AIRPROX REPORT No 2012112

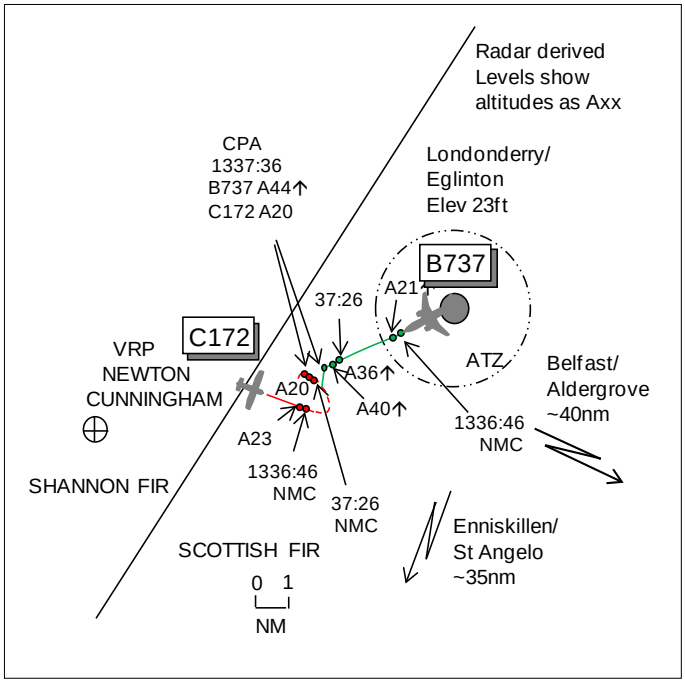
Date/Time: 27 Jul 2012 1338Z

Position: 5501N 00717W (5nm SW Londonderry - elev 23ft)

Airspace: SFIR (*Class: G*)

Reporter: Londonderry ADC/APP

	1st Ac	*2nd Ac*
Type:	B737-800	C172
Operator:	CAT	Civ Trg
Alt/FL:	1800ft↑ (QNH)	2000ft (QNH)
Weather:	NK NR	VMC CLBC
Visibility:	NR	20km
Reported Separation:	NR	Not seen
Recorded Separation:	Nil V/3·3nm H or 2400ft V/0·6nm H	



CONTROLLER REPORTED

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE LONDONDERRY ADC/APP reports that the departing B737 was airborne at 1336. Previously the flight had been given TI on an ac [AC3, not the C172] not above 2000ft 13nm SW of the aerodrome and departure instructions of, "RW26 straight ahead altitude 2500ft or above before turning L to BEL". At 1337, before the flight made its L turn and when about 3-4nm W of the aerodrome, the crew reported passing a contact 100ft below their ac. He could see the B737 but no other ac and the crew was told this. As the crew made no further remarks the flight was transferred to Scottish Control. He spoke to Belfast Radar controller and asked if he could see the departing B737 and explained what happened. The only radar contact that Belfast could see W of Londonderry was the B737. The ac about which the B737 flight was given TI was much further S than had been passed and was in contact with Belfast, the controller confirmed the ac's location. Later the Belfast controller telephoned and advised that a C172 flight on a navex from Enniskillen to Newtownards had reported at Dungiven at 1346. As the student pilot of this ac was uncertain of his position, believing in fact that he was at Toome, the controller wondered if this C172 was the conflicting ac. The C172 pilot had said that he had been lost earlier in the flight and was instructed to land at Belfast, which he did. The next day a Belfast controller telephoned to say that after reviewing the radar replay for the relevant period the B737 could be seen climbing out from Londonderry but there were no other contacts. When the C172 pilot contacted Belfast the ac was 8nm S of Londonderry, just W of Dungiven. This ac flew from Newtownards to Enniskillen earlier in the day and had been issued a 7034 squawk code and was still using code on the return flight. If this ac had been transponding continuously, the departing B737 crew should have seen the ac before departure.

THE BELFAST RADAR 1 CONTROLLER reports that at 1346 the C172 flight contacted Belfast on 128·5Mhz and the pilot reported being unsure of his position. After establishing that the pilot was clear of cloud and visual with the ground, the flight was identified and informed of its position from Belfast/Aldergrove and with reference to towns in its vicinity; the ac was approximately 4nm SE of Dungiven. The C172 pilot believed his ac to be nearer to Toome Bridge which is 15nm further to the SE. Subsequently the pilot reported visual with a motorway and intending to route to Newtownards.

The pilot reported on a navex from Enniskillen to Newtownards flying solo. The QNH was passed and the ac's altitude appeared accurate. He updated the pilot with towns en-route; however, the pilot turned away from his anticipated route and heading checks indicated that the ac's compass was probably incorrect. The pilot was informed of geographical features within his area and was advised to follow the Western shore-line of Lough Neagh, which he did. Belfast City ATC was advised of the ac. During the event Radar 2 was manned and some traffic was transferred to 120·9Mhz. At approximately 1358 another controller took over the control position and as Watch Manager he contacted Newtownards Flying Club. The club representative stated the C172 pilot had 80hr experience and the ac had 4hr endurance on departure from Newtownards and it was anticipated the ac had sufficient fuel for another 1hr and 10min. The radar controller continued to provide assistance to the C172 flight and as the ac reached Lurgan/Portadown the pilot reported some Wx ahead. Assistance was given to join Belfast CTR from the SW towards Nutts Corner VRP, landing clearance was coordinated with ADC and the ac landed safely at 1420. Five minutes before the C172 flight contacted Radar passing Dungiven at 1346, Londonderry ATC enquired whether there was any traffic on Belfast's frequency which may have flown within their vicinity; Dungiven is 10nm SE of Londonderry.

THE B737 PILOT reports after take-off from RW26 at Londonderry, IFR when passing through 1800ft a TCAS contact was observed. This traffic became 'proximate' in their 11 o'clock showing 100ft vertical separation and 2-3nm laterally. This traffic was at approximately 2000ft and their flight conditions were intermittently VMC; the ac was not seen. They continued to climb straight ahead to 3000ft and turned L towards BEL once separation was assured; neither a TA or RA was received. During a subsequent telephone conversation with Londonderry ATC Supervisor it was revealed an Airprox had been filed after it became clear that the intruding ac was flown by a student pilot who was unaware of his position. He thought that the controller interpreted the minimum separation of 100ft in isolation. Whilst he, the Capt, was satisfied that no immediate risk of collision had occurred, given the Class G airspace surrounding Londonderry the situation highlights the requirement for radar information to be made available to CAT ac.

THE B737 COMPANY SAFETY DEPT comments that they did obtain agreement from Belfast some years ago to provide low altitude radar service to fill the gap between handover from Scottish to Londonderry. This will be investigated to see if it can be revived as at least an SSR signal may be detected by Belfast even if intervening terrain prevents primary returns.

THE C172 STUDENT PILOT reports departing Enniskillen VFR squawking with Modes S and C. The visibility was 20km flying 2000ft below cloud in VMC and the ac was coloured white/blue with strobe lights switched on. After departing Enniskillen flying at altitude 2000ft QNH at 100kt he encountered bad Wx and diverted to the N. After a period the Wx improved and upon identifying his position S of Londonderry he contacted Belfast/Aldergrove and informed them of his position. He diverted into Aldergrove owing to visibility and cloud base and landed safely. At no time did he see a B737 but if he had evasive action would have been taken.

ATSI reports that an Airprox was reported when the B737 came into proximity with a C172 at approximately 2000ft altitude as the B737 climbed-out from Londonderry/Eglinton RW26.

The B737 departed Londonderry/Eglinton on an IFR flight to Birmingham and was in receipt of an Aerodrome Control Service from Londonderry/Eglinton ATC on 123·625MHz. The B737 was squawking Mode A code 6012.

The C172 was on a VFR navigational exercise from Enniskillen/St. Angelo to Newtownards and the pilot had departed Belfast Aldergrove earlier that same day with the Mode A code 7034 for its inbound flight to Enniskillen/St. Angelo.

Londonderry/Eglinton ATC provides Aerodrome Control and Approach Procedural services without the aid of surveillance.

ATSI had access to both pilot reports, reports from ATC at Londonderry/Eglinton and Belfast Aldergrove, recorded area surveillance (Prestwick Multi Radar Tracking (MRT)), transcription of frequencies 123·625MHz (Londonderry/Eglinton) and 128·5MHz (Belfast Aldergrove Approach). Additionally a video of the Malin Head radar was provided by the Irish Aviation Authority.

METARs for Londonderry/Eglinton were:
EGAE 271320Z 29017KT 9999 FEW030 SCT034 17/10 Q1014=
EGAE 271350Z 29018KT 9999 FEW030 SCT034 18/10 Q1014=

At 1257:01 UTC an ac displaying code 7034 is seen departing the vicinity of Enniskillen/St. Angelo to the NW at FL020. The contact is visible on Prestwick MRT for 40sec before disappearing. For the purposes of clarity in the remainder of this section the 7034 contact shall be assumed to be the C172.

At 1302:34 the C172 reappears for just over 1min on MRT 8nm NW of Enniskillen/St. Angelo at FL015. The contact reappears on MRT again at 1308:24, 13·3nm N of Enniskillen/St. Angelo at FL017 before fading 8sec at 1308:24. MRT did not redetect the C172 until 1342:09 i.e. after the Airprox.

Throughout the period of recorded surveillance replay observation another ac, AC3, is observed operating in the vicinity of the Sperrin Mountains [High ground ranging ~15nm from S to SE of Londonderry] at recorded altitudes not above 2000ft.

Between 1316:37 and 1316:52 the Malin Head (MH) radar detects the C172 in the Shannon FIR, 9nm S of Letterkenny aerodrome [26nm SW Londonderry], near Ballybofey; NMC level information was detected.

At 1331:57 the C172 was detected again by MH 5·5nm NE of Letterkenny aerodrome. The ac was on an E'ly track and NMC level information was detected.

The MH radar continues to detect the C172 on its E'ly course (Mode A only) until 1332:07 when the C172's Mode C appeared as altitude 1200ft, 1·7nm NNW of the Newton Cunningham VRP [12nm final approach RW08 Londonderry]. This position is underneath Eglinton CTA-1 in Class G uncontrolled airspace. The contact disappears at 1332:48 having taken-up a SE'ly track.

The C172 was detected by MH as it passed over the Newton Cunningham VRP at 1333:26 on an E'ly track; no level information was detected.

At 1333:50, as the B737 was lined-up and waiting for departure from Londonderry/Eglinton RW26, it was passed its departure clearance to Birmingham, via the Belfast VOR (BEL), with climb to FL250. At 1334:20 the B737 flight was further instructed to fly straight-ahead until passing 2500ft when it could turn left for the BEL. After reading back its clearances the B737 flight was informed by ATC, "*you might see about thirteen miles southwest be one aircraft he's not above two thousand feet."* The B737 flight was cleared for take-off at 1334:30.

At 1335:51 the C172 reappears on the Shannon/Scottish FIR boundary at a position 7·3nm on the extended C/L RW26 Londonderry/Eglinton. Five seconds later the MH radar detects the C172 at altitude 2100ft. The ac is proceeding on an E'ly track and indicates altitude 2200ft at 1336:03.

The B737 appears on the MH radar at 1336:46 with the C172 proceeding ESE'ly in its 1130 position, range 3·9nm. The C172's previous radar update shows the C172 at altitude 2300ft however, as the B737 becomes airborne, no level information was detected from either ac.

At 1336:50 the B737 crew reported on 123·625MHz, "*we've got er traffic two and half miles ahead just a hundred feet below us."* The controller responded at 1337:00, "*er that I know nothing about sir I'm sorry about that."*

The B737 passes through altitude 2300ft, the last reported altitude of the C172, at 1336:56; however, at this time, the C172 is not detected by MH, with only the C172's ESE'ly track history remaining on screen. The B737 is 3·3nm from the last recorded position of the C172.

The B737 continues to climb straight ahead passing 2500ft, 2700ft, 2900ft and 3200ft on sequential updates of the radar.

At 1337:26 the C172 reappears in the B737's 12 o'clock at a range of 0·9nm routeing from the L as the B737 climbs through 3600ft; the C172 is now on a NNW'ly track.

The next update of the MH radar at 1337:31 shows the C172 at 2000ft in the B737's 12 o'clock, range 0·9nm, as the B737 climbs through 4000ft. *See Figure 1 below.*

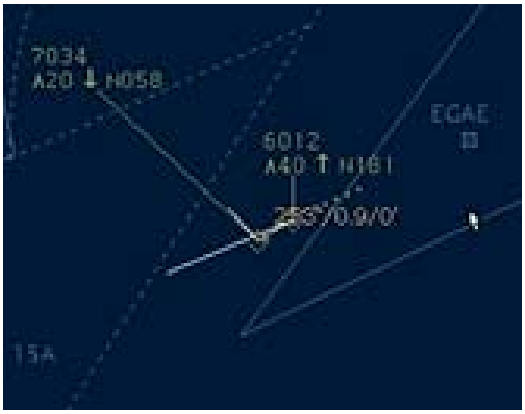


Figure 1. Malin Head Radar – 1337:33 UTC

[UKAB Note (1): CPA occurs on the next radar sweep at 1337:36 as the B737, climbing through altitude 4400ft, passes 0·6nm E of, and 2400ft above, the C172 indicating 2000ft.]

The B737 continues to climb at a rate in excess of 4000fpm as it makes a L turn towards BEL. The C172 maintains altitude 2000ft as it makes a wide LH orbital manoeuvre before rolling-out on a SE'ly track.

At 1337:50 the B737 flight was transferred to Scottish Control.

Between 1338:00 and 1340:00 a call was made between Eglinton Tower and Aldergrove Approach in which the Eglinton controller enquired about the position of AC3. This was given by Aldergrove as being in the Magherafelt area [25nm SE Londonderry]. The Eglinton controller then reported that the departing B737 crew had observed another ac 100ft below it and asked the Aldergrove controller if any other ac could be seen in the vicinity. The Aldergrove controller reported that there was not and that he was not aware of any other ac going over in the direction of Londonderry/Eglinton.

At 1345:10 the C172 pilot called Aldergrove Approach, reporting, "*…student pilot I got into cloud there erm over er Derry direction er just for your information over*." ATC then confirmed that the C172 was squawking 7034 and the pilot's intentions were ascertained. Aldergrove Approach provided the pilot with extensive navigational assistance and it became apparent that the C172's compass was giving grossly incorrect readings. As the weather closed in on Belfast the pilot elected to be guided into Aldergrove Airport where a successful and safe landing was made.

Although the intended routing of the C172 is not known, the radar data suggests that the aircraft flew N from Enniskillen/St. Angelo, passing Letterkenny, until Lough Swilly where it turned to the E to pass the Newton Cunningham VRP. The C172 then executed a wide orbital manoeuvre over the City of Derry/Londonderry, where its pilot subsequently reported getting into cloud. There was no indication that the C172 pilot was aware of the presence of the departing B737.

The B737 departed in accordance with its clearance. Its crew had been informed about the presence of AC3 traffic further S, which may have heightened the pilots' awareness of other traffic in the vicinity. Neither they nor the Londonderry/Eglinton controller were aware of the presence of the C172 to the W of the aerodrome in Class G uncontrolled airspace.

The available radar data was intermittent. The ac appears to be at the same level at 1336:56, 2300ft, at approximately 3·3nm distance. Later, as the C172 reappears in the B737's 12 o'clock, range 0·9nm, there is 2000ft vertical distance between the 2 ac.

The Airprox occurred in Class G uncontrolled airspace W of Londonderry/Eglinton aerodrome when a B737 departing RW26, in the climb to FL250, came into proximity with a C172 at 2000ft manoeuvring O/H the city.

Neither ATC nor the B737 crew were aware of the presence of the C172 beforehand, the pilot of which had very likely become disorientated/lost on a navigational exercise.

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.

It appeared to Members that the C172 pilot was significantly off-track when, in his written report, he diverted to the N owing to bad Wx not long after departing Enniskillen. If he had intended to route on a direct track between Enniskillen and Newtownards, this would have passed >30nm S of Londonderry. As it was the C172 is captured on recorded radar routeing through Irish airspace when to the W of Londonderry before turning to the E/SE. It was when the C172 pilot commenced an orbit over the city of Derry/Londonderry that its presence was noticed by the B737 crew. Pilot Members concurred with the B737 crew's viewpoint that the Londonderry controller had probably taken the 100ft vertical separation reported on the RT in isolation whereas this had occurred when the B737 and C172 were shown on the recorded radar to be over 3nm apart. The B737 crew had seen the C172 on TCAS and continued their climb straight ahead, ensuring that they passed well above the Cessna before turning L towards BEL; these actions had negated the generation by TCAS of any TA or RA warnings and had turned this incident into a benign encounter. Members agreed that incidents like this can occur at any time when TCAS-equipped ac operate from a non-radar equipped airport in Class G airspace. In the absence of any RT calls from the C172 pilot the Londonderry controller could not have known about the C172. There could be any number of ac operating VFR in the vicinity not talking to the ATSU at an adjacent airport, highlighting the need for CAT aircrew to be ever vigilant for the appearance of unknown traffic in Class G. All of these elements, when combined, were enough to allow the Board to classify this incident as a controller perceived conflict, where normal safety parameters and procedures pertained and any risk of collision had been effectively removed.

The NATS Advisor informed Members that provision of radar services to Londonderry traffic from Belfast/Aldergrove, prior to transfer to Scottish ACC, was not practicable owing to lack of low level coverage, cited as 3000-3500ft.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: Controller perceived conflict.

Degree of Risk: E.