AIRPROX REPORT No 2019078

Date: 21 Apr 2019 Time: 1646Z Position: 5053N 00125W Location: 4nm SW SAM VOR

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	Do228	C42
Operator	CAT	Civ FW
Airspace	CTR	CTR
Class	D	D
Rules	IFR	VFR
Service	Radar Control	Radar Control
Provider	Solent	Solent
Altitude/FL	FL18	FL16
Transponder	A,C,S	A,C,S
Reported		
Colours	Company	NK
Lighting	Anti-col, nav strobes	NK
Conditions	VMC	VMC
Visibility		20km
Altitude/FL	1850ft	1700ft
Altimeter	QNH	QNH
Heading	217°	310°
Speed	154kt	80kt
ACAS/TAS	TCAS II	Not fitted
Alert	RA	N/A
Separation		
Reported	50ft V/0.1nm H	200ft V/1km H
Recorded	200ft V/0.3nm H	

THE DORNIER 228 PILOT reports that as they were lining up for departure from RW20, the Aerodrome controller informed them of microlight traffic northbound up Southampton Water. Very shortly after taking off, while adhering to the noise-preferential routing, ATC cleared them to 4000ft and asked if they were visual with traffic left at 1900ft. They were climbing through about 1750ft. They looked left and saw a high-wing monoplane alarmingly close and approaching head on. He disconnected the autopilot and rolled approximately 10° right in preparation for any evasive manoeuvre if it became necessary. They visually tracked the intruder for maybe half a second and assessed it to be passing clear astern of their aircraft. When his eyes returned to the instrument panel, he saw the TCAS RA and noted that he was already compliant with it. The rest of the flight continued without any further incident.

He assessed the risk of collision as ' Low'.

THE COMCO IKARUS C42 PILOT reports that the Solent Radar controller gave updates on the position of aircraft. He descended to avoid the potential of wake turbulence.

He assessed the risk of collision as ' None'.

THE SOLENT CONTROLLER reports that he was operating the Solent and Southampton sectors combined on a busy Saturday afternoon with no split/co-ordinator available due staffing. The C42 pilot was cleared through CAS, routing Calshott-Totton not above 2000ft VFR. The Aerodrome controller requested release on the Do228 from RW20 as the C42 had just entered CAS at Calshott. He asked if the Do228 was lined up and ready, which was confirmed. Therefore he issued a release with Traffic Information about the C42. Traffic Information was also passed to the C42 pilot. Shortly after this a separate 7000 squawk entered the northwest corner of the CTA without a clearance at 4000ft and his attention was diverted to this as he continued to make blind calls to that aircraft with no response. The

Do228 took longer than anticipated to get airborne and departed when the C42 was 4nm south of the airport. He updated the C42 pilot on the departing Do228 and likewise to the Do228 pilot on the C42 when they checked in on frequency. The C42 pilot reported visual with the Do228 but the two aircraft were at a similar level as their paths crossed (STCA did alert). The Do228 pilot subsequently advised him that they had received a TCAS RA after departure, but confirmed they were now clear of conflict.

THE SOUTHAMPTON AERODROME CONTROLLER reports that the Do228 was released for departure by the Radar controller from RW20 with Traffic Information on a VFR overflight, not above 2000ft tracking northwest up Southampton Water. The Traffic Information was passed, acknowledged, and the pilot was cleared for take- off. After a short delay the Do228 commenced its take-off roll and was airborne at 1607. After the Do228 had been airborne for an appropriate time, the Traffic Information was updated, the C42 was 2nm due south of the departure at the time and the pilot was transferred to the Radar Controller.

Factual Background

The weather at Southampton was recorded as follows:

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METAR EGHI 1620Z 13007KT CAVOK 21/05 Q1016
METAR EGHI 1650z 12005KT 090V160 CAVOK 21/05 Q1016
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Analysis and Investigation

CAA ATSI

ATSI had access to reports from the pilots of both aircraft and the Southampton Aerodrome and Radar controllers. The area radar replay data and the unit R/T recordings were reviewed for the period of the incident. Screenshots produced in this report are provided using recordings from both the area radar recording and the Southampton radar recording. All times are UTC.

The Do228 was operating IFR from Southampton to Alderney, had just departed Southampton RW20 on a Standard South departure via NEDUL-Q41 and was in the climb to altitude 4000ft. The pilot had been instructed to transfer from the Tower to the Radar frequency. The Airprox occurred during the initial R/T call from the Do228 pilot to the Radar controller. The C42 was operating VFR on a training flight. The pilot had been cleared to transit the Southampton Control Zone from Calshott to Totton, not above altitude 2000ft VFR and was under a Radar Control Service from Southampton Radar at the time of the Airprox.

The following paragraph is an extract from the Southampton MATS Part 2:

> *'The Approach Control function at Southampton ATC normally has two operational positions available, namely "Solent Radar" and "Southampton Radar". These are normally combined using the Solent callsign. During periods of heavy traffic, the Solent position is supplemented by a second ATCO. The approach function is then split into Intermediate (INT), callsign "Solent Radar", and Final (FIN), "Southampton Radar".*

On the day of the Airprox, the Southampton Radar controller was operating solo due to staff shortages and was providing Radar Services for both Solent and Southampton. The Radar frequency was busy throughout the period that the R/T was reviewed. In the interest of brevity, only aircraft that were considered to have had a direct impact on the Airprox event have been included in this report.

At 1631:50, the Do228 was on stand and the Aerodrome controller issued the pilot with their ATC clearance in readiness for departure. The pilot was cleared on a Standard South departure via NEDUL, altitude 3000ft. The pilot provided an accurate readback and the controller issued engine start clearance.

At 1633:40, the C42 pilot made their initial call to the Southampton Radar controller. The controller was busy vectoring inbound aircraft and dealing with outbound and overflying aircraft and asked the pilot to standby.

At 1635:30, the Radar controller called the C42 pilot and established from the pilot that they were routeing initially via the Spinnaker Tower, were currently at 3000ft on QNH 1017hPa, and squawking 7000. A Basic Service was agreed, and the pilot was instructed to set QNH 1016hPa and squawk 3670.

At 1636:20, the Radar controller identified the C42 and the pilot confirmed that they were seeking to transit the Control Zone from Calshott to Totton at 1500ft. The controller advised the pilot to call 5nm to run to Calshott for their Zone entry clearance.

At 1639:30, the Radar controller issued a Zone entry clearance to the C42 pilot. This was to route Calshott to Totton, not above altitude 2000ft, VFR. The pilot provided a full and accurate readback.

At 1642:00, the Aerodrome assistant called the Radar controller and put the Do228 on request. The Radar controller obtained a clearance for the aircraft to climb to FL60 on a Standard South departure.

At 1642:30, the Radar controller advised the C42 pilot that they had entered the Southampton Control Zone and a Radar Control Service was agreed.

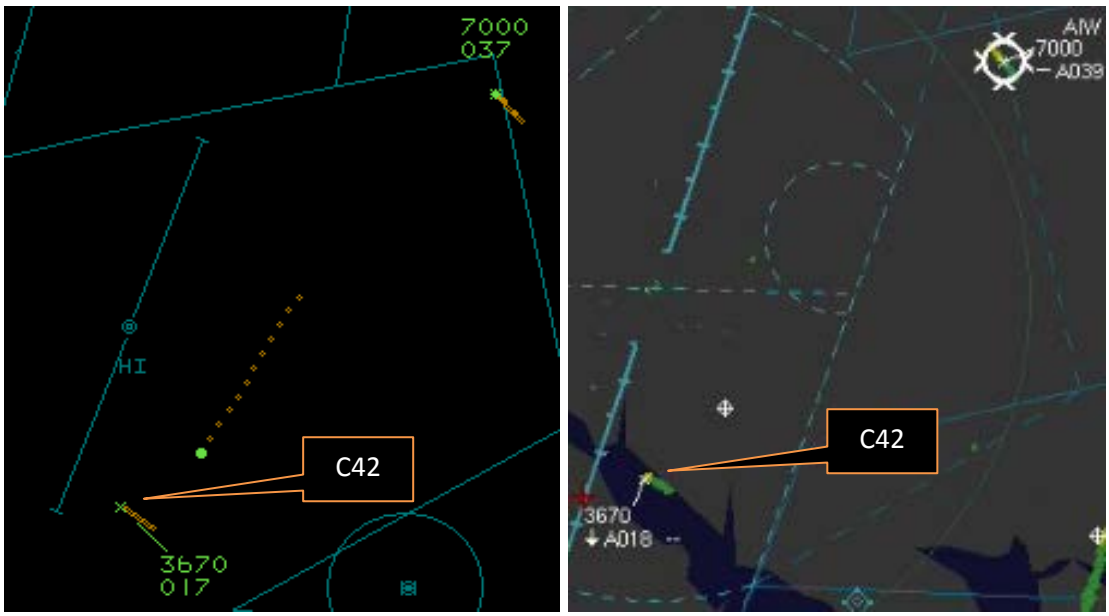
At 1643:00, the Aerodrome controller called to request release for the Do228. The Radar controller asked for confirmation that the aircraft was lined up ready for departure and this was confirmed. The Radar controller issued the Aerodrome controller with a release subject to the 3670 squawk, described as a C42, tracking up the 'water', not above 2000ft, VFR. The Aerodrome controller provided a full and accurate readback.

At 1643:20, the Radar controller passed Traffic Information to the C42 pilot advising that there would be a Do228 departing RW20 shortly, climbing southbound IFR, through their level. The pilot responded that they had copied the traffic.

At 1643:30, the Aerodrome controller passed Traffic Information to the Do228 pilot advising them that there was a C42 currently 6nm south of the field, tracking up Southampton Water northwesterly, not above altitude 2000ft, VFR. The pilot responded that they had copied the traffic and the controller cleared the Do228 pilot for take-off.

Between 1643:40 and 1644:30, the Radar controller made several attempts to call an unrelated aircraft that subsequently entered the northeast corner of Southampton Controlled Airspace without a clearance. The pilot did not respond.

At 1644:50, the Radar controller updated the Traffic Information to the C42 pilot advising that the Do228 was just departing now RW20. The pilot responded with 'roger' and 'thank you'. Figure 1 shows both the Area radar and Southampton radar replays at this time.



Area Radar Southampton Radar.

Figure 1-1644:50

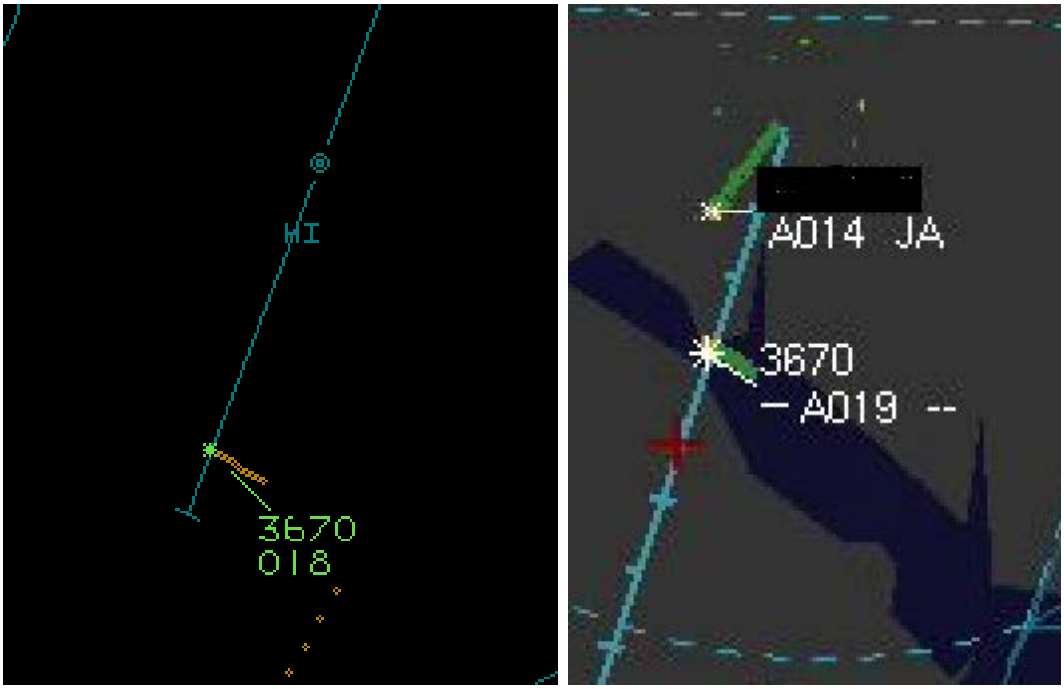
At 1645:00, the Radar controller attempted to contact the unrelated Zone infringer again with no response from the pilot.

At 1645:40, the Radar controller asked the C42 pilot if they were visual with the Do228 advising that it was now 2nm north of them, southbound. The pilot responded that they were not visual but looking. Figure 2 again shows both the Area radar and Southampton radar replays at this time, the Do228 is not yet visible on the Area radar but is displaying on the Southampton radar.

Area Radar Southampton Radar

Figure 2-1645:40

At 1646:00, the Aerodrome controller updated the Traffic Information to the Do228 pilot, advising them that the C42 was now 2nm due south of them and instructed the pilot to change to the Radar frequency. The pilot responded with *"Solent Radar callsign"*. At the same time, the C42 pilot reported visual with the Do228 and the Radar controller acknowledged. Figure 3 shows both the Area radar and Southampton radar replays at this time, the Do228 is still not yet visible on the Area radar but is displaying on the Southampton radar.



Area Radar Southampton Radar

Figure 3-1646:00.

At 1646:10 (Figure 4), the Do228 pilot made his initial call to the Radar controller advising that they were airborne and passing 1600ft on the noise abatement route. The controller asked the pilot if they were visual with the C42 just south of them at 1900ft. The pilot responded with negative.

Area Radar Southampton Radar

Figure 4-1646:10 .

At 1646:20 the controller instructed the Do228 pilot to climb to altitude 4000ft. The pilot asked the controller to repeat the instruction.

CPA occurred at 1646:30 (Figure 6), with the aircraft separated by 0.3nm laterally and 200ft vertically.

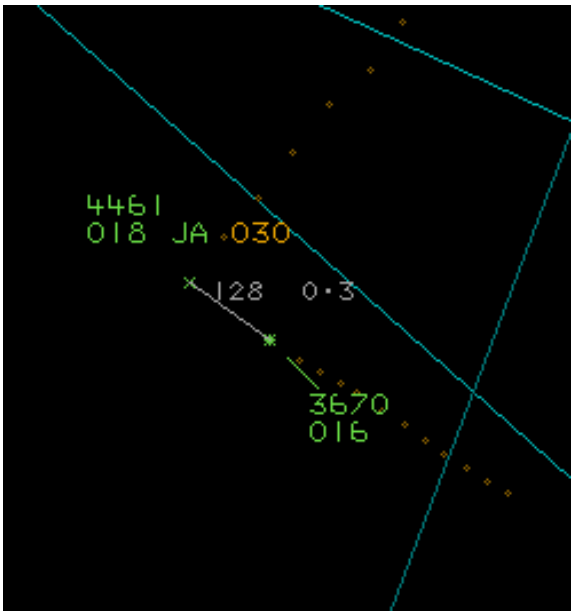


Figure 5-1646:30 CPA (Area Radar).

At 1646:30, the controller repeated the instruction and then advised the pilot that the C42 pilot had them in sight, was at a similar level and around the same position.

At 1646:40, and at the same time that the Do228 pilot responded with "OK copied", the C42 pilot was heard making a dual transmission, advising the controller that they had the Do228 in sight in their left 9 o'clock.

At 1646:50, the controller advised the Do228 pilot again that the C42 pilot had them in sight and had just passed behind them. The Do228 pilot advised the controller that they had experienced a Resolution Advisory. The controller acknowledged and asked the pilot if they were clear of conflict now. The pilot responded with 'affirm' and the controller instructed the pilot to maintain 4000ft on reaching.

RELEVANT UK AIP ENTRIES:

'EGHI AD 2.21 NOISE ABATEMENT PROCEDURES RUNWAY 20:

As soon as possible after passing 500 ft ALT, turn right to intercept VOR SAM RDL 217. Maintain RDL 217 until 2000 ft ALT If VOR SAM is unserviceable, as soon as possible after passing 500 ft ALT, turn right to maintain a track 217 MAG until 2000 ft ALT.'

RELEVANT CAP 493 ENTRIES:

'The Airprox occurred in Class D Airspace. The minimum services to be applied by ATC Units within Class D Airspace as defined in CAP 493 are:

(a) Separate IFR flights from other IFR flights;

(b) Pass traffic information to IFR flights and SVFR flights on VFR flights and give traffic avoidance advice when requested;

(c) Pass traffic information to VFR flights on all other flights and provide traffic avoidance advice when requested. '

Comment: The Do228 was departing IFR and the C42 was transiting the Control Zone VFR. The Aerodrome controller passed Traffic Information to the Do228 pilot just prior to issuing their take-off clearance at 1643:30, when the C42 was 6nm south of the aerodrome. The pilot would not have been in a position to assess whether traffic avoidance would be required at this point and the C42 was unlikely to have been sighted by the Do228 pilot at such a distance. The Traffic Information was updated at 1646:00, after the Do228 was airborne and the C42 was 2nm south of the Do228. No confirmation was received that the pilot had copied the Traffic Information or had the traffic in sight and the pilot was instructed to change frequency to Radar with the confliction unresolved.

Comment: The Radar controller passed Traffic Information to the C42 pilot on the Do228 at 1643:20, prior to the Do228 getting airborne and the Traffic Information was updated at 1644:50. At 1645:40 the Radar controller asked the C42 pilot if they had the Do228 in sight and received confirmation that they did not. At this point there was 2nm lateral distance between the two aircraft with the tracks still converging.

Section 1: Chapter 5: Control of VFR Flight:

'3.1 The minimum services provided to VFR flights in Class D airspace are specified at Section 1, Chapter 2, paragraph 2. Separation standards are not prescribed for application by ATC between VFR flights or between VFR and IFR flights in Class D airspace. However, ATC has a responsibility to prevent collisions between known flights and to maintain a safe, orderly and expeditious flow of traffic. This objective is met by passing sufficient traffic information and instructions to assist pilots to 'see and avoid' each other as specified at Section 3, Chapter 1, paragraph 2A.2.

3.2 Instructions issued to VFR flights in Class D airspace are mandatory. These may comprise routeing instructions, visual holding instructions, level restrictions, and information on collision hazards, in order to establish a safe, orderly and expeditious flow of traffic and to provide for the effective management of overall ATC workload.

3.3 Routeing instructions may be issued which will reduce or eliminate points of conflict with other flights, such as final approach tracks and circuit areas, with a consequent reduction in the workload associated with passing extensive traffic information. VRPs may be established to assist in the definition of frequently utilised routes and the avoidance of instrument approach and departure tracks. Where controllers require VFR aircraft to hold at a specific point pending further clearance, this is to be explicitly stated to the pilot.'

Comment: The Radar controller did not exercise the option in 3.3 above.

Section 2: Chapter 1: Aerodrome Control:

'Traffic Information and Instructions

7A.1 *Traffic information and instructions shall be passed to aircraft on any occasion that a controller considers it necessary in the interests of safety, or when requested by a pilot. In particular, Aerodrome Control shall provide:*

generic traffic information to enable VFR pilots to safely integrate their flight with other aircraft;

specific traffic information appropriate to the stage of flight and risk of collision;

timely instructions as necessary to prevent collisions and to enable safe, orderly and expeditious flight within and in the vicinity of the ATZ.'

Comment: The relative positions, heights and tracks of the two aircraft indicated that the confliction would arise 6nm south of the aerodrome and well outside the ATZ. The Aerodrome controller passed specific Traffic Information to the Do228 pilot on the C42 on two occasions.

RELEVANT SOUTHAMPTON MATS PART 2 ENTRIES:

'Aerodrome Control

Section 3 Paragraph 3.12 - IFR Departures:

'All departures are subject to releases from APP.

A "CBR" (Check Before Release) applies to all clearances. This shall mean that take-off Clearance shall not be issued until approval has been received from APP.'

Comment: The Aerodrome controller applied the CBR rule and was issued with a release subject the C42.

Section 3 Paragraph 3.22 – Overflights:

'Details of relevant transit aircraft are to be notified to TWR by APP. Confirmation of this is achieved by APP ticking the extreme left-hand box of the FPS.

Transit aircraft crossing the ATZ may be temporarily transferred to the TWR frequency, if APP considers that TWR is better placed to provide a service. Once leaving the ATZ, unless otherwise notified by APP, the aircraft is to be transferred back to APP.'

Comment: The movement of the C42 was first brought to the attention of the Aerodrome controller when the Radar controller responded to their request for the release of the Do228 for departure.

Approach Control

Section 4 Paragraph 3.13.1 - VFR Traffic:

'If Southampton IFR arrivals and/or departures are expected, ATCO should consider the impact of VFR transits routing northbound and southbound VFR close to final approach and climb out areas, overhead the aerodrome and/or "SAM" VOR. While the provision of traffic information to relevant aircraft may meet MATS Part 1 requirements, ATCOs are to firstly bear in mind the probability that "traffic avoidance" may be requested by IFR traffic, and secondly that TCAS equipped aircraft may have to respond to a "resolution advisory" if the closing speeds/rate of climb determines that a collision is possible, irrespective of the clearance issued by APP. In either case the ATCO's workload may be excessively increased.

If considered necessary ATCO's should consider offering an alternative routing or delaying the transit clearance. The possibility of an infringement by the VFR transit should also be considered if delaying action is used.'

An Airprox occurred when the pilot of a C42 came into proximity with a Do228 when the Do228 was in the initial stages of climb on the Standard South departure at Southampton. Notwithstanding that the minimum requirements for the provision of Traffic Information to aircraft operating within Class D airspace were discharged, the Do228 pilot did not have the C42 in sight prior to commencing their departure roll and were unlikely to obtain visual sighting of such a small target at such a distance. The pilot was therefore very unlikely to be able to effectively assess the potential risk of collision with the C42 until after they were airborne, by which time they were faced with responding to a TCAS RA. The Radar controller had been tracking the progress of the C42 and with the aircraft transiting some 6nm from the Aerodrome, were in the best position to be able to deploy defensive controlling techniques by holding or re-routing the C42.

ATSI recommended that 'Southampton unit management undertake a review of the unit MATS Part 2 procedures for the integration of VFR transit flights and IFR traffic departure traffic'.

UKAB Secretariat

The Do228 and C42 pilots shared an equal responsibility for collision avoidance and not to operate in such proximity to other aircraft as to create a collision hazard[1]. If the incident geometry is considered as converging then the C42 pilot was required to give way to the Do228[2].

Summary

An Airprox was reported when a Do228 and a C42 flew into proximity at Southampton at 1646hrs on Sunday 21st April 2019. The Do228 pilot was operating under IFR in VMC, the C42 pilot was operating under VFR in VMC. Both pilots were in receipt of a Radar Control Service from Solent Radar, within Class D airspace of the Southampton CTR. The C42 pilot was transiting northwest-bound through the Zone, under VFR, along Southampton Water, passing south of the airport. The Do228 was departing from RW20 to the south on an IFR flight.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available included reports from both pilots, the controllers concerned, area radar and RTF recordings and reports from the appropriate ATC and operating authorities. Relevant contributory factors mentioned during the Board's discussions are highlighted within the text in bold, with the numbers referring to the Contributory Factors table displayed in Part C.

The NATS advisor, with practical experience of Southampton ATC operations, briefed the Board on the local procedures relevant to the Airprox. Dependant on traffic and staff availability, the Southampton Approach function may be split into two positions, Solent Radar and Southampton Radar. However, although this particular session had been busy, due to staff shortage the approach function had been operated combined as Solent Radar (**CF2**). The NATS advisor went on to explain that the C42 pilot had contacted Solent Radar requesting to transit through the CTR from Calshott to Totton and had been cleared VFR, not above 2000ft, which was correctly read back. Shortly after the C42 pilot had entered the CTR, now under a Radar Control Service, the Aerodrome controller had requested a release for the Do228 and the advisor explained that all departures were subject to releases from Approach (Check Before Release (CBR)). This, he clarified, did not indicate a Release Subject Your Discretion (RSYD) where deconfliction would have been expected to have been provided by the Aerodrome controller, but was simply a requirement for the Aerodrome controller to pass Traffic Information to the Do228 pilot prior to issuing their take-off clearance. The Radar controller judged that, providing the Do228 departed imminently, the two aircraft would not conflict.

There was no requirement to separate IFR and VFR traffic within Class D airspace; the minimum service to be applied was to pass Traffic Information to both pilots and provide avoidance advice if requested. In this respect, the Radar controller had issued Traffic Information to the C42 pilot, reporting that a Do228 would be departing RW20 southbound shortly, routeing to the south under IFR and would be climbing through his level. This was updated 1½ min later, reporting that it was now departing. The Aerodrome controller also passed Traffic Information to the Do228 pilot prior to his departure and subsequently issued a take-off clearance (although, at the time the C42 was 6nm away from the airport and it was considered unlikely that the Do228 pilot would have been able to have seen the C42 at that range). Subsequently, 1 min after issuing the previous Traffic Information to the C42 pilot, the Radar controller updated the information, reporting that the Do228 was 2nm north of them, southbound. The pilot transmitted that he was not visual with the aircraft. At about the same time the Aerodrome controller updated the Traffic Information to the Do228 pilot, advising that it was 2nm south and instructed the pilot to change to the Radar frequency. He did not request whether the Do228 pilot had visual contact with the C42. At the same time the C42 pilot informed the Radar controller that he was visual with the Do228. On contact with the Radar controller, the Do228 pilot confirmed that he did not have visual contact with the C42. At the time the 2 aircraft were 1.2nm apart, the C42 was 400ft above the Do228

[1] SERA.3205 Proximity..
[2] SERA.3210 Right-of-way (c)(2) Converging..

which was still climbing. Just after this the CPA occurred. By now the Do228 had climbed through the level of the C42 and was 200ft above, separated horizontally by 0.3nm.

The NATS advisor then commented that, during the incident, the Radar controller had been busy, not only with his traffic but also with trying to contact a pilot who had apparently entered the CTR to the northeast without a clearance. This infringement and the busy frequency in general had been identified by the NATS investigation to have distracted the controller's attention from the developing situation with the 2 aircraft, to which the Board agreed (**CF5**).

The Board thanked the NATS advisor for his expanded explanation of the circumstances and members then considered the controllers' actions. Although the minimum service required was to pass Traffic Information, controller members commented that this did not guarantee the requirement to establish a safe, orderly and expeditious flow of traffic (**CF1**). By allowing the Do228 to depart without taking any action to ensure that the 2 flightpaths did not conflict, the Board considered that this instruction had contributed to the conflict (**CF4**). Moreover, the controller had not taken subsequent measures to resolve the confliction (**CF3**). The Board considered that there had been a number of options open to the Radar controller: he could have refused the C42 pilot's entry into the CTR, although the unit was loathe to do this; he could have re-routed the C42 away from the departure path; he could have held the C42 clear of the departure path; or he could have allocated a lower transit altitude to the C42, allowing the Do228 to climb through its level quicker. The NATS advisor explained that the cleared altitude for the C42 of not above 2000ft was a standard clearance to suit all VFR requirements both day and night but, in view of the weather conditions and time of day pertaining at the time, agreed that a clearance of 'not above 1500ft' could be an option. However, that is currently not permitted under Southampton's local procedures.

For his part, members wondered why the Aerodrome controller had not queried the projected close proximity of the 2 aircraft at any time. The NATS advisor explained that the Aerodrome controller had only recently validated in the Tower, whereas the Radar controller was experienced at the unit; when asked in the course of the post-incident investigation, the Aerodrome controller had stated that he believed the Radar controller would have the situation resolved and would amend the transit track if required.

Turning to the pilots' actions, the Board wondered whether the C42 pilot, being under a Radar Control Service, had expected ATC to pass instructions to resolve the conflict and hence had not acted himself as the 2 aircraft converged. Although ATC should ensure safe and efficient flight, it nevertheless remained the responsibility of pilots not to fly into conflict even in Class D airspace and members noted that he had continued towards the Do228 even after establishing visual contact (**CF6/CF11**). The Board wondered whether the C42 pilot had expected the Do228 to climb quicker than it had, and were further informed that the C42 pilot had stated after the Airprox that on previous flights through the CTR he had been given an orbit to deconflict from other traffic, which could enforce the theory that he had been waiting for ATC to intervene on this occasion. Finally, even if he himself was content with the separation achieved, members commented that this incident represented another occasion when a light-aircraft pilot had not realised the significance of flying close to an aircraft that was equipped with TCAS such that his flight vector might cause a TCAS RA to which the other pilot was mandated to respond.
The Board then noted that the Do228 pilot had continued towards the position of the C42 without visual contact, despite being informed that it was 2nm away before they were told to switch to the radar frequency (**CF7**). Although undoubtedly keen to maintain his track and achieve his cleared level, rather than continue to climb at this point, members opined that a better option might have been to have levelled off when given this Traffic Information rather than simply focus their lookout. Commercial Airline pilot members also commented that it was notable that the pilot's concentration on trying to obtain visual contact at this time may have distracted him from other tasks because he had not noticed that his TCAS had activated with an RA. (**CF8/CF9**). Ultimately, the Do228 pilot only obtained late visual contact with the C42 once he had changed to the radar controller's frequency and after they had again been prompted with Traffic Information (**CF10**).

Turning to the risk, the Board quickly agreed that although the situation was highly undesirable, because both pilots ultimately had each other in sight before CPA (albeit a late sighting by the Do228 pilot) there

had been no risk of a collision. That being said, the Board agreed that safety had been degraded despite the fact that actions had been taken by the pilots to remove the risk of collision. Accordingly, the Board assessed the risk as Category C.

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

Contributory Factors:

	2019078-Barriers.xlsx		
CF	**Factor**	**Description**	**Amplification**
	Ground Elements		
	• Regulations, Processes, Procedures and Compliance		
1	Human Factors	• ATM Regulatory Deviation	Regulations and/or procedures not complied with
	• Manning and Equipment		
2	Organisational	• ATM Staffing and Scheduling	Sub-Optimal establishment or scheduling of staff
	• Situational Awareness and Action		
3	Human Factors	• Conflict Resolution- Inadequate	
4	Human Factors	• Inappropriate Clearance	Controller instructions contributed to the conflict
5	Human Factors	• Distraction - Job Related	
	Flight Elements		
	• Situational Awareness of the Conflicting Aircraft and Action		
6	Human Factors	• Understanding/Comprehension	Pilot did not assimilate conflict information
7	Human Factors	• Lack of Action	Pilot flew into conflict despite Situational Awareness
8	Human Factors	• Distraction - Job Related	Pilot was distracted by other tasks
	• Electronic Warning System Operation and Compliance		
9	Contextual	• ACAS/TCAS RA	TCAS RA event
	• See and Avoid		
10	Human Factors	• Monitoring of Other Aircraft	Late-sighting by one or both pilots
11	Human Factors	• Lack of Action	Pilot flew into conflict

Degree of Risk: C.

Safety Barrier Assessment[3]

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

Ground Elements:

Regulations, Processes, Procedures and Compliance were assessed as **ineffective** because, although the controllers complied with the minimum service to be applied in Class D airspace by passing Traffic Information to both pilots, the C42's routeing should have been changed to remove

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

the possibility of a confliction between the two aircraft so that a safe, orderly and expeditious flow of traffic was assured.

Manning and Equipment were assessed as **partially effective** because, due to staff shortages, the Radar controller had to perform both the Solent and Southampton positions combined.

Situational Awareness of the Confliction and Action were assessed as **ineffective** because, although realising the potential confliction, ATC only relied on passing Traffic Information with the assumption that the pilots would gain visual contact early enough to take appropriate action.

Flight Elements:

Electronic Warning System Operation and Compliance were assessed as **partially available** because only the Do228 was equipped with an electronic warning system.

See and Avoid was considered as **partially effective** because the Do228 pilot only saw the C42 late, and the C42 pilot did not take sufficiently effective action to adequately increase separation after obtaining visual contact.