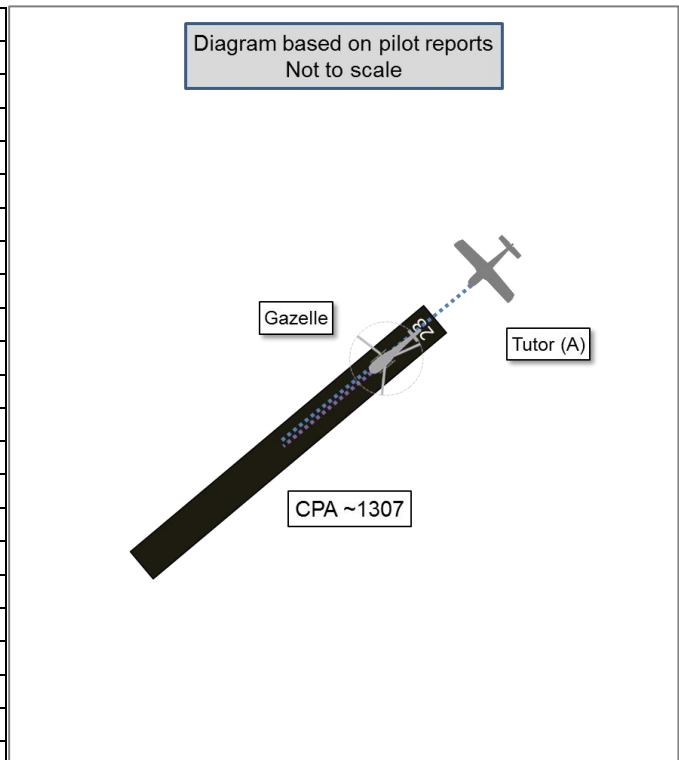


AIRPROX REPORT No 2015093

Date: 25 Jun 2015 Time: 1307Z Position: 5109N 00146W Location: Boscombe Down

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	Gazelle	Tutor (A)
Operator	MoD ATEC	HQ Air (Trg)
Airspace	Boscombe ATZ	Boscombe ATZ
Class	G	G
Rules	IFR	VFR
Service	Aerodrome	Aerodrome
Provider	Boscombe TWR	Boscombe TWR
Altitude/FL	NK	~1100ft
Transponder	A, C ¹	A, C
Reported		
Colours	Grey/green	White
Lighting	Strobes	NK
Conditions	VMC	VMC
Visibility	15km	NK
Altitude/FL	NK	NK
Altimeter	NK (1007hPa)	NK
Heading	225°	NK
Speed	70kt	NK
ACAS/TAS	Other TAS	Other TAS
Alert	TA	Unknown
Separation		
Reported	100ft V/5m H	Not seen
Recorded	NK	



THE GAZELLE PILOT reports being cleared for an IF take off and procedural climb on runway track amongst an exceptionally busy visual circuit. During the climb, at approximately 500ft with the pilot flying simulated IMC using the IF hood and the safety pilot looking out, the TAS alerted for a TA showing at +800 (800ft above) and slightly ahead. As the safety pilot looked ahead and up for the contact, the Tower controller made an urgent call for the Gazelle to stop climb due to a Tutor immediately above. The safety pilot then looked directly up to see a Tutor, approximately 100ft above, very slightly to the right and drawing ahead, apparently having almost directly over-flown the Gazelle. The climb was stopped and the Tutor allowed to continue opening ahead before they resumed the IF climb. The pilot stated that other relevant factors were: TAS saturation due to high levels of alert due to circuit traffic; exceptionally busy circuit traffic and encroachment of visual circuit traffic onto departing IF traffic; an excellent response from the Tower controller which prevented collision; the fact that the Gazelle was climbing in a blind spot for the Tutor; and a very late spot of the Tutor from the Gazelle as it was overtaking directly above. The pilot also noted that if they had made an early switch to the approach frequency it was quite likely that warning would not have been passed in time, with a significantly higher risk of collision.

He assessed the risk of collision as 'Medium'.

THE TUTOR (A) PILOT reports that, on a 'standard Berwick recovery', he requested an orbit with Boscombe Approach to give Tutor(B) 'more space in front of him', which was approved. He called 'West point' and then downwind to land on the main. ATC were very busy and did not respond to his two downwind calls. When he subsequently called finals he was told to 'go around'. He overshot and turned early onto the downwind leg to get out of the way of those below. On the second circuit he was told to continue his approach before once again being told to 'go around' (prior to his finals turn). On

¹ The Gazelle did not appear on area radar recordings until after CPA.

the final circuit, his downwind call for a full stop was responded to and he then called for finals. ATC cleared him for a touch and go, which he corrected to a full-stop landing. He landed and departed the runway without hindrance.

THE TUTOR (B) PILOT reports he joined from Berwick with Tutor (A) behind him. He flew to 'West Point' at 120kt to increase spacing from Tutor (A). As he called 'West Point', Tutor(C) was landing on the main and Tutor (A) was spaced nicely behind. He completed a normal circuit to the main for a touch and go. When he was late downwind on the second circuit, he saw an Alpha Jet, which he was aware was in the circuit, in his 10 o'clock. Knowing it would turn final and was travelling faster than he was, he waited until it passed in front of him before he turned final, which would have allowed him to land on the main in turn. Early in the final turn, ATC asked him to position for the northern runway. He then completed a touch and go on the northern. He finally completed a normal circuit to land on the main and exited the runway behind Tutor(C) before taxiing back. He noted that ATC were very busy and didn't reply to his downwind call on two of the circuits.

THE TUTOR(C) PILOT reports flying the third in a series of dual-to-solo sorties after first solo, consisting of four circuits to be flown solo. He flew the first two circuits without hindrance and, upon beginning his third circuit, Tutor (A), Tutor (B) and an Alpha Jet had joined him in the circuit. Both the Alpha Jet and Tutor (B) were ahead of him, whilst Tutor (A) was behind, on their downwind legs. The Alpha Jet subsequently landed and was stationary by taxiway Echo in the centre of the main runway so Tutor(B) was then asked to position to the northerly runway. When Tutor(C) pilot was on finals, Tutor (A), behind him, was told to 'go around at circuit height' by ATC. Tutor(C) pilot then carried on with his own final approach until he reached a point where the Alpha Jet hadn't vacated the runway and he wasn't content with its position relative to his own aircraft. He then climbed away calling "[Tutor(C) C/S] going around, not above 600ft, please advise" with the knowledge that Tutor(A) would be close behind and at 800ft. ATC asked him if he was visual with Tutor(A), which he wasn't. He then saw Tutor (A) high in his three o'clock, which was then confirmed by ATC. He proceeded to 800ft and went back into the normal circuit pattern. He then completed the rest of his sortie without hindrance, except for ATC missing a few of his calls that were subsequently repeated.

THE BOSCOMBE TOWER CONTROLLER reports a circuit state of 3 Tutors in the northern circuit, one A109 south side with an Alpha Jet holding on RW23 to allow approaches to the RW23 North. All three Tutors were student callsigns. One Gazelle was holding on taxiway Echo for an IF departure from the main RW23. He gave the Alpha Jet pilot clearance to vacate the main runway following a Tutor approach to the northern. A Tutor (believed to be Tutor (A)) called final to the main. With the Alpha Jet still vacating, he told Tutor (A) to 'go around'. Once the Alpha Jet had vacated he gave the Gazelle a clearance to line up abeam taxiway echo on RW23. He instructed the Alpha Jet pilot to contact Boscombe Ground once he was vacated. He gave the Gazelle pilot clearance to take off. He then attempted to re-identify the Tutors in the visual circuit. It was not clear where Tutor (B) was as he had been cleared to touch-and-go on the northern runway some time previously but could not be seen as was expected on crosswind or early downwind. He broadcast a request for his position and he replied he had just taken off from RW23. This was confusing as it would not have been possible, even without a clearance, given that the Alpha Jet was still on the main when the clearance to Tutor (B) to touch-and-go on the north runway was broadcast. With both he and the other people in the Tower focusing on the downwind leg, attempting to identify the three tutors, it was only when he checked on the position of the Gazelle that he noticed Tutor (A) overhead it. He immediately broadcast that the Gazelle should stop its climb, thereby preventing a collision.

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

THE BOSCOMBE SUPERVISOR reports that at the time of the incident he was downstairs in the Approach Control Room (ACR). At the time of the incident the unit was experiencing exceptionally high workload. In addition to the workload of each controller, the airspace management around Boscombe and Salisbury Plain Training Area (SPTA) was particularly complex. The Watchkeeper RPAS was operating in D122, para-dropping was taking place at Old Sarum and Netheravon, and a Tornado had only just completed a trial in the Boscombe overhead and SPTA. The Zone controller in particular was experiencing a very high workload, and the SUP was involved in helping her out with

pre-notes, handovers and MATZ crossing clearances. The Zone position was also busier than normal due to an increased number of rotaries transiting to and from Glastonbury for the upcoming festival. He did not witness the incident, and was told of its details when the Tower controller was relieved from position. The Supervisor noted that, due to the inexperience of the Tutor pilots in the visual circuit at the time of the incident, his presence in the Tower would have been useful. However, he was needed in the ACR due to the unit's workload.

Factual Background

The weather at Boscombe was recorded as follows:

METAR EGDM 251250Z 34004KT 9999 SCT030 08/M00 Q1012 BLU NOSIG

The UK MIL AIP at AD 2 – EGDM – 1 – 10, EGDM AD 2.20 - LOCAL TRAFFIC REGULATIONS, dated 29 Sep 05, states:

'Warnings

- No Dead Side. Left hand visual circuit flown at 1200ft QFE. All breaks are to be Level breaks at 1200ft QFE.
- Light aircraft operate to parallel section of the Northern Taxiway from non-standard 800ft QFE Northerly circuit.
- Rotary aircraft may also be operating to grass surface abeam Rwy 05/23.'

AD 2 - EGDM - 1 – 13, dated 17 Oct 13 states:

'VISUAL CIRCUIT PROCEDURES

1. **Parallel Surface.** High-intensity, multi-type, acft and hel operations occur to multiple operating surfaces as depicted on the AD chart. All parallel rwy operations are under positive ATC control. By exception, however, hel operating to Rwy 05/23 Grass, as the only occupants of the combined circuit to the Grass and Northern, may operate to negative RT when approved by ATC. Visitors to Boscombe Down are to comply meticulously with ATC instructions and, when required, are to overshoot **on rwy Tr.**

...

WARNINGS

4. **Acft landing on Rwy 05/23 are not to vacate the rwy until cleared by ATC. When vacating Rwy 23 at the end, acft are not to proceed past '05 North Hold' without positive clearance from ATC.**

5. Acft overshooting or executing M/App are to maintain rwy Tr to avoid impinging on the visual circuits to the north and hel operations 'Southside'. Exceptionally, if a confliction arises with acft in the Northern circuit, use of the area between the RCL and 'Southside' as depicted on the AD chart, is permitted.

...'

A transcript of the Tower frequency is as follows:

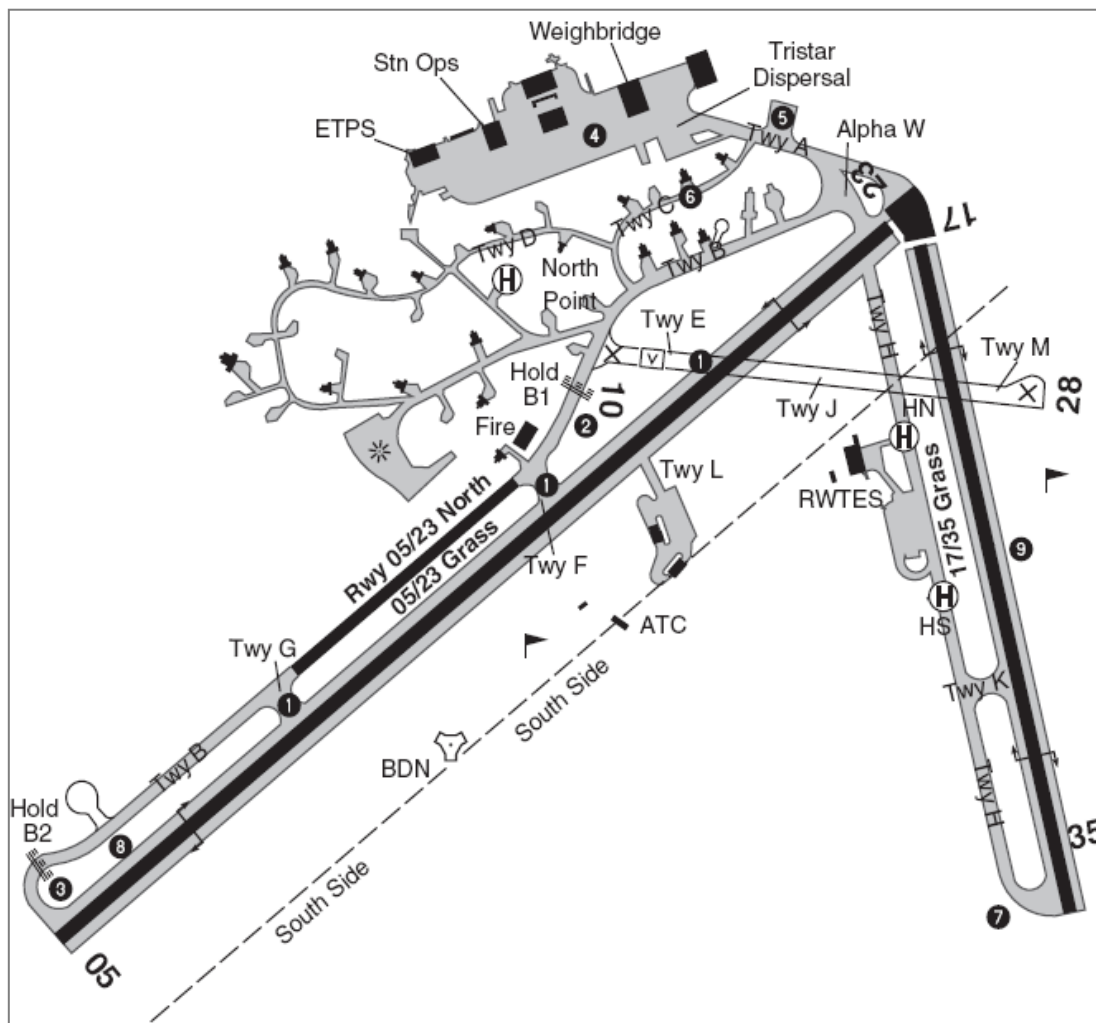
From	To	Speech Transcription	Time
Tutor (A)	Tower	Boscombe Tower, [Tutor (A) C/S] join with Charlie	12:59:14
Tower	Tutor (A)	[Tutor (A) C/S] join runway 23 right hand, Q F E 1007, 2, er 1 in, 2 northside, 1 southside	12:59:17
Tutor (A)	Tower	23, 1007, and [Tutor (A) C/S]	12:59:26
Tutor (B)	Tower	[Tutor (B) C/S] downwind touch and go main	12:59:47
Gazelle	Tower	Tower, [Gazelle C/S] request line up runway 23	12:59:53
Tower	Gazelle	[Gazelle C/S], Boscombe Tower, hold and, correction, taxi Echo and hold short Runway 23	12:59:57
Gazelle	Tower	Echo and hold short [Gazelle C/S]	13:00:03
Tutor C/S	Tower	{stepped on}	13:00:10
Tower	Tutor C/S	Uniform...er, callsign say again.	13:00:14

From	To	Speech Transcription	Time
Tutor (A)	Tower	[Tutor (A) C/S] at West Point	13:00:16
Tower	Tutor (A)	[Tutor (A) C/S], 1 Tutor just turning downwind, 1 Tutor Mid Downwind, Alpha-Jet downwind on the Main Circuit	13:00:18
Tutor (A)	Tower	Copied, [Tutor (A) C/S]	13:00:27
Tutor (C)	Tower	[Tutor (C) C/S] downwind touch and go main	13:00:29
Tower	Tutor (C)	[Tutor (C) C/S] 3 ahead, wind 230 6	13:00:36
Tutor (C)	Tower	3 ahead, [Tutor (C) C/S]	13:00:42
Tutor (B)	Tower	[Tutor (B) C/S] is late downwind touch and go main	13:00:44
Tower	Tutor (B)	[Tutor (B) C/S], 1 ahead, main approved, wind 230 6	13:00:49
Tutor (B)	Tower	1 ahead, [Tutor (B) C/S]	13:00:56
Alpha Jet	Tower	[Alpha Jet C/S] late downwind, full stop	13:00:58
Tower	Alpha Jet	[Alpha Jet C/S] wind 230 6	13:01:01
Alpha Jet	Tower	[Alpha Jet C/S] and confirm we're number 1	13:01:06
Tutor (A)	Tower	[Tutor (A) C/S] downwind full stop main	13:01:07
Alpha Jet	Tower	Tower, [Alpha Jet C/S] finals gear down	13:01:13
Tower	Alpha Jet	[Alpha Jet C/S] cleared touch and go barrier down	13:01:21
Alpha Jet	Tower	[Alpha Jet C/S] er... to land	13:01:26
Tower	Alpha Jet	[Alpha Jet C/S] cleared to land barrier down	13:01:28
Alpha Jet	Tower	Cleared to land [Alpha Jet C/S]	13:01:30
Tutor (A)	Tower	[Tutor (A) C/S] downwind full stop main	13:01:33
Tower	Tutor (A)	[Tutor (A) C/S] main approved, 1 ahead, wind 230 6	13:01:39
Tutor (A)	Tower	1 ahead, [Tutor (A) C/S]	13:01:43
Tutor (B)	Tower	[Tutor (B) C/S] final main, visual with the traffic	13:01:44
Tower	Tutor (B)	[Tutor (B) C/S] continue approach	13:01:48
Tutor (B)	Tower	Continue approach [Tutor (B) C/S]	13:01:50
Tutor (C)	Tower	[Tutor (C) C/S] final main, visual with traffic	13:02:00
Tower	Tutor (B)	[Tutor (B) C/S] can you position to the north?	13:02:05
Tutor (B)	Tower	[Tutor (B) C/S]	13:02:08
Tutor (B)	Tower	[Tutor (B) C/S] final touch and go north	13:02:23
Tutor (A)	Tower	[Tutor (A) C/S] final main	13:02:31
Tower	Tutor (B)	[Tutor (B) C/S] cleared touch and go north	13:02:36
Tutor (B)	Tower	Cleared touch and go north [Tutor (B) C/S]	13:02:38
Tower	Tutor (A)	[Tutor (A) C/S] it'll be er go around circuit height	13:02:43
Tutor (A)	Tower	Go around circuit height [Tutor (A) C/S]	13:02:47
Tower	Alpha Jet	[Alpha Jet C/S] hold on the main abeam Foxtrot	13:02:50
Alpha Jet	Tower	[Alpha Jet C/S] abeam Foxtrot, Wilco	13:02:52
Tower	Gazelle	[Gazelle C/S], Boscombe Tower, Line-up runway 23 abeam Echo	13:03:02
Gazelle	Tower	Line-up abeam Echo, [Gazelle C/S]	13:03:06
Tower	Gazelle	[Gazelle C/S] on departure it'll be not above height 2000ft, acknowledge	13:03:11
Gazelle	Tower	[Gazelle C/S] we're going to hold, there's a Tutor going for the main	13:03:13

From	To	Speech Transcription	Time
Tower	Tutor (A)	[Tutor (A) C/S] confirm breaking off circuit height	13:03:15
Tower	Gazelle	[Gazelle C/S] hold in your current position	13:03:21
Gazelle	Tower	Holding, [Gazelle C/S]	13:03:24
Other	Tower	Tower, [Other C/S] requesting cross runway 23 for north point	13:03:30
Tutor (C)	Tower	[Tutor (C) C/S] going around	13:03:33
Tower	Tutor (C)	[Tutor (C) C/S] {stepped on}	13:03:38
Tower	Tutor (C)	[Tutor (C) C/S] one Tutor overhead circuit height	13:03:42
Tutor (C)	Tower	Be advised maintain 600ft [Tutor (C) C/S]	13:03:45
Tower	Tutor (C)	[Tutor (C) C/S] are you visual with the tutor overhead	13:03:50
Tutor (C)	Tower	No, [Tutor (C) C/S]	13:03:54
Tower	Tutor (C)	[Tutor (C) C/S] not above height 600ft on the go around	13:03:57
Tutor (C)	Tower	Not above 600ft going around [Tutor (C) C/S]	13:04:01
Tower	Tutor (C)	In your right 3 o'clock now, high	13:04:05
Tutor (C)	Tower	Visual [Tutor (C) C/S]	13:04:09
Tutor (C)	Tower	{stepped on} request normal circuit [Tutor (C) C/S]	13:04:11
Tower	Tutor (C)	[Tutor (C) C/S] affirm, turn downwind now normal circuit height with the Tutor insight	13:04:12
Tutor (C)	Tower	Affirm, [Tutor (C) C/S]	13:04:18
Tower	Tutor (B)	[Tutor (B) C/S]	13:04:20
Tutor (B)	Tower	Boscombe Tower, [Tutor (B) C/S], pass message	13:04:22
Tower	Tutor (B)	[Tutor (B) C/S], request your current position	13:04:25
Tutor (B)	Tower	[Tutor (B) C/S] just taking off runway 23, 600ft A G L	13:04:31
Tutor (A)	Tower	[Tutor (A) C/S] downwind full stop main	13:04:38
Tower	Tutor (B)	[Tutor (B) C/S] say again	13:04:42
Tutor (B)	Tower	[Tutor (B) C/S] just turning downwind	13:04:45
Tower	Tutor (B)	[Tutor (B) C/S]	13:04:47
Tower	Alpha Jet	[Alpha Jet C/S] vacate onto Foxtrot	13:04:51
Alpha Jet	Tower	Vacate onto Foxtrot [Alpha Jet C/S]	13:04:54
Tutor (A)	Tower	[Tutor (A) C/S] final main	13:04:58
Tower	Tutor (A)	[Tutor (A) C/S] go around	13:05:00
Tutor (C)	Tower	[Tutor (C) C/S] downwind touch and go main	13:05:03
Tutor (A)	Tower	Going around [Tutor (A) C/S]	13:05:07
Tower	Tutor (C)	[Tutor (C) C/S] main approved, wind 210 6	13:05:10
Tower	Gazelle	[Gazelle C/S] line up runway 23 abeam Echo	13:05:13
Gazelle	Tower	Line-up abeam Echo, [Gazelle C/S]	13:05:15
Alpha Jet	Tower	[Alpha Jet C/S] is clear of the active	13:05:18
Alpha Jet	Tower	Tower, [Alpha Jet C/S] is clear of the active	13:05:29
Tutor (B)	Tower	{Unclear transmission} 3 Tutors ahead [Tutor (B) C/S]	13:05:31
Tower	Alpha Jet	[Alpha Jet C/S] continue with Boscombe Ground stud 2	13:05:33
Alpha Jet	Tower	Stud 2, [Alpha Jet C/S]	13:05:36
Tower	Gazelle	[Gazelle C/S] clear for takeoff runway 23, wind 200 07, barrier down	13:05:41

From	To	Speech Transcription	Time
Gazelle	Tower	Clear for takeoff [Gazelle C/S]	13:05:50
Other	Tower	Tower, [Other C/S] is going to be off freq for approximately 2 mikes	13:05:56
Tower	Other	[Other C/S] roger continue with Boscombe Ground stud 2	13:06:00
Other	Tower	[Other C/S] is going to be holding on runway 17 off freq for 2 mikes	13:06:05
Tower	Other	[Other C/S] roger	13:06:12
Tutor (C)	Tower	[Wrong C/S], correction [Tutor (C) C/S] final main	13:06:23
Tower	Tutor (C)	[Tutor (C) C/S] is this to touch and go?	13:06:29
Tutor (C)	Tower	Touch and go [Tutor (C) C/S]	13:06:32
Tower	Gazelle	[Gazelle C/S] er...[Gazelle C/S] Tutor overhead, stop climb now	13:06:38
Gazelle	Tower	Stop climb [Gazelle C/S]	13:06:44
Tower	Gazelle	[Gazelle C/S] now clear of that Tutor	13:06:48
Gazelle	Tower	er [Gazelle C/S], continuing to climb	13:06:51
Tower	Tutor (C)	[Tutor (C) C/S] cleared touch and go main, barrier down	13:06:58
Tutor (C)	Tower	Cleared touch and go main [Tutor (C) C/S]	13:07:01
Tower	Gazelle	[Gazelle C/S] continue with Boscombe Approach stud 4	13:07:07
Gazelle	Tower	Stud 4, [Gazelle C/S]	13:07:09

An extract from the Aerodrome chart at AD 2 - EGDM - 1 - 15, dated 12 Dec 13, is shown below:



Analysis and Investigation

Military ATM

The incident occurred on 25 June 15 between a Gazelle and a Tutor, both under an Aerodrome Control Service with Boscombe Down Aerodrome Controller. The Radar Analysis Cell were not able to capture the incident on radar due to the heights involved.

At 1259:17, the Tutor (A) joined the visual circuit and was given a traffic update. At 1301:33, the Tutor (A) pilot called downwind for a full stop landing and the main runway was approved with one aircraft ahead. At 1302:43, the Tutor (A) was sent around at circuit height.

At 1303:11, the Gazelle pilot was informed of a climb-out restriction to 2000ft and the pilot responded that they were holding as a Tutor [(C)] was going for the main. Tutor (A) was asked to confirm that he was breaking off the approach and Tutor(C) informed the ADC that he was

At 1304:58, the Tutor (A) pilot called for finals and was sent around again at 1305:00. At 1305:13, the Gazelle was lined-up on the main runway at point Echo. The take-off clearance was passed at 1305:41 and the next transmission to the Gazelle was at 1306:38 when the Tower controller said, “[Gazelle C/S] *Tutor overhead, stop climb now.*”

At 1306:44, the Gazelle pilot replied with “*stop climb.*” At 1306:48, the Gazelle pilot confirmed that he was clear of the Tutor (A).

The visual circuit at the time was busy, resulting in a high workload for the Aerodrome Controller, including integrating a number of different aircraft types with circuits flown to the north and south. The Tutor (A) was sent around because the main runway was occupied and the Gazelle was then cleared for an IFR departure from RW23. The Aerodrome Controller saw the potential confliction and warned the Gazelle to stop climb; the call from ATC allowed the Gazelle to level-off and resulted in an estimated vertical separation of 100ft.

An in-depth local investigation found that the Aerodrome Controller had cleared the Gazelle pilot to depart and climb through circuit height whilst the Tutor (A) was flying directly over the main runway on a go-around. As the controller’s workload increased he had lost situational awareness and was unaware of the position of the Tutor (A). The controller had tried to move two of the Tutors onto RW23 North but had been informed that two of the students were not cleared to operate on the northern runway and had to use the main runway. The investigation centred on the non-standard airfield layout at Boscombe, and particularly its lack of a deadside for aircraft going-around. Controller workload was further increased because of the different aircraft types flying northerly and southerly circuits to two parallel runways, where it is difficult to ascertain the relative positions of each aircraft and which runway they are using. To add to the task difficulty, the Tutors were difficult to acquire visually from the Tower. With inexperienced Tutor pilots operating to two different runways, it could be difficult for the controller to correlate specific aircraft with callsigns; non-standard radio calls and circuit patterns could also exacerbate the situation. The ATC Supervisor was assisting another controller in the Approach Control Room at the time.

A number of recommendations were made to help prevent reoccurrence. A restriction would be placed on the number of Tutors allowed in the circuit that could not use RW23 North and ATC would be pre-noted with student pilot qualifications for runway usage. The unit would provide additional training to increase awareness of the potential issues of traffic going around at an airfield without a deadside. Measures to improve Tutor conspicuity were also recommended. In addition, a review of ATC manpower would be conducted to include the complexities at Boscombe, with a view to providing a Supervisor or suitably qualified controller in the Visual Control Room when the visual circuit was busy. An event was organised to review the FOB to re-assess traffic patterns, runway usage and circuit restrictions to provide the safest operating environment. The role of the Duty Instructor based in ATC for Tutor flying, was also under review.

Furthermore, an investigation into TAS limitations would be conducted to understand potential blind spots or areas of poor performance.

The normal barriers to an Airprox in the visual circuit would be lookout, TAS and ATC Traffic Information and deconfliction procedures. As Boscombe lacks a deadside, any aircraft going-around would have to be deconflicted with a departing aircraft through means other than lateral separation. The deconfliction could be achieved by holding a departure or ensuring that crews were visual. Specific Traffic Information was not passed to either of the Airprox aircraft pilots and it would appear that the busy Aerodrome Controller temporarily lost situational awareness of traffic positions. The investigation added context to the controller error, explaining the complexities and difficulties involved. Ultimately, the visual information available to the Aerodrome Controller was not detected and, as a result, the clearance was given for departure. The crews were not visual with each other, and the busy RT may have weakened their awareness of other circuit users. Lookout for both crews would have been hampered because the Gazelle was underneath the Tutor, and the Tutor was overtaking, above and behind the Gazelle. The TAS does not appear to have alerted the Tutor pilot but did give an alert to the Gazelle crew, albeit with indications that reportedly did not correlate with the position of the Tutor.

UKAB Secretariat

The Gazelle and Tutor pilots shared an equal responsibility for collision avoidance and not to operate in such proximity to other aircraft as to create a collision hazard².

Occurrence Investigation

The Occurrence Investigation identified a number of factors including:

- Loss of SA of the Tower controller.
- Number of Tutor aircraft in the visual circuit whose pilots could not use the 'Northern'.
- ATC lack of appreciation as to which Tutor pilots were cleared to use the 'Northern'.
- Previous training of the ADC.
- Consequential effects of the lack of a deadside at Boscombe.
- Lack of visual conspicuity of the white Tutor aircraft.
- Potential consequences of flying a non-standard circuit pattern.
- Complexity of procedures and airspace at Boscombe.

Comments

HQ Air Command

The narrative of this Airprox describes an extremely complex situation and shows how important it is for all concerned to use all means possible to gain full situational awareness before IF traffic integrates into the visual circuit. A thorough Occurrence Safety Investigation has taken place which resulted in 14 recommendations. Many of the recommendations include revising procedures and training such that the chances of a controller losing Situational Awareness in the future are much reduced. There will also be revisions to the way that Tutor aircraft (with quite often inexperienced pilots) operate at Boscombe Down. Ultimately the 'stop climb' call from the controller prevented the situation becoming more significant.

Summary

An Airprox was reported when a Gazelle and a Tutor flew into proximity at about 1307 on Wednesday 25th June 2015. Both pilots were operating in VMC in receipt of an Aerodrome Control Service, the Gazelle pilot under IFR with safety pilot lookout and the Tutor pilot under VFR. The Tutor pilot, on

² SERA.3205 Proximity.

final approach to RW23 main, had been cleared to go around and the Gazelle pilot had been cleared to take off. There is no deadside at Boscombe.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available consisted of reports from the pilots of both aircraft, transcripts of the relevant RT frequency, radar photographs/video recordings, reports from the air traffic controllers involved and reports from the appropriate ATC and operating authorities.

This complex Airprox was the subject of much debate. A military ATC member started by adding some detail to the already well documented events. In the 7min prior to the Airprox, the Tower controller was busy, with transmissions every 6-7sec, and the multi-runway, multi-aircraft visual circuit, with departing IFR traffic, was a challenging environment for all concerned. Crucially, the Tower controller was unaware as to which Tutor pilots were cleared, or not, to use RW23 North. He had asked the pilot of Tutor(B) whether he could position for RW23 North, he had responded with his callsign only, and he had subsequently called final for, and been cleared to, touch-and-go on RW23 North. It transpired that the Tutor (B) pilot was inexperienced, was not cleared to use RW23 North, and had in fact flown his approach to the main RW23. It also transpired that the runway caravan controller had fired a red very flare but the Tutor (B) pilot did not see it.

The Board noted that the threshold of RW23 North is at about the mid-point of RW23 main, so Tutor (B) (making an approach to RW23 main) was then not in the position the Tower controller expected. When he requested Tutor (B) state his position the reply, '*just taking off runway 23*', did not conform to his situational awareness and this was probably the point at which the seed of confusion was sown. Members acknowledged that the Tower controller had requested Tutor (B) to re-position to RW23 North in order to expedite the IFR departure of the Gazelle. The Gazelle pilot had then informed the Tower controller that '*we're going to hold, there's a Tutor going for the main*' (Tutor(C), ahead of Tutors (A) and (B)) which caused growing confusion for the controller.

Meanwhile, Tutor (A) had already been instructed to go-around and Tutor(C) was concerned because he perceived that Tutor (A) (who was behind him) would be in proximity as Tutor (A) potentially overtook him on his approach. In order to mitigate this, Tutor (A) pilot turned downwind early to increase separation and was then in front of Tutor(C). The Tower controller then became uncertain as to the relative position of Tutors. In the confusion as to which Tutors were going round, the Tower controller cleared the Gazelle to depart, having already instructed Tutor(A) pilot, now on his next approach, to go-around. Unfortunately, the lack of a deadside at Boscombe provided the final link in the chain with Tutor (A) then tracking overhead the departing and climbing Gazelle.

In some high-workload conditions situational awareness does not gradually diminish but collapses entirely after a trigger event. Additionally, the mental workload involved in re-establishing situational awareness is highly capacity sapping. In instances such as this, detecting the aircraft, processing the pilots' current and future intentions, and influencing events may be carried out in an unstructured rather than prioritised manner because the situational awareness required to establish priorities has not yet been re-established. Civilian ATC members commented that in high workload situations such as this they would have limited circuit traffic, either by instructing pilots to land, or to orbit downwind. The military ATC member commented that this was not usual practice at military aerodromes.

Members went on to discuss the supervisory aspects of the incident. They first wondered what actions the Duty Pilot might have made in order to assist ATC be more directive in managing the complexities of the situation. It was felt that his role would be especially important at a station like Boscombe with its inherent circuit complexity, and scope to increase in complexity rapidly and with little notice, especially if there were student pilots in the circuit with limited experience and restrictions as to which runway surfaces they could use. Members also echoed the Occurrence Investigation recommendation that an additional supervisor, or suitably experienced controller, could gainfully be positioned in the Tower when visual circuit traffic reached a pre-determined level. After considerable discussion wherein it was recalled that other units routinely did so, members resolved to recommend that, 'HQ Air Command considers the value of having a Supervisor in both the VCR and the ACR'.

Comment was also made on the proximity of the RW23 main and North runways, and the fact that their thresholds were significantly displaced. This essentially resulted in there being two light aircraft circuit patterns, both right hand for RW23, but to the main and North runways respectively. Light aircraft using each circuit would commence their circuit turns at different positions, and any change to 'standard' turn positions could result in Tutors appearing to, or actually, overtaking other Tutors, either in the same circuit or operating to the other runway surface. Additionally, the stagger between thresholds meant that circuit radio calls could not be correlated easily to an aircraft's position. For example, two aircraft in proximity, one pilot calling late downwind for RW23 North and the other calling downwind for RW23 main may not be easily differentiated. This situation would be exacerbated if the call was not made in the correct position; a common occurrence amongst inexperienced pilots. It seemed to the Board that there was considerable latent risk in operating both runways simultaneously in this manner, and they wondered whether a displaced threshold for light aircraft using the main runway, to bring it more adjacent to the RW23 North threshold, was an option. The MAA member was queried as to the proximity and layout of the two RW05/23 tarmac surfaces and commented that whilst this layout was not standard practice, the DDH had accepted the risk, as mitigated by Boscombe procedures and regulations, and had duly authorised their use. However, many members felt that this incident had raised questions concerning the complexity of operations at Boscombe in the presence of inexperienced pilots, and that the situation was worthy of further review; the Board resolved to recommend that, 'HQ Air Command reviews the practice of using both runways simultaneously with inexperienced pilots'.

Members quickly agreed that the Airprox had occurred because the Tower controller had cleared the Gazelle pilot to depart into conflict with the overshooting Tutor (A). It was also agreed that the complex visual circuit, with multiple aircraft types and runways, had overloaded the controller and that this was contributory to the Airprox. Considering the risk, members noted that the Tower controller had happened to see the converging Tutor and Gazelle as he checked on the Gazelle's position. Moreover, they noted that neither of the pilots had been aware of the conflict until they were warned at a very late stage. Some members were of the opinion that although the potential for collision had been very serious, in the event, effective action had been taken to prevent collision as a result of the oncoming controller's warning, albeit with safety margins much reduced below normal. Others were of the opinion that the situation had only just stopped short of an actual collision and that separation had been reduced to the very minimum, with chance playing a major part. In a vote, these two views were shared equally amongst the Board members and so, after some further discussion, the Director cast his deciding vote that the situation had only just stopped short of collision; risk Category A.

PART C: ASSESSMENT OF CAUSE AND RISK

<u>Cause:</u>	The Tower controller cleared the Gazelle to depart into conflict with the overshooting Tutor (A).
<u>Contributory Factor:</u>	The complex ATC circuit with multiple aircraft types and runways overloaded the controller.
<u>Degree of Risk:</u>	A.
<u>Recommendations:</u>	<ol style="list-style-type: none"> 1. HQ Air Command considers the value of having a Supervisor in both the VCR and the ACR. 2. HQ Air Command reviews the practice of using both runways simultaneously with inexperienced pilots.