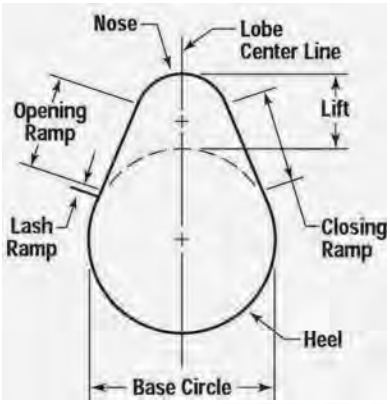
FROM THE BENCH CHRIS WICKERDHAM

Adjusting Valves

Does your engine talk to you every time you start up your Model A? Do you hear a constant Clack-Clack-Clack as you drive down the road? If so, it is possible that your valves need adjusting. A constant click-click-click noise that increases in frequency as the speed of the engine increases may indicate one or more of your valves are a little loose. Valve noise should not be confused with timing gear or cam noise. Timing gear or cam noise usually only occurs at idle or very low engine speeds and will often go away as engine speed increases.

Some published procedures for adjusting Model A valves call for the crankshaft to be rotated until #1 piston is at the top of its compression stroke and then 4 valves can be adjusted. The crankshaft is then rotated 1 full turn and the other 4 valves are adjusted. This procedure MAY work with an original Model A cam but MAY NOT work with most re-ground, Model B or aftermarket cams. The problem is the clearance between the valve stem and the lifter (tappet) must be checked when the lifter is on the heel of the cam and not close to the cam lobe. With the "4 valves at a time" procedure, some lifters are very close to the actual lobe of the cam and the quieting ramp (lash ramp) portion of the lobe may be partly under the lifter. Adjusting the clearance while the cam lobe is in this position will result in incorrect valve lash.

Before we go on, let us review some modern cam design terminology. The "CAM LOBE" is the raised part of the cam that the lifter rides on that causes the valve to open and close as the cam rotates. The "LIFTER", also known as the "CAM FOLLOWER" or "TAPPET", rides on the "CAM LOBE" and contacts the end of the valve stem. As the "CAM LOBE" rotates under the "LIFTER", the "LIFTER" moves up and down causing the valve to open and close. "VALVE CLEARANCE" or "LASH" is the space or clearance between the end of the valve stem and the top of the lifter when the valve is in the closed position.



Adjustable lifter

Valve "LASH" is necessary to insure that, when closed, the valve is tight on its seat and not held partly open by the "LIFTER". The "BASE CIRCLE" or "HEEL" of the cam is the round portion of the cam that is not part of the "LOBE". The "OPENING" and "CLOSING RAMPS" are the portions of the "LOBE" that raises and lowers the lifter.

The "NOSE" is that part of the lobe that transitions between the "OPENING" and "CLOSING RAMPS". Now, as the cam rotates, just before the "OPENING RAMP" there is a "LASH RAMP" or as some of us old timers refer to as the "QUIETING RAMP. This "LASH RAMP" is designed to slide under the lifter and take up the valve "LASH" or clearance just prior to the "LIFTER" contacting the "OPENING RAMP". Taking up the "LASH" prior to raising the lifter results in quiet operation of the valves and lessons the wear on the lobe itself.

It is important when adjusting valve "LASH" to be sure the "CAM LOBE" is NOT in a position near the "LIFTER" and "LIFTER" is truly on the "HEEL" of the cam.

When adjusting valves, the following is the accepted procedure to insure the lifter is truly on the heel of the cam and not close to a lobe.

Start with #1 cylinder

FIRST, Rotate the crankshaft in the normal direction as when the engine is running (clockwise when standing at the front of the car) until the #1 cylinder EXHAUST VALVE JUST STARTS TO OPEN (when the valve just begins to lift off its seat). With the cam in this position, ADJUST THE INTAKE VALVE for #1 cylinder.

SECOND, Rotate the crankshaft until the #1 cylinder INTAKE VALVE JUST CLOSES (when the valve just comes to rest on its seat). With the cam in this position, ADJUST THE EXHAUST VALVE for #1 cylinder.

Repeat this procedure for the other three cylinders.

When following this procedure**,** you will find the cam lobe for the valve being adjusted is almost pointing straight down and is not close to the lifter.

To summarize, "Exhaust opens- adjust Intake, Intake closes-adjust Exhaust".

If you are using new adjustable lifters, be sure there are no rough spots or burrs on the head of the adjusting screw where it contacts the end of the valve stem. A burr can lead to an incorrect lash measurement.

This procedure will help you be sure your valves will be nice and quiet and your Model A engine will not talk to you as you drive down the road.

Tech Tip

When assembling an engine, install the valves before installing the pistons. When adjusting the valves, it takes less effort to turn the crankshaft if the pistons are not in place. Before installing the valve springs, do an initial valve adjustment when the crankshaft is easier to turn. Just hold the valve down tightly with your thumb and measure the lash. After installing the springs, you should find the lash is correct or would only need a very slight