

AIRPROX REPORT No 2012026

Date/Time: 2 Mar 2012 1619Z

Position: 5116N 00050W (2nm WSW
Farnborough - elev 238ft)

Airspace: ATZ (Class: G)
Reporting Ac Reporting Ac

Type: BA146 CL600

Operator: Civ Comm Civ Exec

Alt/FL: 1300ft↑ 1200ft↓
QNH (1023hPa) QNH

Weather: VMC CLBC IMC HZBL

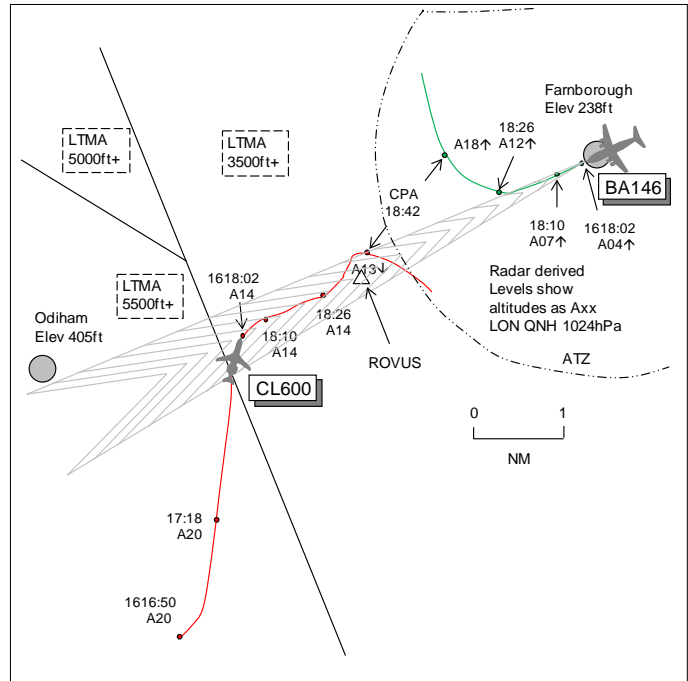
Visibility: 5000m 2nm

Reported Separation:

200ft V/4.5nm H 800ft V/2nm H

Recorded Separation:

500ft V/1.4nm H



BOTH PILOTS FILED

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE BA146 PILOT reports outbound from Farnborough, IFR and in communication with Farnborough Approach on 134.35MHz, he thought, squawking 6020 with Modes S and C. The visibility was 5000m in VMC and the ac was coloured white/blue; ac lighting was not reported. On taxiing out they were issued with a departure clearance of 'climb on RW heading to altitude 2400ft and at 2.5DME turn R heading 285°, squawk 6020. They were then cleared for take-off RW24. About 1.5nm SW of Farnborough heading 244° into sun at 150kt, climbing through 1300ft QNH 1023hPa, they switched to Radar, he thought [actually still with Tower], and were instructed to make an immediate R turn for avoiding action onto 360°, which they executed. On looking at their TCAS display they could see an ac about 5nm ahead and closing, about 200ft above. TCAS then issued a TA but no RA was generated. Once clear of the traffic they were turned back onto heading 270°. He assessed the risk as medium. Had the controller not been able to contact them immediately as they changed frequency then the 2 ac were heading directly towards each other and he would have then assessed the risk as high.

THE CL600 PILOT reports inbound to Farnborough, IFR and in receipt of a DS from Farnborough Approach on 134.35MHz, squawking with Modes S and C. The visibility was 2nm between cloud layers in IMC and the ac was coloured white/gold; lighting was not reported. While established on the ILS RW24, he thought [actually RW06] they were cleared for the approach after reporting "established on LOC". Upon descending on the G/P at 160kt at about 1200ft QNH they were told by the controller to make a hard L turn onto 120° [actually 330°]. After complying with the instruction they were then told to make a hard turn onto heading 300° [actually R 180°] so the FO, PF, disconnected the AP and complied with the instruction. While breaking R they saw an ac on their LHS turning to its R about 800ft above climbing at a very steep angle and 2nm away. After they were clear of conflict they were given a parallel course to the LOC and were asked to climb to 3000ft before being vectored back to the ILS. Neither a TCAS TA or RA was generated during the encounter and he assessed the risk as high.

THE FARNBOROUGH ADC reports he took over the position at 1610Z following a RW change and started the process of cancelling the safeguarding that was in force. The BA146 flight had been

given start approval by the outgoing controller. During the process of making telephone calls on the check list to cancel safeguarding several vehicle drivers called to enter RW24 which was the outgoing RW. Owing to the RW designator strip still indicating RW24 he cleared the vehicle drivers to enter and vacate accordingly. The BA146 flight called for taxi at 1615Z during his phone calls to the various parties needing to know about safeguarding being cancelled. Owing to him being distracted by the phone calls he cleared the BA146 flight to taxi for holding point 'W' for RW24 while observing the RW designator strip, and issued departure instructions for a RW24 CPT departure and then instructed the flight to enter and backtrack the RW. He observed a CPT inbound, the CL600, on the ATM passing 5000ft S'bound towards the ROVUS direction with about 5nm to run to ROVUS so he called Radar for a release on the BA146, which was given. He then saw the CL600 turning E a few miles S of Odiham onto what he thought would be a downwind leg [RW24]. The BA146 flight was cleared for take-off. His attention was taken away from the ATM as he was watching the RW and the departing BA146, which was airborne at 1618Z. He watched the BA146 climb as it passed the aerodrome boundary and was about to transfer control to approach when he noticed the CL600 establishing on the RW06 ILS with about 5nm to run. He gave the BA146 flight avoiding action immediately with a R turn onto heading 360°. He called Radar to advise that the BA146 was taking an avoiding action R turn and he heard the Radar controller also issue an avoiding action R turn. He confirmed with the BA146 crew that they were turning R onto 360° and advised the crew to report the heading to Radar on 134.35MHz.

THE FARNBOROUGH APR reports having taken control of the position towards the end of a Flight Check for RW24 ILS. Once the check was completed, in consultation with the Air controller, after 1 last RW24 departure [not the BA146], a RW change was completed in accordance with the local procedures to RW06 due to the E'ly wind. The first arrival for RW06, the CL600, was seen approaching CPT shortly afterwards. At this point, planning ahead, he saw a 3650 squawk SW of CPT tracking towards Odiham indicating 3000ft. He telephoned Odiham Approach to agree a course of action regarding the ac squawking 3650 and the CL600, which was still under the control of LTC. The Odiham controller told him the 3650 was a CH47 and it was carrying out a COPTAC/ILS to RW27 and it had commenced the procedure. He asked if the Odiham controller could delay the CH47 by some means but this was not accepted. On closing the line he pointed out to the Watch Manager, plugged in beside him, that he felt that this was somewhat inflexible given that the CH47 was making an approach to the non-duty RW, the CL600 was much faster and would be significantly delayed by this action. He re-contacted Odiham Approach and, after some protracted negotiation, it was agreed that the CL600 would be No 1 for the approach and the CH47 would complete 1 hold. He contacted LTC to arrange for the CL600 to be transferred on heading 180° keeping clear of the CH47. When the CL600 crew called on frequency the flight was instructed to descend to 2000ft QNH immediately and was given the aerodrome details. It was quickly apparent that it would be necessary to take the CL600 through the LOC and vector the ac in from the S so the crew was informed of this. Shortly after this the ADC rang and asked for the BA146 to be put 'on request'. The CL600 passed through the FAT at about 7nm and, after a short period, was turned L onto heading 010° to intercept the LOC. This was quite a severe turn with the intention of intercepting the LOC at about 5nm to stay ahead of the CH47. As the CL600 was approaching the LOC and was within the final approach quadrant, he descended the CL600 to 1400ft QNH to assist with the approach as he felt the whole approach had been rushed. This was an error on his behalf as it should have been 1500ft. At about this time the Air controller rang and requested release on the BA146 which was given. The CL600 established on the LOC at about 4.5nm and he was just about to transfer the flight to Tower when an SSR contact popped-up on the radar display O/H the aerodrome, directly ahead of the CL600. He realised immediately the BA146 was departing off RW24 and gave the CL600 flight an avoiding action L turn just as the ADC telephone line rang. He immediately answered the call to hear the Air controller apologising and at the same time he observed the BA146 turning R. He immediately stopped the CL600's turn and instructed the crew to turn hard R. The CL600 crew complied with his instructions and reported visual with the BA146. He estimated separation as 1.5nm. The BA146 flight eventually came on frequency and was given a service before transfer to LTC. The CL600 was vectored away to the S and delayed against the CH47 before landing.

ATSI reports that the Airprox occurred in Class G airspace within the Farnborough ATZ, at 1618:40UTC, between a BA146, which had just departed from RW24 at Farnborough Airport and a CL600, which was established on the ILS at 3nm from touchdown for RW06 at Farnborough. The Farnborough ATZ is a circle radius 2.5nm centred on the longest notified RW (06/24) 511631N 0004639W, except that part of the circle N of the M3 motorway from SFC to 2000ft aal, aerodrome elevation 238ft.

The CL600 was on an IFR flight from Berlin-Schönefeld to Farnborough and was working Farnborough Approach on 134.350MHz.

The BA146 was on an IFR flight departing Farnborough for Warton and was in receipt of an Aerodrome Control Service from the Farnborough Tower Controller on 122.5MHz.

ATSI discussed the incident with ADC (A), who had previously handed over, and ADC (B) on duty at the time of the incident, and had access to radar recordings of the incident and RT from the Farnborough Tower and Approach frequencies.

The Farnborough METARs are provided for 1550 and 1620UTC:

METAR EGLF 021550Z 06008KT 4900 HZ FEW021 11/07 Q1023=
METAR EGLF 021620Z 07008KT 4900 HZ FEW022 10/06 Q1023=

Prior to the incident, although the wind had favoured use of RW06, RW24 was in use in order to facilitate flight calibration of the ILS on RW24. Safeguarding was also in place due to marginal Wx conditions and to assist in the protection of the ILS as required during calibration.

At 1605:30, following completion of the calibration, ADC (A) and the APR had a conversation regarding changing the RW in use. ADC (A) had 1 ac to depart which was given a radar release by the APR and an agreement was reached that after the departure the RW in use would change to RW06.

At 1608:10 ADC (A) broadcast that RW06 was now in use. The ATIS was broadcasting information 'S' which gave the RW in use as RW24.

At 1608:30 Fire 1 called the Tower to request to enter RW06 at A1 for a RW inspection which was approved. ADC (A) used the Tower RW change checklist to complete the RW change procedure but did not change the RW designator strip, which was not on the checklist. ADC (A) later stated that he felt that the existing checklists were often cumbersome and distracting and involved some tasks that were not appropriate to the ATCO role and were carried out by the ATSA. While ADC (A) was completing the checklist another controller, ADC (B), arrived to give ADC (A) a break.

At 1610:10 the BA146 called for start having received information 'S' and the outgoing Tower controller, ADC (A) gave start-up clearance. After this transmission the ATIS was changed to reflect the RW change to RW06 but the designator was not changed and remained 'S'.

As part of the handover the outgoing Tower controller, ADC (A), used the PRAWNS checklist and stated that RW06 was in use on a number of occasions. The oncoming Tower controller, ADC (B), recalled being told that RW06 was in use several times. Neither controller noticed that the RW designator strip still showed that RW24 was in use.

ADC (B) was nearing the end of a day shift which had been fairly standard, working both in the tower and on radar. RW24 had been in use for the previous part of the day due to the ILS calibration.

At 1612:10 a call was received from Tech 3 requesting clearance into the cleared and graded area for RW24 which was approved by ADC (B).

At 1612:50 ADC (B) started the procedure to cancel safeguarding. While ADC (B) was making the telephone calls required by the checklist the BA146 flight requested taxi and was given taxi instructions to holding point Whiskey for RW24 followed by departure instructions, *“(BA146 c/s) after departure runway two four climb straight ahead to two point five D M E then a right turn heading two eight five climb to altitude two thousand four hundred feet squawk is six zero two zero”*; this was read back correctly. ADC (B) stated that he referred to the RW designator strip which showed RW24 in use before giving taxi instructions. ADC (B) also stated that the operator of the BA146 regularly requested RW24 for departure. ADC (B) telephoned the Approach controller to cancel safeguarding and to give a departure warning on the BA146 on course for Compton (CPT). During this conversation neither controller specified the RW in use.

At 1614:10 the CL600 flight contacted Farnborough Approach descending to 5000ft on a heading of 180°, W of Farnborough, which had previously been coordinated with TC due to conflicting Odiham traffic. The CL600 was descended to 2000ft with a request to expedite descent and informed that it would be vectors for the ILS RW06. The APR anticipated that, constricted by the position of the Odiham traffic, the CL600 would have to be vectored through the FAT and re-positioned from the S in order to lose sufficient height for the approach and informed the pilot of the CL600 as such.

ADC (B) stated that he looked at the ATM to ensure that there was sufficient gap to depart the BA146 and assumed that the CL600 was being vectored for a standard LH radar cct for RW24. The unit advised that Farnborough receive strips for inbound traffic that are worked by TC prior to Farnborough approximately 30min before arrival. The Farnborough Manual of Air Traffic Services Part 2, Annex B, states that in the VCR position:

‘If an aircraft is planned to utilise the non-duty RW e.g. will be using the 'new' RW after a RW change or carrying out an opposite end approach, the RW to be used is to be recorded in the Heading and Level box and circled. This is to be done for both departure and arrival fps until any RW change has been completed.’

The VCR fps for the inbound CL600 was not made available to ATSI but both controllers stated that the fps was not marked with the new RW to be used and it was unclear if this procedure was regularly followed.

ADC (B) instructed the BA146 flight to enter RW24 via Whiskey to backtrack and line-up and advised the pilot that there was a vehicle to vacate ahead.

At 1614:10 ADC (B) initiated a phone call to Ively Gate to cancel safeguarding. Whilst the phone was ringing Fire 1 reported, *“vacated RW06 at A1, RW surface inspection result for 06, the RW is dry, dry, dry.”* During the transmission from Fire 1 the phone call was answered and ADC (B) asked the recipient to standby. The Tower controller replied to the vehicle driver, *“Fire 1 roger, copied, dry, dry, dry”*, before continuing with the phone call.

At 1615:10 ADC (B) broadcast that safeguarding was cancelled. A call was then made to the Tower from Tech 3, reporting, *“vacated the 24 critical area”*.

At 1615:40 the APR instructed the CL600 to turn L onto a heading of 010° in order to position the traffic onto R base.

At 1616:10 ADC (B) initiated a phone call to the APR requesting a radar release on the BA146. Neither controller specified the RW in use. At the time the release was agreed, radar recordings show the CL600 still S of the extended C/L tracking S.

At 1616:50 ADC (B) instructed the BA146 flight, *“(BA146 c/s) runway two four clear for take-off...”*.

[UKAB Note (1): At 1617:16 the APR transmitted, *“(CL600 c/s) descend to altitude one thousand four hundred feet and you are closing the localiser from the right report established”* which was read

back correctly. The CL600 crew reported established on the ILS at 1618:00 and was cleared to descend with the G/P which was acknowledged.]

ADC (B) stated that he watched the BA146's take-off roll and did not look at the ATM again until the BA146 was airborne. When the BA146 was airborne ADC (B) saw the CL600 on final at approximately 5nm, opposite direction to the BA146. ADC (B) instructed the BA146 flight, at 1618:10, "(BA146 c/s) avoiding action turn right immediate, turn right immediately heading three six zero degrees". This was read back correctly. TI was not given. At 1618:10 the CL600 was indicating altitude 1400ft and the BA146 was indicating altitude 700ft climbing in the opposite direction, 3-6nm apart.

At almost the same time the APR instructed the CL600 flight to contact the Tower advising the crew "*there is departing traffic just airborne ahead of you*" (as the APR had just released traffic from, as he believed, RW06). As the CL600 crew read back the instruction the departing BA146 just airborne from RW24 became visible on radar and the APR immediately gave avoiding action to the CL600 flight, at 1618:20, "(CL600 c/s) avoiding action hard left hard left heading three three zero departing traffic coming off the reciprocal runway". This was read back correctly.

Following a brief conversation with ADC (B) the APR changed the avoiding action, at 1618:26, to the CL600 flight, to turn hard R onto 180°. The CL600 crew reported having the BA146 in sight. The CPA occurs at 1618:42, the BA146 turning R through heading 330° and climbing through altitude 1800ft with the CL600 1.4nm to its SW, having turned sharply R onto a SE'ly track descending through altitude 1300ft, 500ft below.

The avoiding action given by both controllers resolved the situation and the CL600 was subsequently re-vectored for the ILS.

ADC (B) returned from a break in order to relieve the previous Tower controller, ADC (A), and prior to that had spent the day working on RW24 which may have predisposed him into a subconscious bias towards the use of RW24.

Where normally the prevailing wind at the time of the incident would have acted as a prompt to indicate that RW06 was in use, ADC (B) had spent the majority of the shift prior to the incident operating against the prevailing wind.

Although the ADC (A) clearly stated to the oncoming Tower controller, ADC (B), that RW06 was in use, neither controller changed the RW designator strip to RW06. Changing the designator strip was not on the checklist and, as the oncoming controller had arrived, the need to conduct a handover is likely to have interrupted ADC (A)'s thought process. Although other equipment in the Tower also has displays that indicate the RW in use (IRVR, ILS, Met display system, lighting panel) they are visually indistinct and are not sufficiently obvious to draw attention to any difference in information to that displayed by the RW designator strip.

The first call made to ADC (B) after he took over was from a vehicle requesting to enter RW24. This action may have prompted the thought process that led ADC (B) to believe that RW24 was in use.

ADC (B) then started the procedure to cancel safeguarding – a procedure that had remained in place to assist in the calibration of RW24. This may have further reinforced the controller's mindset that RW24 was in use.

The BA146 was the first ac movement after the RW change. The ATIS 'S' received by the BA146 gave the RW in use as RW24. As the designator letter did not change with the RW change there was no indication to either the controller or the pilot that the information received was out of date.

The BA146 was operated by a company that regularly request RW24 for departure.

When ADC (B) called the APR to give a departure warning on the BA146 and then to subsequently request a release the RW in use was not stated by either controller.

When ADC (B) called for a radar release on the BA146 the inbound CL600 was S of the extended C/L for RW06 and looked as if it was being positioned downwind LH for the standard radar cct pattern for RW24. There was no indication on the CL600's fps that it would be landing on RW06.

Although Fire 1 called vacating RW06 ADC (B) was in the middle of a phone call so his full attention was not on the report from the vehicle. The controller read back the RW state but not the RW in use. When Tech 3 called vacated from RW24 ADC (B) had finished the phone calls required to cancel safeguarding so it is likely that he devoted more attention to this transmission than the one made by Fire 1.

Having judged that there was a sufficient gap to backtrack and depart the BA146 ahead of the CL600, which he believed to be landing on RW24, the Tower controller had no further need to consult the ATM until the BA146 was airborne and the position of the CL600 became clear. When the Airprox became evident both controllers took immediate and appropriate action to re-establish separation.

The Airprox occurred after ADC (B) mistakenly departed a BA146 from RW24 bringing it into conflict with a CL600 established on final approach for the correct RW in use - RW06.

Contributing factors were considered to be:-

The RW designator strip, as the most visually dominant indication of the RW in use, still displayed RW24.

The first call received after ADC (B) took over was from a vehicle referring to RW24.

The controller was distracted by the cancellation of safeguarding (which had remained in place partly because it assisted in the calibration for RW24).

The company that operated the BA146 often requested RW24 for departure.

The ATIS received by the BA146 stated that RW24 was in use and the designator letter did not change with the RW change.

The inbound fps for the CL600 was not marked to indicate RW06 and the vectoring pattern looked appropriate for RW24.

There is no procedure in place to specify the RW in use for departure on release or departure warning following a RW change.

Recommendations:

ATSI recommend that the ATSU review their procedures for changing RW, in particular the procedures for the first arrivals and departures following a RW change and including the procedures for display and marking of fpss.

ATSI further recommend that the ATSU review their equipment and consider integrating a more prominent visual indication of the RW in use either as part of their existing layout or during any future equipment changes.

ATSI further recommend that the ATSU review their checklist procedures to ensure that they are appropriate to the task being discharged.

BM SAFETY MANAGEMENT reports this Airprox was between a BA146 outbound, IFR, from Farnborough (FBO) on RW24 and a CL600 inbound, IFR, to FBO on RW06. BM SM have been invited to investigate RAF ATM involvement in this incident after it was alleged that Odiham (ODI) APP had been “inflexible” in coordinating an IFR CH47 inbound to ODI with FBO’s IFR inbound. The CH47 was operating IFR, in receipt of a TS from ODI APP, conducting a COPTAC 272 approach (see Figure 1).

All heights/altitudes quoted are based on SSR Mode C from the radar replay unless otherwise stated.

The incident sequence commenced at 1610:31 when FBO APP contacted ODI APP to advise them of the CL600 inbound to FBO. Whilst this landline exchange was protracted, the agreement reached was that the CH47 would maintain the COPTAC hold, permitting FBO’s IFR traffic to route ahead and conduct an ILS to RW06. At the conclusion of this landline exchange at 1612:59, the CL600 was 13nm NW of FBO at 6000ft; the CH47 was 10.6nm WNW of ODI, tracking ESE, indicating 2700ft.

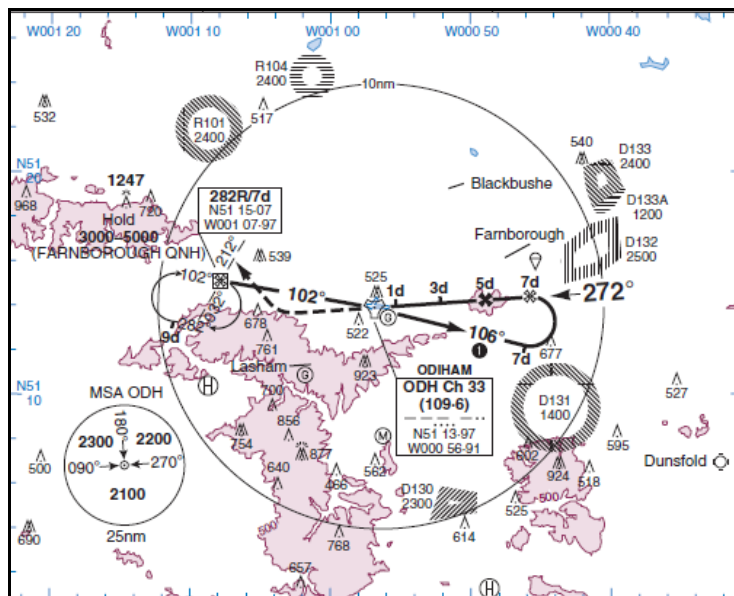


Figure 1. Odiham COPTER TAC 272 Procedure Plate

At 1615:27, FBO contacted ODI APP and advised them, “okay, what I’m going to do is I’m going to come back in from the south as soon as I can and keep it fairly tight.” ODI APP approved FBO to transit the ODI ATZ to conduct the ILS to RW06. At this point, the CL600 was 6.5nm WSW of FBO and 0.4nm N of ODI, tracking S, descending through 3300ft; the CH47 was 7.4nm W of ODI in a RH turn passing through W, at 3000ft.

At 1617:43, the CH47 crew reported, “...approaching the initial approach fix for the procedure” and ODI APP authorised the CH47 flight to route towards the ODH, instructing them to, “...report beacons outbound.” At this point, the CL600 was 5.1nm SW of FBO, tracking NNE, descending through 1800ft positioning for the ILS; the CH47 was 8.8nm WNW of ODI, tracking ESE, at 3000ft.

At 1618:11, the BA146 first paints on radar 0.5nm SW of FBO, climbing through 500ft. The CL600 was 4.2nm SW of FBO at 1400ft on the ILS. The CH47 was 7.9nm WNW of ODI at 3000ft routing towards the ODH.

At 1618:11, as the BA146 became airborne, the CH47 was not a factor to either FBO ac. Whilst the initial landline exchange between ODI and FBO APP was protracted, ODI APP offered and agreed to delay their traffic to facilitate an expeditious recovery to FBO for the CL600. Moreover, that agreement occurred over 5min prior to the CPA. BM SM contends that ODI APP demonstrated flexibility in offering FBO a number of options to resolve the potential conflict and did not play a causal or contributory role in this Airprox.

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.

A controller Member expressed concern that during the time leading up to the incident, the ADC position was busy with 2 checklists being actioned (RW change and safeguarding/LVPs) and a position handover. This had undoubtedly distracted the ADCs and resulted in the absence of the clues that would normally have alerted and reminded ADC (B) about the in-use RW. First, the ATIS information serial should have changed when the RW in use was changed, as this is an important indicator for controllers and pilots that a change has occurred. Second, the RW designator strip should have been changed by ADC (A) when RW06 was declared as the duty RW and should have been picked up by ADC (B) during the PRAWNS checklist at the handover, even though it was not included in the RW change checklist. Third, the annotation of the BA146 fps with the RW to be used, following a RW change, should have prompted the ADC but his mindset was apparently firmly set that RW24 was the duty RW. Neither ADC (B) nor the APR mentioned the RW to be used when safeguarding was cancelled, or when ADC (B) warned the APR of the impending BA146 departure and again when the radar release was requested. It was noteworthy that the inbound CL600 was not established at the usual range from touchdown, its flightpath under vectoring by the APR appearing to place the flight through the extended C/L towards the downwind leg for RW24. Usually the inbound would have been established on final approach at about 8nm and transferred to the Tower frequency. Without the requirement for the APR to give the ADC a range check on inbound traffic or for the ADC to monitor the APP frequency, SA on the traffic situation was reduced. Although any one of a number of these factors could have broken the chain of events leading up to the Airprox, in the end, none did. This left Members in no doubt that, in the cold light of day, the cause of this Airprox was that the ADC cleared the BA146 to depart from the non-duty RW into conflict with the CL600 approaching the duty RW.

Looking at the risk element, it was noted that the BA146 flight was in a critical phase of flight, close to changing configuration to accelerate after take-off with limited manoeuvrability. Also, the CL600 was in its final descent phase, when TCAS RAs are inhibited below 1100ft agl (rad/alt), such that no resolution guidance would be generated. These two elements lead CAT pilot Members to believe that safety had been compromised. Other Members thought that ATC team had acted well, once the situation had become evident, and had resolved the conflict before safety margins were compromised. Upon seeing the CL600 established on final for RW06, the ADC had quickly issued the BA146 flight an avoiding action turn to the R before telephoning the APR to inform him of his actions. Meanwhile, the APR was in the process of transferring the CL600 flight to Tower when he saw the BA146 pop-up on radar ahead of the CL600 and issued the CL600 flight a hard L turn onto a NW'ly heading and gave TI. As he was speaking to the ADC on the telephone, the APR saw the BA146's R turn begin to take effect and reversed the avoiding action given to the CL600 flight by turning it hard R. The BA146 crew had reacted promptly to the R turn issued and, although TI had not been given, their SA was enhanced as they saw the approaching CL600 on TCAS ahead and above before a TA was generated. The CL600 crew had also reacted promptly to their L turn issued and again when the turn was reversed to the R, during which they visually acquired the BA146 about 2nm to their L, turning sharply away and 800ft above climbing. The radar recording shows both flights reacting to the turn instructions given, in particular the CL600 crew's robust R turn after having already started to turn L. In the end, Members could not agree a risk unanimously which prompted the Chairman to call a vote. This resulted in a majority decision that the combined action taken by all parties had been effective such that the risk of collision had been removed.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: The ADC cleared the BA146 to depart from the non-duty RW into conflict with the CL600 approaching the duty RW.

Degree of Risk: C.