

AIRCRAFT ACCIDENT REPORT NO. 3/88

**Report on the accident to Bell 222 Helicopter G-META at Lippitts Hill, Essex
on 6 May 1987**

(Published by HMSO on 15 August 1988. Net cost £5.50).

The Inspector's report on this accident was submitted to the Secretary of State for Transport on 8 July 1988. He has agreed to its publication and the report is now available from HMSO Bookshops and accredited agents.

Whilst operating over the Metropolitan area of London and shortly before the planned termination of his patrol, the pilot lost indication of the No. 1 engine power turbine rpm and an unusual noise became audible in the cabin. As the helicopter was approaching the landing pad at its base, the No. 1 engine burst, causing damage to the adjacent engine, fuselage and cowlings and severance of the tail rotor drive shaft. The aircraft landed firmly just short of the landing pad and rolled to a halt on the pad. The occupants vacated the helicopter unaided. A small fire which broke out in the engine area was quickly extinguished.

The report concludes that the accident was caused by the overspeed bursting of the No. 1 engine power turbine wheel because of fatigue failure of gear teeth in the turbine drive train. The gear teeth failures resulted from gross wear in a bearing in the engine gearbox, probably caused by skidding or overload of the bearing rollers. Fourteen safety recommendations were made during the course of the investigation and related mainly to the improved airworthiness of this type of helicopter and its power plants. Other recommendations concerned improved methods of monitoring the health of turbine engines and the improved flow of defect information particularly between ICAO Contracting States.