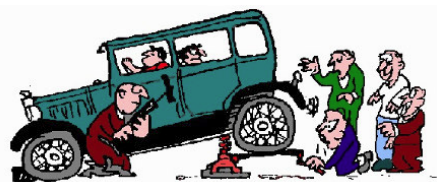




From the Garage -

by Paul Hunter



To adjust or not to adjust - that is the question

More Model A valves suffer from being burned due to inadequate clearance than from any other cause. As valves and valve seats wear, the clearance will be reduced. It is therefore wise to check clearance every 5,000 miles. The objective is to have sufficient valve to lifter clearance when the engine is cold so that some clearance remains after the engine and valves have reached their warmest operating temperature. The exhaust valve runs much hotter than the intake valve. Ford's initial recommendation for the Model A was .013"-.015" for all valves. In March 1928 this was reduced to .011"-.014". Customer complaints of valve noise undoubtedly contributed to these reductions. A clearance of .012"-.013" is okay for Model A steel valves. For stainless exhaust valves, you may want to go to .014" as the coefficient of expansion for the stainless steel is greater than steel. With .014" exhaust valve clearance, the valve noise will be somewhat more when the engine is cold, but will quiet down as the engine warms up. Talk with your cam grinder if you have a modified camshaft as he will make recommendations as to valve clearances. Most of our Model A engines have been rebuilt with adjustable lifters, so they are not hard to do.

Follow the procedure in Les Andrew's Model A Ford Mechanics Handbook, Vol. 1. See page 2-21. Les suggests that valves be set when the pistons are all at the halfway point in the cylinders (2 3/8" from the top). Since you can't see to measure that without removing the head, the best way to achieve that position is to: Remove the distributor cap (leave the body on). Crank the engine by hand until the leading edge of the rotor is half way between two contact points. Locate the two valves that are open by determining which lifters are the highest in their bosses. Check the book for which valves to adjust when those two valves are open. You will adjust only the two that are completely closed. When you have completed adjusting the first two valves, crank the engine by hand again until the rotor is halfway between two other contacts. It takes two complete revolutions for all valves to fully open and close, so be patient and be careful to adjust valves that are fully closed.

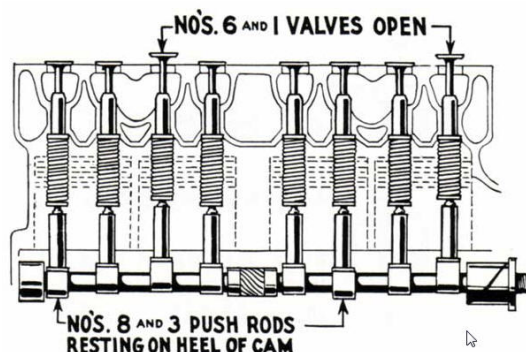


Fig. 685

Valves are numbered one through eight from front to back. For whichever valve tappet is on a cam lobe peak at a given instance, there is another valve tappet which is on its lobe's heel. By knowing the relationship between the valves, (**Rule Of Nine**), you can do two things at once and adjust and measure multiple valves in steady progression (if you keep track of things). This will greatly minimize the amount of cranking and adjusting necessary. The way the **Rule Of Nine** relationship works is like this: If for instance #6 valve is full open, then it can be adjusted with wrenches. Also at the same time the #3 valve tappet ("9" minus "6" equals "3") is on the heel of its cam lobe and its gap can be measured at the same time as #6 is being adjusted. Now crank a little more until a different valve is full up, and adjust it and/or measure the gap on the other valve tappet whose sum equals "9" (e.g. if #2 is full up,

then #7 can be measured, and #2 could also be adjusted if you know how much). Keep cranking until a different valve is up, and adjust it and measure the gap of the one whose sum equals "9". Adjustable self-locking valve tappets have a 24 pitch bolt, which means that one revolution of the bolt equals changing the gap 0.042 inch. Since the bolt head has six wrench faces, it is fairly easy to estimate rotating the bolt 1/6 of a revolution, or one face, or 0.007 inch. If your engine does not have adjustable valves, they should still be checked to ensure that they don't burn due to inadequate clearance. If any valves need adjustment, the head will have to be removed and the valve stem (s) ground to achieve proper clearance. This can be done on a valve grinding machine or with extreme care on a belt sander. If the clearance is too great, the valve seat can be ground or lapped to achieve proper clearance. Once done, you should have miles of quiet running.

I have just rebuilt my motor, installed modern valves and one piece valve guides and elected to use the single locking nut valve lifters. One wee word of warning re these lifters, ensure that they are all tight to adjust before fitting, we had one that was not tight (and did not have a spare on hand), so we thought with some Loctite that we might get away with it. Guess what, we readjusted them twice on the National Rally and once home, it was a partial (okay it was a little more than that) strip down to remove the camshaft just to replace one lifter. Modern technology has its place, but is caught us out on this occasion. The article is a combination of articles published in the Orange County MAFC and the Ford Garage - Paul Hunter