10-1-3

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Engine Control Systems

January 26, 2010

Subject: Engine Control Systems Comments on ARB's Proposed Ammendment to the Verification Procedure, Warranty and In-Use Compliance Requirements for In-use Strategies to Control Emissions from Diesel Engines

Engine Control Systems Limited (ECS) is pleased to provide written comments in support of, and recommendations to the Air Resources Board in regards to the proposed amendments to the current Diesel Retrofit Verification procedure.

ECS would like to thank ARB for its continued leadership in attaining clean air benefits in the state of California. ECS would also like to thank staff including Mr. Juan Avila who has been open to the discussion of issues and recommendations.

As a pioneering manufacturer of verified emissions control devices, ECS has over thirty years of experience with the retrofit of diesel engines.

DECS Maintenance Information to be provided to end users (Section 2706(h)(2)

ECS supports that Level 3+ VDECS require proper scheduled preventative maintenance and care to ensure their proper function and full useful lifetime. This type of maintenance is similar to the maintenance requirements of many other components of diesel powered highway vehicles and off-road equipment. The owner's manuals for VDECs should include appropriate preventative maintenance practices and troubleshooting information which can allow end users to maintain their VDECs if they so choose.

ECS recommends continued outreach by ARB and manufacturers about the need for VDEC owners to perform prescribed preventative maintenance and retain documentation. In particular, ECS finds that too many VDEC owners do not perform scheduled maintenance and believe that it only relates to de-ashing of the filter, and that even de-ashing is not recorded and documented properly. These VDEC owners are unaware or omit proper evaluative and preventative maintenance practices to the engines and other VDEC components which negatively impact the performance and life of the VDEC.

It is also important that VDEC owners and service providers are able to distinguish between preventative maintenance requirements from atypical maintenance items where they should be seeking the direct support of the VDEC manufacturers or its distributor.

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Preventative VDEC DPF centerbody cleaning

With regards to the servicing of Level 3+ DPF's, ECS supports an open market for the preventative maintenance of VDECs. However, it is our experience to date that independent service providers focus solely on cleaning DPF center bodies but fail to perform and do not offer to provide other related preventative maintenance items as listed in the applicable VDEC manual.

ECS believes that at present, many independent service providers do not employ proper practices, equipment and quality assurance. Such individuals may return a DPF to the customer that has not been properly cleaned and perhaps has suffered damage due to improper care and cleaning practices. Additionally, such DPF's may be re-installed without other required maintenance items being performed and documented.

As part of a solution, ECS believes that those offering such services should, at a minimum, register with the state and provide contact information and a list of commercial equipment they employ to service DPF's. As part of the registration, the service provider should have to agree that all wastes will be handled in accordance to local requirements and that they will provide proper documentation to the customer documenting which filter has been cleaned and what equipment has been used to clean the specific filter. As part of the documentation provided to the VDEC owner, the service provider should also provide a statement to the owner to also perform other related maintenance items as outlined in their VDEC's owner's manual. Finally, the registry should be posted to the ARB website and this posting would allow VDEC owners to identify competitive sources of DPF cleaning services which are acceptable to VDEC manufacturers.

A simple registration procedure would provide valuable information to consumers and the state. Registration would allow the state to know who is generating DPF waste, and that workers who are cleaning DPF's are not exposed to unsafe practices.

ECS believes that fleets should be able to clean their own filters if they have invested in appropriate preventative maintenance equipment, training and inspection of the filters. These fleets must also perform other maintenance items required for the specific VDEC as per the maintenance schedule contained within the owner's manual.

Atypical VDEC Maintenance Items

ECS distinguishes between preventative maintenance and atypical VDEC maintenance items.

It is our experience that some VDEC owners fail to perform preventative engine and VDEC maintenance. In these cases, the owner delays preventative maintenance until the backpressure monitor reports a high backpressure condition. In many cases, even then the owner continues to operate the vehicle, equipment or engine until there is a very discernible impact on engine operation.

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Alternatively, some engines may experience a component failure (turbocharger, injector, air intake leak, etc.) or the duty cycle of the vehicle may be changed. Under these situations, the VDEC center body may experience an atypical need for cleaning due to the occurrence of a "plugged" center body – the presence of excessively packed soot and/or the presence of lubricating oil.

In these cases, it is regrettable that some VDEC owners will avoid the original VDEC manufacturer's distributor, and seek out an unrelated service provider to attempt to resurrect the filter and make it functional again without the knowledge of the VDEC manufacturer. Our experience in these cases, is that the VDEC owner receives back a VDEC center body which is typically not properly cleaned, not performing to specifications and may be severely deteriorated.

It is under these atypical cleaning circumstances, that independent service providers should be declining to service the filter and directing the customer to their original VDEC manufacturer or their designated distributor.

In particular, it is the experience of ECS that very few service providers have the proper environmentally protective equipment to service a filter that is contaminated with liquid engine oil. The attempt to clean an oil contaminated filter is often done with considerable negative impact to the environment and the health of employees. In addition, these filters usually prove to have lost considerable porosity due to the penetration and combustion of liquid oil and subsequent in-situ growth of residual ash particles within the porous wall of the DPF.

Pre-installation Compatibility Assessment (section 2706(t))

- **Oil Consumption Records (section 2706(t)(4))**

The current proposed changes under this section require that the installer review the candidate engine's oil consumption records to insure that the engine is not using oil at a rate greater than that specified by the engine manufacturer.

Based on our experience, oil consumption records are often absent from an owners maintenance log and the specific requirement under the pre-installation compatibility assessment does not provide an installer any direction as to what to do when the records are found to be absent.

Moreover, as oil consumption can only be measured over time and that there exists no test to measure oil consumption at a single point in time, we believe that oil consumption records are an inappropriate parameter on which to include under pre-installation compatibility.

Installers often use other measurable or visual criteria to make oil consumption assessments including peak smoke opacity and color, presence and magnitude of visible crankcase emissions, oil present in the exhaust or oil leaks, and audibly detected combustion or valve problems. ECS would advocate that any pre-installation compatibility assessment should be supported by measurable or evaluative data parameters such as those stated above.

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However, ECS does agree that maintaining oil consumption records after retrofit for the duration of the warranty period can be valuable to the VDEC owner as a predictive indicator as to when further investigation Better yet, ECS prescribes under its maintenance practices that at each preventative filter maintenance interval that smoke opacity should be measured and the exhaust system and engine should be inspected for signs of leaks into or onto the exhaust system.

Conclusion

We would like to thank ARB staff for consideration of our comments and recommendations. ECS would like to participate in additional conference calls and workshops to further explore how justified changes can be effectively implemented.

Yours truly,

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