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The Development of a Range Extender Electric Vehicle Demonstrator

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ABSTRACT

This paper, which is the fourth of a series, presents the REEV demonstrator vehicle developed by MAHLE Powertrain, which features a specifically designed range extender unit. The previous papers describe the specification setting, detailed design and the development of the range extender engine.

A current production gasoline fuelled compact-class car was used as a donor vehicle and converted into a range-extended electric vehicle (REEV). The all-electric driveline specification has been developed to meet the performance criteria set for the demonstrator, matching the acceleration and maximum speed capabilities of the conventional donor vehicle. Also, a target electric only range has enabled the battery pack capacity to be specified. The resulting vehicle is intended to reflect likely, near to market, steps to further the wider adoption of electric vehicles in the compact-class passenger car segment.

This paper presents details of the REEV vehicle developed and the Range Extender system integration. Additionally, the operating strategy for the engine is described and results showing the measured fuel efficiency of the vehicle are presented.