

Technology Forecast

Disc Brake Developments

Disc brakes are very popular with consumers and automakers. They are likely to remain popular in the future. Disc brakes are efficient and provide proven stopping power.

But there are refinements that can be made. One recent development is the aluminum metal matrix composite disc rotor. The material in this rotor is so hard that it requires a special diamond-tipped tool for machining!

This aluminum composite weighs half as much as traditional cast iron and sheds heat faster. It is also nonmagnetic. Its hardness comes from the use of a 20 percent silicon-carbide material. As a result, these rotors cannot be machined with conventional equipment. Instead, the technician must use the diamond-tipped tool when machining.

Another new technology is the low pressure floating rotor full-contact foundation brake system. This design allows the brake's friction material to be applied to all 360 degrees of the rotor's contact surface.

Engineers working on the full-contact foundation brake system say it causes less noise, vibration, and harshness (NVH) when the brakes are used. Other benefits include a lower rotor temperature and less rotor runout for more efficient braking.

Also, these brakes have seals on the driving hub that position the rotor in the ideal place. These seals help to reduce drag and NVH when the vehicle's brakes are not being applied.

Action Activity

Visit a local auto repair facility. Ask to see new and used disc brake components. What are examples of disc brake wear? Research new materials used for brake friction material (pads) and rotors. What effect will these new materials have on disc brake maintenance? Report your findings to the class.