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Vehicle Defuel Circuits
Isolation of Defuel Circuits Bypassing the Sales Meter

A major accident risk is that of an aircraft crash due to the delivery of the wrong quantity of fuel. One of the potential causes of under-delivery of fuel to an aircraft is fuel bypass via the defuel circuit where the defuel pipework includes a connection to the fuel delivery pipework downstream of the sales meter.

The wording of JIG 1 (section 3.1.14) Standard was amended in Issue 11 to clarify this requirement and stated that “a meter by-pass line is not an acceptable design, irrespective of any valve isolation arrangement”.

Since the publication of Issue 11 the need for a revision to take account of some fuelling equipment used for defuels with meter by-pass lines that cannot be removed has become clear and the following amended text to replace section 3.1.14 is applicable with immediate effect.

3.1.14 Delivery pipework

The fuelling system shall be designed so that all fuel which passes through the delivery meter is delivered to the aircraft and cannot be diverted elsewhere. This is particularly relevant to fuellers if they are designed to defuel. For new builds a meter by-pass line is not an acceptable design. *For existing vehicles a double valve arrangement with a means of positive confirmation that no fuel is being diverted to the defuel circuit is acceptable. Any existing non-compliant vehicles shall be modified to meet this requirement or have the defuel circuit drained and permanently disconnected.*

Actions required for airport fuelling operations to comply with JIG Standards:

1. Designate a defuel vehicle or vehicles based on needs and remove and blank off by-pass pipework from all other fuellers. Care should be taken to avoid low points and dead-legs.

   Completion before end June 2014

2. On designated defuel vehicles, the defuel pipework shall be modified to ensure that no fuel can bypass the delivery meter during normal fuelling operations. An example of acceptable isolation is a double ball-valve arrangement.

   C**ompletion before end June 2014**

3. For designated defuel vehicles with a double valve arrangement in the defuel pipework, the valves shall be tested weekly (by pressurising with the deadman and checking for movement of the delivery meter) to provide assurance that they are not bypassing. The weekly test frequency will be reviewed by JIG six months after compliance and, based on feedback of test results, the frequency may be reconsidered. The frequency of this test may be extended to monthly for vehicles with an additional means of confirmation that neither valve is bypassing, for example, a bleed valve between the two isolation valves. Where the fuel between the two valves is not removed via a bleed valve, the pipework shall be flushed every six months. Test records for defuel vehicles shall be modified such that these tests are recorded.