



Interagency Aviation Lessons Learned



No. IALL 16-04

Date: September 13, 2016

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Subject: Fuel System Management

Area of Concern: Fixed-Wing Operations

Distribution: All Aviation Operations

Discussion: This is a follow up to [IALL-16-01 King Air 200 Fuel System Management](#). Recently the same issue occurred in a King Air 90, which has a similar fuel system ([SAFECON 16-0913](#)).

Coordinated flight of an aircraft means the aircraft is flying with zero sideslip which is measured by a ball located in the bottom portion of the turn slip indicator on the instrument panel. This is the preferred flight profile to which aircraft systems are designed to operate.

Uncoordinated flight is defined as flight, especially during turns, in which the horizontal and vertical forces acting on the aircraft are out of balance.

Some missions require orbiting in tight circles for hours, requiring uncoordinated turns at times. However, prolonged uncoordinated flight profiles may cause the aircraft's fuel system to un-port and result in fuel starvation and subsequent engine shutdown. There are similar reports that this has occurred in other aircraft manufacturers/models including: Beechcraft, Aero Commander, Cessna and Dromader.

It is extremely important to fully understand your aircraft's fuel system and the potential impact of prolonged uncoordinated flight. Aircrews also need to maintain awareness of the duration in this profile and other factors while limiting their exposure to the maximum extent possible.

Recommendations for limiting the risk of fuel starvation include:

- Uncoordinated flight should be entered into prudently and with a complete knowledge of the potential consequences.
- Limit the time of uninterrupted steep turns to reduce the probability of experiencing a fuel quantity condition that would prevent fuel from feeding as designed. This can be done in many ways including rolling out to a wings level attitude or reversing the direction of the turn for a period of time.
- Orbiting further from the fire area requires less bank angle and better visibility
- Add information about this hazard to Air Attack training, Air Attack refresher, Pilot carding inspection and Contract Quality Assurance checklists.

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