

Rans S7, G-BWMN

AAIB Bulletin No: 8/99 Ref: EW/G99/04/21 Category: 1.3

Aircraft Type and Registration: Rans S7, G-BWMN

No & Type of Engines: 1 Rotax 912-UL piston engine

Year of Manufacture: 1996

Date & Time (UTC): 24 April 1999 at 1210 hrs

Location: Shobdon, Herefordshire

Type of Flight: Private

Persons on Board: Crew - 1 - Passengers - 1

Injuries: Crew - None - Passengers - None

Nature of Damage: Damage to landing gear, engine cowling, propeller and right wing tip

Commander's Licence: Private Pilot's Licence

Commander's Age: 63 years

Commander's Flying Experience: 382 hours (of which 12 were on type)

Last 90 days - 12 hours

Last 28 days - 10 hours

Information Source: Aircraft Accident Report Form submitted by the pilot

The aircraft was attempting to land on the hard surfaced Runway 27 at Shobdon after a flight from Turweston airfield. The pilot reported that the surface wind was from the south west at 5 kt. On initial touchdown, the aircraft bounced and drifted to the left. The pilot applied full power in order to initiate a go-around. However, he became aware of the presence of two obstructions, being the abbreviated PAPI indicator units, situated to the left side of the runway. The pilot considered that he might not have had sufficient height to clear these, so he elected to close the throttle and landed the aircraft heavily just off the left side of the runway on the disused runway shoulder. During his attempts to steer the aircraft to the left of the PAPI units, the left landing gear ran into an old drain which caused it to collapse. The aircraft slewed to the left and came to rest in a soft ploughed area to the left of the runway.

There was no fire and the occupants vacated the aircraft by the right side door.

The pilot commented that the landing was his first with full flap selected. In anticipation of this, he carried out a check with full flap selected in flight at a speed of 55 mph and found the elevator authority to be adequate. However, at the landing flare with the same speed, but with the throttle at idle, the aircraft response to elevator input was slow and the pilot's input was not successful in arresting the descent. The pilot commented that he would apply to the Popular Flying Association (PFA) for permission to add ballast in the tail of the aircraft in order to move the centre of gravity further aft, in an attempt to improve elevator effectiveness at the flare.

The maximum operating weight for this type of aircraft is 1,100 lbs. The design centre of gravity permitted range was 74 inches to 81 inches aft of datum. However, the PFA has recommended a revised permitted range of 69 inches to 79 inches aft of datum for its Permit aircraft. The pilot estimated that, at the time of the accident, the aircraft weight was 1,061 lbs and the centre of gravity was at 73.2 inches aft of datum. Calculations by AAIB indicated that the centre of gravity, based on loading data supplied by the pilot and the aircraft weighing report obtained from the PFA, was at 75.8 inches aft of datum.

It is therefore most likely that the lack of apparent elevator effectiveness on landing was due to a combination of airspeed and power setting in a condition of relatively high gross weight.