AIRPROX REPORT No 2010089

Date/Time: 13 Jul 2010 1309Z

Position: 5822N 00302W (5nm S Wick)

Airspace: W4D (*Class: F*)

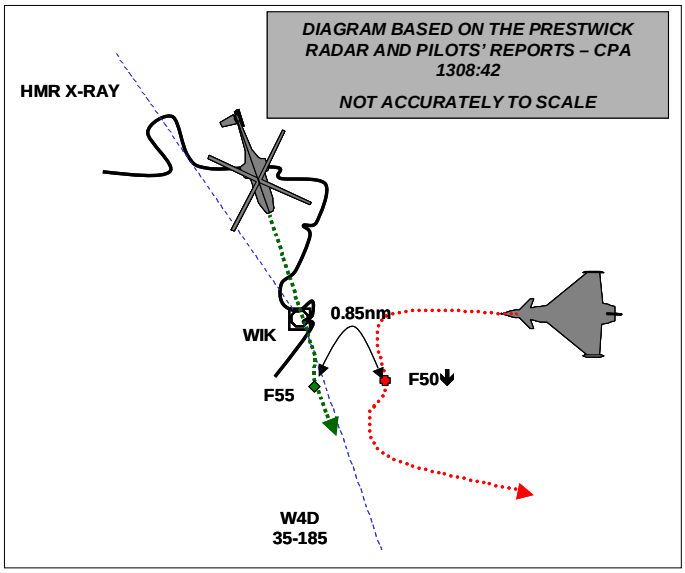
	Reporting Ac	*Reported Ac*
Type:	EC225	Typhoon
Operator:	CAT (H)	HQ AIR (OPS)
Alt/FL:	FL55	NR
Weather:	VMC CLBL	NR
Visibility:	>10km	NR

Reported Separation:

0 V/1.0nm H 0 V/1.0nm H

Recorded Separation:

500ft V/0.85nm H



PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE EC225 PILOT reports flying a scheduled passenger flight inbound Aberdeen on ADR W4D from an oil rig, in receipt of a TS from ScACC, squawking 3610 with Modes C and S. When they had just passed WIK ScACC reported a military ac to the W, he thought, of their position and shortly after TCAS gave a TA. They then saw a Typhoon ac 2-3nm away in their 9 o'clock, belly-up in a left hand turn so they turned right for 2-3sec but the Typhoon then manoeuvred around their position for about 30sec before departing to the N.

The Typhoon pilot called the following day to apologise and explain that he thought they were a military helicopter participating in an exercise.

He assessed the risk as being Medium.

THE TYPHOON PILOT reports flying dual and leading a pair of ac on an exercise mission, in receipt of a TS from an AWACS and squawking an exercise squawk with Mode C. They were tasked with area defence, including a side mission to visually identify a slow moving Cessna 152 (an exercise player) and military Puma helicopters.

They were tasked by the AWACS to intercept a 'bogey', a slow moving track S of Wick at 5000ft and the track matched the characteristics of the expected exercise traffic. Of note the controlling AWACS was not using Modes 3A or C for training reasons. They achieved radar contact with the track at 25nm and visual contact at 10nm; they continued to close in order to identify the ac type and rolled out on the same track as the helicopter, line abreast at 1nm. From that position they noted visually that the helicopter was not a [military] Puma and exercise player and initiated a breakaway to depart.

THE ScACC CONTROLLER reported that he was the Moray bandboxed [high and low] controller and the traffic level was low.

An EC225 [Super Puma] was transiting from Foinavon to Aberdeen via the Wick overhead. He identified the helicopter well to the N of Wick; the pilot requested a TS, which he gave but limited the service to SSR traffic only. Prior to WIK he cleared the EC225 to join W4D at FL55. He then dealt

briefly with a Kirkwall outbound that was in confliction with unknown traffic. When he returned his scan to the helicopter, he saw military traffic on exercise squawks heading towards it from the E, one descending from just above, so he called the traffic. He updated the TI shortly afterwards as the conflicting ac was then at a similar level and the EC225 pilot reported that he was visual with a Typhoon.

At the range scale he was using it was difficult to determine how close the returns were or whether the helicopter deviated from its track, but the pilot reported that he had taken avoiding action and the returns came close to merging. He asked the EC225 pilot if he wished to file an Airprox to which he replied that he did.

Under normal operations he would offer an upgrade to a DS service when ac join the ADR but in this case the incident occurred just after Wick and he decided that it would be futile, even dangerous, to try to and give avoiding action, as the helicopter was extremely slow compared with the conflicting ac and there were many other ac around. Also the large range scale that he was using would have made it difficult to assess the best course of action.

UKAB Note (1): The exercise in which the Typhoon was participating was the subject of an ACN (2010-07-0020) and a NOTAM. The ACN stated:

1. 'Surface to Below FL100. NOTAM action by AUS. Crews are reminded that this airspace is **not segregated** and is in no way protected or reserved for this Exercise. **CQWI crews must expect to encounter non-participating military and civil ac operating in the area**. Caution; Advisory Routes (ADRs) and Helicopter Main Routes (HMRs) (See Para 20)'.

And also:

'd. Advisory Routes (ADRs). Pilots operating on the ADRs listed below are requested to take note of the intense aerial activity associated with FAOR operations and exercise extreme caution when transiting the associated airspace. Exercise participants are to be extra vigilant when manoeuvring in the vicinity of ADRs, particularly those listed below which are located in the vicinity of, or directly below, the FAOR North and associated Exercise Areas:

(1) N560D from BONBY to SUM.
(2) W4D from ADN to WIK.'

Et seq.

THE AWACS CONTROLLER reported that as part of the exercise there would be an inject whereby a light ac would be operating from near Wick. Their instructions for that exercise were to visually identify the ac and determine its registration.

During the exercise, his supervisor drew his attention to a low slow contact near Wick and so he tasked 2 Typhoons to identify the ac visually, believing it to be the exercise ac. The Typhoon leader called that he was visual with the traffic at about 10nm and he continued to close for a visual identification. At about 4nm leader reported that the ac was a helicopter; however, as a military Puma helicopter was also taking part in the exercise, this was not considered unusual. As the Typhoon leader closed the pilot reported that the ac was not a military helicopter and so they 'hauled off'.

The Typhoons were fully aware of the traffic at all times and were deliberately closing in to identify it visually. There was never any threat of collision.

THE AWACS SUPERVISOR reported the incident occurred on the 7th Mission of the exercise and that their equipment was fully serviceable. The workload of the Typhoon Controller was low-moderate. He was also supervising 2 other positions and they were controlling over 45 ac in the

exercise area of about 200 x 150nm. This was the busiest airspace that he had encountered during this and similar exercises. All ac under their control were receiving a BS due to the potential of communications jamming, but no jamming was apparent at the time.

[UKAB Note (1): Since there was no RT recording or transcript, it cannot be determined if the Typhoons were in receipt of a BS or TS.]

The exercise scenario for the day meant that the mission priority for their ac was the identification and (simulated) engagement of an Unmanned Aerial System/drones which were being simulated by a light ac or helicopters, based 10nm North of Wick, which were to track S towards their target. The Typhoon formation was planned to be the asset used to identify these ac. The SSR intentions of the light ac were not known, so the controllers' attention was directed towards searching for a low, slow ac, climbing out of the Wick area.

From about 1255, the Typhoons were controlled by the Offensive Counter Air Controller and the main exercise 'push' was expected at 1315. The Typhoons concerned pushed early behind 4 other Typhoons, all searching for 'enemy' ac and the Controller had a total of 6 ac on frequency near Wick but his scan also required him to build an initial picture on enemy fast jet ac over Stornoway/West Scotland. At about 1305 a contact matching the criteria given for the 'enemy' light ac appeared S of Wick, so the Typhoons were tasked with identifying it. At 1308, Typhoon Leader called *"visual helo"* and the controller instructed them to haul off and investigate another ac. The Typhoons called visual with the helicopter at 10nm but closed further in the belief that it was an exercise ac; on realising that the ac was civilian, they broke off.

HQ 1GP BM SM reports that the Sqn concerned conducted a thorough investigation into this incident but no tape transcript was available due to the limitations of the E3 recording system.

The surveillance team on the AWACS initially located and identified the EC225 as a civilian helicopter when it was about 80nm NNW of Wick. The identity track remained on the helicopter until it crossed overland near Dunnet Head. At that point the surveillance team changed its identity track to a 'friendly general' track, which is often used for general civilian ATC traffic, but is less specific than the previous track. As the EC225 continued SE, the Tactical Director [safety controller] made radio contact with the exercise light ac on the ground 10nm NW Wick and the pilot informed him that he would be getting airborne shortly and he re-briefed the crew.

The Surveillance Team Leader produced an identity matrix during mission planning, which allowed his team to categorise the identities of all ac within radar coverage. This plan was heavily operationally focused and did not account for non-exercise traffic. Although civilian traffic was often easily identified using the matrix, there was a weak area whereby any civilian traffic that might be considered as 'exercise suspicious' (i.e. near Wick when enemy activity was expected there) became labelled as an exercise player.

Shortly after the Tactical Director (TD) re-briefed the crew, the identity of the EC225 was changed to an 'exercise identity' of 'bogey' (unknown ac). The evidence suggests that given the weakness in the identity matrix, the workload of the surveillance team, the fatigue of the individual controller and the operational imperative of the exercise scenario, the surveillance controller suffered a cognitive failure and re-identified the EC225 as 'exercise suspicious'. This change of identification caused the Weapons Director to task the Typhoons to conduct a visual identification of the EC225.

The Typhoons gained radar contact with the ac at a range of 25nm, becoming visual at a range of 10nm. The radar replay accords with the Typhoon pilot's report, showing that the leader positioned 1nm laterally displaced to the helicopter's port side to confirm the visual identification before hauling off. At the point where the Typhoons commenced the haul-off, the Range Training Officer also called them on the control freq to instruct them to haul-off, having also become aware that the EC225 was not an 'exercise player'.

From an ATM perspective the weakness of the identity matrix indicated a flawed mission planning process and caused a chain of events that led to the Typhoons being tasked with conducting the visual ID of the EC225. The Squadron concerned has proposed a number of recommendations to militate against recurrences and is commended on the depth of the analysis undertaken.

ATSI reports that (in addition to the EC225 pilot's report) an Airprox was reported by the ScACC Moray (MOR) sector controller, in the Class F Airspace of ADR W4D, S of Wick at FL055.

The EC225 had departed Foinavon for Aberdeen and was in receipt of a limited TS from the ScACC MOR. At the time of the Airprox a large-scale military exercise was underway in Scottish airspace. The MOR controller reported that he had been in the same position on previous exercise days and that the sector was combined with MOR High and MOR Low being operated by a single controller working with a display range set to 100nm.

At 1242:15 the EC225 called the MOR sector maintaining FL055, the pilot was instructed to squawk 3610 and asked what service he required; he requested a TS, to join ADR W4D at FL055, and gave an estimate for WIK of 1306. The controller identified the EC225 at 1243:00 and placed it under a TS, limited to transponding traffic only and this was read-back by the pilot.

Code 3610 is allocated to 'Scottish ATSOCA Purposes' and is considered validated and verified.

The UK AIP ENR 1-1-1-4 (paragraph 4.2.1.2) in respect of ADRs states:

> 'The ICAO requirements for an Air Traffic Advisory Service are met in the UK through the provision of a Deconfliction Service or Procedural Service to IFR ac that have flight planned to fly along ADRs.'

At 1301:53 MOR cleared the EC225 to join Advisory Airspace at WIK, routeing W4D to Aberdeen at FL055, and the clearance was read-back correctly. The EC225 passed overhead WIK at 1306:56 and its ground speed was about 150kt. At 1307:40, when the EC225 was 1.7nm S of WIK on the ADR, the MOR controller passed TI to the EC225, "*…traffic left ten o'clock six miles er crossing left to right indicating flight level seven zero descending"* and the pilot responded that the traffic was showing on TCAS. The STCA, low level, activated at 1307:42 followed by a high level alert at 1308:02 and at the same time, the MOR controller updated the TI, "*… now left ten o'clock at three miles er still descending through flight level six five".* Ten sec later, having received no reply from the EC225, the controller asked if the pilot was visual with the traffic and he responded at 1308:18, "… *we've just got it visual actually it's a fast jet and he's turning towards us we're just taking avoiding action"*

As the Typhoon approached the EC225 from the E it reduced speed to 330kt and the EC225 began diverge off the ADR to the right and at 1308:35 reported, "… *we got it on ACAS with a traffic alert … looks like a Typhoon and he's taking avoiding action on us*"; this was acknowledged by the controller who asked if the EC225 wished to file an Airprox and he replied, "*Affirm"*.

[UKAB Note (2): The EC225 is equipped with TCAS 1 therefore no RAs are generated.]

Prestwick Multi-Radar Tracking radar recording shows that at 1308:37 the Typhoon, having been on a track which took it behind the EC225, made a sharp left turn to parallel it displaced by 0.8nm in its 9 o'clock, and 500ft below and this was the CPA. The Typhoon, having commenced a southeasterly diverging track from the EC225 then turned back across the EC225's track, 1.5nm ahead of it at FL051 resulting in another STCA activation at 1309:07. At 1309:32 the MOR controller passed further TI on the Typhoon, "… *traffic manoeuvring to your left … nine o'clock at er three miles same height you still visual?"* and the pilot replied, "… *yeah … he's clearing us now …".* The pair of Typhoons then cleared the ADR to the NW.

The EC225's route took it through Class F uncontrolled airspace along an ADR. Having identified the ac and issued it with instructions for transit of the ADR the MOR controller chose to provide a

limited TS. Based on the controller's experience of the effect of the military exercise on the sector and the EC225's slow speed, this was the most appropriate level of service available and was agreed by the EC225 pilot.

The EC225 was transponding a civil validated and verified SSR code; however, it's appearance on a southbound track from Wick, gave it the expected characteristics of a participant in the military exercise and 2 Typhoons were tasked with intercepting and identifying the ac. The display of the civil purpose SSR code was insufficient to alert the military controlling authority that the EC225 was not an exercise participant. ATSI was unable to establish if the military controlling authority were able to see the SSR code 3610 on their displays or, if so, whether this was assimilated as a civil code.

The MOR controller gave TI as the Typhoon approached the EC225 and this was further updated as the Typhoon came closer to the EC225 and high-level STCA activated. The EC225 pilot initiated his own avoiding action by diverging from the ADR and reported visual with the Typhoon as it passed ahead of the EC225, along its left-hand side at 0.8nm and 500ft below.

HQ AIR (OPS) comments that the circumstances that led to the ambiguous tagging of the EC225 were discovered during the investigation and a number of recommendations to militate against recurrences have been made. The Typhoon pilot had good situational awareness on the location of his intended target and prosecuted his tasked mission to the point where he became aware that it was not an exercise player. Safety was not compromised.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available included reports from the pilots of both ac, transcripts of the ScACC RT frequency, ScACC radar recordings, reports from the controllers involved and reports from the appropriate ATC and operating authorities.

The ASACS Advisor informed the Board that, technically, the Typhoons had been in receipt of a BS outside CAS from the AWACS since communication jamming was anticipated; this however did not change substantially the method of control employed by the crew. He also informed the Board that the TD had overall responsibility for the 'rear end' operation, was responsible for safety and had a full picture of all aspects of the exercise. The HQ Air (Ops) Member informed the Board that the Typhoons were JTIDS equipped and would have had a full tactical air picture of the exercise area. The Secretariat advised the Board that the C152 did not show on radar at any time and, although its intentions were not known, it was thought unlikely that it would route over the Moray Firth or near the ADR.

Members were surprised that the Exercise Planners had planned the 'Slow Moving Target' inject to take place in the Wick area, which is known to be busy with both civil fixed-wing and helicopter traffic and has no radar. There was discussion about the implications of military ac operating in and around ADRs such as W4D; the CAA ATC Policy and Standards Advisor stated, however, that ADRs are technically a centre-line only without any lateral dimensions but for ATC purposes are regarded as Class F airspace. He also stated that the future of Class F airspace, including W4D, is currently under review by the CAA. The Civil Helicopter Member, who has previous military experience, considered that poor, inconsiderate exercise planning and had been a significant factor in the incident. Had the inject been planned to have taken place elsewhere in the exercise area, then it is unlikely that the Airprox would have occurred. The HQ Air (Ops) Member stated that practising VIDs of all types of ac is a routine but essential part of such exercises. There was discussion about the possibility of military ac conducting VIDs using a discrete Mode 3 squawk so that civil controllers could easily identify them; however, this was considered impracticable by military pilot Members due to cockpit workload. There was also discussion as to whether ADR's should be placed out of bounds for exercise participants; however, it was agreed that this would be unnecessarily restrictive, providing that exercise participants pay due regard to civil traffic operating therein (as had not happened in this incident). Civil Controller Members were surprised that the AWACS controllers (all of them) had either not seen the helicopter's civil Mode 3 Squawk or that it had not prevented them

from tasking a VID on the EC225. The HQ Air BM SM and ASACS Advisors explained that the IFF/SSR situation in AWACS is complex, that exercise training considerations had precluded full use of IFF/SSR and that the civil helicopter had not been 'tagged' as a non participant as a result of human rather than systemic error(s). That being the case, Members agreed that the co-ordination arrangements and the ensuing ACN had been appropriate.

When considering the part played by the Typhoon pilot, Members agreed that he could not have been expected to ascertain the identity of the 'target' any earlier; one Member was surprised however, that he had not been aware that the ac was in the ADR and was squawking appropriately. They also agreed that the Typhoon pilot had broken off as soon as the error became apparent, but could not determine whether this had been directed or of his own volition; in any case it was not considered relevant to the circumstances of the Airprox, coming after the event.

A civil controller Member stated that neither the EC225 pilot nor the ScACC controller had been in a position to influence events in any meaningful way. The ScACC controller was unable to communicate or co-ordinate his ac with the AWACS and was faced with a traffic density such that he would not have been able to provide the EC225 with a full DS while still meeting the objective of progressing it along the ADR to Aberdeen; further the pilot had agreed to a TS. Although not strictly in accordance with MATS Pt1 procedures for ADRs, the application of a TS to the helicopter had, the Board agreed, been the best option in that it gave the pilot the highest level of information possible, thus enabling him to make his own judgement regarding avoidance or track progression; this gave the pilot significantly more information than the controller could offer with a Procedural Service that would have only informed the pilot about other participating IFR traffic in the ADR (in this case there was none). The civilian controller Member was familiar with ScACC and suggested that an AWACS liaison officer present in the appropriate sector might help to reduce the number of such events during exercises.

Despite the other factors mentioned above, Members agreed that this had been a simple case of mistaken identity by the AWACS mission crew caused by incorrect 'tagging' of the EC225; as a result of the Exercise constraints placed on them, and possibly a determination to complete the task in hand, the AWACS controllers had not considered the bigger picture and none of them noted the error until the Typhoon pilot informed them that the helicopter was not an exercise player. The Typhoon pilot had not closed to an unreasonable distance and Members agreed that he had broken away as soon as the error was discovered.

Due to the Typhoon pilot's early visual contact with the helicopter and the controlled manner in which he conducted the VID, the Board agreed that there had been no compromise of safety or risk of collision.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: The AWACS crew misidentified the EC225 as an exercise participant and directed the Typhoon pilot to visually identify it, causing the EC225 crew concern.

Degree of Risk: C.