

# Sukhoi SU-26M, RA44531

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**Aircraft Type and Registration:** Sukhoi SU-26M, RA44531

**No & Type of Engines:** 1 Ivchenko Vedeneyev M-14P piston engine

**Year of Manufacture:** 1989

**Date & Time (UTC):** 26 February 2000 at 1300 hrs

**Location:** White Waltham Airfield, Berkshire

**Type of Flight:** Private

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

**Injuries:** Crew - 1 (minor) - Passengers - N/A

**Nature of Damage:** Fin and rudder crushed, canopy smashed, propeller destroyed and damage to engine

**Commander's Licence:** Airline Transport Pilot's Licence

**Commander's Age:** 33 years

**Commander's Flying Experience:** 8,400 hours (of which 40 were on type)

Last 90 days - 180 hours

Last 28 days - 60 hours

**Information Source:** Aircraft Accident Report Form submitted by the pilot and information from a maintenance organisation

The aircraft was sold to the pilot in October 1999 while it was on route, by sea, from Australia to the UK. When it arrived in the UK he inspected it and arranged for certain modifications to be carried out, which were completed in early January 2000. The pilot/owner's representative flew the aircraft on three occasions during January, and some minor problems were observed and corrected. The pilot/owner then conducted a test flight, which left one or two small items to be completed. Since the pilot/owner wished to perform some aerobatics, for which the external 'belly' fuel tank is not permitted to be in place, the tank was not fitted.

This particular model of the Su-26 has a complex fuel arrangement with three independent fuel tanks - Main, M2, an extra fuselage tank, and a belly tank. The main fuel tank indicating system comprises a sight tube that indicates the remaining 7 litres and less in the tank; the complete quantity is not indicated. There are two fuel cocks controlling the tanks and it is important that these are in their correct positions to avoid engine fuel starvation. There are lights in the cockpit indicating when the M2 and belly fuel tanks are in use. There is a fuel priming system that is

operated by a three position pump handle. The central position is the primer 'pump off and locked' position. With the handle turned to the right the pump unlocks and a pumping action with the handle primes fuel directly into the cylinders to assist engine starting. When turned to the left the pumping action primes the fuel lines to assist with fuel tank changes.

The purpose of the accident flight was to test the operation of fuel system with the belly tank fitted. The maintenance organisation conducted a number of successful engine ground runs using fuel drawn from the belly tank following its installation. Prior to the flight the pilot/owner had been given all the manuals and, having previously flown a Sukhoi aircraft, did not need any other formal checking out by the vendor. The maintenance organisation's engineers also explained the specific fuel tank arrangement to him to be sure that it was understood. Previous flights and ground runs left the aircraft with minimal fuel in the main and belly tank and half fuel in the M2 tank.

The pilot/owner carried out a pre flight inspection of the aircraft, which included checking the main tank contents, by looking inside the tank. He noted that the M2 fuel tank contents gauge indicated about half full. He then had the belly tank refuelled to its maximum capacity.

After engine start and before take off, the pilot checked all three fuel tanks separately by using the fuel selectors inside the cockpit and every tank functioned satisfactorily. Also the fuel tank indicator lights for the M2 and belly tanks appeared to be working correctly. Following magnetos and propeller functional checks the pilot took off, using the main fuel tank. Upon reaching level flight he checked the fuel contents of all the fuel tanks. The main tank's sight tube showed it to contain more than 7 litres, the M2 tank was showing more than half full and the belly tank full.

The pilot then started to check operation of all tanks. He selected the M2 tank and its supply to the engine appeared to be normal. Then, after a short period of time, he re-selected the main tank. Then, again after a short period of time, he selected the belly tank, following which the engine started to run roughly. Immediately he re-selected the main tank and at the same time headed back towards the airfield. The engine continued to run roughly. The pilot then selected the M2 tank, but it did not alleviate the rough running. He then started to operate the fuel priming system whilst, at the same time, informing ATC of the problem. The engine continued to run roughly and the aircraft began losing altitude because of the low power. The pilot states that he realised that he could not reach the airfield and that he had only a few seconds to decide where to land successfully. Whilst on a long final towards the airfield he made a decision to land in field that was 90° to the left of the aircraft's track. The engine was still running but at very low power. The touchdown and landing roll were smooth. As the ground speed decreased the wheels started to sink because the field was very wet and soft. Due to this, the aircraft turned over onto its back. The pilot, having turned off all the electrical switches and returned the fuel prime handle to its central 'off' position, escaped from the upturned aircraft unaided and with minor injuries.

Following the accident the maintenance organisation attended the accident site and recovered the aircraft to their facility. The maintenance organisation stated that, following selection of a different fuel tank, it can take some 10 to 15 seconds to purge the system of air. The primer can assist this process but, if wrongly selected, neat fuel can be pumped directly to the cylinders. Following its repair with an overhauled engine, the aircraft has been successfully flown with no faults in it or its fuel system having been found.