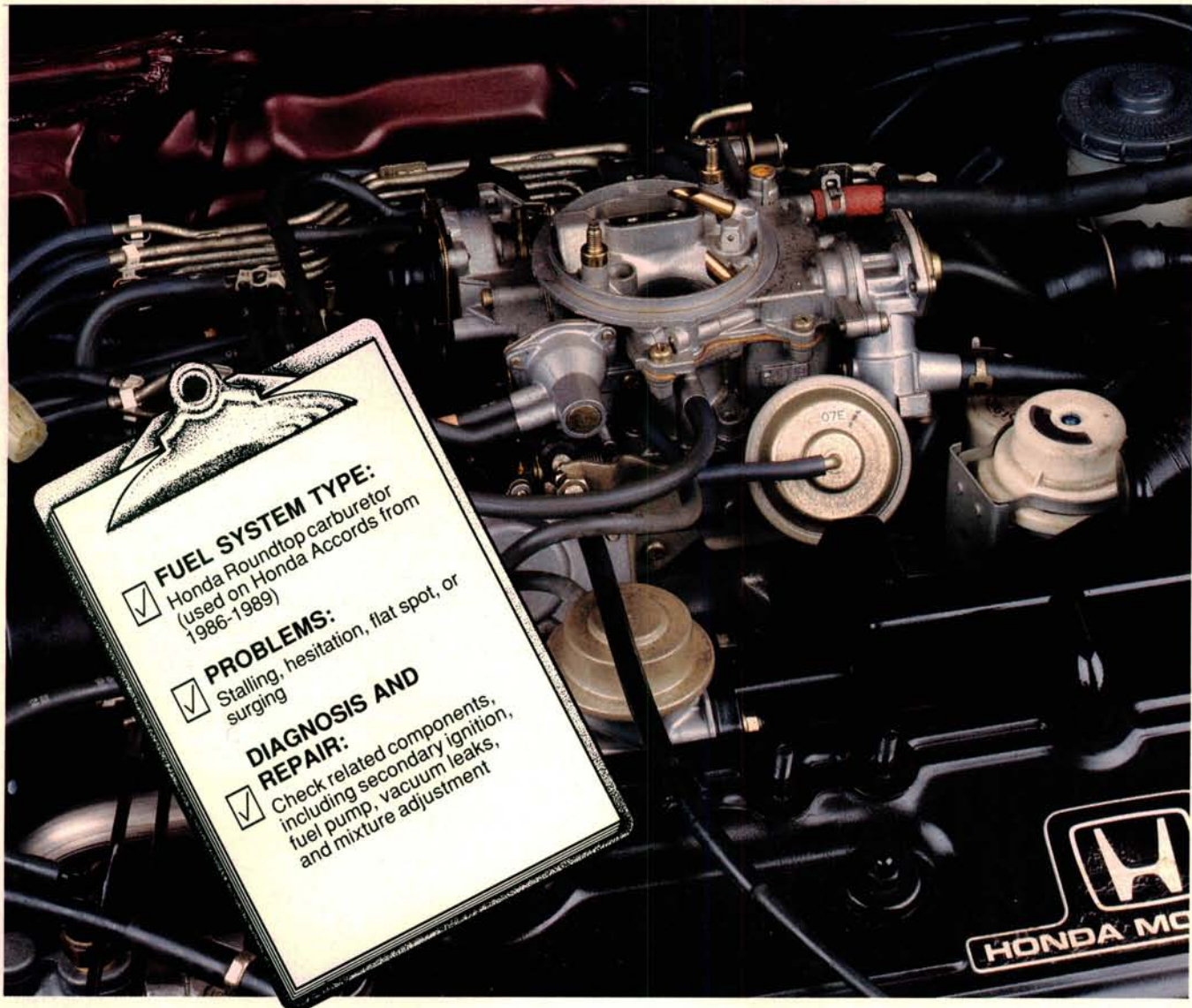


# DRIVEABILITY CLINIC



## Honda Roundtop

Honda stood by our old friend the carburetor longer than most auto manufacturers. And they sold a ton of cars in the process. So don't let the cells in your brain dedicated to carburetor repair turn to mush just yet.

The "roundtop" carb used on most 1986 through 1989 Accords is a very reliable carburetor according to the Honda techs we've talked to while preparing this article. But carburetors have long been victims of four things, and the roundtop is no exception.

Enemy Number One: Water in the fuel.

Enemy Number Two: Dirt in the fuel.

Enemy Number Three: A backyard mechanic with a long screwdriver.

Enemy Number Four: Water in the fuel, again.

Water can cause deterioration of the fuel pump, erode the inside of the carb body protective coating, and plug the idle circuits. It can screw things up, big time. In all fairness to this carb, the problems you encounter may not be of the roundtop's making.

Carb overhauls should be considered as a repair option only after you've eliminated several non-carb problems which can ruin engine performance. Pre-teardown tests should also include a dynamic propane enrichment test you can run to isolate a lean mixture while the engine is still running.

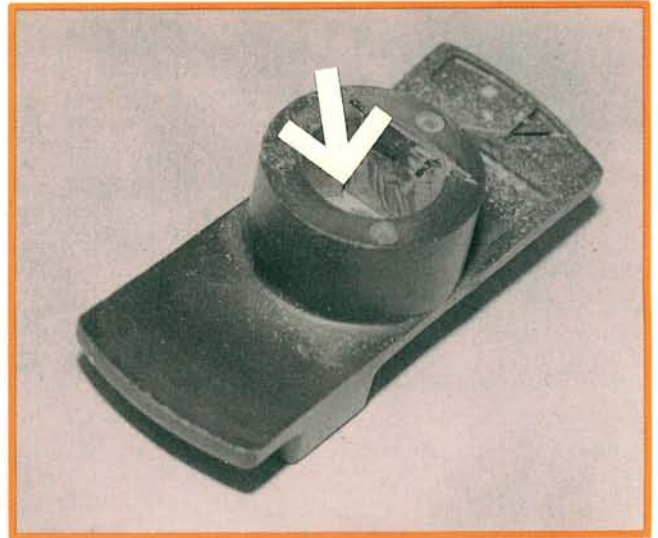
You'll note that we haven't removed the carb for cleaning. This may not be an On Car kit, but it's still an On Car job.



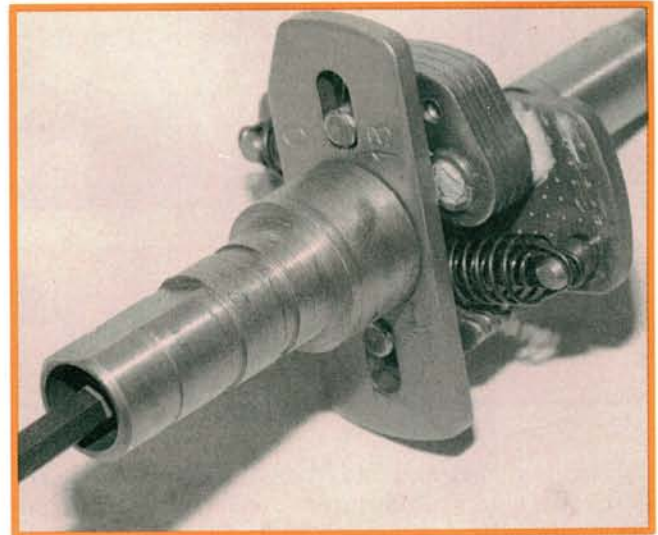
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**1** We don't know how many times we've mentioned the importance of preheated air to proper carb operation in cold weather, but from all accounts, it's still a problem. The relatively small diameter of the venturis in this carb means a high intake air velocity. That results in carb icing under certain high-humidity, low-temperature conditions. Always check the air intake door diaphragm. Also look for a damaged air bleed valve (usually accompanied by a missing protective cap) in the air cleaner (arrow). Damaged bleed valves seem to be the result of careless removal (or installation) of air filter elements.



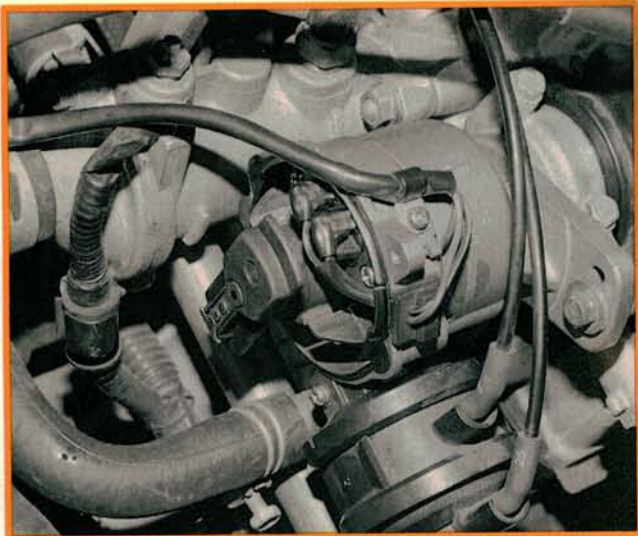
**2** Before you blame the carb for a tip-in hesitation or surge, make sure you have good secondary spark. This is very important. A weak spark can result in poor performance when it isn't hot enough to properly fire the roundtop's normally lean mixture. TEC rotors are still a common cause of no-starts when the center contact shorts to the distributor shaft. Be careful. A tiny short in the rotor can weaken the spark, even if the engine runs and doesn't have a dead miss. Look inside the rotor for a white spot caused by arcing at the rotor's tensioner spring clip.



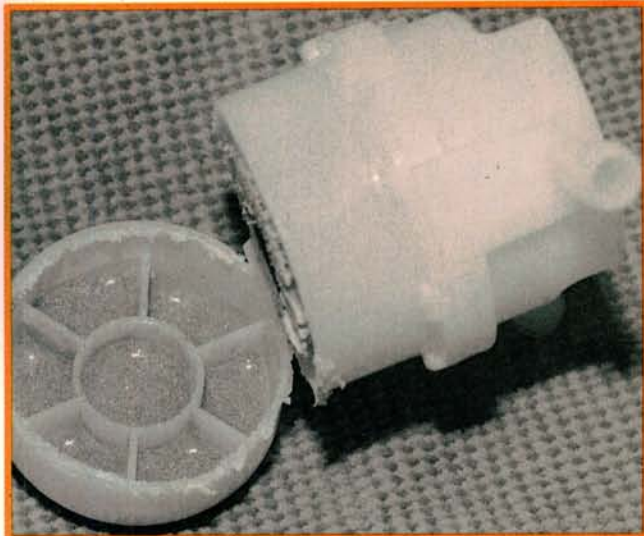
**3** Check the valve clearance, vacuum advance, and base timing. Also check for a stuck centrifugal advance mechanism. This problem may be most noticeable when the car is cold. Low temperatures make hardened grease in the centrifugals even stiffer. You'll start the car cold and have a noticeable lack of power during a test drive. As the engine warms, the grease may soften, allowing the advance mechanism to work again. By the time you return from your test drive, the symptoms are gone. Clean a suspect advance and lube it with fresh lithium grease.



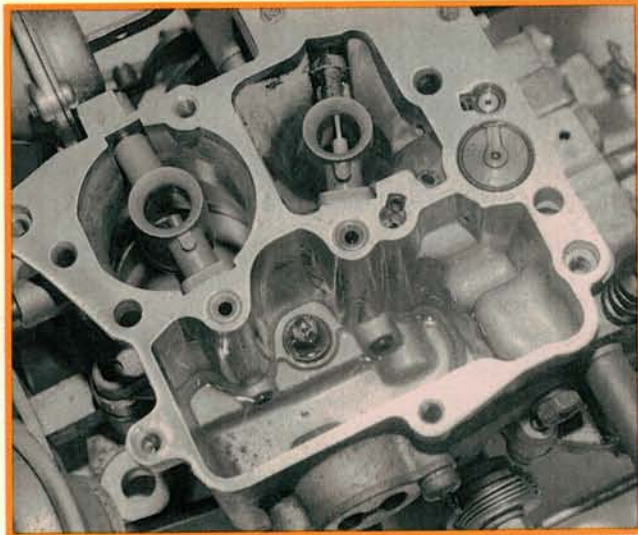
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**4** Next, eliminate any vacuum leaks. Then insert the end of a propane enrichment tool into the air cleaner snorkle and have a friend take you for a ride. Have the driver run the car in a range of operation where the stumble or hesitation occurs. When it happens, enrich the mixture with a shot of propane. If the problem goes away, suspect a lean mixture. But beware. If you skipped the secondary spark test, the enrichment test may fool you. It's true that propane enrichment will compensate for a lean fuel mixture. But the added enrichment also makes it easier for a weak spark to jump a spark plug gap.



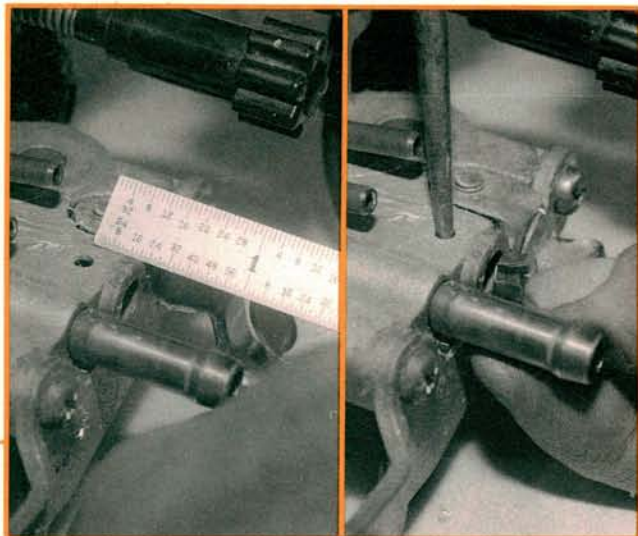
**5** If the car is still stalling, or acts like it's too lean, the carb may have a plugged idle circuit. One possible cause of a plugged idle circuit is a fuel pump that's self destructing. Check the contents of the main fuel filter. If the filter contains a grayish black sediment, the fuel pump is going bad. This sediment will eventually sneak past the filters and fill the carb with sediment, plugging the idle circuit. Replace the pump and both fuel filters before you get blamed for something that's not your fault. A failing pump may also warn you by causing intermittent stalling when the engine is cold.



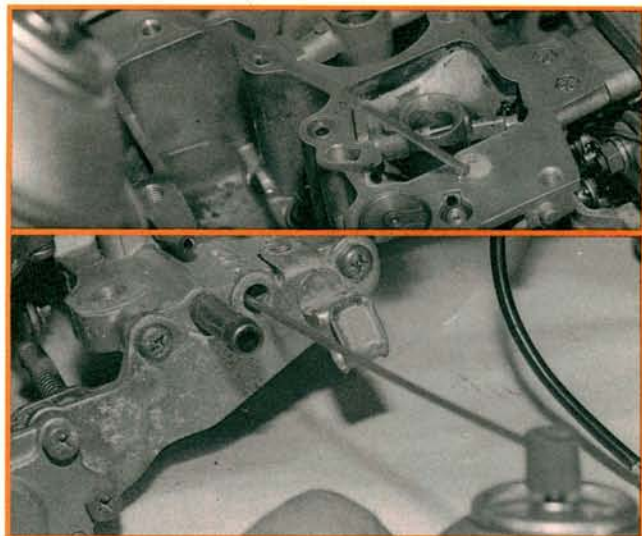
**6** Those of you who remove a carb, strip it to its skivvies, and drown it in a carb tank should abandon those habits when working on the Honda. A dip tank will destroy the throttle shaft bushings. Most Honda techs don't even remove the carb from the car. Instead, they pop the top and clean the bowl and affected circuits with spray carb cleaner and compressed air. If there's a lot of dirty water in the bowl, check for flaking of the protective coating in the float bowl. Electrolytic action may have "welded" the coating to the idle circuit passages. It may be impossible to clean out these deposits.



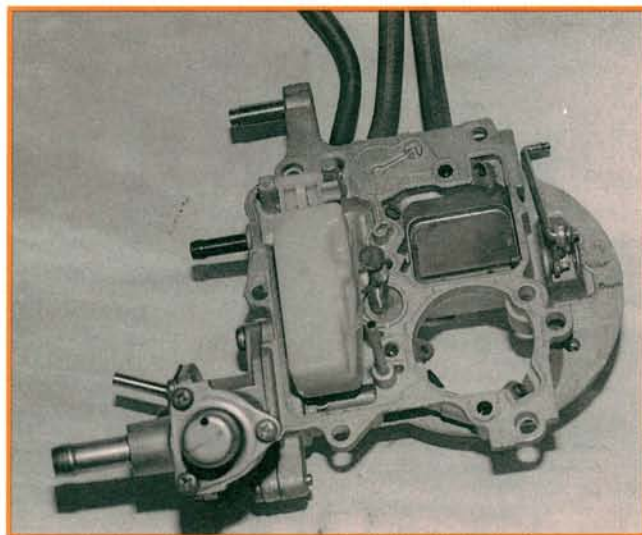
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**7** The Honda repair manual suggests removing the carb to get at the concealment plug for the idle mixture screw. Here's a faster way to do it. Take a tiny screwdriver and insert it into the bore for the mixture adjustment screw. Measure the depth to the concealment plug. Use a long shank  $\frac{1}{8}$  inch drill bit to drill a hole just behind the plug. Be careful not to damage the mixture adjustment screw! Then pop out the plug with a thin, curved punch. Count the number of turns to seat the screw before removing it. This will give you a reference starting point when you reinstall the screw.



**8** The way you flush the idle circuit is very important. As one Honda master tech told me, "You have to flush and backflush any plugged circuits." After removing the carb top and mixture adjustment screw (MAS), remove the primary slow fuel cut solenoid. Spray down through the idle circuit. Then spray back through the idle solenoid and MAS holes. Work back and forth with your spray can and compressed air several times to dislodge any debris. When you're sure the passages are open and squeaky clean, reinstall the mixture screw and primary slow fuel cut solenoid.



**9** Replace the carb top. When you reinstall the MAS, screw it in until it just bottoms (easy, not too tight). Back it off as many turns as it took to seat it before you removed it. This will get you close enough to start the engine and make your final adjustments. By the way, floats and needles-and-seats don't seem to cause a lot of problems. Honda techs said they seldom replace them. The OE manufacturer's carb "kit" doesn't even include them. Honda's idea of a carb kit is bag of replacement gaskets and seals.



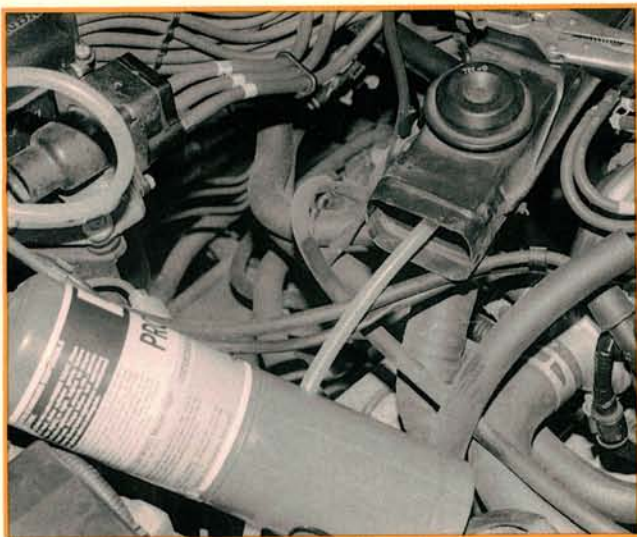
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**10** Final adjustments are critical. Honda recommends propane enrichment for adjustment of the MAS. Reinstall the air cleaner (lid and all). Fully warm the engine. Pinch the vacuum line to the air intake diaphragm. In the next step, we'll be introducing propane to richen the mixture, and we don't want the flap closed. Use the curb idle screw to adjust the base idle to 800 RPM (+/- 50). Make sure all heavy loads are OFF when you make the adjustment: headlights; A/C, rear window defroster, heater blower, and engine cooling fan.



**11** Double check to make sure the air intake door in the air cleaner is open. Insert the nozzle of your propane enrichment tool into the air intake snorkle about four inches. Push the button on the propane tool and gradually introduce propane. Not too much, or you'll stall the engine. The engine idle speed should increase unless the mixture is already too rich. Watch your tach and record the highest engine speed and compare it to the base idle. If the MAS is adjusted properly, the maximum increase in idle speed you can effect with enrichment is 50 RPM (+/- 20) RPM.



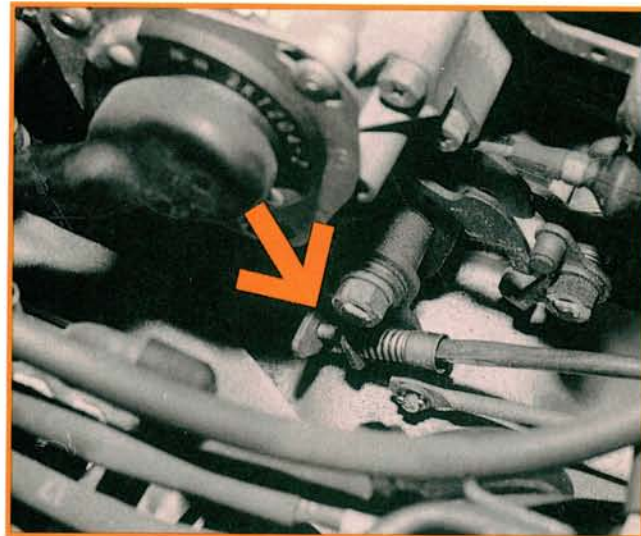
**12** When we stopped at the Snap-on distributor to borrow an enrichment tool, the branch manager said, "I didn't think anybody did that any more." Honda does. And the method is more accurate than a lean drop adjustment. Here's what's happening. Even a properly adjusted carb is "somewhat" lean to begin with. If you add propane, the enrichment should increase the idle speed, since the engine can burn the added fuel. If the mixture is already richer than recommended, the added enrichment causes a lower than normal increase in idle speed or no increase at all. Make MAS adjustments 1/4 turn at a time.



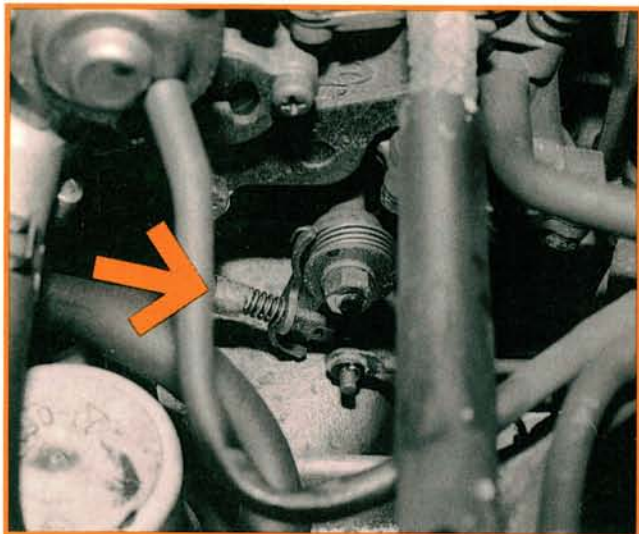
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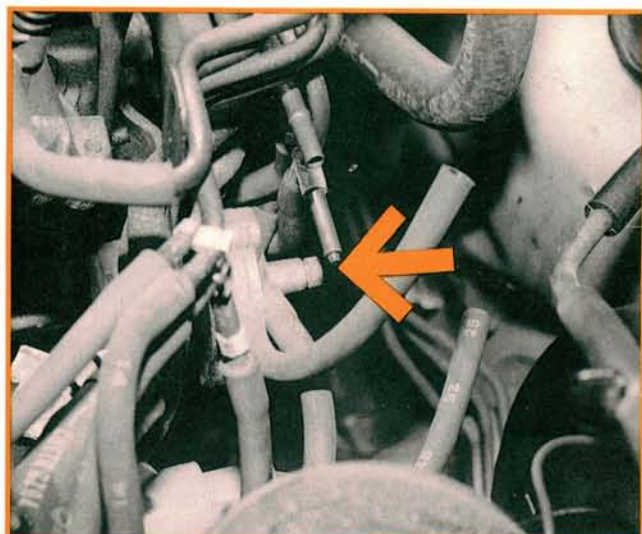
**13** The roundtop uses a seemingly complicated system of vacuum hoses and actuators to maintain a stable idle under different accessory loads. Final adjustments may seem complicated, but once you go through them, they aren't so bad. We'll show you how to set up an Accord roundtop carb with auto trans and A/C since it's the most complicated. Remember to perform the adjustments in the correct order or you'll have problems. Start by pinching off the vacuum supply hose between the intake manifold and Frequency Control Valve C. This valve controls vacuum to the Throttle Controller.



**14** The Throttle Controller is designed to keep the warm curb idle at about 730 RPM. With the vacuum source to the Throttle Controller pinched off, back off the adjusting screw in the Controller until the end of the adjusting screw is flush with the bracket. At this point, the Controller isn't affecting curb idle at all. Go back to the Base Idle screw one more time. Only this time, back it off until the curb idle is about 580 RPM (or less). Then use the screw in the Throttle Controller to adjust the curb idle to 700-750 RPM. Leave the vacuum source to the control solenoid pinched off for now.



**15** Chock the wheels. Have an assistant hold the brakes and drop the transmission in Drive with the engine idling. Go to the Idle Boost Controller (left side of the carb, toward the rear). On automatic cars with A/C the Boost Controller has a dual diaphragm and two adjusting screws. One is on the linkage, the other in the diaphragm. With the car still in gear, turn the screw on the Boost Controller linkage to raise the curb idle speed to 700-730 RPM. Use your judgment. Look for an idle speed in this general range that gives a good idle quality. Shift the car into Park. Turn on the air conditioner.



**16** The A/C idle speed adjustment screw is in the diaphragm cover (like the screw in an adjustable choke unloader). Adjust the idle with the A/C ON and the trans still in Park. Look for a good idle quality in the 700-750 RPM range. Go back and "unpinch" the vacuum lines to Control Valve C and the air intake diaphragm. Shift the car from Park to Drive. Turn on the A/C in both Park and Drive. No matter what combination of accessory loads are applied, the idle speed should stay in that 730-750 RPM range. Oh, and don't forget to slide the tamper-proof back over the MAS. For your own sake.