

## Summary

This Quarterly update on the Filter Monitor (FM) transition status includes information on the progress made since the publication of TN5 on field trials of FM replacement technologies. Based on data collected from the locations participating in the field trial programme to date, it is likely that the combination of EI 1599 Dirt Defence Filters (DDF) coupled with an EI 1598 Electronic Water Sensor (EWS) will be adopted in the JIG standards in 2020, under operating procedures that are yet to be determined based on the work that is currently in progress. Operators are also reminded that Filter Water Separators (FWS) qualified to EI 1581 is an accepted option in JIG for fuelling operations.

## FM Additional Requirements - Implementation of JIG Bulletin 105

JIG has repeatedly communicated to users of FM, via Bulletins, Technical Newsletters and at JIG Member Technical Forums, JIG workshops and other Industry events, the importance of strictly applying the measures of JIG Bulletin 105, while at the same time establish and progress their own transition plans for phasing out FM.

In order to reiterate the importance and facilitate implementation of Bulletin 105, JIG has taken the following initiatives to support the wider user community during the transition period:

1. Produced a video on [commissioning new FM elements & Hose-End Strainer \(HES\) inspection/cleaning procedures](#)
2. Developed a self-assessment tool against Bulletin 105 that also includes a HES inspection and cleaning Task Card
3. Filmed, broadcasted online and preparing to publish the [filtration session held at JIG's MTF in Nov'19](#)

The above materials are made available on JIG's website.

## Status of field evaluation of FM

JIG previously announced the launch of a field trial programme to evaluate all possible FM drop-in replacement technologies. (In cooperation with A4A and IATA). **JIG has made it clear to all manufacturers of proposed FM drop-in replacement technologies that they need to successfully complete the relevant EI qualification and robustness testing, prior to accepting these systems as suitable for field trials.** The current status of development and evaluation of filtration/sensing technologies known to JIG is presented in the following table.

**Table 1 – Status of Filtration/Sensing Technologies**

Technology	Qualified by	Robustness Testing	Field Trials	Evaluation of Field Trial data	Accepted in JIG Stds
FWS (EI 1581)	Facet (6") Faudi (2", 6") Parker Velcon (6")				Accepted
DDF (EI 1599) with EWS (EI 1598)*	Facet (2") Faudi (2", 6")	Faudi: Done Facet: In progress	Faudi: In progress Facet: Scheduled	Ongoing	Expected within 2020
WBF (EI 1588)	Parker Velcon (2")	In progress			
*EWS (EI 1598)	Faudi				Accepted (JIG Bulletin 110)
Water Holding (Spec not available)	N/A	Under development by Facet – No specification available yet			
Hydrophobic DDF (Spec not available)	N/A	Under development by Faudi – No specification available yet			

Annotations of Filtration/Sensing Technologies: Filter Water Separators (FWS); Dirt Defence Filters (DDF); Water Barrier Filters (WBF); Electronic Water Sensors (EWS)

## Alternatives to Filter Monitors

Despite the considerable efforts of all stakeholders concerned, the development and/or subsequent pre-field trial robustness testing of some new filtration technologies has not progressed as quickly as initially envisaged, as shown in Table 1. As a result, a JIG Field Evaluation of these technologies that are still undergoing robustness assessment has not been able to commence.

At present, the only FM drop-in replacement option that has successfully completed the required pre-field trial qualification and robustness testing and has therefore moved into the field trial programme, is the combination of EI 1599 DDF with EI 1598 EWS shown in Table 1. At this stage, both are supplied by one filter manufacturer, however a DDF from a second supplier is also expected to be made available for trials early in 2020.

NOTE! The above systems are under evaluation and are not currently referenced for use in JIG Standards. Their use in the Field Trial programme has been defined by JIG in conjunction with IATA and A4A, under strictly controlled conditions and for a limited number of agreed operators only. It is only compliant with JIG Standards by approved variance within the approved field trial programme.

## Preliminary review of field trial data

A preliminary review of field trial data collected to date reveals that the application of 2" and 6" EI 1599 DDF in conjunction with the EI 1598 EWS shown in Table 1, has not given rise to any warnings or alarms that cannot be explained, at locations where operating standards for fuel cleanliness are being applied diligently to the point of into-plane delivery.

As part of the field trial process, EWS shown in Table 1 are installed and operated in conjunction with FM systems for a period that varies by location but in principle in the range of 1-3 months, prior to replacing FM by DDF elements. The objective of this preparatory phase is to confirm the effective integration of the EWS and associated electronics into the fuelling vehicle, but, also, to enable the operating and maintenance personnel to obtain the necessary experience in the routine operation and maintenance of the EWS systems, prior to replacing FM by DDF. The operating experience gained so far illustrates the importance of following robust procedures for the installation, commissioning and routine operation of this EWS, in accordance with the manufacturer's recommendations.

## Future changes in JIG Standards

Based on data collected to date and preliminary analysis, JIG is formulating a proposal that would allow EI 1599 DDF coupled with an EI 1598 EWS (currently per those in Table 1) to be adopted in JIG Standards before the end of 2020. The conditions and procedures required for use of this combination technology are yet to be fully determined and will be based upon further field trial work. The introduction of FM replacement technologies into the JIG standards will also be supported by defined implementation timelines to achieve compliance. These timelines may vary by application and operation type.

The length of this transitional period is currently unknown, as it depends on various parameters that are currently being assessed. It is expected, though, that due to the urgency of the FM phase out and the limited options available for some applications, **the timeline to phase out FM from the following applications is likely to be much shorter:**

- ITP equipment with 6" FM systems (only one drop-in replacement option is currently available, per Table 1)
- New builds with FM vessels
- Avgas operations using FM

- Fuellers with FM
- Defuelling vehicles with FM
- Fixed facilities using FM

JIG will issue a new Bulletin in 2020 with implementation timelines, linked to the progress with filtration developments/trials. As a minimum, users of the above systems might be required to accelerate their FM phase out plans, by either accepting options that already exist in JIG standards (e.g. EI 1581 FWS) or retrofitting tested and accepted combinations of DDF/EWS (currently as shown in Table 1) on the affected fuelling equipment.

### Transition planning

**All current users of Filter Monitors are reminded of the urgency and importance of preparing a transition plan at each impacted operating location.**

Evaluation of the fuel cleanliness history at each location and site-specific operating requirements should be considered to optimise the selection of currently available technologies to replace FMs.

Users whose transition plans might include use of DDF/EWS systems following their acceptance in JIG standards, are recommended to consider installing EWS (currently as shown in Table 1) on the affected fuelling equipment, in accordance with manufacturer's instructions, prior to replacing FM by DDF. That could help their operating and maintenance personnel to gain experience with EWS systems, prior to retrofitting their FM vessels with DDF elements.

For new build vehicles (and planned vehicle refurbishment), it is important that design consideration is given to accommodate potential future changes in filtration/sensing technology approvals in both the choice of filter vessel types (size and weight) and any necessary pipework modification.