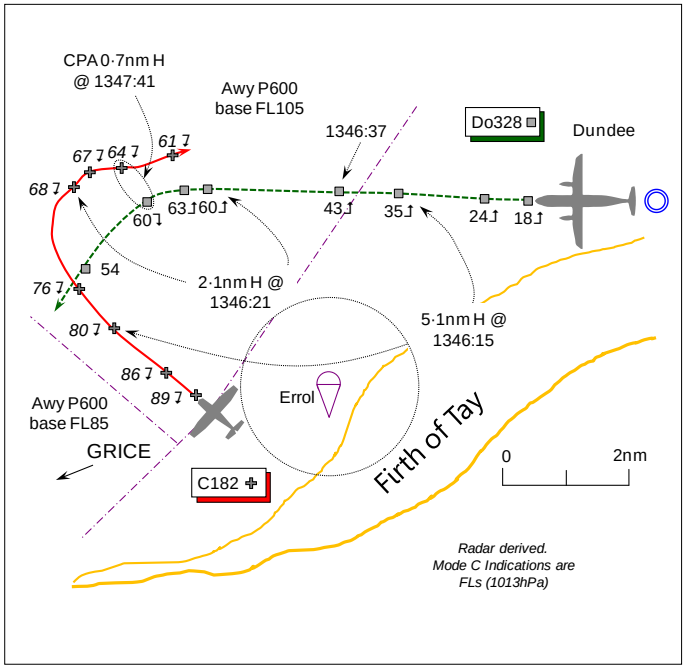
AIRPROX REPORT No 2012062

Date/Time:	6 May 2012 1347Z (Sunday)	
Position:	5627N 00316W (8nm W of Dundee.)	
Airspace:	Scottish FIR	(*Class:* G)
	Reporting Ac	*Reported Ac*
Type:	Do328	C182
Operator:	CAT	Civ Club
Alt/FL:	↑FL80 SAS	7000ft↓ agl
Weather:	VMC CLOC	VMC CLOC
Visibility:	10km	10km
Reported Separation:	<50ft V/250-300m H	1000ft V/2nm H
Recorded Separation:	400ft V/0·7nm H	



PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

THE DORNIER Do328 PILOT reports he departed from RW27 at Dundee, maintaining RW track to avoid parachuting to their L, climbing to FL110 on track GRICE as per the initial clearance prior to switching to Leuchars RADAR on 126·500MHz for a TS. Their CAS joining clearance was then amended and Dundee ATC instructed them to stop their climb at FL80, until recleared by Leuchars RADAR. Dundee ATC reiterated the warning of parachuting activity and the position of the parachute dropping ac was given as '1nm E of ERROL at FL90. They contacted Leuchars RADAR who provided a TS and, at Leuchars suggestion, contacted Scottish CONTROL as they were advised the parachute dropping ac was operating on 124.500MHz. Approaching a position 8nm W of Dundee heading 274°, climbing at 170kt, a TCAS contact appeared and a TA was rapidly followed by an RA. The A/P was disconnected and the demanded descent initiated in accordance with the RA. As the ac descended, a L turn of approx 30-40° was commenced. The 1st Officer briefly glimpsed the other ac – a blue and white high-wing single-engine C182 – passing down their starboard side at an estimated range of 250m, descending, less than 50ft below his ac. Once CLEAR OF CONFLICT was enunciated the climb was resumed and ATC notified that an Airprox would be filed. He assessed the Risk as 'high'.

The Do328 is coloured white; the HISLs, landing and taxying lights were all on. The assigned squawk of A4377 was selected with Modes C and S on.

THE CESSNA C182 PILOT reports he was on a parachute dropping flight from Errol A/D with a jump height of 9000ft agl. He was in communication with the Drop Zone on VHF and Dundee ATC on 122.90MHz. A squawk of A0033 (para dropping) was selected with Mode C; neither Mode S nor TCAS are fitted. The ac is coloured white; it was not specified if HISLs are fitted.

Winds were from the N; therefore the exit point was approximately ½nm N of Errol A/D and within the NOTAM'd parachute dropping zone. Due to high cloud covering the S side of the A/D a run-in into wind would not be possible as the drop zone would not be visible to either him or the parachutists; therefore he elected to run-in crosswind on a heading of about 270° to remain VMC. As requested by Dundee, he called them to advise that he was dropping and again when the parachutists had departed from his ac and were in the descent, which is SOP. After the parachutists had exited, he turned onto a N'ly heading and began his descent in VMC and also to avoid the Class A airspace at

FL85 to the W of Errol A/D. Shortly after initiating the descent, turning through 360° at 140kt, he noticed another ac – the Do328 - in his 3 o'clock, low in a LH climbing turn about 1.5 to 2nm away and so he maintained his heading as the Do328 entered cloud behind him to the S. He estimated the minimum separation as 1000ft vertically and 2nm horizontally and the Risk 'none' as the Do328 was already flying away from him.

He monitors two radios during parachute flying and plans his descent accordingly, but he did not hear and was not aware of an ac departing Dundee, but this may be due to the door of the ac being open and the noise that it creates.

An Airprox was not filed at the time as the Do328 was, in his view, a safe distance away and turning away from him.

UKAB Note (1): The UK AIP at ENR 5-5-3-2 promulgates the free-fall drop zone at Errol, Tayside, as a circle 1.5nm radius centred on 562418N 0031055W up to 5500ft (†) ALT, active normally during daylight hours Wed-Sun & PH. Within Remarks it is noted that: activity is notified on the day to Scottish Area Control; † Drops may be made from above ALT 5500ft with Scottish Area Control (Prestwick) permission.

THE DUNDEE COMBINED AERODROME AND APPROACH CONTROLLER reports that he was on duty when the Do328 departed from Dundee. At the time Errol Parachute Centre - 6nm to the WSW of Dundee - was active with a C182 at 9000ft QNH (1015hPa) under a BS. ScACC TAY Sector issued a clearance for the Do328 to join airways on track GRICE, to climb and maintain FL110. Subsequently, he co-ordinated this clearance with Leuchars ATC, who gave a local restriction of not above FL80 until further advised by Leuchars RADAR. The Do328 crew was requested to contact Leuchars RADAR after departure. As the Do328 lined up on RW27, he issued TI about the C182 paradropping at Errol at 9000ft ALT. The crew of the Do328 asked for clarification on the C182's position and when asked, the C182 pilot reported he was 1nm E of Errol, which was acknowledged by the Do328 crew. The Do328 then got airborne and appeared to be maintaining runway track. As the Do328 was climbing out, the C182 pilot reported drop complete. He acknowledged this transmission and passed TI to the C182 pilot about the Do328 just airborne from RW27 climbing FL110, but he received no acknowledgement of the TI from the C182 pilot. Once the Do328 was established in the climb at 1346Z, he instructed the Do328 crew to contact Leuchars RADAR. About 30min later a colleague received a call from the Do328 reporting that they had experienced a TCAS RA on departure from Dundee, while switching from the Leuchars frequency to the TAY Sector.

The 1320Z Dundee METAR: 22011KT 180v260 9999 SHRA FEW016CB SCT022 BKN042 05/01 Q1015=.

THE PRESTWICK CENTRE (PC) TAY SECTOR TACTICAL & PLANNER CONTROLLER (TAY SC) OJTI reports he was mentor to a trainee who had control of the Sector. The Do328 departed Dundee under IFR, bound for London City Airport to join CAS at GRICE. In response to the crew's initial call, the trainee instructed them to squawk 'ident' and immediately issued TI and avoiding action on a conflicting contact – the C182 - that was not under the control of TAY Sector. The Do328 crew responded by advising that they had received a TCAS RA, which they followed. Once clear of the conflicting traffic, they resumed their original FPL routeing. The Do328 PIC subsequently advised that he would be filing an Airprox. STCA was not triggered, he thought.

ATSI reports that the Do328 departed Dundee for an IFR flight to London City and had just established communication with Prestwick Centre (PC) TAY Sector on 124.5MHz. The Do328 was squawking A4377. The C182 pilot was operating VFR on a para-dropping flight at Errol aerodrome and in receipt of a BS from Dundee on 122.9MHz. The C182 was squawking A0033 with Mode C.

The TAY Sector was being operated as combined TACTICAL and PLANNER positions by an OJTI and trainee who was validated on another Sector but extending his qualification onto the TAY Sector and was near to validation standard. There were no reported distractions or unserviceabilities. Additionally, a separate TAY PLANNER controller had been brought onto the Sector to relieve a

spike in workload. In the opinion of the TAY OJTI the traffic volume and complexity were medium-high. Prestwick Multi-Radar Tracking (MRT) was in use.

The Dundee controller was providing combined Aerodrome Control and Approach Procedural Services without the aid of surveillance radar, the latter consisting of either a Basic or Procedural Service.

The Dundee METAR:

1350Z 12004KT 090V180 9999 SHRA FEW016CB SCT022 BKN042 05/02 Q1014=
1320Z 22011KT 180V260 9999 SHRA FEW016CB SCT022 BKN042 05/01 Q1015=

Aside from the investigation into the Airprox it was discovered that the AIP entry for Errol incorrectly stated that drops above 5500ft would be with the permission of Scottish Area Control. The CAA has now directed AIS to remove this entry at the next available opportunity.

At 1304 UTC Errol Paradropping club telephoned Prestwick Centre notifying them of their intention to perform 1 drop up to FL90 within the next hour. The Prestwick Centre representative stated that the appropriate sector would be informed. The TAY OJTI reported being aware of paradropping activity at Errol by way of information on a pink flight progress strip and noted that the Errol Paradropping ac, remaining wholly outside CAS, rarely called the TAY Sector frequency. There is no requirement for the TAY Sector team to monitor ac activity outside CAS.

Dundee ATC telephoned TAY Sector Support requesting clearance for the Do328 at 1322. The SSR code was issued and, in accordance with normal practice, Dundee rang-off in anticipation of TAY calling back with the complete clearance.

At 1324:20, the C182 called Dundee reporting, "*out of Errol for paradropping*". The Dundee controller passed the QNH and a BS was agreed. Upon correctly reading back the QNH the C182 pilot reported, *"climbing to 9 thousand feet*." The Dundee controller requested that the pilot, "*report running in for the drop*." There are no Dundee MATS Part 2 procedures for handling paradropping aircraft operating out of Errol.

At 1334, the TAY Planner telephoned Dundee and passed the Do328's clearance: "[Do328 c/s] *is cleared to join controlled airspace on track to GRICE climbing to maintain FL1-1-0, squawk 4-3-7-7, 124.5*."

In accordance with the requirements of the Letter of Agreement (LoA) between Dundee ATC and Leuchars, the Dundee controller called Leuchars APPROACH at 1335 and notified them of the Do328's departure from RW27. The Leuchars controller requested to work the Do328 and details were passed, including the Do328's clearance of FL110 on track GRICE. After the details were passed the Leuchars controller added, "*…climb not above flight level 8-0 initially*". The Dundee controller acknowledged this, stating, "*I'll need to co-ordinate that with Scottish I'll call you back if there's any problem."* Leuchars replied, "*it's just up to the airway*". ATSI noted no other traffic in the vicinity that may have affected the ability of the Do328 to join CAS as cleared by TAY.

At 1336:11, Dundee spoke to the TAY trainee regarding Dundee's co-ordination with Leuchars (not above FL80), which was acknowledged by the TAY controller. The TAY controller requested some clarification, "*he's coming to me from Leuchars is that correct?"* This was confirmed as correct by the Dundee controller. The TAY controller then asked, "*he's not above 8-0 then",* which the Dundee controller confirmed was the case.

The C182 reported commencing its drop at Errol at 1340:10 and was requested to report when complete by the Dundee controller.

As the Do328 taxied for departure the Dundee controller informed the Do328 pilot that the surface wind - 130°/5kt - now favoured a RW09 departure. The Do328 pilot reported being happy to continue with a departure from RW27.

At 1341:00, the Dundee controller passed the Do328 crew their clearance, "*…clear to join controlled airspace on track GRICE climb maintain flight level 1-1-0…frequency after departure when advised will be Leuchars Radar 126.5 followed by Scottish Control 124.5."* This was read-back correctly. The following local restriction was then passed, "*…local restriction from Leuchars after departure climb not above flight level 8-0 until further instructed by Leuchars Radar…"* Again, this was read-back correctly. Other than local restrictions, there are no published standard departure procedures for Dundee.

At 1342:50, as the Do328 lined-up on RW27, the Dundee controller advised, "*..Errol parachute centre is active just now Cessna 1-8-2 currently carrying out paradrop from 9 thousand feet."* This was acknowledged by the Do328 pilot who then asked, "*do you know the location of the drop centre please?"* The Dundee controller instructed the Do328 to standby and then, at 1343:20 requested the C182 pilot report his exact position. This was given as, "*1 mile to the east of the field* [Errol] *dropping overhead*." [The controller clarified that this was to the E of Errol airfield and asked the Do328 crew if they copied this report over the RT from the C182 pilot. The Do328 crew acknowledged *"yep..1 mile east of Errol where the paradrop is* [Do328 C/S]." At 1343:40, the Do328 crew was cleared for take-off. The C182 pilot's written report stated that the prevailing winds were from the N; however, due to cloud cover S of Errol a crosswind run in was executed in order to maintain VMC.

Leuchars ATC then called Dundee at 1343:40 stating, "*I've got nothing to effect now if he wants to go straight to Scottish…".* The Dundee controller responded, "*Okay I – he's just about to start rolling so once he's airborne and settled down I'll er give him unrestricted climb flight level 1-1-0".* After this call terminated the Dundee controller immediately telephoned TAY, informing the trainee controller, "*reference* [Do328 c/s] *Leuchars have now said there's no restriction on the climb so are you still happy with flight level 1-1-0".* The TAY trainee agreed that this was satisfactory and the Do328's airborne time was exchanged.

The TAY OJTI reported that it was their impression the Do328 would be transferred direct from Dundee without working Leuchars. The PC MATS Part 2 and the LoA between Leuchars and PC states that Dundee departures will be transferred to TAY Sector by Leuchars Approach Control when clear of Leuchars traffic.

The C182 pilot reported drop completed and descending at 1344:45. The Dundee controller responded by passing traffic information, "*…Dornier 328 just airborne off 2-7 now in the climb flight level 1-1-0."* There was no acknowledgement from the C182 pilot, which may have been due to the ambient noise in the ac as indicated in the pilot's report. The C182 pilot reported that after all the jumpers had exited the ac the C182 was turned onto a N'ly heading and descent commenced in order to maintain VMC and avoid CAS W of Errol.

The Do328 pilot reported maintaining a runway heading on departure in order to avoid Errol to the ac's left.

The Do328 first appeared on the TAY controller's situation display at 1345:33 as it passed 1800ft Mode C. At 1345:50 the Dundee controller transferred the Do328 to Leuchars ZONE. Immediately before this the controller had received an initial call from other commercial traffic out to the W. Shortly after this the A/D declared RW09 as the duty runway.

The Do328 crew called Leuchars ZONE at 1346:01 (Figure 1), "…*passing er flight level 3-3 climbing flight level 8-0 maintaining a runway heading runway 2-7 Dundee."* The Leuchars controller responded, at 1346:15, stating, "*…Leuchars ZONE identified, traffic service, traffic left 11 o'clock 4 miles crossing left right...parachuting aircraft flight level 8-0 descending."* The pilot acknowledged the service level.

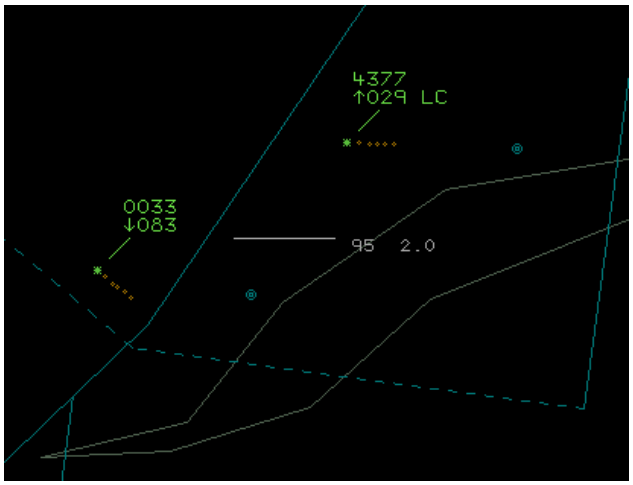


Figure 1: 1346:01UTC

Low level STCA activated on the TAY controller's situation display at 1346:37. The C182 was in the Do328's 11 o'clock, range 4.5nm, to cross L to R. The Do328 was climbing through FL43 and the C182 was descending through FL76.

At 1346:38, Leuchars ZONE advised the Do328 crew, "*Scottish are working that aircraft would you rather speak to them now*". The Do328 crew responded, "*yes please*," and the flight was transferred to Scottish CONTROL at 1346:46.

The Do328 crew called the TAY Sector at 1346:58, passing FL54 for FL80. At 1347:23, the TAY trainee instructed the Do328 crew, "*…squawk ident and..the believed to be you* (sic) *you've got traffic looks like a paradropper in your 12 o'clock range 2 miles if not seen turn left heading 1-8-0 degrees.*" (See Figure 2 below.) This was answered with the Do328 pilot stating, "er *TCAS,"* and at 1347:40, "[Do328 C/S] *TCAS RA.*"

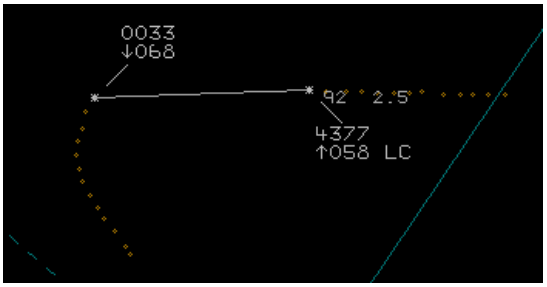


Figure 2: 1347:17UTC

High level STCA activated at 1347:24. The Do328 reached FL63 before descending to FL60 and turning to the L. At 1347:42, the CPA was reached when the separation between the ac was 0.7nm and 400ft. See Figure 3.

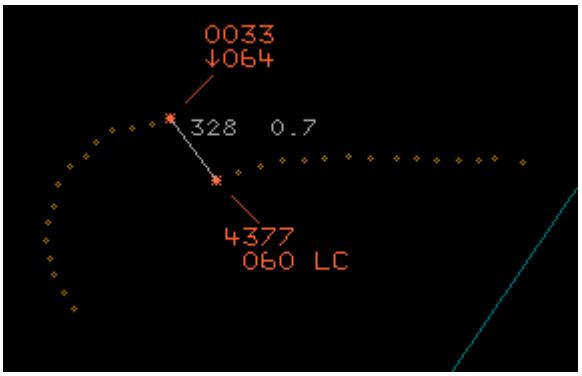


Figure 3: 1347:42UTC

The TAY trainee acknowledged these calls and provided supplementary, updated TI. The Do328 crew reported clear of traffic at 1348:04 and, "*resuming climb*." The TAY trainee then validated and verified the Do328's SSR information and further clearance to FL110 was issued.

The Do328 subsequently joined CAS, was placed under RCS, climbed to FL210 and transferred to the next en-route sector at 1353:20.

The C182 reported to Dundee complete for the day at 1353:47 and left the Dundee frequency.

Following this incident, Prestwick Centre undertook to seek to achieve an agreement between Errol, Dundee, Leuchars and PC with regard to the operation of paradropping ac out of Errol.

The incident occurred in Class G uncontrolled airspace where the responsibility for the avoidance of collision rests ultimately with the pilot. The Do328 crew arranged their departure to be on RW track, rather than towards GRICE, based on the information they had received with regard to the C182. The Do328 crew and the Dundee controller were subsequently unaware that the C182 had flown to the N, crossing the Do328's track, for a VMC descent.

The C182 pilot indicated that ambient noise in the cockpit was high; therefore it is likely that the C182 pilot was unaware of the Do328's actual departure. Additionally, as the C182 was under a BS from a non-surveillance equipped ATSU, the pilot could not expect any form of update on the Do328's position once airborne.

Neither of the surveillance equipped units knew that Dundee was in contact with the C182 pilot; therefore any possible means of effecting co-ordination with the C182 pilot was removed, nor were TAY or Leuchars aware of the C182 pilot's intentions.

The sequence of actions required of the Dundee controller to facilitate the Do328's departure involved multiple parties and co-ordinations: the request for clearance, issuing the clearance, co-ordinating with a neighbouring unit, relaying local restrictions to the Do328, informing TAY of Leuchars' requirements and passing traffic information between the Do328 and C182. As the Do328 rolled for take-off, the local restriction was cancelled and the Dundee controller informed TAY of this, but omitted to inform the Do328 crew and inadvertently transferred the Do328 to Leuchars. This may have been compounded by the call of the other commercial traffic.

Since the encounter was at FL60 and below the level to which the Do328 was climbing, the fact that the Dundee controller did not cancel the level restriction with the Do328 is not considered to be a factor.

The Dundee controller transferred the Do328 to Leuchars in error. However, Leuchars ZONE acted upon the Do328's unexpected call by issuing TI on the C182. Since the first unit after transfer was surveillance equipped and the Leuchars controller reacted effectively, the transfer error made by the Dundee controller is not considered to be contributory.

The Leuchars ZONE controller believed that the C182 was working TAY. It is not known what information led the Leuchars controller to believe this. As the distance between the Do328 and C182 decreased the Do328 accepted the frequency transfer to TAY. This may have been predicated on the belief that TAY was working the C182. The Do328 did not request a service upgrade for deconfliction advice from Leuchars.

The TAY controller was expecting the Do328 to call on departure from Dundee and was unaware that the Do328 had been transferred to Leuchars. The Do328 crew eventually called TAY Sector 44sec before the CPA occurred with the C182. The TAY controller acted promptly and in an appropriate manner for an ac that had not yet been identified.

Prestwick Centre has indicated to ATSI that work is in progress to achieve a formal agreement between all the ATSUs concerned.

The Airprox occurred in Class G airspace W of Dundee at FL65 when the C182 pilot, executing a descending R turn to maintain VMC, came into proximity with the Do328 climbing to FL80.

Whilst not contributory to the Airprox, it is considered that the arrangement for service provision to both ac was not as efficient as it could have been. In Class G uncontrolled airspace pilots are not obliged to be in contact with an ATSU; however, given the relative position of Dundee, Leuchars, Errol and CAS it is considered that the possibilities for improving airspace utilisation in the area should be addressed by the inter-unit liaison now underway.

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 authority.

It seemed to some Members that the Dundee combined Aerodrome/Approach controller was not best placed to provide an ATS to the C182 para-dropping flight at Errol. As the unit is not equipped with surveillance radar, the Dundee controller could only provide information about traffic known to Dundee. Leuchars, the LARS provider in this vicinity equipped with primary surveillance radar and SSR, seemed far better placed to provide an effective ATS, especially when para dropping was taking place from FL90 as here. The Board was reassured to learn, therefore, that as a result of this Airprox an agreement has been reached between the respective ATSUs and henceforth Leuchars will provide an ATS to para-dropping flights operating at Errol.

It was evident that the Dundee controller was careful to ascertain the location of the C182, which at the time had been 1nm E of Errol, and ensured that the Do328 crew was aware of it. Consequently, when the Do328 crew departed off RW27 any potential for a conflict with the C182 operating in the free-fall drop zone might not have been apparent to the Do328 crew as they remained westbound well to the N of Errol. A pilot Member suggested that the Do328 crew might not have been familiar with the location of Errol adjacent to the their route, but a CAT pilot Member contended that this was a regular service and the crew would have been completely aware of the significance of the para-dropping activity; moreover, they had maintained a westerly track to maximise their separation from the free-fall drop zone. When the C182 pilot reported to Dundee ATC that the para-drop was complete and that he was descending, the Dundee controller passed TI about the departing airliner but the C182 pilot did not hear it, apparently because of the excessive noise from the open door. The Board was concerned that the C182 pilot had not heard this TI as it could have helped forestall the Airprox and a pilot Member suggested that a noise-cancelling headset would be worthwhile. Members contended that what was missing was further information from the C182 pilot that he had flown away from the free-fall drop zone and was descending through the extended centre-line to RW27. Whilst some controller Members were aware that it is commonplace for para-drop ac to descend in a steep and tight orbit close to the DZ above the parachutists, and this was what the

Dundee controller might have assumed, a GA pilot Member explained that might be so for turbine powered ac, but a normally aspirated piston engine C182 cannot be descended rapidly because of engine-cooling issues and so the C182 pilot's descent here was not abnormal. Another GA Member opined that, whilst the C182 pilot had not done anything wrong, it was a question of airmanship and he should have pre-warned Dundee what he was doing. Whilst the C182 pilot's transmission came before the Do328 crew had switched en-route to Leuchars, it would not have been apparent to the Do328 crew that he was intending to descend in a wide arc through the climb-out for RW27, which is where the Airprox occurred some 8nm W of Dundee. Dundee would have been completely unaware that the C182 had flown away from the drop-zone, but a pilot member thought that the controller should have repeated the TI about the departing Do328 when no response was received from the C182 pilot.

Whilst the Board appreciated that Leuchars had advised Dundee ATC that there was no need for the Do328 crew to call ZONE and the intermediate stop at FL80 had been lifted, the Dundee controller still inadvertently switched the Do328 to Leuchars. Although not expecting the Do328 crew to call, ZONE had swiftly appreciated that there was a conflict between the Do328 and the descending C182, promptly passed TI in response to the crew's initial call, but then swiftly switched the flight to TAY Sector at PC. The RT extract in the ATSI report reveals that ZONE incorrectly perceived that the C182 para-dropping flight at Errol was under the control of TAY Sector. It was not clear why the Leuchars controller perceived this was so, but the BM SM Member contended it was from the incorrect UK AIP entry. Another Member thought that TAY had an implicit responsibility to traffic joining CAS. However, the NATS Ltd Advisor pointed out that TAY have no responsibility for separation outwith CAS and the joining clearance issued by the PLANNER takes no account of other traffic operating in Class G airspace at all. A controller Member noted that Leuchars ZONE had free-called the Do328 across to TAY Sector whilst the flight was in conflict with the C182; this was not good practice and irrespective of the TS that had been imposed on the crew, the Board agreed that it would have been more helpful if ZONE had retained the Do328 under their control until the conflict was seen to have been resolved. It was suggested that this quick transfer between radar units might have been a contributory factor, but as ZONE had subsequently declined the flight with no traffic of their own to affect its departure from Dundee, the controller might legitimately have switched the flight straight to TAY without identifying the ac or passing TI at all. Members agreed it was not helpful, but neither was it contributory. As it was, the TAY Sector trainee quickly spotted the conflict and conscientiously proffered TI and an avoiding action turn to the Do328 crew, although he was under no responsibility to do so. This avoiding action was being offered at the same moment as the RA was triggered as the crew acknowledged with *"..TCAS".* The Board discussed responses to a TCAS RA and a simultaneous avoiding action turn issued by a radar controller, which a CAT pilot Member explained could be accomplished with no difficulty in the Do328. However, the Member stressed the importance of using the stipulated RT phraseology when crews were suddenly confronted with a TCAS RA, especially taking care to advise the controller 'clear of conflict' when it was safe to do so and that they were returning to their assigned level after the conflict. This is critical as this is the cue to the controller that he may issue instructions once more to the flight.

In a CAT pilot Member's view, given the information available, the Do328 crew could not have done anything differently throughout the period of the conflict and he suggested that this was a conflict in Class G airspace resolved by TCAS. However, the radar recording shows that the Do328 had only started to descend just before the ac passed abeam one another and other Members agreed that, together with TCAS, the TAY trainee's avoiding action advice was also instrumental in preserving horizontal separation of 0·7nm at the closest point. The C182 pilot was not aware of the Do328 before he spotted it in his 3 o'clock about 1.5 to 2nm away in a LH climbing turn, but did not perceive the need to take avoiding action himself as the Do328 passed astern; this was probably just as the Do328 1st Officer saw the C182 at the minimum range of 0.7nm, thus somewhat more than his estimate of 250-300m during his brief glimpse of the C182. The Board concluded, therefore, that this Airprox was the result of a conflict in Class G airspace resolved by the TAY Sector and the Do328 crew using TCAS. The combination of TI from ZONE and the displayed TCAS information primed the Do328 crew to expect an RA, thereby enabling them to react promptly when it was enunciated ensuring vertical separation did not reduce below 400ft. This coupled with TAY's avoiding action

instruction and the visual sighting by the C182 pilot convinced the Board that there was no Risk of a collision.

PART C: ASSESSMENT OF CAUSE AND RISK

Cause: A conflict in Class G airspace resolved by the TAY Sector and the Do328 crew using TCAS.

Degree of Risk: C.