AIRPROX REPORT No 2012164

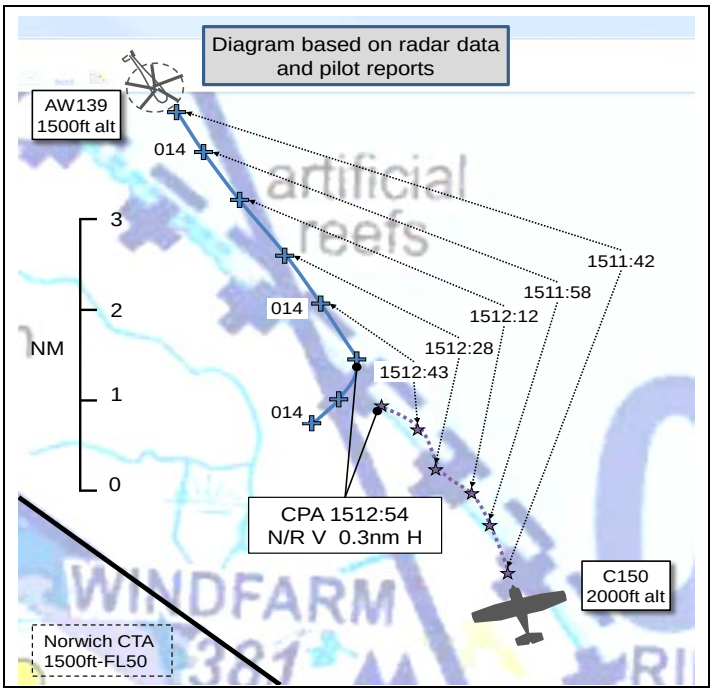
Date/Time:	15 Nov 2012 1510Z	
Position:	5245N 00139E (8nm NNE of North Denes)	
Airspace:	(Class: G)	(*Class: G*)
	Reporting Ac	*Reported Ac*
Type:	AW139	C150
Operator:	CAT	Civ Trg
Alt/FL:	1500ft RPS (1017hPa)	2000ft QNH (1021hPa)
Weather:	VMC/CAVOK	VMC/NR
Visibility:	20km	

Reported Separation:

150ft V/0.75nm H

Recorded Separation:

0.3nm H



PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE AW139 PILOT reports returning to North Denes from an off-shore gas installation, cruising at 1500ft on the RPS of 1017hPa, heading 170° at 140 kt. The helicopter was red, white and blue with HISLs, navigation lights and two landing lights on and a serviceable TCAS1 system fitted. The pilot reports flying IFR in VMC, clear of cloud with 20km visibility. Anglia Radar was providing a TS on 125.275MHz; the ac was squawking A0263 with Modes S and C turned on.

The pilot reports seeing a high wing, single engine aircraft that he thought to be a small Cessna in his 1130 position, slightly above and on a reciprocal heading. The Airprox occurred 8nm N of North Denes and he reports that he initiated a 90° R turn, following which the other ac started to turn L towards him and he lost sight of it as it passed behind his helicopter. The pilot reports first sighting the C150 at a range of 1-2nm and estimated the minimum separation distance as 0.75nm horizontally and 150ft vertically; no contact was shown on TCAS.

THE C150 PILOT reports flying a blue and white ac on a training sortie from Beccles with a passenger/student who wished to take some photographs during the flight. He was flying VFR in VMC receiving a BS from Norwich APP on 119.35MHz; the ac was not equipped with a transponder.

The pilot reports that he had no recollection of the Airprox.

THE NORWICH APPROACH CONTROLLER reports that he was providing a BS to the C150 on 119.35MHz but he has no recollection of the event and he was unaware of the Airprox at the time.

NORWICH ATC INVESTIGATION reports that due to a complex traffic situation in Class D airspace and the need to monitor airways joining instructions and co-ordination with other ATC agencies, the pilot of the C150 was told to standby following his first call at 1502:02. APP only responded when the pilot called again at 1511:00, during which time the aircraft had progressed north along the coast. APP made an assumed identification of the C150 based on a position report. Notwithstanding this, APP twice issued timely and accurate traffic information to the C150 pilot on the AW139's position.

APP was correct to issue a traffic warning to the C150 pilot in accordance with 'safety of life' requirements under BS. The correct phrase of 'traffic believed to be you' was not used and the

presumed identification was later reinforced when APP issued a joining clearance to the C150 pilot. Nonetheless based on the C150 pilot's reported information, track progress, speed and headings there is little doubt that APP had identified the correct aircraft.

THE ANGLIA RADAR CONTROLLER reports that he was controlling the AW139 on 125.275MHz, 9nm NNW of North Denes under a TS, when the pilot reported taking avoiding action against a light ac. He recalls that the pilot filed an Airprox on his frequency and reported that the conflicting ac was 200ft above him tracking from S to N.

The controller reports that he did not observe any primary radar contact until approximately a minute after the Airprox when he observed a contact 2nm N of the reported Airprox position tracking N.

ATSI reports that the Airprox was reported by the pilot of an AW139 against a C150 in Class G airspace, 8nm N of North Denes Airport.

The AW139 was operating IFR, returning to North Denes from an offshore gas installation and was in receipt of a TS from Anglia Radar on frequency 125.275MHz.

Another helicopter, an EC155, which was conflicting with the AW139, was in receipt of an Offshore DS from Anglia Radar on frequency 125.275MHz.

The C150 was operating VFR on a flight to and from Beccles Airfield and was in receipt of a BS from Norwich Radar 119.350MHz.

CAA ATSI had access to written reports from the pilots of the AW139 and the C150, the Anglia Radar and Norwich Radar controllers, area radar recordings, Anglia Radar recordings, RTF recordings of both Anglia Radar and Norwich Radar frequencies and also the unit investigation report from Aberdeen (where Anglia Radar is based).

The North Denes METARs are provided for 1450 and 1520 UTC:

EGSD 151450Z VRB02KT 9000 NSC 10/08 Q1021 NOSIG= and EGSD 151520Z VRB03KT 8000 NSC 10/08 Q1021 NOSIG=

At 1433:45 UTC the pilot of the AW139 contacted Anglia Radar. The AW139 was identified and informed that the service was being provided using SSR only. The Aberdeen Manual of Air Traffic Services Part 2, Section GEN, Annex A states:

> 'In the Anglia Radar Area of Responsibility **only**, when the controller informs a signatory helicopter in surveillance cover that it is identified, this is notification that the default FIS (in this case Offshore Deconfliction Service) will be provided, unless the controller states otherwise. When the default FIS is provided, the controller will not state the service. The Offshore Deconfliction Service will commence from the time the pilot is informed that the helicopter is identified and will continue until:
>
> **i.** The pilot is advised of a change of service, or
> **ii.** The aircraft leaves the Anglia Radar Area of Responsibility, or
> **iii.** The aircraft leaves the frequency.'

At 1502:10 the pilot of the C150 contacted Norwich Radar and was instructed to standby.

At 1506:45 the Anglia Radar controller called the pilot of the AW139 to advise that there was an EC155 inbound to Norwich that might affect the descent of the AW139 and asked if the pilot of the AW139 was happy to expedite descent to 500ft. The pilot of the AW139 replied that they would be using RW09 at North Denes and would like 1500ft. The Anglia Radar controller replied that the

AW139 should maintain 2500ft until they had crossed the EC155 and the pilot of the AW139 replied that they were maintaining 2500ft.

At 1508:50 (Figure 1) the AW139 was tracking SSE at 2500ft with the EC155 at 1500ft on its LHS. The primary return from the C150 can be seen on the coast as indicated.

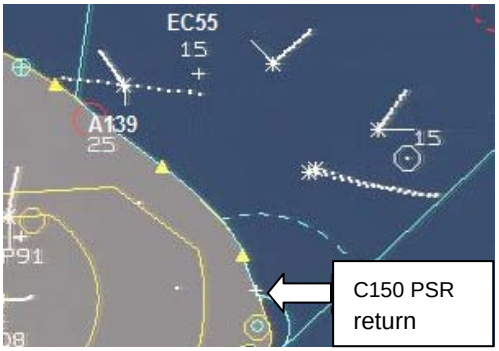


Figure 1 Anglia Radar 1508:50

At 1509:45 the Anglia Radar controller established that the EC155 had the AW139 in sight and gave the AW139 descent to 1500ft.

At 1510:50 the C150 pilot called Norwich Radar again and was instructed, "*pass your message*". The C150 pilot advised that they were out of Beccles and flying northbound around the coast abeam Hickling at 2000ft on QNH 1022hPa and requesting a BS. The Norwich Radar controller replied that there was a helicopter inbound to North Denes in the C150's, "...*twelve o'clock five miles reciprocal same level, is a helicopter inbound to North Denes.*" The C150 pilot replied that he was looking and a BS was agreed.

At 1511:40 the Norwich Radar controller instructed the C150 pilot to squawk A7370 if he was transponder equipped; to which the pilot replied that the C150 was negative transponder. The Norwich Radar controller updated the TI on the helicopter stating that it was "*twelve o'clock three miles has descended 1600ft*". The C150 pilot acknowledged the transmission and stated that he was at 2000ft. Figure 2 shows the Anglia Radar display at 1511:40 highlighting the lack of conspicuity between the C150 primary return and the coastline map.

Figure 2 Anglia Radar display at 1511:40

On Figure 3, also at 1511:40, the Primary return of the C150 has been highlighted.

Figure 3 Anglia Radar display at 1511:40

At 1511:45 the AW139 crew reported visual with the EC155 and the service was changed to a TS. [UKAB Note (1): ANGLIA RADAR was providing an Offshore DS until this point.]

At 1512:40 the Norwich Radar controller advised the pilot of the C150 that the AW139 was about to fly underneath the C150 and that the AW139 was believed to be 400ft below.

At 1513:00 the AW139 pilot advised the Anglia Radar controller that they were taking evasive action from a fixed wing ac a couple of hundred feet above, which was travelling S to N. The Anglia Radar controller acknowledged the transmission and advised that nothing was seen on radar.

[UKAB Note (2): The CPA measured on the radar recording at 1512:54 is 0.3nm H, but the primary return of the C150 is lost for one radar sweep immediately after that point so it may be marginally closer. The Mode C of the AW139 is FL014 and the C150 reported level at 2000ft on QNH 1021hPa giving a calculated vertical separation at the CPA of 360ft.]

At 1513:15 the AW139 crew advised Anglia Radar that the traffic was just behind them and that they had lost visual contact. At 1514:00 the Anglia Radar controller advised the pilot of the AW139 that he could see a primary contact tracking NW that was probably the traffic.

The incident took place in Class G airspace where both pilots were ultimately responsible for their own collision avoidance.

The unit investigation stated that the Anglia Radar controller did not see the primary return of the C150 at any time prior to the incident. When the AW139 reported taking evasive action the controller replied that nothing was seen on radar. Although the white primary return from the C150 could be seen on the Anglia replay it followed the coastline (also in white on the video map) very closely and is somewhat indistinct (see Figures 1, 2, and 3) particularly in comparison to other primary returns and secondary returns on the situation display. According to the unit report PSR clutter over the sea caused by both wave tops and wind turbines is not uncommon on the Anglia Radar sector. It is also possible that the controller may have subconsciously filtered out the target. Before the Airprox occurred the Anglia Radar controller's focus was on the confliction between the EC155 and the AW139, which may have reduced the possibility of seeing the primary return from the C150.

The Norwich Radar controller gave TI on the AW139 to the C150 pilot. The Norwich Radar controller noticed the confliction after the C150 pilot called for a BS and described their position and level. The squawks of all Anglia Radar helicopters are converted in the Norwich RDP so the Norwich Radar controller was aware of the identity and level of the AW139 from the Mode C of the AW139 before passing TI. Conversely, the Anglia Radar controller was not aware of the presence of the C150 and an indistinct primary return with no associated secondary information was the only indication available to the Anglia Radar controller that there was conflicting traffic.

An Airprox occurred when an AW139 and a C150 came into proximity with each other 8nm N of North Denes Airport. The Norwich Radar controller passed TI on the AW139 to the C150 pilot. The Anglia Radar controller was not aware of the presence of the C150 and therefore was not able to provide TI to the AW139 crew.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available included reports from the pilots of both ac, transcripts of the relevant RT frequencies, radar video recordings, reports from the air traffic controllers involved and reports from the appropriate ATC and operating authorities.

Whilst the Board noted that there was a considerable delay between the C150 pilot's first call and the provision of a BS by Norwich APP they also noted that the controller had been busy with other tasks. There was some discussion about the provision of TI by Norwich APP under a BS; the Board agreed that the TI provided was accurate, timely and appropriate under the 'safety of life' requirements of a BS and that Norwich APP had acted correctly in choosing to pass TI. Given the TI provided, the weather conditions and the CPA, some members of the Board expressed surprise that the pilot of the C150 did not achieve visual contact with the AW139.

The Members felt that the initial sighting distance of 1-2nm reported by the AW139 pilot was quite normal in Class G airspace given the geometry of the encounter and that if the AW139 crew had received TI on the C150 it was possible that they may have adjusted their course to prevent the

encounter becoming so close. The Board noted that the Anglia Radar controller was controlling a large area of airspace and was also focussing on deconflicting the AW139 from another helicopter. Members were clear that the colour of the coastline on the Anglia Radar display would have made it very difficult for the Anglia Radar controller to spot the primary return of the C150, especially so given that the Anglia Radar controller had to divide his attention at the time. The Board concluded that the Anglia Radar map was a significant factor contributing to the lack of TI provided to the AW139 crew and the display design should be reviewed.

There was some discussion about the circumstances when a controller should limit radar services but it was concluded that the level of clutter reported and observed on the radar recordings would not warrant Anglia Radar imposing a limitation.

In assessing the Risk, Members noted that the C150 pilot did not see the A319, at any stage. However, based on his reported altitude and QNH, the C150 pilot was some 400ft higher than the A319. Moreover, the helicopter crew had spotted the C150 early enough to take effective avoiding action that resulted in a minimum recorded horizontal separation of 0.3nm. The Board was satisfied, therefore, that A319 crew had removed any risk of a collision.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: In the absence of TI the AW139 crew was concerned by the proximity of the C150.

Degree of Risk: C

Recommendation: The current RDP design for the Anglia Radar sector highlights the coastline in white, which is the same colour as radar tracks. NATS Ltd is recommended to amend the RDP to provide greater clarity between radar tracks and map features.

Post UKAB Note: Following further investigation, NATS Ltd report that the media used for the AIRPROX investigation shows the radar map and the ac returns to be coloured white; this is not the case with radar display that the controller actually sees. The coastline, as displayed to the controller, is shown in beige but there is also a cyan coloured line along this section of the coast which denotes the boundary of the Anglia Offshore Safety Area (OSA); this combination of colours created the impression of white on the media used for the Board. NATS Ltd have concluded that the removal of the cyan line from the coastal boundary (whilst retaining it in the offshore areas) would not reduce the ATCOs' knowledge of the extent of the OSA, and may increase the possibility of the ATCO identifying a slow moving aircraft following the coastline. Consequently, NATS Ltd have accepted the recommendation and will take appropriate action to amend the way the maps on the radar displays.