

Technology Forecast

Manual Shifting Made Easy

Manual transmissions can help keep a vehicle's price lower for the consumer and also deliver the most driving fun and fuel economy. However, a stick shift is not for everyone. For many people, operating the clutch and the accelerator pedal is inconvenient. They prefer simply to put the car in gear and go.

A new type of manual transmission could make shifting easier. It will use shift-by-wire technology to replace traditional linkage components. This shift-by-wire design means the gear shifter will not link mechanically to the transmission. Gear changes would be made by small electric motors when the driver moves the shift lever.

Because a control module would control gear changes, gears would not grind during bad shifts. The control module could also protect the transmission from damage during downshifts when the vehicle is traveling too fast. It would simply lock out the lower gear. This control module setup could even eliminate the need for a manually operated clutch. A control module would activate the clutch when the driver makes a gear change.

Cars with these transmissions would still be fun to drive because automakers could “tune” them to give the driver a feeling of a standard manual transmission. Such transmissions may have longer service life. These transmissions could be put in automatic mode in high-traffic or construction zones. The electronic controls would greatly reduce the wear caused by human error during manual operations.

Action Activity

Use the Internet and other sources to find out about wire technology in vehicles. Make a detailed sketch of the components in a manual transmission. Make another sketch of a transmission with a shift-by-wire design. What are the major differences between the systems? What would the technician have to learn in order to maintain a shift-by-wire transmission?