AAIB Bulletin No: 7/2005 **Ref: EW/G2005/04/15** **Category: 1.3**

Aircraft Type and Registration:	Cessna F172M, G-BCYR
No & Type of Engines:	1 Lycoming O-320-E2D piston engine
Year of Manufacture:	1975
Date & Time (UTC):	29 April 2005 at 1420 hrs
Location:	Inverness Airport, Scotland
Type of Flight:	Private
Persons on Board:	Crew - 1 Passengers - None
Injuries:	Crew - None Passengers - N/A
Nature of Damage:	Nose landing gear, engine bulkhead and propeller blades damaged
Commander's Licence:	Private Pilot's Licence
Commander's Age:	22 years
Commander's Flying Experience:	82 hours (of which 18 were on type) Last 90 days - 30 hours Last 28 days - 14 hours
Information Source:	Aircraft Accident Report Form submitted by the pilot

Synopsis

During a landing at Inverness Airport, a strong gust of wind resulted in the aircraft landing heavily on the nose wheel, the force of which shattered the wheel hub and allowed the propeller blades to strike the runway.

History of the flight

The aircraft was based at Inverness and belonged to the local flying school. On the day of the accident the pilot, who had started flying training six months previous, travelled by train to Dundee Airport in order to collect the aircraft from a maintenance organisation where it had undergone a 50 hour inspection. The pilot noted that the forecast wind was close to the flying school limitation of 30 kt and, therefore, before departing Dundee contacted the flying school to establish what the actual wind was at Inverness. The pilot was advised by an instructor that whilst it was "quite windy", the wind was along Runway 23 and was within the 30 kt limit published in the flying school manual.

The 50 minute flight was uneventful but, just as the aircraft commenced the flare on Runway 23 at Inverness, a strong gust of wind resulted in the aircraft landing with sufficient force to shatter the nose wheel hub and allow the propeller blades to strike the ground. The force through the nose wheel fork was also sufficient to distort the engine bulkhead. All the damage was consistent with the aircraft landing heavily on the nose wheel.

Weather information

The Meteorological Office TAF issued at 0851 hrs on 29 April 2005 forecast the wind at Inverness as 220º/20 kt with gusts of up to 32 kt. The METAR issued at 1320 hrs reported the wind at Inverness as 220º/30 kt and at 1420 hrs as 230º/27 kt. An aerodrome warning advising of a strong wind from the south-west of 22 kt gusting to 35 kt had been issued by the Meteorological Office at Aberdeen. This strong wind warning had been faxed to the flying club; however, it would not have been sent to Dundee Airport. ATC at Inverness use the PAMOS weather recording system, which samples the wind direction and strength every 10 minutes. The records for the period 10 minutes before and after the accident indicate that the wind was approximately 234º, +/- 15º, with a minimum strength of 19 kt, mean strength of 26 kt and gusts of up to 35 kt.

Discussion

The pilot recognised that the wind was close to the flying school operating limits and, therefore, twice contacted the flying school to establish the actual wind conditions at Inverness. Whilst the flying school informed the pilot that the wind was within the aircraft operating limits, they did not tell the pilot that a strong wind warning, forecasting gusts of up to 35 kt, had been issued. The CFI at the flying school stated that strong wind warnings are often received but that, in his opinion, the forecast conditions did not often materialise. Hence the instructors tend to use their experience and local knowledge to decide if conditions are likely to remain favourable. On this occasion the strong wing warning was accurate.

Since this accident, the pilot has undertaken additional training on handling this aircraft type.