

**AIRPROX REPORT No 2015027**

Date: 5 Feb 2015 Time: 1337Z Position: 5731N 00355W Location: 5nm east of Inverness

**PART A: SUMMARY OF INFORMATION REPORTED TO UKAB**

Recorded	Aircraft 1	Aircraft 2
Aircraft	Tucano	Tornado
Operator	HQ Air (Trg)	HQ Air (Ops)
Airspace	N560	N560
Class	E	E
Rules	IFR	VFR
Service	Basic	Traffic
Provider	Inverness	Lossiemouth
Altitude/FL	FL102	FL104
Transponder	State/Modes	State/Modes
Reported		
Colours	Black/yellow	Grey
Lighting	NK	Nav, HISLs
Conditions	VMC	VMC
Visibility	100km	>10km
Altitude/FL	FL100	FL100↑
Heading	040°	255°
Speed	250kt	300kt
ACAS/TAS	TCAS I	Not fitted
Alert	Unknown	N/A
Separation		
Reported	100ft V/0.5nm H	0ft V/1nm H
Recorded	400ft V/0.4nm H	



**THE LOSSIEMOUTH DEPARTURES CONTROLLER** reports providing control for the Tornado formation pair departing to the southwest. Once in the climb and with Mode C verified, the formation were given own-navigation, climbing to FL160; the pilot declared a heading of 255°. At the same time, two Tucano aircraft were on recovery to Lossiemouth; one at FL75 (with the Tornado formation to pass behind), the other at FL100, about 2nm south of Inverness, and 12 o'clock 15nm opposite direction to the Tornado formation. Traffic Information was passed on the second Tucano to the Tornado formation and they were restricted to FL90. On receiving the Traffic Information and 'stop climb FL90', the Tornado pilot responded with their callsign, which the controller understood to be acknowledgement of the restriction. The Tornado formation climbed above FL90, coming to within 1nm of the Tucano at a similar level. The Tornado pilot reported passing the Tucano, continuing climb to FL160. The controller stated that they had been restricted to FL90 and continued with a handover to Swanwick (Mil) for the onward sortie.

**THE LOSSIEMOUTH SUPERVISOR** reports that he was the oncoming ATC Supervisor and was attempting to complete the handover from the morning ATC supervisor in low traffic levels. The handover had to be abandoned due to a sudden increase in workload as unit aircraft and visiting Tucano detachment aircraft started recovering, requiring the off-going supervisor to offer assistance to the Director and Approach controllers. The Supervisor moved behind the Departure controller and observed the Tornado formation passing north abeam a single track, level at FL100, wearing a Lossiemouth squawk and tracking about 080° (the Tucano). The Tornado formation were indicating approximately 300ft above this track and climbing. The Departure controller then remarked "that will be a level bust then". The Supervisor asked him for details, and he briefly explained that the Tornado formation were under a Traffic Service, that he had seen the Tucano at FL100 and called it to them in good time with an instruction for the Tornados to stop climb FL90, and that the formation had acknowledged the call. As the aircraft got closer, he noticed that the formation did not level off as expected and had continued their climb. The supervisor asked him how the formation had acknowledged the instruction to stop climb and he said that they had responded with their call-sign

only. The supervisor listened to the RT recording and confirmed that the formation had responded with their call-sign only and that the Departure controller did not interrogate them further after this response. The Supervisor stated that the Departure controller was disappointed that he had assumed the formation's call-sign-only acknowledgement was an agreement to stop climb, and that he did not get further confirmation that they would do so.

**THE INVERNESS RADAR CONTROLLER** reports working a Tucano on a Basic Service which had called him from the West at FL100, routing back to Lossiemouth. He had been working 2 Tucanos, and believes that he had pre-noted both to Lossiemouth. As the Tucano passed about 4 miles southeast of Inverness, Lossiemouth phoned requesting Traffic Information on it. They had a pair of Tornado GR4s opposite direction, range of about 12 miles, climbing. Co-ordination was not agreed, but the Inverness controller said that the Tucano would maintain FL100, and Lossiemouth said they would stop the GR4s at FL90. Traffic Information was passed to the Tucano pilot, who was told the opposite direction traffic would stop climb FL90, 1000ft below. As the aircraft closed to a range of about 3 miles, the Tornado formation climbed through FL90. Immediate updated Traffic Information was passed to the Tucano pilot, who watched the Tornado formation pass down his right-hand side.

**THE TUCANO PILOT** reports recovering to RAF Lossiemouth from a low-level instructional sortie. The aircraft was climbed to FL100 and turned onto a direct track to RAF Lossiemouth at a distance of about 60nm. A Traffic Service was agreed with Inverness and also, on handover, with RAF Lossiemouth. The crew were made aware of a Tornado formation pair climbing out from RAF Lossiemouth and heading in their approximate direction. The instructor recalled hearing ATC pass a "stop climb at FL90" to the Tornado pair, and was therefore content that there should be no conflict. He did not recall hearing a confirmation from the formation. Upon looking at the TCAS, he could see that the Tornado formation was closing in distance, and therefore brought the TCAS scale down to 6nm. It then became clear that the formation was continuing to climb through the Tucano's level. The instructor was slightly concerned, and began a thorough lookout scan along with the student pilot. The instructor saw the formation on the right-hand side and slightly above; there was no need to take avoiding action. The pair passed down their right-hand side approximately 0.5nm away, about 100-200ft above and climbing. The instructor remarked that he did not recall a TCAS TA, but that he would have expected one, given the geometry. He surmised that the crew had been watching the closing Tornados on TCAS for 'a few miles', that the TCAS warning did not come as a shock, and that they had therefore not registered it as a discrete event.

He assessed the risk of collision as 'Medium'.

**THE TORNADO PILOT** reports departing from RAF Lossiemouth on a pairs tactical training sortie, cleared to FL160 under a Traffic Service from RAF Lossiemouth. They were made aware of 2 Tucanos recovering to Lossiemouth, the first of which passed south of their track and was not a factor. The second (Airprox) Tucano was 'briefed by ATC' as being at 15nm at FL100; no other ATC instruction were heard by either Tornado crew and acknowledgement of the traffic was with callsign only. Conditions were VMC, and lookout was maintained in the traffic direction with an assumption of lateral separation. Therefore the climb was continued to the understood cleared level of FL160. On passing FL100, a single Tucano was observed approximately 1nm in the 3 o' clock position, and ATC were questioned as to the relatively close proximity. At that point, the formation were informed of their clearance to FL90. The remainder of the sortie continued without incident. Cockpit video tapes were reviewed after landing and the departure controller's instruction to 'stop climb FL90' was audible following the initial Traffic Information. Despite this, none of the 4 formation crew members recalled the stop climb instruction, and no read-back was given. Cockpit communication was quiet at the time; no other inter or intra cockpit discussion was taking place.

He assessed the risk of collision as 'Medium'.

## Factual Background

The weather at Inverness was recorded as follows:

METAR EGPE 051320Z 25009KT 9999 FEW006 SCT025 BKN034 06/04 Q1030

A portion of the Lossiemouth Departure controller tape transcript is reproduced below:

From	To	Speech Transcription	Time
Tornado	Dep	Departures, [Tornado C/S] SID 23 South, Traffic Service	13:32:55
Dep	Tornado	[Tornado C/S], Departures identified climb FL160 traffic service	13:32:59
Tornado	Dep	Climb FL160 traffic service, [Tornado C/S]	13:33:03
Dep	Tornado	[Tornado C/S] request level passing	13:33:11
Tornado	Dep	[Tornado C/S] passing 1300ft	13:33:12
Dep	Tornado	[Tornado C/S] traffic south 8 miles manoeuvring no height information, further traffic south 12 miles manoeuvring no height information, own navigation, report steady with heading	13:33:18
Tornado	Dep	Own navigation and wilco [Tornado C/S]	13:33:27
Dep	Tornado	[Tornado C/S] traffic south 25 miles tracking north east Tucano FL75	13:34:06
Tornado	Dep	[Tornado C/S] copied	13:34:15
Tornado	Dep	[Tornado C/S] steady 255	13:34:24
Dep	Tornado	[Tornado C/S] roger	13:34:25
Dep	Tornado	[Tornado C/S], traffic 12 o'clock opposite direction 15 miles at FL100, stop climb FL90	13:35:02
Dep	Inverness	Lossie approach request traffic information south west of you 5 miles 6176	13:35:06
Tornado	Dep	[Tornado C/S]	13:35:09
Inverness	Dep	Okay, just changing to your 3744.	13:35:12
Dep	Inverness	Is he maintaining FL100?	13:35:16
Inverness	Dep	He's maintaining FL100	13:35:17
Dep	Inverness	Okie dokie in his 12 o'clock 10 miles opposite direction on a 3715 squawk	13:35:18
Inverness	Dep	Contact	13:35:24
Dep	Inverness	That'll be not above FL90	13:35:25
Inverness	Dep	And aircraft type?	13:35:26
Dep	Inverness	A pair of GR4s	13:35:27
Dep	Tornado	[Tornado C/S] previous reported traffic south east correction south west 5 miles tracking north east climbing FL75 your track takes you ahead	13:35:48
Tornado	Dep	[Tornado C/S] copied	13:35:57
Dep	Tornado	[Tornado C/S] traffic in your 12 o'clock 8 miles opposite direction at FL100 is maintaining FL100 until you're underneath	13:36:00
Tornado	Dep	[Tornado C/S] copied we're passing FL85 this time	13:36:07
Dep	Tornado	[Tornado C/S] roger	13:36:10
Dep	Unknown	Why is he...? Lossie approach I'll call you back	13:36:50
Tornado	Dep	Departures, [Tornado C/S]	13:36:59
Dep	Tornado	[Tornado C/S] go ahead	13:37:00
Tornado	Dep	That previous traffic passed us at a similar level, was that the intent	13:37:02
Dep	Tornado	[Tornado C/S] I restricted you FL90 are you still climbing?	13:37:09
Tornado	Dep	Roger affirm we are climbing past FL120 and didn't get stop climb FL90	13:37:12
Dep	Tornado	[Tornado C/S] roger and it's????	13:37:19

A portion of the Inverness Radar controller tape transcript is reproduced below:

From	To	Speech Transcription
Tucano	Inverness	(1323:20) Inverness approach [Tucano C/S], level flight level one hundred, requesting Basic Service
Inverness	Tucano	[Tucano C/S] (1323:30) Inverness radar, good afternoon, pass your message
Tucano	Inverness	[Tucano C/S], Tucano, two P O B, on climb-out from low level, level at er flight level one hundred, currently on the Kinloss radial (1323:40) of two six five at sixty seven miles, requesting direct route to Kinloss for recovery, correction Lossiemouth for re- for recovery
Inverness	Tucano	(1323:50) [Tucano C/S] roger, Basic Service, you have, when required, the Inverness Q N H one zero three zero
Tucano	Inverness	Basic Service and one zero three zero [Tucano C/S] (1324:00)
No relevant transmissions		
Inverness	Tucano	[Tucano C/S] squawk six one seven six
Tucano	Inverness	Squawk six one seven six [Tucano C/S] (1326:20)
Inverness	Tucano	And [Tucano C/S] just say again the type of approach you're looking for at Lossie
Tucano	Inverness	[Tucano C/S] we'll be looking for a radar to initials for recovery (1326:40)
Inverness	Tucano	Roger
No relevant transmissions		
Inverness	Tucano	[Tucano C/S] you are cleared to cross er controlled airspace on your present heading, maintain V M C (1331:30)
Tucano	Inverness	Cleared to cross controlled airspace maintaining V M C [Tucano C/S]
No relevant transmissions		
Inverness	Tucano	[Tucano C/S] for Lossie squawk three seven four four
Tucano	Inverness	Squawk three seven four four (1335:00) [Tucano C/S]
Inverness	Tucano	[Tucano C/S] traffic information for you, traffic in your twelve o'clock, range of (1335:40) ten miles, opposite direction, two G R fours who are climbing to maintain flight level nine zero
Tucano	Inverness	Copied and looking [Tucano C/S] (1335:50)
Inverness	Tucano	[Tucano C/S] maintain flight level one hundred
Tucano	Inverness	Maintain flight level one hundred [Tucano C/S] (1336:00)
Inverness	Tucano	[Tucano C/S] keep a very good look out, that aircraft in your twelve o'clock fast moving opposite direction, climbing through flight level nine (1336:40) seven
Tucano	Inverness	[Tucano C/S] visual and we're clear to the left of that traffic
Inverness	Tucano	[Tucano C/S] you can report clear of those (1337:00) er two Tornados to Lossie stud one four, stud one four
Tucano	Inverness	Lossie stud one four [Tucano C/S]

## Analysis and Investigation

### CAA ATSI

CAA ATSI had access to Inverness RTF and area radar recordings together with reports from both pilots and the Inverness Radar controller. CAA ATSI did not have access to the Lossiemouth recordings.

The Airprox occurred at 1336:56, 4.5nm to the southeast of Inverness Airport, within Class G airspace between a formation of Panavia GR4 Tornado (GR4) aircraft and a Tucano T1 (Tucano). The GR4 was one of a pair of westbound GR4s flying in formation under VFR in VMC conditions, outbound from RAF Lossiemouth and in receipt of a Traffic Service from Lossiemouth Radar. The Tucano was flying according to IFR in VMC conditions and was eastbound returning to Lossiemouth in receipt of a Basic Service from Inverness Radar.

At 1323:25, the Tucano, squawking 7001, had climbed out from low-level and contacted Inverness reporting at FL100, 67nm west of Kinloss for recovery to Lossiemouth. The pilot did not specify the type of service requested and the controller agreed to provide a Basic Service with Inverness QNH 1030hPa. At 1326:15, the controller instructed the Tucano to squawk 6176 (Inverness Approach). The Tucano pilot requested a radar recovery at Lossiemouth. At 1328:12, the Inverness controller pre-noted and identified the Tucano, on a Basic Service, to Lossiemouth Radar. The Lossiemouth controller allocated squawk 3744 and advised the frequency. At 1334:55, the controller instructed the Tucano pilot to squawk 3744 for Lossiemouth.

At 1335:10, Lossiemouth Approach contacted Inverness requesting Traffic Information regarding the Tucano:

Lossie *"Lossie Approach er request traffic information er southwest of you five miles six one seven six"*  
 Inverness *"Okay he's just changing to your three seven four four"*  
 Lossie *"Er is he maintaining flight level one hundred"*  
 Inverness *"He's maintaining flight level one hundred"*  
 Lossie *"Okey dokey in his twelve o'clock then ten miles opposite direction er on a three seven one five"*  
 Inverness *"Contact"*  
 Lossie *"Yeah that'll be not above level flight level nine zero"*  
 Inverness *"And aircraft type"*  
 Lossie *"Er it's a pair of G R fours"*  
 Inverness *"Pair of G R-fours roger"*

At 1335:38 the controller passed traffic information to the Tucano:

ATC *"(Tucano) c/s traffic information for you traffic in your twelve o'clock range of ten miles opposite direction two G R fours who are climbing to maintain flight level nine zero"*  
 Tucano *"Copied and looking (Tucano) c/s"*  
 ATC *"(Tucano) c/s maintain flight level one hundred"*  
 Tucano *"Maintain flight level one hundred (Tucano) c/s"*

At 1336:30 the controller updated the traffic information:

ATC *"(Tucano) c/s keep a good look out that aircraft in your twelve o'clock fast moving opposite direction climbing through flight level nine seven"*  
 Tucano *"(Tucano) c/s visual and we're clear to the left of that traffic"*

At 1336:36, the horizontal distance between the two aircraft was 3nm with the Tornado formation passing FL96 in the climb, Figure 1.

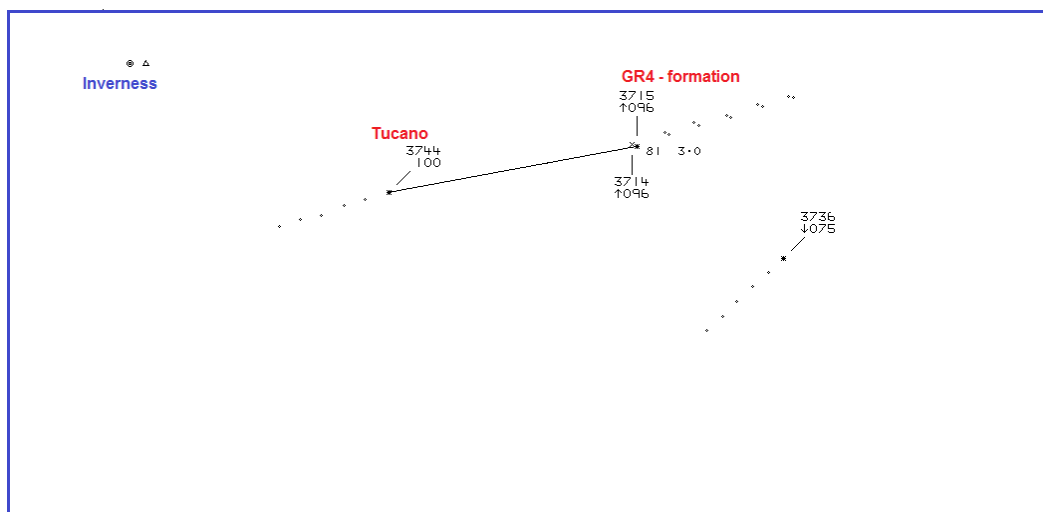


Figure 1 – Prestwick MRT at 1336:36

The two aircraft continued to converge and, at 1336:52, the horizontal separation was 0.5nm and the vertical separation 200ft, Figure 2.

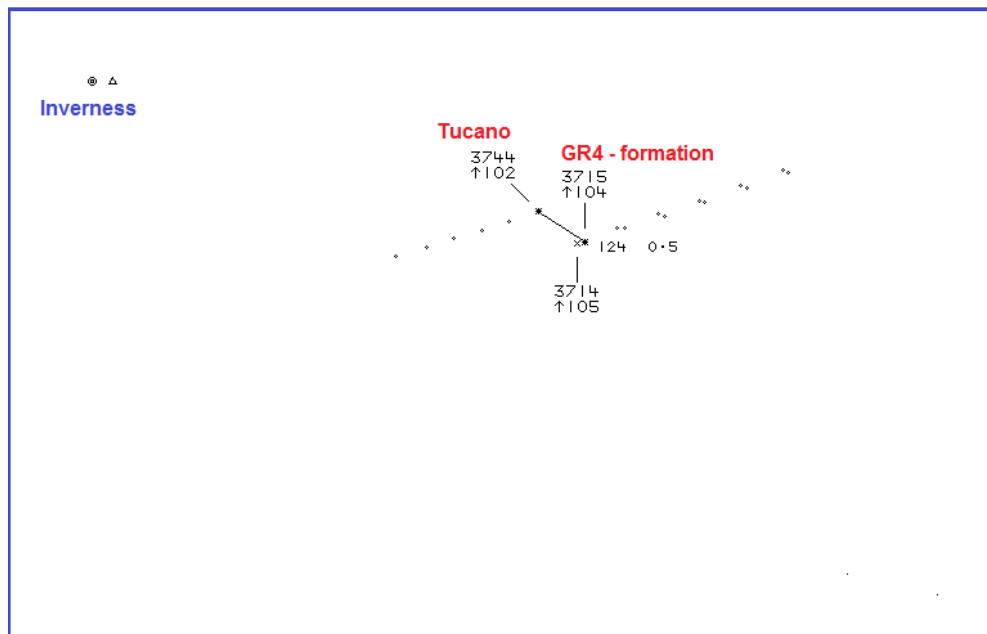


Figure 2 – Prestwick MRT at 1336:52

CPA was estimated to have occurred at 1336:56, between radar sweeps with a calculated horizontal distance of 0.3nm and vertical distance of 300ft.

AT 1337:00, the controller instructed the Tucano “(Tucano) c/s you can report clear of those two Tornados to Lossie stud one four” and the Tucano pilot reported changing frequency.

The Lossiemouth Approach controller had requested information on the Tucano and, when advised that it was maintaining FL100, the controller indicated that the GR4’s would be not above FL90. Lossiemouth Approach did not use the phrase “Request co-ordination” and the Inverness controller recognised that co-ordination had not formally been agreed. However, from the information received from Lossiemouth Approach, the Inverness controller had an expectation that the GR4’s would not be above FL90, and this information was passed to the Tucano pilot together with an instruction to maintain FL100.

The Tucano pilot was in receipt of a Basic Service; CAP 774 (UK Flight Information Services) states:

‘Pilots should not expect any form of Traffic Information from a controller. However, where a controller has information that indicates that there is aerial activity in a particular location that may affect a flight, they should provide traffic information in general terms to assist with the pilot’s situational awareness.’

The Inverness controller had passed appropriate Traffic Information to the Tucano pilot and, when the GR4 formation was observed to be climbing above FL090, the controller also passed a warning, updating the Traffic Information, which resulted in the Tucano pilot reporting visual and clear to the left (west) of the GR4 formation.

The GR4 formation, in receipt of a Traffic Service from Lossiemouth Radar, was advised about the Tucano, 15nm ahead at FL100. The GR4 formation was instructed to stop climb at FL90 but this instruction was missed by the GR4 crews and no read back was given. Consequently the GR4 formation continued in the climb to FL160.

## **Military ATM**

The unit conducted an in-depth Occurrence Safety Investigation which produced a number of recommendations. The Tornados had been placed under a Traffic Service and climbed to FL160. As the Tornados were passing FL55, they were informed to 'stop climb' at FL90 but the restriction was not read back. Traffic Information on the Tucano was called at 12 o'clock, 8nm at FL100 with amplification that the Tucano was maintaining FL100 until the Tornados had passed beneath. The Tornados were not fitted with ACAS, and the crews saw the Tucano at approximately 1nm. The Tucano crew had TCAS information and updated Traffic Information from the Inverness controller, and saw the Tornados at 0.5nm. The investigation found that the Tornado formation did not hear the 'stop climb' instruction. The controller did not challenge the Tornados to confirm the control instruction, and the Tornado crew did not take adequate action to ensure sufficient separation, leading to a late sighting. At the time of the Traffic Information, the crews were discussing an issue but did not feel that this had distracted them.

CAP413 outlines clearance issues and read-back requirements in paragraph 1.15. Level Instructions are to be read back in full by the pilot and if a read-back is not received, the pilot will be asked to do so. CAP774, Chapter 3, states that controllers providing a Traffic Service are not required to achieve deconfliction minima, as the pilot remains responsible for collision avoidance. The 'stop climb FL90' instruction can be viewed as the controller providing duty of care and not knowingly introducing a risk of collision from an ATC instruction.

## **UKAB Secretariat**

The Tucano and Tornado pilots shared an equal responsibility for collision avoidance and not to operate in such proximity to other aircraft as to create a collision hazard<sup>1</sup>. The CPA was estimated by interpolating between radar returns.

## **Comments**

### **HQ Air Command**

The investigation into this incident identified that none of the Tornado crew members heard the instruction to stop climb below the level of the Tucano, though there is clear evidence that the formation transmitted its callsign immediately after the instruction was delivered. The controller interpreted the transmission of the formation callsign as acknowledgement of the instruction even though a full read-back should have been transmitted by the Tornados. This highlights the importance of adherence to standard phraseology – it is usually borne out of bitter experience – and the importance of insisting that clearances be read back in full. That said, opportunities to break the conflict based on TI existed, and this is another case of continuing on track until visual rather than taking a small heading change early to increase lateral separation. The most effective barrier in this incident was the Tucano TCAS, which provided the Tucano crew with enough SA to acquire the Tornados visually and thus negate any chance of the situation degrading further.

## **Summary**

An Airprox was reported when a Tucano and a Tornado formation flew into proximity at 1337 on Thursday 5<sup>th</sup> February 2015. Both pilots were operating under VFR, in VMC, in Class G airspace, the Tucano pilot in receipt of a Basic Service from Inverness Radar, and the Tornado formation in receipt of a Traffic Service from Lossiemouth Radar.

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<sup>1</sup> SERA.3205 Proximity.

## **PART B: SUMMARY OF THE BOARD'S DISCUSSIONS**

Information available consisted of reports from the pilots of both aircraft, transcripts of the relevant RT frequencies, radar photographs/video recordings, reports from the air traffic controllers involved and reports from the appropriate ATC and operating authorities.

The Board first considered the Tucano pilot's actions. He had been cleared to cross the N560 Class E airway at FL100, maintaining VMC, and had been passed Traffic Information by the Inverness controller that the approaching Tornado formation would be climbing to maintain FL90; the Board considered that he therefore had no reason to consider deviating from his track. Members wondered whether the pilot should have been told that the Tornados were not coordinated, but agreed that that would have been unlikely to change his actions. Updated Traffic Information had been passed when the Tornado formation climbed above FL90; he observed the Tornado formation on his TCAS and then saw them to the right and slightly above. Members noted that, although the Tornado formation had passed 0.4nm to the right of the Tucano, TCAS was prone to inaccuracy in azimuth, especially on the nose/tail, and the pilot had been passed Traffic Information that the opposite direction formation was in his 12 o'clock. The Board opined that the only thing that he might have done to improve matters was to have taken avoiding action when it became clear from the Traffic Information that the opposite direction Tornados had climbed above FL90 rather than rely on the potentially erroneous TCAS indications that they were to his right (albeit this information turned out to be correct in this instance).

Turning to the Tornado formation, the Board noted that they were initially cleared to climb to FL160 but were subsequently requested to stop climb at FL90. One of the crew members responded with the formation callsign only, and the controller, perhaps not unreasonably, took that to be acknowledgement of the stop-climb instruction. That none of the 4 Tornado aircrew assimilated the stop-climb instruction but that one had acknowledged the transmission was a matter of some concern. The Board felt that this was an indication of the significance of Human Factors rather than any carelessness or inattention, but also agreed that it was contributory to the Airprox. Members remarked that it appeared the Tornado pilot had experienced some confusion when the Lossiemouth controller transmitted, "[Tornado C/S] traffic in your 12 o'clock 8 miles opposite direction at FL100 is maintaining FL100 until you're underneath". The pilot, unaware that a stop climb FL90 had been issued, responded with, "[Tornado C/S] copied, we're passing FL85 this time", which indicated that he was aware that there may be a confliction but that, by stating his current conditions as climbing, his hope was that this would perhaps prompt the controller to re-appraise the situation. Instead, a read-back of the clearance the pilot believed he had would have been more certain in resolving the situation immediately; e.g. 'Passing FL85 in the climb to FL160'. The Board opined that it was unfortunate, but understandable, that this had not occurred. The Board noted that the Tornado pilot had reported that the Tucano was 'briefed by ATC' as being at 15nm at FL100, which was the same Traffic Information call which reported the Tucano in the 12 o'clock. The Tornado pilot also reported that lookout was maintained, with 'an assumption of lateral separation'. Members agreed that, in light of the information given, this was a flawed assumption; they opined that the Tornado pilot had sufficient information, and doubt, at that point to have changed the formation's track even though he believed he was cleared to climb to FL160. In the end, the Tornado pilot saw the Tucano in the right 3 o'clock position, at about CPA, and too late to take any action to increase separation.

Turning to the controllers' actions, the Board noted that both the Inverness and Lossiemouth controllers had provided a service over-and-above that agreed, with a stop-climb instruction to the Tornado formation under a Traffic Service, and repeated Traffic Information to the Tucano pilot under a Basic Service. Members were heartened by the proactive approach of both the controllers but also lamented that it had been to no avail in terms of increasing separation. The Board commented that the Lossiemouth controller had 'gone the extra mile' but that he had then appeared to use phraseology which mixed ATC instruction with Traffic Information. Members felt that he would have been better served by either passing Traffic Information until the Tornado formation reported visual or, if sufficiently concerned, agreeing coordination with the Inverness controller. This would then have resulted in him insisting on a read-back of the stop-climb instruction from the Tornado pilot. It was also opined that, notwithstanding that they were not specifically required to do so, and that both



thought that height separation would be achieved, either controller offering a small change in heading would have usefully increased safety margins given that the aircraft were head-to-head. Although members agreed that the Lossiemouth controller had acted in the best interests of the Tornado formation, they considered that not obtaining a read-back to his stop-climb instruction had been contributory to the Airprox.

The Board quickly agreed that in not assimilating the stop-climb instruction, the Tornado crews had climbed into conflict with the Tucano. However, a prolonged debate then ensued about the risk category. Many members felt that the actual separation at CPA (400ft V/0.4nm H) indicated that safety margins had not been much reduced below normal. Others noted that this had only been achieved by good fortune, that the aircraft were head-to-head, and that the situation had deteriorated to the point where the aircraft passed one another at a range that alarmed them all. After further discussion it was agreed, by a majority, that all of the participants in this incident had allowed assumption or inaction to prevail to some degree, and that this had resulted in substantially reduced separation where safety margins had been much reduced below normal.

Members remarked that this Airprox seemed to have come about because no-one had taken charge of the situation sufficiently, and all had assumed that, in what was essentially see-and-avoid airspace, someone else was ensuring, or would ensure, separation; they reminded all that, irrespective of the assistance being provided by ATC, ultimately it was for the pilots to avoid collisions in Class G or when VFR in Class E airspace. It was also noted that standard phraseology was there for a reason, to avoid confusion to the greatest extent possible, and that non-standard phraseology often served to generate confusion or not resolve the issue at hand.

### **PART C: ASSESSMENT OF CAUSE AND RISK**

Cause: The Tornado crews climbed into conflict with the Tucano.

Contributory Factors: 1. The Tornado crews did not assimilate the instruction to stop climb at FL90.  
2. The Lossiemouth controller did not obtain a read-back to his instruction to stop climb.

Degree of Risk: B.