STATEMENT
OF THE
MANUFACTURERS OF EMISSION CONTROLS ASSOCIATION
ON THE AIR RESOURCES BOARD'S
PROPOSED AMENDMENTS TO CURRENT SPARK-IGNITION MARINE AND BOAT REGULATIONS

July 24, 2008

MECA is pleased to provide testimony in support of ARB's proposed amendments to the current regulations for spark-ignited marine engines and boats. We believe that the proposal presents a balanced and fair approach that will further harmonize certification requirements with U.S. EPA, cap CO emissions at today's measurement levels, and balance HC+NOx emissions from the performance sterndrive/inboard (SD/I) engines with reductions in evaporative emissions from high performance and standard SD/I engines.

MECA is a non-profit association of the world's leading manufacturers of emission control technology for motor vehicles. Our members have over 35 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. This includes supplying reliable three-way catalytic converters for spark-ignited marine engines in California. A number of our members have extensive experience in the development, manufacture, and commercial application of emission control technologies for small two-stroke and four-stroke SI engines. Some of our members have expertise in the development, manufacture, and application of evaporative control systems for on- and off-road vehicles from the simplest passive purge canisters to the most advanced fully integrated PZEV-compliant active purge technologies.

MECA and our 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 emission control technologies. We believe that improved engine/fuel management combined with evaporative control and catalyst technology can provide significant emission reductions from sterndrive and inboard SI engines, as well as outboard motors and personal watercraft. We also believe this technology can be designed to be durable, cost-effective, and safe to use on marine SI engines and boats. Three-way closed-loop catalyst technology has been effectively commercialized on sterndrive/inboard engines in California, and MECA and our members believe that catalyst technology may be applied on both two-stroke and four-stroke engines used in outboard motors and personal watercraft (OB/PWC).

As we outlined in our May 16, 2008 letter, we concur with ARB staff's assessment that the high performance engines (>373 kW) pose specific challenges to the applicability of closed-loop three-way catalyst (TWC) technology due to their uniquely fuel-rich operating conditions. We believe that this engine category is not suitable for the application of catalysts given the way these engines currently operate. As is the case with other engine applications, the key to applying catalyst technology to performance SD/I engines is to take a systems approach optimizing the engine combustion systems and the catalyst technology to work together.

Furthermore, we agree with ARB's approach to balance the increase in the exhaust emissions from this performance class of boats with reductions in evaporative emissions. Evaporative control technology has been successfully incorporated on passenger vehicles for over 30 years 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 marine applications must coincide with fuel tank overflow controls on marine fuel systems to prevent flooding of the canister when fueling. Implementation of overflow protection on marine vessels would prevent evaporative emissions from spilled fuel as well as facilitate the use of evaporative controls not only on performance engines but across all SD/I and OB/PWC categories.

Staff is proposing the use of passive purge canisters and low permeation tanks and hoses to control evaporative emissions from performance engines and possibly some standard SD/I engines to compensate for high exhaust emissions from the high performance sector. Although passive controls are effective in capturing 50-60 percent of the total evaporative emissions, we believe an important opportunity remains for further reductions in evaporative emissions from marine SI engines. Active purge evaporative systems have been required on passenger cars for over 25 years and have an effectiveness of 90-95 percent in capturing evaporative emissions whereas today's LEV II technologies achieve greater then 99 percent efficiency. We urge ARB to expand the use of advanced active purge evaporative controls to all marine SD/I engines and boats as a part of future amendments to the marine SI regulations.

MECA supports ARB's proposal to set CO standards and not-to-exceed limits for all SI marine categories. The technology that is utilized to reduce CO emissions from spark-ignited inboard and sterndrive marine engines is based on automotive-type three-way catalyst closed-loop technology. The TWC technology being applied to SD/I engines (≤373 kW) sold in California today can easily achieve the CO standards outlined in this proposal.

MECA and our members encourage ARB staff to continue to explore evaporative and catalyst control opportunities for reducing emissions from outboard engines and personal watercraft. Catalyst technology can be designed and applied to this category of engines based on years of development, experience, and highly successful application of TWC catalyst technology in a variety of mobile source applications. Catalyst technology can be applied to both carbureted and direct injection marine SI two-stroke engines. In fact, direct injection technology greatly facilitates the use of catalysts. Catalysts can be designed to provide varying HC reductions depending on the reduction required to meet 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 space applications. As is the case with other engine applications, the key to applying catalyst technology to OB/PWC engines is to take a systems approach optimizing the engine and the catalyst to work together.

MECA supports a fifth tier of voluntary emission standards designated by a five-star emissions rating. In addition to giving special recognition to cleaner engines and notifying the

consumer about the emission level of the product being purchased, this label will promote the development, introduction, and purchase of marine equipment with lower-polluting engines and create an incentive to produce low-emitting products.

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. We also wish to thank the ARB staff for its willingness to work closely with all interested parties and for its tireless efforts to develop these proposed amendments to the existing SI marine regulations. Our industry pledges its continued support and commitment to ensure that the technologies are available to deliver further emission reductions from this category of off-road SI engines.

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