

More Miles Per Car in WINTER by Ray McNamara

BEWARE OF THE EASY METHOD OF ELIMINATING VALVE NOISE

There is nothing so important as correct clearance between valve tappet and valve stem for good all around motor performance. Frequently the car owner permits slight valve noises to get on his nerves, loses his patience, then drops into the first wayside hospital and asks the first man he meets to adjust his tappets, which in about nine cases out of ten is the wrong thing to do. It usually results in a quiet tappet for the time being, but causes a lot of other complications that end up with expensive repairs.

Owing to slight variations in cam designs, length of valves, and other conditions too technical for the average owner to understand, correct tappet clearance varies in different makes of cars. Therefore, it is always best to go to the direct representatives of manufacturer or to men specializing in service on your particular make of car when you think your valves need attention.

Frequently, the manufacturer specifies a different clearance on intake and exhaust valves in some cases the same clearance for both, but in either case it is absolutely necessary that their specifications be adhered to closely. Closer settings than specified with some cam design will result in the valves being partially open very early on the lift side and very late on the closing side. One condition affects carburetion materially, while the other causes a loss of power also burning and warping of exhaust valve.

Other complications resulting from setting the valves too close are plugs fouling, valves sticking in their guides, the scoring of tappet rollers and the flat face of mushroom type tappets, irregular firing of cylinders, bucking and back lash noises at low speed, rapid accumulation of carbon in combustion chamber, exhaust smoking and a lot of other conditions too numerous to mention; and in the end valves that are set too closely usually develop incurable noises as a result of scoring, requiring replacement.

The above symptoms are often diagnosed as ring and piston trouble, because the weak compression resulting causes combustion

chamber to become wet with oil as though the pistons were passing oil, and the irregular firing of motor causes knocks and slapping sounds that are often mistaken for loose pistons.

When these symptoms develop in your car, particularly new cars, and on older cars immediately after the valves have been tampered with, it is always best to have a good service man, one that specializes on your particular make of car, to check your valve settings, ignition timing, carburetor and choke adjustment, before allowing anyone to condemn your pistons as being too loose or your rings as worn out.

To show how easily an owner or even a dealer's service department can go wrong on this, I was called upon a few years ago by a big eastern dealer to examine five new model cars which he had just unloaded and declared the poorest running automobiles he had ever received. In this particular case, it happened that I had personally checked these five automobiles, they being the first of the new models to come through production. I was particularly anxious to observe the improvement over previous models, therefore, before cars had been shipped from the plant, I saw their motors pull 10 pounds more on the Dynamometer Test than the old model, throttle down two miles an hour slower than the old model in fact, I was quite enthused with their general all around goodness, so much so, that when this man's S. C. S. came to my desk, I was bound and determined to find out what was wrong with his organization, so I delegated myself to investigate the matter.

First of all, we tried each car out separately. They were just as bad as he had reported, no power, exhaust smoking, motors fired irregular and cars would not throttle below ten miles per hour without bucking and backlash noises. Somebody had thrown a monkey wrench in the machinery sure enough, but it did not take long to find out how it all came about. It happened that his service manager had just started a new system of inspecting and turning new cars before delivering them to customers. These five cars had gone through the hands of two new men who were

not familiar with correct tappet clearances and ignition timing specified by manufacturer. Because the valves appeared noisy when the motors were started, which is perfectly natural after standing idle two weeks in fresh air while in transit, they had set the valves up too close. This ruined the mixture and motors would not throttle down and in an effort to make them throttle they had adjusted ignition timing too late, naturally with these two conditions a correct carburetor adjustment could not be obtained.

However, after setting the above items in accordance with manufacturer's specifications, then allowing the motors to run at 1000 revolutions for three hours with a little surplus oil, these motors worked in nicely and made a wonderful demonstration. The dealer enthused so much over their performance, that he wired an order in for five more cars-loads. He also called a little friendly meeting that night for the benefit of his service organization and every man knew the manufacturer's timing standards before he went home, also was supplied with an extra instruction book where all of this information can be found. Always remember if the valve tappet is not quiet when set within the limits specified by maker something else is wrong, slightly noisy tappets as a rule do no harm. It is better to worry along for awhile for they come and go, sometimes for no reason whatever. At times valve noises are affected by low oil level in crankcase or by oil thinning out and again when car is out of service for several days due to oil film drying up or draining back to case. Consider all of these points before trusting the adjusting to strange mechanics.

Excessive Oil Consumption
On several occasions I have heard car owners complaining that their oil mileage was entirely too low. Analyzing some of these complaints a few were found justified, but in the majority of cases, to the contrary.

Opinions vary widely as to what is considered a fair average per gallon of oil, also fuel consumption varies widely in the different makes of cars, because some designers have made closer study of controlling the oil at the several critical points, where waste usually occurs, but even then, there is danger of leakage, if workmanship and inspection is not 100 per cent, for a slight leak at a gasket joint or a screw loose is very liable to cause sufficient loss to cut your oil consumption in half.

Other conditions contributing to waste of oil are improper mixtures diluting the oil, improper

clearances between valves and stems, worn piston rings, oil passing through front or rear bearing, leaking head gaskets or oil line connections, and several other points, that will be covered in detail later.

Now, first of all, we must determine what is considered a fair average per gallon of oil. In doing this, we must take into consideration the kind of service a car is subjected to:

—Under average city running conditions or speeds up to 25 miles per hour in the writer's opinion, 800 miles per gallon is a safe standard for maximum economy. If the oil level in your motor registers full after this distance, motor should be drained and refilled with new oil.

The fact that oil level does not recede in 800 or 1000 miles is not always the sign of an oil tight motor. There is always a certain amount of crankcase dilution taking place (gasoline passing pistons.) In some cases a slight waste through leakage at some point or the amount motor actually consumed is offset by the amount of dilution occurring thus keeping the level up in crankcase, and it is not uncommon for the amount of dilution to exceed what is wasted through leakage and quantity of oil actually consumed in the running of motor. In this case, the level in crankcase would increase and your supposed to be, lubricant might consist of half gasoline and oil—

Tests to determine extent of dilution under various running conditions prove that as much as 1 gill of gasoline can pass the pistons into crankcase when mixture is not right during one start in cold weather. Road tests show that dilution can run as high as 45 per cent under the worse conditions—that is under city running conditions where a motor is stopped and started frequently after short runs, as in the case of a physician making his calls or salesmen calling on the trade.

The only way you can determine the quality of the oil in your crankcase after a period of several hundred miles, is to have an unbiased chemist analyze it. In a few cases, the oil might show a fair test, but in nine cases out of ten your motor will benefit by a fresh charge of oil.—Beware of false economy.

Under touring conditions 30 to 40 miles per hour, the oil is churned more violently by the higher motor speeds, and due to higher motor temperatures, the oil is thinned out more, therefore, the loss in vapor, through the crankcase vent would be greater and leakage may develop through other joints which would not show when the oil is more viscous at lower temperatures. Further more, oil is burned up so it would be unreasonable to expect the same economy under all running conditions.

If you have been accustomed to city running with your car, particular attention should be given to crankcase oil on your first day out when touring or until you have formed an acquaintance with its characteristics at higher speeds.

Oil performance is liable to vary greatly at high speeds even in a given make of car, frequently motor bearings are burnt out or excessive wear develops which cannot be perceived at the moment, through owners expecting the same economy of oil at high speeds.

In order to avoid the above dangers, always start with full crankcase and examine your oil level after the first 100 miles. This will give you a line on what to expect in the way of economy, after which always look at your oil level when filling with gasoline. This latter precaution obviates the danger of running out of oil due to slow leaks which are liable to develop through a screw or oil line connection jarring loose.

Unless some special device is attached to a motor for distilling or clarifying the cylinder oil, crankcase should be drained, if oil level remains constant after 500 miles of driving. However, if level goes down sufficiently after 150 miles to take a quart of fresh oil, crankcase need only be drained every 1500 miles. Do not wait for level to go down one-half or three-quarters before adding fresh oil.

Some authorities may differ 200 miles on the above figures, and enthusiastic salesmen frequently sell cars on the strength of its ability to go 1000 or 2000 miles on a gallon of oil. However, if you could personally see the analysis report on oil used 500 to 1000 miles, common sense would prompt you to never try for more than 1000 miles per gallon under normal city running conditions.

Another point to remember in connection with standard passenger cars is, never run for any great length of time at sustained maximum speeds as when racing. Passenger cars are not designed to do this, ordinarily bearings, piston and rings require different fits to allow for expansion and more lubrication, and as a rule when a manufacturer enters his product as standard stock in a contest requiring wide open throttle, it MAY be stock so far as parts are concerned, but he always finds it necessary to alter clearances, hop the oil pressures, or add an auxiliary oil system.

Since 500 miles is considered a good average for city running and 600 miles for running at speeds

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30 to 40 miles per hour we will deal in the next article with conditions (leaks, etc.) that are liable to account for excessive oil consumption.

For Owners Scrapbook
Last Week—Proper Use of Carburetor Choke Important to Motor Performance.
Next Week—

Report But Don't Threaten Official, Says German Law

BERLIN, Dec. 2.—(By mail.)—When a German has fault to find with the service rendered him by some public official, he must be very careful about threatening to report the delinquent official to higher officials. That constitutes threatening an official and is punishable under the German law. It ranks with bribery, or attempted bribery.

A disgruntled Berliner who did not like the way a post official carried out his work threatened to make a report to the control if the methods were not changed. This was reported by the official who objected to the action of the patron. The lower court held the patron had violated the law and the supreme court of Germany has sustained the decision.

The court explained to the convicted man that he has the right to make any report he desires to the head of a department whose service displeases him. He may also report to the reichstag. But he must not tell the employe with whom he has trouble that he will make such reports unless the service is changed.

Theological Students To Convene in Indiana

INDIANAPOLIS, Dec. 22.—Students from approximately one thousand theological seminaries and colleges throughout the United States and Canada will be here this month-end for the biennial convention of the Student Volunteer movement. The meetings will begin Dec. 28, and continue daily until Jan. 1. Arrangements have been made to care for more than 6,000 visitors, it was stated, among them several hundred colored students.

ELECTRICITY GIVEN FREE

IDITAROD, Alaska, Nov. 24.—(By Mail)—This town, in the heart of a gold placer district, finds it unnecessary this year to make a tax levy.

STAR CAR GETS GREAT RECEPTION

100-Mile Test; Non Wheel Stop; Non-Motor Stop Proves Success

(By The Associated Press)
Receptions, such like a conquering hero would be accorded were, extended in more than 20 cities and towns along the Pacific Highway to the Star Car which made a remarkable gasoline, non motor and non wheel stop run when the husky little touring model made its return journey last week to Seattle.

Newspaper clippings from cities along the way which were sent to Sales Manager Forrest Arnold of the Star Motor Co., of California gave detailed accounts of the warmth attending the welcome.

Some communities which met the car and its drivers outside the municipal limits and formed a parade which toured the main business streets.

From the moment the car was placed on public exhibition and until it was ready to start on its way again, large crowds assembled around it in the different Star car salesrooms and plied the two drivers, Rawlings and Amshary with all kinds of questions regarding the performance it made.

The appealing feature to inquisitive motorists was the fact that the car was not alone strictly stock model but also had already received considerable service before it was sent on its 1001 mile test.

One newspaper writer said the run was the most meritorious ever made.

When Seattle was reached greeting awaiting the automobile was directed by Dulmage Motor Co., officials who headed a large sized reception committee which piloted the car through the center of Seattle and gave the citizens of that city a chance to hear the still sweet running motor.

WILLYS KNIGHT

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DeLuxe \$1550 fob Toledo

The National Favorite

Having grown weary of folding seats and seat-climbing, the public has literally flocked to the Willys-Knight Coupe-Sedan! This fine car has doors front and rear. You enter and leave without awkward contortions. And it has the wonderful Willys-Knight sleeve-valve engine—same type as Panhard, Daimler, and others of Europe's finest cars. See it! Try it!

VICK BROTHERS

High Street at Trade

THE DAY OF THE KNIGHT IS HERE