

January 16, 2024

California Air Resources Board
1927 13th Street
Sacramento, CA, 95811

RE: CARB HMC Proposed Regulation Comments / January 25, 2024 Board Hearing

Dear California Air Resources Board,

Kawasaki Motors Corp., U.S.A. (KMC), is submitting the following comments in response to the California Air Resources Board (CARB) proposed regulation for 2026MY and later HMC that will be discussed at the January 25, 2024 Board meeting.

ZEM

§1958.6 (a)(1)

The lead time for adjusting the sales volume in California is too short to comply with as 24MY sales have already started, nearly complete and cannot be changed. The new requirement must allow enough lead time for action should the proposed regulation be officially adopted. Kawasaki proposes that the ZEM obligation ratio be calculated by the sales volume a few years after the official adoption of the regulatory changes. Consideration should be given to utilizing a method like the OHRV phase-in model that considers a total compliance ratio during a certain period that is based on upcoming/future sales volume, rather than the past/current volume currently proposed.

§1958.6 (c)

Kawasaki is concerned about the limited market of the ZEMs and the inability for it to generate enough credits for the manufacturers. The small ZEM market generates correspondently small credit opportunities. The result will be that some manufacturers will be unable to generate enough credits to maintain sales in California even with employing the use credit trading as the total volume of generated credits would not be sufficient to fulfill the total demand in state. Even without ZEM requirement, some models would certainly be discontinued in California because of the new strict requirements applied to internal combustion engine (ICE) on-highway motorcycles. Additionally, ICE on-highway motorcycles developed to meet the new California-only proposed standards would be more expensive, approximately \$200, as they require unique development for the California the costs cannot be spread across comparable models developed for of the rest of the world. The combination of increased ICE on-highway motorcycle costs and the limited supply volume, along with the development and materials costs making ZEMs too expensive for very limited consumer demand will significantly damage the current motorcycle industry in California.

Therefore, Kawasaki proposes that the market be monitored a few more years to allow for the setting of a realistic target for the ZEM obligation that is based on a robust data set. Absent of this, it will be difficult to maintain our business presence in California due to the reduced size of the market in the state. Unfortunately, the high costs of technology, development, and resources mean we don't have affordable ZEMs that can be substituted for our major ICE on-highway motorcycle models.

Kawasaki also encourages CARB to consider the flexibility of the charging infrastructure for ZEMs and not limit it to DC fast charging. We believe that such a system would mainly be used by ZEV passenger cars making it difficult for ZEM riders to access. We would also suggest expanding the charging station infrastructure for ZEMs by taking into consideration market growth.

Durability test

Kawasaki understands that 8 hour soaking is not required for every 12hr run as it refers to the EU requirement (SRC-LeCV), rather than the current EPA requirement. That could save the time to complete the required accumulation.

Kawasaki requests that a description be added to the regulation/test procedures that allows for the use of the durability test fuels that have been accepted for use in service accumulation for EU to minimize the development burden. It should be taken into account that most EU5 compliant must undergo EPA testing as the agency does not currently accept EU test data for the purposes of issuing Certificates of Conformity (CoC). The proposed regulation places an additional burden on manufacturers.

We also understand LEV IV fuel currently referred in the draft regulation only limits C7 Aroma by ASTM D5769 when comparing LEV III fuel. When referring to past discussions in 2022, the change was made for ease of analysis of its specification and had no effect to the emissions, as it is essentially the same specification as LEV III. If available, Kawasaki would like to view the study report or analysis CARB conducted in the past. Also, are there any plans to use LEV IV fuel as an official CARB certification for all categories? Currently Kawasaki uses LEV III for OHRV and PWC. Merging official fuels used by CARB or test sites would save space/cost for maintaining the test fuel.

EVAP

Kawasaki believes that the metal tank system that is commonly used for on-highway motorcycles should be exempt from durability tests and long period soaking as the main permeation emission source of these vehicles is the fuel tank. The emission volume is capped by the hot soak and diurnal tests. EPA also regulates permeation from the tank/fuel hose. Kawasaki does not believe more requirements are justified.

To satisfy the current proposed requirement for hot soak and diurnal emission limit, good quality parts are required, and those parts are typically capable to pass those durability requirements. We believe just specifying the emission standard is sufficient.

Kawasaki has experience with OHRV certification that can pass 100% of the testing with the current combination of the items without significant deterioration. The proposed requirement will only result in the use of extra time, cost, and space for the testing to prepare the certification data. Is CARB able to explain details of any concern about omitting these small requirements or non-compliance issues?

Please consider the option to have DFs (fixed value or inter/extrapolated from measured value) or exempted emission values (that are small enough under the standard) to allow for skipping the long soak period. We believe the accelerated soaking option is still not enough to shrink testing period as sometimes it is necessary to re-do the test to account for a change in shape of a fuel component.

Kawasaki proposes that the sections be reorganized as it is hard to understand the whole procedure, and clarify if it is individual process or sequential process.

Please clarify what is PRV. Is it a component mainly used to control evaporative emissions? Would the pressure regulator that is not used to maintain the pressure up to required pressure be exempt from the durability requirement? Are the parts used to limit the vapor to the canister deemed as PRV?

Please advise where the leak pressure limit of PRVs comes from? (+13.8kPa and -3.5kPa)

Kawasaki believes the component specification should be set by the manufacturer to satisfy hot soak and diurnal test standards, rather than specified in the regulation.

There is no acceleration direction specified for PRV vibration.

Also, the canister vibration acceleration direction is specified as horizontal. Should this be vertical?

If tested on three axis (x, y and z) and 4,000 cycles in each direction (total 12,000 cycles), is there no installing orientation limit? Kawasaki would propose allowing for a universal testing condition for application to multiple models.

For UV testing, can CARB specify a total exposed energy condition that is equivalent to $24\text{W}/\text{m}^2 \times 240\text{hr} = 864\text{kJ}/\text{m}^2$ as an option so the manufacturer can shorten the test period?

Regarding durability testing, once a component has completed durability testing for model A, would new durability testing not be required for model B using same part? For example, once the section 4 individual requirement has been performed, it would not be required to use durability tested components for section 5.

If it is not an individual requirement, can we omit once the component's performance deterioration reaches a small enough level in the first test results?

We believe no canister protection testing is needed as it is not required in the current HMC regulation and typical HMCs can keep the fuels inside the tank. Additionally, HMC are not frequently tipped over like off-highway motorcycles. When leaning during cornering centrifugal force keeps fuel level the same as during a non-leaning condition.

If it is still required, then Kawasaki proposes that the within five second requirement should be removed and just keep the for more than one minute orientation requirement. Kawasaki believes CARB should propose a safer and simpler testing procedure for the purpose of reducing the development burden.

Considering typical use/storage of a motorcycle, the diurnal temperature profile should be the EPA profile, as is the case with TP-933 for OHRV.

Emission

The EU engine family should be within the range of tested vehicle, but in U.S., the worst-case vehicle should be selected.

This difference creates an un-covered specification and requires additional testing when using the EU test result. Kawasaki proposes that the EU engine family definition be considered when using EU test data to avoid re-doing certification testing and that a description be included in the regulation.

Like the situation with the new OBD requirement, additional development is needed for California, but Kawasaki is uncertain if this can be accomplished due to the fuel specification difference and new unique requirement currently proposed. The fuel system monitoring is a completely new system-wise development.

Kawasaki requests the allowance to use a different ECU part number from EU as compliance with the noise requirement necessitates small adjustments to the ECU. Would apply when using EU certification data and when exhaust emissions/OBD settings are not impacted.

EU regulations do not cover the E10 test fuel for emission result calculations (THC density, Dilution Factor and Fuel Efficiency). Kawasaki requests that CARB include the additional coefficients in the proposed test procedure.

OBD

Kawasaki remains concerned about the certification review being completed within 90 days. Staff with automobile OBD certification experience has advised that OBD certification can be a very lengthy process, in some cases several years when considering the initial confirmations.

Additional concerns pertain to the capacity of CARB's OBD section, as it will need to review all on-highway motorcycle applications in addition to all the other current mobile source categories using OBD. Kawasaki believes some consideration must be given to adopting the functions already approved by the EU or avoiding the additional/unique requirements currently proposed. Harmonization with the EU.

Can manufacturers use modified ECUs to demonstrate fuel system malfunction condition? The wording was deleted from this draft amendment.

From a safety standpoint, we believe road testing should not be required.

Lead time for additional requirement to ICE

We acknowledge CARB's allowance of additional time for the manufacturers regarding the new ICE emission requirement, but the lead time remains insufficient considering the substantial amount of resources that must be employed for the development of ZEMs. Meeting the three year completion requirement for all 28MY engine families remains very difficult.

Kawasaki requests that CARB consider extending this requirement to seven year steps (25%, 25%, 50%, 50%, 75%, 75%, 100%), that would still be in time for the 35MY. We ask CARB to please consider that Kawasaki and other manufacturers have very limited product developing resources that must be allocated across all global markets.

Regards,



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