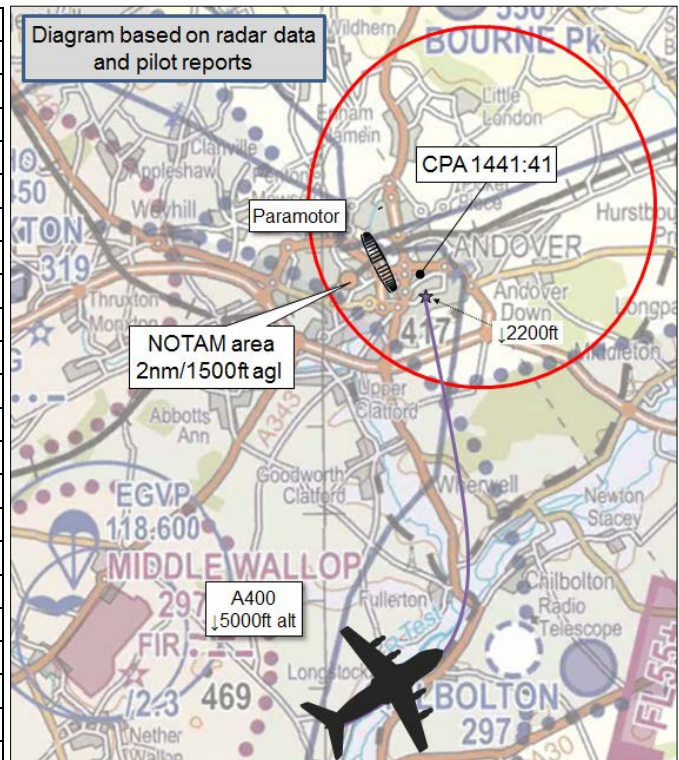


**AIRPROX REPORT No 2016140**

Date: 18 Jul 2016 Time: 1441Z Position: 5112N 00128W Location: Picket Piece, Hampshire

**PART A: SUMMARY OF INFORMATION REPORTED TO UKAB**

Recorded	Aircraft 1	Aircraft 2
Aircraft	Paramotor	A400
Operator	Civ Club	HQ Air (Ops)
Airspace	Lon FIR	Lon FIR
Class	G	G
Rules	VFR	IFR
Service	None	Traffic
Provider		Boscombe Down
Altitude/FL		2200ft
Transponder	Nil	A, C, S
<b>Reported</b>		
Colours		Grey
Lighting	Nil	HISLs, Nav, Take-off light.
Conditions	VMC	VMC
Visibility		
Altitude/FL		2000ft
Altimeter	NK	QFE (1007hPa)
Heading	080°	'northerly'
Speed	NK	220kt
ACAS/TAS	Not fitted	TCAS II
Alert	N/A	None
<b>Separation</b>		
Reported	0ft V 600ft H	0ft V/100m H
Recorded	NK	



**THE PARAMOTOR PILOT** reports that they were attending the British Paramotor Team training weekend as a guest conducting their first thermalling experience in preparation for the World Championships to be held nearby later in the year. A NOTAM'd zone had been established for their training and they briefed beforehand that they expected to stay within the zone and remain clear of the Middle Wallop MATZ. They were thermalling engine-off and well within the circumference of the NOTAM, although slightly above its notified ceiling. Whilst in a left-hand thermal and heading 080°, they saw what they believed was a C130 coming from the south-east at the same altitude. It passed with an estimated 600ft separation and then altered course to the west. There was no indication that the other pilot took any avoiding action or saw the paramotors. On seeing the 'C130', the paramotor pilot turned abruptly to the right to fly 090° away from it and hoped to avoid any wake turbulence; she commented that she thought she was going to die. The other paramotor pilot also took avoiding action and thought that the 'C130' passed between them, although he didn't assess that he was in any danger. The weather was clear without any haze, and they were engaged in a notified activity that meant their position should have been predictable for any military flight planner they opened.

She assessed the risk of collision as 'High'.

**THE A400 PILOT** reports that whilst vectoring for a PAR for RW23 at Boscombe Down, they were configuring the aircraft for the approach during the crosswind leg of the instrument pattern. As they rolled out of the turn onto a northerly heading, a single paramotor was seen approximately 300m away, co-altitude in the 1130 position. The paramotor appeared to be turning away from the aircraft as it passed. He didn't take any avoiding action because once sighted it was quickly apparent that it would pass down the left-hand-side of the aircraft and to turn right would have meant losing sight of it. They reported the presence of the paramotor to the Boscombe Director and continued the approach.

He assessed the risk of collision as 'High'.

**THE BOSCOMBE DIRECTOR** reports that the A400 was receiving a Traffic Service in the radar pattern for an instrument approach. When it was late downwind, she gave Traffic Information on an intermittent contact, which, although not displaying SSR, she could see on the PAR radar was indicating well below. The A400 pilot then reported that a paraglider had just flown down his left-hand-side. Nothing was immediately apparent on the radar, but a few moments later an intermittent contact displayed in the vicinity of the reported position of the paraglider. She tried to maintain track ident on it ready for the A400's next approach because the danger area to the north of Boscombe, and Netheravon were active, precluding a right-hand pattern. However, on climb-out, the A400 pilot requested a northerly pattern and reported that there were numerous paragliders on the approach centreline. She therefore negotiated a turn back through the overhead for the following pattern. Once again, the A400 encountered a further paraglider on the nose and requested to deviate from her vectors. An Airprox was not reported on frequency at the time.

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

**THE BOSCOMBE SUPERVISOR** reports that he did not witness the first radar controlled approach by the A400. But he was made aware of the conflicting traffic within the local airspace and so monitored the second approach, during which he witnessed the difficulty that the conflicting traffic was causing the Director. Most of the conflicting traffic was not IFF equipped, or in communication with Boscombe ATC.

### Factual Background

The weather at Boscombe Down was recorded as follows:

METAR EGDM 181350Z 23003KT 9999 FEW040 27/17 Q1021 BLU NOSIG=

The NOTAM issued is reproduced below:

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(H4202/16 NOTAMN
Q) EGTT/QWGLW/IV/M /W /000/020/5113N00127W002
A) EGTT B) 1607180624 C) 1607192030
E) PARAMOTORING ACTIVITY IN LOW FLYING AREA 1A WILL TAKE PLACE
WI 2NM RADIUS OF PSN 511306N 0012649W, (PICKET PIECE, HAMPSHIRE).
MAX HEIGHT 1500FT AGL. CTC [Phone No. Deleted] 16/07/043/LFBC
F) SFC G) 1970FT AMSL)
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Relevant portions of the tape transcripts between Boscombe Director and BDN52 are below:

From	To	Speech Transcription	Time
Dir	A400	{A400 c/s}... set Boscombe QFE 1-0-0-7.	14.38.57
A400	Dir	Set Boscombe QFE 1-0-0-7, {A400 c/s}.	14.39.02
Dir	A400	{A400 c/s} descend to height 2500ft.	14.39.07
Dir	A400	{A400 c/s}, continue descent to height 2000ft, cockpit checks, report complete.	14.40.20
A400	Dir	Descend to 2000, {A400 c/s}	14.40.25
A400	Dir	{A400 c/s}, checks to come, happy for vectors.	14.40.43
Dir	A400	{A400 c/s}.	14.40.48
Dir	A400	{A400 c/s}, intermittent contact right 1 o'clock, 5 miles, crossing right-left, no height information.	14.41.27
A400	Dir	A400 c/s.	14.41.34
Dir	A400	{A400 c/s}, that track is indicating well below on PAR.	14.41.37
A400	Dir	And {A400 c/s}, just had a paraglider in this vicinity, just pass...passed out left hand side.	14.41.40
Dir	A400	{A400 c/s}, roger, the previous reported traffic is in your right 1 o'clock, at 1 and a half miles, now, um, crossing right-left, indicating well below on PAR.	14.41.49
A400	Dir	{A400 c/s}, yeah, looks like a few paragliders in this vicinity.	14.41.58

The A400 was cleared by Boscombe Director to descend from 5000ft to 2500ft QFE 1007 hPa initially, and then further cleared to 2000ft. However, at the time that he flew over the paramotor activity he was at 2200ft QFE, the equivalent of 2600ft amsl. The paramotor did not display on the radar replay.

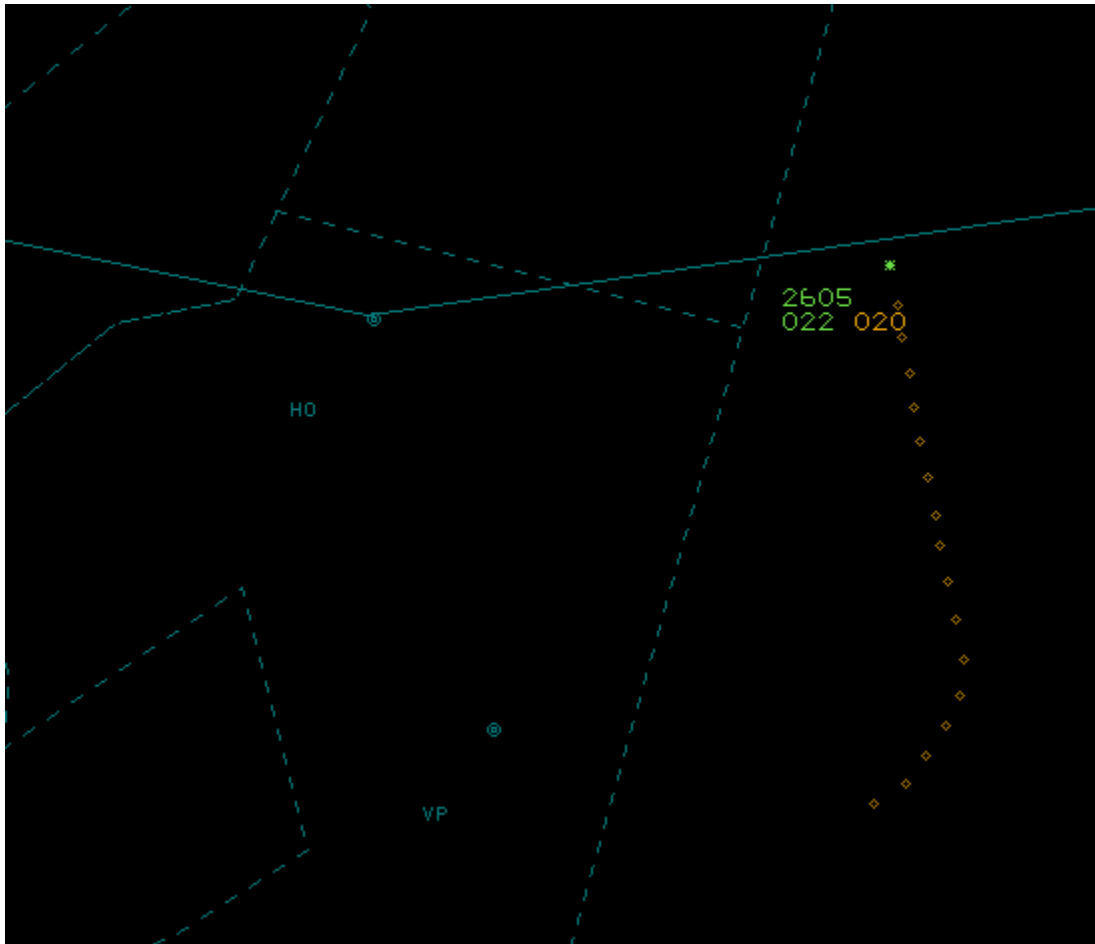


Figure 1 – 1441:40 A400 squawking 2605, paramotor not visible.

## Analysis and Investigation

### Military ATM

The A400 pilot reported during vectoring for a PAR to RW23 that he saw a single paramotor pass approximately 100m down the left-hand side at the same altitude. The pilot reported that the paramotor appeared to be turning away.

The controller reported that the A400 was under a Traffic Service and, when it was late downwind in the instrument pattern, called an intermittent contact to the aircraft. Using the PAR console, the controller ascertained that this contact was indicating well below and the tape transcript correlates this information. Shortly after, the A400 pilot reported the paramotor to the controller. The controller reported nothing showing immediately on radar but a short time afterwards an intermittent contact appeared.

The prime barrier in this incident for the A400 pilot was 'see and avoid'. A paramotor would be unlikely to show on radar due to its limited refractive area and material and its low speed, which may have been below the threshold for display. Without any form of conspicuity on the paramotor, the controller would have been unlikely to have seen any permanent contact, and in this case the contact could quite easily have not been present on the display. A NOTAM was active that day for paramotor activity at Picket Piece (close vicinity to the Airprox location), but no

consultation or discussion about the NOTAM is known to have occurred between any parties involved. Subsequent discussion with the unit indicated that the NOTAM was plotted (in the briefing room) on the day, and the controller would have been briefed about local active NOTAMs before taking position.

On subsequently speaking with the paramotor operator, it transpired that they were conducting rehearsals for a competition with 2 paramotors in the air at the time. The location is not routinely used for multiple launches and the NOTAM was issued due to the type (competition practice) and increased paramotor activity. The operator indicated that they were unaware of the proximity of Picket Piece to the Boscombe Down radar training circuit, and would be open to future engagement with Boscombe Down ATC; this has since been facilitated via email.

### **UKAB Secretariat**

The paramotor and A400 pilots shared an equal responsibility for collision avoidance and not to operate in such proximity to other aircraft as to create a collision hazard. If the incident geometry is considered as overtaking then the paramotor pilot had right of way and the A400 pilot was required to keep out of the way of the other aircraft by altering course to the right<sup>1</sup>. A paramotor is defined as a glider under ANO 2009 Article 255 [the regulations in force at the time]; therefore, if the geometry is considered as converging then the A400 pilot was required to give way.

## **Comments**

### **HQ Air Command**

The most positive thing to come from this event is that the paramotor operators and Boscombe Down have now established communication such that they can increase awareness of possible conflicting activities in the future. Good communication should help inform other airspace users that activity could extend beyond the area indicated on the NOTAM warning. However, on the day, both aircraft were in Class G airspace and since the paramotor does not carry any electronic conspicuity equipment and they only rarely paint on primary radar, the only barrier remaining was see-and-avoid.

## **Summary**

An Airprox was reported when a Paramotor and an A400 flew into proximity at 1441 on Monday 18<sup>th</sup> July 2016. Both pilots were operating under VFR in VMC, the A400 pilot in receipt of a Traffic Service from Boscombe. The Paramotor was not receiving an ATS.

## **PART B: SUMMARY OF THE BOARD'S DISCUSSIONS**

Information available consisted of reports from the pilots of both aircraft, 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 first commended the paramotor event organising authority for their pre-planning and issuing of a NOTAM. However, observing that the NOTAM was a warning of the activity only and not an avoidance area, members wondered whether they had thought that this might afford them greater protection than it in fact did. They also wondered why the NOTAM had not extended high enough to encompass all of the event's activities given that the paramotor involved in the Airprox was operating approximately 600ft above its level, and what amount of thought had gone into liaison with other airspace users in the area given that it appeared that the paramotors involved did not realise that their event was taking place underneath an active traffic pattern on the extended centreline of Boscombe Down. Some members thought it possible that the Paramotor pilots were not likely to be aware of how their activity would affect the Boscombe instrument pattern, but others thought that

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<sup>1</sup> SERA.3210 Right-of-way (c)(3) Overtaking.

most aviators should know that activity 10nms on the extended centreline of an airfield up to an altitude of nearly 2000ft would likely cause an issue for IFR traffic.

Ultimately, see-and-avoid was the only remaining barrier available to the paramotor pilots, and the Board noted that although they did see the A400 in time to manoeuvre out of the way to some extent, the ability of a paramotor to effectively 'avoid' was extremely limited due to its dynamics compared to a rapidly approaching aircraft. A member of the Board with paragliding experience also commented that there was a very real risk from wake turbulence causing an accident, as much as from collision itself. As such, the Paramotor pilot's concerns about the risk posed were justified, and the speed of the paramotor would have precluded getting out of the way any faster than it did. All of this pointed to the need for effective deconfliction of such activities from other aircraft rather than relying on dynamic avoidance, and the Board were heartened to hear that the paragliding organisers had now established an effective liaison link with the local airfields.

Turning to the A400 pilot's actions, the Board opined that he should have been aware of the NOTAM as part of his pre-flight planning and briefing, and could therefore have probably anticipated that paramotors might be operating not only within but around its extremities. The Board noted that the NOTAM was active up to 1500ft agl, and although the A400 was above it whilst descending to 2000ft on the Boscombe Down QFE (approx. 2400ft amsl), members noted that the NOTAM was unusual in that it stated its top height as 1500ft agl in the main text. Although it also stated later that this equated to 1970ft amsl, they thought that this could easily have been overlooked such that the A400 pilot might have thought he was further above the NOTAM than he was whilst flying in the Boscombe Down radar pattern. Turning to the dynamics of the incident itself, and noting that the A400 pilot saw the paramotor as he rolled out onto a base leg heading, the Board thought that he had probably seen it as soon as he could reasonably be expected, particularly due to its likely small cross-section and effectively stationary crossing rate due to its low speed. Although he had had enough time to assess that it was going away, and that maintaining track was perceived to be the best action, the A400 pilot only had 2-3 secs between first sighting the paramotor and it passing his aircraft, and was therefore unlikely to have been able to materially change the separation anyway had he attempted to manoeuvre. The Board noted that although the A400 was fitted with TCAS, the paramotor did not have a CWS or a transponder and so prior warning from the electronic conspicuity barrier was not available to the A400 pilot. Furthermore, the paramotor did not present a solid radar contact (due either to lack of radar cross-section, or because of the radar display's speed filters). As a result, even though he was receiving a Traffic Service, ATC were not able to pass conclusive Traffic Information to him, rendering another barrier ineffective. Ultimately, members noted that it was for the A400 pilot to give way to the paramotor (the paramotor qualifies as a glider under ANO rules), but he could only do so once he had seen it or been informed specifically about its presence.

Finally, the Board looked at the actions of the Air Traffic Controller. Members noted that the NOTAM was available to view in the air traffic briefing room, but the Board did not know whether it had been plotted on the radar screen, or whether the controller had fully assimilated the risk to the radar pattern. Some members wondered whether the radar pattern height or geometry could have been changed for the duration of the paramotor activity, but air traffic members quickly advised that this was not as easy as first seems, and can cause other unforeseen problems with extended or foreshortened patterns affecting different airfields and ground obstacles. Furthermore, noting the proximity of the danger areas to the north and south of Boscombe Down, they opined that ATC were already fairly restricted in options without adding further complications. Notwithstanding, the Board were left with the feeling that Boscombe Down ATC had not done all that they could have to mitigate the presence of the NOTAM and its impact on their radar pattern once they had become aware of its existence. In this respect, some members thought that had the controller assimilated the full details of the NOTAM he could have given the A400 pilot generic Traffic Information on the NOTAM and associated likely paramotor activity before the A400 turned base leg, albeit they also noted that the paramotors did not show on his radar (other than the fleeting contact on PAR) and therefore precise Traffic Information could not be given. However, with a contact number printed on the NOTAM, ultimately the Board thought it disappointing that no-one from Boscombe ATC had contacted the paramotor operators beforehand. That said, they were heartened to hear that contact had been made subsequent to this incident to ensure that future liaison should take place.

In determining the cause of the Airprox, the Board decided that, notwithstanding the seeming lack of foresight and liaison between the paramotor operators and Boscombe Down, because both aircraft were operating as they were entitled to do in Class G airspace, the incident was best described as a conflict in Class G airspace. However, contributory factors were then discussed at length. Some members opined that because the paramotor was operating above the NOTAM this should be considered a factor. However, the majority thought that the paramotors were entitled to do so and so this should not be a contributory factor. Notwithstanding, the Board did agree that a lack of liaison between Boscombe Down ATC and the paramotor operators was contributory; much more could have been done to deconflict their respective activities had they both had the foresight to understand the impact that the NOTAM might have on the Boscombe Down IFR pattern. Turning to the risk, the Board were clear that they were there to assess the risk of collision rather than risk due to wake turbulence. Even so, and notwithstanding that the paramotor pilot had attempted to turn out of the way, this was still a very close encounter in which providence had played a major part; they assessed the risk as Category A, separation had been reduced to the bare minimum.

### **PART C: ASSESSMENT OF CAUSE AND RISK**

Cause: A conflict in Class G.

Contributory Factor: Lack of liaison between the paramotor operators and Boscombe Down ATC.

Degree of Risk: A.