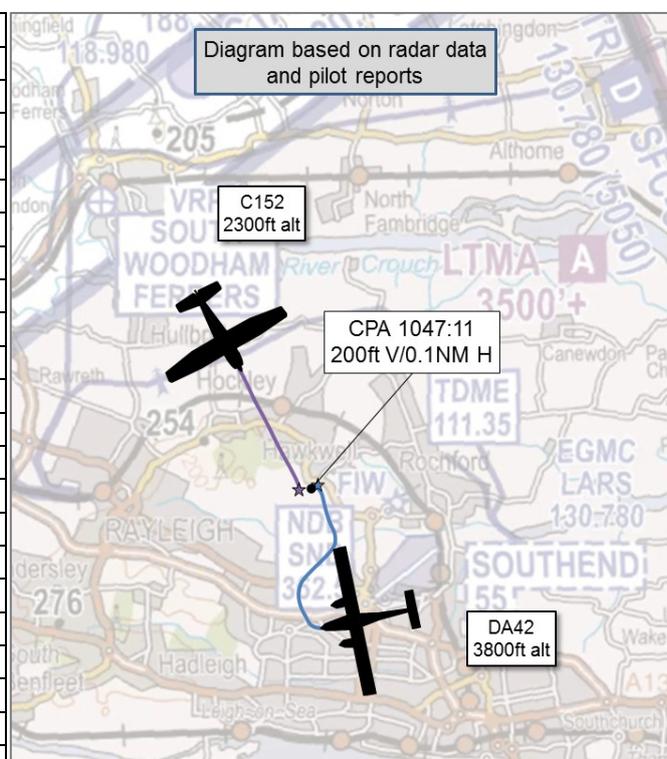


AIRPROX REPORT No 2020026

Date: 08 Jan 2020 Time: 1047Z Position: 5135N 00039E Location: Southend CTR

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	DA42	C152
Operator	Civ FW	Civ FW
Airspace	Southend CTR	Southend CTR
Class	D	D
Rules	IFR	VFR
Service	ACS	Radar Control
Provider	Southend Tower	Southend Radar
Altitude/FL	2100ft	2300ft
Transponder	A, C, S	A, C
Reported		
Colours	White, Blue	White, Blue, Red
Lighting	Strobe, Landing	Nav
Conditions	VMC	VMC
Visibility	Not reported	Not reported
Altitude/FL	1000ft	1800ft
Altimeter	QNH	QNH (1020hPa)
Heading	350°	200°
Speed	105kt	90kt
ACAS/TAS	TAS	Not fitted
Alert	TA	N/A
Separation		
Reported	500ft V/800m H	Not seen
Recorded	200ft V/0.1NM H	



THE DA42 PILOT reports that they were routing to Clacton VOR. They had made a right turn to track to Clacton after take-off, it was a track of +/- 60°. When passing about 1000ft, after the turn to Clacton, ATC instructed them to turn left to heading 270°, a turn to the opposite direction, they thought it was strange but all three crew members heard this heading, so they turned left to this heading. During the turn they received a traffic warning, the traffic was 500ft above them and towards them. ATC did not mention the aircraft and they could not see it at first sight. After a sharp lookout and with reference to the PFD TA, they saw the aircraft in the high left corner of the cockpit window. The PH made a right turn to avoid the aircraft and believed the other aircraft also turned to avoid, because it was close and the flight paths were crossing. After the avoidance the PH returned to 270°. A few seconds later they received the instruction to track to Clacton VOR. Because the other aircraft was hard to see, they had the advantage of the TAS to help them prevent a collision. They did not report the Airprox to Southend and realise that in future this would be more prudent, this would alert ATC to the incident and the lack of Traffic Information. A sharp lookout is always important, especially when flying in controlled airspace and near the boundary of it.

The pilot assessed the risk of collision as 'Medium'.

THE C152 PILOT reports that he was receiving a service from Southend at the time of the incident, heading towards the Southend overhead on a south-westerly heading. Although he doesn't recall it exactly, he looked at a radar replay, it appeared he turned onto south for a short time before resuming his original heading. Unfortunately, he does not recall the events very well as he flew over 50hrs in January and did many Southend Zone transits, on a number of occasions he has received traffic warnings under radar control.

THE SOUTHEND RADAR CONTROLLER reports that the DA42 departed RW23 on a CLN PDR climbing to 3000ft at 1045. Approaching the overhead from the North, routing southbound, was a light

aircraft cleared not below 2500ft VFR. Traffic Information was passed to the transiting light aircraft about the departing DA42. The DA42 departed with a tight right turn towards CLN climbing quickly. The Southend Tower controller had to retain the DA42 because the circuit was active and the tight turn meant there may have been a conflict with the circuit traffic. The Radar controller asked the Tower controller to pass Traffic Information to the DA42 pilot and a heading of 040° was agreed to deconflict from both transiting and circuit traffic, as well as inbound ILS traffic. The transiting C152 pilot reported the DA42 in sight. After further coordination had been effected with the LTMA controller and the DA42 pilot called on the Radar controller's frequency, a climb was issued to 6000ft and the aircraft transferred to the East LTMA sector.

Factual Background

The weather at Southend was recorded as follows:

METAR EGMC 081150Z 24008KT CAVOK 12/09 Q1022

METAR EGMC 081120Z 25009KT CAVOK 12/08 Q1022

Analysis and Investigation

Southend Incident Investigation

By the time Southend ATC received the correct details of the Airprox incident it had been over 2 months after it occurred by which time the surveillance and RT recording were no longer available. The interview with the radar controller involved was further delayed by annual leave and COVID-19 measures and happened about 12 weeks after the incident. The Aerodrome controller involved did not recall the incident at all.

The DA42 departed runway RW23 at 1045Z. The aircraft departed on a CLN PDR, which is a right turn out climbing to 3000ft. According to the Radar controllers report the aircraft was subsequently given a heading of 040°, climbed to 6000ft and transferred to the next TC sector. The controller remembers that there was a light aircraft transiting southbound that had been given a clearance to transit overhead Southend not below 2500ft VFR. The radar controller admits that the early turn by the DA42 pilot caught him out and that led to him passing the Aerodrome controller an amended heading to the DA42 pilot along with Traffic Information on the transit aircraft. He also said he had to consider traffic that was inbound flying the ILS on RW23 and was shortly to establish on final approach. The controller admits his plan was not as robust as it should have been, and he should have executed a different course of action to ensure there was no conflict. Whilst he recalls the two subject aircraft getting closer than he would have planned for, he did not recall any safety issues. Neither pilot mentioned anything about the incident on frequency at the time. The Radar controller was interviewed for a second time to see if the surveillance radar screen shots from the NATS feed could assist with remembering the event. The Radar controller could still not recall the event in any details, he did remember that the DA42 did not initially appear on the surveillance display on departure as expected and remembers standing up to look out of the window from the Approach Control room to see if he could visually acquire the aircraft. He recalls passing a heading and traffic information via the Aerodrome controller to pass to the DA42 pilot. It was discussed if 270° was allocated to enable the DA42 pilot to pass behind and to the west of the transit, and whilst this was not ruled out by the Radar controller it could not be confirmed by the controller and no other headings, other than 040° were on the Flight Progress Strip. He also considered that maybe the DA42 had not appeared on the situation display until a late stage. It should be noted that Southend have an on-site Surveillance system situated at the centre of the airfield and this can lead to loss of surveillance data, both PSR and SSR, when aircraft are operating close to the overhead. After seeing the screen shots, the Radar controller commented that the aircraft were closer than he remembers and accepted that based on that data a safety report should have been filed by ATC. In the initial report the Radar controller stated that there was circuit traffic and inbound traffic on the ILS as well as the transiting aircraft and they were the reasons for a heading change to the DA42 pilot, the movements sheets do not record any circuits or movements that were likely to be in the circuit pattern. Based on the surveillance data with only one aircraft on the ILS that landed at 1057,

it is hard to see that these were factors in the incident or relevant to the heading change for the DA42. It appears that the only conflicting aircraft to the DA42 was the VFR transit aircraft.

Based on the available evidence it appears that the Radar controller released an IFR departure without assurance it would be deconflicted against a VFR transit aircraft. A subsequent change of heading by the DA42 pilot placed it into direct conflict with the transit aircraft. It is unclear if and when Traffic Information was discharged. There was an expectation bias from the Radar controller that the DA42 would route further to the southwest before turning right and therefore pass behind the transit aircraft.

CAA ATSI

Due to the time before the DA42 pilot reported this incident, the subsequent delay in contacting Southend meant that the original RTF and surveillance data was no longer available. The radar replay snapshots in this report have been taken from NATS area radar sources.

The DA42 first became visible on the radar replay at 1045:51. The C152 was approximately 3NM NE of and tracking towards the Southend overhead (Figure 1).

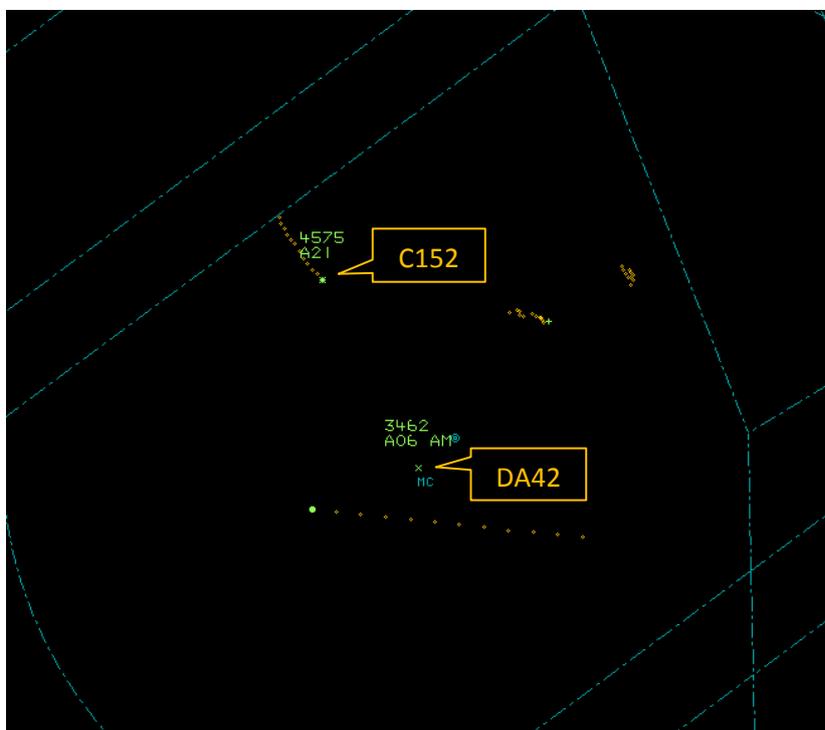


Figure 1 – 1045:51

The pilot of the DA42 reported receiving a clearance to the Clacton VOR, and this track (about 050°) can be seen in Figure 2 at 1046:35.

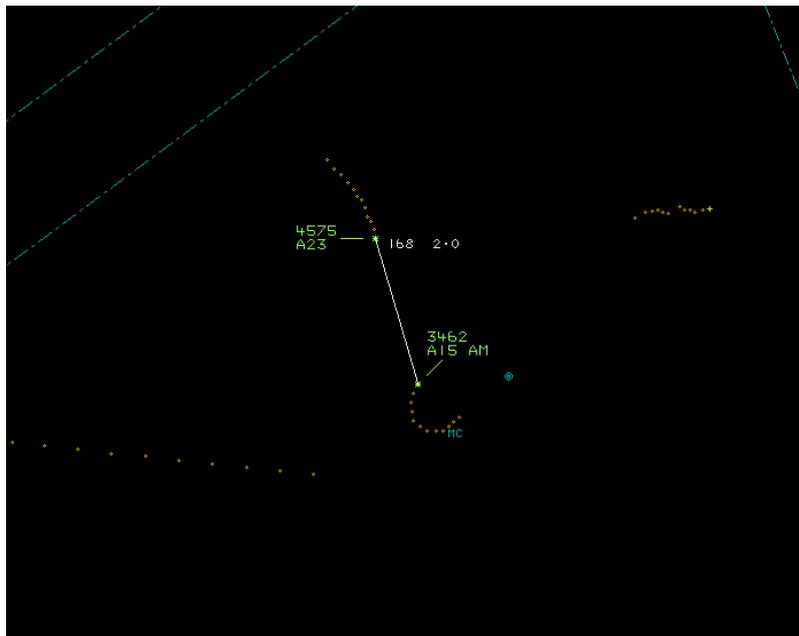


Figure 2 – 1046:35

The pilot of the DA42 then reported hearing and responding to an instruction to turn left onto a heading of 270° (Figures 3-4).



Figure 3 – 1046:51 (NATS STCA initiated)



Figure 4 – 1047:03

CPA occurred at 1047:11, with the aircraft separated by 0.1NM and 200ft (Figure 5).



Figure 5 – 1047:11

The pilot of the DA42 reported not being sure as to whether they were still under the control of the Southend Tower controller, or if they were with the Radar controller at the time of the Airprox. They reported not receiving any Traffic Information on the C152 but becoming visual with it in sufficient time to make a right turn to avoid, as evidenced on the radar replay at 1047:22 (Figure 6).



Figure 6 – 1047:22

The pilot of the C152 had no recollection of the event.

The Southend Tower controller could not remember the incident, but the radar controller reported that it had been agreed that the Tower controller would retain the DA42 whilst in the turn, as it would potentially place it in conflict with circuit traffic. The DA42 had been originally cleared to depart towards the CLN VOR, (approximate track of 050), climbing to 3000ft. The Radar controller's report states that they asked the Tower controller to pass Traffic Information to the DA42 on the C152, and to issue a heading of 040°, the intention being to deconflict with *“both transiting and circuit traffic, as well as inbound ILS traffic”*. This could not be assessed as no other circuit traffic was visible at the time on the area radar replay, and the ILS traffic was some distance away to the east still. The pilot of the DA42 did not report receiving the 040° heading.

The Radar controller could not recall issuing a heading of 270° as reported by the pilot of the DA42. There does not appear to be any other traffic under their control to which they might have issued that heading, and which might have been mistakenly picked up by the pilot of the DA42. With the Tower controller not remembering the incident, and with no RTF available, it cannot be determined if the DA42 was actually still with the Tower controller, and the 270° heading was transmitted on the Tower frequency.

Without the original RTF, and a more accurate recall from the controllers involved, it cannot be determined exactly what happened. The DA42 had been passing clear ahead of the C152 by about 1.6NM whilst on its track towards the Clacton VOR, but it is apparent that the left turn onto the 270° heading by the DA42 took it back towards, and into conflict with, the C152.

UKAB Secretariat

The DA42 and C152 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 head-on or nearly so then both pilots were required to turn to the right.²

Summary

An Airprox was reported when a DA42 and a C152 flew into proximity in the Southend CTR at 1047Z on Wednesday 8th January 2020. The DA42 pilot was operating under IFR in VMC and in receipt of an

¹ SERA.3205 Proximity.

² SERA.3210 Right-of-way (c)(1) Approaching head-on.

Aerodrome Control Service from Southend Tower. The C152 pilot was operating under VFR in VMC and in receipt of a Radar Control Service from Southend Approach.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available consisted of reports from both pilots, radar photographs/video recordings, reports from the air traffic controllers involved and reports from the appropriate 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.

Due to the exceptional circumstances presented by the coronavirus pandemic, this incident was assessed as part of a 'virtual' UK Airprox Board meeting where members provided a combination of written contributions and dial-in/VTC comments. Although not all Board members were present for the entirety of the meeting and, as a result, the usual wide-ranging discussions involving all Board members were more limited, sufficient engagement was achieved to enable a formal assessment to be agreed along with the following associated comments.

The Board began by discussing the actions of the Southend controllers. They were disappointed that neither controller remembered the incident, especially with the proximity that the aircraft came to each other. Because the Airprox was reported late, the R/T recordings were not available as they were outside the 30-day period that Air traffic units are required to retain recording for; members agreed that this highlights the importance for pilots to report an Airprox as soon as possible, on frequency immediately after the incident if possible. This will ensure that any media is retained to support an investigation into the incident. Because the R/T recordings were not available it was not possible to determine where the instruction to turn onto 270° originated, or if it was a misheard transmission by the DA42 crew, because of this the Board could not assess if the controllers fully complied with regulations and procedures (**CF1**). Regardless, the radar controller did not detect the confliction (**CF2**) and therefore provide a resolution of the confliction (**CF3**). The ATC members agreed that the controller should have provided vertical separation between the DA42 and the C152 until they were horizontally separated (**CF4**).

Turning to the actions of the DA42 pilot, members were disappointed that the pilot had taken so long to report the incident for the reasons stated above. Members wondered why, when he was turning away from his route, by such a large degree, he had not questioned the heading with the controller (**CF5**). Nevertheless, when he received the TAS TA (**CF6**) he stopped his turn, saw the C152 (**CF8**), and continued his climb to increase the separation between the aircraft.

The C152 did not remember the incident, again due to the late reporting by the DA42 crew, but he doesn't remember seeing any aircraft that came closer than normal (**CF7**).

Finally, members turned to the risk. Although the controllers had not given any instructions to rectify the confliction, the Board agreed that there was no risk of collision, because the DA42 pilot had seen the C152 after receiving a TAS indication and stopped his turn to avoid, the safety of the aircraft may have been compromised if the DA42 pilot had not received a TAS indication, a Risk Category C.

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

Contributory Factors:

2020026			
CF	Factor	Description	Amplification
Ground Elements			
• Regulations, Processes, Procedures and Compliance			
1		• Any other event	Unable to assess
• Situational Awareness and Action			
2	Human Factors	• Conflict Detection - Not Detected	
3	Human Factors	• Conflict Resolution – Not provided	
4	Human Factors	• Separation Provision	The ANS instructions contributed to the Airprox
Flight Elements			
• Tactical Planning and Execution			
5	Human Factors	• Accuracy of Communication	Ineffective communication of intentions
• Electronic Warning System Operation and Compliance			
6	Contextual	• ACAS/TCAS TA	
• See and Avoid			
7	Human Factors	• Monitoring of Other Aircraft	Non-sighting or effectively a non-sighting by one or both pilots
8	Human Factors	• Monitoring of Other Aircraft	Late-sighting by one or both pilots

Degree of Risk: C.

Safety Barrier Assessment³

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

Ground Elements:

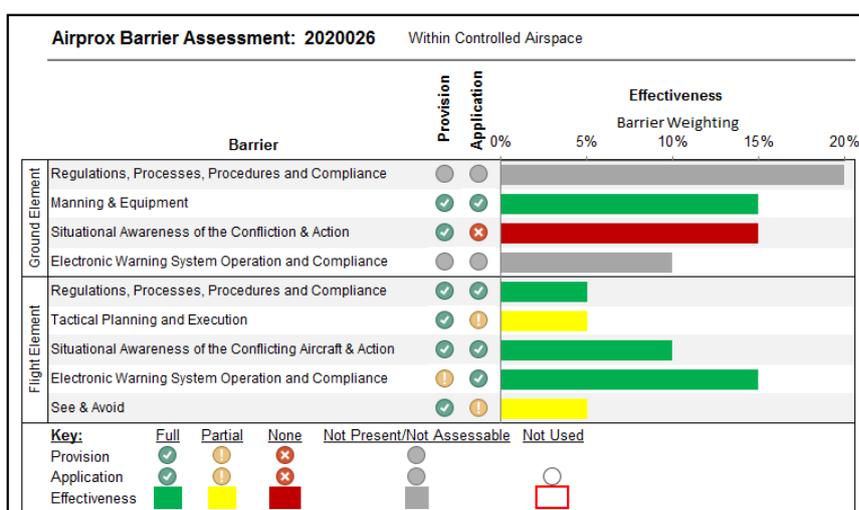
Regulations, Processes, Procedures and Compliance were assessed as **not assessable** because the R/T recordings were not available to determine where the instruction to the DA42 pilot to turn onto 270° originated.

Situational Awareness of the Confliction and Action were assessed as **ineffective** because the controller did not identify, and therefore resolve, the conflict.

Flight Elements:

Tactical Planning and Execution was assessed as **partially effective** because the DA42 pilot did not question the turn onto 270°, even though it was in the opposite direction to his cleared route.

See and Avoid were assessed as **partially effective** because the DA42 pilot took emergency action to increase separation from the C152. The C152 pilot did not see the DA42.



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