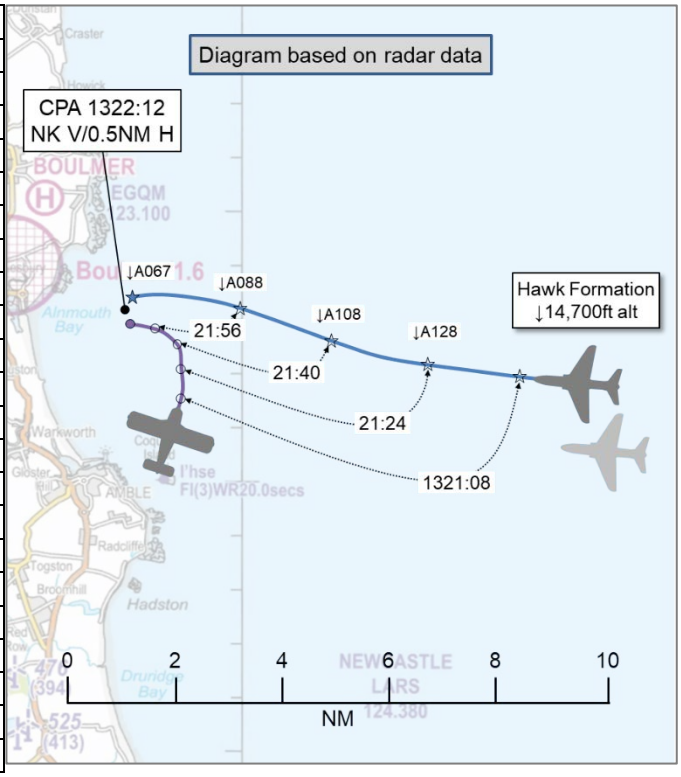
AIRPROX REPORT No 2021144

Date: 10 Aug 2021 Time: 1322Z Position: 5522N 00135W Location: 3NM N of Amble

PART A: SUMMARY OF INFORMATION REPORTED TO UKAB

Recorded	Aircraft 1	Aircraft 2
Aircraft	Hawk T1	PA28
Operator	HQ Air (Ops)	Civ FW
Airspace	Scottish FIR	Scottish FIR
Class	G	G
Rules	VFR	VFR
Service	Traffic	Basic
Provider	Swanwick Military	Newcastle Tower
Altitude/FL	FL066	NR
Transponder	A, C	Not detected[1]
Reported		
Colours	Black	White
Lighting	Strobes, nav, lndg	Strobes, anti-colls
Conditions	VMC	VMC
Visibility	>10km	>10km
Altitude/FL	4000ft	6000ft
Altimeter	RPS (1009hPa)	QNH (NR hPa)
Heading	280°	180°
Speed	360kt	95kt
ACAS/TAS	Not fitted	Not fitted
Separation at CPA		
Reported	500ft V/<0.5NM H	NK V/NK H
Recorded	NK V/0.5NM H	



THE HAWK PILOT reports that [their formation had been] briefed to fly a continuation training sortie comprising high-to-low navigation and Basic Fighting Manoeuvres. After climbing-out with Leeming Approach, they were handed to Swanwick Military for transit at FL150, under a Traffic Service. Communications between ATC and [the formation leader] were poor and [the No2] relayed most of the formation's intentions on UHF, whilst inter-flight communications were carried out on an internal VHF frequency; inter-flight communications on UHF were satisfactory. Approaching their descent point, ATC called them across to another Swanwick UHF frequency; on check-in, RT transmission/reception was again poor and [the No2] relayed the formation's intentions to let down to low-level and proceed en-route. [The formation] maintained VMC throughout and, apart from few clouds at approximately 6000ft, meteorological conditions were good, with clear sight of the ground and the first portion of the route. Shortly before proceeding en-route on the Low-Level Common frequency and internal chat frequency, Swanwick relayed information on traffic south of them by 2-3NM with no height showing. As weather conditions were good, they elected to proceed. At approximately 4000ft, [the formation lead pilot] became visual with a light-aircraft, less than 1NM on the nose and co-altitude. [The No2 pilot] became visual at the same time and pulled-up to pass overhead the aircraft with approximately 500ft of vertical and less than 0.5NM of horizontal separation. Clearing the aircraft's flight path rapidly, [the formation] continued to descend to low-level. Whilst debriefing the incident post sortie, it was agreed that the encounter constituted an Airprox and consideration should have been given to relaying the incident on an ATC frequency.

The pilot assessed the risk of collision as 'Low'.

THE PA28 PILOT reports carrying out PPL tuition north of Newcastle and in Class G airspace. They had a Basic Service from Newcastle. The airspace was clear and with no other traffic on frequency. They first sighted the military jet out to their right, above their aircraft and beginning to descend into a

[1] The PA28 pilot reported squawking Modes A and C – this was not detected by the NATS radars. However, the Newcastle Radar controller reports that the transponder returns from the PA28 were intermittent.

gap in the cloud. The PA28 pilot assumed that the military pilot was on a handling exercise, had seen the PA28 passing from their right-to-left ahead of them and they manoeuvred over and around the PA28 at high speed. When they first saw the military aircraft it was far enough away from them, hence they took no action, but they don't know what path the military aircraft had taken beforehand. The first they knew that it was a potential Airprox was after notification from the RAF.

The pilot assessed the risk of collision as 'Low'.

THE SWANWICK MILITARY INSTRUCTOR CONTROLLER reports that they were instructing a trainee in N/NW Tac Right. Towards the end of a low intensity session, [the Hawk formation] was prenoted from NE to go into low-level north of Newcastle. Initially the handover was taken slightly late due to an issue with the EFS not being sent to the offered bay. This was quickly rectified and [the Hawk formation] checked-in approximately 10NM north of Newcastle, requesting a descent to low-level shortly after, stating they were VMC. An initial descent was given by the trainee to the Area Safety Altitude (ASA) on the Tyne RPS. A prenote was then received from Lossiemouth for a separate track and, because attention was drawn to this, they gave the trainee a prompt to call traffic to [the Hawk formation] that was estimated to be SW by approximately 5 miles. This traffic was called and [the Hawk pilots] were happy to continue descent, stating again they were VMC. They were then instructed to squawk as required and change to their en-route frequency.

The controller perceived the severity of the incident as 'Low'.

THE SWANWICK MILITARY TRAINEE CONTROLLER reports that they were the trainee in TAC R when they took a handover from East Bank of [the Hawk formation], on a Traffic Service, for a low-level let down north of NATEB. When [the Hawk formation] came on their frequency, the pilots asked for descent on the Tyne [RPS] straight away. The trainee controller issued them a descent in accordance with the Minimum Safe Flight Level (MSFL) and told them to report approaching, report VMC below. They noticed a non-squawking contact west of [the Hawk formation] and were prompted by their instructor to call this to [the Hawk formation]. They called the traffic and [the Hawk pilots] reported 'looking'. They were working other traffic at the time. [The Hawk pilots] then called 'VMC below happy to go en-route with that traffic'. They told them to 'squawk as required, free call en-route'.

The controller perceived the severity of the incident as 'Low'.

THE SWANWICK MILITARY SUPERVISOR reports that, prior to the reported time, they had Tac R established with a trainee. Before the reported time, [the Hawk formation] was approved to descend to low-level in accordance with the MSFL/ASA north of Newcastle and, during the descent, they heard the instructor prompt the trainee to call non-squawking traffic to the south. After calling the traffic, [the Hawk pilots] called VMC and proceeded en-route.

THE NEWCASTLE RADAR CONTROLLER reports that [the PA28 pilot] was under a Basic Service with Newcastle Tower on a very intermittent 3767 squawk. As is standard procedure [at Newcastle], Tower works VFR departures up to 25NM to the north below 5000ft. At the time of the reported incident, there was no transponder reading from the assumed [PA28], showing primary only. The assumed [PA28] was tracking north up the coast, about 21NM NNE. The controller was vectoring an aircraft for the ILS with no relevant traffic on their frequency to the north. The two military contacts (one with the Swanwick(Mil) N squawk of 6101) were moving at high speed and descending from east-to-west. The last level readout seen was at FL138 before disappearing and only showing the squawk. As the Hawks got within 3NM of the assumed [PA28], [the PA28 pilot] started to turn left back to the southwest (one radar sweep after the level of the Hawks disappeared). The Hawks began to turn slightly right to the NW before taking another left turn to point west at their closest point to the assumed [PA28], where the blips began to merge. None of the aircraft had any level readouts at this point. The Hawks then showed descending through FL064 after overtaking the assumed [PA28], and continuing west as the assumed [PA28] continued track to the southwest and then further left down the coast. At this point, the Hawks changed to 7001 and proceeded north at low-level. During the entire incident, the assumed [PA28] was a primary only contact. [The PA28's squawk] reappeared as 3767 at 4700ft approximately 7NM south of Boulmer. In their view, it would not have been unreasonable in this situation for Swanwick(Mil) to

have offered their aircraft to [the Newcastle controller] for a Traffic Service knowing that there were contacts inland, in which case Traffic Information would have been passed.

Factual Background

The weather at Newcastle Airport was recorded as follows:

```
METAR EGNT 101320Z 07005KT 040V110 9999 SCT033 19/13 Q1013=
```

Analysis and Investigation

Military ATM

The formation of Hawks was conducting a training sortie which required a descent to low-level and was in receipt of a Traffic Service from [Swanwick(Military)]. Prior to requesting descent, the formation of Hawks was internally transferred to another controller at [Swanwick(Military)] and it was noted that the communication between [Swanwick(Military)] and the formation lead were poor; therefore, the No2 [Hawk pilot] relayed the formation's intentions. The Hawk formation reported that they were passed Traffic Information on the conflicting PA28 and, as the weather conditions were good, the Hawk [pilots] elected to proceed with their sortie. At approximately 4000ft, the [pilots in the] Hawk formation became visual with the PA28, with the No.2 pulling up to pass overhead. The reported separation was 500ft vertically and less than 0.5NM horizontally.

The PA28 pilot was carrying out PPL tuition to the north of Newcastle in receipt of a Basic Service. They reported that they first sighted the Hawk to the right, above and beginning to descend into a gap in the cloud. The pilot reported that they took no avoiding action as the Hawk was far enough away; however, they were unaware of any flight path prior to the sighting and assumed that the Hawk [pilot] was visual with them and had taken action to avoid.

The [Swanwick(Military)] controller was under training, although it was reported by the instructor that the traffic levels were low during the session. They reported that the handover of the Hawk formation had been slightly late due to an issue with the Electronic Flight Strip, however, this was quickly rectified and the formation was handed over. When requested, the Hawk formation was given an initial descent to the Area Safe Altitude following which the U/T controller took a landline call with a prenote from a terminal unit. The instructor prompted the trainee to provide Traffic Information on the PA28 which was only displaying as a primary contact, which was passed to the Hawk formation. The Hawk formation acknowledged the Traffic Information and reported that they were content to go en-route.

Figure 1 shows the position of the lead Hawk and the primary track which is believed to be the PA28. CPA was noted as 1322:12 and was measured at 0.5NM horizontally. Traffic Information was passed 53sec prior to CPA with the Hawk [pilots] reporting happy to go en-route 32sec before CPA. The image at Figure 1 is provided by the Radar Analysis Cell.

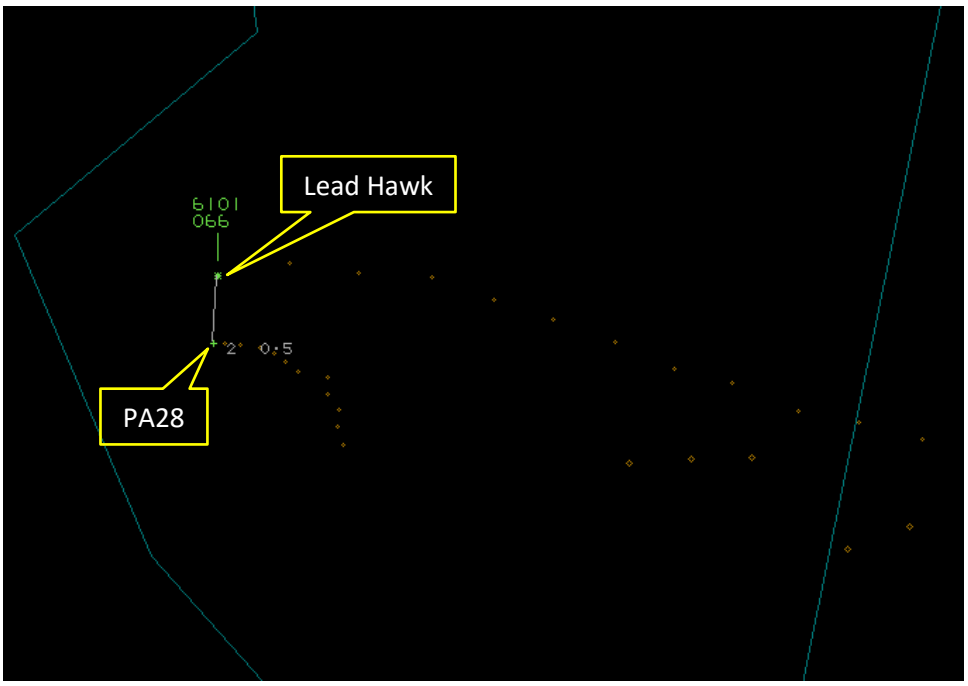


Figure 1 – 1322:12 – CPA

Although requiring a prompt, the [Swanwick(Military)] controller provided Traffic Information to the Hawk formation with sufficient time for action to be taken. Whilst the [Swanwick(Military)] controller could have requested Traffic Information from Newcastle, as detailed in the Hawk investigation, this would not have provided the [Swanwick(Military)] controller with any additional information as the investigation found that Newcastle did not believe that the primary track was the PA28 to which they were providing a Basic Service. The [Swanwick(Military)] instructor discharged their duty appropriately by prompting the trainee to provide Traffic Information when they became distracted by the landline. The Hawk investigation found that the PA28 was fitted with a transponder; however, it was unserviceable at the time and had been intermittent in previous sorties. It is unfortunate that the transponder had not been repaired prior to the sortie as this would have provided more information to both the [Swanwick(Military)] and Newcastle controllers to enhance the Traffic Information to the Hawk [pilots].

UKAB Secretariat

The Hawk and PA28 pilots shared an equal responsibility for collision avoidance and not to operate in such proximity to other aircraft as to create a collision hazard.[2] If the incident geometry is considered as converging then the PA28 pilot was required to give way to the Hawk.[3] If the incident geometry is considered as overtaking then the PA28 pilot had right of way and the Hawk pilot was required to keep out of the way of the other aircraft by altering course to the right.[4]

Occurrence Investigation

Newcastle ATC was approached and agreed that [the PA28] was one of their aircraft. [The PA28 pilot] was under a Basic Service with the Tower. Having replayed the radar trace it was noted there was no transponder return from the aircraft at the time but they could see the confliction and were unaware it was [the PA28]. It was also noted that this aircraft had been suffering intermittent transponder problems for the past few weeks. Newcastle ATC did not give conflicting Traffic Information as they believed the aircraft was not [the PA28] and was not on frequency and the descending traffic Mode C was slow to see the level passing.

[2] (UK) SERA.3205 Proximity. MAA RA 2307 paragraphs 1 and 2.
[3] (UK) SERA.3210 Right-of-way (c)(2) Converging. MAA RA 2307 paragraph 12.
[4] (UK) SERA.3210 Right-of-way (c)(3) Overtaking. MAA RA 2307 paragraph 14.

Comments

HQ Air Command

This Airprox was subject to a Local Investigation. It is unfortunate that the transponder of the PA28 was known to be intermittent and had not been repaired. This would have helped the Newcastle and the Swanwick controllers' SA, affording them the ability to pass better information to both aircraft. Both crews and Swanwick(Military) should consider using Newcastle for a low-level let down in that area due to the better radar coverage and the potential for GA operating with Newcastle; however, what transpired on the day, owing to the favourable conditions, was not wrong. Due to the fact the Hawk crew became visual early enough to manoeuvre out of plane with the PA28, there was no risk of collision. It is good to see the Hawk crew file an Airprox when they landed but it is strongly encouraged to announce it on the radio at the time of the incident to permit ATC to take the appropriate reporting and recording actions.

Summary

An Airprox was reported when a Hawk and a PA28 flew into proximity 3NM N of Amble at 1322Z on Tuesday 10th August 2021. Both pilots were operating under VFR in VMC, the Hawk pilot in receipt of a Traffic Service from Swanwick(Military) and the PA28 pilot in receipt of a Basic Service from Newcastle Tower.

PART B: SUMMARY OF THE BOARD'S DISCUSSIONS

Information available consisted of reports from both pilots, radar photographs/video recordings, reports from the air traffic controllers involved and reports from the appropriate operating authorities. Relevant contributory factors mentioned during the Board's discussions are highlighted within the text in bold, with the numbers referring to the Contributory Factors table displayed in Part C.

Due to the exceptional circumstances presented by the coronavirus pandemic, this incident was assessed as part of a 'virtual' UK Airprox Board meeting where members provided a combination of written contributions and dial-in/VTC comments.

The Board first considered the actions of the Hawk pilot and heard from a military pilot member that it is standard practice for Hawk pilots to seek an ATS from Swanwick(Military) while transiting at medium level. Furthermore, if the weather is fit for a VFR descent to low-level, then this would be the preferred option rather than contacting a more local airfield for descent below the minimum altitude to which Swanwick(Military) operates. The military pilot member acknowledged that, in this case, the Hawk pilots may have been better served seeking an ATS from Newcastle as their controllers are more likely to have a more detailed picture of the air environment at lower levels. That said, the Board agreed that the Hawk pilots had received generic situational awareness of the presence of the PA28 in the form of Traffic Information with no height information from the Swanwick(Military) controller (**CF2**) and that it would have been unlikely that a Newcastle controller could have passed more specific information, given the PA28's transponder had been intermittently unserviceable. The Board then briefly discussed the condition of the PA28's transponder and noted that its intermittent nature had denied specific situational awareness to the controllers. Furthermore, with the use of on-board electronic conspicuity (EC) equipment becoming more widespread, this would have also prevented other pilots from receiving warnings of the PA28's presence (although this was not applicable in this case as Hawk T1s are not fitted with any additional EC equipment). Ultimately, the Board agreed that the Traffic Information passed to the Hawk pilot from the Swanwick (Military) controller had enabled them to sight the PA28 and manoeuvre around it, although they had been concerned by its proximity (**CF3**).

Turning to the actions of the PA28 pilot, the Board noted that they had been receiving a Basic Service from the Newcastle Tower controller while at a range of approximately 15Nm form the airfield. Whilst members noted that this is common practice at Newcastle, the Board considered that the PA28 pilot, operating at a reported altitude of around 6000ft, may have been better served seeking a surveillance-based ATS from the Newcastle radar controller. The Board agreed that, in the event, the PA28 pilot had not had any situational awareness of the presence of the Hawk formation (**CF2**) but that they had

sighted the Hawks early enough to simply monitor their flightpaths. Members also noted that the PA28 pilot had assumed that the military pilots had sighted their aircraft, and wished to remind pilots that it should not be assumed that the pilot of another aircraft has them in sight. That said, in this case, the Hawk pilots had had the PA28 in sight and had manoeuvred to maintain separation.

The Board then discussed the actions of the Swanwick(Military) and Newcastle controllers, and heard from a controller advisor that the local procedures at Newcastle with respect to the provision of a Basic Service on the Tower frequency had been in place for some time. Whilst some members wondered if this would be the most efficient way to pass Traffic Information to a pilot should it be necessary, the Board accepted that, under a Basic Service, a pilot should not expect any Traffic Information. In this event, the Swanwick(Military) controller had had radar contact on the PA28 and, although there had been no altitude information available, had had generic situational awareness of the PA28 (**CF1**) which, after prompting by their OJTI,[5] they had passed on to the Hawk pilots.

Finally, the Board considered the risk involved in the Airprox. The Board noted that the Hawk formation had reported that the No2 Hawk had been the closest to the PA28, but that the NATS radar replay had not had a track of the No2 Hawk at CPA. A military pilot member confirmed to the Board that it was most likely that the No2 Hawk had been within approximately 0.2NM of the lead Hawk, given that they had been manoeuvring through cloud at the time of the Airprox. Given this information, and the fact that the PA28 pilot had sighted the Hawk formation early enough to simply monitor its progress, the Board agreed that there had been no risk of collision and that normal safety standards and parameters had pertained – Risk Category E.

PART C: ASSESSMENT OF CONTRIBUTORY FACTORS AND RISK

Contributory Factors:

	2021144			
CF	**Factor**	**Description**	**ECCAIRS Amplification**	**UKAB Amplification**
	Ground Elements			
	• Situational Awareness and Action			
1	Contextual	• Traffic Management Information Action	An event involving traffic management information actions	The ground element had only generic, late or no Situational Awareness
	Flight Elements			
	• Situational Awareness of the Conflicting Aircraft and Action			
2	Contextual	• Situational Awareness and Sensory Events	Events involving a flight crew's awareness and perception of situations	Pilot had no, late or only generic, Situational Awareness
	• See and Avoid			
3	Human Factors	• Perception of Visual Information	Events involving flight crew incorrectly perceiving a situation visually and then taking the wrong course of action or path of movement	Pilot was concerned by the proximity of the other aircraft

Degree of Risk: E

Safety Barrier Assessment[6]

In assessing the effectiveness of the safety barriers associated with this incident, the Board concluded that the key factors had been that:

Ground Elements:

[5] On-the-Job-Training Instructor.
[6] The UK Airprox Board scheme for assessing the Availability, Functionality and Effectiveness of safety barriers can be found on the UKAB Website.

Electronic Warning System Operation and Compliance were assessed as **not used** because the PA28's transponder was not displaying a Squawk at the time and, therefore, the STCA at Swanwick could not generate an alert.

Flight Elements:

Situational Awareness of the Conflicting Aircraft and Action were assessed as **partially effective** because the PA28 pilot had no situational awareness of the presence of the Hawk formation, and the Hawk pilot only had generic situational awareness (no height information) of the presence of the PA28.