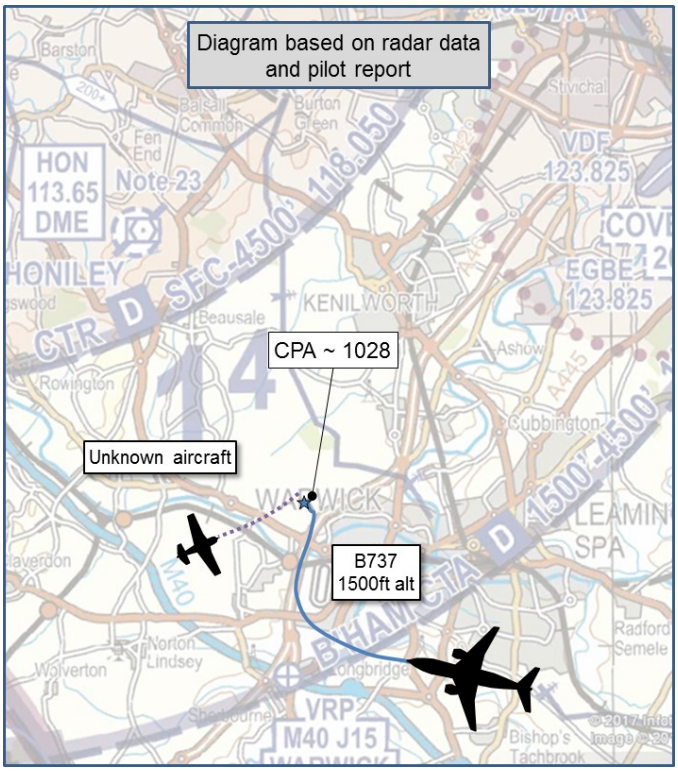
AIRPROX REPORT No 2017045

Date: 25 Mar 2017 Time: 1028Z Position: 5217N 00136W Location: 6.5nm SW Coventry

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	B737	Unk Aircraft
Operator	Civ Comm	NK
Airspace	London FIR	London FIR
Class	G	G
Rules	IFR	NK
Service	Basic	
Provider	Coventry	
Altitude/FL	1500ft	
Transponder	On/C, S	
Reported		
Colours	Blue, Grey	NK
Lighting	Strobe, Nav, Ldg	
Conditions	VMC	
Visibility	>10km	
Altitude/FL	1500ft	
Altimeter	QNH (1033hPa)	
Heading	020°	
Speed	170kt	
ACAS/TAS	TCAS II	
Alert	None	
Separation		
Reported	0ft V/1nm H	NK
Recorded	NK V/~0.5nm H	



THE B737 PILOT reports that he was being vectored 020° under a radar service and on an intercept heading to the Final Approach Track (FAT) for an NDB approach to RW05 at altitude 1500ft. He saw a light aircraft (microlight or kit built) flying across the final approach path at the same altitude in his 2 o'clock position approximately 1 mile away (left to right). He elected to make a left-hand orbit whilst informing ATC. The unidentified aircraft continued eastwards through the FAT and, on completion of his turn, the B737 pilot established on the FAT. ATC tried to contact the aircraft, but no response was forthcoming. An uneventful landing was completed thereafter.

[UKAB Note: The B737 pilot reported he was under a Radar Service with Coventry; the tape transcripts established that the pilot requested, and was provided with, a Basic Service].

He assessed the risk of collision as 'High'.

THE UNKNOWN AIRCRAFT PILOT could not be traced despite an extensive search.

THE COVENTRY CONTROLLER reports that he was not informed that the B737 pilot intended to file an Airprox therefore a full report was not submitted at the time; he has submitted a report retrospectively based on his recollection of events. He recalls that the B737 was closing onto the final approach track when traffic information was passed regarding unknown traffic. This traffic information was passed late.

Factual Background

The weather at Coventry was recorded as follows:

METAR EGBE 251020Z 04009KT CAVOK 09/05 Q1033

Analysis and Investigation

CAA ATSI

ATSI had access to reports from the pilot of the B737, the area radar recordings and Coventry radar & R/T recordings. ATSI also received a report from the controller involved and a copy of the unit investigation report. An interview with the controller was also conducted. Screenshots in the report are taken from the Coventry Radar recordings only – area radar did not detect the ULAC. It is import to note that the majority of screenshots in this report are not representative of the scale being displayed for the controller's use at the time, and may give a false impression of size and strength of the radar return of the ULAC. All times UTC

The B737 pilot, having been released by Birmingham Radar whilst still inside Birmingham's controlled airspace, contacted Coventry Radar at 1021:58 and reported being at altitude 5000ft. The Coventry Radar controller acknowledged the call, descended the aircraft to an altitude of 1900ft and advised that it would be radar vectors for an NDB approach to Runway 05 at Coventry, which was all acknowledged by the pilot (Figure 1).

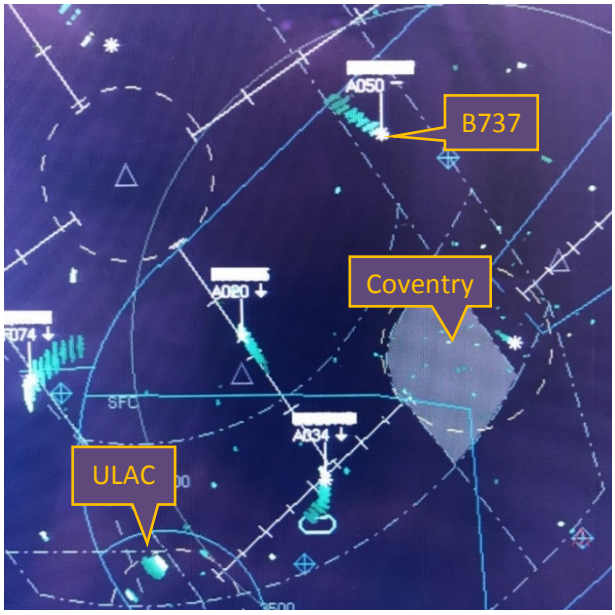


Figure 1 – 1021:58

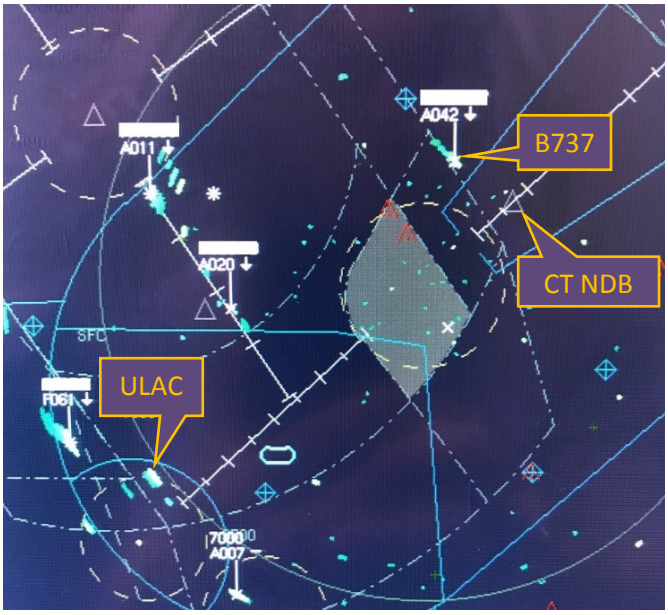


Figure 2 – 1023:10

At 1023:10 the controller instructed the B737 to leave the Coventry NDB ("CT") on a heading of 180 degrees, advised the pilot that the aircraft had just left controlled airspace, and requested the type of ATC service they required. The pilot requested a Basic Service, which was confirmed by the controller (Figure 2).

At 1025:05 the controller instructed the B737 to turn right onto a heading of 230° for downwind right-hand (Runway 05) (Figure 3).

At 1025:16 the radar contact believed to be the ULAC started to fade (Figure 4).

At 1025:44 the radar contact believed to be the ULAC reappeared (Figure 5), and at 1025:48 the controller descended the B737 to 1500ft.

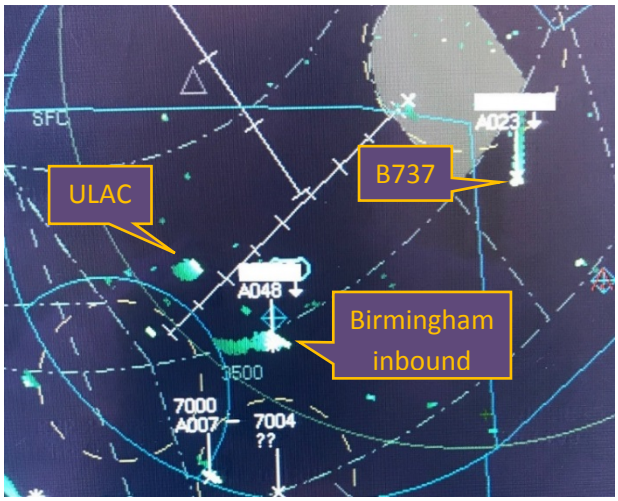


Figure 3 – 1025:05

Figure 4 – 1025:16

Figure 5 – 1025:44

At 1026:20 the controller instructed the B737 to turn right onto a heading of 300 degrees, advising that they were on base leg with 10 miles to touchdown (Figure 6).

At 1027:15 the controller instructed the B737 to run right onto a heading of 020 degrees, advising the pilot that they were closing the final approach track from the right at 7 miles (Figure 7).

At 1027:38 the controller advised the B737 that they had: *"pop-up traffic north of you by one mile, primary only er, whether it's just a microlight but er just started painting er in front of you"* (Figure 8).

The B737 pilot replied: *"okay, we're visual, it looks like he's going straight through our track. We're going to need a left orbit immediately".*

Figure 6 – 1026:20

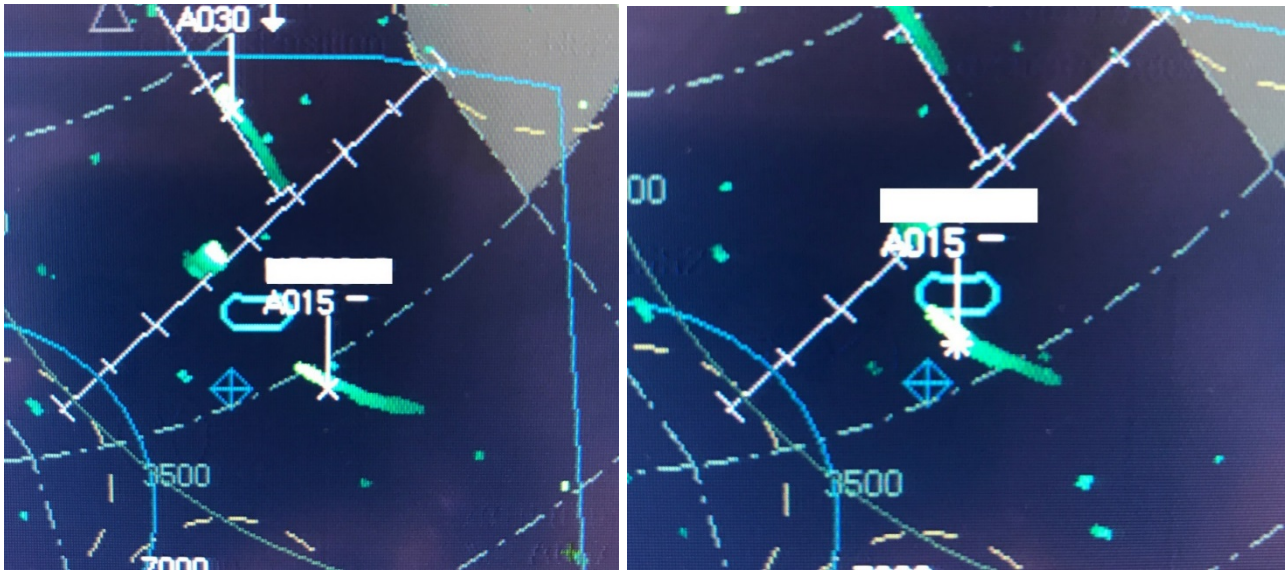


Figure 7 – 1027:15

Figure 8 – 1027:38
(B737 label overlaying ULAC return)

The controller responded (at 1027:50), *"roger – turn left"* (Figure 9).

Figure 9 – 1027:50

Figure 10 – 1028:11

At 1027:56 the pilot reported: *"yeah he's on exactly our level and, er yeah, that's very close".* They reported that they couldn't see the registration, but reported it as a blue microlight (Figure 10 at 1028:11)

CPA could not be measured, but was estimated to take place between 1028:11 and 1028:18 (Figure 12), when the left turn implemented by the B737 could be seen. The B737 pilot subsequently stated in their written report, that the lateral distance was 1nm with both aircraft being at the same level. (Centreline range markers are 1nm intervals).

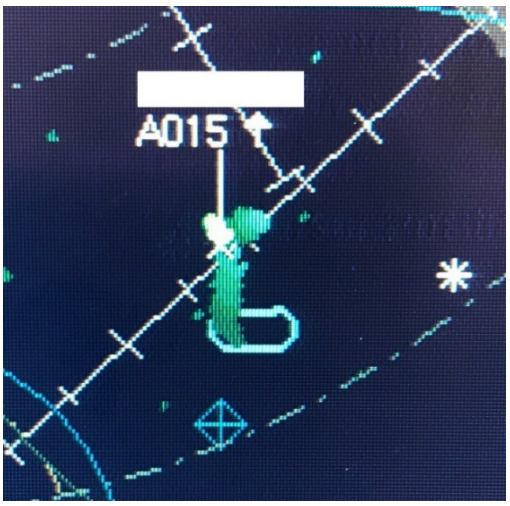


Figure 11 – 1028:18

Due to staffing levels, the Coventry radar was not being manned continuously, and the controller believed that they would not have been in position much before the B737 first called. They admitted at interview that the acceptance clearance, (routing to the "CT" NDB at 5000ft) given to Birmingham ATC, was based on the wrong runway. The controller believed that they had it in mind that the runway in use at Coventry was RW23, whereas in reality it was RW05. Coventry ATC advise Birmingham which runway is in use when the watch at Coventry commences, and then of any subsequent changes of runway. However there would have been no reason for Birmingham to query the clearance issued by the Coventry controller. All subsequent actions by the Coventry controller were based on an approach to RW05.

At interview the controller was asked when they first saw the primary contact believed to be the ULAC, and secondly, when they considered it to be relevant traffic. The controller could not remember when they first saw the ULAC, but up until the moment (at 1027:38), when they passed traffic information to the B737 after having instructed the aircraft to turn onto a closing heading for final approach, they believed that they had discounted the radar contact as being another aircraft.

At interview the controller was asked why the B737 was only given a Basic Service, but subsequently vectored for the NDB. They agreed that a Traffic Service would have been more appropriate, but had been confident that at any moment the B737 would call visual with the aerodrome, (and subsequently allowed to self-position for a visual approach – something which the controller stated was a fairly common occurrence). The subsequent service provided by the controller was akin to a Traffic Service in all but name.

In accordance with the UK Air Pilot:

> *A pilot shall determine the appropriate service for the various phases and conditions of flight and request that service from the controller/FISO.*[1]

It is not clear why the pilot requested a Basic Service in what is considered to be, at frequent times, busy Class G airspace.

When the controller passed traffic information on the ULAC to the B737, they described it as "pop-up traffic". Analysis of the Coventry radar replay showed that the contact was displayed as a strong contact throughout the period running up to the Airprox, apart from a 28 second period where it disappeared whilst the B737 was turning and running downwind right hand. The controller agreed that in reality, the contact could not be described as "pop-up" having continued to be displayed for nearly 2 minutes after having reappeared on the radar display.

Having passed traffic information on the ULAC, the B737 pilot was able to visually acquire the aircraft and it was the pilot's decision to make a left turn to avoid.

The controller appeared to have been distracted throughout this period by their initial mistake regarding the runway in use. Further, the B737 turned onto the prescribed 180 degree heading before reaching the NDB, and, as a consequence, re-entered Birmingham controlled airspace, effectively without a clearance to do so, uncoordinated by the Coventry controller. Birmingham ATC rang Coventry to point this out and to formally coordinate this re-entry. When the Coventry controller answered the telephone call from Birmingham, they were expecting a conversation about what runway was actually in use at Coventry. Consequently, the Coventry controller was somewhat thrown when the telephone call turned out to be about the B737 infringing Birmingham's controlled airspace.

UKAB Secretariat

The B737 and unknown aircraft pilots shared an equal responsibility for collision avoidance and not to operate in such proximity to other aircraft as to create a collision hazard[2]. If the incident geometry is considered as overtaking then the unknown aircraft pilot had right of way and the B737 pilot was required to keep out of the way of the other aircraft by altering course to the right[3].

CAP493 Manual of Air Traffic Services states that when an aircraft is receiving a Basic Service:

> *Other than for the purposes of identification, a controller shall not issue specific heading instructions; however, generic navigational assistance may be provided on request. The controller is not obliged to provide such assistance and the pilot will not rely on its provision as part of Basic Service*[4]

Summary

An Airprox was reported when a B737 and an unknown aircraft flew into proximity at 1028 on Saturday 25th March 2017. The B737 pilot was operating under IFR in VMC and in receipt of a Basic

[1] AIP ENR 1.1-12 Para 2.2.2
[2] SERA.3205 Proximity.
[3] SERA.3210 Right-of-way (c)(3) Overtaking.
[4] CAP493 Manual of Air Traffic Services Section 1: Chapter 12: 2H

Service from Coventry; despite intensive tracing actions the unknown aircraft pilot could not be traced.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available consisted of reports from the pilot of the B737, 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 began first by discussing the actions of the Coventry controller. They were quick to agree that his issuing specific heading instructions to an aircraft on a Basic Service was not in accordance with CAA CAP493 regulations and opined that the controller should have questioned the B737 pilot's request and highlight that he could not provide vectors under a Basic Service. The discussion then turned to the AC2 radar return and when it would have been visible to the controller. Whilst the return was not visible on the area radars, the ATSI report showed that it was seen as a definite contact on the Coventry radar and ATC members could not understand why the Coventry controller had discounted the unknown aircraft contact without at least passing TI to the B737 pilot. The Board wondered if the controller had become fixated on the B737 pilot carrying out a visual approach and, having also been surprised by the Birmingham controller's call about the uncoordinated airspace penetration, whether this had all detracted from him giving sufficient attention to the unknown radar contact thereby not passing TI and ultimately vectoring the B737 towards the confliction.

The Board then looked at the actions of the B737 pilot. Given the somewhat restricted view from the cockpit and the relative non-manoeuvrability of the aircraft, members were surprised that the pilot had elected to request a Basic Service after leaving controlled airspace. Some members wondered if the crew were not used to operating in Class G airspace and therefore not familiar with the ATC service definitions. The Board members unanimously agreed that operating a B737 under Basic Service was not appropriate for the type of busy airspace that the aircraft was within, and opined that the aircraft's operator would be well served in reviewing and emphasising to its pilots which ATC services were appropriate in such airspace. Some members also commented on the fact that the B737 pilot had not routed over the NDB but had turned prior to the facility. Although not germane to the Airprox, there was a discussion about how early turns were acceptable when flying en-route but were not when carrying out an instrument approach when the pilot must fly over the beacon to conform to the standard instrument approach profile. Members agreed that although this had had no impact upon the Airprox *per se*, it had likely caused a distraction to the controller as he responded to Birmingham.

The Board then considered the cause and risk of the incident. Accepting the fact that in Class G airspace under a Basic Service the B737 pilot was required to avoid the unknown aircraft that he was overtaking (which he did), members quickly agreed that the incident had been caused by the Coventry controller issuing heading instructions to the B737 pilot which had resulted in the conflict with the unknown aircraft. As a result the Board agreed that the cause was the Coventry controller had vectored the B737 into conflict with the unknown aircraft. Although the B737 had been vectored towards the unknown aircraft, the Board agreed that, in this instance, the B737 had been visual with the unknown aircraft early enough to carry out timely and effective actions to maintain separation. Although safety had been degraded, there had been no risk of collision; accordingly, the Board assessed the risk as Category C.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: The Coventry controller vectored the B737 into conflict with the unknown aircraft.

Degree of Risk: C.

Safety Barrier Assessment[5]

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

ANSP

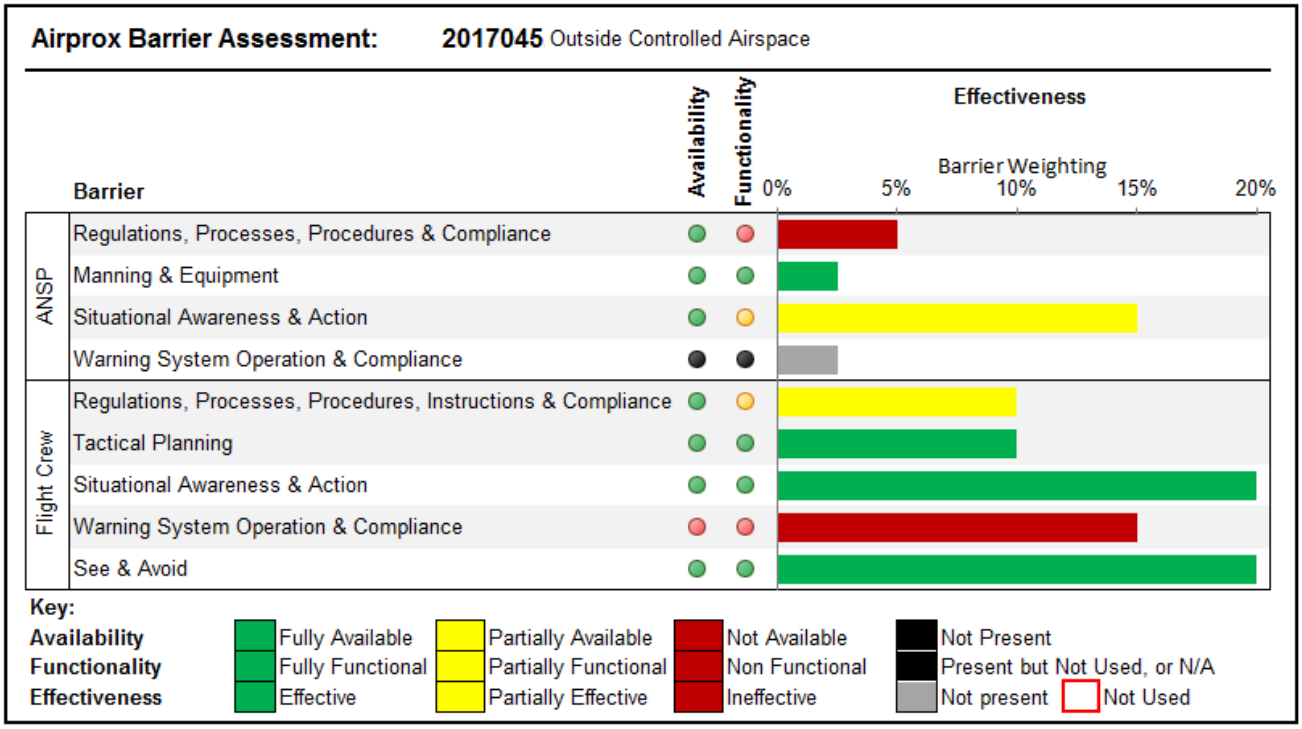
Regulations, Processes, Procedures & Compliance was assessed as **ineffective** because in providing vectors to the B737 pilot whilst receiving a Basic Service, the Coventry controller did not comply with CAP493 Manual of Air Traffic Services. Also, the Topographical Air Chart of the United Kingdom only displays the Instrument Approach Procedure (IAP) 'feathers' for RW23 at Coventry, not RW05, even though there are IAPs on both RW23 and RW05. Had the feathers been depicted, the unknown aircraft's pilot may have adjusted his route to avoid the RW05 IAP. [UKAB Note: Coventry has since downgraded its service from ATC to AGCS and so the depiction of feathers on RW05 was now not an issue to pursue for resolution].

Situational Awareness & Action was assessed as **partially effective** because although the Coventry controller became aware of the unknown aircraft, he did not seen it early enough to provide sufficient TI to the B737 pilot, and vectored the B737 into conflict.

Flight Crew

Regulations, Processes, Procedures, Instructions & Compliance were assessed as **partially effective** because although the B737 pilot was effectively receiving radar vectors and a TS, he had only asked for what was considered an inappropriate Basic Service in that airspace.

Warning System Operation and Compliance was assessed as **ineffective** because although the B737 was fitted with TCAS II it could not alert due to the unknown aircraft not transponding.



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