

Technology Forecast

Computers Drive 4WD into the Future

Four-wheel drive (FWD) is becoming increasingly popular. Whether used in trucks, sport-utility vehicles, or cars, 4WD has strong appeal.

Drivers typically activate 4WD systems whenever more traction is needed, whether traveling off road or around town. Usually, they press a button on the dashboard or use a transfer case shifter to engage all four drive wheels.

A new generation of computer controls should make 4WD systems easier to apply and more economical. By setting the 4WD in an automatic mode, the driver instructs the computer to switch to four-wheel drive only when it is needed. This switch is made based on information from the wheel speed sensors.

Benefits include better fuel economy and less binding of the front wheels. Binding makes steering difficult when parking or making sharp turns.

In the drive train itself, automakers are increasing their use of aluminum and composites to reduce unsprung weight. With less unsprung weight, a vehicle rides and handles better. Manufacturers are also replacing Cardan U-joints with constant velocity (CV) joints in 4WD vehicles. Their goal is to minimize noise, vibration, and harshness.

Action Activity

Ask at least five different drivers outside your class what is meant by *four-wheel drive* in a vehicle. How would you explain the 4WD system to a vehicle owner? Present your results to the class.