

Nissan VALVE ADJUSTMENT

It shouldn't be hard to convince your customers of the importance of including a valve adjustment with each tune up. Just point out its effect on fuel economy, emissions, performance and driveability. Nissan recommends that valve adjustments on the L28 engine used in the 280 ZX and Maxima be done at 15,000-mile or one-year intervals. Chances are the majority of cars you're working on have gone farther than that since their last valve adjustment!

When tuning an engine, don't assume that the valves are properly adjusted just because they aren't clattering. That rough idle that a new set of plugs didn't smooth may be caused by some too-tight valves. Check them to be sure!

You can use one of two methods to adjust the valves on the L28 engine. I'll explain both and tell you why I prefer one over the other. After that, the choice is yours.

Method One

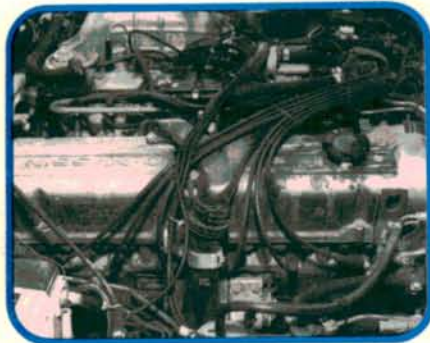
Starting with the very first valve at the front of the

engine, the valves are numbered 1 through 12. Turn the engine over until the first cam lobe on the first cylinder points straight up. Then adjust valves 3, 8, and 11 to .010 inch (.25 mm). Adjust valves 1, 7, and 9 to .012 inch (.30 mm). Turn the engine until the first cam lobe points straight down. Adjust valves 2, 5, and 10 to .010 inch (.25 mm) and valves 4, 6, and 12 to .012 inch (.30 mm).

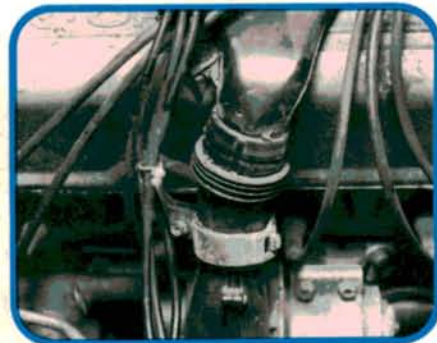
Method Two

Turn the engine with a remote starter switch to bring each lobe straight up—one at a time. Set intake valves to .010 inch (.25 mm) and exhausts to .012 inch (.30 mm). The intakes are easy to spot because they're directly opposite the injectors. This method may take a little longer but I prefer it because it seems to be a little more accurate. There is enough variation in the cam lobe base circles—especially in older engines—to throw off your adjustment. (The base circle is the smooth part of the cam opposite the tip of the cam lobe.)

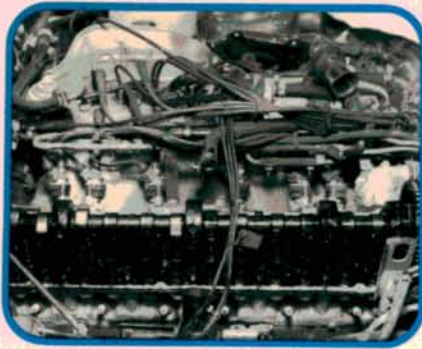
—By Lou Reichardt



Run the engine up to operating temperature before removing the valve cover. This engine seems to cool off very quickly. Valve clearance increases about .002 inch (.050 mm) from cold to warm. If the engine cools too much during your adjustment, the last valves that you do will be too loose.



The 280 ZX has an injector cooling fan. You'll have to remove its ducting as well as the plug wires and the breather hose. After that, it's a clear shot at the eight valve cover bolts. Set the cover aside and clean it later. Get to those valves while they're still warm.



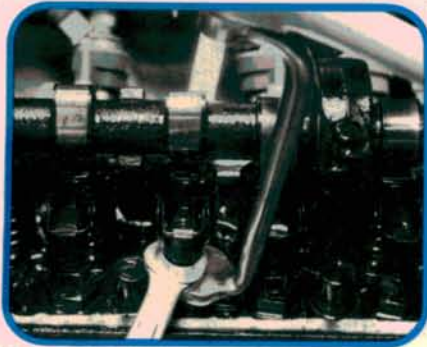
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The L28 uses cam followers with the lash adjusters all in a row on the right side of the engine. You can see the location of the injectors in this picture. The intake valves are directly opposite them. Now is also a good time to check timing chain and gear wear.



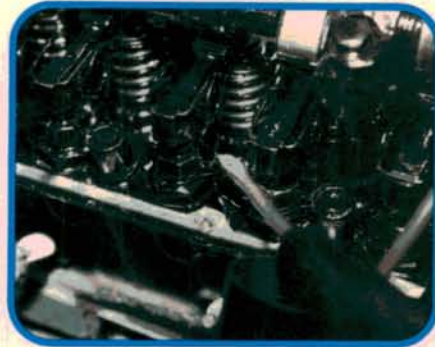
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A tool such as Kent-Moore's or Snap-on's (shown here) will get your ratchet up above the cam and keep your knuckles away from sharp aluminum edges. Tool also works on pre-1980 200 SXs and 510s with the L20B engine. If you don't have the tool, a 17 mm open end will do all but the number one exhaust.



5

Here's the adjustment method using the Snap-on tool. Once you loosen the locknut, turn the adjusting nut with an open end until you have your clearance. Hold the adjuster still while you tighten the locknut. Recheck your clearance because it always seems to change.



6

Make sure that you didn't knock off any of these spring clips during the valve adjustment. They hold the cam followers to the adjusters. Don't overtighten the locknuts—36-43 ft/lbs. is all they will take. I've had to use an impact to loosen some that Godzilla must have tightened.



7

The cam lobes of this engine have become galled from dirty engine oil. This wears metal off the lobes and increases the clearance. Lobe wear also reduces total valve lift. Uneven wear like this is why I prefer to adjust the valves individually with the lobe straight up.



8

Tighten the eight valve cover bolts evenly with a hand ratchet to 7-12 ft/lbs. That nice shiny valve cover will crack if it's overtightened. Reinstall the plug wires and injector fan ducting. Clean the starter solenoid terminal before reattaching the key switch-to-starter wire to it.