km

Reported Separation:

Not Seen 0ft V/1nm H

Recorded Separation:

0ft V/1.0nm H



CONTROLLER REPORTED

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE CONINGSBY DIR reports opening the DIR console to take the DIR task from APP. Two ac were already pre-noted to depart into the RTC for simulated single-engine (SSE) approaches. Typhoon (A) was released first with a departure clearance to turn L heading 290°, climbing to 2000ft QFE and Typhoon (B) was released in turn with a departure clearance to turn L 360°, climbing to 2000ft QFE. Typhoon (A)'s profile should have placed it first in the RTC, with Typhoon (B) rolling out positioned behind. [Other ac C/S] was broken off from radar at 4nm and returned to DIR frequency. Whilst she assessed the traffic situation, she instructed [Other ac C/S] to maintain RWY track. At this point she noticed Typhoon (A) was airborne, not yet under her control and, rather than as expected, continued on RWY track an estimated 6nm before turning onto heading 290°. Typhoon (B) departed iaw the clearance, thus placing the 2 ac on a collision course. She rang ADC to ask that Typhoon (A) pilot be prompted to change to DIR frequency but, with no answer, relayed the message through GND. Typhoon (A) pilot checked in, heading 290° and 5nm N of Coningsby. Typhoon (B) was SW [of Typhoon (A)] by about 1nm, heading 360° with both ac indicating height 2000ft [QFE NK]. An avoiding action turn was issued to Typhoon (A) pilot to turn R heading 030°, she thought, and TI was passed. Typhoon (B) pilot checked in on frequency and reported visual with Typhoon (A). She estimated the CPA as co-height at just under 1nm. Both pilots were then placed under a TS and headings were issued to reposition and sequence for the RTC. She stated that she created some confusion by mixing up callsigns, and was distracted by [Other ac C/S] turning downwind rather than continuing on RWY track, thus becoming number one in the pattern.

She perceived the severity of the incident as 'Medium'.

[UKAB Note(1): The DIR RT transcript is reproduced as follows:

From	To	Speech transcription	Time
APP	Other ac	[Other ac C/S] vectoring PAR RW25 correction RW07 procedure minimum 200	14:20:29
Other ac	APP	200 for low approach for further, [Other ac C/S]	14:20:35
APP	Other ac	Roger, after your low approach turn left heading 290 degrees, climb to height 2000 feet maintain squawk and back to me stud 5	14:20:38
Other ac	APP	290, 2000 feet, maintain squawk and stud 5, [Other ac C/S]	14:20:43
DIR	ADC	Director	14:22:32
ADC	DIR	Request release [Typhoon (A) C/S]	
DIR	ADC	I'm sorry which callsign?	
ADC	DIR	[Typhoon (A) C/S]	
APP	Other ac	[Other ac C/S] turn right heading 070 degrees	14:22:40
Other ac	APP	Right 070 degrees, [Other ac C/S]	
DIR	ADC	[Typhoon (A) C/S] released	
DIR	ADC	<i>(Some information is drowned out by approach speaking on stud 5 to [Other ac C/S])</i> director stud 5, director	
DIR	ADC	Director	14:23:23
ADC	DIR	Request release in turn [Typhoon (B) C/S] on a left 360	
DIR	ADC	[Typhoon (B) C/S], yeah 360 degrees is approved and released	
ADC	DIR	And ok, level breaks in force	
DIR	ADC	Level breaks in force	
Other ac	DIR	Director, [Other ac C/S] with you 1026	14:24:16
TDN	Other ac	[Other ac C/S] Coningsby talkdown identified	
DIR	Typhoon (A)	[Typhoon (A) C/S], Coningsby	14:26:41
Other ac	DIR	Director, [Other ac C/S] with you level now 2000 feet	14:27:16
DIR	Other ac	[Other ac C/S], Coningsby director identified 2000 feet traffic service, maintain runway track initially, are you visual with the departing traffic?	14:27:20
Other ac	DIR	One in my 12 o'clock about 2 miles, [Other ac C/S]	14:27:30
DIR	Other ac	Roger	14:27:32
DIR	Typhoon (A)	[Typhoon (A) C/S], Coningsby director	14:27:34
Typhoon (A)	DIR	Coningsby director [Typhoon (A) C/S]'s level 2000 feet with you traffic service	14:27:38
DIR	Typhoon (A)	[Typhoon (A) C/S] Coningsby director identified avoiding action turn right heading 010 degrees, previously called traffic was south west 2 miles tracking north similar height, what type of service do you require?	14:27:42
Typhoon (A)	DIR	Right onto 010 and traffic service, [Typhoon (A) C/S]	14:27:24

DIR	Typhoon (A)	[Typhoon (A) C/S] are you visual with the traffic immediately south 2 miles similar type?	14:27:59
Typhoon (B)	DIR	[Typhoon (B) C/S] is visual [Typhoon (A) C/S] nose 1 mile and will remain (inaudible)	14:28:04
DIR	Typhoon (B)	Roger thank you	14:28:11
DIR	Typhoon (A)	[Typhoon (A) C/S], [Typhoon (B) C/S] will pass behind you	14:28:15
Typhoon (A)	DIR	That's copied [Typhoon (A) C/S]	14:28:22]

[UKAB Note(2): An ATS was not established with either pilot until after CPA]

THE CONINGSBY SUP reports being positioned in the ACR when the APP controller received several inputs and it became apparent that the traffic level was about to increase. He asked the only available qualified controller to open the DIR position and instructed the trainee PAR controller, who was in the process of passing break-off instructions to [Other ac C/S] at 4nm because of the departing traffic, to instruct the pilot to contact the DIR for his further approach. Concurrently, he moved 2 pre-notes across from the APP controller to the DIR position as the ADC was requesting release. The climb-out details on the flight strips for these ac indicated they were deconflicted on departure. [Other ac C/S] had been instructed to fly through deadside and the weather conditions were good. The DIR attempted to contact the departing [Typhoon] pilots as they turned towards each other, but unfortunately they were late checking-in on frequency and landlines between the VCR and ACR were busy. He then supported the DIR with liaison calls, reducing her workload and allowing her to resolve the confliction.

THE CONINGSBY ADC reports being unaware that he was required to complete a DASOR as the incident had occurred on DIR frequency. Consequently, his DASOR was not filed until some weeks after the incident. He recalled that the session was very busy but that he felt he had coped well and did not feel overwhelmed at any time. He recalled breaking off the [Other ac C/S] and the first Typhoon [(A)] 'extending upwind', but that the Typhoon pilot had already switched to DIR, so he thought nothing of it.

THE TYPHOON (A) PILOT reports operating as the rear-seat captain of a student sortie, the student pilot's first 'live' sortie in the Typhoon. He was operating under IFR in VMC with a TS from DIR [277.500MHz], he thought. The grey camouflaged ac had navigation lights and HISLs selected on, as was the SSR transponder with Modes A and C. Departure details were passed for a Simulated Single Engine Failure After Take-Off (SSEFATO) into the RTC. Clearance was received from Coningsby Ground for a L turn-out, heading 290°, and climb to 2000ft. After take-off the student pilot (PF) climbed to 2000ft, actioned the simulated emergency drills and decelerated to pattern speed of 230kt. A L turn was initiated at 5nm [from Coningsby] on to 290°. He prompted the student to switch to DIR frequency and noted that they were 'late' in doing so. On selecting DIR frequency, the check in was further delayed by another ac communicating with DIR. Immediately after checking in he received an avoiding action turn onto 030° to deconflict from traffic to the SW [Typhoon (B)].

He assessed the risk of collision as 'Medium'.

THE TYPHOON (B) PILOT reports operating as the rear-seat captain of a student sortie. He was operating under IFR in VMC with a TS from DIR, he thought. The grey camouflaged ac had navigation lights and HISLs selected on, as was the SSR transponder with Modes A and C. He was in the second of 2 ac (amongst other ac in the vicinity) that departed Coningsby on a non-standard IFR departure from RW07 into the RTC, separated by about 50sec. The first ac [Typhoon (A)] was given a departure clearance to turn onto a W'ly heading at 2000ft whilst he was given a N'ly heading at the same height. After completing initial SSEFATO simulated emergency drills, he prompted the student (PF) to change to DIR frequency. Listening to RT, and using the radar, he quickly became aware of another ac on a converging heading at the same height. He saw the other ac at about 1.5nm in the R 1 o'clock position and transmitted that he was visual with the traffic and that he would

remain clear. He estimated the CPA as just under 1nm and at the same height. Both ac were then controlled by the Director to assure safe de-confliction within the instrument pattern. He stated that he became aware that an Airprox would be submitted by ATC after landing and that a separate DASOR was not required by him or the other ac captain.

He assessed the risk of collision as 'Low'.

[UKAB Note(3): The Coningsby weather was recorded as follows:

METAR EGXC 301450Z 08009KT 9999 SCT042 10/M00 Q1027 BLU NOSIG]

BM SAFETY POLICY AND ASSURANCE reports that the Airprox occurred 4.7nm NE of RAF Coningsby (CGY) at 1428:19 on 30 Apr 13, between Typhoon (A) and Typhoon (B). Both ac were departing CGY from RW07 into the RTC under IFR and conducting a SSEFATO. Whilst the incident occurred with both ac on the DIR frequency, neither ac was formally in receipt of an ATS at the time of the Airprox.

All heights/altitudes quoted are based upon SSR Mode C from the radar replay unless otherwise stated. There was approximately a 400ft pressure difference between the CGY QFE and the SAS, on which the radar replay is based; thus, ac indicating 1600ft SSR Mode C were at 2000ft CGY QFE.

Both ac were crewed with students and instructor pilots and reported unlimited visibility, with the instructor in Typhoon (A) reporting FEW clouds at 4000ft. The student in Typhoon (A) was flying the first live sortie in the ac, with previous conversion exercises having been flown in the simulator. DIR related that she opened the control position around 5min prior to the incident, due to increasing workload within the ACR, and described the workload and complexity of the task as moderate. The DIR was first noted on the transcript at 1422:32, approving the release of Typhoon (A) via landline to the ADC.

Typhoon (A) pilot was cleared to depart on a non-standard departure (NSD), heading 290°, climbing to 2000ft QFE; Typhoon (B) pilot was cleared to depart on a NSD, heading 360°, climbing to 2000ft QFE. The CGY FOB, Order 4, Para 11 states that when flying NSDs, 'Due to Terrain Safe Level Chart restrictions, turns are not to be commenced until passing 1200ft QFE'.

The SUP reported opening the DIR position due to increasing traffic levels and passed flight strips containing the climb-out details for Typhoon (A) and Typhoon (B) to the incoming DIR. The SUP noted that the 'climb-out details on the flight strips for these ac indicated [that] they were deconflicted on departure'. DIR reported that both ac were pre-noted as conducting a SSEFATO; however, subsequent investigation has determined that the flight strips handed to DIR were not annotated as conducting a SSEFATO. Investigation by the Station Flight Safety Officer has determined that aircrews are not required by the FOB to notify ATC that they intend to conduct SSEFATO. Moreover, subsequent to completing the DASOR, DIR related that ATC anticipated all Typhoons that departed straight into the RTC would conduct SSEFATOs; however, this was not incorporated within the FOB.

The incident sequence effectively commenced at 1424:37, as the ADC advised Typhoon (A) pilot, "... clear for take-off, wind 1-0-0-1-1", which was acknowledged correctly. At 1425:56, 1min 19sec later, the ADC cleared Typhoon (B) pilot to take off, which was acknowledged correctly. Shortly before this point, at 1425:54, Typhoon (A) became visible on the radar replay, 1.2nm ENE of the Aerodrome Reference Point (ARP), indicating a climb through altitude 500ft (approximately 100ft on the CGY QFE). Figure 1 depicts the aerodrome layout, with the ARP marked 'CGY', in the centre of the main RWY.

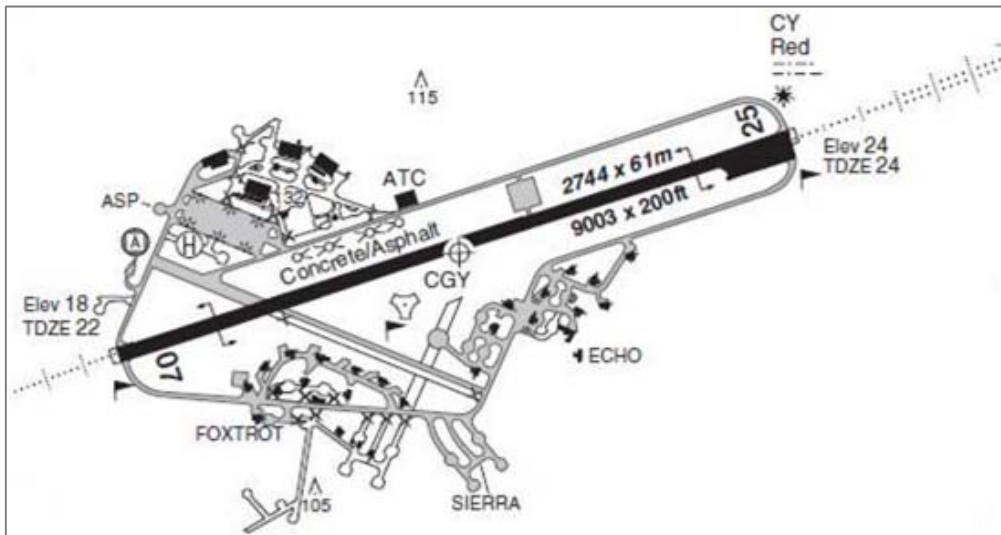


Figure 1: Aerodrome Layout at RAF Coningsby

By 1426:41, DIR had become conscious that Typhoon (A) was airborne, 5.2nm ENE of the ARP, not yet in communication with her, and attempted to raise Typhoon (A) pilot on RT; this was DIR's first transmission on the RT since assuming the control position. At 1426:54, Typhoon (A) pilot commenced a LH turn to downwind, indicating level at height 2000ft CGY QFE, 6.2nm ENE of the ARP. Shortly after, at 1426:57, the pilot advised the ADC that they were switching, "over to stud 5", the DIR frequency. The instructor pilot acknowledged in the DASOR that he 'prompted the student pilot to switch ... we were late to switch across'. Whilst Typhoon (A) pilot's turn downwind was in accordance with the FOB, in that it was above 1200ft CGY QFE, following discussion with CGY ATC personnel, it was perceived by them to have been late. CGY ATC experience with Typhoon SSEFATO was that little observable climb/turn performance decrement was discernible on radar (vs a normal departure) and that their expectation, based on experience, is that pilots will turn on passing 1200ft QFE and thus be closer to the A/D than Typhoon (A) was.

At 1427:02, DIR contacted the ADC on landline requesting, "can you send [Typhoon (A) C/S] stud 5 please". At 1427:14, Typhoon (B) became visible on the radar replay, 0.8nm ENE of the ARP, indicating a climb through height 200ft; Typhoon (A) was 5.8nm NE of Typhoon (B), in a LH turn through NNW. Between 1427:16 and 1427:32, DIR was involved in a continuous exchange of R/T with an unrelated ac that had been broken off from PAR and instructed to fly through deadside for a further IFR approach. At 1427:34, DIR again attempted to raise Typhoon (A) pilot on R/T, receiving the pilot's initial call at 1427:38. At this point, Typhoon (B) had commenced a LH turn on to N, 2.8nm ENE of the ARP and 3.5nm SW of Typhoon (A), indicating a climb through height 1400ft. Given the response delay of SSR Mode C, this accords with the Typhoon (B) instructor pilot's statement that they had 'turned at 1200ft'.

DIR responded to Typhoon (A) immediately stating, "[Typhoon (A) C/S] Coningsby Director, identified, avoiding action, turn right heading 0-1-0 degrees, previously called traffic was south-west, 2 miles, tracking north, similar height. What type of service do you require". Figure 2 depicts the incident geometry at this point; SSR3A 1747 is Typhoon (A), SSR3A and 1733 is Typhoon (B).

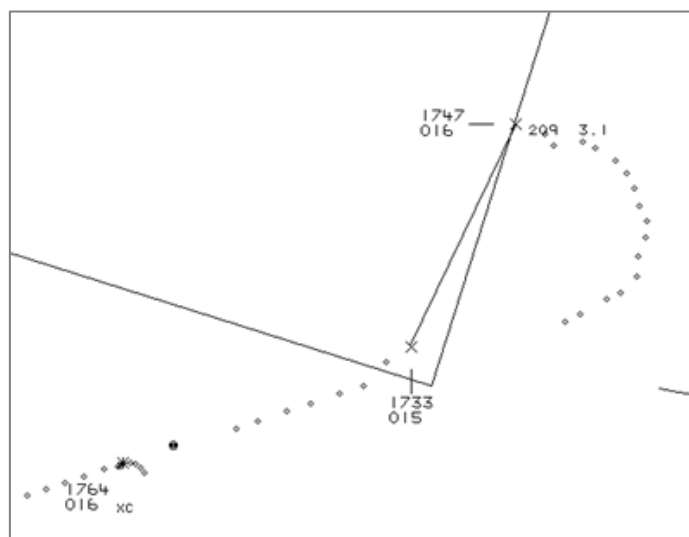


Figure 2: Incident Geometry at 1427:42.

At 1427:54, the pilot of Typhoon (A) read back the avoiding action instruction and requested a TS. DIR then asked whether they were, “*visual with the traffic immediately south, 2 miles, similar type*”. During DIR’s transmission, at 1428:02, Typhoon (A)’s response to the avoiding action became evident on the radar replay and, at 1428:04, Typhoon (B) pilot responded to DIR’s question to Typhoon (A), by advising DIR that he was, “*visual [Typhoon (A) C/S] nose 1 mile and will remain out of his way this time*”. At this point Typhoon (B) pilot had not been able to make an initial call on the DIR frequency, having left the ADC frequency at 1427:37. DIR acknowledged Typhoon (B) pilot and advised Typhoon (A) that Typhoon (B) would pass behind. Whilst the CPA occurred at 1429:04, as Typhoon (B) closed to 1nm behind Typhoon (A) at the same height, the incident had already been resolved.

The quick actions of the DIR, coupled with the use of AI radar and subsequent visual acquisition of Typhoon (A) by the instructor pilot of Typhoon (B), meant that, although separation was eroded, the situation did not deteriorate into a more serious incident. The fact that the incident occurred in VMC was a significant factor in determining a positive outcome. The Airprox occurred as the result of an unintended conflict of departure profiles between Typhoon (A) and Typhoon (B), following a delay by Typhoon (A) pilot in commencing the downwind turn. A contributory factor was the delay in Typhoon (A) pilot establishing RT communication with DIR and, potentially, that this was the student pilot’s first live sortie on type; an aggravating factor was the timing of the exchange of RT between DIR and the unrelated ac, which served to further delay the establishment of 2-way RT between DIR and Typhoon (A).

CGY ATC had developed an expectation bias based on experience of previous Typhoon operations, such that ac conducting SSEFATO would have a similar departure profile to those conducting a ‘routine’ departure and that ac would turn on passing 1200ft and thus be closer to the A/D. Consequently, climb-out instructions were passed to aircrews on the expectation that the ac would depart in accordance with this profile. On this basis, the climb-out instructions passed to Typhoon (A) and Typhoon (B) were understandable and in accordance with local procedure and practice. However, it is reasonable to anticipate that a student pilot may continue on RWY track, in order to complete initial emergency actions, prior to turning downwind. Under these circumstances and, as happened in this incident, the system then ‘fails unsafe’. It is worthy of note that whilst CGY ATC personnel anticipate that Typhoons departing immediately into the RTC will conduct a SSEFATO, there is no formal notification of this to ATC.

Recommendations

BM SPA has highlighted the findings from this investigation to the HQ Air Gp STARs, requesting that they determine the applicability of the issues raised by this incident to their operations.

HQ AIR (OPS) commented that the incident centred around a breakdown in sequencing by ATC. Both pilots complied with their clearances, albeit that the delay in frequency change by Typhoon (A) contributed by delaying the eventual resolution of the conflict by the controller. The unit has amended the warn-out procedure to provide notification of those students on very early sorties. However, amending the non-standard clearance to subsequent aircraft to require a climb on runway heading might be a more robust mitigation in this case.

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 photographs/video recordings, reports from the air traffic controllers involved and reports from the appropriate ATC and operating authorities.

The Board considered the actions of both Typhoon crews and established that they had followed the departure procedure, as stipulated in the RAF Coningsby FOB, but that the procedure itself was faulty, in that it had 'failed unsafe'. The restriction that turns were 'not to be commenced until passing 1200ft QFE' did not cater for the circumstances this Airprox highlighted, where a leading ac turned significantly further from the A/D than the following ac. Board Members commended the DIR for her attempts to resolve the situation and noted that she had been handed the flawed plan. The situation was compounded by expectation bias generated by 'normal' Typhoon departures and the fact that SSEFATO practice was effectively hidden from ATC observation by the lack of reduction in ac performance and absence of notification on warn-out proforma. Civilian ATC Members noted that the Typhoons would not have been allowed to depart at such close spacing at a civilian A/D due to the requirement to achieve IFR spacing, in this case in the radar pattern.

Both crews were operating in class G airspace and were equally responsible for collision avoidance. The crew of Typhoon (A) had right of way; the rear-seat captain of Typhoon (B) became aware of the developing conflict from the RT and his AI radar before gaining visual contact with Typhoon (A) and transmitting that he would remain clear.

The Board concluded that the Airprox was caused by the failure of the departure plan, which allowed Typhoon (B) to turn in to conflict, but that effective and timely action had been taken to prevent the ac colliding. Taken as a whole, the barriers to collision were of limited effectiveness due to the flawed departure plan.

PART C: ASSESSMENT OF CAUSE AND RISK

<u>Cause:</u>	ATC's departure plan allowed Typhoon (B) to turn into conflict with Typhoon (A).
<u>Degree of Risk:</u>	C.
<u>ERC Score:</u>	4.