

INCIDENT

Aircraft Type and Registration: Fokker F50, G-UKTC
No & Type of Engines: 2 Pratt & Whitney PW125B turboprop engines
Year of Manufacture: 1992
Date & Time (UTC): 14 April 1995 at 1143 hrs
Location: Norwich Airport
Type of Flight: Positioning
Persons on Board: Crew - 5 Passengers - None
Injuries: Crew - None Passengers - N/A
Nature of Damage: Right inner mainwheel departed aircraft
Commander's Licence: Airline Transport Pilot's Licence
Commander's Age: 29 years
Commander's Flying Experience: 3,700 hours (of which 189 were on type)
Last 90 days - 108 hours
Last 28 days - 60 hours
Information Source: Aircraft Accident Report Form, investigation report
submitted by the operator and AAIB enquiries

The aircraft had undergone work related to defect rectification on the evening of 13 April. One of the defects worked upon involved the removal and replacement of the right inner mainwheel. On the following day the aircraft took off, at 1143 hrs, on a positioning flight to Aberdeen. Soon after takeoff an object was seen to fall from the aircraft. It was subsequently confirmed that the object was the right inner mainwheel. Fuel was burned off, and the aircraft then landed back at Norwich at 1405 hrs, without further incident. The aircraft was removed from the runway to a hangar and jacked for inspection. The detached wheel was recovered for examination. Apart from the separation of the wheel, there was no other damage to the aircraft.

Examination of the aircraft showed that the inner bearing was still in place on the right inboard axle, was of the correct type and appeared correctly fitted. However upon removal of the bearing it was found that the bearing and reinforced seal, as normally fitted, had been prevented from 'seating' correctly by an additional reinforced seal which should have been removed when the wheel was last

replaced. This additional seal was approximately 1/4 inch thick and had therefore displaced the wheel assembly off the axle by 1/4 inch. There was also a further additional seal which had been installed on the outer bearing. Checks were carried out which showed that the effect of this displacement was to prevent the locking bolts from entering the corresponding slots in the castellated ring on the axle. This could not be seen with the axle nut in place. The right inner wheel normally rotates in an anti-clockwise direction when viewed from the axle nut side, and therefore the nut, if not correctly locked, has a tendency to loosen under wheel rotation.

The Aircraft Maintenance Manual showed the mainwheel assembly and described the removal and replacement of a mainwheel. After removal of the wheel the Maintenance Manual called for removal of the inner bearing. It did not indicate that the reinforced seal was a separate item, although it did call for an examination of the axle for damage. The fact that the bearing and reinforced seal were separate items was not reflected in the re-assembly instructions or in the relevant diagram, although it was referred to in the component description as a "metal reinforced bearing seal".

In September 1994, Fokker issued Revision 1 of a Service Experience Digest (SED) first issued in December 1991. This referred to a total of five previous cases of loss of a mainwheel on F27/F50 aircraft, which have similar mainwheel locking systems. In the SED, Fokker concluded that "...the loss of the wheel could have been prevented if the procedure in the Aircraft Maintenance Manual was followed more strictly." and "...Notwithstanding this, Fokker still investigates the possibilities to facilitate the installation of the mainwheels.". In Fokker's view the presence of the additional seal on the outer bearing indicated that the wheel was not assembled in accordance with the aircraft Maintenance Manual.

Fokker Aircraft has advised the operator that it is considering clarification of the Maintenance Manual.