12 Mileage Marathons

W. S. AFFLECK and G. B. TOFT

12.1 Introduction

It must be accepted that the motor car is not an outstandingly efficient device for converting chemical energy into useful mechanical work. The question of why efficiencies are characteristically so low can be discussed at many levels, but at a strictly practical level it reduces to how far *could* a motor car go on a quantity of fuel if some or most of the constraints on its construction and use were removed. This question forms the basis of the mileage marathons which have been run at the Shell laboratories for a number of years.

12.2 History

The start of the Shell mileage marathon at Shell Oil's Wood River Laboratory in 1939 stemmed from an argument amongst engineers about ultimate fuel economy. The first event was won by R. J. Greenshields with a run of 49.73 mile/US gal (4.73 l/100 km). Ten years later, Greenshields ran a modified Studebaker to 149.95 mile/US gal (1.57 l/100 km)[1] (plate 12.1). In 1968 a Fiat 600 owned by J. M. Jones, R. C. Trokey and D. C. Carlson reached 244.35 mile/US gal (0.963 l/100 km)[2] (plate 12.2) and in 1973 an Opel driven by B. E. Visser achieved 376.59 mile/US gal (0.625 l/100 km)[3] (plate 12.3). Over the years many aspects of the marathon have changed: initially, cars were run until a fixed amount of fuel was consumed and the distance to run-out recorded. Traffic and safety considerations caused a change to a procedure where the fuel used over a fixed course was the crucial measurement. At one stage the event was run to strict average speed timings over a country road course, but, later, traffic and safety conditions forced a further change. Latterly the event was run on a relatively level course over a divided highway near the laboratory. Throughout the competition, vehicles have been required to bear a clear lineal relationship to some production car. The minimum quoted weight for the parent model and the use of an engine available in that model have restricted development – although, to judge from the modifications noted in references 2 and 3, considerable scope remained for improvement in performance within these restrictions.

Research staff at the Thornton Research Centre (TRC) ran the first Shell mileage marathon in Europe in 1969. The event was modelled on the Wood