Piper PA-30 Twin Commanche, G-AXRO

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Aircraft Type and Registration:	Piper PA-30 Twin Commanche, G-AXRO
No & Type of Engines:	2 Lycoming IO-320-B1A piston engines
Year of Manufacture:	1969
Date & Time (UTC):	5 July 2000 at 1419 hrs
Location:	Near Elmsett Airfield, near Ipswich
Type of Flight:	Private
Persons on Board:	Crew - 1 - Passengers - 1
Injuries:	Crew - Minor - Passengers - Minor
Nature of Damage:	Aircraft destroyed
Commander's Licence:	Basic Commercial Pilot's Licence with Instrument Rating
Commander's Age:	42 years
Commander's Flying Experience:	623 hours (of which 407 were on type) Last 90 days - 31 hours Last 28 days - 12 hours
Information Source:	Aircraft Accident Report Form submitted by the pilot and further AAIB enquiries

History of the flight

The intended flight was from Elmsett to Blackpool for a business meeting. The pilot, who was accompanied by one passenger, reports that he inspected the aircraft before flight and found no defects. He also indicated that this pre-flight inspection included operation of the fuel drains for the main, auxiliary and tip fuel tanks to check for water. In the PA-30 Twin Commanche, the fuel drains are located in the fuel selector valves, which are accessible through an access panel located immediately behind the fuel tank selector levers, just ahead of the main spar, between the pilots' seats in the cabin. A transparent plastic tube is attached to each selector valve filter bowl and extends through a hole in the bottom of the fuselage, allowing the flow of fuel to be observed. Collection of the fuel in a container to check for water, or other contaminants, normally requires a second person, outside the aircraft, to be holding a receptacle under the drain. In this instance the pilot states that he relied on a visual check of the transparent tubes.

The pilot then started the engines with the main tanks selected and changed to the auxiliary tanks as he set the radios and taxied out to the threshold of Runway 23. Here he switched back to the main tanks and carried out the engine power checks. The indications from both engines were within normal limits and both engines seemed to be operating normally.

The pilot contacted Wattisham for permission to take off into their MATZ and started the take-off run. He reports that acceleration was normal and that the aircraft became airborne at 80 kt. He held the aircraft level to accelerate towards 100 kt before starting to climb but at this point he became aware of a slight yaw to the right; he checked his instruments and found that the right-hand engine was only producing about 2,000 RPM. There was not sufficient space to land ahead so the pilot continued the take off but the aircraft failed to accelerate beyond 80 kt. He allowed the aircraft to climb to avoid rising ground and trees at the end of the runway and selected the landing gear UP. The landing gear was in transit when the aircraft yawed severely to the right and the pilot lowered the nose to increase speed to regain directional control. He is uncertain whether the right-hand engine had failed completely or had suffered a further reduction in output but as closure of the throttle made no difference to the yaw he assumed it had failed and initiated the failed engine procedure. He turned to the left to avoid a house and towards the clearest area, allowing the nose to drop to maintain speed. The turn was successful but there was a further loss of height and after the turn the right wing tip struck the ground, causing the aircraft to slew around and travel backwards into a hedge in the corner of a paddock.

The pilot and passenger found that they were not seriously injured, unbuckled their harnesses and left the aircraft. Help arrived from the airfield shortly afterwards. There was no fire.

The pilot is confident of the stage of flight at which he raised the landing gear and confirms that he did feather the right-hand propeller, although it may only have been very shortly before the impact with the ground.

Aircraft examination

When the aircraft was inspected later it was found that there was water in the fuel control unit of the right-hand engine. The aircraft had most recently been refuelled at Gloucestershire Airport two days previously and there had been heavy rain in the intervening period. An experienced ground engineer with experience of this aircraft type commented on previous problems with water ingress into PA-30 Twin Commanche fuel systems but there is no ready explanation as to how this occurred in this particular instance.

Manufacturers fuel drain procedures

The manufacturer's Information Manual for the PA-30 Twin Commanche contains Operating Instructions for the pre-flight inspections, including draining of the fuel valves and lines. This is divided into separate procedures: one for use, "before each flight" and an expanded procedure, "when the aircraft has been exposed to below freezing temperatures or it is suspected that water may have entered tanks". In both cases the instructions are explicit that the drained fuel should be collected in a container and examined for water contamination and that, for the expanded procedure, the drains should be opened for 10 to 12 seconds (for each main and auxiliary cell). For the normal pre-flight inspection, the Operating Instructions specify nothing further for drain operation than "a few seconds" for each cell.