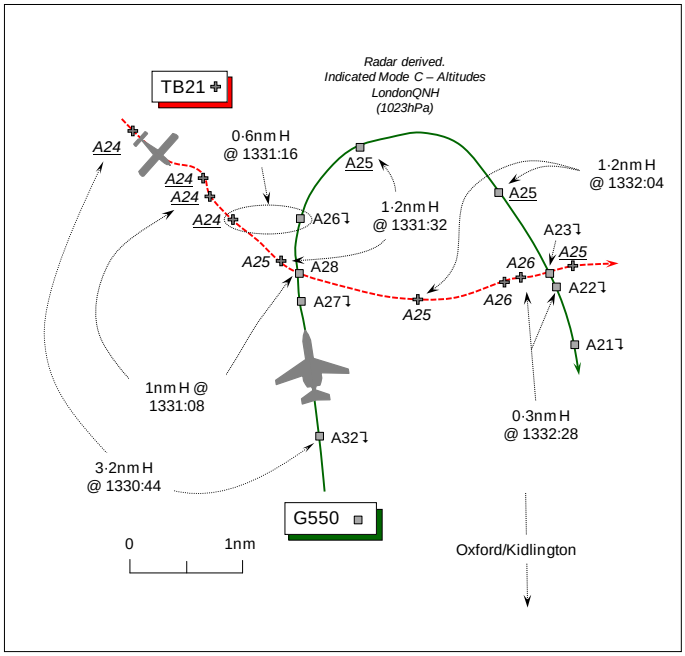
AIRPROX REPORT No 2011131

Date/Time:	2 Oct 2011 1331Z (Sunday)	
Position:	5158N 00119W (8nm N of Oxford/Kidlington - elev 270ft)	
Airspace:	Oxford AIAA	(*Class: G*)
	Reporting Ac	*Reported Ac*
Type:	G550	Socata TB21
Operator:	Civ Comm	Civ Pte
Alt/FL:	3500ft↓ QNH (1025hPa)	2400ft RPS (1022hPa)
Weather:	VMC NR	VMC CAVOK
Visibility:	>10km	>10km
Reported Separation:	500ft V/4000m H	Nil V/1nm H
Recorded Separation:	a: 200ft V/0·6nm H @ 1331:16 b: 0·3nm H/400ft V @ 1332:28	



PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE GULFSTREAM AEROSPACE G550 PILOT, the PIC and PF, reports he was inbound to Oxford/Kidlington from Rotterdam in VMC under IFR. He was in receipt of an ATS in 'uncontrolled airspace' from Oxford TOWER on 133·925MHz. SSR Mode C and S was on; TCAS II is fitted.

Whilst cleared for an NDB ILS DME procedure to RW19 by Oxford ATC he was outbound from the OX NDB overhead heading 354° at 180kt descending from 3500ft to 1800ft QNH. Just as they were about to reach the OXF D6.5 waypoint, TCAS enunciated a TA - TRAFFIC TRAFFIC, immediately followed by a RA CLIMB CLIMB that was complied with. His co-pilot – the PNF – gained an immediate visual contact on the intruder 4000m away, about 500ft below his ac. When CLEAR OF CONFLICT was enunciated by TCAS, a descending R turn inbound was executed to continue with the published approach and intercept the LLZ. On course to intercept the LLZ, another TCAS TA was enunciated that was immediately followed by another RA - DESCEND DESCEND. The PNF again had immediate visual contact with the same intruder – a white single engine aeroplane – in their 2 o'clock. After CLEAR OF CONFLICT was enunciated by TCAS, his ac was levelled off and he proceeded to intercept the ILS, which was followed by an uneventful approach and landing. He assessed the minimum vertical separation as 500ft and horizontally 4000m; he did not specify if this was for the first or second encounter, or both. The Risk was assessed as 'high'.

UKAB Note (1): An unrelated PA28's registration was mentioned in the G550 pilot's account, however, the flight was merely operating on the Oxford APP frequency at the time and was not the reported ac.

THE SOCATA TRINIDAD GT TURBO (TB21) PILOT reports she had departed from Bidford Gliding Club on a direct track to Westcott (WCO) bound for Southend. The ac was crewed with two pilots and this VFR transit would have taken them through the ILS approach 7nm N of Oxford. A squawk of A7000 was selected with Modes C and S on; TCAS I is fitted.

After take-off they flew to the WCO NDB on a track of 120° at an altitude of 2400ft RPS. Although windy, it was clear VMC conditions with no significant cloud. Approaching Bicester at 140kt, they were monitoring the gliding frequency of 129.975MHz and maintaining a good lookout for gliders, but

about 10nm before Bicester they received a TA on the ac's TAS Traffic Warning System. This was first noted in their 1 o'clock position at a range of about 2nm and they saw the other ac – a Gulfstream G550 twinjet - flying towards them on what appeared initially to be a converging course, crossing from R - L. They commenced a turn to the R to avoid the G550 until the twinjet had passed down their port side at a distance estimated at less than 1nm at about the same altitude. After the ac had passed they turned L to resume their track whilst continuing to keep the G550 in sight. Shortly afterwards, they saw that the G550 pilot had commenced a turn to the R and that continuation of this trajectory would introduce the possibility of a further conflict; a further warning was received from the ac's TAS. Therefore a course to the R of their original track was maintained in order to maximise the separation, they then saw that the G550 had commenced a descent as if picking up the LLZ for Oxford. Once certain that the G550 would pass safely below them, they resumed their original course towards Westcott. The other ac passed well beneath them as it descended into Oxford and they continued en-route. Minimum separation was estimated at 1nm at the same altitude and the Risk assessed as 'medium'.

They were not in receipt of an ATS and they were not in RT contact with the other ac, but once they saw that the G550 pilot was turning for Oxford they considered switching frequency to Oxford APPROACH. However, by this time it was clear that the ac would pass a safe distance away and therefore they did not establish contact with Oxford ATC. They subsequently established radio contact with Farnborough North on 132.8MHz at Westcott, which is the usual limit of their radar coverage in this area.

Although unusual to see such a large ac at that altitude and proximity, at no time did they feel unduly stressed by its presence as the visibility was extremely good and avoiding action was easy and straightforward.

UKAB Note (1): This Airprox occurred in the Oxford AIAA that is promulgated in the UK AIP at ENR 5-2-9 as Class G airspace permanently active from the surface to 5000ft amsl.

ATSI reports that the Airprox occured at 1331:18 UTC, 8nm N of Oxford Airport in Class G airspace.

Oxford were using RW19, operating a separate Aerodrome and Approach Control Service, without the aid of surveillance equipment. A PA28 was also operating VFR in the vicinity of Barford Saint John, which lies 10nm to the NNW of Oxford Airport.

It was noted that RTF recording times were a few seconds behind that of the radar and an appropriate allowance should be made when reading this report. The G550 pilot reported to Aerodrome Control (ADC), that two TCAS RAs had been received. The G550 pilot did not specify that an Airprox was being filed and no controller report was submitted.

The METAR for Brize Norton is provided:
EGVN 021250Z 22007KT CAVOK 27/10 Q1023 BLU NOSIG=

The 1326:54, the G550 contacted Oxford APP descending to 5000ft on course to Oxford. The G550 was cleared to the OX NDB at 5000ft QNH (1022hPa) and was instructed to report with 10 DME to run and to expect the RW19 ILS approach with no traffic delays.

At 1327:44, the G550 crew reported 10 miles to run and the controller issued further descent to 3500ft QNH. APP instructed the G550 to route to the OX NDB and cleared the G550 pilot for the procedure, to report beacon outbound.

At 1329:09, radar recordings show the G550 overhead the OX. The TB21 is shown 12.2nm NNW of Oxford Airport, tracking SE squawking A7000 and indicating an altitude of 2400ft Mode C. Another contact is shown manouevring 2.5nm further to the N of the TB21 - believed to be the PA28. At 1329:22, the G550 pilot reported outbound and the controller instructed him to descend with the procedure and to report localiser established.

At 1331:08, radar recordings show the G550 tracking N and indicating an altitude of 2800ft. The TB21 is shown tracking SE, in the G550's 10 o'clock at a range of 1nm, indicating an altitude of 2400ft and crossing the track of the G550 from L - R.

At 1331:08, the G550 pilot reported, "[G550C/S]..*TCAS climb we have traffic 11 o'clock 2 miles."* The controller responded, "[G550C/S]..*roger..Oxford does have a P-A 28 somewhere north-northwest bound..that's operating VFR."* The G550 pilot replied, *"That is copied we're now resuming our descent the guy was about 2 thousand 5 hundred feet and its too close to this approach."* The controller responded, *"roger*."

At 1331:16, radar recordings show the two ac passing abeam at a range of 0.6nm with the TB21 making a R turn of 20° and indicating an altitude of 2400ft, the G550 descending through 2600ft tracking N after ascending to a maximum altitude of 2800ft. The TB21 pilot's written report indicated that a traffic warning had been received on the ac TAS warning system. The TB21 pilot indicated that she had sighted the G550 and made a turn to the R until the G550 had passed abeam.

At 1331:30, the PA28 pilot contacted Oxford Approach, *"Oxford Approach* [PA28 C/S] *is visual with the jet and the..1-9 approach we're currently operating at..about 3 thousand feet over at Barford Saint John."* This was acknowledged by the controller. [This was not the ac involved in the Airprox although it was erroneously mentioned in the G550 pilot's account as the reported ac.]

[At 1332:04, radar recordings show the G550 turning onto a southerly track, 8nm from touchdown, to intercept the LLZ and indicating an altitude of 2500ft. The TB21 is shown in the G550's 1 o'clock at a range of 1.2nm crossing from R - L and also indicating 2500ft.]

The TB21 pilot's written report indicated that she had received a further warning from the TAS system and the G550 was seen turning R and descending as if intercepting the LLZ at Oxford. The TB21 pilot indicated that she had tracked R of the normal track to maximise separation and when certain the G550 would pass well beneath, she continued en-route.

[At 1332:28, radar recordings show the G550 and the TB21 passing at the CPA of 0·3nm, the G550 indicating an altitude of 2200ft on a SE'ly track some 400ft below the TB21 indicating an altitude of 2600ft that is in a slight L turn to pass behind the G550.]

At 1333:44, G550 reported fully established. The controller instructed the G550 to descend with the glideslope and transferred the flight to TOWER.

After the G550 had landed, the pilot advised TOWER, *"...we would like..to report that..we had two resolution advisories..caused by the same airplane one at the end of the outbound leg the other one when turning to final and..we have to do some paperwork about that.*" TOWER replied, *"understood I'll make sure he does the ?????."* The G550 pilot added, *"Yeah that..was far too close to us I'd say he was about..2 thousand 5 hundred feet so it triggered the first one on the outbound and then er triggered again while we were turning."* The controller responded, *"That's understood I'll speak to his operator as well thank you for that.*" [At this point, the controller considered that the other ac involved was the PA28].

The ATSU reported that after a subsequent discussion with the pilot of the PA28, it became apparent that the PA28 was not the ac involved. The second ac was therefore unknown and ATC were not in a position to contact the operator. The ATSU were not aware that the G550 pilot intended to file an Airprox at the time and no further action was taken by the ATSU.

The G550 was in receipt of a Procedural Service. The TB21 was unknown to the Oxford APP controller. The Manual of Air Traffic Services (MATS) Part 1, Section 1, Chapter 11, Page 10, states:

> 6.1.1 'A Procedural Service is an ATS where, in addition to the provisions of a Basic Service, the controller provides restrictions, instructions and approach clearances, which if complied with, shall achieve deconfliction minima against other aircraft participating in the Procedural

Service. Neither traffic information nor deconfliction advice can be passed with respect to unknown traffic.'

The TB21 was not in receipt of an Air Traffic Service and was listening out on a gliding frequency 129.975MHz.

The Airprox occurred when the G550, operating IFR in receipt of a PS in Class G airspace, came into close proximity with the TB21 which was operating VFR and not in receipt of an Air Traffic Service. This resulted in the G550 pilot receiving two TCAS RAs, which caused the pilot to be concerned. The TB21 was unknown to the APP controller and therefore it was not possible for the controller to pass appropriate TI.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available included reports from the pilots of both ac, a transcript of the relevant Oxford RT frequency, radar video recordings, reports from the air traffic controllers involved and a report from the appropriate ATC authority.

This Airprox occurred in the Class G airspace of the Oxford AIAA, where 'see and avoid' prevails. The Board was aware that Oxford ATC is not currently provisioned with aerodrome surveillance radar although this is due to change in the near future. [Post Meeting Note: The new Oxford ATC surveillance radar system with Mode S Monopulse SSR has been installed and is currently undergoing testing. It is scheduled to be operational in Spring 2012.] The ATSI report made it clear that the Approach Control Service provided here was a Procedural Service and, as the TB21 pilots had not contacted Oxford APP, the controller was completely unaware of its presence. This was contrary to what the G550 crew might have believed immediately following the incident as ATC originally percieved, incorrectly, that the reported ac was a PA28 in communication with APP. Therefore, the combined TOWER and APP controller was unable to provide a warning to the G550 crew about the TB21 flight. A GA Member thought it might have been more benificial if the TB21 pilot had contacted Oxford ATC rather than listening out on the Bicester Gliding frequency, especially at this range from the launching site. Alternatively a LARS is available within the AIAA from Brize RADAR that could, potentially, have provided the TB21 pilot with TI on the G550. As it was, the TB21 pilots were alerted by their ac's TAS and first saw the G550 at a range of 2nm in their 1 o'clock. With the G550 to their R, the TB21 pilot had a responsibility to avoid it under the Rules of the Air (RoA) and turned R to ensure separation until it had passed. This turn was reflected on the radar recording which shows the TB21 pilot had turned onto a broadly reciprocal course to the G550 when the range had reduced to 1nm thereby resolving any conflcit. Similarly, the IFR G550 crew had been alerted by the TCAS TA to the TB21 and then saw the aeroplane at a range of 4000m – just over 2nm away and before the TB21 pilot turned away. A CAT pilot member opined that TCAS is not always compatible with the mixed VFR/IFR environment of Class G airspace, but once the RA was triggered Members recognised the crew was required to comply with the demanded RA. However, pilot Members opined that it should have been evident to the G550 crew that whilst following the procedure another conflict would ensue once they turned inbound to intercept the LLZ. This turn inbound also changed the geometry of situation as the TB21 pilot now had right of way. Clearly the TB21 pilot did not know the G550 pilot's intentions but she wisely surmised what they were doing and ensured her course did not compromise separation against the G550, which remained in sight throughout. Once they had turned about, the G550 crew regained visual contact with the TB21 but they were still required to comply with the DESCEND RA. It was plain that the G550 crew recognised that they were operating in Class G 'uncontrolled' airspace, but they appeared to be surprised that there is no obligation on the VFR pilot to remain clear of the approach pattern. The TB21 pilots were flying quite legitimately in the 'Open FIR' and could not be expected to be familiar with all of the Oxford IFR arrival procedures, albeit that the approach 'feather' for RW19 is shown on CAA VFR charts. The chart also reflects the choke point along the TB21 pilot's route caused by Croughton Aerials and EGD129 – Weston-on-the-Green – with a gap of only 2-3nm to the E of Upper Heyford disused A/D before encountering Bicester Glider Launching Site. Given the confined airspace in this vicinity the Board recognised that it is difficult for transit pilots to avoid the approach

entirely; whilst flying over or under the glidepath could also trigger a TCAS RA with traffic on final, a GA pilot Member emphasised the importance of communicating with Oxford here and to avoid the approach 'feathers' by as wide a margin as good airmanship permits. As it was, the VFR TB21 pilot avoided the G550 visually, whereas the IFR G550 crew avoided the TB21 by complying with the TCAS RAs, in addition to sighting the other ac visually. The Board agreed, therefore, that this Airprox had resulted from a conflict between VFR and IFR traffic resolved by the pilots of both ac. This ensured that throughout the encounter a minimum of 0·3nm was maintained horizontally and TCAS had ensured vertical separation, leading the Members to conclude unanimously that no Risk of a collision had existed in these convoluted circumstances.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: A conflict between VFR and IFR traffic resolved by the pilots of both ac.

Degree of Risk: C.