Piper PA-28R-200, G-BAAZ

AAIB Bulletin No: 2/2002	**Ref: EW/G2001/07/23**	**Category: 1.3**
Accident		
Aircraft Type and Registration:	Piper PA-28R-200, G-BAAZ	
No & Type of Engines:	1 Lycoming IO-360-C1C piston engine	
Year of Manufacture:	1971	
Date & Time (UTC):	23 July 2001 at 1302 hrs	
Location:	Approx 1 mile NE from Lihou Island, off NW Guernsey	
Type of Flight:	Private	
Persons on Board:	Crew - 1	Passengers - 2
Injuries:	Crew - Minor	Passengers 1 (Minor)
Nature of Damage:	Ditched	
Commander's Licence:	Private Pilots Licence	
Commander's Age:	62 years	
Commander's Flying Experience:	3,695 hours (of which 2,664 were on type)	
	Last 90 days - 120 hours	
	Last 28 days - 50 hours	
Information Source:	Aircraft Accident Report Form submitted by the pilot	

History of the flight

Having flown, without incident, from Guernsey two days previously, the owner pilot had intended to make a direct return flight from Liverpool to Guernsey on Saturday 21 July. Before departure he had uplifted 55 litres of Avgas. Take-off was at 0915 UTC and the planned flight time was 2 hours. When overhead Exeter, the pilot checked the Guernsey weather via the broadcast and, due to reports of fog at Guernsey, he decided to divert to Exeter and continue his journey the next day.

After start-up for the continued flight the following day, a very severe drop on the right magneto, reported as being nearly a dead cut, was experienced during the pre-departure run-up check.

Engineering assistance was sought and the engineer spent over 2 hours checking the plugs, leads and magneto alignment and changed the capacitor in the right magneto as the points appeared to be slightly white. Following this work, extensive run-up checks indicated that the fault had been rectified and the pilot decided to continue the journey.

After take-off the pilot climbed at full throttle and levelled at 3,000 ft. After flying down the coast to Berry Head he headed out to sea; but about 5 miles off-shore the engine started to feel 'lumpy'. The pilot advised Air Traffic Control that he was returning to Exeter and maintained his cruising height during the return. When about 5 miles short of the airfield the engine began to run extremely roughly, although he was able to maintain height. The airfield initiated full Emergency procedures when the pilot reported a deterioration of the engine condition, but the aircraft was landed without further incident. Before shutting down, the pilot conducted further engine power runs, experiencing severe drops on both magnetos, and elected to abandon the journey that day and address the problem on the Monday.

The following morning, the pilot taxied the aircraft over to the maintenance hangar and noted that, although the drop on the left magneto appeared to have gone, that of the right magneto was still as bad as ever. The plugs were inspected again and cleaned and the leads rechecked, without improving the magneto drops, so the points and capacitor were then changed, also to no effect. The magneto was then removed for a bench check and following adjustments, which appeared to result in the production of good sparks, was refitted on the engine. During the subsequent run-up checks, however, it was found that the magneto drop was just as severe as previously and consequently, the pilot purchased and had fitted a new, replacement right magneto. Following this, run-up checks indicated that the problem had been eliminated as no undue drops were observed on either magneto during power checks.

The pilot decided to continue his journey and after taking off, he climbed, at full power to 3,000 ft before levelling into the cruise. About 10 minutes after leaving Berry Head for the flight over the sea, the pilot and front seat passenger noticed a slight vibration which persisted for about 2 to 3 minutes. No abnormal indications were observed and, after the vibration had ceased, the flight proceeded normally.

About 12 miles from Guernsey, just after the pilot had started to descend, the engine began to run very roughly, with extreme speed fluctuations and a loss of power. The pilot attempted to restore engine power using the mixture control, power lever, switching on the fuel pump and changing the fuel tank selected, none of which was consistently effective. During the descent, the pilot informed Air Traffic Control of his situation and instructed the passengers to put on their life jackets, which they did when the aircraft was estimated to be at about 500 ft; he did not put his own life jacket on as he was concentrating on flying the aircraft.

As the aircraft approached the water, the door was unlatched and the landing gear override up lever pulled up to prevent the automatic deployment of the landing gear. This latter task was then taken over by the front passenger to enable the pilot to handle the aircraft more easily. The aircraft was ditched, wheels up, flapless and with the stall warning sounding, onto a mild swell and remained level and upright when it came to rest. The deceleration at touchdown caused both front seat occupants, who were wearing lap and diagonal harnesses, to strike their faces on objects ahead of them; the pilot struck his eyebrow on the coaming and the passenger, who was leaning forward to hold the landing gear lever, struck her chin on the control column.

All three occupants left the cabin and stood on the wing whilst the pilot extracted and inflated the 4 man dinghy. The two passengers entered the dinghy whilst the pilot retrieved further articles from the aircraft before joining them. Shortly after this the aircraft tipped on its nose and sank slowly. Two flares were fired and after 25 minutes a fishing boat and rescue craft launched as a result of emergency actions initiated by ATC arrived at the scene.

The aircraft has not been recovered and, therefore, an examination to try to establish the cause of the loss of engine power has not been possible.

Observations.

This ditching, carried out in daylight and relatively benign sea conditions, was made at a low speed in an aircraft with a retracted landing gear, by a pilot who had voluntarily undertaken an RAF aircrew ditching survival course. Although the ditching was performed in a disciplined manner and everyone aboard the aircraft survived, it was noted that the pilot never had the time to get into his life jacket. Had the blow that he received to the head at the time of ditching rendered him unconscious, the outcome might not have been so good.

In an report into a previous ditching accident, (see Bulletin 6/98) AAIB made the Safety Recommendation 98-34:-

> 'The CAA should introduce a requirement for the carriage and wearing of suitable types of lifejackets by the occupants of General Aviation aircraft which have Certificates of Airworthiness in the Public Transport Category, especially those used for training, wholly or partly over the sea.'.

This recommendation was not directed at Private Category aircraft, on the grounds of difficulty of enforcement, although no less relevant than to more commercial General Aviation. The CAA response, at the time, was that they accepted the recommendation in principle and would develop proposals for legislation to require the carriage and wearing of lifejackets, in appropriate circumstances. This to be done with the required consultation before imposition. They have subsequently concluded that there is no compelling case to pursue changes to legislation and closed the matter.

Following this same report, the CAA also made a comprehensive revision of their General Aviation Safety Sense Leaflet 21A, Ditching. In this they strengthened the emphasis on the need for occupants of single engined aircraft to put on their life jackets before flying over water, out of gliding range of land. It also contained improved advice on the desirable attributes for suitable life jackets, amongst which is comfort whilst being worn for a protracted period.

The pilot and passengers of this aircraft had not donned their life jackets before they set off over the sea because they were of the traditional rubberised vest type which they found tended to become hot and uncomfortable after a little time. This appears to be a common reason given for not putting life jackets on before flight over water and is largely related to the types of lifejacket most commonly available in aircraft. This accident has, yet again, clearly demonstrated that, even in a reasonably calm atmosphere, it is difficult for a pilot to find an opportunity to put on a life jacket before ditching takes place and there is unlikely to be one afterwards. Consideration should be given to the Rescue Services, who may be launching personnel into dangerous conditions to attend people who have not done their best to ensure their own survival until the rescuers arrive.

Recommendation

Because there is no legal requirement to wear a life jacket whilst flying over water, the CAA has formulated no requirements for 'Approving' them. It would, however, be useful for there to be an easily accessible and common source of information on those life jackets which exhibit the desirable attributes described in Safety Sense Leaflet 21A. Whilst the CAA have believed it inappropriate that they should hold this information, the General Aviation Safety Committee have agreed to consider being the body to gather the relevant information so that inquirers can make a suitable choice from the jackets known to have the desired characteristics. It is to be hoped that the various manufacturers of lifejackets would assist them with the provision of information.

The following Safety Recommendation is, therefore, made:-

Recommendation 2001-94

The General Aviation Safety Council should draw up, and maintain, a dossier of information on the commercially available life jackets which exhibit the desired characteristics, as described in Safety Sense Leaflet 21A. This information should be available for dissemination, on request, and the CAA should publicise this service in Safety Sense Leaflet 21A.