

Technology Forecast

Shifting in Order

Most vehicles built today—especially luxury cars—are equipped with automatic transmissions. Because some drivers prefer manual transmissions, automakers will continue to manufacture vehicles equipped in this way.

Popular applications for manual transmissions include pickup trucks and expensive, high-end sports cars. Manual transmissions work well with these vehicles because they make the most of the engine's power. They can also make driving more fun.

Looking ahead, vehicle manufacturers are changing the way manual transmissions operate. One change is the use of six speeds instead of five, for better fuel economy. Progressive, versus selective, shifting has also been introduced.

In progressive shifting, the driver can move up and down through the gears only in the proper order. The idea is to reduce the chance of changing the engine or rear end by shock-loading them during improper gear changes. For example, shifting from fifth gear to third gear to slow the vehicle puts a lot of stress on drive train components. Wear is reduced if the driver must shift down to fourth gear before moving to third gear.

Another change is the elimination of an overdrive gear. Automakers instead are looking at a top gear with a 1:1 ratio to reduce internal transmission drag and wear. A higher ratio would then be used in the differential and rear axle to help vehicles deliver good fuel economy.

Action Activity

Find a vehicle model that uses progressive shifting. Compare its transmission design to a manual transmission with selective shifting. What design features are different? What will you need to know in order to service a manual transmission with progressive shifting? Is special training required in order to service these transmissions?