

Technology Forecast

Sensors and Efficient Power

The sensor is the key to modern engine management. As the computer's "eyes" into the engine, sensors help to improve fuel economy, performance, and emissions. Engineers are designing sensors to provide even more useful and specific information.

One method being studied adds a knock sensor and an oxygen sensor to each cylinder. These sensors will work with the spark plugs. They will tell the computer the status of the combustion process in each cylinder. The computer can then retard or advance timing of the ignition as needed. It can also change the air/fuel mixture if necessary. These changes will allow an engine to produce maximum power with the least emissions.

Also under development is a compression sensor. First used on race cars, it could soon be available in passenger cars and trucks. In one version of this device, a pressure sensor monitors compression in each cylinder. It sends its data to the PCM. Again, performance can be improved while emissions are reduced.

Another sensor that is becoming popular in cars and trucks monitors the engine oil. It indicates when the oil needs to be changed.

Action Activity

Some vehicles have sensors that alert the driver as the rear bumper gets closer to objects. Find out how this sensor works. What are the benefits of this sensor? Prepare a visual display that shows the sensing zones and distances. Report your information to the class.