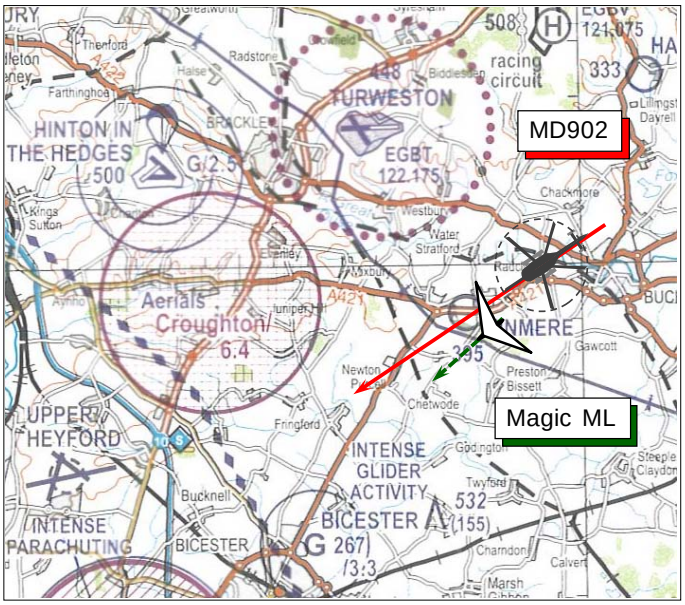
AIRPROX REPORT No 2011044

Date/Time:	20 May 2011 0952Z	
Position:	5159N 00103W (5nm E of Croughton)	
Airspace:	London FIR	(*Class:* G)
	Reporting Ac	*Reported Ac*
Type:	Magic Laser Flexwing ML	MD902 Explorer
Operator:	Civ Pte	Civ Comm
Alt/FL:	2000ft amsl	<1000ft amsl
Weather:	VMC CLBC	VMC CLBC
Visibility:	50nm	>10km
Reported Separation:	300ft V/nil H	500ft V/100ft H
Recorded Separation:	Not recorded	



PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE MAGIC LASER FLEXWING MICROLIGHT PILOT (MAGIC ML) reports that he had departed from a private strip at Buttermilk Hall Farm [about 5nm SSW of Northampton] for Oaklands [N of the Brize CTR] and was flying a level cruise at 2000ft, some 2000ft clear below cloud with an in-flight visibility of 50nm. In transit, passing about 5nm E of Croughton aerials heading 230° at 45kt, a dark blue and white helicopter passed 300ft directly beneath his Magic ML on the same heading. The helicopter – the MD902 – passed so close that the severe turbulence from the blades caused his ML to dive almost vertically down and turn to the R; an immense effort was required to resume level flight after descending about 200ft during the recovery. He assessed the Risk of collision as 'medium' but the risk to his life was 'very high'. He stated that the severe turbulence from the helicopter needed extreme corrective measures to escape from an almost irrecoverable position.

His Magic ML's wing has a white top surface and yellow under surface. He was not in communication with any ATSU.

THE MD902 EXPLORER HELICOPTER PILOT (MD902) reports that he was in transit from Wyton to a field location within the Brize Norton CTR under VFR and in receipt of a BS from Brize ZONE on 124·275MHz. The assigned squawk was selected with Modes C and S; TCAS is fitted.

In level flight in VMC, not above 1000ft and more likely 500-600ft, on a direct track passing E of Croughton aerial farm at 125kt with the A/P engaged, both he and his front-seat observer saw the ML ahead at the same time, late, some 15sec before passing 100ft horizontally and 500ft vertically clear beneath the ML.

They had approached the ML from astern and it looked to be in a level cruise, flying straight and level, but he added candidly that the late visual sighting could only be attributed to its static position in the upper windscreen. Their heading was the same as the ML's but he assessed that they were slightly to the side of the ML, well below and clear of it and so continued to pass it.

He could not recall any other specific details as they simply continued their flight and he had not expected that their flight path would cause undue alarm. Once ahead, in acknowledgement of their

proximity he may have 'waggled his wings' as he would generally do to indicate they had sighted the other traffic, but he cannot recall in this instance if he did so.

He assessed the Risk as 'none' and stated their transit altitude had been chosen to remain clear of extensive light fixed-wing & glider traffic that day.

THE BRIZE NORTON ZONE CONTROLLER reports that he was operating 119·00MHz at the reported time of the Airprox, but because of the intervening period between the occurrence and when he was told about it, he could recall nothing of significance. From the FPS the MD902 helicopter pilot was under a BS outside the Brize CTR, when he called on the frequency at 0948Z; the flight was transferred to Brize TOWER at 1003Z. No report of an Airprox was made on the frequency.

UKAB Note (1): The RT transcript reveals that the MD902 pilot reported in transit "..not above 1 thousand feet.." and was subsequently "..cleared to enter Brize controlled airspace not above height 1 thousand feet on the Brize Q-F-E 1-0-0-9".

UKAB Note (2): Analysis of the LATCC (Mil) Clee Hill Radar recording shows the MD902 as an SSR contact only, identified by its discrete squawk, transiting the Airprox location near Finmere (elev: 395ft amsl), however, the Magic ML is not evident at all. The MD902 maintains a transit altitude of 900-1000ft throughout and is shown at 0952:56, at a position 5nm E of Croughton tracking 235° level at an altitude of 1000ft London QNH (1019mb) – equating to a height of broadly 600ft agl.

HQ 1GP BM SM reports that this Airprox occurred east of Croughton and approximately 25nm ENE of Brize Norton.

Although the MD902 is visible on the radar recording, the ML is not. Moreover, no mention is made on the Brize ZONE RT transcript of the MD902 crew being visual with a ML. Whilst the Clee Hill Radar is available to Brize controllers and was the source of the radar recording, it is a selectable option, rather than a composite radar picture together with the Brize Norton ASR/MSSR. It has not been possible to determine which radar source ZONE was utilising at the time of the Airprox.

The Brize ZONE controller involved was wholly unaware that an incident had occurred at the time and could not recall any events when made aware of the Airprox.

From an ATM perspective, ZONE was providing a BS to an ac that was likely to be operating at or below the vertical limits of their radar coverage and had no reason to suspect that a collision risk existed. Moreover, whilst the MD902 pilot was visual with the ML, it is clear that the Magic ML pilot was concerned about the rotor blade turbulence, rather than the physical position of the MD902.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available included reports from the pilots of both ac, transcripts of the relevant RT frequency, radar video recordings, a report from the air traffic controller involved and reports from the appropriate ATC authority.

The ML pilot reports he was flying at an altitude of 2000ft whereas the MD902 pilot was maintaining a level cruise at an altitude not above 1000ft – as indicated on Mode C from the recorded radar data. The ML pilot estimated the vertical separation at 300ft before he was affected by turbulence and the MD902 pilot estimated 500ft. A Member suggested that the helicopter pilot might have been better placed to judge the separation from below and helicopter Members agreed that the MD902 pilot would not have thought that 500ft separation could have posed a hazard to the ML; furthermore the MD902 pilot reports a slight lateral offset as he overtook the ML. By the time the ML pilot had recovered to level flight he had lost 200ft putting him between 100ft and 300ft above and behind the helicopter and in a position where he was more likely to be affected by its wake. Whilst the recorded radar data suggested that the vertical separation might have been somewhat more than either of the

pilots' estimates, without a comparable indication from the ML, which was not fitted with a transponder, this could not be resolved with any degree of certainty.

The ML was seen by the helicopter pilot late he reports, 15sec before he flew under it – a sighting range of about 0·33nm away at a closing speed of 80kt. However, the ML would have remained on a constant bearing with no crossing motion to draw attention to it as the MD902 approached from astern. With the yellow wing under-surface of the ML possibly quite difficult to see against a background cloudscape, the MD902 pilot probably saw the ML as soon as was feasible in these circumstances.

Instances of ML and ultra-light pilots being concerned by the wake vortex/turbulence created by passing helicopters are not new to the Board. What was unusual in this case, however, was that the MD902 had under-flown the flexwing ML with its pilot reporting that the severe turbulence from the helicopter needed extreme corrective measures to escape from an almost irrecoverable position. The wake turbulence associated with downwash and rotor blade tip vortices are known hazards to ac flying behind and below helicopters, but at these distances any detrimental effects on the aerodynamic lift properties of a flexwing ML flying above the MD902 were thought by some pilot Members to be negligible. The Board counts within its Membership several highly experienced fixed-wing test pilots and military and civilian helicopter pilots, who understood fully the dangers inherent in passing close to a ML. However, the effects of helicopter rotor downdraught on MLs passing above the rotor 'disc' was not clear to them at all as it was generally accepted, rightly or wrongly, that there was 'clean' air above the rotor disc with significantly disrupted air below, astern and flowing to either side. Therefore, whilst not doubting the sincerity of the ML pilot's report in any way, Members considered alternative causes for the effect described by the ML pilot. It seemed feasible that the startling effect of hearing and then seeing the under-flying helicopter at close quarters could have distracted the ML pilot to such an extent that he almost lost control of his aircraft. Alternatively, coincidental atmospheric turbulence might have caused the effects reported. However, the Board was concerned that there have been a number of incidents in which ML ac/para gliders/hang gliders etc appear to have been affected by helicopters at unexpected distances and aspects. A test pilot Member was keen to ensure that this was resolved and with this in mind the Chairman undertook to investigate whether there is any existing research into the phenomenon.

[Post Meeting Note: Enquiries with the CAA's Fluid Dynamics specialists raised doubts that such a 'suck down' effect would exist, but they continue to look into this possibility in some detail and will submit their views to the Board.]

Following on from previous Airprox where helicopters had over flown MLs and para gliders, Members were keenly aware that the Board was charged with assessing the Risk of a collision between the two ac and not the risk associated with the helicopter's rotor downwash. This was not in any way meant to diminish important safety lessons - but it was not strictly within the Board's remit when assessing the inherent Risk of a collision. Moreover, the Board only considered what had actually occurred and not what might have happened if circumstances had been slightly different. After a wide-ranging debate, Members concluded that the Cause of this Airprox was that the MD902 pilot flew close enough to cause the flexwing ML pilot concern. Whilst Members recognised that the safety of the ML had not been assured until he regained controlled flight, in so far as the collision risk was concerned both pilots had operated in accordance with normal rules and parameters.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: The MD902 pilot flew close enough to cause the flexwing ML pilot concern.

Degree of Risk: E.

Recommendation: The Board was concerned that there have been a number of incidents in which Microlight/para gliders/hang gliders etc appear to have been affected by helicopters at unexpected distances and aspects. Director UKAB was

charged to investigate whether there is any existing research into the phenomenon.