MINISTRY OF DEFENCE

MILITARY AIRCRAFT ACCIDENT SUMMARY

AIRCRAFT ACCIDENT TO ROYAL AIR FORCE PUMA XW 221

AIRCRAFT:	RAF Puma XW 221
DATE:	19 July 2004
LOCATION:	Iraq
PARENT UNIT:	33 Sqn RAF Benson
CREW:	Three
INJURIES:	One fatality, two crew with serious burn injuries

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SYNOPSIS

1. At 1030 local time on 19 July 2004, a RAF Puma helicopter was returning to Basra Air Station from a mission. As it rolled out of a right hand turn to land, XW 221 entered an extreme rapid descent and the aircraft impacted the taxiway at 1032 local time. The aircraft then caught fire. The Handling Pilot (HP) and crewman escaped from the aircraft with serious burn injuries. The Non-Handling Pilot (NHP) made no obvious attempt to escape and died in the post-crash fire.

2. The Board of Inquiry concluded that the accident was caused by an inappropriate downwind approach to land.

BACKGROUND

3. The Puma was returning to its base at Basra Air Station after carrying out a task in support of Coalition forces. On board were two pilots and a crewman. The Captain was the HP and was a first tourist Puma pilot on his first operational mission of his first operational deployment. The NHP was on his first operational mission of his second operational deployment in Iraq. It was also the auxiliary non-commissioned crewman's first tour in Iraq albeit this was not his first mission; he had also previously served as a regular airman in the UK and Hong Kong.

4. Both pilots had arrived in theatre on 14 July. Between then and their first tasking on 19 July they were acclimatising and received aviation briefings and conducted both day and night theatre and environmental qualifications. All the crew were off duty for the 24 hours prior to the tasking. An after flight/before flight servicing had been conducted on 18 July and the aircraft was considered serviceable by the crew until the time of the crash.

CIRCUMSTANCES

5. At 1029 local time, the Puma received clearance to join Runway 32 at Basra Air Station and was advised of a northerly surface wind of 22 knots. The aircraft crossed the south west boundary on a northerly heading. At this point, the aircraft was flying at 75 feet above ground level and was decelerating. The crew received permission to cross the active runway prior to making an approach to a dispersal area, situated on the east of the runway. The pilot flew north of the dispersal area and then commenced a right-hand decelerating turn towards the dispersal area. The aircraft came out of the turn on a downwind, south easterly direction at about 40 feet above ground level. The aircraft was then cleared to land at 1032 local time. A few seconds later, the aircraft commenced a rapid rate of descent from a height of 30 to 40 feet above ground level and stuck the taxi way with some forward ground speed. The nose undercarriage hit the ground first, collapsed and broke off, followed by the main undercarriage, which collapsed, with the right-hand main undercarriage also shearing off. The aircraft briefly climbed back into a 20 feet hover before seemingly coming under control for a second. The aircraft then departed controlled flight, rolled left and struck the ground for a second time. The main rotor blades shattered under engine power on impact. The tail boom snapped off. The aircraft came to rest on its left side after sliding along the taxiway. The aircraft caught fire a few seconds later. The crewman escaped through the starboard cabin door. The HP escaped through the starboard cockpit door. The NHP made no obvious attempt to escape.

RESCUE OPERATION

6. Although two of the three aircrew extracted themselves from the wreckage, two RAF service personnel close to the crash site rescued both survivors from the ensuing fireball. This was at grave risk to their own safety as ammunition and flares were exploding from the burning aircraft. Although fire services were at the crash site within minutes it proved impossible to rescue the remaining crew member, who died in the post-crash fire. His body was later removed and there was no difficulty in undoing the harness.

AIRCRAFT DAMAGE

7. The aircraft suffered Category 5 damage (scrap).

INVESTIGATION

8. A Board of Inquiry (BOI) was convened to investigate the crash on 20 July 2004 with an experienced rotary pilot Wing Commander nominated as its President. An independent technical investigation was also undertaken by the Air Accident Investigation Branch (AAIB). The Board concluded that the cause of the crash was due to an inappropriate downwind approach to land. The AAIB concluded that the helicopter appeared to be serviceable and functioning correctly at the time of the impact and that there was no evidence of an airborne collision, fire, explosion or impact by a projectile.

9. The Board identified a number of contributory factors in the crash. These include the fact that the pilot and crew had not appreciated the wind conditions, the lack of use of aircraft systems during the approach to land and aircraft handling prior to impact. The inherent slow engine and rotor response were also included as contributory factors. The dangers of poor engine response and slow rotor speed are covered during conversion training. The Board was of the view that the fitting of anticipators, which are designed to help overcome the slow engine response, would have ameliorated but may not have prevented the accident. The Board also found that the crew were wearing ground pattern desert camouflage clothing rather than aircrew flying coveralls which would have offered more flame resistance. Ground pattern desert camouflage clothing was authorised for use in theatre by helicopter aircrew as an alternative to standard aircrew flying coveralls if tactical or heat stress considerations out-weighed the fire retardant considerations of standard flying coveralls.

SAFETY RECOMMENDATIONS

10. As a result of its investigation, the BOI made a number of recommendations including: improvements to training albeit it was noted that current training already covered key issues such as aircraft performance and handling characteristics, downwind operations and engine and rotor speed responses; the review of a previous decision not to fit anticipators; the consideration of more suitable hot weather flying clothing and undergarments; all new crew members to be initially partnered with experienced aircrew and the introduction of cockpit voice recorders.

11. Immediately following the incident, the in theatre policy was changed so that where possible, aircrew new to theatre will be initially crewed with theatre-experienced crew. Additionally, helicopter air crew are now being issued with Flame Retardant (FR) desert camouflage flying clothing. Cockpit voice recorders are being fitted to Puma aircraft as well as Gazelle, Lynx Mark 7 and Sea King helicopter fleets under a current modification programme.

12. Other recommendations resulting from observations made by the Board include new crewmembers not being placed in transit accommodation on arrival.