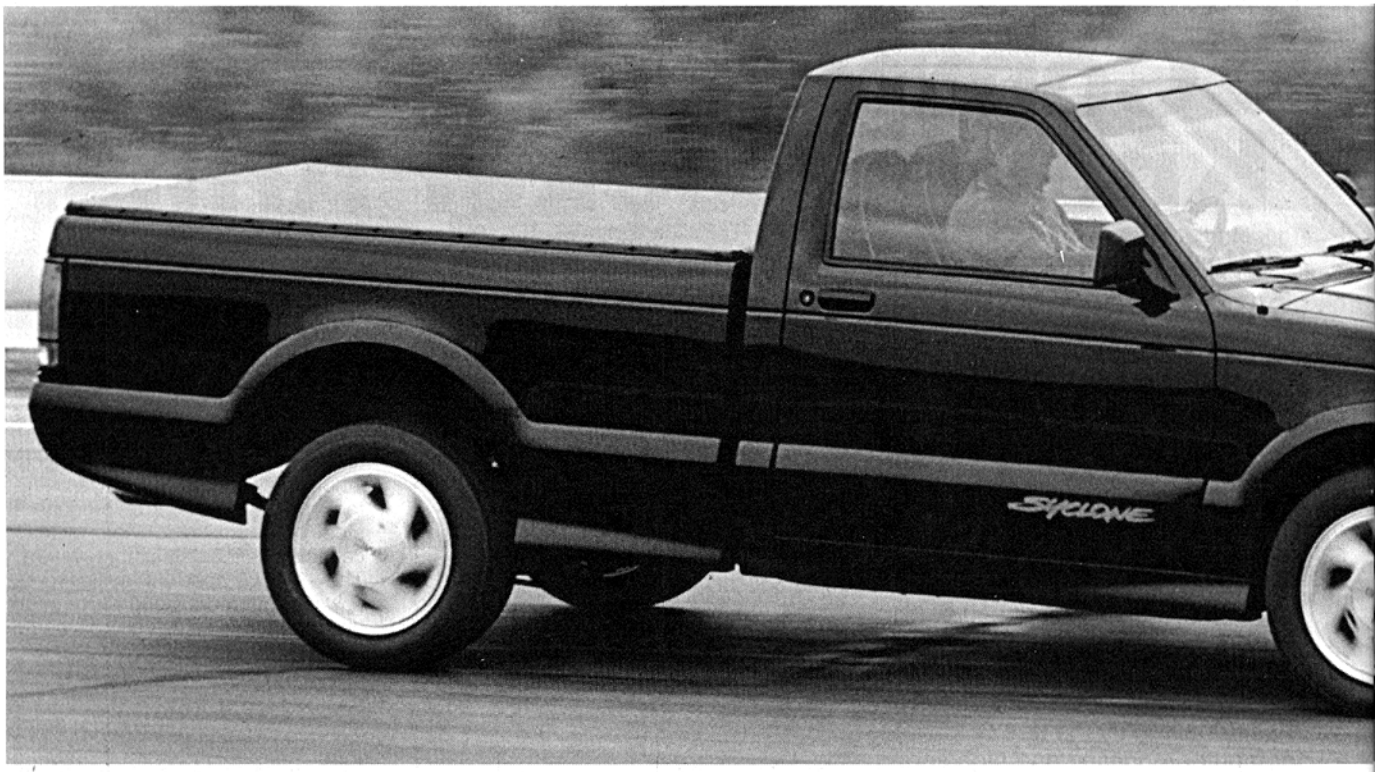
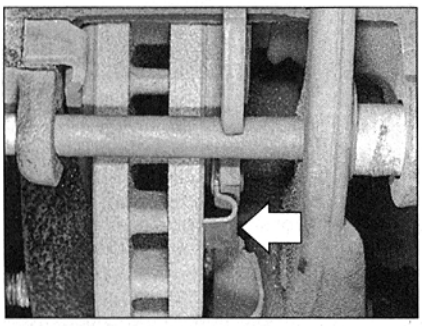
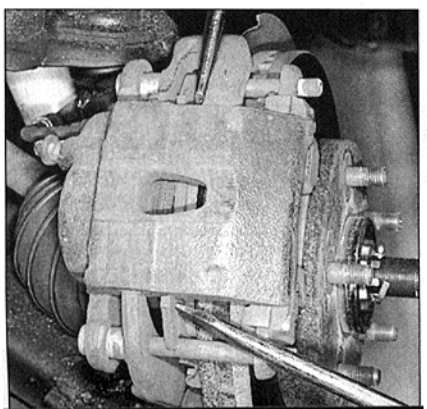


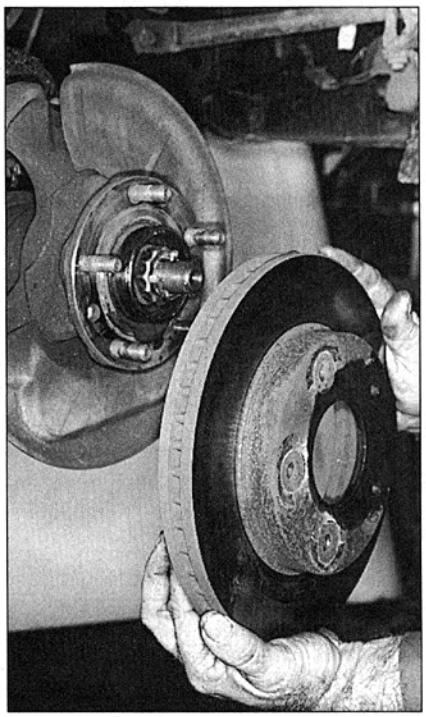
BRAKING



1 Pads should be replaced any time the lining is worn to within 1/32 inch of a rivet head or the pad backing plate. The disc brake pads have a wear indicator that makes a "chirping" noise when the linings are worn and need replacement (arrow).

2 After removing the wheel-and-tire assembly to gain access to the caliper, relieve the system pressure by carefully prying back the pads with screwdrivers.





3 Use a 3/8-inch Allen socket to remove the caliper retaining bolts, then carefully lift the caliper off the rotor and pull out the old pads. On the Syclone's four-wheel-drive-type front end, the rotor and hub are separate units—merely slide the rotor off the wheel studs. The wheel bearings are a one-piece sealed integral unit and require no repacking.

4 Typically, the rotor requires turning if the pads have worn down far enough to activate the wear indicator. If in doubt, you can attach a dial indicator to some portion of the suspension and check for lateral runout (0.004-inch max). Excessive lateral runout causes the brakepad and piston to be knocked backed into its bore, resulting in additional pedal travel and vibration during braking. Use a micrometer to check for parallelism—the measurement of the rotor thickness at four or more points around its circumference. Make all measurements at the same distance from the rotor's edge; they must not vary more than 0.0005 inch from point to point. All brake rotors have a minimum thickness cast into them (arrow, expressed in millimeters on this late model) that represents the minimum safe rotor thickness after refinishing. Do not use a brake rotor that won't meet the minimum thickness spec after it's been turned!

With new stock pads, this Syclone's 60-0 braking times averaged 133 feet. The Performance Friction pads improved this to 121 feet, a consistent 12-foot decrease even after multiple stops.

Changing Pads Lets You Pull Out All The Stops

By Marlan Davis

HIGH-PERFORMANCE VEHICLES need high-performance brakes, but for fuel economy reasons many of today's cars and trucks were originally designed with lightweight, downsized brakes that have not been upgraded even though power production is once again on the increase. A perfect example is the 280hp turbo V6 GMC Syclone. Although four-wheel-anti-lock capability was added, the basic brake design still features the smallish S-truck 10-inch rotors in front and drums out back. Couple the power increase with the asbestos phaseout, and these trucks have been known to go through a set of pads in as little as 10,000 miles.

One streetable solution is racing-derived carbon-metallic brake compounds that improve stopping and pad longevity without seriously degrading "cold stop" performance, a problem traditionally associated with using full-metallic compounds on the street. A leading purveyor of carbon metallic compound pads for both street and racing use is Performance Friction. We decided to try a set on a '91 Syclone and see how they compared against a set of new service replacement GM pads in terms of overall stopping distance.

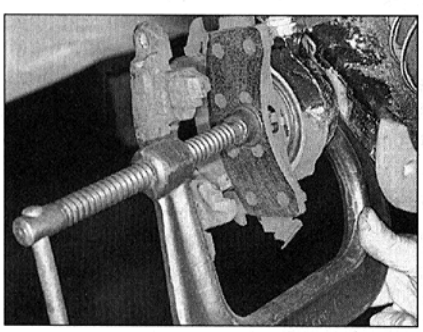
Modern front pad replacement is so simple, just about anyone can do it with just a few basic hand tools. But like any other automotive operation, there's the "shadetree" method, and there's the "correct method." After all, when it comes to pulling out all the stops, you can't afford any bad brakes. Here, Mike Doyle shows us some finer braking points as he refreshes the Syclone's brakes.

Sources

Mike Doyle Automotive
Dept. CC
9791 Foothill Blvd.
Cucamonga, CA 91730
909/989-7014

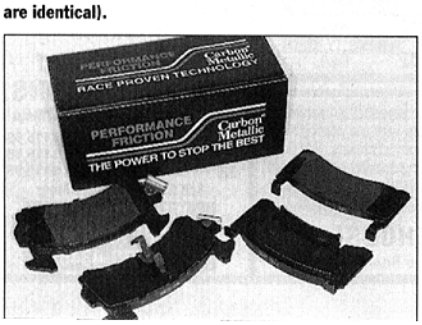
Performance Friction Corp.
Dept. CC
83 Carbon Metallic Hwy.
Clover, SC 29710
800/521-8874

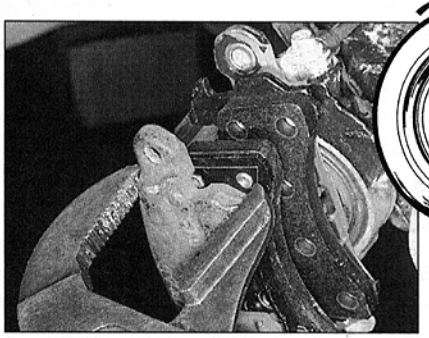
POINTS



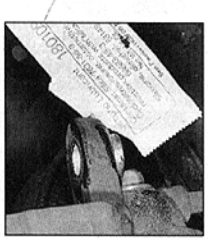
5 Use a C-clamp to fully collapse the piston and allow the new, thicker pads to fit over the rotor.

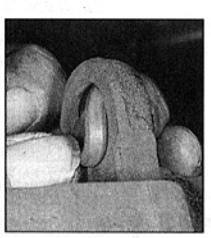
6 Performance Friction's carbon-metallic pads are equally at home on the street or at the track. That's good news for car crafters, whose nonmetallic street pads just don't seem to last as long ever since asbestos was phased out for health reasons. The Performance Friction pads come with new inner pad spring clips; usually, these items must be transferred from the old pad set. Note that the left and right inner pads aren't the same. When installed, the wear indicators must face outward and down (the outer pads are identical).



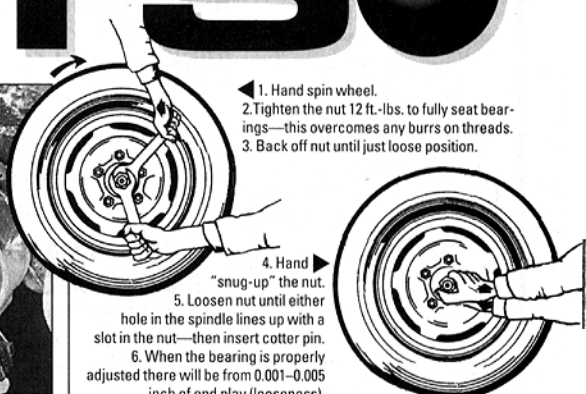


7 Compress the pad ears using large pliers. The pads must fit snugly on the caliper or they'll rattle and "clunk" in service. Apply silicone grease to the caliper spindle sliding surfaces.





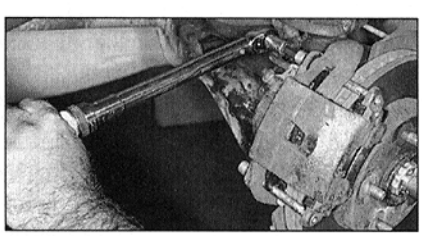
8 Correct operation of the single-piston floating caliper requires that the caliper be free to slide on its mounting bolts. You should install new O-ring sleeves and bushings in the caliper bolt holes, then lubricate them with silicone grease. GM includes new grease, sleeves, and bushings in its pad kits; on most other brands, you'll have to purchase these items separately. The caliper mounting bolts must be clean with no rust—replace them if damaged in any way.



◀ 1. Hand spin wheel.
2. Tighten the nut 12 ft.-lbs. to fully seat bearings—this overcomes any burrs on threads.
3. Back off nut until just loose position.

4. Hand ▶ "snug-up" the nut.
5. Loosen nut until either hole in the spindle lines up with a slot in the nut—then insert cotter pin.
6. When the bearing is properly adjusted there will be from 0.001–0.005 inch of end play (looseness).

9 Install the rotor on the hub or spindle. On most two-wheel-drive vehicles that use an integral hub and rotor assembly, rotor removal and replacement also requires repacking and adjusting the wheel bearings. This diagram illustrates GM's recommended adjustment procedure.



10 Install the caliper on the rotor, and the mounting bolts in the caliper. Torque them to 37 ft.-lbs. Install the wheel and tire. Before moving the vehicle, pump the brake pedal several times to make sure the pedal is firm; then check the fluid level in the master cylinder, adding fluid as required. CC