

**STATEMENT OF THE
MANUFACTURERS OF EMISSION CONTROLS ASSOCIATION
ON THE U.S. ENVIRONMENTAL PROTECTION AGENCY'S PROPOSED
CONTROL OF EMISSION STANDARDS FOR NEW NONROAD SPARK-
IGNITED ENGINES, EQUIPMENT, AND VESSELS**

June 5, 2007

The Manufacturers of Emission Controls Association (MECA) is pleased to provide testimony in support of the U.S. EPA's proposed emission standards for new nonroad spark-ignited (SI) engines, equipment, and vessels. We believe that EPA's proposed regulations are an important step forward in reducing emissions from small nonroad spark-ignited engines and marine engines.

MECA is a non-profit association of the world's leading manufacturers of emission control technology for mobile sources. Our members have over 30 years of experience and a proven track record in developing and manufacturing emission control technology for a wide variety of on-road and nonroad vehicles and equipment, including small engines used in lawn and garden equipment, as well as other small spark-ignited engines used on mopeds and motorcycles. Our members have invested millions of dollars in developing catalyst technology for these small SI engines.

Our comments today are specific to the application of catalysts to Class I, Class II, and marine inboard/sterndrive spark-ignited engines to comply with the EPA proposed exhaust emission standards for each of these nonroad engine categories.

Firstly, MECA supports EPA harmonizing HC+NO_x exhaust emission standards for Class I and Class II engines used chiefly on non-handheld equipment with the California Air Resources Board standards that were adopted in 2003 and began their implementation in 2007. MECA also concurs with the EPA staff analysis and conclusion that the proposed Phase 3 HC+NO_x exhaust emission standards for Class I and Class II engines are technologically feasible and that catalyst technology can be fully optimized as part of a complete engine/emission control/exhaust system to help achieve these proposed limits. MECA also supports EPA's proposal to establish a Phase 3 CO standard of 5 g/kW-hr for marine generators.

Secondly, MECA concurs with the conclusions reached by EPA staff that the application of catalysts to nonroad equipment or marine generators with either Class I or Class II spark-ignited engines can be accomplished using available engineering exhaust system design principles in a manner that does not increase the safety risk relative to today's uncontrolled equipment. In particular, the EPA safety study on non-handheld equipment equipped with catalyzed mufflers represents the most thorough safety study completed to date on this class of spark-ignited engines. The results of this EPA study showed that properly designed catalyzed mufflers pose no incremental increase in safety risk (and in many cases even lower muffler surface temperatures) relative to currently available non-handheld equipment sold without catalysts.

And, thirdly, MECA supports EPA's proposed standards for HC+NO_x and CO standards for sterndrive and inboard marine engines, starting with the 2009 model year. MECA concurs that these standards can be met with three-way catalyst close-loop technology.

Below are a few additional comments on the application of catalysts to Class I, Class II, and inboard/sterndrive marine spark-ignited engines.

Based on over thirty years of experience in designing and applying catalyst technology to a variety of mobile sources, including small nonroad engines, MECA is convinced the application of catalysts to Class I and Class II engines is technically feasible as demonstrated by the extensive test programs conducted by EPA and ARB, and based on the extensive commercial experience base for the safe application of tens of millions of catalysts to a wide range of small SI engines. The EPA and ARB test programs conducted on Class I and Class II engines, in particular, demonstrated that catalysts can be safely designed to achieve the useful life emission requirements required by EPA's proposed Phase 3 standards. Early commercial introduction of catalyst-equipped marine generators also provides strong evidence that EPA proposed low CO standard for marine generators is technically feasible.

Issues raised by small off-road engine and equipment manufacturers, such as heat management, packaging, poisoning, and durability, are straightforward engineering challenges that are well understood and can be readily addressed. These types of issues have been raised virtually every time the use of catalyst technology has been proposed for use on a spark-ignition engine, be it an automobile, heavy truck, off-road engine over 25 hp (such as a forklift), a motorcycle or moped, or a small engine used on handheld or non-handheld equipment. In each case, all of these issues were successfully addressed for each application. The situation is no different in the case of Class I and Class II nonroad engines.

Both EPA and ARB test programs have shown that catalysts can be applied to Class I and Class II engines without increasing safety risks associated with exhaust component surface temperatures. Integration of catalyst into small engine mufflers utilizes uncomplicated manufacturing techniques that should allow for the design and validation of compliant engines within the lead-time provided by the EPA regulations. The 30 years of catalyst experience in general and the over 10 years of experience with applying catalyst to smaller SI on-road and nonroad engines provide an experience base that has enabled catalyst technology to continue to be improved. This small engine experience has provided an increased understanding of how to optimize the engine/catalyst/exhaust system to work effectively, and will facilitate application of catalyst technology on Class I and Class II engines to help meet the proposed standards.

The technology to reduce emissions from spark-ignited inboard and sterndrive marine engines will be based on automotive-type three-way catalyst with closed-loop control technology. This technology has been used on well over 300,000,000

automobiles with outstanding results and the same technologies can be adapted to marine inboard and sterndrive engines. Here again results from EPA and ARB sponsored test programs detailed in the EPA Draft Regulatory Impact Analysis confirm that three-way catalysts (TWCs) can be effectively integrated into marine inboard and sterndrive engines, and TWCs have the necessary mechanical integrity and catalytic durability to perform with high emission conversion efficiencies throughout the entire 480-hour useful life emissions requirement for these marine engines, regardless of operation in fresh or salt water environments. Important results from this demonstration program included the design and integration of exhaust manifolds with TWCs that provided relatively low exhaust manifold surface temperatures (through the use of a water-jacketed exhaust system) and minimized the potential for water ingestion into the region of the manifolds that contained the TWCs. Both ceramic- and metallic-based substrates were used to display a range of three-way catalyst formulations as a part of this durability test program, all with good results. Thus, a variety of TWC technology options used successfully in automotive applications were shown to be effective in these marine engine applications. The early commercial introduction of a catalyst-equipped marine inboard engine is further proof that catalyst can be used to achieve EPA's proposed HC+NOx and CO standards for this category of marine SI engines.

CONCLUSION

In closing, MECA supports EPA's proposed emission standards for new nonroad spark-ignited engines, equipment, and vessels. MECA believes that the application of catalysts to the small nonroad SI engines and marine inboard and sterndrive SI engines is a cost-effective solution for reducing exhaust emissions from these engines and we are committed to do our part to ensure that emission control technology is available to help meet EPA's proposed standards. We urge EPA to finalize their regulatory proposals for these categories of engines as soon as possible.

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