

Motor & Equipment Manufacturers Association

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June 25, 2018

Jeff Lowry
California Air Resources Board
Mobile Source Control Division
Mobile Source Regulatory Development Branch
Off-Road Controls Section
9480 Telstar Avenue
El Monte, CA 91731

RE: Proposed Amendments to California Emission Control System Warranty Regulations and Maintenance Provisions for 2022 and Subsequent Model Year On-Road Heavy-Duty Diesel Vehicles with Gross Vehicle Weight Rating Greater than 14,000 Pounds and Heavy-Duty Diesel Engines in Such Vehicles

Dear Mr. Lowry:

The Motor & Equipment Manufacturers Association (MEMA)¹ submits the following comments and recommendations regarding the California Air Resources Board proposal to extend warranty periods for heavy-duty vehicle (HDV) emission control systems. These comments are a follow up to our August 30, 2017 letter on the informal proposal. MEMA outlines below our concerns and suggestions for further improvement.

MEMA represents over 1,000 vehicle suppliers that manufacture and remanufacture original equipment (OE) and aftermarket components and systems for use in passenger cars and HDVs. The motor vehicle components manufacturers are the largest sector of manufacturing jobs in the U.S. directly employing over 871,000 workers in all 50 states – 31,190 of those jobs are in the State of California.² MEMA supports state and federal policies that enable the introduction and the improvement of technologies that reduce emissions, and make vehicles safer and more efficient.

As noted in Table 1, CARB has proposed to extend HDV emission warranty periods that would be implemented in the year 2022 and would impact HDV Classes 4-8.³ CARB's proposal is based on information that suggests emission control system warranty extensions will result in a timely repair of emission-related component malfunctions and,

¹ MEMA represents vehicle suppliers through its four divisions: Automotive Aftermarket Suppliers Association (AASA), Heavy Duty Manufacturers Association (HDMA), Motor & Equipment Remanufacturers Association (MERA) and, Original Equipment Suppliers Association (OESA).

² MEMA, "Driving the Future: The Employment and Economic Impact of the Vehicle Supplier Industry in the U.S." (Jan. 26, 2017), available at https://www.mema.org/sites/default/files/MEMA_ImpactBook.pdf

³ <https://www.afdc.energy.gov/data/10380>



therefore, will result in lower emissions of nitrogen oxide (NO_x) and particulate matter (PM 2.5) in the state. CARB believes that these vehicle classes contribute 45 percent of statewide mobile sources of NO_x and 19 percent of PM 2.5.

TABLE 1

Heavy-Duty Category	Current Warranty	Informal Proposal ⁴	Formal Proposal
Class 8	100,000 miles (5 years)	435,000 miles (10 years)	350,000 miles (5 years)
Class 6-7	100,000 miles (5 years)	185,000 miles (10 years)	150,000 miles (5 years)
Class 4-5	100,000 miles (5 years)	110,000 miles (10 years)	110,000 miles (5 years)

In August 2017, MEMA submitted feedback to CARB's informal proposal on the extension of HDV emissions control system warranties the Board released July 2017. MEMA appreciates CARB's open dialogue with the industry and being receptive to motor vehicle suppliers' and other industry stakeholders' concerns on the informal proposal. MEMA views CARB's proposal extending HDV emissions control system warranties as an improvement from the informal proposal. As such, MEMA further recommends that CARB:

- continues to limit warranty periods based on hours of operation;
- revises the amended scheduled maintenance intervals;
- outlines potential impacts to emissions systems suppliers, including aftermarket component suppliers; and,
- addresses the importance of correct diagnosis when assessing failure rates of emissions systems components.

Engine Operating Hours Should Be Included in the Warranty Proposal

MEMA urges CARB to limit emission control system warranties based HDV hours of operation. CARB explains that originally limiting warranty periods based on hours of operation was to "prevent an unduly burdensome warranty obligation for vocational vehicles driven few miles at low speeds." CARB states that it is difficult to justify keeping the hours of operation limits "when vocational manufacturers have still been able to successfully obtain federal certification for engines when the federal warranty regulations do not contain this 3,000-hour engine operating provision."⁵

⁴ Informal proposal issued in July 2017

⁵ Staff Report: Initial Statement of Reasons, May 8, 2018, III-9

However, the hours of operation limits provide a predictable timeframe for vehicle manufacturers (a.k.a. OEMs) and emission control system suppliers. MEMA recommends that emission control system warranties are limited to 10,000 hours in HDV Classes 4–8. A limit of 10,000 hours is a substantial increase over the current 3,000 hours but is more realistically representative of the five (5) years in-service for a typical 8-hour per day, non-stop operation, which is typical of what most vocational type vehicles would experience. Since there are many HDV applications that are dependent on hours of operation and because minimum maintenance intervals still include hours of operations terms, it makes sense for CARB to continue limiting warranty periods based on hours of operation.

Proposed Amendments to the Scheduled Maintenance Intervals

MEMA supports CARB’s proposal to amend language in 13 CCR 2036(d) to align California’s regulation with the existing federal provisions that do not allow scheduled maintenance to truncate the warranty.

CARB’s proposal updates the allowable minimum repair and replacement maintenance intervals contained in section 86.004-25 of the “California On-Road Heavy-Duty Diesel Test Procedures.” Also in CARB’s proposal, turbochargers and exhaust gas recirculation (EGR) systems are categorized as “not replaceable.”⁶ CARB further proposes specific replacement intervals for general electronic control units, sensors, and actuators (see Table 2). However, CARB does not specifically address turbocharger electronic actuators and sensors or EGR electronic actuators and sensors. MEMA urges CARB to clarify that turbocharger electronic actuators and sensors and EGR electronic actuators and sensors have a minimum repair and replacement interval identical to the timetable of electronic control units, sensors and actuators in Table 2.⁷

The design of EGR and turbocharger electronic actuators and sensors are similar to other sensors and actuators as they employ exactly the same technology. Therefore, it is important that turbocharger and EGR electronic actuators and sensors are provided a reasonable timetable for minimum repair and replacement similar to other actuators and sensors, and are not categorized as “not replaceable.”⁸ Generally speaking, current technology on these types of sensors has an average life that is usually shorter than the overall useful life of the vehicle itself. In order to improve and produce components with even longer service life, suppliers need significant development time to achieve it. To finalize a rule requiring a longer life, without providing a transition time to allow for design improvement would hurt the vehicle industry and could have a major negative impact on suppliers.

Furthermore, turbochargers and EGR electronic actuators and sensors are extremely dynamic components within their systems and are critical to maintaining the emissions performance of the engine. These actuators are relatively inexpensive to replace and easily

⁶ Staff Report: Initial Statement of Reasons, May 8, 2018, ES-9

⁷ Table from Staff Report: Initial Statement of Reasons, May 8, 2018, ES-9

⁸ *Ibid.*

accessible. Allowing repair or replacement of these actuators will ensure that the engine continues to meet the emissions requirements. Also, replacing one of these components by itself would maintain the integrity of the air and EGR system and thereby avoid malfunction of the full EGR or turbocharger systems. Therefore, categorizing EGR electronic actuators and sensors and turbocharger electronic actuators and sensors as “not replaceable” is unwarranted. Again, MEMA urges CARB to clarify that turbocharger electronic actuators and sensors and EGR electronic actuators and sensors have a minimum repair and replacement interval identical to the timetable of electronic control units, sensors and actuators in Table 2.⁹

Additionally, turbocharger electronic actuators and sensors can be changed and replaced without changing out the entire turbocharger. However, in some cases, the EGR electronic actuator is integrated with the EGR valve. In this case, the entire EGR assembly (EGR electronic actuator and EGR valve) would need to be replaced according to the intervals MEMA is recommending in Table 2.

TABLE 2

<u>Minimum Repair / Replacement Interval¹⁰</u>			
Component or System	Light Heavy-Duty Diesel Engine 14,000 lbs. < GVWR ≤ 19,500 lbs.	Medium Heavy-Duty Diesel Engine 19,500 lbs. < GVWR ≤ 33,000 lbs.	Heavy Heavy-Duty Diesel Engine GVWR > 33,000 lbs.
Electronic Control Unit, Sensors, and Actuators	<u>100,000 miles, or 3,000 hours</u>	<u>150,000 miles, or 4,500 hours</u>	<u>150,000 miles, or 4,500 hours, or 5 years</u>

Importance of Correct Diagnosis

CARB asserts that the failure rate of emissions components and systems is one reason for their proposal. CARB states that “some engine models are experiencing warranty claims of over 100 percent for turbochargers, and 40 percent for diesel particulate filters, fuel injectors, and EGR components.”¹¹ Before CARB moves forward, it is critical for the Board to understand that there are many causation factors, including a high rate of misdiagnoses, that can drive emissions systems’ components to have high failure or replacement rates.

When emission system components fail, it is often a result of another component, a mechanical failure within the vehicle or an external condition. Further, inadequate or incomplete service diagnostic routines can also incorrectly identify faults in these components. For instance, turbocharger failures are often the result of systematic failures

⁹ Table if from Staff Report: Initial Statement of Reasons, May 8, 2018, ES-9

¹⁰ *Ibid*

¹¹ Staff Report: Initial Statement of Reasons, May 8, 2018, ES-4

such as: compressor coking, no trouble found,¹² insufficient lubrication and oil contamination. EGR systems are also impacted by other systematic failures such as fouling, thermal fatigue, EGR valve stuck open due to soot and EGR valve actuator malfunction due to water intrusion. Turbochargers, after being replaced, often fail again due to repairs conducted in an unclean environment or from failure to clean properly the upstream ducting and filters and downstream ducting and intercoolers. Often when turbocharger or EGR systems fail, it is often time a result of neglect, severe service operation, owner's vehicle maintenance habits, or poor road conditions. Further, there are other component failures that could lead to emissions issues such as injection systems and after-treatment systems.

If emissions warranties are extended, it will be important that diagnostic routines and tools of independent service providers and dealers are improved. Moreover, they must be fully utilized by both independent service providers as well as vehicle fleet and dealer technicians for continuous improvement and technical training as a way to concurrently improve control of maintenance and repair costs. Before moving forward with its proposal, MEMA urges CARB to more fully investigate and evaluate not only the actual technology issues behind the high failure rates observed in CARB's data, but also the economic impact expanding such warranties will be on various stakeholders, including the end-user (i.e. consumers and fleets). Further, testing and validation to meet the minimum replacement interval will need to utilize industry standards or be developed with industry.

Suppliers Will Incur Much of the Increased Costs of the Emissions Warranty

If CARB extends emission warranties on HDVs, the responsibility of warranty coverage would be placed on to the OEM. However, this cost almost always gets passed on to the engine manufacturer and/or the emissions component/system suppliers.

CARB estimates that longer warranties will encourage component manufacturers to develop more durable components. However, most times suppliers do not have the necessary data and information needed to ensure improvement of parts capable of meeting the extended warranties. Beyond the supplier warranty period, suppliers do not have data or knowledge on the costs and failures of emissions components – only the vehicle manufacturer has access to this data. Suppliers would need guidance and data assistance from the vehicle manufacturers to develop new specifications for emissions components to translate the extended life into validation requirements. Because vehicle parts suppliers will take on the challenges, resources and costs related to the research, development and reengineering these emissions systems, it is critical that suppliers have information on how the component or system needs to be changed in developing a more durable product. Suppliers currently do not have access to this type of data.

Since suppliers may not currently have data to accurately forecast the extended warranties, it is difficult for suppliers to anticipate their costs related to these extended

¹² The turbocharger returned undamaged and in operable condition. The conditions for misdiagnosis is often a result of another failure in the system or an external condition, such as abusive operation, lack of vehicle maintenance, or poor road conditions.

warranties. In order for suppliers to accurately estimate warranty cost on emission products and system products, suppliers will need to develop new programs to validate the new durability requirements of this warranty program. This will be needed for all components in the emissions control system resulting in a significant increase in costs to suppliers. If a supplier incorrectly estimates the program costs to cover the expanded warranty program, they could be disadvantaged. As a result, suppliers may likely bear more of the burden and costs of the extended warranty than the OEMs.

Thus, MEMA requests that CARB reflect the potential increased costs to suppliers in the staff's initial statement of reasons' economic impacts analysis and assessment.

Extension of Warranties Will Have a Negative Impact on Sale of Aftermarket Emissions Parts

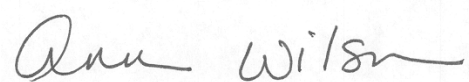
MEMA is concerned that extending emission control system warranties will have long-term unintended negative impact on the medium-duty/heavy-duty (MD/HD) aftermarket industry because it will reduce aftermarket product demand. Longer warranties will have an implied restriction to use only OE service parts (due to the risk of voided warranties). This may result in a near total monopoly for OE service components. Eventually this reduced demand will affect the availability of quality emissions related components – equally equivalent in form, fit and function – for repairs during or after a warranty period.

MEMA urges CARB to ensure aftermarket service providers should have a pathway to perform emission control system warranty repairs just like any OEM service provider. In order to facilitate this and minimize the potential negative impact to the aftermarket businesses, MEMA recommends CARB include regulatory language that ensuring aftermarket service providers have equal access to the necessary tooling (e.g. scan tools, etc.), repair and diagnostic information as an OEM service provider. Allowing access to the tooling, repair and diagnostic information would help maintain aftermarket competition and would help ensure that consumers and fleet owners continue to have market choice. Many vehicle owners typically will have warranty repairs and non-warranty repairs performed by the OEM service provider in order to reduce critical downtime. Reducing free and open competition would affect aftermarket service and parts suppliers in California – and across the U.S. – and has the potential to negatively impact the competitiveness and viability of smaller aftermarket companies.

Conclusion

MEMA urges CARB to include hours of operation in the extended warranty periods, revise the amended scheduled maintenance intervals, consider potential economic impacts to emissions systems suppliers, and the negative economic impacts to the aftermarket industry. MEMA appreciates CARB's consideration of our feedback. Please contact Laurie Holmes at (202) 312-9247 or lholfmes@mema.org if you have any questions or would like additional information.

Sincerely,

A handwritten signature in black ink that reads "Ann Wilson". The signature is written in a cursive style with a long, sweeping underline.

Ann Wilson
Senior Vice President, Government Affairs