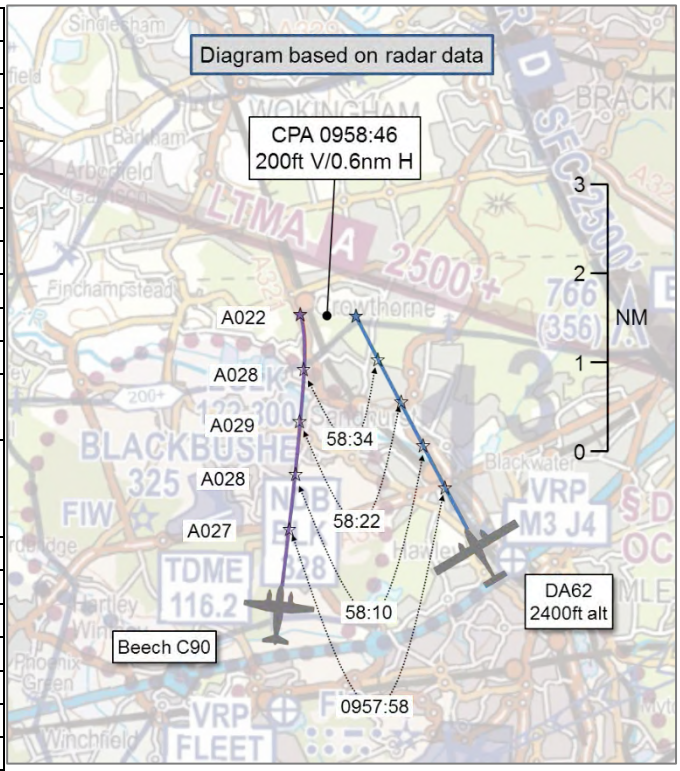
AIRPROX REPORT No 2018103

Date: 01 Jun 2018 Time: 0959Z Position: 5121N 00048W Location: 6nm N Farnborough

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	DA62	BE90
Operator	Civ Comm	Civ FW
Airspace	London FIR	London FIR
Class	G	G
Rules	IFR	IFR
Service	Traffic	Traffic
Provider	Farnborough	Farnborough
Altitude/FL	2200ft	2400ft
Transponder	A,C,S	A,C,S
Reported		
Colours	Mainly white	White with black/red stripes
Lighting	Strobes, position,	Strobes, nav, recognition, beacon
Conditions	IMC	IMC
Altitude/FL	2400ft	3400ft ↓ 2000ft
Altimeter	QNH (1018hPa)	QNH
Heading	350°	North
Speed	155kt	200kt
ACAS/TAS	TAS	TCAS I
Alert	TA	TA
Separation		
Reported	Not seen	Not seen
Recorded	200ft V/0.6nm H	



THE DIAMOND DA62 PILOT reports that, approximately 10nm South of Farnborough, they heard an exchange between ATC and the BE90 pilot where it appeared that the pilot had commenced a descent whilst in the Farnborough climb-out lane. They observed the event on their TAS and commented that they could see the BE90 climb back to 3400ft. A few minutes later, about 2nm northeast of Farnborough, ATC passed mutual Traffic Information to both pilots. Both pilots commented that they could see each other on their respective traffic systems. At that time, they were in straight-and-level flight in BKN cloud with occasional ground contact (IMC). After passing Traffic Information about them to the BE90 pilot, ATC cleared the BE90 pilot to 'descend at his discretion'. The BE90 continued on a closing heading from the left and commenced a descent through their level. They closely monitored his progress. Their TAS changed from an awareness display (black diamond) to a conflict alert (yellow circle) and at that point he decided to initiate an avoiding turn to the right, informing ATC of the fact. During the turn their Flight Inspector glimpsed an aircraft passing slightly below them crossing left-to-right in their 4 o'clock position; neither pilot observed the aircraft but best estimates were of a vertical separation of 100ft, at less than 0.5nm. Once they perceived the conflict no longer existed they turned back on track and informed ATC that they would be filing an Airprox report.

He assessed the risk of collision as 'Medium'.

THE BEECH 90 (BE90) KING AIR PILOT reports that he was operating an IFR flight inbound to Elstree. He left Controlled Airspace (CAS) by descent and transferred to Farnborough, who provided a Traffic Service. They advised him of traffic they had climbing to 2400ft. He was level at 3400ft. Subsequently, to avoid CAS, he started to descend and advised Farnborough, who asked him to maintain altitude. He climbed back to 3200ft. As he was approaching the Heathrow Zone, traffic appeared on TCAS. Farnborough asked if he could see the traffic, which he could not. He was also

advised about the proximity of the Heathrow Zone. Therefore, to avoid the traffic and the Zone he turned left onto a westerly heading and descended to about 1800-2000ft. He did not see the other aircraft except on TCAS.

He assessed the risk of collision as 'Not significant'.

THE FARNBOROUGH APPROACH/LARS WEST CONTROLLER reports that the two positions were bandboxed in light traffic. The DA62 pilot was routing northbound at 2400ft, in receipt of a Traffic Service, to the east of Farnborough to deconflict against departing IFR traffic from RW24. The BE90 was leaving CAS descending to 4000ft routing to ROVUS. He instructed the BE90 pilot to descend to 3400ft and told him about traffic departing from Farnborough climbing to 2400ft. The BE90 pilot reported that he was going to continue descent and was told to maintain 3400ft. Departing traffic was given avoiding action because the BE90 was indicating 3000ft at ROVUS. Due to the increase in workload of 2 departures and 2 LARS free-callers, the BE90 pilot was not informed that he was under a Traffic Service, but that was the *de facto* service being provided. The BE90 pilot was told he was clear of traffic and to descend at his discretion; Traffic Information was passed on the DA62. The pilot replied that he 'had it on the box'. The DA62 pilot was then given Traffic Information on the BE90. The BE90 was overtaking the DA62 but continued to fly towards it and to descend to the same level. They were both flying towards CAS with a base of 2500ft and had to descend underneath. The BE90 pilot was reminded of this and updated Traffic Information was passed. The DA62 pilot asked for an avoiding action turn to the right; he told him that he could turn but must remain outside CAS. Both pilots were under a Traffic Service and on their own navigation; the 2 aircraft turned away from each other but the DA62 pilot reported on the R/T that he would be filing an Airprox.

Factual Background

The weather at Farnborough was recorded as follows:

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EGLF 011020Z 17005KT 9999 SCT018 20/18 Q1018=
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Analysis and Investigation

CAA ATSI

At 0945:39 the DA62 pilot established communication with the Farnborough Approach controller. He reported 3nm west of Shoreham at 2400ft, routing north to [destination], and requested a Traffic Service. The controller passed the QNH and instructed the pilot to select SSR code 0431. The DA62 was identified at 0946:19 and a reduced Traffic Service was agreed due limits of radar coverage.

The BE90 pilot established communication with the controller at 0946:43 (Figure 1), descending to 4000ft routing direct to ROVUS. The controller issued the QNH and instructed the pilot to descend to 3400ft. The pilot read back the instruction and QNH correctly.

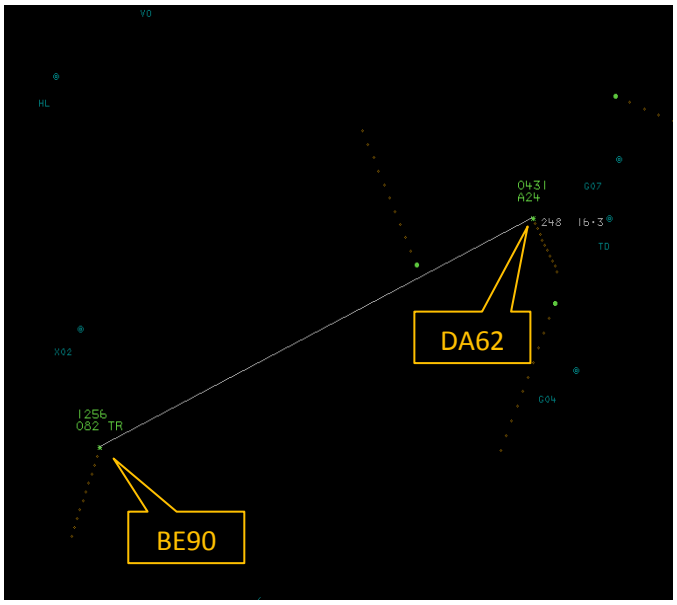


Figure 1 – 0946:43.

At 0954:14, the controller passed Traffic Information to both the BE90 and the DA62 pilots on an aircraft departing from Farnborough that was climbing to 2400ft.

At 0955:01 (Figure 2), the controller asked the BE90 pilot if there were happy to route from ROVUS to Elstree under their own navigation which the pilot stated that they were.

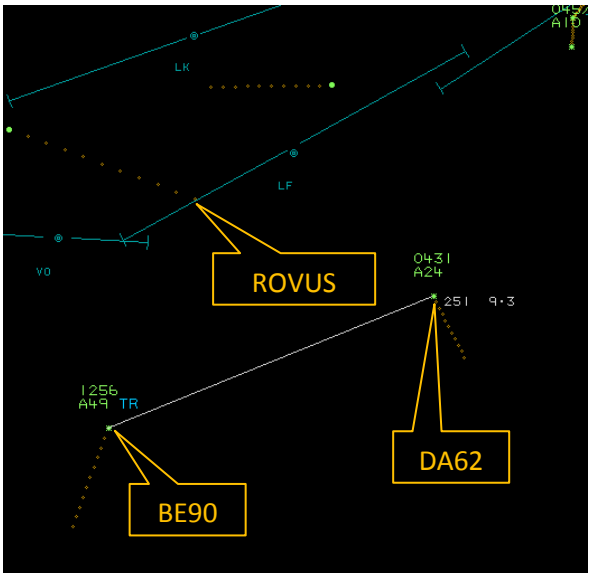


Figure 2 – 0955:01

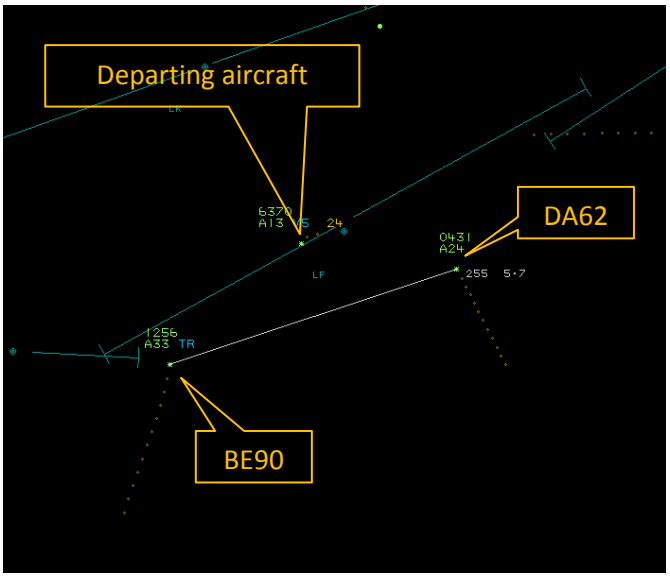


Figure 3 – 0956:15

At 0956:15 (Figure 3), the BE90 pilot informed the controller that they were continuing their descent to 2400ft. The controller instructed the pilot to maintain 3400ft and passed Traffic Information on the aircraft departing from Farnborough climbing to 2400ft.

At 0956:30 (Figure 4), the pilot of the departing aircraft, displaying SSR code 6370, established communication with the controller, climbing to 2400ft, heading 220°. The BE90 had already descended below 3400ft and the controller issued the departing traffic with avoiding action to turn left heading 160° and passed Traffic Information on the BE90. Once the confliction was resolved, a Deconfliction Service was agreed between the controller and the aircraft displaying 6370.

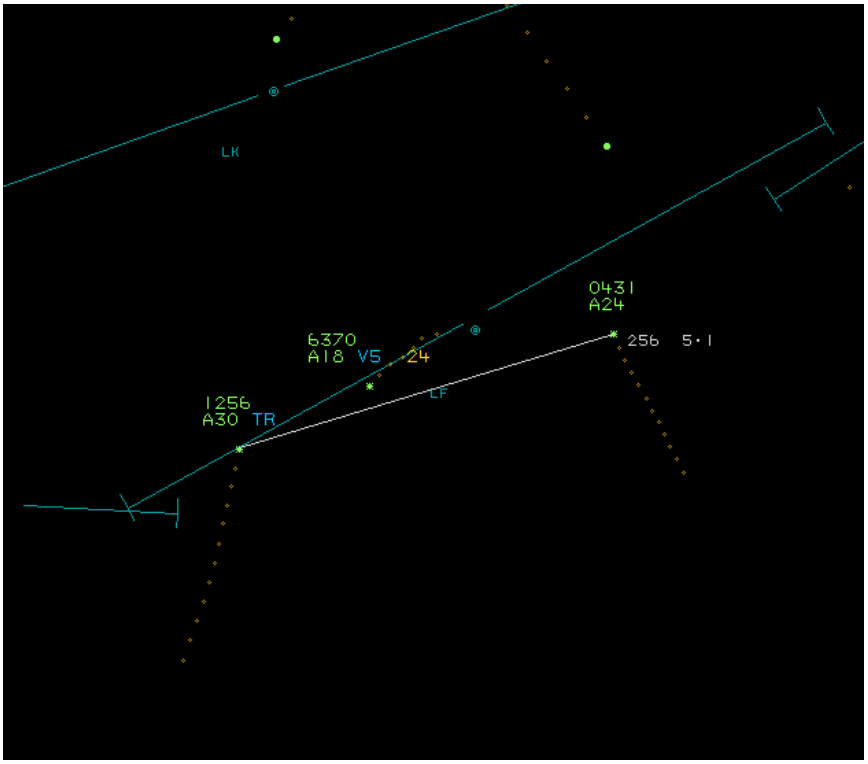


Figure 4 – 0956:30.

At 0956:53 (Figure 5), the controller passed Traffic Information to the DA62 pilot on the BE90. The controller then informed the BE90 pilot that they were now clear of the departing aircraft and passed Traffic Information on the DA62. The controller instructed the BE90 pilot to descend at their discretion. The DA62 pilot stated that they had the BE90 on 'TCAS' and the BE90 pilot copied the traffic and read back the instruction to descend at their discretion.

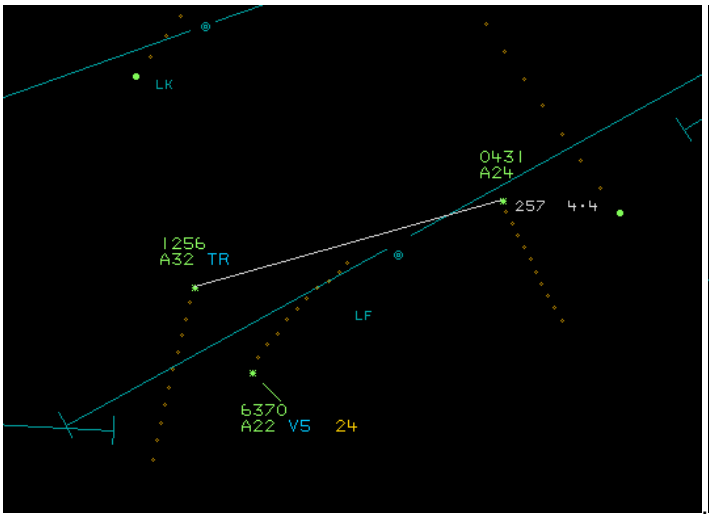


Figure 5 - 0956:53.

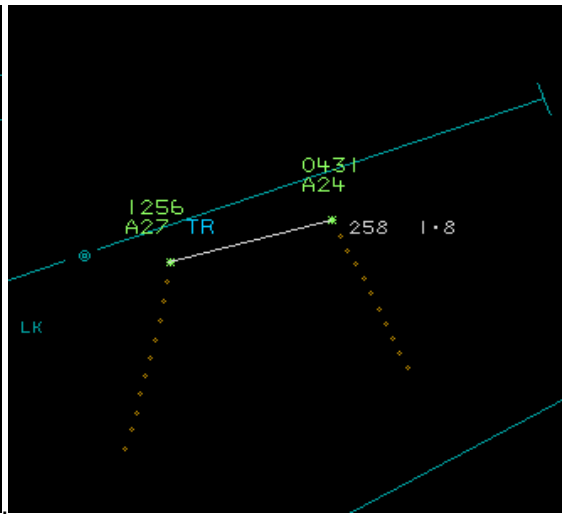


Figure 6 – 0958:01.

At 0958:01 (Figure 6), the DA62 pilot asked what the BE90 was doing because it was heading straight at them. The controller passed further Traffic Information and the DA62 pilot asked if the BE90 was turning. The controller informed the DA62 that the BE90 was tracking north.

At 0958:18 (Figure 7), the controller asked the BE90 pilot if they were visual with the aircraft on their right-hand side. The pilot reported that they were not visual but had the aircraft on TCAS. The controller then warned the BE90 pilot that they were about to infringe the CAS ahead of them by 1.5nm which had a base of 2500ft. The pilot reported that they were descending.

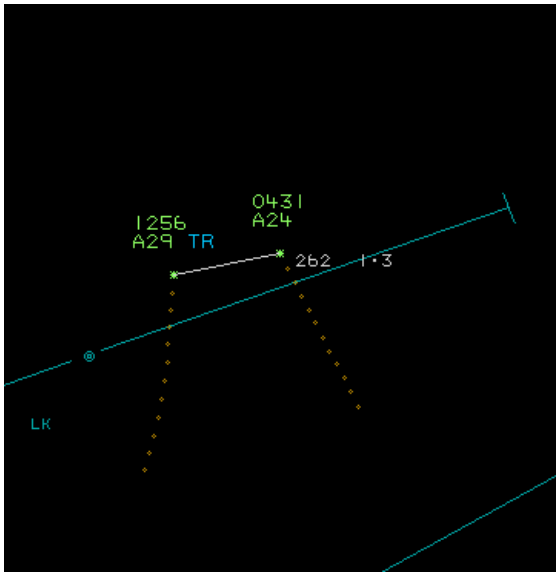


Figure 7 – 0958:18.

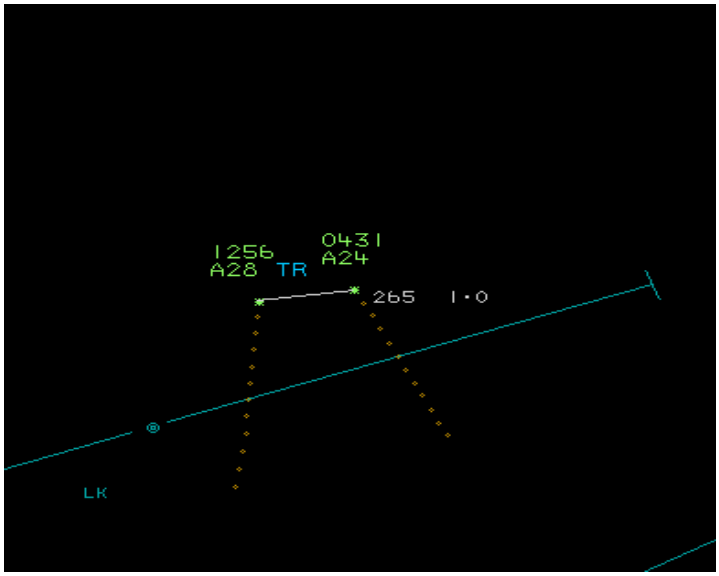


Figure 8 – 0958:30.

At 0958:30 (Figure 8), the DA62 pilot requested an avoiding action turn to the right onto 090° from the controller. The controller approved the turn but reminded the pilot to remain outside CAS. The pilot stated that they were turning right to avoid the other aircraft.

CPA occurred at 0958:46 (Figure 9), with the radar indicating 0.6nm horizontally and 200ft vertically between the aircraft. At this point the radar showed the BE90 pilot had initiated a turn to the left.

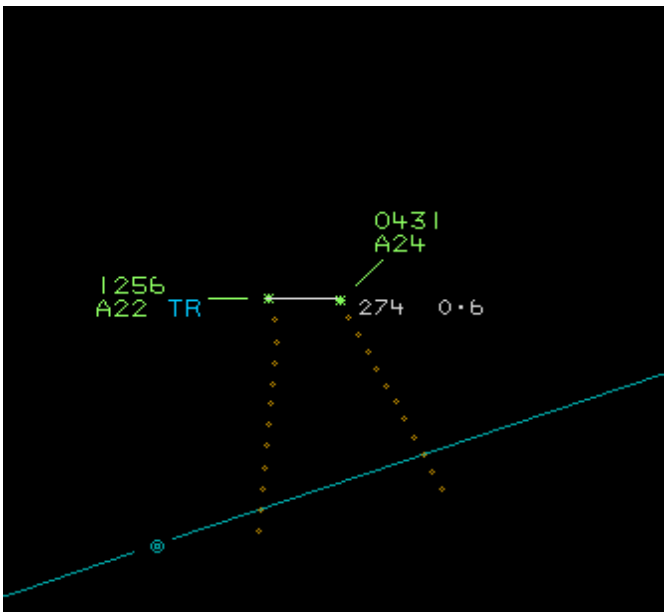


Figure 9 – 0958:46.

At 0958:58 the controller passed Traffic Information to the DA62 pilot stating that the BE90 had turned to the left to track northwest at 1700ft. The pilot copied the Traffic Information and stated that they would be filing an Airprox.

At the time of the Airprox the DA62 pilot was receiving a Traffic Service from the Farnborough Approach controller. The controller stated in their report that, due to workload, the BE90 pilot had not been informed that they were receiving a Traffic Service on leaving CAS but that this was the service that was being provided.

CAP 493 (Manual of Air Traffic Services Part 1)[1] states:

> *'Pilots must be advised if a service commences, terminates or changes when leaving controlled airspace:*
>
> > *(a) unless pilots are provided with advance notice in accordance with the paragraph below; or*
> > *(b) except when leaving controlled airspace in connection with an IFR flight holding in Class E airspace.*
>
> *For flights leaving controlled airspace controllers should provide pilots with advance notice of:*
>
> > *(1) the lateral or vertical point at which the aircraft will leave controlled airspace. Such notice should be provided between 5-10 nm or 3000-6000 ft prior to the boundary of controlled airspace;*
> > *(2) the type of ATS that will subsequently be provided, unless the aircraft is coordinated and transferred to another ATS unit before crossing the boundary of controlled airspace.'*

The BE90 pilot's report stated that they understood that they were in receipt of a Traffic Service and the fact the pilot informed the controller of a level change (descending to 2400ft at 0956:15) is consistent with the agreement of a Traffic Service.

[1] Section 1, Chapter 6, Page 2.

CAP 774 (UK Flight Information Services)[2] states:

'Pilots may select their own operating levels or may be provided with level allocations by the controller for the positioning and/or sequencing of traffic or for navigational assistance. If a level is unacceptable to the pilot he shall advise the controller immediately. Unless safety is likely to be compromised, a pilot shall not change level or level band without first advising and obtaining a response from the controller, as the aircraft may be co-ordinated against other airspace users without recourse to the pilot.'

CAP 774[3] also states

'Pilots remain responsible for collision avoidance, even when flying at a level allocated by ATC and shall advise the controller in the event that they need to deviate from a level in order to comply with the Rules of the Air with regard to collision avoidance.'

The Airprox took place in Class G airspace therefore separation between aircraft is ultimately the responsibility of the pilot.

UKAB Secretariat

The DA62 and BE90 pilots shared an equal responsibility for collision avoidance and not to operate in such proximity to other aircraft as to create a collision hazard[4]. If the incident geometry is considered as converging then the BE90 pilot was required to give way to the DA62[5]. If the incident geometry is considered as overtaking then the DA62 pilot had right of way and the BE90 pilot was required to keep out of the way of the other aircraft by altering course to the right[6].

Summary

An Airprox was reported when a DA62 and a BE90 flew into proximity at 0959hrs on Friday 1st June 2018. Both pilots were operating under IFR in IMC, and in receipt of a Traffic Service from Farnborough Approach/LARS West.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available included reports from both pilots, the controller concerned, area radar recordings and reports from the appropriate ATC and operating authorities.

The Board noted that both pilots were transiting northbound, on potentially conflicting flight-paths, towards the London TMA where the base is 2500ft. The BE90 was to the left of the DA62 and travelling about 50kt faster. Both were in receipt of a Traffic Service from Farnborough LARS, albeit that the BE90 pilot had not been informed of the service being provided. However, it was the intention of the controller to provide this service and the BE90 pilot had stated in his report that he had been in receipt of a Traffic Service. Both pilots were operating under IFR in IMC.

In reviewing the circumstances of the incident the Board first discussed the timing and actions of those involved so that they could understand who knew what at which time. Members noted that, initially, the two aircraft were separated by 1000ft, purely as a result of the controller providing separation between the BE90 and departing traffic from Farnborough, whose pilot was in receipt of a Deconfliction Service. The DA62 pilot had been maintaining 2400ft and the BE90 pilot had been instructed to descend to 3400ft to keep the aircraft separated from the outbound traffic from Farnborough climbing to 2400ft. However, the BE90 pilot subsequently informed the controller that he was descending to 2400ft, presumably to ensure he would remain outside CAS. The controller instructed the pilot to

[2] Chapter 3, Page 29.
[3] Chapter 3, Pages 29/30.
[4] SERA.3205 Proximity.
[5] SERA.3210 Right-of-way (c)(2) Converging.
[6] SERA.3210 Right-of-way (c)(3) Overtaking.

maintain 3400ft and issued him with updated Traffic Information about the outbound aircraft. He had already informed both pilots that there was a departing aircraft climbing to 2400ft; because the BE90 pilot had already started to descend, avoiding action was issued to the outbound aircraft. Once clear of this traffic the BE90 pilot was instructed to descend at his discretion and issued with Traffic Information about the DA62, whose pilot was also given Traffic Information. The BE90 was passing west of Farnborough airfield at 3200ft, about 6nm from the TMA boundary. The two aircraft were now 4.4nm apart. The Board agreed that the DA62 pilot was obviously concerned about the proximity of the BE90, and had queried what it was doing because 'it was heading straight at them'. Further Traffic Information was then issued; the two aircraft were now 1.8nm apart. Shortly afterwards the controller asked the BE90 pilot if he had visual contact with the DA62, which he did not. However, he reported that he had the aircraft on TCAS. The controller warned him about the CAS 1.5nm ahead and he reported descending. Due to the proximity of the BE90 seen on his TAS display, the DA62 pilot requested an avoiding action right turn, which was approved. The BE90 pilot also changed direction and made a left turn.

The Board then discussed whether the Farnborough controller had acted in accordance with the Traffic Service procedures stated in CAP774 (UK Flight Information Services). Several members, although understanding the reason for the controller to instruct the BE90 pilot to maintain 3400ft, wondered whether the controller was entitled to direct a pilot to maintain a specific altitude under a Traffic Service. CAP774 states that pilots may be provided with level allocations and can advise the controller if this is unacceptable. Turning to the piloting issues, when in receipt of a Traffic Service, CAP 774 states that 'a pilot shall not change level without first advising and obtaining a response from the controller'. On this occasion, the BE90 pilot did advise the controller that he was descending but had not received a response before commencing his descent. Members thought it understandable why the BE90 pilot had wished to commence descent because of the CAS ahead, but they determined that he would still have had sufficient space to descend even after the controller had subsequently cleared him to descend at his discretion. Nevertheless, if the pilot had been advised by the controller of the situation and been informed when he was likely to get descent, it might have removed any concern in his mind about having sufficient space to descend.

Bearing in mind the marginal weather conditions, the Board wondered why neither pilot had requested a Deconfliction Service. It was not known whether the controller would have been able to provide the service, because neither pilot requested it, but he did report that his position was experiencing light traffic. If he had been able to do so it would have ensured that the controller would have aimed to provide appropriate deconfliction minima between the two aircraft. In the event, having only been asked to provide Traffic Services, the Board considered that the controller had complied with his obligations by issuing timely Traffic Information to both pilots; the pilots then remained responsible for ensuring their own collision avoidance in accordance with the rules of the air.

Turning to the actions of the BE90 pilot, because of his position relative to the DA62 he was required to give way to it. The Board noted that although he had been provided with Traffic Information about the DA62 and had seen it on his TCAS display, he had not changed his heading until virtually at CPA. Accordingly, it was agreed that the cause of the Airprox was that the BE90 pilot flew into conflict with the DA62. The Board then turned its attention to the collision risk. At CPA (200ft vertically and 0.6nm horizontally), both pilots had initiated turns away from each other. Notwithstanding, members felt that because they were both IMC at the time, safety had been degraded. However, because of the pilots' actions there had ultimately been no risk of a collision. Accordingly, the Airprox was assessed as risk Category C.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: The BE90 pilot flew into conflict with the DA62.

Degree of Risk: C.

Safety Barrier Assessment[7]

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

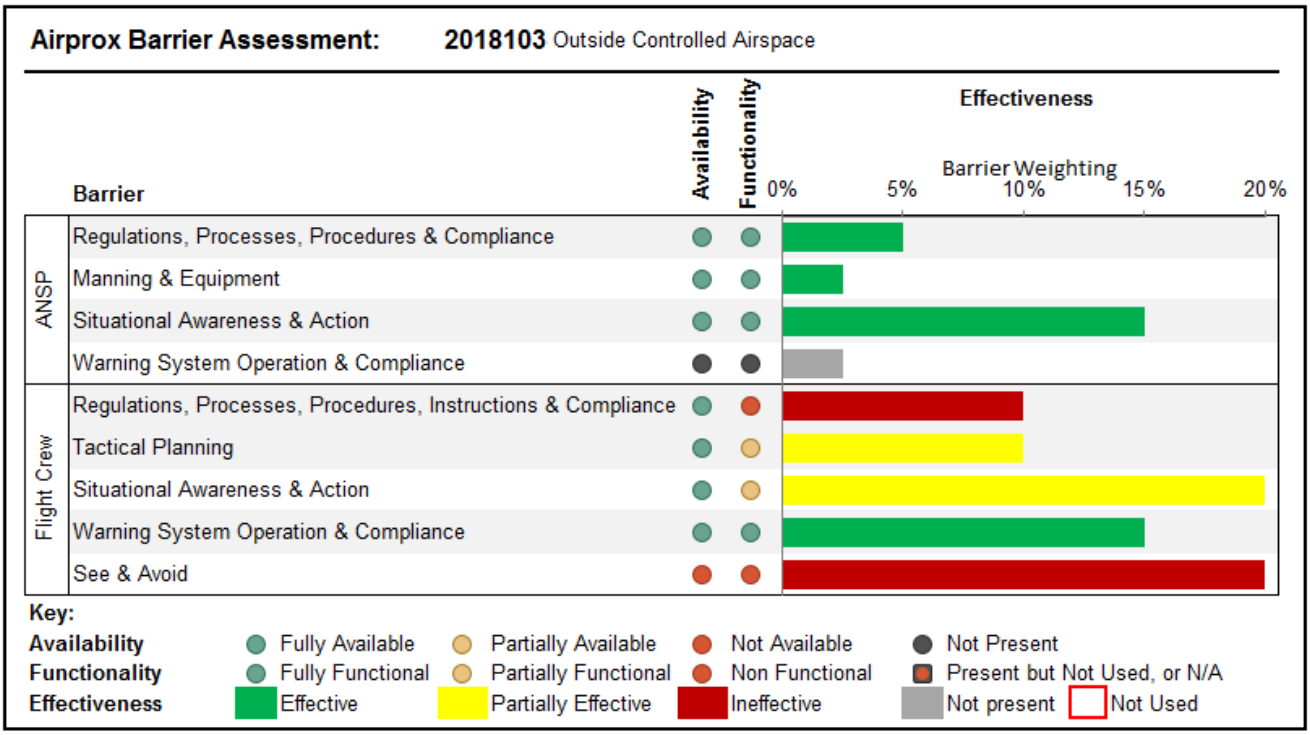
Flight Crew:

Regulations, Processes, Procedures, Instructions and Compliance were assessed as **ineffective** because the BE90 pilot did not give way to the DA42 sufficiently early.

Tactical Planning was assessed as **partially effective** because the BE90 pilot did not alter his plan in a timely manner to account for the DA42.

Situational Awareness and Action were assessed as **partially effective** because the BE90 pilot did not fully employ the available situational awareness provided by his TCAS and Traffic Information.

See and Avoid were assessed as **ineffective** because both pilots were unable to see the other aircraft because of the weather conditions.



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