AIRPROX REPORT No 2010174

Date/Time: 16 Dec 2010 1714Z NIGHT

Position: 5527N 00426W (6nm SE of Prestwick Airport elev: 65ft)

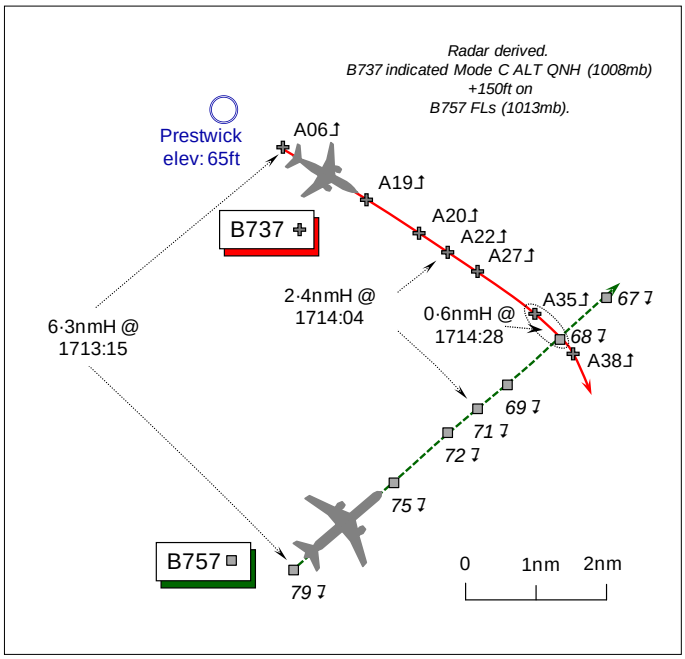
Airspace: S TMA/Prestwick CTR (*Class: D*)

Reporter: SAC Galloway Sector

	1st Ac	*2nd Ac*
Type:	B757	B737-800
Operator:	CAT	CAT
Alt/FL:	6000ft↓ QNH (1008mb)	3000ft↑ QNH (1008mb)
Weather:	IMC In Cloud	NR
Visibility:	10km	NR
Reported Separation:	Not seen	NR

Recorded Separation:

3250ft V @ 0·5nm min H



CONTROLLER REPORTED

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE SAC (PRESTWICK) GALLOWAY SECTOR TACTICAL CONTROLLER (GAL-T) reports that a military ac working ScATCC (Mil) had declared an emergency and was diverting into Prestwick Airport from the vicinity of FOYLE – 17nm N of Glasgow. This emergency traffic was co-ordinated with his Planner (GAL-P), descending to the min stack level of FL80, proceeding direct to a position 10nm Final for RW13 at Prestwick. He agreed to remain clear of this emergency ac with all GALLOWAY Sector traffic or coordinate as required. The B757, inbound to Glasgow through TURNBERRY VOR (TRN), was released at FL80 towards LANAK and transferred to Glasgow RADAR about 10nm SSE of Prestwick Airport. Glasgow then transferred an outbound flight [ac3] on a TRN SID from RW05 climbing to an altitude of 6000ft. He also detected, from the B757's Mode S Selected Level (SEL), that Glasgow had descended this ac to 6000ft. No co-ordination had been offered by Glasgow regarding the separation between ac3 and the B757, therefore, he immediately climbed ac3 and asked GAL-P to tell Glasgow. However, he then observed on radar another ac - the B737 - outbound from Prestwick off RW13 (not the notified RW in use) showing a Mode S SEL of 6000ft on a direct track in conflict with the B757 also showing a SEL of FL60 Mode S. He called Prestwick, whilst his Planner called Glasgow, asking Prestwick to stop the B737 at 5000ft which was agreed. Prestwick then called back almost immediately stating that the B737 had already been transferred to his GALLOWAY frequency, that it was climbing on the SID to 6000ft and that they had given Glasgow RADAR approval for their inbound B757 to descend in Prestwick's airspace to 6000ft. Whilst on the phone to Prestwick, the B737 crew called on his frequency passing 4000ft in the climb to 6000ft so he immediately gave the B737 crew an avoiding action to turn onto a heading of 180° to avoid the B757 and stopped the B737's climb at 5000ft QNH. Separation was not lost and eventually the B737 was co-ordinated, climbed and transferred to the TALLA sector.

THE BOEING B757 PILOT reports flying inbound to Glasgow but was unaware of any Airprox. He recalled being given extended vectors to the E, whilst flying in IMC, because of military traffic inbound to Prestwick with an emergency. However, no other ac was seen and as far as he was aware at the time, nothing untoward occurred.

THE BOEING B737-800 PILOT (B737) reports that the only indication of an impending incident was an ATC instruction to turn preceded by the term 'avoiding action'. They did not receive a TCAS TA or RA and understood from ATC that minimum separation was 2000ft.

THE PRESTWICK TOWER CONTROLLER (TWR) reports that he took over the position at 1700UTC with 1 pending departure and no other scheduled traffic until 1950UTC. Some 6min later he answered the ScATCC (Mil) line and was advised of a Tornado that had declared a PAN and was inbound to Prestwick low on fuel. A local Standby was initiated for the safety services at 1710. The B737 departed from RW13 at 1713 after co-ordination with the GAL Sector. About 1min later he advised the APR of the B737's departure via intercom; the APR requested further details which were passed, whereupon the APR intimated the B737 could be passed direct to the GAL Sector. The B737 was duly transferred to GAL-T on 124·825MHz. A few secs later the APR requested that the outbound B737 be given a level restriction of ALT 5000ft, but he advised that the B737 had already been transferred to the GAL Sector.

THE PRESTWICK APPROACH RADAR CONTROLLER (APR) reports that he opened the APR position at short notice due to a Tornado that had called a PAN and was now inbound. After taking the Tornado's details from ScATCC (Mil), Glasgow telephoned asking for ALT 6000ft for an inbound that was passing about 3nm E of Prestwick, which was coordinated. GAL Sector was telephoned about the PAN ac to coordinate it entering the TMA. During this call, the B737 departed from RW13 - the RW in use was RW31 - but the VCR ATSA was unable to pass the airborne time to the APR. TWR came through on the intercom with the departure time, but he (the APR) had no details of the B737 and so queried its routeing; since the route was through NEW GALLOWAY NDB (NGY), he did not perceive a conflict. GAL Sector phoned shortly afterwards requesting the B737 be stopped at ALT 5000ft; he requested TWR to do this but the B737 had already been transferred to GAL-T. He immediately phoned GAL Sector to tell them the B737 had been transferred with no level restriction; during the call the B737 crew called GAL-T who stopped the climb at ALT 5000ft and passed an avoiding action turn. The B737 was passing about ALT 3000ft at this time; at no point was vertical separation eroded.

ATSI reports that the Airprox occurred in Class D CAS, SE of Prestwick Airport and was reported by the Prestwick Centre (PC) Galloway Tactical controller (GAL-T).

The B737 had departed Prestwick and was in contact with GAL-T on 124.825MHz. The B757 was inbound to Glasgow from Lanzarote and had been transferred to Glasgow APPROACH, having worked the GAL Sector previously. The GAL Sector was being operated by GAL-T and a Planning controller - GAL-P. There were no reported unserviceabilities and the controllers were using Multi Radar Tracking on their situation displays. Transcription of the telephone recordings was not possible due to technical difficulties and the quality of the recording. These issues have been addressed separately with Prestwick by the CAA's Transcription Unit.

Prestwick TOWER (TWR) and APPROACH Procedural (APP) functions were bandboxed in the Tower due to very low traffic levels. The notified runway in use was RW31. At 1704 the B737 crew called TWR on 118.150 MHz requesting start, which was approved and TWR gave RW13 [sic] for departure.

Scottish Military called TWR at 1705 pre-noting a Tornado in a state of emergency and requested a radar-to-visual approach for RW13. The Tornado was accepted by Prestwick at 6000ft. At this time the stand-by controller proceeded to open the Approach Radar (APR) position. In a subsequent conversation between the two units shortly after the ILS was confirmed as operational for RW13, an ETA for the Tornado was given as 1720.

At 1705:20 the B757 crew called GAL-T descending FL110 to be level by GIRVA on a heading of 025°. The B757 was 26.5nm SW of TURNBERRY VOR (TRN). GAL-T instructed the B757 crew to resume their own navigation to TRN, but shortly afterwards instructed the crew to route direct to LANAK.

The B737 commenced taxi to holding point Juliet for RW13 at 1708:30; Juliet/RW13 is situated a short distance from the terminal building at Prestwick Airport.

At 1709:20 the B757 crew was instructed to descend to FL80. The B757 was 16nm SW of Prestwick on a NE'ly track when it was transferred to Glasgow APPROACH on 119.1MHz at 1710:40.

The B737 crew reported ready at Juliet at 1710:45 and was instructed to line-up and wait. TWR then made a call to the airport's fire service to initiate the local standby for the Tornado; then, at 1711:45 cleared the B737 for take-off. At 1711:44, Glasgow Approach called the APR to point-out the B757 and co-ordinate its descent to 6000ft, which was approved. This was in accordance with agreed procedures as the B757 was above the Prestwick Local Area (defined in Glasgow MATS Part 2 and extending to altitude 6000ft). The B757 was 9nm S of Prestwick.

The B737 appeared on the GAL-T's situation display at 1713:15 passing ALT 600ft QNH (1008mb) with Mode S SEL observed to be set to FL60. At 1713:54, TWR called the APR to enquire if the APR "*wanted*" the B737. This was the first indication to the APR of the departure, which by now was airborne. APR asked which way the B737 was routeing and later reported that there were no details on the outbound at the radar console. ADC replied "*NEW GALLOWAY*" but did not state that the B737 was departing from the 'non-duty' RW13. At 1714:04 APR stated, "*not interested*". TWR transferred the B737 to the GAL Sector at 1714:06 as the ac was climbing through ALT 2200ft. The B757 was in the B737's 2 o'clock range 2.4nm descending through FL71 for ALT 6000ft.

At 1714:09, GAL-T called the APR and asked the controller to stop the B737 at ALT 5000ft, explaining that Glasgow Approach was dropping the B757 to 6000ft and the call terminated. The descent rate of the B757 was observed to be approximately 500ft/min and the ac had approximately 45nm to run for Glasgow's RW05.

At 1714:12, the B737 crew commenced their read-back of the frequency change, during which the land-line between TWR and APR was heard to re-engage. A voice was discernible under the B737's read-back but the content of the message was inaudible. The B737 crew completed the read-back at 1714:17, immediately after which TWR stated (to APR), "*Sorry he's just gone*".

At 1714:25, the APR called-back GAL-T explaining that the B737 had already been transferred to the GAL Sector. GAL-T asked if APR had given Glasgow lower on an inbound. APR replied, "*I've given Glasgow six thousand, yes, sorry the TOWER have just chucked him to you*". By this time the tabular data blocks of both aircraft on the GAL-T's situation display had merged.

The B757 passed through the 12 o'clock of the B737 at a range of 0·6nm at 1714:28. The B737 was climbing through ALT 3500ft QNH (1008mb) as the B757 was descending through FL68, 6nm SE of Prestwick. Horizontal separation reduced to 0.5nm at 1714:32 as the B757 crossed into the B737's 11 o'clock. STCA did not activate on the GAL-T controller's situation display.

[UKAB Note (1): The B757 was displayed at FL068 within the Scottish TMA and the B737 at ALT 3700ft (1008mb) within the Prestwick CTR giving vertical separation of about 3250ft at minimum horizontal separation of 0·5nm.]

As this conversation was taking place the B737 crew called GAL-T passing 3700ft for 6000ft on the NEW GALLOWAY 1L SID. GAL-T interrupted the conversation with APR and, at 1714:39, instructed the B737 crew, *"avoiding action turn right immediately heading south stop climb at 5 thousand feet*". This was read-back accurately by the B737 crew. By 1714:57 the B737's turn onto a southerly heading begins to take effect.

The telephone line to the APR remained open as GAL-T co-ordinated with the GAL-P and at 1715:20 the APR interjected, asking if GAL-T had the B737 on frequency. GAL-T replied, "*affirm"* and the call was terminated. Shortly afterwards the B737 crew was informed they were clear of the traffic and climbed/vectored in accordance with requisite Standing Agreement. The B737 crew later reported

that the turn and 'stop climb' instruction was unusual but 'not worth reporting'. The B757 crew continued inbound to Glasgow and subsequently reported being unaware of the Airprox.

GAL Sector and Glasgow Approach followed the published procedures for handling the B757 inbound to Glasgow via TRN – LANAK. Glasgow co-ordinated the descent of the B757 to altitude 6000ft in the Prestwick Local Area as required by unit procedures.

The B737 was cleared to depart from RW13, the non-duty runway, by TWR. Immediately after informing the B737 crew that departure would be from RW13, this RW was allocated to the inbound emergency Tornado and configured accordingly. APR was opened as a separate operational position in anticipation of the Tornado's arrival. However, APR had no details of the B737's imminent departure. Additionally, when TWR requested whether or not APR required to work the B737 on a NEW GALLOWAY SID, the B737's departure from the non-duty runway was not highlighted to the APR. The APR agreed co-ordination with Glasgow for the B757's descent when the APR did not know that the B737 would be departing from the non-duty RW13.

It is likely that the distraction of the inbound Tornado and the short notice opening of the APR position lead to an incomplete transfer of information between TWR and APR with regard to the traffic situation.

Further to GAL-T's request to stop the B737 at 5000ft, the APR's attempts to relay this message to TWR were unsuccessful and the B737 called GAL-T climbing into confliction with the B757. The profiles of both ac were such that there was no loss of separation; however, the sequence of events led the GAL-T controller to believe that safety had been compromised.

Subsequent to this Airprox, appropriate remedial actions were completed at Prestwick in co-ordination with the CAA Air Traffic Standards Division's Northern Regional Inspectorate.

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 authorities.

The B757 crew, descending IMC in cloud, could not see the B737 visually and, at over 3000ft below their ac at the CPA, would have been unconcerned if it was displayed on TCAS. Neither was the B737 pilot concerned it would seem, despite his initial climb being interrupted. Whilst stipulated vertical separation had not been eroded during this encounter there was significant potential for a more serious situation to occur. Some Members were surprised that this incident was reported as an Airprox because of the eventual separation, but the prevailing view was that the reporting GAL-T controller had rightly perceived the seriousness of the occurrence and was justified in raising this as an Airprox.

Controller Members were of the view that if the APR position had not been opened for the inbound Tornado, then the conflict might not have arisen. Neither the oncoming APR, nor the receiving GAL Sector were aware that the B737 would depart from RW13, when the APR agreed to Glasgow's request to descend their B757 to 6000ft within Prestwick's assigned airspace, just as the B737 departed off RW13 climbing to the same altitude. This was a significant factor and the catalyst that initiated the conflict. A CAT pilot Member queried if the B737's departure would have been subject to a 'release' from the APR, but at the time it departed it was the same controller in the VCR that was providing the combined TWR and APP control service, so such a 'release' would not have been sought. Although the combined TWR/APP controller had offered the B737 to the APR when he was opening the position in the ACR, TWR had not mentioned the departure was from other than RW31 and a salutary omission. Therefore, the APR would not have appreciated the potential for a conflict to the SE of the airport and had declined to afford a radar service to the B737 in the erroneous belief the B737 would depart initially to the NW. Plainly, if the APR had been aware the B737 was taking-

off from the opposite RW13 he would have realised it was in direct conflict with the descending B757 and would not have agreed to the co-ordination. Similarly in the VCR, TWR/APP was unaware that the APR had just allowed Glasgow to descend their B757 to 6000ft in Prestwick's assigned airspace. Thus the TWR/APP controller in the VCR did not have a full understanding of the traffic situation and neither did the controller in the ACR have the complete 'picture' of what was occurring with these two ac. This all stemmed from the APR position being opened at short notice and the controller agreeing co-ordination when he was not in full possession of the actual traffic situation. It seemed that the handover of approach control from the procedural environment controlled by APP in the VCR to that of a radar environment controlled from the ACR had been deficient and in the Member's overwhelming view was the fundamental cause of the Airprox. The Board concluded therefore, that this Airprox had resulted from an incomplete handover of the Approach Control function between TWR/APP and the APR.

In an area controller Member's view, GAL-T had done a good job in resolving this situation which required prompt action when he detected the B737 departing from RW13 in conflict with the descending B757. GAL-T had not been privy to the co-ordination between Prestwick and Glasgow, but Mode S proved its worth here by displaying to GAL-T that the B757 crew were intending to descend to the same level that the B737 crew had been cleared to. A controller member familiar with this airspace opined that Glasgow would have been endeavouring to descend the inbound B757 promptly, to get their inbound ac clear below traffic outbound on Edinburgh SIDs. Hence the B757's early descent. Nonetheless, when asked to level the B737 at 5000ft by GAL-T at 1714:09, the APR was unable to do so as the crew had already been instructed to switch to GAL-T earlier by TWR, an instruction that was read-back by the crew 3 sec later allowing insufficient time for the APR to relay the message. Therefore GAL-T, as the receiving controller, had to wait until the B737 crew called before he could interject and resolve the situation at 1714:39, when he transmitted his avoiding action turn and stop climb. The B737 was climbing through 3700ft QNH when the crew called and the radar recording revealed this was after the minimum horizontal separation of 0·5nm was achieved when the B757 had already crossed ahead of the B737. Nonetheless, 3250ft of vertical separation existed at the CPA. Some Members considered that, as both ac had been cleared to the same altitude, this was purely fortuitous and GAL-T's avoiding action turn had had little effect on the outcome. Some Members were also critical that the avoiding action was phrased in this way; however, controller Members pointed out that when dealing with TCAS equipped ac avoidance in the horizontal plane was the preferred option followed by action to ensure vertical separation, thereby reducing the potential for avoiding action instructions contrary to that demanded by an RA. The flight path of the B737 was such that it was always going to pass below and astern the B757 and the overwhelming view of the Members was that appropriate action had been taken and there had been enough time to rectify the situation. Whilst GAL-T's stop climb instruction prevented the situation from deteriorating further, there was ample separation in the vertical plane when the two ac were at their closest horizontally, thus the Board concluded no actual Risk of a collision had existed in these circumstances.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: An incomplete handover of the Approach Control function between TWR/APP and the APR.

Degree of Risk: C.