Cessna 525, G-RSCJ

AAIB Bulletin No: 9/99 Ref: EW/G99/05/13 Category: 1.2

Aircraft Type and Registration:	Cessna 525, G-RSCJ
No & Type of Engines:	2 Williams FJ44-1A turbofan engines
Year of Manufacture:	1999
Date & Time (UTC):	11 May 1999 at 0832 hrs
Location:	Reporting point 'BARLU'
Type of Flight:	Private
Persons on Board:	Crew - 2 - Passengers - 1
Injuries:	Crew - None - Passengers: - None
Nature of Damage:	None
Commander's Licence:	Airline Transport Pilot's Licence
Commander's Age:	34 years
Commander's Flying Experience:	3,500 hours (of which 430 were on type)
	Last 90 days - 40 hours
	Last 28 days - 15 hours
Information Source:	Aircraft Accident Report Form submitted by the pilot

The aircraft had been refuelled with Jet A1 fuel at Palma, Majorca for its flight to Luton. As the aircraft approached 'BARLU', a reporting point on the Cherbourg Peninsular some 76 nm south of Southampton, the pilot was given clearance by the London sector controller to descend from FL390 to FL 310 and cleared for a 'LOREL 1N' standard arrival for Luton. At or about that time the right hand FUEL BYPASS LIGHT illuminated. The pilot, believing there to be a fuel contamination problem, advised ATC and stated that an emergency situation may develop. Almost immediately he declared an emergency stating that he would divert to Southampton. The controller acknowledged the transmission and instructed the pilot to squawk 7700. Moments later the pilot changed his mind and advised the controller that he now wished to divert to Bournemouth. He was given radar vectors and eventually cleared to descend to 3,500 feet on the Bournemouth QNH. During the descent the pilot advised the controller that after referring to his checklist he considered a double engine failure was a possibility. Again the controller acknowledged the transmission and vectored the aircraft for left base to Runway 26 at Bournemouth. The aircraft was then transferred to the Solent radar controller who, aware of the situation, continued to vector the aircraft onto the extended centreline of Runway 26 for an ILS approach. The pilot became visual with the runway at 3 nm from touchdown and the aircraft landed safely at 0842 hrs.

After landing an engineer from a maintenance organisation specialising in aircraft of this type removed both engine fuel filters and drained a quantity of fuel from both the left and right fuel systems. Both fuel filters appeared to be clean but it was noted that the fuel content of the filter housings was cloudy with what appeared to be 'an icy slush'. Fuel was drained until the cloudy appearance was no longer present and the fuel filter by-pass warning system was checked and found to be serviceable. Two new fuel filters were fitted and the aircraft was then refuelled with fuel that contained an anti-icing additive. The two fuel filters that were replaced were analysed and both were found to be very clean, consistent with an aircraft that had only flown 67 hours since manufacture.

When the pilot was informed about the water/slush contamination he informed the handling agents at Palma airport and subsequently discovered that the uplifted fuel did not contain any anti-icing additive.

The limitations sections of the aircraft flight manual states that 'JET A, JET A1, JET B, JP4 and JP5 per CPW204 specification are fuels approved for use and that anti-icing additive must be added to all approved fuels not presently containing the additive'. The manual also includes a caution which states that 'these fuels, except military JP4, require the addition of anti-ice additive (MIL-I-27686E)' and that pilots should refer to section III of the manual for the blending of anti-ice additive and how to make a check of its concentration.