# Snapshots

When good old Dad first drove home in the new GLC, he sure was a proud fellow. He ran in the house, made the entire family stop what they were doing, and dragged them out front to admire his new pride and joy. The little Mazda was washed, polished, and then like a new member of the family, it posed for pictures to be placed with love in the family photo album.

Now 100,000 miles later, the payment booklet is nothing but receipt stubs, and the GLC is still called upon to do its daily chores—proof that regular maintenance does have its rewards. Should Dad keep the GLC for another hundred grand? What parts have failed along the way? What is likely to fail in the immediate future?

For the record, Dad has been grumbling of late about a distinct lack of power from an engine that was slightly underpowered to begin with. The brakes have developed a "thumpety thump" as he calls it, and the hand brakes seem to stick in the "on" position.

The GLC is also thirstier than it used to be, needing a refill of the coolant overflow jug on a weekly basis. There's a new oil leak where the distributor goes into the cylinder head, and a local technician suggested that the last time he removed the distributor cap at Dad's request, there was oil leaking inside the distributor as well. (Dad wants to know if the cap and rotor on Mazdas need lubrication.)

Let's look in the repair photo album for clues about original problems, the effects of time, wear and tear, and ways to sell Dad and other GLC owners on a few maintenance and repair items—items which will squeeze those extra miles out of any car that eventually gains one irresistible quality—it's finally paid for.

## Basic Fare

When the first front wheel drive GLC arrived with the 1981 model year, it was anything but fancy. No fads, no frills, no fancy stuff. Even our 1984 top of the line model falls somewhat short of the "caviar cruiser" category.

For the most part, the engine/transaxle combination was reliable. The original double row timing chain installed by the factory still spins the camshaft, and has clearly outlived most of the toothed rubber belts now fashionable. What the engine offered in durability it sometimes sacrificed to a certain lack of spirit, however. No breathtaking power here. And certainly not enough to tear up gears, clutches, or CV joints.

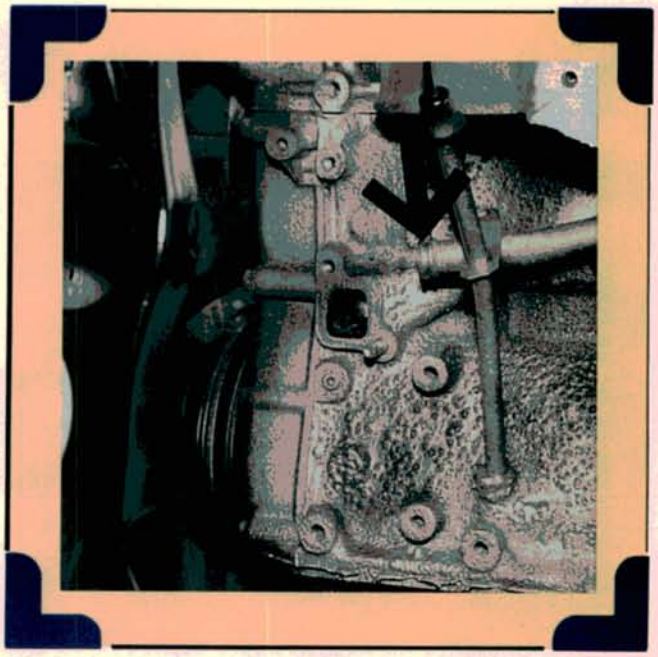
Unfortunately, this same lack of power sometimes turned small driveability problems into big customer complaints. The wrong mix of dirty fuel (or winter mix fuel on an unexpectedly hot spring day), a leaking EGR pintle, or a ruptured vacuum advance diaphragm, could leave the little "GLiCk" in a balky mood. And even though we'll include some general tips about general personality traits of the GLC, driveability concerns will be our major emphasis.

One quick note before we start. We'll show mixture adjustment procedures for the GLC's feedback carb in this article. But don't be too hasty when it comes to cranking on the MAS. Be sure to eliminate fixed duty problems caused by vacuum leaks, plugged air filter elements, defective altitude compensators, and in this specific case, an oxygen sensor imitating Rip van Winkle.

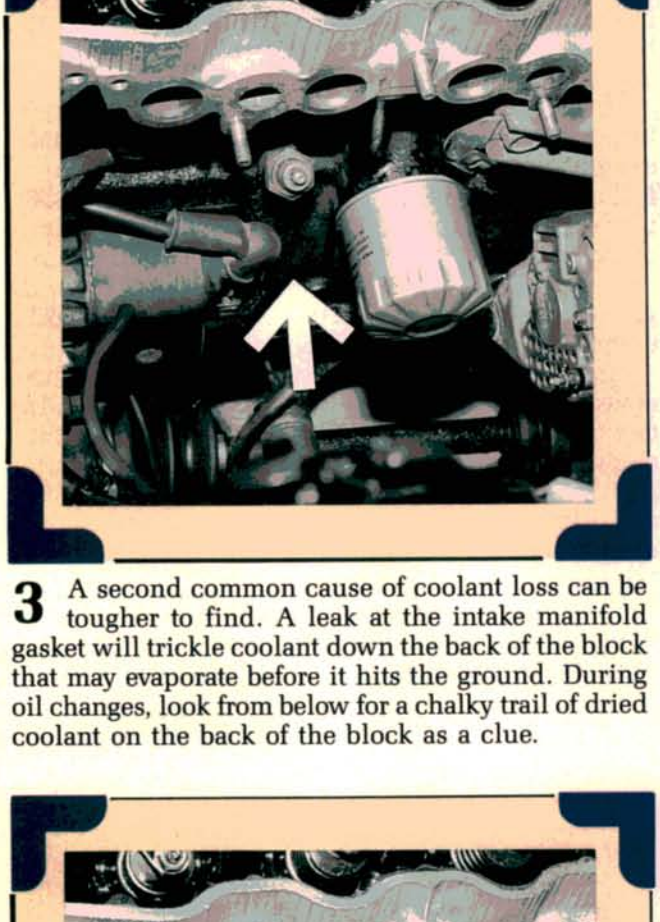
Look for more Snapshot articles in coming months as we look at other high mileage cars for clues about predictable repair areas.

**—By Ralph Birnbaum**

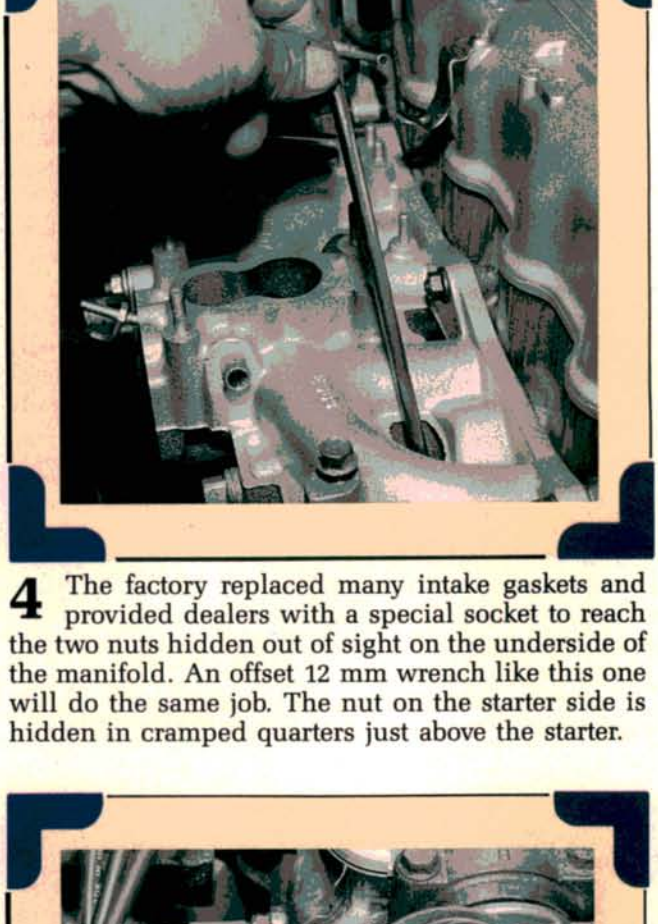
**1** Let's start with a tip on headlight replacement. To get at the inner headlight door screws, you'll need to remove the grille. Spread the clips holding the grille and pull on the grille to release each clip. If you remove the clips from the car and install them in the grille it will ease grille installation.



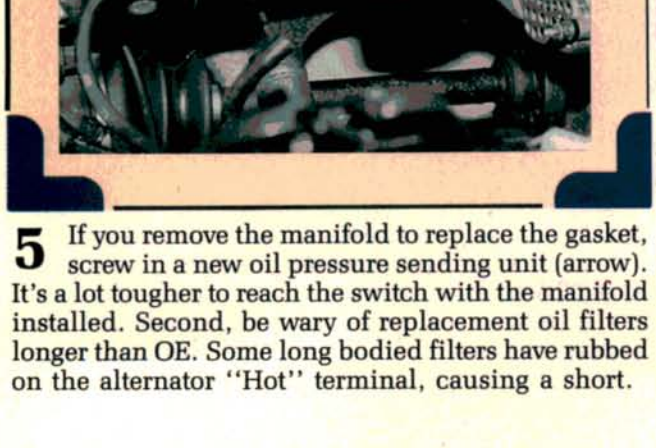
**2** What about the coolant leaks? There are two common causes for coolant loss on high mileage GLCs. The first is common to any car—the water pumps go bad. The pump bolts to the block and also connects to a steel water pipe that slides into a bore in the pump and seals with an o-ring. Always use a new ring (arrow).



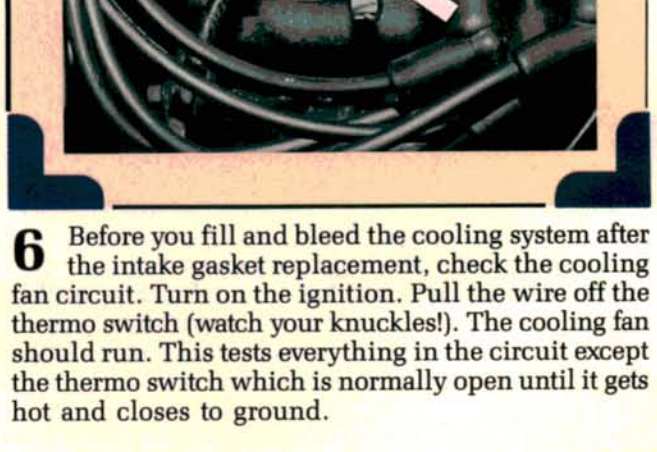
**3** A second common cause of coolant loss can be tougher to find. A leak at the intake manifold gasket will trickle coolant down the back of the block that may evaporate before it hits the ground. During oil changes, look from below for a chalky trail of dried coolant on the back of the block as a clue.



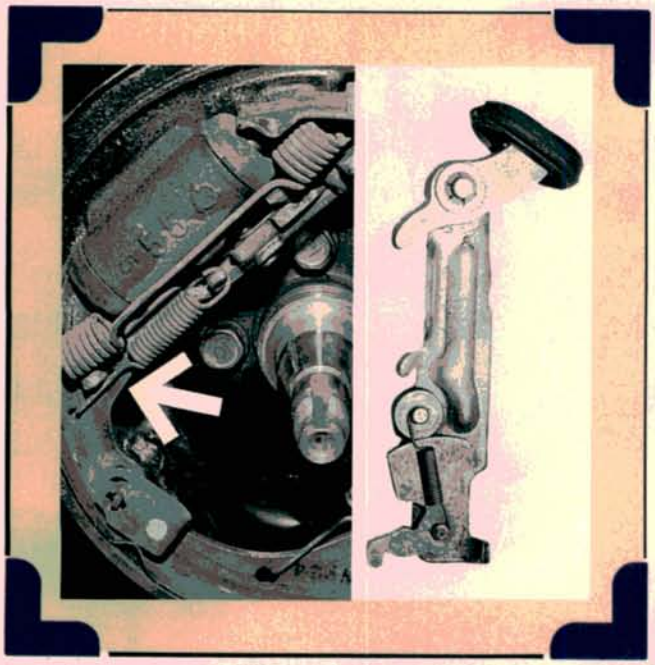
**4** The factory replaced many intake gaskets and provided dealers with a special socket to reach the two nuts hidden out of sight on the underside of the manifold. An offset 12 mm wrench like this one will do the same job. The nut on the starter side is hidden in cramped quarters just above the starter.



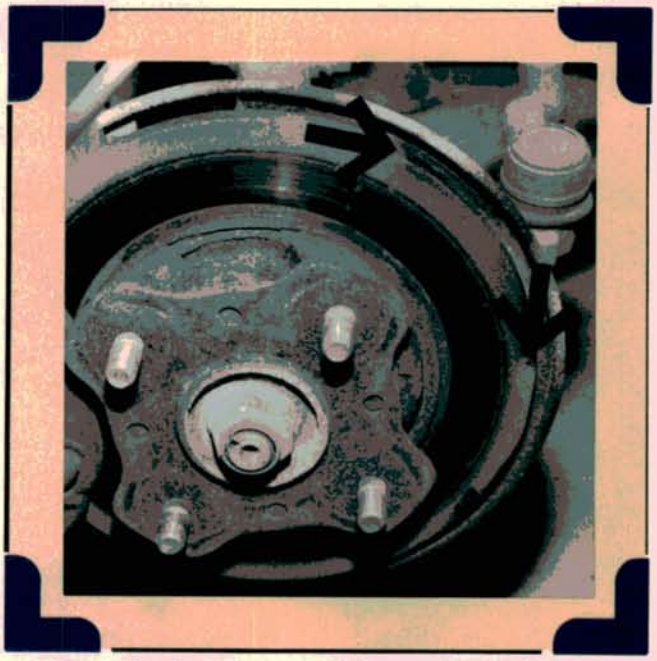
**5** If you remove the manifold to replace the gasket, screw in a new oil pressure sending unit (arrow). It's a lot tougher to reach the switch with the manifold installed. Second, be wary of replacement oil filters longer than OE. Some long bodied filters have rubbed on the alternator "Hot" terminal, causing a short.



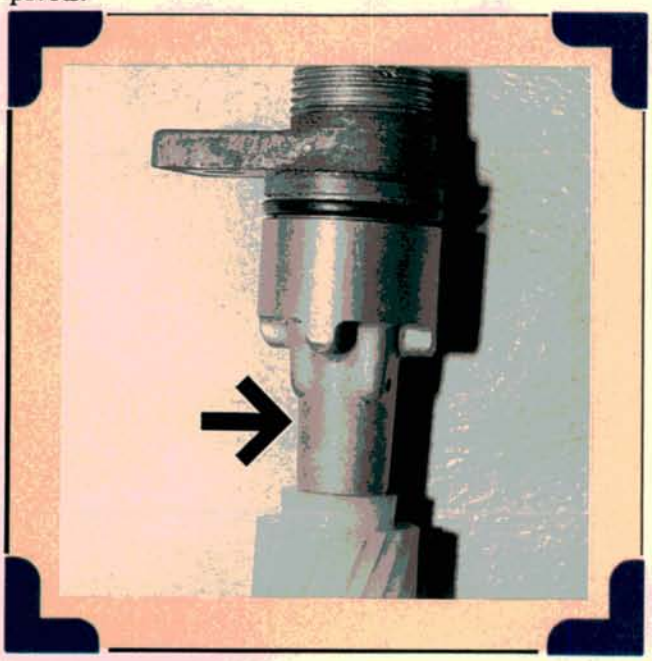
**6** Before you fill and bleed the cooling system after the intake gasket replacement, check the cooling fan circuit. Turn on the ignition. Pull the wire off the thermo switch (watch your knuckles!). The cooling fan should run. This tests everything in the circuit except the thermo switch which is normally open until it gets hot and closes to ground.



**7** A common problem in the snow belt has to do with sticking hand brake mechanisms. The rubber seals on the backing plates leak water. The pivots on the hand brake mechanisms rust and stick in the ON position even after the tension on the brake cable is released. Remove, clean, free, and lube the pivots.



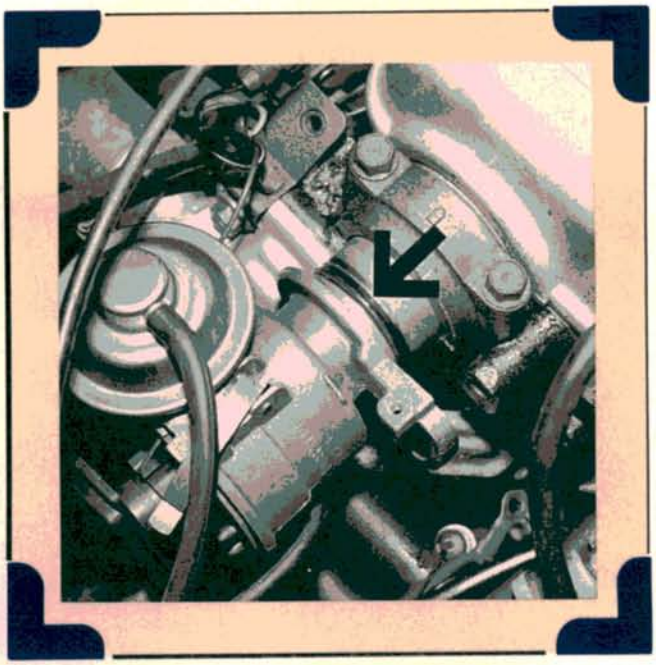
**8** Dad's brake pulsation comes from rotors corroded to the point when they've begun to flake and peel. These are captive rotors. Replacement requires removal of the drive hubs. For a detailed explanation of rotor replacement, see "Front Wheel Drive Split Bearing R&R" in the November 1988 *Import Service*.



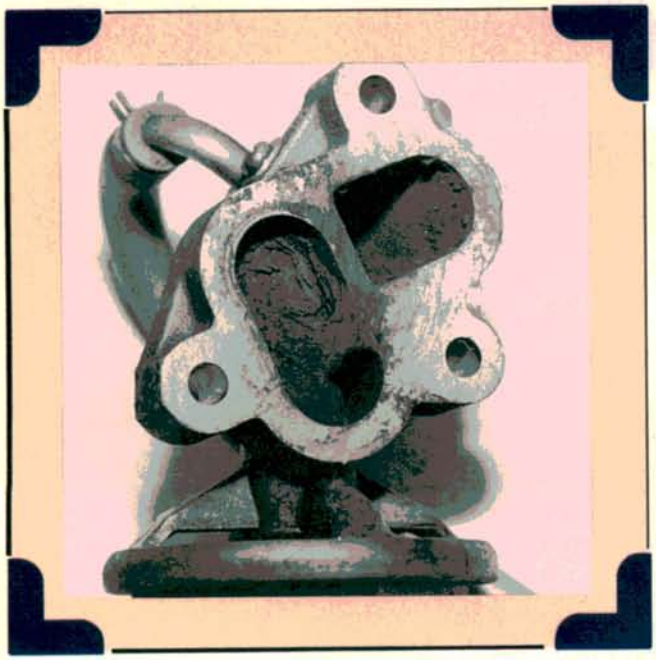
**9** Depending on the year of the car, don't be surprised to find either ATF or gear oil in the manual transaxle. The factory used either one or the other at one time. The speedometer driven gear is also the dipstick. When changing trans fluid, fill until the fluid sits at our arrow with the car sitting level.

**10** What about the oil in the distributor cap? The shaft seal in the distributor housing is replaceable, and since the distributor lays on its side, the seal is very important. We field strip the distributor, pry out the old seal, and use a deep well socket to drive in a new seal.

**11** Inside the distributor, we find two stray ball bearings, originally held in a plastic cage used as a pivot bearing for the advance plate. The old cage (arrow) was DOA. We'd normally replace the distributor for this, but found an identical part in a spare Honda distributor that worked just fine.

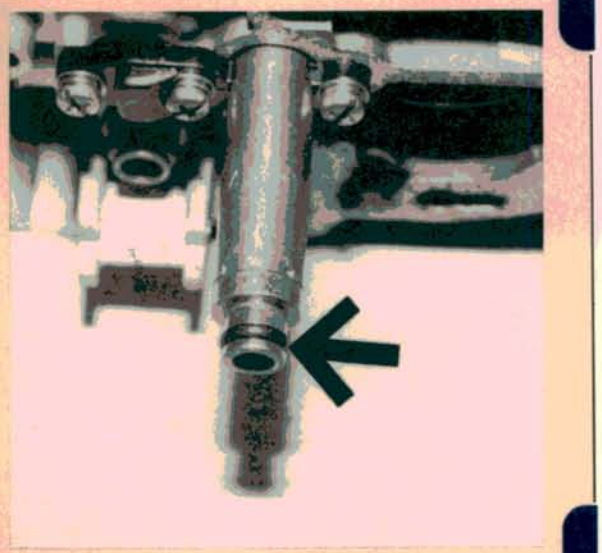


**12** A closer look at the advance mechanisms led us to part of the performance problem. The vacuum advance did not work at all (a fairly common failure), and the centrifugals needed to be "unstuck" and lubed. We also replaced the leaking, heat-hardened rubber o-ring between the distributor and cylinder head (arrow).

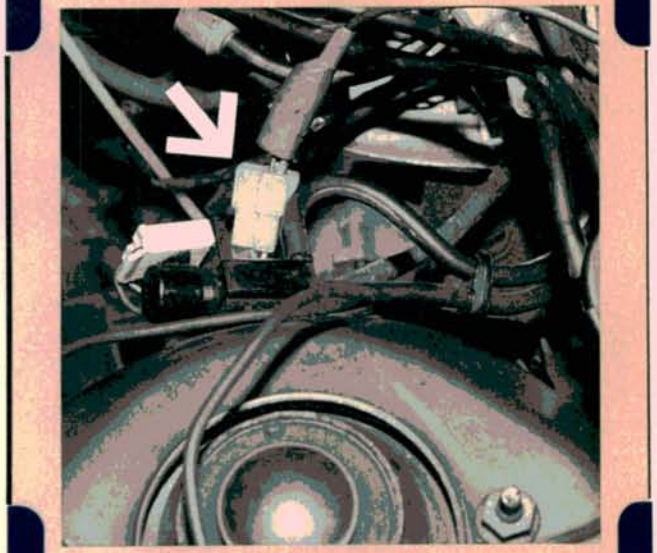


**13** Be careful about dousing a GLC's choke linkage with carb cleaner. The cleaner can wash down and loosen chunks of carbon at the EGR pintle. The EGR opens, a loosened chunk of carbon lodges in the opening, the valve sticks open, and the car stalls at idle. As you can see, the EGR valves are a catch all for carbon.

**14** On to the carburetor. The circuits in the GLC's feedback carb have a strong dislike for even the smallest pieces of dirt. We found that the original factory bowl cover gasket had deteriorated, with small pieces of cork partially covering several jets. We were surprised the carb worked as well as it did.

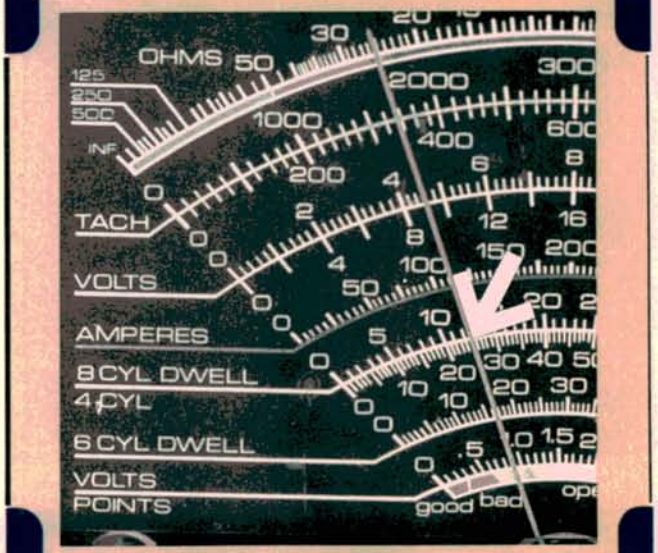


**15** When reinstalling the carb top, pay attention to the small o-ring on the air/fuel solenoid. Install a new ring (lightly lubed with engine oil) whenever you R&R the carb top. The o-ring sits in a machined cavity in the carb bowl, and more than one has been ripped during a hasty carb top installation.



**16** The remaining steps in our album show important adjustment steps for the fuel feedback carburetor system. This connector on the right strut tower is the duty signal test connector for the feedback system. Set your dwell meter to the four cylinder 90 degree scale and connect it to the yellow wire.

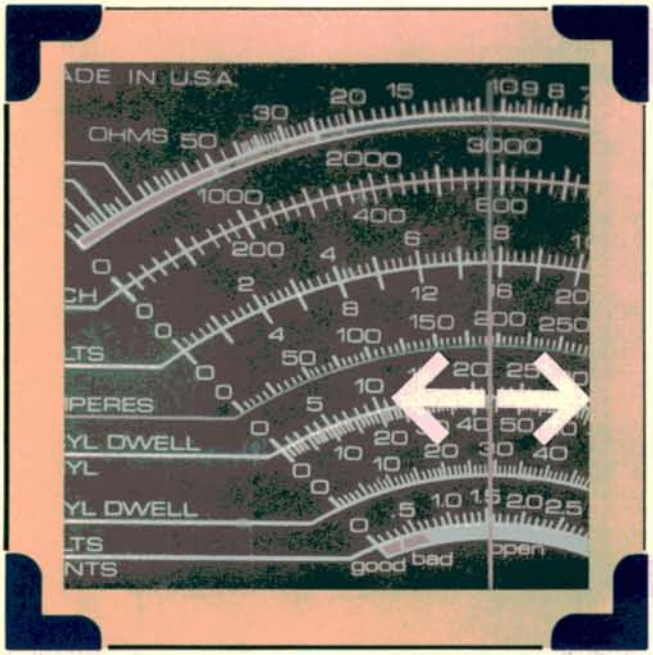
**17** Since we've just overhauled the carb, we'll need to readjust fuel mixture. The Mixture Adjustment Screw (MAS) on the backside of the carb is protected by an anti-tamper roll pin. Remove the EGR long enough to drive the pin down and out. (We removed the pin during the overhaul.) Fully warm the engine.




**18** We start with a fixed duty reading. This means the fuel mixture is too rich or too lean for the feedback system to control. During normal testing of the duty cycle, a fluctuating reading between 20 and 70 degrees is okay. But we'll shoot for a duty adjustment of 36 to 40 degrees for our adjustment.

**19** We can't get a stable duty reading. We double check all vacuum connections and check for oxygen sensor activity. Our oxygen sensor voltage has peaked out at less than 0.45 volt. A quick look at the $0_2$ sensor tells us the mixture is plenty rich. Looks like the $0_2$ sensor is asleep at the wheel.

**20** We disconnect the sensor. Then we fool the control unit by grabbing the sensor wire leading to the computer with one hand, and alternately touching the negative and positive terminals of the battery with the other hand. We watch the dwell meter and verify that we are able to drive the mixture rich and lean.




**21** With a new oxygen sensor installed, we verify that we now have a strong signal to the control unit. Voltage from the sensor now varies over a wider range, and the sensor responds much more quickly to mixture changes than the old sensor did. Now we are able to properly adjust the mixture using the MAS.

**22** Use this screw to set curb idle to underhood specs. If you needed to correct curb idle after MAS adjustment, double check the adjustment of the throttle switch (arrow). If you turned the MAS too far, the idle switch may be out of adjustment. You should be able to hear the switch click just off idle.