No: 4/86 Ref: EW/C949

Aircraft type

and registration: Fokker F27-200 G-BCDO (Twin turbo prop-public transport aircraft)

Year of Manufacture: 1963

Date and time (GMT):

5 February 1986 at 1947 hrs

Location:

Aberdeen (Dyce) Airport

Type of flight:

Scheduled Passenger

Persons on board:

Crew — 4

Passengers — 29

Injuries:

Crew — None

Passengers — None

Nature of damage:

Substantial — collapsed nose gear leg, and damage to underside

of forward fuselage

Commander's Licence:

Airline Transport Pilot's Licence

Commander's Age:

40 years

Commander's Total

Flying Experience:

4980 hours (of which 820 were on type)

Information Source:

AlB Field Investigation.

The accident occurred during take-off from Aberdeen Airport on runway 35. The aircraft had earlier landed at Aberdeen after a runway snow clearance. The aircraft was prepared for a scheduled service from Aberdeen to Newcastle, and a new crew took over. After boarding the passengers the commander had the aircraft de-iced. He requested the latest weather reports from Newcastle and Teeside, which were satisfactory, and also the runway conditions at Aberdeen. The braking action on runway 17/35 was assessed as poor with 2 mm of dry snow and 90% contamination. The controller also volunteered the information that the snow showers had been accompanied by easterly winds in excess of 20 kt, and that the present wind was 040°/08 kt. More snow showers were expected.

The commander elected to start-up and taxy out with the option of holding in order to assess the current conditions before take-off on runway 35. The aircraft stopped at the runway holding point at about 1935 hrs and although cleared to take-off with a wind of 050°/24 kt the commander decided to hold until the crosswind was within the Flight Manual limitation of 8 kt for poor braking action. (The passage of a snow shower was recorded by the meteorological office at 1943 hrs with the visibility reported as 700 metres. At 1950 hrs and 1952 hrs, the visibility was recorded as 1,500 metres and 5,000 metres respectively).

At 1942 hrs the aircraft was cleared to line up and at 1943 hrs the controller advised that it was "virtually clear at the top end", with a wind of 070°/10 kt. The aircraft was then cleared for take-off, to call rolling. After a brief discussion about the visibility, last reported as 700 metres, and wind check of 050°/10 kt, the aircraft commenced a take-off at 1946 hrs. The commander has stated that all the runway lights to the far end were visible to him, although the nearer lights in the snow shower were less distinct.

The initial part of the take-off run was normal as far as acceleration, and directional control were

concerned, and when airframe vibration was experienced it was not unexpected and attributed to frozen snow ruts. The commander then had considerable difficulty in preventing the aircraft yawing to the right even with full left rudder. He also noticed that the performance and acceleration of the aircraft seemed irregular and abandoned the take-off at approximately 65 kt. The aircraft left the runway to the right, the nose undercarriage collapsed as a result of coming into contact with the left hand edge of runway 33, and the aircraft came to rest on the right side of runway 33. The engine fire drills were carried out on both engines, and both bottles were fired. The Aerodrome Fire Service arrived very promptly, and assisted in the disembarkation of the passengers through the forward crew door. There was no fire or serious disruption to the aircraft. Two runway lights were damaged and were repaired that same evening.

The Flight Manual limitations for a take-off on a contaminated runway specify that there should be no tailwind component, the crosswind component should not exceed 8 kt if the braking action is reported as poor, and the depth of dry snow should not exceed 60 mm. The runway visual range (RVR) required for take-off on this runway was 150 metres. These criteria were all met.

The runway, grass, and accident site were examined the following morning, and it was noted that an Operational Readiness Platform (ORP) widened the first 260 metres of runway 35 by approximately 45 metres to the right. The first four right hand runway edge lights were flush fitted along the length of the ORP, bisecting the widened threshold area; the succeeding lights ran alongside the runway edge, and were 26 cm high.

Wheel tracks in the snow and grass on the right side of runway 35 were found to run continuously from halfway along the ORP. The main wheel tracks were either side of the flush runway edge lighting, with the nose wheel track following the line of the lights. As the right main wheel left the ORP and ran on to the grass, the marks indicated a slight yaw to the left with the nosewheel track running along the runway edge, and inside the raised runway edge lighting.

At a point 290 metres from the runway 35 threshold, the aircraft had yawed slightly to the right. At 400 metres all three sets of wheel tracks left the runway and ran along the grass almost parallel to the right hand runway edge. The right mainwheel had progressively sunk in the soft ground to a depth of 46 cm, and the width of the nosewheel track indicated that it was considerably offset from the fore and aft axis of the aircraft. Subsequent examination of the aircraft confirmed that the nosewheel was offset to the left when it struck the edge of runway 33 and collapsed. There was also considerable mud-spattering and some stone damage on the right side of the aircraft.

In their initial and independent statements, both pilots were convinced that the take-off was normal and on the runway centrelines until take-off was abandoned, and that the aircraft then left the runway. When the wheel track and associated evidence was found and passed on to the pilots, it was unequivocally accepted. They were aware that there was no runway centreline lighting at Aberdeen.

Runway 17 also has an ORP on its eastern threshold, and before taxyway centreline lighting from the eastern parking area was installed, CAA recorded three similar incidents on that runway.