Piper PA-30, G-ASYK, 11 May 1996

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Aircraft Type and Registration:	Piper PA-30, G-ASYK
No & Type of Engines:	2 Lycoming IO-320-B1A piston engines
Year of Manufacture:	1964
Date & Time (UTC):	11 May 1996 at 1100 hrs
Location:	Isle of Wight Airfield, Sandown
Type of Flight:	Private (Training)
Persons on Board:	Crew - 2 Passengers - 1
Injuries:	Crew - None Passengers - None
Nature of Damage:	Both main landing gears broken, left propeller bent, wings and fuselage severely creased
Commander's Licence:	Commercial Pilot's Licence with Flying Instructor's Rating
Commander's Age:	50 years
Commander's Flying Experience:	3,000 hours (of which 22 were on type) Last 90 days - 90 hours Last 28 days - 20 hours
Information Source:	Aircraft Accident Report Form submitted by the pilot

The aircraft was being used for an instructional flight. The exercisebeing carried out was intended to allow the student to gain moreexperience in handling the aircraft, particularly with regardto approaches and landings and it was planned to conduct theseexercises at Sandown, away from the aircraft's base at Bournemouth.The student had only just started flying twin engined aircraftand had not yet undergone any instruction in asymmetric poweredflight.

En-route to Sandown, the student carried out a 'simulated' approachfollowed by a missed approach to familiarise himself with thecorrect power setting, speed and configuration requirements. Thiswas completed satisfactorily and the student then contacted Sandownand gave details of the intention to perform some 'touch and go'landings. Before setting out the instructor had discussed, withthe student, the fact that the aircraft was likely to become airborneat a lower airspeed than usual because of the undulations expectedin the grass runway at Sandown. They had also discussed the needto retract the flaps from 'full' to the 'take-off' setting assoon as the 'go-round' decision had been made and that the studentwould tell the instructor when he required them to be raised.

The pre-landing checks were carried out, which included selectingthe electric fuel boost pumps to 'on'. The first landing was madewithout difficulty and the student called for the flaps to beraised and he applied full power. The aircraft became airborneagain and was held level, close to the ground, until the speedincreased to above minimum control speed (V_{mca})before climbing away. The student remarked that he needed to applysome right rudder to keep the aircraft straight and that he wouldbe ready for it next time.

After a correctly executed circuit, the student made a good landing.The student then asked for 'take-off' flap and applied power.However, when the aircraft became airborne, the instructor noticedthat the aircraft yawed and banked slowly to the left and assumedthat the student was taking longer than usual to make the necessarycontrol corrections. The student commented that the aircraft didnot appear to be responding to corrective control; so the instructortook control and discovered that although he was applying fullpower, full right rudder and considerable right aileron, the aircraftcontinued to roll and yaw to the left. The aircraft deviated fromthe runway heading and, in an unusually nose-high attitude, was'crabbing' towards a hangar, in front of which several aircraftwere parked.

Although he had deduced that an engine had lost power, there wereno audible or visible indications. The aircraft continued to rolland yaw to the left until, despite full right aileron being applied,the left wingtip touched the ground. At this point the instructorclosed the throttles, moved the mixtures to cut-off and the propellerlevers to feather the aircraft settled onto the ground, continuingto slide and rotate to its left before coming to rest at rightangles to, and facing, the runway. The occupants left the aircraftuninjured after the instructor had made the aircraft safe. Theinstructor later heard comment to the effect that 'a lot of blacksmoke' had been seen to be coming from the left engine as theaircraft was taking off.

A bench calibration check of the left engine fuel injector assemblyshowed it to be correctly set up. The engine driven fuel pumpwas tested by fitting it to an engine which was run on a testbed and this revealed that the pump supplied fuel to the injectorwithin the correct pressure range with the fuel inlet pressureat either unboosted (2 psi) or nominal maximum boosted pressure(26 psi). It was noted, however, that the fuel flow rate at lowpower settings was markedly greater with boosted inlet pressure,implying a richer mixture. Test bed running constraints precludeddetermining any fuel flow rate differences at high rpm/low torqueconditions.

Tests performed on the left engine boost pump showed that itspressure output was considerably lower than its specificationrequired. It was, however, capable of delivering 25 US gallonsper hour (US gph) into a zero head and allowing a flow of14 US gph into a draw of less than 1 psi.