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Part 1.3 Narrative of Events

All times LOCAL

Introduction

1. On 14 Jun 09 at 1405 hrs Grob Tutor G-BYXR (Callsign 663A), departed RAF Benson. The aircraft was crewed by the Tutor pilot, as the captain in the right hand seat and a CCF (RAF) Cadet as passenger in the left hand seat. The aim of the sortie was a standard Air Experience Flying sortie and was the third in a series of 5 that the Tutor pilot was authorised to fly. This was the Cadet's second sortie on type. The aircraft departed RAF Benson on a northerly track before beginning a left hand climbing turn that took it over the town of Abingdon. The weather was good (RAF Benson was colour state BLUE), with 25km visibility and no cloud. Having climbed to approximately 4000 feet Above Mean Sea Level (AMSL) the aircraft carried out a series of 3 aerobatic manoeuvres which were most probably loops, given the height changes observed on Radar height readout (Mode C).

Exhibit 1
Exhibit 2
Exhibit 3
Exhibit 4
Exhibit 5
Exhibit 6
Exhibit 5
2. Standard Cirrus glider G-CKHT launched from Lasham on a tasking set by the Lasham Chief Flying Instructor (CFI) to fly a triangular route that took it down to Dorset before turning for Oxford then routing back to Lasham. The glider was flown by an experienced glider pilot who held a BGA Full Instructional Category and a private pilot's licence.

Witness 8
3. At approximately 1420 hrs and at a height of approximately 4100 feet AMSL in Class G airspace (unrestricted) a collision occurred between the the Tutor, G-BYXR (663A) and a Standard Cirrus, G-CKHT. The point of collision was estimated to be just South East of the village of Drayton in Oxfordshire. In the collision the glider lost part of its horizontal stabilizer and quickly became uncontrollable and pitched down violently. The glider pilot abandoned his aircraft and carried out a successful parachute descent. Tutor G-BYXR (663A) sustained some damage to the left wing leading edge and lost its pitot probe from under the left wing in the collision and was seen initially to enter a spin from which it recovered before diving into the ground. G-BYXR (663A) impacted the ground, wings level and at between 70° to 80° nose down at a speed in excess of 215 Kts; there were no survivors. The crash sites of G-BYXR (663A) and G-CKHT were approx 200m apart in fields either side of the B4016 near Gilbourne's

Exhibit 5
Witness 8
Annex C
Exhibit 7
Witness 8
Annex C



Farm, East of Drayton.

4. There was no post crash fire. Officers from Thames Valley Police (TVP) and the TVP helicopter arrived on the scene at 1425 hrs. The SMO from RAF Brize Norton attended the scene and declared both the Tutor pilot and the Cadet to be deceased. Annex C
Exhibit 1

Crew Background

5. The Captain was an experienced ex-Regular RAF Wg Cdr pilot and QFI. He had a total of 9560 flying hours, with 478 flying hours on the Tutor. In June 2008 he completed a Competent to Instruct (UAS) qualification at 115(R) Sqn, RAF Cranwell, and his last check flight on 6 AEF was carried out on 6 May 09 by OC 6 AEF. The Tutor pilot had a pre-existing medical condition (Ankylosing Spondylitis) which limited his ability to move his neck and head in both azimuth and elevation and left him with a restricted medical category of A3 (Unfit Ejection Seats). Annex B
Exhibit 8
Exhibit 9

6. The CCF(RAF) Cadet was passenger in the left-hand seat undertaking his 2nd air experience flight. Annex B
Exhibit 4

Aircraft History

7. The Tutor, G-BYXR (Serial No 82177/E), was operated by 6 AEF from RAF Benson. It was owned and maintained under CAA regulations by VT Aerospace. Prior to the accident flight the aircraft had flown 3824:55 flying hours. The engine had flown for 868:00 flying hours and the propeller for 150:15 flying hours. The last scheduled maintenance, a 50-hour inspection, was carried out 5 hours previously at 3819:35 airframe hours with no defects reported. Only one entry was made in the Acceptable Deferred Defect Log (sheet 18, line 1). This was for an engineering functional check of the VHF radio to be carried out; Work Order BEMM/00421 refers. The check was still outstanding however radio checks carried out by the aircrew confirmed the radio functioned correctly and this outstanding work had no bearing on the accident. The Check A, a pre-flight servicing, was carried the previous night and remained valid for the sortie; the aircraft was correctly certified as serviceable to undertake the flight. The aircraft was flown during the morning by another pilot without and no faults were reported. The accident took place during the third flight of the afternoon and no faults had been brought to the attention of the Annex A

Exhibit 10



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engineers after any of the previous flights.

Pre-accident events

8. All aircrew involved in the accident were properly qualified to carry out their sortie profiles. The glider pilot arrived at Lasham at 0815 hrs and attended the morning met and ops briefing which gave details of the day's task and relevant NOTAMS. He was offered the chance to fly and having planned his route and completed all pre-flight procedures and checks launched by aerotow in the Standard Cirrus G-CKHT at 1115 hrs. The glider pilot's aircraft was one of 128 gliders launched by the Club that day. The triangular task was set on the day by the Lasham CFI but the route was not required to be NOTAMED because it was not a recognized gliding competition. His flight proceeded normally in excellent weather and having reached his first turning point he flew towards Oxford and could see Didcot Power Station from some 60 km away. Throughout his flight he routinely found himself flying in company with other gliders flying the same route and as he approached Didcot Power Station he was aware of one glider about 100 yards to his left and another a similar distance to his right. G-CHKT was fitted with 2 data loggers and FLARM® which provides traffic information on other gliders fitted with similar equipment. FLARM® is a glider version of the larger and more widely used Terminal Collision Avoidance System (TCAS) which is fitted to larger aircraft. The airspace around Didcot power station was very busy with GA traffic on this day and the weather was so good that it has been reported as the best gliding day in the UK for at least 3 years.

Exhibit 8

Witness 8

9. The Tutor pilot reported for duty at No 6 AEF at RAF Benson at 0830 hrs. Fewer cadets than expected had turned up to fly and so, having flown the day before, the Tutor pilot volunteered to stand-down in favour of the other pilots and return after lunch for the afternoon wave. He returned home and joined his wife in their garden before returning to RAF Benson after lunch. The Tutor pilot was briefed for the afternoon wave and authorized to fly 5 sorties each of 20 minutes duration, he signed for G-BYXR in the Technical Log before carrying out his pre-flight walk round inspection. Prior to launching for his series of 5 sorties, the Tutor pilot appeared to be in good spirits and he did not display anything out of character on his first 2 flights. He took off on his first sortie at 1301 hrs. During his first 2 sorties, RAF Benson Air Traffic Control issued warnings that there was 'particularly heavy glider activity to the South East of Didcot by about 2 miles' but neither

Witness 6

Exhibit 3

Witness 6, 12

Exhibit 11, 12



the AEF nor RAF Benson knew anything about the tasking from Lasham.

10. The Cadet was driven to RAF Benson by his parents on the morning of 14 June 2009. He attended the pre-flight briefing for cadets and watched the Tutor passenger video. He was called forward for flying and was taken to the Survival Equipment Section and fitted with a Mk 16 flying suit and flying gloves. He was fitted for an Alpha helmet and a parachute. Having been fitted with the parachute a survival equipment fitter checked that he was able to deploy the parachute and extricate himself from the parachute harness when required. He was taken to the waiting area where he was supervised by his Squadron officer. When it was his turn to fly the Cadet was escorted to the flight line and a ground engineer assisted him to emplane and strap into G-BYXR. None of the ground engineers specifically recalls strapping the Cadet into G-BYXR but all recall that there was nothing unusual with any of the passengers that they strapped into Tutors on that day.

Vulnerable
Witness 1 - 9

Witness 12

Witness 12-16

ACCIDENT SEQUENCE

Accident Events

11. The Standard Cirrus glider (G-CKHT) was flying on a heading of 030° (M) at an altitude of approximately 4100 feet at a groundspeed of 70 Kts. The pilot was aware of other gliders in his vicinity all heading in a similar direction. He was heading towards his turning point at Oxford and looking for a thermal in order to gain enough height to glide back to Lasham.

Witness 8
Exhibit 5

12. Having departed from RAF Benson at 1405 hrs G-BYXR (663A) flew an anti-clockwise climbing track round Abingdon. When established to the west of Abingdon the aircraft began to fly aerobatic manoeuvres. This was the Cadet's second sortie in a Tutor and the first on which he would have been allowed to experience aerobatics; this, coupled with the height changes seen on radar, makes it likely that these manoeuvres were loops. Prior to the collision G-BYXR was on a heading of 085° (M) with a groundspeed of 100 Kts at an altitude of 4100 feet, converging with G-CKHT at the same altitude. G-BYXR (663A) then dived and accelerated to 135 Kts groundspeed and began its final manoeuvre from an altitude of approximately 3800 feet.

Exhibit 5

13. Just prior to the collision the glider pilot in G-CKHT reported





hearing a light aircraft engine at high power and looked down and to his left where he saw G-BYXR (663A) approaching from below; he could clearly see both occupants. He saw the Tutor pitch up and considered that a collision was likely and so rolled right and pulled into a hard climbing turn to try to avoid a collision. He lost sight of G-BYXR (663A) and as his IAS decayed to 35 Kts he selected a lower nose attitude to avoid the stall. The glider pilot then heard and felt the collision.

Witness 8

14. Immediately after the collision the glider, G-CKHT pitched violently down and the glider pilot was thrown forwards, his head smashing through the canopy, before being thrown back into this seat. He immediately deduced that his aircraft was fatally damaged and so he opened the canopy and jumped out. His parachute opened normally and thereafter he completed a normal parachute descent, landing without injury.

Witness 8

15. After the collision the Tutor G-BYXR (663A) was seen to initially enter a spin from which it recovered to a steep dive before crashing into the ground. There was no post-crash fire and the aircraft was completely destroyed on impact.

Exhibit 7
Annex C

Survival Aspects

16. The impact with the ground was not survivable. The TVP helicopter, callsign POLICE 381 arrived on the scene at 1425 hrs and reported that there were two casualties at the scene of the accident. The SMO from RAF Brize Norton declared both casualties to be deceased.

Annex K

17. Inspection of the wreckage showed that the Tutor pilot had been strapped into his seat at the point of impact. The Cadet's harness was found undone and the canopy locking lever was found in the unlocked position.

Annex C

18. The Panel concludes that:

- a. **Authorization.** The flight was correctly authorized.
- b. **Briefing.** The flight was adequately briefed.
- c. **Crew Competency.** The Tutor pilot was competent to

Exhibit 3

Witness 6

Exhibit 8





undertake the flight.

d. **Aircraft Serviceability.** The aircraft was correctly certified as serviceable to undertake the flight. Exhibit 10

e. **Weather.** The weather was suitable for the flight. Exhibit 6

DEGREE OF INJURY

19. The Panel finds that the degree of injuries to personnel was as follows:

a. **Service Personnel.** The accident resulted in the fatality of the Tutor pilot. Annexes K & M

b. **Civilian Personnel.** The accident resulted in the fatality of the CCF (RAF) Cadet. Annexes K & M

AIRCRAFT ESCAPE FACILITIES

20. The Tutor is fitted with a jettisonable one-piece canopy and both occupants wear Irvin Type 85 parachutes. They are restrained in the aircraft by use of a 5-point harness. The canopy is jettisoned by first pulling and discarding the red canopy jettison handle, this allows the canopy locking lever to be moved beyond its normal opening position. The action of pulling the canopy locking level fully aft disengages the three pins that hold the canopy on to its runners, allowing the canopy to be pulled rearwards and then pushed up and away from the aircraft. The aerodynamic forces on the canopy will assist with lifting it away from the fuselage. Once the canopy has been jettisoned the crew members must unfasten their seat harnesses by depressing the Quick Release Fitting (QRF) locking button and rotating the QRF through 90°, allowing the lap and shoulder straps to detach from the negative-g strap. Once this action is complete the crew members must climb out of the cockpit, locate the parachute operating handle and dive over the side of the cockpit before deploying the parachute. These actions are covered in the Tutor passenger briefing video which is shown to all passengers before they fly. The actions required to deploy the parachute are often reiterated by the survival equipment staff when the passengers are fitted with their parachutes. There are currently no facilities to allow either passengers or pilots to practise jettisoning the canopy, abandoning the aircraft and deploying the parachute. There is

Exhibit 13

Witness 12



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a parachute training facility at RAF Cranwell and all Tutor QFIs and student pilots use this facility before flying the aircraft. Other 1 EFTS units do not have similar facilities.

DAMAGE TO AIRCRAFT, PUBLIC AND CIVILIAN PROPERTY

21. **Aircraft.** As a civilian registered aircraft, Tutor G-BYXR was owned by VT Aerospace and is not subject to formal military repair categorization. However, after consultation with VT Aerospace and the insurance company it has been written-off. The amount of loss incurred is classified by VT Aerospace as Commercial in Confidence.

22. **Public Property.** The replacement cost of the Aircrew equipment Assemblies (AEA) worn in the accident was £5002.62.

23. **Civilian Property.** The crash site was contaminated with aircraft fuel, oil and GRP fragments following the accident. The site remediation included the removal, disposal, and replacement of contaminated earth from the crash site. The crash site was subsequently reinstated at a total cost of £22,348. The costs associated with the Standard Cirrus Glider G-CKHT have not been obtained.