

## Piper J3C, G-BSYO

**AAIB Bulletin No: 11/2000**    **Ref: EW/G2000/06/16**    **Category: 1.3**

**Aircraft Type and Registration:** Piper J3C, G-BSYO

**No & Type of Engines:** 1 Continental O-200-A piston engine

**Year of Manufacture:** 1946

**Date & Time (UTC):** 23 June 2000 at 1355 hrs

**Location:** 1 nm north-west of Cranfield Airport, Bedfordshire

**Type of Flight:** Private

**Persons on Board:** Crew - 1 - Passengers - 1

**Injuries:** Crew - None - Passengers - None

**Nature of Damage:** Substantial

**Commander's Licence:** Private Pilot's Licence

**Commander's Age:** 20 years

**Commander's Flying Experience:** 91 hours (of which 15 were on type)

Last 90 days - 8 hours

Last 28 days - 8 hours

**Information Source:** Aircraft Accident Report Form submitted by the pilot

The pilot and his passenger were undertaking a VFR flight from Pent Farm near Folkestone in Kent, to attend the Popular Flying Association (PFA) rally at Cranfield. The weather conditions were dry with good visibility, broken cloud at 5,000 feet and a light wind from the west south-west.

During his pre-flight checks, the pilot had reportedly visually checked the contents of the main and auxiliary fuel tanks. The ten imperial gallon capacity main tank, located in the forward fuselage, was confirmed to be full and he estimated the contents of the auxiliary tank in the right wing to be between ten and twelve gallons. The main tank could be topped up by gravity feed from the auxiliary tank, the transfer of fuel being controlled via a selector in the cockpit. The pilot's fuel calculations showed that based on an assumed fuel consumption of four imperial gallons per hour, he would have had more than adequate fuel for the estimated two hour flight.

The aircraft departed from Pent Farm at 1200 hrs, after approximately five minutes on the ground with the engine running, during which the pre-take-off checks were completed. The pilot selected the fuel transfer selector off for the take off and selected it on again in the climb, to begin topping up the main fuel tank from the auxiliary tank. The pilot was satisfied that fuel had begun

transferring to the main tank, as he could see fuel in the transparent transfer pipe which passed through the cockpit.

The pilot's intended route took him north over the Thames estuary to join the recommended VFR to the PFA Rally from the south. Approximately 45 minutes into the flight, the pilot noticed that he could no longer see fuel in the transfer pipe and concluded that for some unknown reason, fuel had stopped transferring from the auxiliary to the main tank. As there was no fuel quantity indication system for the auxiliary tank, the pilot could not determine how much fuel had already transferred to the main tank, however he was not unduly concerned as the float valve on the main tank was still indicating full. This confirmed his belief that, up until that point, fuel transfer had been occurring. The pilot continued with the flight, however on reaching Royston, he realised that the float gauge on the main tank had become stuck, as it had not dropped as far as it should have done in the given time. The pilot decided to continue on to Cranfield as it was one of the nearest suitable airfields.

The remainder of the flight was uneventful until the pilot turned onto the downwind leg to land at Cranfield, having slowly descended to 1,200 feet QNH (approximately 850 feet QFE). Approximately one minute after the turn downwind, the engine began to lose power. All engine settings were checked and found to be correct. The pilot repeatedly pumped the throttle, which caused the engine to pick up again for approximately ten seconds, allowing the aircraft to climb back to 1,100 feet QNH, at which point the engine failed completely. The pilot was able to turn the aircraft into wind and land in a wheat field which he had seen earlier. During the landing, the aircraft nosed over and came to rest inverted, causing damage to the engine, fin, rudder and port axle. The pilot and passenger, who were wearing four-point harnesses, were uninjured and evacuated the aircraft without difficulty.

The pilot believes that less fuel than anticipated may have transferred to the main tank, which combined with a stuck float gauge, caused him to believe that he had more useable fuel than was in fact available.

The aircraft has not yet been repaired, however if any significant findings should arise, they will be reported in an addendum to this bulletin.