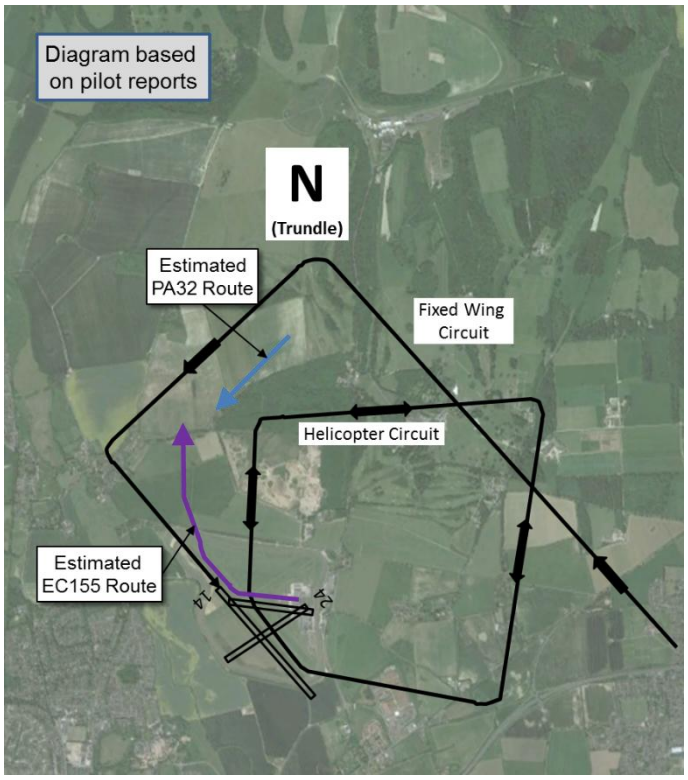
AIRPROX REPORT No 2014100

Date/Time: 28 Jun 2014 1535Z (Saturday)

Position: 5052N 00046W (0.5nm NW of Goodwood)

Airspace: Goodwood ATZ (*Class*: G)

	Aircraft 1	*Aircraft 2*
Type:	EC155	PA32
Operator:	Civ Exec	Civ Pte
Alt/FL:	900ft QFE (NK hPa)	600ft QFE (NK hPa)
Conditions:	VMC	VMC
Visibility:	10km	>10km
Reported Separation:	150ft V/200m H	50ft V/50m H
Recorded Separation:	NK V/0.1nm H	



PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE EC155 PILOT reports operating under VFR in VMC from the left-hand seat of a maroon helicopter, with the Pilot Monitoring in the right-hand seat, with transponder Modes 3/A, C & S selected and TCAS[1] I equipment operating; the lighting state was not reported. The pilot was in contact with Goodwood Tower[2] and he reports that there was a complex operation in place for the Goodwood Festival of Speed, with multiple helicopter movements to and from the airfield, to and from passenger gates and parking, and pleasure flights too. At around 1500Z, there was normally a significant rush of passenger movements, and so some helicopters were loading passengers in the parking area, rather than at the passenger gates, and then receiving clearance to depart from the parking area. The pilot recalled that the EC155's departure was the last in a string of 3 or 4 consecutive helicopter movements from the parking area, although the previous departures had been private light-helicopters, and the EC155's pilot was operating a non-scheduled passenger flight. The EC155 crew received permission from ATC to depart outbound via Trundle Gate but, because the EC155 was much heavier than the other helicopters, and was being flown to a Category A profile, the crew had to accelerate ahead for longer before turning. As they levelled at their 'pre-notified' height of 900ft QFE, heading 360° at 120kt, en-route to the 'Trundle Gate' and close to the Base Leg turning point of the RW14 fixed-wing visual circuit, the Pilot Monitoring suddenly spotted a low-wing light-aircraft, 200-300m away, in a sharp, descending left-hand turn. A passengers in the back of the EC155 managed to capture the occurrence on video.

He assessed the risk of collision as 'Medium'.

THE PA32 PILOT reports flying under VFR in VMC, in a blue and white aircraft, with strobes and landing lights illuminated, and transponder Modes 3/A, C and S selected; the aircraft did not have a TCAS fitted. He was returning to Goodwood, in contact with Goodwood Tower as he positioned his aircraft downwind for RW14, and reports that RW24 was in use for helicopters only. The pilot saw many rotary movements and noted that it was clearly a very busy period. On turning onto base-leg, heading towards the final approach turn, he saw a helicopter inside the fixed-wing circuit, turning right onto a reciprocal heading, at a similar height to his aircraft. The PA32 pilot made a 'prompt' avoiding

[1] Traffic Alerting and Collision Avoidance System
[2] Goodwood Tower is operated by a Flight Information Services Officer (FISO)

action left-turn, saw the helicopter turn back to the left too, and heard its pilot report the Airprox to Goodwood Tower.

He assessed the risk of collision as 'High'.

Factual Background

The Goodwood weather is not available but the weather at Shoreham, Southampton and Gatwick was recorded as:

METAR EGKA 281520Z 22013KT 9999 FEW016 FEW025TCU 18/14 Q1009=
METAR EGHI 281520Z 02004KT 340V060 5000 SHRA FEW011 BKN031 13/11 Q1005=
METAR EGKK 281520Z VRB02KT 9999 4000NW SHRA FEW008 SCT027CB 15/13 Q1009=

Analysis and Investigation

CAA ATSI

The CAA ATSI had access to area radar recording together with written reports from the FISO and pilots of both aircraft. No RTF recording was available due to an error with the recording equipment. A new system is now being installed. ATSI interviewed the Goodwood FISO.

The EC155 and the PA32 pilots were in receipt of Aerodrome Flight Information Service (AFIS) from Goodwood Information.

RW14 was in use for fixed-wing aircraft, with helicopters departing from the threshold of RW24. Goodwood were hosting the 'Festival of Speed' event and all aircraft movements were strictly prior permission only. A 'Special Event Aviation Arrangements and Pilot Instructions' booklet was available to all pilots, and was available via the Goodwood website; page 6 shows the Aerodrome layout for the Festival of Speed – Figure 1.

Figure 1 – Aerodrome layout – Festival of Speed

Helicopters were being allowed inbound and outbound from the north via 'Trundle Gate (N)' not above 900ft, with the fixed-wing circuit at 1200ft. Helicopter pleasure flights were operating from Goodwood House, not above 600ft, within a defined area. During the flying display at Goodwood house the airfield was closed to all movements. The Pilot instructions booklet Page 4 and 5 state:

'*Arriving fixed-wing aircraft should make a standard overhead join at height 2000ft Goodwood QFE…Pilots should descend on the circuit 'dead side' to position crosswind at 1200ft…*

Pilots are warned that multiple helicopter arrivals 'not above 900ft' Goodwood QFE will be taking place simultaneously via either Trundle Gate (N), Tangmere Disused Aerodrome (E), or the Lakes (S)…

Fixed wing runway 14 in use

Helicopter's shall depart from Runway 24 threshold to the east via Tangmere Disused Aerodrome, remaining east of Runway 14 climb out.'

Page 15 of the pilot booklet shows the circuit/noise abatement patterns (for normal operations). An extract is shown below, overlayed with the desired track to Trundle (black), and the likely tracks of the EC155 (red) and PA32 (blue) – Figure 2.

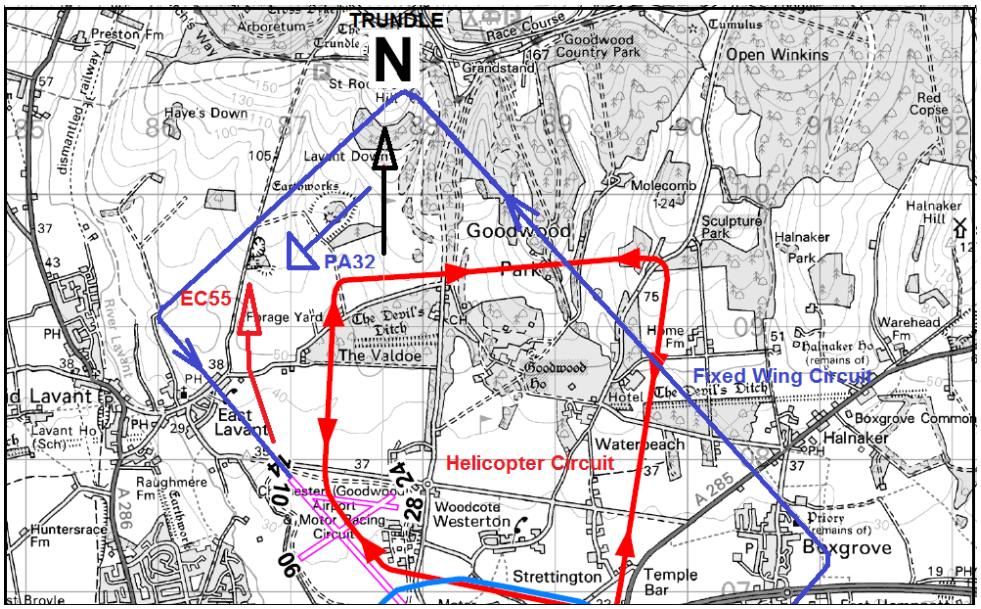


Figure 2 – Extract of circuit patterns with likely tracks flown (EC55=EC155).

At 1534:50 the PA32 crossed the coast 6.3nm southeast of Goodwood squawking Mode 3/A 0011 but was not indicating Mode C altitude readout. The PA32 turned towards Goodwood. At 1537:02 the PA32 was 2.5nm southeast of Goodwood - Figure 3.

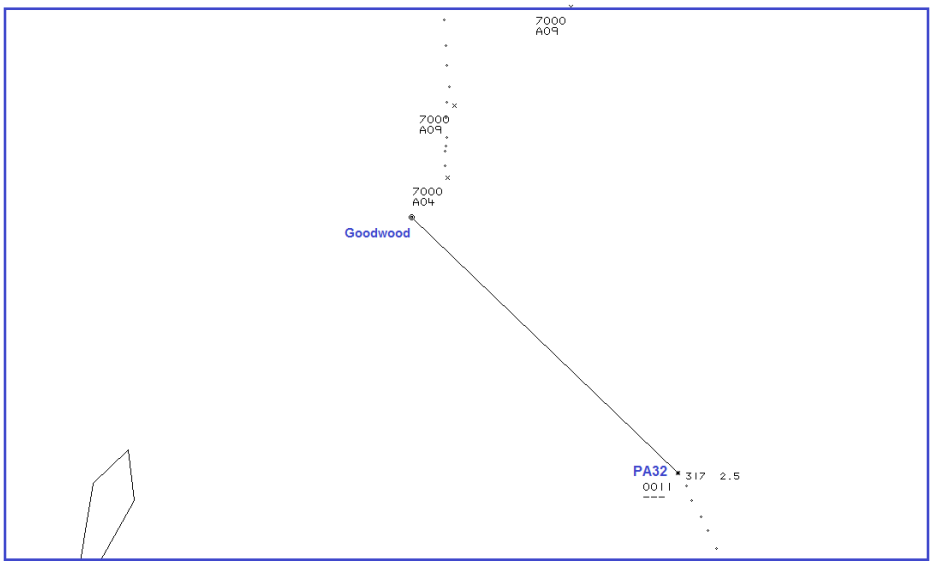


Figure 3 – Swanwick MRT at 1537:02

At 1538:27 the radar showed the PA32 downwind 0.9nm east-northeast of Goodwood with a number of other aircraft in the vicinity – Figure 4.

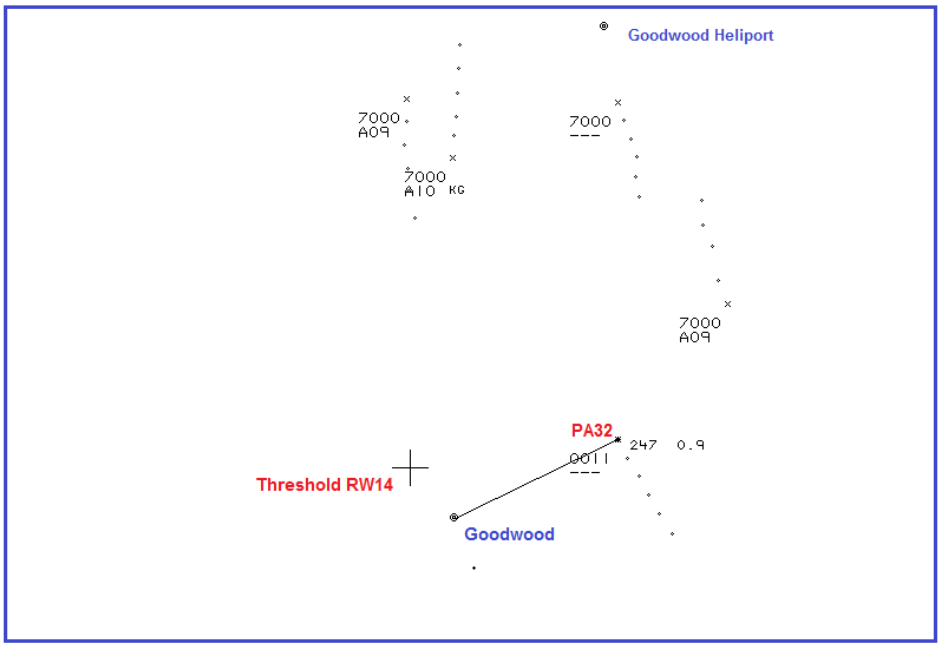


Figure 4 – Swanwick MRT at 1538:27

At 1538:48, the PA32 was shown late downwind with two contacts shown inbound and outbound from/to Trundle(N) – Figure 5.

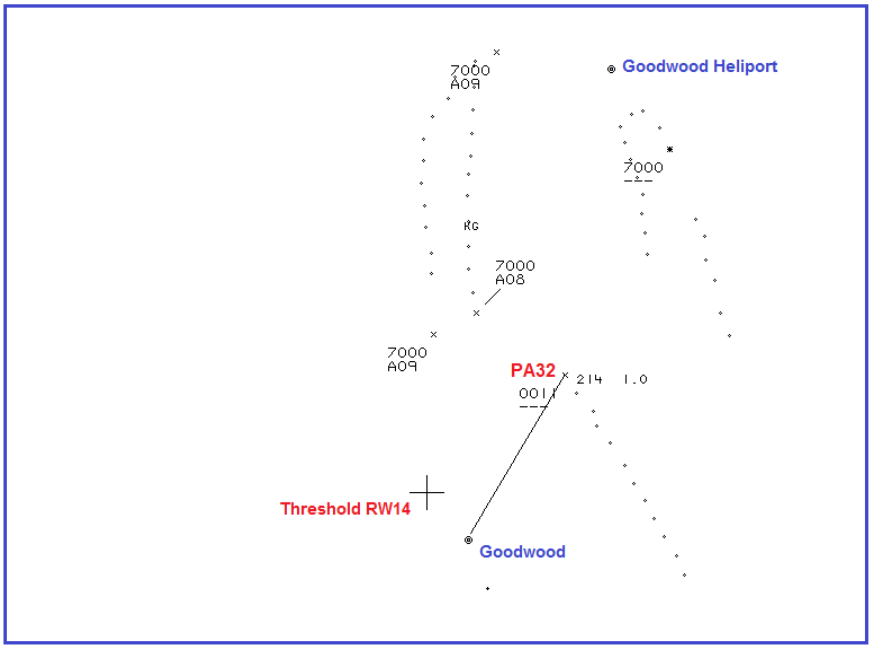


Figure 5 – Swanwick MRT at 1538:48

At interview, the FISO recalled that the weather was good, and the surface wind was westerly, and that they were very busy. Normally, helicopters would call for start, but he remembered the PA32 pilot was joining downwind when the EC155pilot, with rotors running, called for lift. The FISO first requested the position of the PA32 and the pilot responded to advise that he was late downwind, turning base-leg.

The FISO recalled that he passed Traffic Information to the EC155 pilot regarding the PA32 which the EC155 pilot acknowledged. The FISO advised the EC155 that RW14 left-hand was in use by fixed-wing aircraft and passed the QNH. The EC155 pilot then reported lifting. The FISO reported that he passed Traffic Information to the PA32 pilot regarding the departing EC155 helicopter.

The FISO indicated that he was distracted for 4 or 5 seconds by another helicopter requesting fuel and when he returned his attention to the departing EC155, it had transitioned on a south-westerly track and was in a right-turn at about 200ft. The FISO couldn't be sure whether the EC155 had crossed RW14 before turning but, as it routed north, he considered it east of the RW14 centreline and likely to be inside and below the fixed-wing circuit. The EC155 pilot's written report indicated that he was no 4 of 5 in a number of helicopter departures and, being much heavier than the previous departures, he needed to accelerate longer before turning. On levelling at 900ft the EC155 pilot observed the fixed-wing aircraft turning sharply and descending.

At 1539:14 the PA32 was shown on the radar recording turning onto base leg, and the EC155 first appeared indicating an altitude of 900ft. The distance between the two aircraft was 0.5nm – Figure 6.

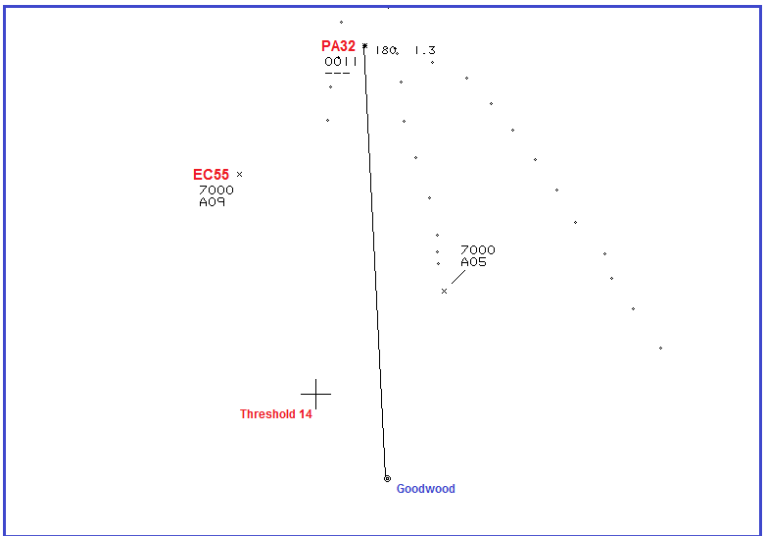


Figure 6 – Swanwick MRT at 1539:14

At 1539:22 the distance between the two aircraft was 0.2nm. At this point it was believed that the PA32 took avoiding action (Figure 7).

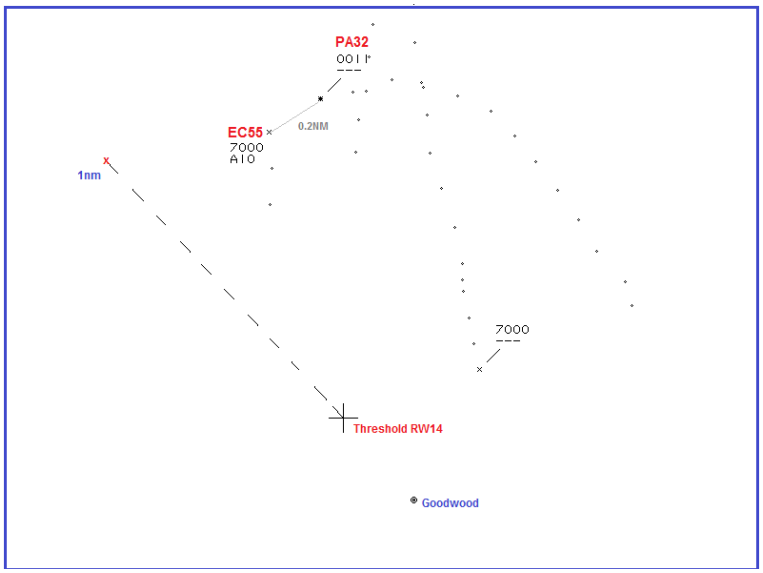


Figure 7 – Swanwick MRT at 1539:14

A photo was extracted from video footage taken by a passenger on the EC155, which showed the PA32 banking left- Figure 8.

Figure 8 – Photograph taken by EC155 passenger

On the next radar update the PA32 passed 0.1nm behind the EC155, which was at an altitude of 1000ft.

The FISO indicated that the PA32 pilot had reported the helicopter passing very close. The FISO recalled being surprised and believed the PA32 may have flown a tighter base leg and final than normal.

When questioned about the requirement to follow the published pilot instructions - '*fixed-wing should join overhead and helicopters should depart to the east via Tangmere'*, the ATSU advised that there was some flexibility on the day with fixed-wing joining downwind and helicopters departing via Trundle (N). Previous helicopters departures had lifted and then spot-turned to depart on a northerly track inside and below the fixed wind circuit with appropriate traffic information.

The ATSU advised that as part of the post event wash up discussion and forward planning for 2015 events, they were intending to review procedures with a proposal to depart helicopters in the direction of the runway in use (circular flow) to a fixed point before turning on track.

Both pilots were in receipt of an AFIS[3], under which FISOs shall issue information to aircraft in their area of responsibility useful for the safe and efficient conduct of flights. They are not permitted to issue instructions to pilots in the air or when relaying a clearance from an air traffic control unit. Pilots, therefore, are wholly responsible for collision avoidance in accordance with the Rules of the Air[4].

The Goodwood Pilot Instructions state that fixed-wing aircraft should join overhead and then crosswind at 1200ft with helicopters departing from the RW24 threshold, on an easterly track, at not above 900ft (below the fixed-wing circuit), but the ATSU advised that there was some flexibility on the day, with fixed-wing joining downwind and helicopters departing via Trundle N). Previous helicopter departures had reportedly departed remaining east of RW14, on track for Trundle(N), departing below the fixed wind circuit. Traffic Information was being passed to assist pilots to avoid each other on a 'see and avoid' basis.

No procedure had been published for northerly departures and the ATSU was allowing a flexible operation, which relied on departing helicopter pilots remaining east of RW14, and departing below fixed-wing aircraft at the end of the downwind/beginning of base leg.

[3] Aerodrome Flight Information Service
[4] CAP797 FISO procedures: Section1, Chapter 1, Page 1, Paragraph 1.1

However, the PA32 on base leg was likely descending from 1200ft. The flight profile of the departing EC155 resulted in it being 0.5nm further west than anticipated, which brought it into conflict with the PA32 descending on left-base.

CAA ATSI considered that the published pilot instructions for special events should indicate in advance the procedures to be expected, together with any alternatives or contingency planning, in order that pilots are well prepared and can pre-plan accordingly. The ATSU intended to review this issue as part of the 2015 events planning process.

UKAB Secretariat

Both pilots shared equal responsibility to avoid a collision and to avoid flying in such proximity to other aircraft as to create a danger of collision[5]. In addition, the EC155 pilot was required to conform to the pattern of traffic formed by other aircraft intending to land at the aerodrome[6].

Summary

The Airprox occurred when the EC155 transitioned further to the southwest than expected, before turning north and into conflict with the PA32, which was descending on left-base.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available included reports from the pilots of both aircraft, radar photographs/video recordings, photographs and video from the passenger in the EC 155, a report from the FISO involved and reports from the appropriate ATC and operating authorities.

The Board first considered the actions of the PA32 pilot. Although the Goodwood procedures required him to carry out an overhead join rather than a downwind join, the Board opined that, in this case, it had no bearing on the cause or the outcome of the Airprox because the PA32 would still have been at around the same base-leg position and altitude, regardless of his type of join.

The Board then noted that the published Goodwood procedure was for helicopters departing from RW24 threshold to depart via Tangmere to the east but, as in this case where the EC155 pilot had elected to depart to the north via Trundle, it was apparent that the published departure procedures were being routinely ignored by many pilots. Members thought that although the published easterly departure was safe, it was not expeditious for many pilots, and agreed that this was likely to be a significant factor in the routine use of alternative non-standard departures. The ATSU had reported that a great deal of flexibility was required on the day, and the Board opined that this was a symptom of a systemic failure where the poorly thought out procedures placed a great deal of responsibility on the FISO (who had no authority to control aircraft, and could only offer information pertinent to safe flight). In essence, Goodwood was expecting the FISO to manage a complex and busy air operation without robust procedures suited to either the intensity of the operation or the needs of the airfield users; members opined that the complexity and scale of operations during the Festival of Speed could well warrant the employment of a licensed Air Traffic Controller rather than a FISO.

Recognising that the FISO did not a have a remit to issue positive control instructions to pilots, even though the EC155 pilot may have believed that he had been issued with a positive clearance for his extended Category A profile departure, the Board agreed that it was the EC155 pilot's responsibility to co-ordinate his flight profile and non-standard departure route to remain clear of other traffic in the visual circuits. Consequently, the Board agreed that the cause of the Airprox was that the EC155 pilot did not follow the promulgated departure procedure and flew into conflict with the PA32 in the visual circuit. Nevertheless, both pilots saw each other's aircraft, and the PA32 pilot took appropriate avoiding action. Although the resulting separation between the converging aircraft was less than ideal, the Board agreed that appropriate actions had been taken in time to prevent a collision and that

[5] Rules of The Air 2007, Rule 8, Avoiding Aerial Collisions
[6] Rules of The Air 2007, Rule 12, Flight in the Vicinity of an Aerodrome

the degree of risk was therefore Category C. Notwithstanding the risk category of this occurrence, members were clear that the associated systemic issues represented a classic 'accident trajectory': the Board was grateful to the EC155 pilot for his frank and open report, which had allowed all concerned to learn from the encounter. The Board was pleased to see that Goodwood had already suggested a review of procedures, and members unanimously agreed to support this with a formal recommendation, and to further recommend that Goodwood should consider employing an Air Traffic Controller for complex and high traffic-density events.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: The EC155 pilot did not follow the promulgated departure procedure and flew into conflict with the PA32 in the visual circuit.

Degree of Risk: C.

ERC Score[7]: 21.

Recommendation(s): The Board recommended that:

1. Goodwood reviews the procedures for high traffic density events.

2. Goodwood considers using an Air Traffic Controller for high traffic-density events.

[7] Although the Event Risk Classification (ERC) trial had been formally terminated for future development at the time of the Board, for data continuity and consistency purposes, Director UKAB and the UKAB Secretariat provided a shadow assessment of ERC.