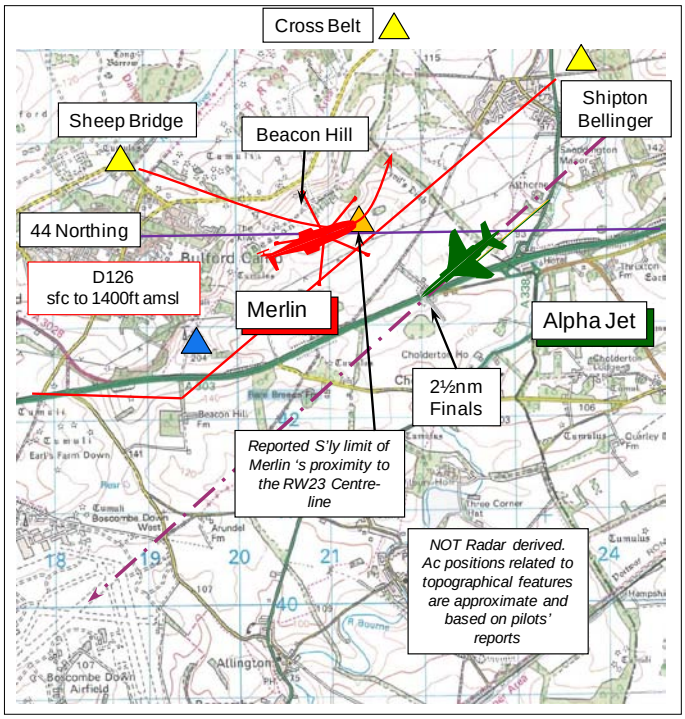
AIRPROX REPORT No 2011018

Date/Time: 9 Mar 2011 1256Z

Position: 5111N 00141W (2½nm NE of Boscombe Down A/D- elev 407ft)

Airspace: Boscombe MATZ (*Class:* G)

	Reporting Ac	*Reported Ac*
Type:	Alpha Jet	Merlin
Operator:	MoD FTR	HQ JHC
Alt/FL:	800ft QFE (1002mb)	300ft agl
Weather:	VMC NR	VMC CLBC
Visibility:	10km	8km
Reported Separation:	200ft V/800ft H	400ft V/700m H
Recorded Separation:	Not recorded	



PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE DASSAULT-DORNIER ALPHA JET PILOT reports he was the ac commander occupying the rear seat of the ac whilst conducting an instrument flying training sortie with a student test pilot in the front seat. During the period of the Airprox, the student was the PF on a simulated single-engine SRA to RW23 at Boscombe Down using standby instruments and he was monitoring his student's instrument flying during the approach with occasional visual lookout searches.

From about 3nm from touchdown his student levelled the ac at 800ft QFE (1002mb) just above the MDH [770ft], whilst continuing in level flight towards the missed approach point [MAPt at 2nm from touchdown]. TALKDOWN was providing a TS during the approach and at about 2½nm from touchdown, whilst heading 238° at 140kt, they received an alert from the TALKDOWN controller of Salisbury Plain Range traffic in the Range [D126] to their R. He searched in that direction but saw nothing; about 5sec later he searched again and then saw a Merlin helicopter at a range of about 800ft in what appeared to be a hard L turn, climbing slightly, just aft of their right wing. Simultaneously there was a call from TALKDOWN that there was range traffic that had passed Beacon Hill and was closing towards them; Beacon Hill is a significant feature 1nm N of the centreline and just inside the range area. By the time he saw the Merlin the actual risk of collision had passed as the helicopter was aft of their 3-9 o'clock line and its pilot appeared to be taking evasive action. He estimated that the Merlin passed 800ft horizontally down their starboard side and 200ft vertically below them. Because of their poor manoeuvrability in the approach configuration, the late alert, the late visual sighting and the proximity of the other ac, he assessed the Risk of collision as 'high'.

THE AGUSTA WESTLAND MERLIN HC3 PILOT reports that he was flying a VFR training sortie returning to Benson and in RT contact with Salisbury OPS [an A/G Stn] on 122·75MHz. The white upper and lower strobes, together with the two landing lights were all on. A squawk of A7002 [Danger Areas General] was selected with Mode C. TCAS is not fitted.

His routeing from D123 to Andover was via Sheep Bridge, Cross Belt and Shipton Bellinger at 300ft agl flying at 90kt and after passing Sheep Bridge he routed though D126 around the edge of Bulford Range (BDA), which was active. While in a port turn for Cross Belt [NW of Shipton Bellinger] the crew saw an Alpha Jet, on approach to Boscombe Down, 400ft vertically above his ac and assessed

by the crew to be 'offset' 700m laterally. The most S'ly position of his turn was at OS Grid SU 2130 4400, his flight path remaining to the N of the electricity transmission line running ENE-WSW. At Cross Belt they called Boscombe ZONE for further clearance, when the crew was informed that they had exited previously D126, which was noted, however, it was not believed to be correct.

THE BOSCOMBE DOWN TALKDOWN CONTROLLER (TALKDOWN) reports that whilst controlling an Alpha Jet on an SRA to RW23 at Boscombe Down an ac contact – the Merlin – appeared, initially within the confines of D126. This was as the Alpha Jet was approaching, he thought, the 3½nm point on the SRA with more than 1.5nm lateral separation. The Merlin within D126 was called to the Alpha Jet, and as SSR Mode C information was available the indicated level was also passed; at that point the helicopter was indicating between 200-300ft below the Alpha Jet. As the SRA continued the Merlin flew closer to the southern edge of D126 and briefly indicated outside the range. As the Alpha Jet approached Beacon Hill 1-1.5 miles from the runway [centre-line] the Merlin helicopter was shown on the radar display within 0.5nm laterally and 200ft vertically. At that point the TOWER controller came through on the radar clearance line with an additional warning about the Merlin infringing the approach path, which was immediately passed to the Alpha Jet.

HQ 1GP BM SM reports that this Airprox occurred between an Alpha-Jet on a simulated single-engine SRA, in receipt of a TS from Boscombe Down TALKDOWN, and the Merlin HC3 routeing VFR through EGD126. The Airprox is not shown on recorded radar, consequently, the investigation has relied upon the reports raised by the aircrew, TALKDOWN and the RT tape transcript.

The point stated by the Merlin crew as their most southerly position during the turn at SU 2130 4400, lies about 0·6nm NW of the centre-line for Boscombe's RW23 [at 2½nm Finals]. The south-eastern edge of EGD126 parallels the RW23 centre-line within 5nm of Boscombe aerodrome and lies approximately ½nm N of the RW23 centre-line.

Analysis of the TALKDOWN RT transcript shows that the Alpha Jet remained L of the RW23 centre-line until approximately the 3½nm point and thereafter remained on the centre-line. However, an SRA is a non-precision approach and the ac could have been displaced from the exact RW centre-line, potentially placing it closer to [or further away from] the Merlin.

The TALKDOWN controller states that the Merlin appeared within the confines of D126 as the Alpha Jet was approaching the 3½nm point on the SRA with more than 1.5nm lateral separation. It is more likely the Merlin was around 2nm NE of RW23 threshold. TALKDOWN states that they provided TI to the Alpha Jet approaching the 3½nm point; however, this is not the case and TALKDOWN is referring to the TI that they provided later at 1256:22, "*Traffic right 1 o'clock half mile crossing right left indicating below on the range".* It is reasonable to suggest, given the timing of the 3nm range check given by TALKDOWN [at 1256:06, *"3 miles 9 hundred feet approaching minimum descent height"*, followed by the *"at minimum descent height"* call at 1256:18 and the 2nm call at 1256:36] that the passing this TI occurred at about the 2½nm point, which accords with the Alpha Jet pilot's report.

This inability to accurately recall timelines whilst accurately recalling events is a typical HF issue and is not a concern. However, TALKDOWN goes on to state that 'as the SRA continued the ac within D126 moved closer to the southern edge and indicated briefly outside.'

The DE SPTA Standing Orders for Training Part 4 Management of Salisbury Plain Airspace state that the low level routes within EGD126 pass well to the N of Bulford Camp and are to be followed.

The Alpha Jet pilot states that having received the TI he initially saw nothing but 5 seconds later he 'searched again and saw a Merlin ac in what appeared to be a climbing hard left turn just behind the right wing'. This would have been co-incident with the warning from TWR, re-broadcast by TALKDOWN at 1256:32, '*caution rotary in the undershoot short final, just short of Beacon Hill'*. Whilst it is impossible to determine the exact location of the CPA, given that the position accords with the TI passed by TALKDOWN and the report of the Alpha Jet on the timing of the TI, it is reasonable to suggest that the CPA was at about 2½nm Final to RW23.

Notwithstanding that the Merlin appears to have been off the low-flying route and that the Alpha Jet crew sighted the Merlin late, the timeliness of the TI passed to the Alpha Jet by TALKDOWN requires examination. Given the terrain in that location and the low altitude of the Merlin, there will be a degree of clutter on the SRA display and the Merlin will not have painted until relatively late. Yet it is clear from the detail in TALKDOWN's narrative that they spotted the confliction in a timely manner with around 1.5nm lateral separation. The fact that the provision of TI did not occur until around 29sec later at 1256:22, suggests that TALKDOWN deliberately delayed passing TI until the Merlin posed a definite threat as it approached the boundary of EGD126 and appeared likely to exit the range. Further investigation with Boscombe Down has shown that when utilising the PAR, TI will always be passed in accordance with JSP552; however, the coverage of the PAR within 5nm is restricted and traffic operating in the southern segment of EGD126 rarely paints on the PAR display. The wider field of view afforded by the SRA display will have enabled TALKDOWN to observe the Merlin earlier. Furthermore, rotary ac are routinely seen operating within the southern section of D126 and it is arguably this knowledge that caused the delay between TALKDOWN identifying the Merlin and passing TI to the Alpha Jet crew, in an attempt to avoid passing nugatory TI.

SATCO Boscombe Down is reviewing local procedures pertaining to the provision of TI to ac executing instrument approaches.

UKAB Note (1): The Mil AIP at AD 2 - EGDM - 1 - 18 – Radar Procedures – includes a note for RW23 that:

> 'Due to underlying low-level hel routes and obstacle clearance, immediate descent from FAF to MDA [MDH] prohibited. Notional 3° GS mandatory.'

HQ JHC comments that if the Merlin's most southerly position was the stated Grid, and his flight path remained to the north of the electricity transmission line running ENE-WSW, this would not have brought it into conflict with the RW23 extended centreline until reaching a point to the E of Shipton Bellinger (where the electricity lines crosses the extended centreline). It may be the case that as a 'large' helicopter (in comparison to perhaps a Lynx), the Merlin appeared to be closer to the Alpha Jet than it actually was (800ft assessed by the Alpha Jet pilot vs 700m by the Merlin crew). The Grid position given has been assessed by HQ 1 GP BM SM as 0.6nm from the extended centreline at $2^1/_2$nm, which is slightly less than the 'offset' 700m reported by the Merlin pilot. The Alpha Jet pilot did not see the Merlin until it was aft of their 3-9 o'clock line, therefore it is puzzling that the assessed risk of collision was 'high'. However, the late visual sighting caused the Alpha Jet pilot to be concerned about the proximity of the other ac. Having spoken to the reporting Merlin pilot, he is clear that he was on an approved route which did take him close to the extended RW23 centreline, but at no time did he get closer than the Grid as stated on the report. The route from Sheep Bridge to Cross Belt skirts around the impact area for the Bulford Range (BDA) and routes aircraft close to the electricity transmission wires running ENE-WSW. If it is assessed that the Merlin was too close to the extended centreline of RW23, the route (around the Bulford impact area between Sheep Bridge and Cross Belt) should be changed and/or the aircraft should be required to be on a Boscombe Down frequency for coordination purposes. This Airprox may have been prevented by the earlier passing of TI to the Alpha Jet, despite the expectation that the Merlin would not encroach the extended RW23 centreline.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available included reports from the pilots of both ac, a transcript of the relevant TALKDOWN RT frequency, a report from the air traffic controller involved and reports from the appropriate ATC and operating authorities.

It was evident from the Merlin pilot's account that he had strayed S of the established SPTA Low Level Route, whilst skirting BDA between Sheep Bridge and Cross Belt and had been in the turn to regain the route just inside the range boundary at Grid SU 2130 4400 when the Airprox occurred. The Board was briefed that the co-ordinates for the Low Level Route turning points are specified in

SPTA Orders. Aircraft are required to follow, and remain within 300m of, the road around BDA joining the co-ordinates. These routes had been agreed between SPTA and Boscombe Down and were designed to allow VFR rotary-wing transits in/out of SPTA, whilst causing least disruption to aerodrome traffic and keeping helicopters away from the FAT to RW23. The HQ AAC Member, who was well-versed in air operations on SPTA, opined that the Merlin crew seem to have overshot the route somewhat, but added that it is not easy to distinguish on SPTA maps the exact track to be followed. The HQ 1Gp Advisor was of the view that the helicopter might have been further S than the Merlin pilot had reported, given the location specified in the TI passed to the Alpha Jet crew by TALKDOWN. TOWER was also clearly concerned at the appearance of the Merlin above the ridge line of Beacon Hill, hence the warning to TALKDOWN, who controller Members perceived would have issued a warning as soon as the Merlin was at the limits of D126 marked on the radar video map. The Merlin pilot reports remaining N of the electricity transmission line and that he was flying at the correct transit height of 300ft agl, some 400ft below the Alpha Jet when it was spotted on Final, which was in general accord with the Alpha Jet pilot's reported height just above the MDH. Without recorded radar data illustrating the encounter it was not feasible to be definitive about the actual geometry that obtained here and it was possible to fly outside the Danger Area boundary and still remain N of the power lines further toward Shipton Bellinger. However, the Merlin pilot's given position was consistent with the Alpha Jet pilot's account when he spotted the helicopter in the turn, just drawing aft of the starboard wing as they passed through 2½nm from touchdown 'on centre-line'. Members concurred that the Merlin as a large helicopter might have appeared closer than it was, but the significant difference between the Alpha Jet pilot's estimate of separation at 800ft/243m and that of the Merlin pilot at 700m could not be resolved independently without radar data. However, the helicopter pilot's manoeuvre was to regain the route towards Cross Belt and not the evasive action that the Alpha Jet pilot perceived at the time. It seemed that this was an unintentional excursion from the route by the Merlin crew that had been spotted by ATC at the critical moment and the overall procedure seemed to be generally sound. Following an extensive debate the Board agreed unanimously that this Airprox had resulted because the Merlin crew flew close enough to cause the Alpha Jet crew concern.

Turning to the inherent Risk, the Alpha Jet crew had received a warning of the presence of the Merlin and had spotted it as it was turning away to the L, behind the starboard wing, away from their ac and probably at about the closest point. It was evident that the Merlin pilot intended to remain N of the electricity transmission line, at low-level, until he crossed beneath the FAT/notional 3°glidepath in the vicinity of Shipton Bellinger. This, coupled with the sighting of the Alpha Jet by the Merlin crew convinced the Board that no Risk of a collision had existed in the circumstances reported here.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: The Merlin crew flew close enough to cause the Alpha Jet crew concern.

Degree of Risk: C.