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PREFACE

The papers in this Special Publication were originally written to fulfill competition requirements of the 1996 FutureCar Challenge. These papers document the design, construction, performance, and planned improvements of 12 high-efficiency vehicle designs, which represent the results of the first of two years of this competition. A paper describing the competition's individual events, results, and successful designs has also been included.

The 1996 FutureCar Challenge was held at Ford Motor Company's Dearborn Proving Grounds and at the Environmental Protection Agency's National Fuels and Emissions Laboratory in Ann Arbor, Michigan during June of 1996. The 1996 FutureCar Challenge was jointly sponsored by the U.S. Department of Energy and the U.S. Council for Automotive Research. The mission of the Challenge was to develop and demonstrate advanced fuel-efficient vehicles that parallel the technology development path of the Partnership for a New Generation of Vehicles (PNGV) program. The PNGV development path culminates in a mid-size car having up to three times the fuel efficiency while maintaining the performance, safety, and affordability of today's production vehicles. At the same time as contributing to achieving the objectives of the Partnership, the FutureCar Challenge was to help improve engineering education and foster practical learning through the development of solutions to real-world engineering problems.

The FutureCar Challenge is a goal-oriented competition. With the exception of specific performance and safety standards, the teams were left to solve the problems of producing a highly efficient vehicle themselves. This resulted in a wide variety of technologies with the potential for solving some of the technical problems associated with radically increasing the fuel efficiency of today's vehicles. While most of the teams chose to convert their donated Luminas, Intrepids, and Tauruses to hybrid electric vehicles, some chose other directions. Some vehicles were fueled with alternative fuels, while some used reformulated gasoline or low-sulfur diesel fuel.

The dedication of the students and faculty in constructing these highly efficient vehicle prototypes cannot be fully conveyed within the scope of these papers. On behalf of all of the participants and organizers of the FutureCar Challenge, we extend many thanks to the participants and to those companies without whose support, whether through financial contributions or in-kind, the 1996 FutureCar Challenge could not have been brought to such a successful culmination.

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