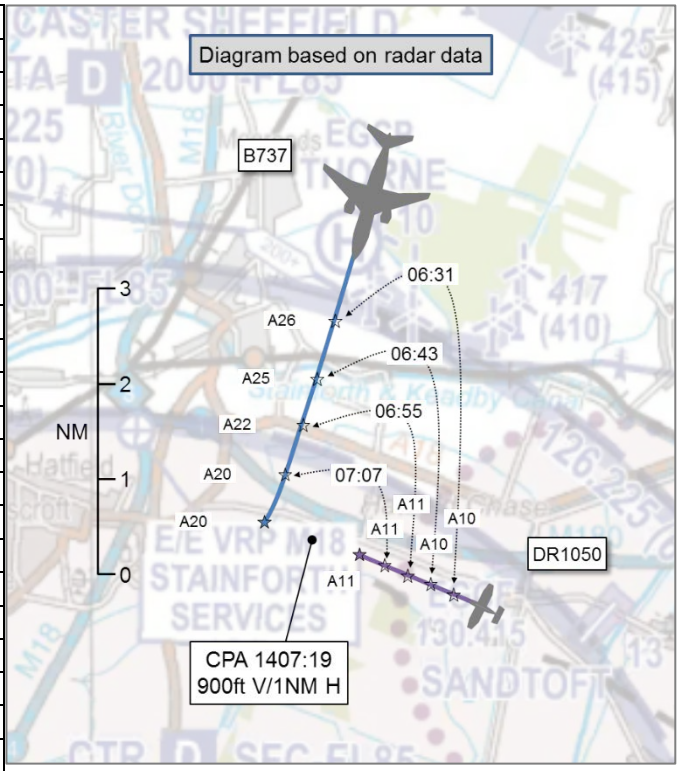
AIRPROX REPORT No 2019274

Date: 14 Sep 2019 Time: 1407Z Position: 5334N 00056W Location: 6NM NE Doncaster Airport

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	B737	DR1050
Operator	CAT	Civ FW
Airspace	Doncaster CTR	Doncaster CTR
Class	D	D
Rules	IFR	VFR
Service	Radar Control	None
Provider	Doncaster App	N/A
Altitude/FL	2000ft	1100ft
Transponder	A, C, S	A, C, S
Reported		
Colours	Company	Blue, white
Lighting	All on except logo	Strobes, nav
Conditions	VMC	VMC
Visibility	'CAVOK'	10NM
Altitude/FL	2400ft	1000ft
Altimeter	QNH (1030hPa)	QNH (1031hPa)
Heading	205°	315°
Speed	180kt	70kt
ACAS/TAS	TCAS II	Not fitted
Alert	TA	N/A
Separation		
Reported	NK	Not seen
Recorded	900ft V/1NM H	



THE B737 PILOT reports that they were on final approach to RW20 when he was informed of a radar contact to the east of the final approach track at approximately 1000ft, not under the control of ATC. He noted that this was not unusual on a CAVOK Saturday afternoon. However, at approximately 8NM final the intruder strayed into the approach path in CAS and ATC ordered an immediate right turn onto heading 290° to avoid the unknown contact. The B737 crew were unable to visually acquire the unknown aircraft because it was slow moving and below the horizon, but they had 'TCAS TA info'. A climbing orbit was flown to an uneventful landing. The B737 pilot stated that it was unknown how close they came to the intruder because the 90° avoiding-action turn put them 'belly up'. He also noted that, thankfully, ATC Approach had maintained control of them beyond the normal handover point to TWR otherwise a TCAS RA 'Climb' would have been the next logical event.

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

THE DR1050 PILOT reports that he was unaware of the Airprox so he could only relate the events of the day. Earlier, on routing to Sandtoft, he communicated with Doncaster Approach who gave him clearance to enter their zone, routing to Stainforth Services VRP. There, he changed frequency to Sandtoft but could not raise them. After landing, he discussed the radio problem with them and they suggested it could be a problem with their '8.33 frequency'. Later, he agreed a departure time in case of a radio problem. He once again experienced radio problems. He departed Sandtoft at 14.05 UTC, his intention being to fly a reciprocal route home. Whilst climbing out and tuned to Doncaster Approach he had a complete radio failure. Whilst trying to get the radio to work, he felt his best course of action was to remain low at 1000ft and exit the zone as soon as possible. Unfortunately, he was unable to get the radio to work and was therefore unable to communicate with Doncaster Approach. He did not see any other aircraft in the immediate vicinity; however, he was aware of what appeared to be a larger aircraft, in the far distance, at a higher altitude and travelling in a northerly direction.

The pilot assessed the risk of collision as 'None'.

THE DONCASTER APPROACH CONTROLLER reports [B737 C/S] was established on 6.5nm final ILS approach to RW20 when it became necessary to issue an avoiding action turn and climb to the west, due to unknown traffic crossing the [Sandtoft] western ATZ boundary into CAS without any communication with, nor clearance from, ATC. [B737 C/S] was vectored into the north-western CTA to achieve lateral separation with regard to the unknown traffic, before being vectored back onto the ILS once the unknown aircraft was sufficiently clear of the RW20 final approach. No RTF contact was received from the infringing aircraft at any stage, either whilst it transited Doncaster CAS, nor subsequently. The minimum separation was 1000ft vertically and 0.5nm horizontally.

THE SANDTOFT A/G OPERATOR did not submit a report.

Factual Background

The weather at Doncaster was recorded as follows:

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METAR EGCN 141350Z 22012KT CAVOK 20/19 Q1030
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The UK AIP entry for Sandtoft aerodrome at AD 2.20 1c. states:

> Inbound/Outbound aircraft not in contact with Doncaster Radar are to monitor the Doncaster Radar frequency and squawk the listening code (6170).

The Sandtoft aerodrome website[1] does not provide routeing information for arriving or departing traffic.

The Airspace and Safety Initiative[2] website 'Updates' No 5 (Preventing airspace infringements in the vicinity of the Sandtoft Aerodrome)[3] contains extensive information and advice concerning traffic movement in the vicinity of Sandtoft aerodrome, including:

> When departing to the West, leave the Sandtoft ATZ tracking north until east of Goole Docks before turning west. Remain north of the M62 [4] and below 2,000 feet Doncaster QNH until you are west of the Eggborough Power Station [5]. If you wish to depart due west, remain in the visual circuit at Sandtoft and obtain a CTR transit from Doncaster Radar on 126.225 MHz prior to entering controlled airspace. Alternatively, pilots could call Doncaster Sheffield ATC on the ground; in this case TC would issue a discrete squawk and establish a proposed route the pilot would like to fly through the CTR.

Analysis and Investigation

UKAB Secretariat

The B737 and DR1050 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].

Summary of Doncaster Occurrence Investigation

[B737 C/S] was being vectored for an ILS approach to Rwy 20 at Doncaster Sheffield. When, on 7nm final [B737 C/S] was issued avoiding action by the Radar Controller due to an unknown a/c, squawking 7000 tracking westbound, which was entering the CTR, 2nm SSE of [B737 C/S].

[1] http://www.sandtoft-airfield.com/index.html
[2] A joint CAA, NATS, AOA, GA and MoD initiative to tackle major safety risks in UK airspace.
[3] https://airspacesafety.com/updates/
[4] SERA.3205 Proximity.

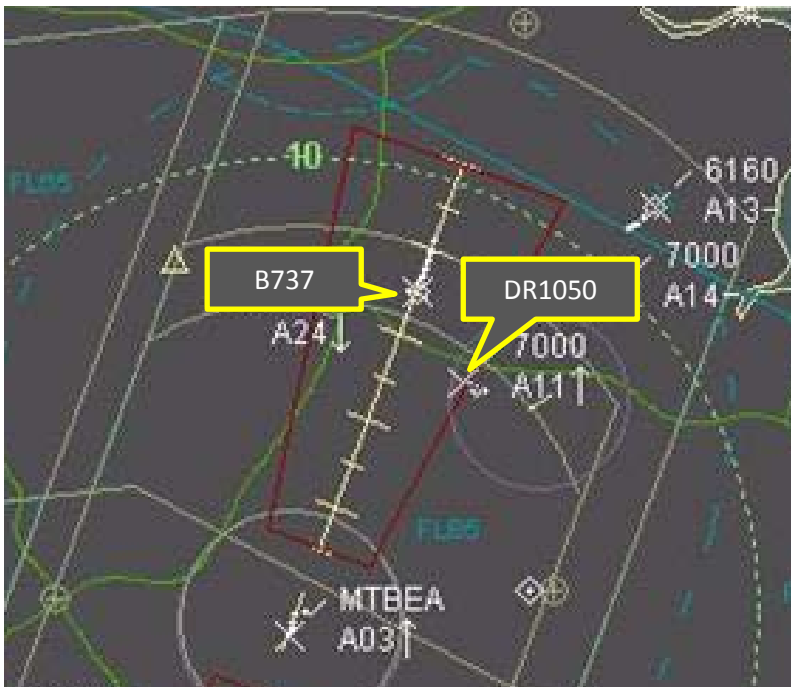


Figure 1 14:06:47 - #7000 unknown entering CTR

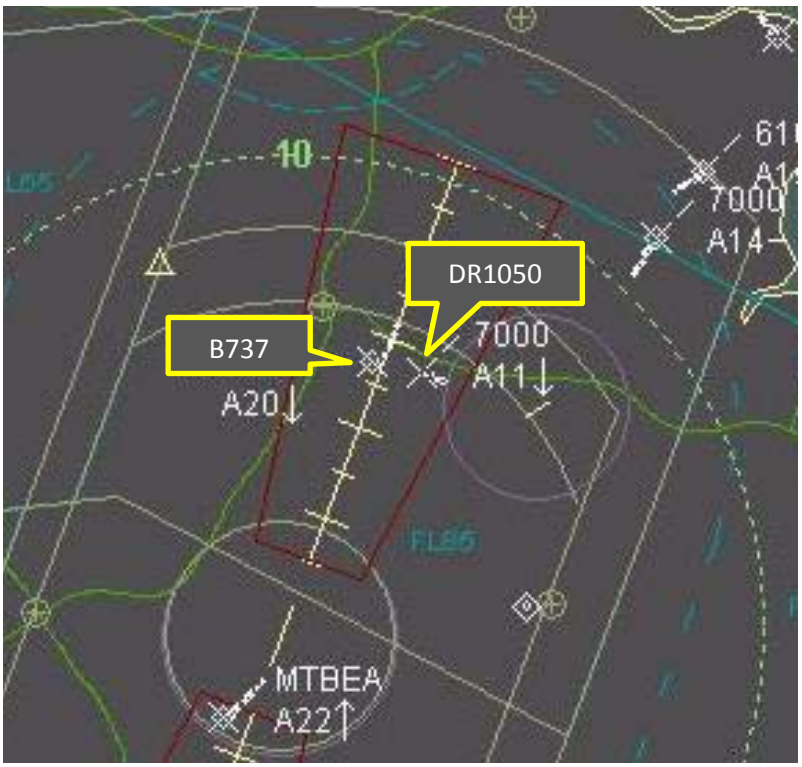


Figure 2 14:07:28 **–** Shows the point of least proximity between [B737 C/S] & Unknown

RTF Transcript

Time	Agency	Transmission
14:05:51		Unknown #7000 first appears on radar
14:05:57	B737	And [B737 C/S] we're established on the er ILS at Nine miles
14:06:03	Radar	[B737 C/S] roger keep a look out for traffic on your left at Sandtoft. I'll hold on to you until you are clear of them
14:06:10	B737	(unreadable) [B737 C/S], roger
		[unrelated R/T]

Time	Agency	Transmission
14:06:34	Radar	[B737 C/S] traffic left Eleven o'clock at Two miles currently ah one thousand feet looks like it's tracking west
14:06:43		*Call initiated to EGCF*
14:06:43	B737	[B737 C/S] roger
14:06:46	Radar	[B737 C/S] Avoiding Action turn right immediately heading Two Nine Zero degrees
14:06:52	B737	Right heading Two Nine Zero degrees [partial B737 C/S] (unreadable)
14:06:55	Radar	Climb to altitude Three thousand feet

Summary

An Airprox was reported when a B737 and a DR1050 flew into proximity 6nm northeast of Doncaster at 1407 on Saturday 14th September 2019. Both pilots were operating in VMC, the B737 pilot under IFR in receipt of a Radar Control Service from Doncaster Approach and the DR1050 pilot under VFR, not in receipt of a service.

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.

Members first discussed the Doncaster controller's actions and commended him for his proactive control of the B737. Once he became aware of the DR1050 pilot's track, and despite this being a frustrating situation, he applied timely avoiding action to ensure any risk of collision was averted. The controller also went to considerable effort to ensure neighbouring units traced the DR1050 to its destination, which the Board thought was probably an unnecessary effort, given the tracing facilities that are already in place for the Board's use.

Turning to the DR1050 pilot, members felt that he had not paid sufficient attention to planning his return flight (**CF2**), not least knowing that he had a potential radio problem, but also because the Sandtoft departures stipulated that pilots departing west should track north until east of Goole Docks before turning west, remaining north of the M62 and below 2,000 feet Doncaster QNH until west of the Eggborough Power Station. Apart from following this simple plan to depart into Class G airspace, members suggested that he could also have perhaps phoned Doncaster ATC to arrange a Class D transit with the possibility of a radio failure, or, once airborne and knowing that the radio was not functioning, squawk 7600 (**CF3**). In the event, the DR1050 pilot flew into Class D airspace without clearance (**CF1**, **CF4**) and then did not exit the zone as soon as possible, ultimately generating a TCAS warning in the approaching B737 (**CF5**). Members felt that the DR1050 pilot was probably distracted by the radio failure at least to some degree (**CF6**), highlighted by him not seeing the B737 until it had already turned away from him (**CF7**).

The Board agreed that although there had been no risk of collision, the airspace infringement itself constituted a situation where normal operating procedures had not been complied with and so a risk rating of Category C was considered appropriate, safety had been reduced below the norm.

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

Contributory Factors:

	2019274		
CF	**Factor**	**Description**	**Amplification**
	Flight Elements		
	• Regulations, Processes, Procedures and Compliance		
1	Human Factors	• Flight Crew ATM Procedure Deviation	Regulations/procedures not complied with
	• Tactical Planning and Execution		
2	Human Factors	• No Decision/Plan	Inadequate planning
3	Human Factors	• Insufficient Decision/Plan	Inadequate plan adaption
4	Human Factors	• Airspace Infringement	
	• Electronic Warning System Operation and Compliance		
5	Contextual	• ACAS/TCAS TA	TCAS TA / CWS indication
	• See and Avoid		
6	Human Factors	• Distraction - Job Related	Pilot looking elsewhere
7	Human Factors	• Monitoring of Other Aircraft	Non-sighting or effectively a non-sighting by one or both pilots

Degree of Risk: C.

Recommendation: Nil.

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:

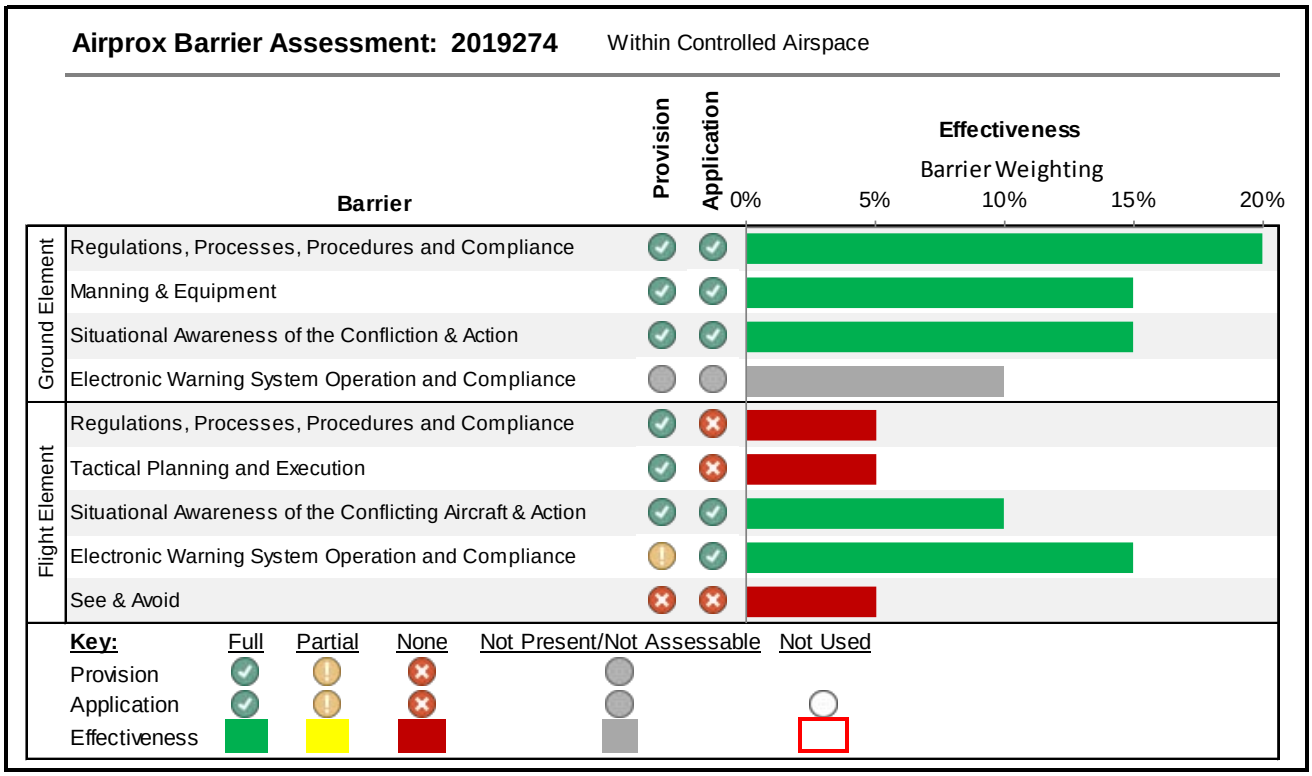
Flight Elements:

Regulations, Processes, Procedures and Compliance were assessed as **ineffective** because the D1050 pilot entered Doncaster Class D airspace without clearance.

Tactical Planning and Execution was assessed as **ineffective** because although the D1050 pilot had agreed a departure time in the event of a radio failure, he did not take into account the Doncaster Class D airspace or make a plan either to obtain clearance to enter it or suitable routeing to remain clear.

See and Avoid were assessed as **ineffective** because the B737 crew did not see the D1050 and the D1050 pilot only saw the B737 apparently well after CPA.

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


Airprox Barrier Assessment: 2019274
Within Controlled Airspace
Barrier
Provision
Application
Effectiveness
Barrier Weighting
0%
5%
10%
15%
20%
Ground Element
Regulations, Processes, Procedures and Compliance
Manning & Equipment
Situational Awareness of the Confliction & Action
Electronic Warning System Operation and Compliance
Flight Element
Regulations, Processes, Procedures and Compliance
Tactical Planning and Execution
Situational Awareness of the Conflicting Aircraft & Action
Electronic Warning System Operation and Compliance
See & Avoid
Key:
Full
Partial
None
Not Present/Not Assessable
Not Used
Provision
Application
Effectiveness