

Does a Disc-Brake Caliper's Mounting Position on the Rotor Affect Braking Performance?

Q:

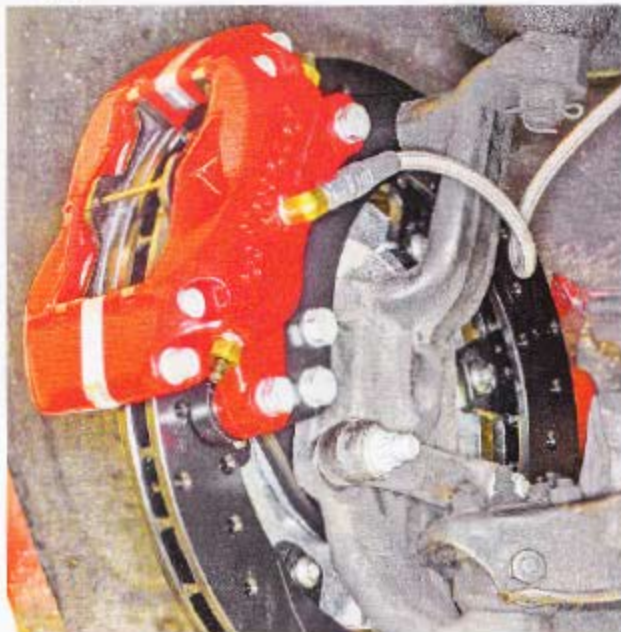
I recently replaced the rotors and pads on my Pontiac G8 GT. It started me thinking about disc brake caliper placement. Most cars nowadays have wheels that are "transparent;" when in motion, you can easily see the different placement locations. I suspect the different placements are due to suspension variations and maybe even packaging considerations. Can you shed any light on this?

A:

It makes virtually no difference in braking or clamping performance if the disc brake calipers are mounted on the rotor's front (leading) side or at its rear (trailing) side. As you surmise, the location is selected primarily for suspension or body clearance, as well as aesthetics. I've even seen some old GM rear disc installations with the caliper mounting location staggered in relation to the axle and rotor (one side leading, the other trailing); this was done to clear the chassis' staggered shock mounts. On some Chryslers, in different model years and applications, the same set of front calipers may have swapped sides (driver to passenger side and vice versa), depending on the suspension and body clearance, and whether they needed to be leading or trailing to achieve the necessary clearance. That really plays hob when you're trying to get the correct replacement unit out of a wrecking yard or even an auto-parts store.

On a really high-end, lightweight car, there may be a slight advantage to mounting the front calipers in the trailing position and the rear calipers in the leading position. This moves the calipers closer to the center of the car for theoretically improved weight distribution.

Certainly the most important consideration concerning the caliper-to-rotor interface is that the caliper must be absolutely centered and square on the rotor!



[This 1955 Chevrolet fullsize passenger car is running a Wilwood Engineering front disc-brake conversion kit. The old Chevy is a "rear-steer" car; that is, the steering box is located behind the drag link and front spindles. The calipers are front-mounted for more steering-linkage clearance.]



[On some Mopars, the same right and left calipers "swapped sides" based on whether the installation used a leading or trailing caliper mounting position. On this front-mount (leading) install, the driver-side caliper is mistakenly mounted upside-down—the bleed screw (circle) faces down, when it should be at the top of the caliper, facing up. This unit belongs on the passenger side. No wonder the brakes wouldn't bleed!]