AIRWORTHINESS ALERT

LAA/AWA/17 11
16th November 2017

CFM Shadow, Streak Shadow & Star Streak Aircraft. Fuel Tank Inspection

A CFM Streak Shadow aircraft operating under an LAA administered Permit to Fly was involved in an in-flight engine failure, the aircraft was substantially damaged in the resulting forced landing. A subsequent investigation established that the most likely cause of the engine failure was a disruption in the fuel supply to the engine. Though the specific cause could not be established, it was felt by the investigators that the fuel might have been blocked by particles of epoxy sealant that had detached from the internal face of the slipper (under cockpit) fuel tank, either by contaminating the fuel system or by blocking the fuel tank outlet.

Fig 1. An example of an LAA Administered Streak Shadow aircraft; this picture shows clearly the main fuel tank attached below the engine and the 'slipper' tank attached between the mainwheels to the fuselage floor.

Fig 2. Access for internal inspection of the 'slipper' tank is gained by removing the fuel sender unit, though care is needed to ensure that the unit is completely resealed during refitting

Fig 3. This picture shows an example of a failed fuel strainer. Note that the fine plastic gauze has disintegrated, most likely because of alcohol, now a normal component of mogas.

Both the LAA and the BMAA have received reports that this type of tank has developed leaks at the bonded edges and, in a number of cases, it has been found that debris had entered the fuel system because the fuel strainer had become dislodged over time. The type of material used to make this type of tank does not lend itself well to repair and many owners have changed their original composite tanks to approved aluminium equivalents.

LAA Engineering have recently issued an Airworthiness Information Leaflet (AIL) introducing a specific inspection of both the slipper and the main fuel tanks to ensure that the internal structure remains in good condition and that the fuel strainer remains securely positioned over the outlet. This AIL (LAA/MOD/206/007 issue 1) can be downloaded **HERE**. The BMAA have published a Service Bulletin (BMAA SB 2336 issue 1) which gives further information on the subject; this SB can be downloaded **HERE**.