

Technology Forecast

Smaller Engines Mean More Leg Room

Automakers are asking a lot from their engines these days. From low exhaust emissions to high fuel economy, today's designs have to do more than ever. Engines may now have to be smaller, as automakers add the interior and cargo room their customers want without lengthening the vehicle.

For front-wheel-drive cars, one solution automakers are studying is better integration of the transaxle and the engine. This smaller package could free up the inches needed for passenger comfort and allow for bigger trunks.

This design raises questions about the ease and cost of making repairs. Because the engine and transaxle work so closely together, new service procedures will likely be needed. In the event of trouble, technicians may recommend that their customers replace the engine and transaxle as a single unit. Fixing a problem could be more expensive because of the rising cost of skilled labor.

Another technique for reducing engine size involves the elimination of subframes. Instead, the engine is mounted directly to the body. To reduce noise, vibration, and harshness (NVH), special magnetic resistive (MR) mounts may be used. These mounts are filled with a fluid that can change consistency when an electric current is applied. Controlled by the vehicle's computer, this setup can quickly adapt to changes in road and driving conditions.

Action Activity

Car designs involve trade-offs between passenger room, cargo space, and engine size. Research at least three things the car designers must consider when creating smaller engines. Discuss your findings with the class.