

Look Who's Pumping My Gas



Smart gasoline pumps will be dispensing fuel into your car's gas tank long before Nadine the robotic test driver (*Tech Directions*, May/June 1997, p. 10)

is ready to take your car onto the open highway. In fact, the Shell Oil Company is now field-testing the first Smart Pump, in Sacramento, CA.

Shell's Smart Pump is a robotic device that has been designed to handle a low-skilled job with high-tech efficiency. To purchase gas from this system you will need a special gas cap, transmitter, and your credit or debit card.

The process begins when you drive up to the pump and place your payment card into the station's card reader. For true driver comfort, the reader is located on the driver's side by each pumping station. Still inside your car, you select the gasoline octane and amount you wish to purchase. Your actions activate the robotic arm that will locate, open, and fill your gas tank.

To learn how to pump gas into your vehicle, Smart Pump activates your car's transmitter, located on the inside of your front windshield. Your transmitter, which works just like an E-Z Pass Toll transmitter (*Tech Directions*, November

1996, pp. 8-9), tells Smart Pump how to pump gas into your make and model automobile.

Shell Oil Company designed the Smart Pump in a joint venture with a number of partners who brought their own expertise to a virtual company that

has spent the last eight years developing Smart Pump technology: Gilbarco, Inc., a manufacturer of gasoline-dispensing systems; International Submarine Engineering, Inc., a designer of deep sea and space robotic systems; Stant, Inc., the designer and manufacturer of gas caps; and HR Textron, Inc., the company now responsible for manufacturing the entire Smart Pump system except for the special gas cap, which Stant will manufacture.

Shell Oil is the largest gasoline retailer in the United States. As soon as they complete their field tests, Shell will start to install Smart Pumps in many of their 8,900 gasoline stations. If you drive a Rolls Royce, Corvette, Ferrari, Jaguar, Maserati, or other car with an out-of-the-ordinary fueling location, or if your car was manufactured before 1987, you will have to continue pumping your gas in a more conventional manner.

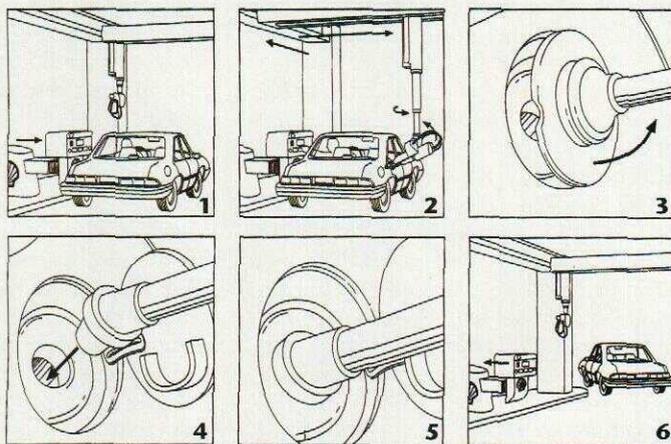
Recalling the Facts:

1. How do you tell Smart Pump the location and operation of your fueling system?

2. What companies helped Shell Oil design and build Smart Pump?

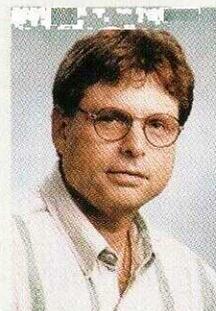
3. What expertise did each company bring to the project?

4. If you were going to design a special gas cap for a smart pump robot, how would your gas cap work? **TD**



Figs. 1-6—1. Car pulls up to Smart Pump, activated by small electronic sensor. **2.** Driver swipes credit card and selects grade of gas. Telescopic arm aligns itself with fuel tank door. **3.** Arm extends suction cup to open fuel tank door. **4.** Nozzle engages with special connection installed on mouth of gas tank. **5.** Smart Pump dispenses gas. **6.** Driver selects option for receipt. Smart Pump retracts.

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