

No: 7/92

Ref: EW/G92/04/18

Category: 1c

**Aircraft Type and Registration:** Stolp Starduster TOO SA300, G-MATI

**No & Type of Engines:** 1 Lycoming O-360--A1C piston engine

**Year of Manufacture:** 1974

**Date & Time (UTC):** 29 April 1992 at 1315 hrs

**Location:** Near Glatton Airfield, Cambridgeshire

**Type of Flight:** Private

**Persons on Board:** Crew - 1                      Passengers - None

**Injuries:** Crew - None                      Passengers - N/A

**Nature of Damage:** Damage to the engine, propeller, lower mainplanes and lower fuselage.

**Commander's Licence:** Private Pilots Licence

**Commander's Age:** 38 years

**Commander's Flying Experience:** 327 hours (of which 2 were on type)  
Last 90 days - 15 hours  
Last 28 days - 9 hours

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

The aircraft was being flown on a test flight to check the aircraft rigging. Shortly after take-off the pilot noted that the aircraft was flying 'in trim' and started a gentle turn to the right onto a downwind leg for the runway which he had just used.

Flying on the downwind leg at 500-700 ft agl the pilot noticed the engine beginning to run roughly so he immediately applied carburettor heat. The roughness in the engine continued and then, after 2 or 3 seconds, the engine stopped. The pilot checked that the fuel supply and fuel boost pump were 'ON', checked the magnetos and the fuel mixture controls but the engine would not restart. He did not have sufficient height to reach the airfield so, with a choice between a ploughed field and one with a high standing crop, he selected the ploughed field for his forced landing. The touch-down was in a three-point attitude but, about 70 yards into the landing run, the landing gear tie-rod failed when the landing gear encountered a soft patch of ground. The aircraft stopped very rapidly, nearly turning over. The pilot escaped without injury and attributes this to wearing the full seven-point aerobatic harness, fitted correctly.

At the time of the accident the pilot believed that the power failure had the characteristics of a fuel starvation. The fuel filter was checked but was found to be correctly full of fuel. When the aircraft was recovered, therefore, the Bendix pressure-type carburettor was taken to an overhaul agency for a full examination. There it was found that a pressure diaphragm had become displaced: this diaphragm balances fuel delivery pressure against manifold pressure in a similar manner to that of a conventional fuel injection system. As a result, the diaphragm was no longer making a full seal around its circumference.

The overhaul agency considers that the effect of this would have been to cause a 'rich cut', even with full leaning of the cockpit mixture control. It also appeared that the diaphragm may, at some time, have been incorrectly fitted, but at the time of the accident the engine had been operated for several hundred hours since overhaul.