

Aircraft type and registration: Enstrom F28A Helicopter G-BALE

No & Type of engines: 1 Lycoming H10-360-CIA piston engine

Year of Manufacture: 1973

Date and time (GMT): 9 August 1987 at 1120 hrs

Location: Thruxton Aerodrome, Hampshire

Type of flight: Training/Parachuting

Persons on board: Crew — 2 Passengers — None Parachutist — 1

Injuries: Crew — Minor Passengers — N/A Parachutist — 1 (fatal)

Nature of damage: Substantial to rotorblades, gearbox and fuselage — beyond economic repair

Commander's Licence: Airline Transport Pilot's Licence (Helicopter)

Commander's Age: 55 years

Commander's Total Flying Experience: 10,000 hours (of which 6000 hours were on helicopters and 34 hours on type)

Information Source: AIB Field Investigation

An instructor and student were engaged in a helicopter training flight practising right hand circuits to the north of the centre of the airfield. They were aware that parachuting was taking place during the day, and that the dropping zone (DZ) was south of runway 08/26 and extended to the motor racing track. An "X" target was marked within the DZ as an aiming point for the parachutists. On two previous occasions that day, when the helicopter crew had been aware that a drop was about to take place, they had cleared the airfield perimeter to the east until the drop was completed.

After completing a circuit the helicopter took off into wind for a low hovering exercise at a position approximately 350 metres north of the centre of runway 08/26. The student did a clearing turn 90° to the left and back into wind but the instructor was not satisfied, took control and repeated the turn as a demonstration. When the aircraft was heading into wind again and the instructor was just about to hand over control to the student, a loud bang was heard, the aircraft spun to the right to face in the opposite direction and struck the ground heavily on its right side. The instructor in the right seat was knocked unconscious temporarily and he and the student received relatively minor injuries. They were helped out of the aircraft and ushered away from the site by witnesses to the accident.

A course consisting of eight student parachutists were learning to jump in order to raise money for charity. They had been instructed that, once they were clear of the aircraft, they were to head downwind towards the target until they had descended to approximately 300 feet agl. At this point, or when instructed by the DZ controller with a loudhailer from the

ground, they were to turn back into wind in order to reduce their forward speed and remain within the area of the DZ.

At approximately 1210 hrs a Britten Norman Islander took-off from the airfield with a single pilot, a jumpmaster and the eight student parachutists on board. Runway 26 was in use and the wind was from the north west at 5 to 10 kt. The aircraft climbed to 2000 feet agl and the jumpmaster instructed the pilot to run in over the airfield so that he could drop a wind drift indicator. The jumpmaster then calculated the effect of the wind drift and chose the centre of the northern airfield boundary as the appropriate point to despatch the parachutists.

Two students were despatched during the first run over the airfield after which the aircraft carried out a circuit to enable the jumpmaster to watch their descent. The first one to leave the aircraft drifted across the airfield and landed within the DZ, near to its southern boundary. The second one landed just outside the northern airfield boundary. The pilot was asked to run in for another drop and at the appropriate point the jumpmaster ordered the third student into the doorway. She was a little slow in taking up her position but after the jumpmaster had visually checked that they were still in the correct position over the airfield he despatched her from the aircraft. Because of the delay involved during this run only one student was dropped and the pilot was asked to complete a circuit and run in for the third drop. The same procedure was followed and two more students were despatched. As the jumpmaster was pulling the static lines back into the aircraft immediately after the third drop he saw a student parachute split in half as it collided with the rotating blades of a helicopter. He saw that one of the rotor blades had detached and he informed the pilot that there had been a serious accident and asked him to land.

External witnesses had seen the first two parachutists leave the aircraft followed, after an orbit, by a single parachutist. The single parachutist was seen to descend almost vertically over the northern boundary of the airfield facing into wind until, at an estimated height of 500 to 700 feet agl, she was seen to turn through 180° and head downwind. The natural forward travel of the parachute combined with the tailwind resulted in the parachutist descending at an angle with a speed over the ground of approximately 10 mph. Photographic evidence showed that, during the descent of this parachutist, a light fixed wing aircraft took off from runway 26.

The DZ controller saw the helicopter only when it was apparent that the third parachutist was descending towards the northern boundary of the airfield facing into wind, contrary to his instructions from the ground. When he saw her turn and descend towards the helicopter he instructed her a number of times to pull the left toggle (in order to turn left) but there was no apparent response. The parachutist descended into the helicopter rotor and was killed instantly.

The British Parachuting Association Operations Manual, current at the time of the accident, listed many recommended duties of a DZ controller, among which were that he/she:

'(11) Will maintain a close look out for aircraft including gliders, and will suspend parachuting as soon as any interference with the safe conduct of parachuting becomes apparent.

(14) Will keep in close touch with Flying Control if there are other aviation activities adjacent to the DZ.'

The Aerodrome Manual, current at the time of the accident, contained instructions concerning parachuting operations, including the following:

'...the parachute aircraft must operate under the instructions of the Air Traffic Controller. Prior agreement must be made with the WAT (Western Air Training) staff for convenient slots when parachuting should be able to take place in safety. ...

The parachute pilot ... should indicate where and when parachutists have been despatched, the number and from what height, and the dropping zone being used. Thus a typical R/T call might be: "Alpha Bravo para drop over the field for DZ south, two free fall from 4200 ft". ...

All pilots should remain well clear of the relevant DZ when parachutists are descending and whenever possible keep in sight the appropriate number of parachutes.'

The AFISO was occupied with a telephone call from the parachute club at the time of the accident. The pilot of the aircraft dropping the parachutists stated that he made the requisite RTF call. The crew of the helicopter stated that they heard no RTF call from either the dropping aircraft or Air Traffic Control and that they were not aware of the impending drop. The helicopter crew did not see either the two parachutists who were dropped first, or the third parachutist who collided with them.

Following the accident, and as a result of a meeting between officials of the CAA and Thruxton airfield, changes were incorporated into the Aerodrome Manual which included:

'No parachuting will take place

- (a) while rotor blades are turning anywhere in the A.T.Z.
- (b) while unlicensed solo pilots are within the A.T.Z.

No student or novice parachutist (parachutist with less than 20 jumps) shall be permitted to jump while aircraft are in the circuit. The Chief Parachute Jumping Instructor shall be responsible for arranging times when the airfield can be closed for circuit flying by fixed wing aircraft.

While the airfield is closed to fixed wing circuit flying, the Air Traffic Controller may permit aircraft to enter the circuit and land or take-off to leave the circuit so long as the aircraft can be parked and the engine stopped or clear of the A.T.Z. as appropriate, before the parachute aircraft is cleared to drop parachutists.

When the parachute aircraft calls "Running In" to make a parachute drop the Air Traffic Controller shall advise the aircraft not to drop parachutes if there are rotor blades running on the airfield or in the circuit and shall not advise the parachute aircraft that he may drop at his discretion until such time when there are no rotor blades turning on the airfield or in the circuit. Once the parachute aircraft has called that he is "Running In" to make a drop the Air Traffic Controller shall not permit helicopters to enter the circuit or to start up rotors on the ground.'

The effects of these amendments are being monitored by the CAA, both with regard to Thruxton and other airfields where mixed aerial activity takes place.