Douglas DC-3-R-1830-90C, G-AMSV, 11 November 2000

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INCIDENT

Aircraft Type and Registration:	Douglas DC-3-R-1830-90C, G-AMSV
No & Type of Engines:	2 Pratt & Whitney R1830-92 piston engines
Year of Manufacture:	1944
Date & Time (UTC):	11 November 2000 at 1110 hrs
Location:	Coventry Airport, Baginton, West Midlands
Type of Flight:	Aerial Work
Persons on Board:	Crew - 5 - Passengers - None
Injuries:	Crew - 1 (Minor) - Passengers - N/A
Nature of Damage:	No damage to aircraft, hangar roof damaged
Commander's Licence:	Airline Transport Pilot's Licence
Commander's Age:	26 years
Commander's Flying Experience:	3,000 hours (of which 600 were on type) Last 90 days - 173 hours Last 28 days - 69 hours
Information Source:	Aircraft Accident Report Form submitted by the pilot, follow up enquiries by letter and telephone

History of the flight

The aircraft was scheduled to drop poppy petals over a war memorial near Coventry during the Remembrance Day weekend. The crew consisted of two pilots and three dispatchers who were to dispense the poppy petals from bags in the rear of the aircraft. The rear crewmembers were wearing parachutes, and on similar flights in previous years some rear crewmembers had parachuted from the aircraft on return to the departure airfield. On this occasion only one of the rear crew was fit and qualified for parachuting.

The weather forecast for Coventry was reported as surface wind 230°/20 to 30 kt and a main cloud base of 1,500 feet with patches of cloud at 600 feet above airfield level. It therefore appeared unlikely that the weather would be suitable for parachuting, and a detailed drop briefing was not included in the pre-departure briefing.

The poppy drop took place uneventfully and on return to Coventry Airport the weather appeared to have improved slightly. The surface wind had reduced to 17 kt and there was no significant cloud below 1,500 feet. A conversation took place between the commander and the parachute qualified rear crewmember during which the commander advised him of the improved conditions. The rear crewmember decided to jump provided that a height of at least 1,500 feet could be achieved and that the aircraft could be flown directly into wind.

On contact with Coventry ATC the flight crew requested to 'come overhead at 1,500 feet and throw one of our passengers out'. The ATC controllers had received no prior notification of a parachute drop, and because of the informal nature of the request they initially regarded it as a joke. The flight crew asked if there were any engines running on the airfield, and on being informed of a taxiing helicopter, they decided to carry out a 'run and break and then come around for another go'.

About a minute later the tower controller advised that the helicopter was landing and '.....if you want to carry on with the detail'. The flight crew acknowledged the transmission and the handling pilot began to slow the aircraft towards a target speed of 80 kt and called for one-quarter flaps to be lowered. As the aircraft overflew the airfield the commander gave the pre-arranged drop signal to the rear crew and some seconds later the commander was aware that the parachutist had left the aircraft. The commander could not recall the aircraft's exact indicated air speed (IAS) when the parachutist jumped but remembers that the strong wind was making flight conditions quite turbulent.

The parachutist departed the aircraft facing forward with his right hand to the rear of his right hip on his main pilot parachute and his left arm extended for stability. His exit through the rear door was uneventful but, before he cleared the aircraft completely and initially unknown to himself, he struck part of the aircraft breaking his left arm. His decent immediately became violently unstable and he fought to regain stability before releasing his parachute. With height rapidly reducing, he attempted to release his reserve parachute with his right hand (the reserve parachute had a faster deployment time than the main parachute and in an unstable descent was less likely to become entangled) but he found difficulty in operating the reserve parachute deployment pad. With height now down to an estimated 200 to 300 feet he resorted to deploying the main parachute but the low deployment height and unstable descent made a full deployment impossible and he landed on his back on a hangar roof with the parachute partially deployed. He sustained injuries to his ribs and internal organs during the impact.

From the ground the ATC controllers noticed 'a bundle' falling from the aircraft toward the hangar area with a parachute partially deploying shortly before it disappeared from view. On questioning the flight crew the controllers were advised that a parachutist had indeed left the aircraft but, because the bundle seen leaving the aircraft had appeared small, the controllers continued to believe that they were the victims of a practical joke. Some time later the controllers noticed the fire and rescue crews proceeding toward the hangars but it was not until some twenty minutes later that the controllers became fully aware of the nature of the incident.

Background

The DC3 has been used for free fall parachuting for many years and the investigation sought to determine why the parachutist hit the aircraft and injured himself. Analysis of radar data from Clee Hill (some 40 miles away) indicates that the aircraft's ground speed at about the time the parachutist jumped was 89 kt (plus or minus 5 kt). An ATC transmission just before the drop gave the wind at 1,000 feet as 220/25 kt. Given the aircraft's southwesterly track this wind would give a minimum

true airspeed of 109 kt (107 kt IAS) at the point of drop. The aircraft's Certificate of Airworthiness (C of A) states that during parachute dropping the aircraft must be flown at an IAS of 75 kt (plus or minus 5 kt) with the flaps at one quarter lowered. The British Parachuting Association advises that in some cases a higher than normal aircraft speed for dropping can be of assistance to parachutists but excess aircraft speed also makes the drop more unpredictable and increases the chances of the parachutist striking part of the aircraft.

The incident aircraft was equipped with a spray bar fitted athwartships beneath the rear fuselage at a position longitudinally between the rear exit door and the tailplane. The parachutist was aware of the position of the spray bar and was conscious of its position when he left the aircraft. He is certain that he did not strike the spray bar during his descent and assumes that he hit the aircraft's tailplane. The aircraft C of A permits G-AMSV to be used, subject to certain modifications, for free fall parachute jumping and chemical spraying; however, the C of A does not state whether or not parachuting can be undertaken with the spray modification fitted. The following recommendation is therefore made:

Safety recommendation

Recommendation 2001-30

It is recommended that the CAA amend the aircraft Certificate of Airworthiness (C of A) for those DC3 aircraft which are cleared to be fitted with spray bar modifications so as to clarify the position regarding the dropping of parachutists with the rear spray bar fitted.