



# Airworthiness Information Leaflet

## CFM Shadow, Streak Shadow & Star Streak Aircraft.

### Fuel Tank Inspection



**Applicability:** All CFM Shadow and Shadow derivatives operating under an LAA administered Permit to Fly.

**Compliance by:** Within five flying hours or twenty eight days from the date of this Airworthiness Information Leaflet (AIL) and then every three years (coincident with annual permit revalidation inspection).

**Background:** 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. When inspected it was noted that the fuel strainer had become detached from the tank.

Original Shadow fuel tanks were constructed using flat Fiberlam® or Aerolam® sheet, originally used as lightweight aircraft flooring. The tank is assembled from pre-cut sheet by rebating the internal core slightly and, using an Araldite® epoxy resin, 'glued' together to form the final shape. The fuel strainer as per the original CFM design consisted of a hemispherical plastic tea strainer bonded in place over the fuel outlet. The subject aircraft was fitted with, as far as it was possible to determine, the tanks supplied in the original kit (1994), making them some 23 years old.

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.

This AIL introduces 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.

**Actions Required:** Drain the fuel tanks. Carefully inspect each tank for security of attachment and for any evidence of leakage. Check that the fuel strainer(s)\* is/are intact and bonded in place and that the internal structure of the tank(s)\* is/are free of debris and show no signs of degradation or delamination. The strainer in the main tank can be seen through the fuel filler neck, the fuel strainer in the slipper tank can only be inspected fully by removing the fuel sender unit.

The aircraft must not be flown if a tank shows any sign of leakage or if the fuel strainer is not firmly seated over the fuel outlet. Should, in the event of leakage, displaced or damaged fuel strainer or general degradation or delamination, a repair be considered possible, then the repair proposal must first be submitted to LAA Engineering using appropriate procedure: alternatively, the tank may be replaced with approved aluminium tanks (see LAA Standard Modification 13312 for Jedi tanks).

**Certification:** This inspection must be completed to the satisfaction of a suitably qualified LAA Inspector. Log book entries must be raised and signed by the inspector confirming compliance with this AIL.

\*Some Shadow aircraft are not fitted with Slipper tanks

**LAA Airworthiness Information Leaflet Classifications**  
 Classification A – Considered Mandatory by the LAA  
 Classification B – Recommended by the LAA  
 Classification C – Material published for information and/or guidance