

**STATEMENT OF THE  
MANUFACTURERS OF EMISSION CONTROLS ASSOCIATION  
ON THE AIR RESOURCES BOARD'S  
PROPOSAL TO DETERMINE AND CONTROL EVAPORATIVE EMISSIONS FROM  
OFF-HIGHWAY RECREATIONAL VEHICLES**

*July 25, 2013*

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MECA is pleased to provide testimony in support of ARB's proposal to control evaporative emissions from off-highway recreational vehicles (OHRV). We believe that the proposal presents a balanced and fair approach for achieving further reductions of reactive organic gases from recreational vehicles that are supported by emissions testing and usage data for these types of vehicles. This regulation would go beyond the existing, permeation requirements set by ARB in 2006 by reducing evaporative emissions from these types of vehicles by an additional 70%. The technology to accomplish this goal is readily available and already in use on passenger cars and other spark-ignited (SI) engines for decades to help meet California's air quality objectives.

MECA is a non-profit association made up of the world's leading manufacturers of emission control technology for motor vehicles. Our members have over 40 years of experience and a proven track record in developing and manufacturing emission control technology for a wide variety of on-road and off-road vehicles and equipment. Several of our members have expertise in the development, manufacture, and application of evaporative control systems on all types of spark ignited on-road and off-road vehicles and engines from the simplest passive purge canisters to the most advanced fully integrated PZEV compliant active purge technologies.

MECA members have a long history of developing new technologies for automotive markets and engineering these into diverse applications in both on and off-road engines and vehicles so that all reciprocating internal combustion engines can benefit from the cleanest emissions control technologies. We believe that improved engine/fuel management combined with evaporative control can provide significant emission reductions from OHRVs such as off-road motorcycles, all-terrain vehicles (ATVs) and specialty vehicles including off-road sport vehicles, utility vehicles and sand cars. We believe this technology can be designed to be durable, cost-effective and safe.

We agree with ARB's approach to use a three consecutive day diurnal or an alternative 24 hour steady-state diurnal test to achieve an evaporative limit of 1 g of total organic gases using a standard SHED apparatus. Staff's emissions inventory analysis has shown that diurnal emissions during extended storage account for the majority of the reactive organic gas (ROG) emissions from recreational vehicles and therefore the use of a diurnal SHED test is a cost effective measurement to determine the effectiveness of evaporative control technology on these types of vehicles. We believe that the technology combination of low permeation fuel tanks and hoses with sealed fuel injector technology and activated carbon canisters will effectively achieve the proposed limits from this category of vehicles during storage as well as normal operation. The

same type of evaporative control technology has been successfully incorporated on passenger vehicles 30 years ago and has advanced to allow automobiles to meet the zero evaporative emissions required by California's LEV II PZEV emission limits. The effective use of evaporative canister controls on OHRV applications must coincide with fuel tank spill controls, such as a roll-over valve, on recreational vehicle fuel systems to prevent flooding of the canister when tipped. These types of vehicles are often tilted beyond their normal operational orientation in the course of their use. Implementation of a roll over valve would prevent evaporative emissions from spilled fuel as well as facilitate the use of activated carbon evaporative controls. Staff is proposing the use of passive purge canisters, low permeation tanks and hoses, and pressure relief valves on tanks to control evaporative emissions. Although passive controls are effective in capturing 50-60% of the total evaporative emissions, we believe an important opportunity remains for further reductions in evaporative emissions from OHRVs. Active purge evaporative systems have been required on passenger cars for over 25 years and have an effectiveness of 90-95% in capturing ROG emissions. Today's LEV II vehicles achieve greater than 99% efficiency in reducing evaporative emissions from the passenger car fleet. We encourage ARB to expand the use of advanced active purge evaporative controls to recreational vehicles as a part of future amendments to the OHRV regulations.

MECA and our members urge ARB staff to explore the use of catalyst exhaust control technologies for further reducing ozone forming emissions such as hydrocarbons and NO<sub>x</sub> from off-highway recreational vehicles. Catalyst technology can be designed and applied to this category of engines based on the years of development, experience, and successful application of TWC catalyst technology in a variety of mobile source applications. Catalyst technology can be applied to both carbureted and direct injection engines. In fact, direct injection technology greatly facilitates the use of catalysts. Catalysts can be designed to provide varying HC reductions depending on the target emission level of a particular engine design. Reductions from 50 percent to in excess of 80 percent can be achieved if the catalyst is properly integrated with the engine for which it is applied. As was demonstrated by the U.S. EPA in their safety study on small off-road and handheld SI engines, catalyst technology can be designed to work safely and packaged effectively in small, confined engine applications. As is the case with other engine applications, the key to applying catalyst technology to OHRV engines is to take a systems approach optimizing the engine and the catalyst to work together.

## **Conclusion**

In closing, we commend the Air Resources Board for its continuing efforts to provide the people of California with healthy air quality and for demonstrating true leadership in continuing to develop innovative emissions regulations, such as this one. We also wish to thank the ARB staff for its willingness to work closely with all stakeholders throughout the regulatory process. Our industry pledges its continued support and commitment to ensure that the technologies are available to deliver the emission reduction goals of this proposal. We believe that further reductions are achievable from this category of off-road vehicles through the use of exhaust emission controls. MECA members would like to work with ARB staff to demonstrate the reliable, effective and safe application of catalysts in OHRV applications.

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