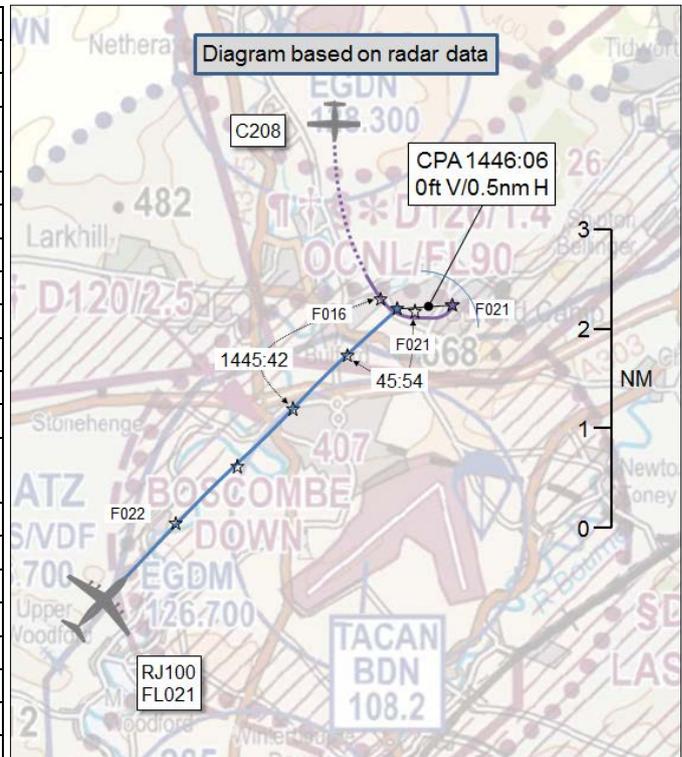


AIRPROX REPORT No 2017109

Date: 31 May 2017 Time: 1446Z Position: 5111N 00144W Location: 4nm N Boscombe airfield

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	BAe146	C208
Operator	MoD ATEC	Civ Club
Airspace	Boscombe MATZ	Boscombe MATZ
Class	G	G
Rules	VFR	VFR
Service	Traffic	None
Provider	Boscombe	
Altitude/FL	2100ft	2100ft
Transponder	A,C,S	A,C,S
Reported		
Colours	NK	White, red, blue
Lighting	Strobes, beacon nav, taxi	Nav, taxi
Conditions	VMC	VMC
Visibility	10km	15km
Altitude/FL	2000ft	1700ft
Altimeter	QFE (1008hPa)	QFE (1006hPa)
Heading	050°	180°
Speed	160kt	100kt
ACAS/TAS	TCAS	Not fitted
Alert	None	N/A
Separation		
Reported	300ft V/0.5nm H	500ft V/1-1.5nm H
Recorded	0ft V/0.5nm H	



THE BAE146 RJ100 PILOT reports that he was the right-seat instructor and aircraft Captain. Pre-flight they were aware of para-dropping at Netheravon within D-126 and adjacent to D-128, with the 'normal' potential for restrictions on instrument patterns. After general handling at medium level, they positioned for a PAR approach for the left-seat handling pilot. At 2000ft QFE downwind on a heading of 050° (which would keep them out of the NOTAM area), under a Traffic Service, they received an ATC traffic call of a para-dropping aircraft at 4nm in their 11 o'clock 700ft below. At no time did this contact appear on TCAS, despite many other traffic returns being displayed. He acknowledged the traffic call and they focused their lookout to obtain tally. The centre-seat engineer was first to spot the traffic and was able to bring the eyes of the left-seat pilot onto the aircraft. Due to the depressed sightline it was not initially possible for him in the right-seat to see the contact. As they closed on the contact it became clear that it was in a shallow left-hand climbing turn which would impinge on their flight-path. At this point, as the contact increased altitude, he was able to gain visual contact with it. He initially considered an avoidance turn or climb but both actions would have meant that they would lose sight of the traffic and he therefore decided to maintain sight in essentially level flight. It soon became apparent that there was no collision risk but the aircraft flew through their 12 o'clock at about 0.5nm, slightly low, moving into their 1 o'clock about 300 ft above as it rolled out on a parallel track; they soon overtook the contact. He called the tally to ATC and shortly afterwards advised that they would file an Airprox. Had they not gained tally on the contact, and without a TCAS alert, they would have been left with limited avoidance options because a left turn would have taken them into the NOTAM'd dropping zone, a right turn would have taken them into the live Boscombe approach lane, and a climb may not have been sufficiently rapid to out-climb the para-drop aircraft. Some 20 mins later, after visual circuits, they elected for a further PAR. As they established on the downwind leg again at 2000ft, they received almost the same initial call of a para-drop aircraft in their 11 o'clock. This was followed by instructions to climb to 2500ft and subsequently turns to 090° and then 110°.

They again got tally with the aircraft, which seemed to follow a similar flight path as on the previous encounter, but this time the aircraft passed on their left side at about 1nm displacement due to the avoidance turns given by ATC. Once again this aircraft did not show on TCAS.

He assessed the risk of collision as 'Medium'.

THE CESSNA 208 GRAND CARAVAN PILOT reports that he started the second sortie of parachute dropping at approximately 1520 and, once airborne, he called Salisbury Ops to let them know they were starting para-ops again and that he would be leaving their frequency to contact Boscombe Zone with whom he would stay and monitor. He contacted Boscombe Zone and let them know the same details and that he would be monitoring their frequency on Box 2. The expected sortie was for a 6-lift cycle to 12,000ft agl to carry out tandem parachuting. The climb profile was to take off from RW24, make a left turn out, then climb to clear Bulford ranges before turning north-north-east to continue the climb eventually turning to run in at 12,000ft on a heading of 200°. Green light was being given at 0.5nm before the spot, and the last parachutists were generally out by 0.8nm after. Then it was a left descending turn onto the reciprocal heading and a descent to a point approx 3nm north of Netheravon, then turn onto final for RW22. During the climb on the 3rd lift of the cycle he was contacted by DZ control and asked to call Boscombe Zone regarding climb out. He switched to Box 2 and called Boscombe to be told that he should not go any further south than the edge of the Netheravon ATZ. He acknowledged this and continued his climb to the north-north-east. He had not heard any calls for his callsign from Boscombe prior to this. For the 2 subsequent lifts of the cycle he ensured that the left turn-out after take-off was carried out as soon as safe to do so and continued to make the rest of the climb to the north-north-east. He had been informed on the second lift of the cycle by one of the jumpers in the rear of the aircraft of a large aircraft to their right rear some distance away and during the 3rd lift of the cycle was aware of the same aircraft on the same heading and to the south of them whilst he was climbing. On neither occasion did he feel that there was any need to take any avoiding action, and the other aircraft was not seen to be manoeuvring. When he landed from the last lift of the sortie he was informed that an Airprox had been filed.

He assessed the risk of collision as 'Low'.

THE BOSCOMBE DOWN ZONE CONTROLLER reports that the BAe146 pilot requested a PAR recovery to the airfield and was vectored into the Director pattern at 2000ft QFE north of the airfield. The Netheravon para-drop aircraft was noticed and called at a distance of 4nm to the north-east, heading south 700ft below. The BAe146 pilot reported that he was not visual with the para-drop aircraft, whose Mode C indicated that the aircraft dropped in height. The para-drop aircraft's pilot then started to climb and continued to move slowly south. The aircraft was called to the BAe146 pilot twice more, and the C208 passed in front of the BAe146 within 1nm horizontally and 300ft vertically and continued to climb. At this point the BAe146 pilot remarked that they were visual with the aircraft. The BAe146 pilot also commented nothing was indicated on TCAS. The profile of the para-drop aircraft was not as expected, and a climb through the Director pattern was highly unusual. As the BAe146 pilot turned for base leg, he declared that he would be filing an Airprox for the occurrence and the Supervisor was informed.

THE BOSCOMBE DOWN SUPERVISOR reports that he did not witness the closest point of conflict on the radar screen because he was dealing with an avoidance NOTAM that had been given to him but he did, however, hear traffic being called multiple times to the BAe146 pilot. Shortly afterwards, the Zone controller made him aware that the two aircraft had come close to each other and, at this point, he observed the Netheravon para-drop aircraft further south than expected and well outside of both the established Drop Zone and the lateral confines of the Netheravon ATZ. It was, however, certainly within the confines of the Boscombe MATZ and very close to the Boscombe ATZ. Almost immediately afterwards, the Airprox was declared on frequency and he telephoned Netheravon Air Ops to advise them and asked for the pilot to give him a telephone call. The Zone controller repeatedly tried to raise the para-drop pilot on the Boscombe Zone frequency which, in accordance with the Letter of Agreement between the two Units, the para-drop aircraft should remain on throughout operations, but to no avail. Approximately 10-15 minutes later, the para-drop aircraft lifted again and followed a very similar profile southbound as before, again with the BAe146 in close

proximity. Again Traffic Information was passed multiple times and the BAe146 pilot gained visual contact. During the second climb-out, he telephoned Netheravon Ops to question them and try to rectify the situation and, shortly afterwards, he spoke to the Chief Pilot, who advised him that he would ensure all pilots were re-briefed. The C208 pilot was then able to be contacted on the Zone frequency and reminded not to climb to the south of the airfield without a clearance from Boscombe Zone because it impinged with their instrument circuit traffic, which they acknowledged. He commented that a similar occurrence had happened on 26 February 2016 but it was not filed as an Airprox. The problem had not presented again since that time.

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

Factual Background

The weather for Boscombe Down was recorded as follows:

METAR EGDM 311450Z 22008KT 9999 SCT032 21/13 Q1022 BLU NO SIG=

Analysis and Investigation

Military ATM

The Airprox occurred, 4nm north of MOD Boscombe Down, between a BAe146 and a C208. The BAe146 pilot was receiving a Traffic Service from the Boscombe Director while positioning for a PAR approach and the C208 pilot was conducting para-dropping with Salisbury Operations (box 1) and Boscombe Zone (box 2) but not receiving an ATS.

Portions of the tape transcripts between the Boscombe Director and the BAe146 pilot are below:

From	To	Speech Transcription	Time
BAE146	Director	"Boscombe, [BAE146 C/S] is ready for recovery, looking for radar to PAR or is the ILS [unreadable]"	14:38:20
Director	BAE146	"[BAe 146 C/S] roger"	14:38:38
Director	BAE146	"[BAE146 C/S/] Traffic right 2 o clock, 6 miles, manoeuvring no height information"	14:39:28
BAE146	Director	"[BAE146 C/S] looking"	14:39:35
Director	BAE146	"[BAE146 C/S] previous called traffic now right 1 o clock, 2 miles, manoeuvring no height information"	14:40:01
BAE146	Director	"[BAE146 C/S] looking"	14:40:06
Director	BAE146	"[BAE146 C/S] information code kilo, RWY 23, wind 330 10 knots, colour BLU, QFE 1008, the ILS is unserviceable"	14:40:09
Director	BAE146	"[BAE146 C/S], RWY 23 right hand"	14:40:34
BAE146	Director	"RWY 23 right hand, [BAE146 C/S]" [Barely readable]	14:40:37
Director	BAE146	"[BAE146 C/S] descend FL50"	14:41:00
BAE146	Director	"Descend FL50, [BAE146 C/S]"	14:41:05
Director	BAE146	"vectoring for PAR RWY 23 procedure minimum 200 feet"	14:41:52
BAE146	Director	"[BAE146 C/S], touch and go to the visual, [BAE146 C/S]"	14:41:55
Director	BAE146	"[BAE146 C/S]"	14:42:02
Director	BAE146	"[BAE146 C/S] set Boscombe QFE 1008, descend to height 2000ft"	14:42:57
BAE146	Director	"1008 set and descend to 2000ft, [BAE146 C/S]"	14:43:03
Director	BAE146	"[BAE146 C/S] turn left heading 050 degrees"	14:44:21
BAE146	Director	"left 050, [BAE146 C/S]"	14:44:26
Director	BAE146	"[BAE146 C/S] traffic left 11 o clock 4 miles manoeuvring indicating 700 feet below, Netheravon para-dropper"	14:45:12
BAE146	Director	"[BAE146 C/S] looking, nothing on TCAS"	14:45:20
Director	BAE146	"[BAE146 C/S] previous called traffic now 12 o clock 2 miles manoeuvring indicating 300ft below"	14:45:37
BAE146	Director	"[BAE146 C/S]"	14:45:45

From	To	Speech Transcription	Time
Director	BAE146	"[BAE146 C/S] previous called traffic now right 1 o'clock, 1 mile, manoeuvring indicating similar level"	14:45:57
BAE146	Director	"[BAE146 C/S] copied, he actually climbed, crossed us and passed through our level"	14:46:03
Director	BAE146	"[BAE146 C/S]"	14:46:09
BAE146	Director	"He's now within about 400ft..."	14:46:10
BAE146	Director	"...and crossing through our level..."	14:46:16
BAE146	Director	"...you may want to speak to them about that"	14:46:18

Figures 1-6 show the positions of the BAe146 and the C208 at relevant times in the lead up to and during the Airprox. The screen shots are taken from a replay using the 'All Swanwick' radar feed, which is not used by Boscombe ATC and is therefore not necessarily representative of the picture available to the controller.

At 14:42:57 (Figure 1), the Boscombe Director instructed the BAe146 pilot to descend to height 2000ft QFE 1008 while being vectored for a PAR approach to RW23RH.

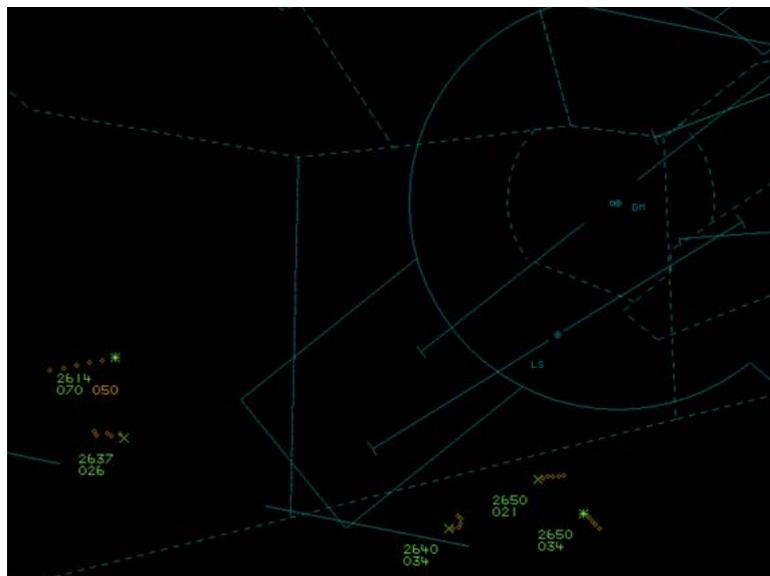


Figure 1: Geometry at 14:42:57 (BAe146 2614; C208 not seen).

At 14:44:21 (Figure 2), the Boscombe Director instructed the BAe146 pilot to turn left onto heading 050° in order to position downwind. From the screenshots, it is not certain what the location of the C208 was at this time.



Figure 2: Geometry at 14:44:21 (BAe146 2614; C208 not seen).

At 14:45:12 (Figure 3), the Boscombe Director passed Traffic Information to the BAe146 pilot on the C208 as left, 11 o'clock, 4nm, manoeuvring, indicating 700ft below, Netheravon para-dropper. The BAe146 pilot responded that he was looking but that there was nothing on TCAS.

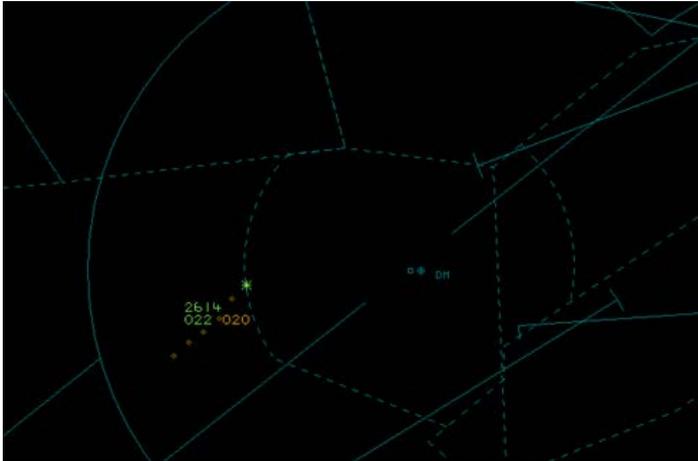


Figure 3: Geometry at 14:45:12

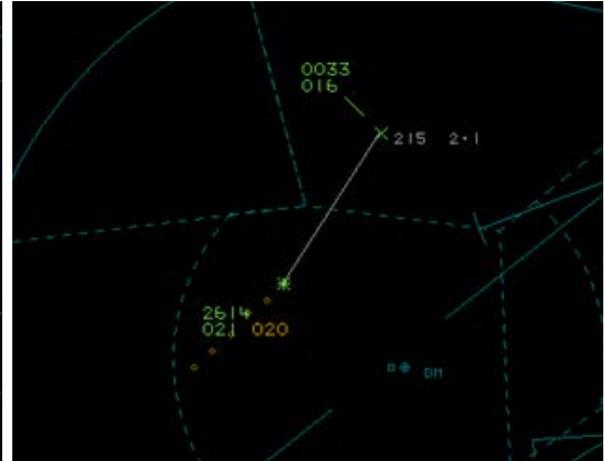


Figure 4: Geometry at 14:45:37

(BAe146 2614; C208 0033).

At 14:45:37 (Figure 4), the Boscombe Director updated the Traffic Information as 12 o'clock, 2nm, manoeuvring, indicating 300ft below. The BAe146 pilot acknowledged the Traffic Information.

At 14:45:57 (Figure 5), the Boscombe Director updated the Traffic Information again, as right, 1 o'clock, 1nm, indicating similar level. The BAe146 pilot responded that the traffic had climbed across their aircraft, passing through their level.



Figure 5: Geometry at 14:45:57

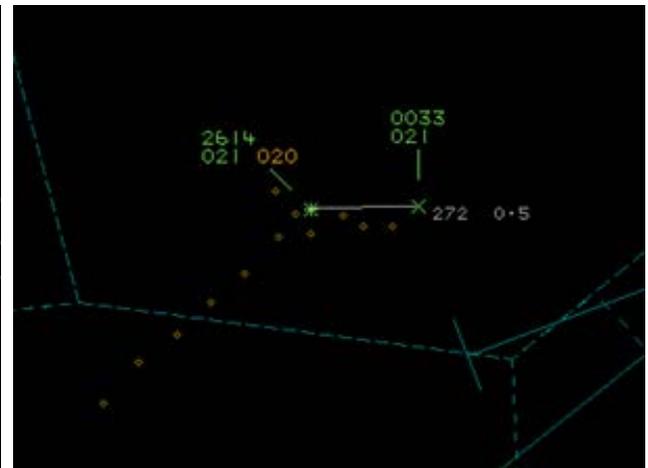


Figure 6: Geometry at 14:46:06

(BAe146 2614; C208 0033)

At 14:46:06 (Figure 6), the 2 aircraft passed at their CPA of approximately 0.5nm laterally and same height vertically, as the C208 pilot turned back onto a northwesterly track and continued climb.

The Boscombe Down Radar Training Circuit (RTC) (Figure 7) is normally flown at height 2000ft QFE to the north of the aerodrome due to the proximity of other aerodromes, and associated high traffic density, to the south. It is a complex piece of airspace, requiring caution not to conflict with other inbound instrument traffic.

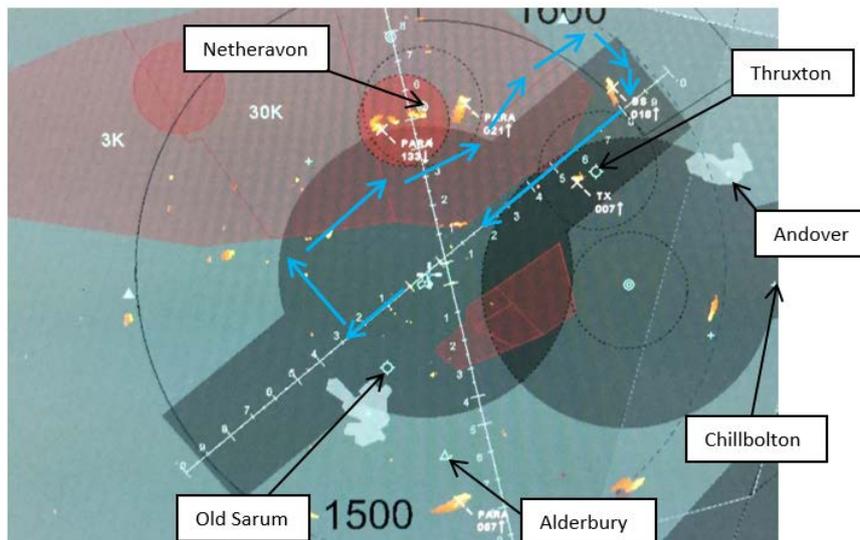


Figure 7: Boscombe Down RTC.

A standard profile for para-dropping at Netheravon (Figure 8) when operating from RW22 is a climb out in the left-hand turn, remaining within the lateral confines of the ATZ, which is displaced from the drop zone, until tracking north-northeast (green arrows). There are no height restrictions imposed and it is deemed safe for Boscombe Down traffic to overfly the Netheravon ATZ avoiding the drop zone. Sorties are notified to Boscombe Zone on Box 2, on which the C208 pilot was listening out, though no ATS is provided. On this occasion, the C208 pilot flew further southeast (orange arrow) than expected before turning back northbound.

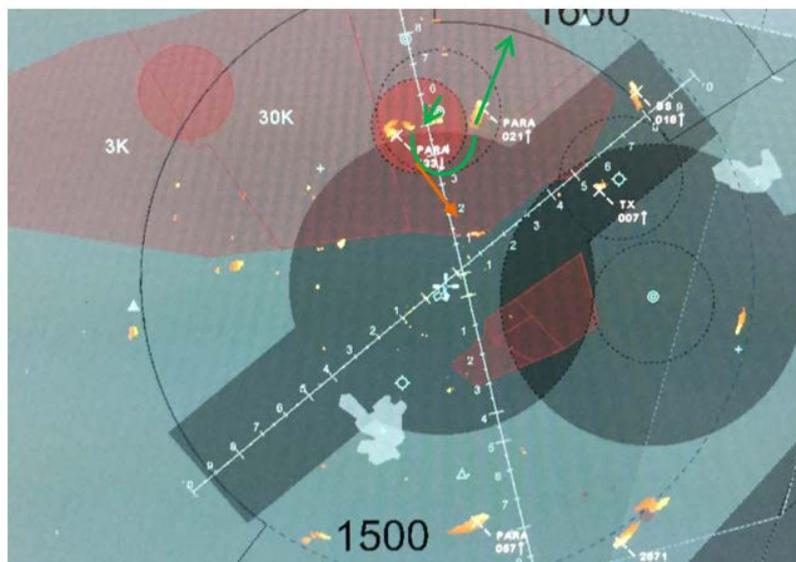


Figure 8: Netheravon Paradrropping Profiles.

The Boscombe Director passed Traffic Information to the BAe146 pilot, along with updates, therefore fulfilling the requirements of Traffic Service provision iaw CAP 774. Despite the conflicting C208 not appearing on the BAe146's TCAS, and flying what was considered a highly unusual profile, the Traffic Information enabled the pilot to gain visual acquisition and assess that no evasive action was required.

The C208 pilot had the Boscombe Zone frequency selected on his second box and had made contact on commencing the sortie; however, the pilot did not respond to the Boscombe Zone controller's attempts to make contact as the scenario progressed, therefore Traffic Information could not be passed nor could the C208 pilot's intentions be clarified.

UKAB Secretariat

The BAe146 and C208 pilots shared an equal responsibility for collision avoidance and not to operate in such proximity to other aircraft as to create a collision hazard¹. The C208 displayed Modes A, C and S on radar replay; the Board were unable to determine why the C208 did not appear on the BAe146 TCAS display.

Comments

HQ Air Command

A similar occurrence to this incident took place in February 2016, where the para-dropping aircraft proceeded further south than was expected by the controllers and came into conflict with a Hawk in the Boscombe Down (BDN) instrument pattern. Following this previous incident it was agreed that para-dropping aircraft would not enter the BDN MATZ unless in 'good 2-way contact' with BDN Zone on VHF. On this occasion, although the para-dropping aircraft had contacted BDN in accordance with the LOA between the units, it seems that 'good' 2-way communications were not established because the Zone controller was unable to elicit a response from the pilot of the C208 when it became apparent that his aircraft would be in conflict with the BAe146. Timely Traffic Information was passed to the pilot of the BAe146 which permitted him to gain visual contact with the C208 and judge that no avoiding action would be necessary, albeit the aircraft would pass quite close to each other. The barriers to MAC that were available in this encounter were electronic conspicuity (EC), a surveillance-based ATS and lookout. Whilst it is clear that the C208 was squawking, it is not known why the contact did not appear on the TCAS in the BAe146. That said, the EC barrier was partially effective as it allowed the controller to provide accurate Traffic Information to the pilot of the BAe146, which also demonstrates the effectiveness of the ATS barrier. Look-out, guided by the Traffic Information, also functioned effectively. However, a repeat of an incident that occurred some 15 months earlier indicates that there are still weaknesses in the agreement between Netheravon and Boscombe Down. It seems that controllers expect para-dropping aircraft to remain within the lateral confines of the Netheravon DZ and/or ATZ on climb-out, but this is not stated in the current LOA. It may be appropriate to review the LOA to ensure that lateral separation can be maintained on the occasions where good 2-way radio contact with BDN Zone cannot be assured.

The Occurrence Manager Netheravon reported that he spoke to the Senior Pilot at Netheravon shortly after he was advised of the Airprox. He was informed that the pilot of the C208 had made initial contact with Boscombe on climb-out from Netheravon and although he did have the Boscombe frequency on his second box for some reason he did not respond to the calls from the Boscombe controller when it became apparent that he would be in the same airspace as the BAe146. The senior pilot stated that he would re-brief all pilots and reiterate that clearance must be sought from Boscombe prior to entry into D126.

Summary

An Airprox was reported when a BAe146 and a C208 flew into proximity at 1446 on Wednesday 31st May 2017. Both pilots were operating under VFR in VMC, the BAe146 pilot in receipt of a Traffic Service from Boscombe Down. The C208 pilot was not in receipt of an ATC Service.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available included reports from both pilots, the controller concerned, area radar and RTF recordings and reports from the appropriate ATC and operating authorities.

An HQ Air Command member first described to the Board the inter-operational aspects between Boscombe Down ATC and the parachuting club at Netheravon. He mentioned that the C208 used for

¹ SERA.3205 Proximity.

parachuting is civilian registered and piloted by a civilian. Accordingly, as for all MATZ penetrations by civilian aircraft, provided they remained outside the Boscombe ATZ, there is no legal requirement for the pilot to contact ATC. However, he explained that, following an incident in 2016, it had been agreed that Netheravon para-dropping aircraft would not enter the Boscombe MATZ unless in good 2-way contact (a Letter of Agreement (LoA) had been agreed between the two units which required the pilots of the para-dropping aircraft to contact Boscombe Down and to listen out on the frequency). He went on to explain that there was an expectancy from Boscombe ATC that the pilot would remain within the lateral dimensions of the Netheravon ATZ during the climb but that this is not stipulated in the LoA (although apparently it is customary practice for para-dropping aircraft to avoid the Boscombe radar pattern). The HQ Air Command member pointed out that, during his operation, the C208 pilot was expected to contact three agencies: Salisbury Ops (to determine information about any relevant details about operations in the area); the Netheravon Drop Zone controller; and Boscombe Down. Being equipped with only two radios, it was therefore not possible to be in contact with all these people continuously. Notwithstanding, the C208 pilot had contacted Boscombe Zone to brief his sortie, and reported that he had been listening out on their frequency, but it had not been possible to determine why he had not responded to the calls made by Boscombe ATC.

The Board then turned to the actions of the Boscombe Director, who was providing a Traffic Service to the BAe146 pilot. The controller had turned the BAe146 onto a right-hand downwind heading, positioning for a PAR approach to RW23 and, at the time, the C208 was not showing on the radar recording. When the C208 became apparent and was seen positioning further south than expected, Traffic Information had been issued to the BAe146 pilot; first at 7nm, then 2nm and finally 1nm at a similar level. Some members wondered whether the controller could have issued avoiding action instructions to the BAe146 pilot who had reported not sighting the C208. ATC members commented that the controller was complying with the requirements of a Traffic Service, and that it would not have been possible to provide a Deconfliction Service because the BAe146 pilot was operating under VFR. However, they were sure that if there had been an imminent risk of a collision, avoiding action 'advice' would have been given. The Board noted that, whilst the Director was in the process of issuing Traffic Information to the BAe146, the Boscombe Zone controller was also trying to contact the C208 pilot to pass him Traffic Information and advice but without success.

Turning to the actions of the BAe146 pilot, some members queried why the pilot had initially continued towards the reported position of the C208 without visual contact. Military Controller members commented that the airspace north of Boscombe Down was very congested: the pilot could not have turned left because it would have meant entering the Netheravon Drop Zone, and a right turn would have resulted in the aircraft turning towards the RW23 approach path. In the event the pilot was able to establish visual contact with the C208 and confirm that there was no collision risk. The Board noted that the BAe146 pilot reported that, surprisingly, the C208 had not shown on his TCAS. Given that SSR returns were visible on the radar replay, some members wondered whether the positioning of the associated aerials on the two aircraft had perhaps led to blanking of the signals.

As for the C208 pilot, members noted that he had reported that he had departed from RW24 at Netheravon, making a left turn-out, then climbing to clear the Buford ranges before turning north-northeast. During a subsequent drop, he again went further south than expected by Boscombe ATC, and, at Boscombe's request, was asked by the Drop Zone controller to contact Boscombe, who asked him to go no further south than the edge of the Netheravon ATZ. It seemed to the Board that the C208 pilot was either unaware of the normal practice of climbing within the Netheravon ATZ, or was unsure of his position and routing as he climbed for the drop.

The Board then turned its attention to the cause and risk of the Airprox. Some members wondered if the cause of the Airprox was that the controller had effectively vectored the BAe146 into conflict with the C208. In accordance with the procedures for a Traffic Service, a controller, when providing headings/levels for the purpose of positioning and/or sequencing or as navigational assistance, should take into account traffic in the immediate vicinity based on the aircraft's relative speeds and closure rates so that a risk of collision is not knowingly introduced by the instructions passed. However, others pointed out that the controller is not required to achieve defined deconfliction minima, and pilots remain responsible for collision avoidance even when being provided with

headings/levels by ATC. Furthermore, on this occasion, although it was not possible to see a recording of the Boscombe Down controller's radar display, the Board opined that the C208 was not showing on the display when the turn onto a downwind heading was issued to the BAe146 pilot. As a result, the Board agreed that the controller had not turned the BAe146 towards a known confliction. Other members wondered whether it had been that the C208 pilot had climbed into confliction with the BAe 146 but this was discounted because, at the separation apparent on the radar display, the C208 had been almost 1nm ahead of the BAe146 when their tracks crossed. This led to a discussion about whether the BAe146 was actually in an overtaking situation at the time of the Airprox and so was required to keep clear of the C208. None of these descriptions seemed to fit the event, although it was apparent to the Board that the BAe146 pilot had been concerned about the flight path of the C208 when it was approaching the Radar Training Circuit, especially because the exact details of its operation were not known; he was also concerned that the C208 did not show on his TCAS display. Accordingly, the Board agreed that the Airprox was best described as the BAe146 pilot being concerned by the proximity of the C208. As for the risk, members noted that Traffic Information had been issued to the BAe146 pilot, enabling him to obtain visual contact with the C208; the C208 pilot also reported sighting the BAe146 although only after he had rolled out ahead. Members noted that both pilots considered that there had been no need to take avoiding action, and the Board therefore concluded that although safety had been degraded, there had been no risk of a collision; accordingly, the risk was assessed as Category C.

The Board agreed that there was a considerable degree of ambiguity about the operation of parachute aircraft from Netheravon within the associated LoA. Apart from the communication procedures, there were no other formal agreements about the routing of the parachute aircraft, and Boscombe ATC seemed just to expect the aircraft not to enter their airspace. Accordingly, the Board resolved to make a recommendation that Boscombe Down and Netheravon agree a robust LoA concerning parachuting ops from Netheravon.

PART C: ASSESSMENT OF CAUSE AND RISK

<u>Cause:</u>	The BAe146 pilot was concerned by the proximity of the C208.
<u>Degree of Risk:</u>	C.
<u>Recommendation:</u>	HQ Air Command and Netheravon agree a robust LoA with respect to parachuting operations from Netheravon and the implications for Boscombe Down operations.

Safety Barrier Assessment²

In assessing the effectiveness of the safety barriers associated with this incident, the Board concluded that the key factors had been that:

Flight Crew:

Regulations, Processes, Procedures and Compliance were assessed as **ineffective** because there was ambiguity within the LoA about para-dropping aircraft routing and the expectation by Boscombe ATC that the C208 pilot would remain outside their airspace. Additionally Boscombe Zone was unable to contact the C208 pilot who was required to listen out on their frequency.

Tactical Planning was assessed as **partially effective** because the C208 either did not plan to remain clear of Boscombe's airspace, or was unaware of the requirement to climb within the Netheravon ATZ.

² The UK Airprox Board scheme for assessing the Availability, Functionality and Effectiveness of safety barriers can be found on the [UKAB Website](#).

Warning System Operation and Compliance were assessed as **partially available** because only the BAe146 was equipped with an electronic system. Overall, the barrier was assessed as **ineffective** because the warning system did not alert.

