

Updates in EI 1583 7th Edition / EI support and new technologies to replace Monitors.

Technical Newsletter



Subject: EI 1583 7th edition

On the 3rd of November 2017, the Energy Institute issued EI 1583 7th edition, which supersedes all earlier EI 1583 editions, with immediate effect.

The only change in the EI 1583 7th edition is the inclusion of a requirement that SAP is not detectable in fuel downstream of a filter monitor element under test, during Qualification Test 1 (media migration and starting differential pressure) and 10 (partial water immersion).

As no other changes have been made to the qualification testing requirements that were included in the 6th edition, existing qualifications to EI 1583 6th edition are recognised as also meeting the requirements of the 7th edition, if the ICP copper values obtained during both qualification test 1 and 10 were below the lower limit of detection for the method (≤ 50 ppb). This read-across from the 6th to 7th editions applies only to the specific model qualified.

In the absence of any public information on 7th edition qualified models, JIG requested (on behalf of the JIG user community) FAUDI Aviation, ParkerVelcon and PECOFacet to confirm which of their respective EI 1583 6th ed. qualified models meet the new EI 1583 7th ed. requirements. The request was sent on the same day EI 1583 7th edition was published and the feedback received from the three filter manufacturers by November the 9th, is summarised in Table 1 below:

Table 1: EI 1583 6th edition qualified models meeting the requirements of EI 1583 7th edition (as of November 9th, 2017)

	2"	6" Out to In	6" In to Out
FAUDI	M.2-XXX/6B	MO6.X-XXXX/6B	-
PARKER VELCON	2" CDF	None (Note1)	None (Note1)
PECO FACET	None (Note2)	None (Note2)	None (Note2)

Updates to EI 1583 7th Edition

- The only change is the inclusion of a requirement that SAP is not detectable in fuel downstream of a filter monitor during Qualification Test 1 and 10.
- As no other changes have been made to the qualification testing requirements that were included in the 6th edition, existing qualifications to EI 1583 6th edition are recognised as also meeting the requirements of the 7th edition, if the ICP copper values obtained during both qualification test 1 and 10 were below the lower limit of detection for the method (≤ 50 ppb).
- Velcon's CDF P-series 2" monitors currently qualifies to EI 1583 7th edition. Velcon is working on qualifying its 6" ACO as well.

For public release



To all manufacturers and users of aviation fuel filter monitors

27 November 2017

The EI has received data demonstrating that filter monitor elements qualified to the requirements of EI 1583 *Laboratory tests and minimum performance levels for aviation fuel filter monitors*, 6th or 7th editions may not be fit-for-purpose due to their release of super-absorbent polymer, particularly at differential pressures above 15 psi (caused by water injection into fuel; below their rated flow).

Users of this technology for into-plane fuelling applications shall review this with their filter monitor suppliers as a matter of urgency and implement measures to mitigate the risk of SAP migration.

The EI is supportive of the IATA SAP Special Interest Group position statement that filter monitors shall be phased out of all aviation fuel handling systems.

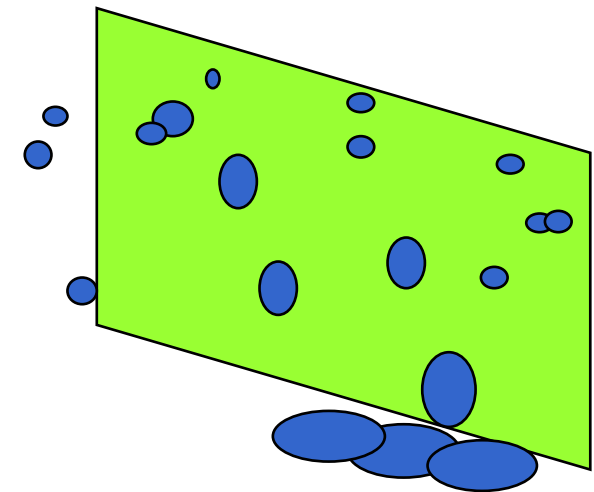
EI will not be maintaining or updating EI 1583 beyond its current 7th edition and will withdraw the specification by no later than 31st December 2020. Until then, only modifications to existing qualified elements that reduce the level of SAP migration will be eligible for an EI qualification test witness. EI is focusing all available resources on supporting the development of alternative technologies to replace filter monitors.

Implication of EI Bulletin (27 Nov)

- Reduction of Changeout PSID from 22psid to 15psid.
- EI will withdraw the specification by end 2020, hence Monitors will be phased out eventually.
- JIG will likely issue a bulletin to determine the effective dates for the above.
- FWS is currently the only option for new vehicle specification. For existing vehicles using 2” monitors, Velcon is developing a new type of filter element (barrier coalescer) as an alternative to 2” monitors that will likely not require any modification to existing vessels.
- This new filtration technology does not absorb water like monitors, but rather repels water like a “super separator”. Water droplets will require daily draining like a FWS.

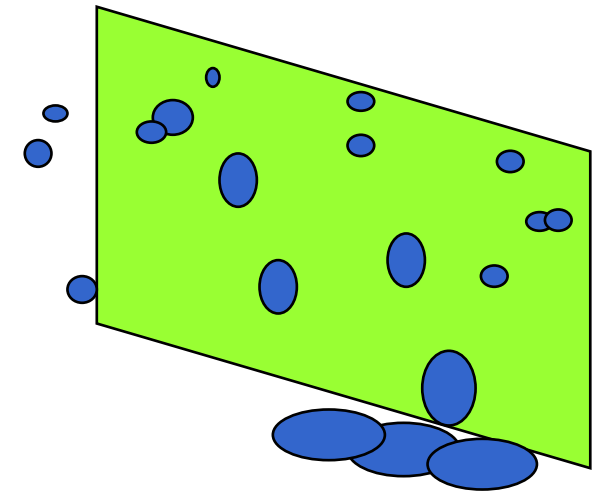
New Technology to Replace Monitors

- Surface/Barrier Coalescer
 - Water coalesces on the hydrophobic surface
 - Water droplets are blocked by a porous hydrophobic material
 - Barrier efficiency is determined by
 - droplet size distribution
 - Hydrophobic surface properties
 - pore size distribution
 - IFT – Interfacial Tension
 - differential pressure (DP)



New Technology to Replace Monitors

- Surface/Barrier Coalescer
 - Drop in solutions for 2" & 6" monitors
 - Effective against:
 - Low-water emulsions
 - Total water submersion (below 35 psid)
 - Water slugs @ >101.5 psid (>7 bar)
 - Effective in Cat-M fuels
 - Extreme dirt efficiency
 - Requires a new EI qualification category
 - Not a monitor (EI1583) or depth coalescer (EI1581)
 - New specification drafted – EI1588



New Technology to Replace Monitors

- Key Next Steps
 - ✓ Complete the new Energy Institute specification
 - ✓ Complete product development
 - ✓ Complete the element qualification
 - ✓ Conduct field trials