ACCIDENT

Aircraft Type and Registration:	Piper PA-34-220T, N6920B
No & Type of Engines:	Two Continental Motors TSIO-360 piston engines
Year of Manufacture:	1985
Date & Time (UTC):	5 July 2011 at 1200 hrs
Location:	Shipdham Airfield, Norfolk
Type of Flight:	Training
Persons on Board:	Crew - 2 Passengers - None
Injuries:	Crew - None Passengers - N/A
Nature of Damage:	Damage to left propeller and structure of left wing
Commander's Licence:	Commercial Pilot's Licence
Commander's Age:	53 years
Commander's Flying Experience:	1,170 hours (of which 36 were on type) Last 90 days - 6 hours Last 28 days - 6 hours
Information Source:	AAIB investigation

Synopsis

During a training flight, the aircraft landed heavily and the left propeller blades were damaged. Following a go-around, three further landings were completed; during two of these the aircraft touched down in standing crop short of the runway. The instructor indicated that she may have placed too much confidence in the student's ability and that she had not paid sufficient attention to indicated airspeed during the approaches.

History of the flight

The commander, occupying the right seat, was an instructor. The student, in the left seat, was employed as a co-pilot flying Boeing 737 aircraft and had last flown multi-engine piston aircraft some years before the accident. The student was being trained in preparation for a practical test for issue of an Airline Transport Pilot's Licence.

The instructor had briefed the student to carry out some circuit flying at Shipdam. Runway 21 was in use, in good weather conditions with the wind assessed as from 230° at less than 10 kt. The aircraft took off from Runway 21 and the student flew a left-hand circuit culminating in a touch-and-go into a further circuit.

On the second landing, the aircraft touched down heavily and bounced, before touching down a second time, again heavily. During the second touchdown, the left propeller tips contacted the runway. The instructor

told the student to go around, and he did so. Neither the instructor nor student was aware of the damage to the propeller immediately after the heavy landing.

On the next approach, the aircraft touched down in a standing crop short of the runway threshold and proceeded through the crop for some distance before becoming airborne again; the instructor told the student to go around during the ground roll.

The instructor took control of the aircraft as it climbed away, and flew a circuit with the intention of landing. From this approach the aircraft again touched down in the crop short of the runway, before climbing away into a further circuit, from which it landed uneventfully.

Inspection of the aircraft after the flight, identified damage to the left propeller blade tips, and later inspection found damage to the wing structure. Although the marks on the runway were consistent with the propeller strike having occurred during the second touch-and-go, it was not possible to determine whether the structural damage occurred simultaneously, or separately, perhaps during the ground rolls in the crop or when the aircraft passed from the crop onto the paved runway surface (the transition from crop to runway involved crossing a prominent 'lip' in the surface). Tracks consistent with the aircraft's landing gear dimensions were measured in the crop running for distances of 52 and 156 m respectively.

The instructor indicated that knowledge of the student's experience in turboprop and turbojet airliners, amounting to approximately 3,500 hours, may have caused her to place too much confidence in his ability. He had not, in fact, flown piston-engined aircraft for several years and, after the accident, it became apparent to the instructor that he did not understand the relationship between the throttles, propeller controls, and power delivered.

The approaches were all flown with 10º or 20º of flap, and the instructor stated that although she did not pay close attention to the indicated speed during the approaches, she would normally use an approach speed of 70 to 80 kt. The aircraft flight manual stated that the final approach should be flown with full flap at 90 kt, and that the speed may be reduced to 79 kt if the aircraft was lightly loaded. Approaches with less flap would necessitate a higher approach speed, in order to ensure a similar margin above the stall.

The instructor stated that in future she would be more inclined to take control promptly to correct a student's error.