ACCIDENT

Aircraft Type and Registration:	Cessna 152, G-BSZI
No & Type of Engines:	1 Lycoming O-235-N2C piston engine
Year of Manufacture:	1984 (Serial no: 152-85856)
Date & Time (UTC):	22 September 2012 at 1230 hrs
Location:	Carrickmore Airfield, Co Tyrone
Type of Flight:	Private
Persons on Board:	Crew - 1 Passengers - 1
Injuries:	Crew - None Passengers - None
Nature of Damage:	Damage to propeller, engine mounting and bulkhead, left wing and nosewheel
Commander's Licence:	Private Pilot's Licence
Commander's Age:	50 years
Commander's Flying Experience:	161 hours (of which 69 were on type) Last 90 days - 13 hours Last 28 days - 8 hours
Information Source:	Aircraft Accident Report Form submitted by the pilot and further enquiries

Synopsis

The pilot decided to abort the landing soon after touchdown. He selected full power and wing flaps 0° for the climb away. However, the aircraft did not climb as expected. With obstacles in the projected flight path, the pilot elected to land immediately. The aircraft landed in a ploughed field and turned over; neither occupant sustained injury.

History of the flight

The aircraft was being flown from its base at City of Derry Airport to Carrickmore Airfield near Omagh in Northern Ireland. The runway at Carrickmore was hard-surfaced and 505 m (1,656 ft) long; it occupied an elevated position and was orientated 08/26. The weather at Carrickmore was fine, with a surface wind from 180° at 5 kt and a temperature of 13°C.

The pilot flew a normal approach profile to Runway 08, configured with 20° flaps and flown at about 70 kt. He reported that he was satisfied with the approach parameters. The aircraft touched down about one third of the distance along the runway, and one wheel briefly left the narrow paved surface. The pilot corrected the deviation, but was generally dissatisfied with the landing. He therefore elected to abort the landing and fly a further approach.

He applied full power and selected flaps 0°, rotating at

a speed he believed to have been around 60 kt. It soon became apparent to the pilot that the aircraft was hardly climbing and would not clear a building and nearby power lines which lay on rising ground ahead and slightly to the left of the extended centreline (the ground fell away after the runway end before rising again). He turned the aircraft to the right but saw another building, also on elevated ground, ahead. He decided that the best course of action was to land the aircraft in the field immediately below, and warned his passenger. The field had been ploughed, and the aircraft's nosewheel dug into the ground on landing, causing the aircraft to pitch nose-down and invert. Neither occupant was injured in the accident. The pilot recalled hearing the stall warning horn after he warned his passenger, but thought that he maintained control of the aircraft and it had not actually stalled.

The pilot thought that the aircraft may have experienced carburettor icing, and that he may have overlooked the need to apply carburettor heat before landing, leading to reduced engine power following the aborted landing. However, apart from the poor climb performance, there were no other unusual indications, such as engine noises or rough running. Although the flap control was found in the 0° position, one wing flap was found at 10° and the pilot could not be sure that the flaps had fully retracted. The pilot thought the aircraft had reached a maximum height of no more than 100 ft.

Aircraft performance

Based on mass and balance figures provided by the pilot, the aircraft was only some 5 kg below its maximum allowable weight at the time of the accident, which would have placed it above the maximum weight at takeoff, 45 minutes earlier. The pilot had been aware that weight was an issue prior to flight, and fuel had been offloaded earlier in the day when his original plans had changed and it was decided that a passenger would accompany him on the flight. He estimated that the aircraft had departed City of Derry with about 11 or 12 US gallons (about 45% of maximum fuel).

The Pilot's Operating Handbook (POH) for the Cessna 152 listed takeoff and landing performance figures for ground roll and distances to and from 50 ft. However, these were based on the most favourable situation, which was achieved using 'short field' techniques. For landing, this entailed using 30° flap and an airspeed of 54 kt. The recommended initial climb configuration and airspeed for a baulked landing was 20° flap and 54 kt. The landing ground roll using POH short field techniques should have been 477 ft, with a total distance from 50 ft of 1,203 ft, before any safety factors were applied.

Discussion

The aircraft was operating at close to its maximum weight on a narrow and relatively short runway. The pilot was not familiar with the airfield and it was considerably different from his home airfield which was an international airport. It would appear that the aircraft gained very little altitude after becoming airborne, with separation from the terrain arising partly through the downwards slope of the ground after the runway end. A reduction in available engine power through carburettor icing could not be ruled out, although there was no rough running, low rpm, or other symptoms (other than an apparent lack of power).

Another possibility is that the aircraft may have been unable to climb as a result of a combination of weight, configuration and airspeed. The decision to abort the landing was made quickly, and the actions taken by the pilot were those appropriate to a touch-and-go landing, with which he was very familiar, including selection

of flaps 0°. The lack of headwind and narrow runway could conceivably have provided misleading visual cues that the aircraft was travelling at greater airspeed than was the case. Consequently, it may have become airborne at too low an airspeed, possibly with flaps still retracting, compromising its initial climb performance.