



## Service Bulletin

SB #: 004

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Title: Temporary unusable fuel limit change for BMW-powered DeltaJet 500 StingRay and Bandit

Classification: ~~ESSENTIAL~~ / ~~RECOMMENDED~~ / INFORMATION

Applicable to Aircraft: (include any specific restrictions, hours, serial numbers etc.)  
Exodus DeltaJet 500 StingRay and Bandit fitted with a BMW engine

### Description of defect, implications:

We have become aware that some owners of BMW-powered DeltaJet 500 StingRay aircraft have experienced an engine stoppage when running at low fuel levels. On more than one occasion, this occurred on the approach to landing or shortly after landing during braking. Subsequently, the aircraft have been found to have approx. 5-7 L of fuel in the tank. This has not been reported with the Rotax engine.

Both types of aircraft use the same design of fuel tank where the fuel drops either side of the trike base tube at low levels, with a balancing tube to equalise volume between the sides. The single fuel feed pipe is on the right-hand side. BMW aircraft differ from the Rotax version in having a high-pressure, high-flowrate, fuel pump to drive the fuel injection system with unused fuel returned to the fuel tank via the balance tube at a rate in excess of 100 L/h.

Our investigations have shown that the high volume of returning fuel, especially at low rpm, overwhelms the capacity of the balance tube to ensure the left and right side of the tank have equal amounts of fuel, resulting in a lower fuel level in the side with the fuel feed. Tests on the ground with the trike in normal cruise and glide attitude confirm that 0.5 L and 2 L respectively of fuel is unusable for the Rotax engine, but this increases to 4.2 L and 6.5 L unusable fuel with the BMW engine.

### Rectification Action:

All owners should immediately place a temporary placard on the instrument panel of BMW-powered aircraft to state that the aircraft should not be flown with less than 10 L of fuel.

A simple alteration to the BMW-engine fuel system is proposed, which reintroduces the unused fuel to the fuel feed line immediately after it leaves the tank via a metal 6 mm 'T' piece. The balance pipe is changed, removing the current arrangement with its 'T' piece and replacing it with an uninterrupted length of fuel hose (as on the Rotax-powered trike).

This configuration has been tested and the unusable fuel found to be <0.5 L and <2 L at cruise and glide attitude, respectively. Two test flights have also been conducted with no adverse behaviour found.

The Exodus school aircraft has been fitted with this revised fuelling system and will be flown for the next few months to check further that the rectification action does not introduce any adverse characteristics. Once sufficiently proven, a kit will be made available to all owners of the BMW-powered DeltaJet 500 StingRay and Bandit aircraft. The change will then become mandatory for BMW-powered aircraft upon an update of this SB.

Released under CAA A8-1 approval DAI/9967/18.

Approved by: Accountable Manager, Chief Design Engineer or Quality Manager signature, date

15/12/25 P. Dewhurst