

# Shawn Yates, P.Eng.

## Designing cars of the future

*Shawn Yates, P.Eng., coordinates the design and development of propane-powered cars, trucks and vans for Chrysler Canada in Windsor. These vehicles were first on the market in 1980, and Yates joined the research team for alternative fuel systems in 1983. A mechanical engineer with an MBA from the University of Windsor, Yates works at the joint University of Windsor/Chrysler Canada Ltd. Automotive Research and Development Centre (ARDC).*

**Q. What's your role as program coordinator?**

**A.** I make sure that program objectives, timing, communications, team efforts and, ultimately, customer satisfaction objectives are being met. This assignment provides me with the exposure and career opportunity to be responsible for the project from a much broader perspective, including the monitoring of financial implications, the allocation of resources, and dealing with a broad cross section of people from a number of fields—both internally and externally to the company.

**Q. What's a typical day like?**

**A.** I am based at the ARDC. We conduct research and development activities of interest to the University of Windsor and Chrysler Canada. Most of my time is spent at the ARDC; other time is spent at company meetings and meetings with suppliers or other industry experts. A typical day includes coordinating the work of engineers, researchers, students and technicians to meet our objectives.

**Q. How do you juggle your work and family time?**

**A.** I've been married to a great, understanding person, Charlene, for 15 years, with one fantastic son, Bradley, who's 12. Our favourite relaxation activity is golfing. We live in LaSalle, a town just outside of Windsor, and only about 15 minutes from the ARDC. I sometimes work on my PC at home—a great way to avoid office interruptions.

**Q. What do you like about your job?**

**A.** The challenge of trying to solve product-related problems or improve product



Shawn Yates, P.Eng., makes the rounds at the University of Windsor/Chrysler Canada Ltd. Automotive Research and Development Centre (ARDC). Representing a combined investment of over \$70 million, work at the ARDC focuses on alternative fuels, vehicle durability, engines and transmissions, vehicle safety and emissions, and automotive materials.

components, and the challenge of trying to exceed customer expectations. As well, the opportunity to feel that I've made a difference in the learning process of a student, or the development of people I work with, also gives me a great deal of satisfaction. The 1996 Propane Vehicle Challenge—a student competition that was sponsored by Chrysler Canada and held at the ARDC—is one great example. (More

than 100 students from 12 universities in North America competed to design, build and test propane-powered vehicles.)

**Q. How are the design and manufacturing processes for propane-powered vehicles different from those for regular gasoline-powered vehicles?**

**A.** The Dodge propane vans and wagons are intended to be factory-built and not “conversions.” They are propane-fuelled equivalents of the Dodge gasoline-fuelled vans and wagons. They are designed, tested and developed by engineers, using the same design criteria, testing methods and engineering review procedures used for gasoline equivalents.

**Q. Why is alternative fuel technology so important today, and why is Chrysler focusing on propane?**

**A.** Alternative fuels have the potential to reduce our dependence on gasoline and also meet our emission reduction objectives. It is typical to compare alternative fuels to gasoline (their major competition) on a number of factors, including total cost per kilometre, fuel cost per km, health aspects, tailpipe emissions and vehicle driving range. From these perspectives, propane has a pretty exciting long-term potential.

**Q. What are the barriers to introducing these technologies in the marketplace?**

**A.** The major barriers are the cost and storage limitations of fuel storage systems in relation to their gasoline counterparts. In the case of propane, the cost is higher because of the storage pressure and performance requirements that the fuel storage system must comply with. We're sponsoring R&D activities and research

partnerships focused on these fuel storage limitations.

The infrastructure or availability of alternative fuels from refuelling centres is also an area that needs improvement. We need further research, testing and understanding of how alternative fuel components work.

**Q. What triggered Chrysler to devote the necessary resources to develop propane-fuelled vans and wagons?**

**A.** Chrysler Canada began manufacturing and selling propane-fuelled vehicles in the 1981 model year in response to requests from major fleet customers in Canada. At the time, excess propane supplies from Canadian oil fields had resulted in an available, low-priced source which, combined with government incentives, spawned a significant market for propane-fuelled vehicles. Chrysler was approached by other customers, and a major development program led to sales of just over 500 propane-fuelled cars and trucks in the 1982 model year, followed by increased volumes in following years.

During the 1980s, we designed, manufactured and sold over 10,000 factory produced propane-fuelled vehicles in Canada.

The current project was launched in 1992. Chrysler Canada Ltd., the federal and Ontario governments and the Propane Gas Association of Canada agreed to develop concept vehicles to assess the state of auto propane technology.

**Q. Who is the target market for the propane-powered van?**

**A.** Fleet customers are the primary customers. Usually, customers who accumulate high mileage with their vehicles can benefit most from the reduced cost of propane. Fuel cost savings and environmental benefits appear to be the major factors leading to a propane-powered van purchase.

**Q. How has the project progressed since you came on board?**

**A.** The major progress has been the development of our exclusive multipoint liq-

uid propane injection and engine fuel control system, and the fuel supply system, which includes the fuel delivery module and fuel storage tank. Both of these technologies are "world firsts." It was great to be a part of these developments as they progressed. The fuel storage tank is unique with a design that can increase conventional propane storage capacity, within a given envelope, by over 20 per cent. (This system allows for about 600 km of travel before refuelling.)

**Q. Is there a race among car companies to discover other fuel alternatives? What do you see happening in the future?**

**A.** DaimlerChrysler continues to research a wide range of alternative fuel systems that make sense. That means vehicles with alternative fuel systems that people actually want. We have developed several unique technologies with the propane and other alternative fuel vehicle programs that have the potential to be beneficial in the future. ♦

*Karen Hawthorne*

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