

Expert Advice For the Automobile Owner

Queries and Replies Covering Matters of Importance to the Man Who Runs a Car

When I throttle down the motor of my car for two or three minutes and then open the throttle the motor seems to choke and sometimes will stop altogether. Can you tell me the trouble?

Your trouble is in the carburetor. We suggest your trying a new auxiliary air valve spring. Also inspect the float and float valve and note if they work freely and properly.

What is the proper way to align the wheels of an automobile?

The proper method to align the wheels of an automobile is as follows: At the same distance above the ground as the center of the hub, the measurement is taken across the width of the spread of the two front wheels from the inner side of the rims of each. When this measurement has been carefully checked the wheels are rotated to different positions and measurements taken at the same height. They should always be the same. When the wheels have been found to be true, as far as this measurement is concerned, similar measurements are made at the rear of the wheel. The distance across the wheels at the rear will be slightly larger than in front on account of the toe-in generally allowed. This amounts to one-fourth inch as a rule.

What valve timing should one use on a two cylinder opposed motor with a bore of four and one-fourth and a stroke of four and one-half inches?

Since the valve timing which will give ideal results for any given motor is a variable quantity and depends largely upon such details as manifold design, the only thing which can be done is to give you an approximate timing from which you can vary in one direction or the other until you attain the best results.

If the cams are already made and in the motor, you can only place them so that the valve openings will correspond with those given and allow the closing to take care of itself. A fairly average timing which should give good results is as follows: Intake valve opens ten degrees after upper dead center, and closes thirty-five degrees past lower dead center. The exhaust valve opens forty degrees before lower dead center and closes five degrees past upper dead center.

One of the electric headlights on my car throws a smaller radius of light than the other, the lamps being of the same candle power, and one seems as bright as the other. Why the difference?

It is probable that one of your lamps is out of focus. If you will examine your lamp you will note that the bulb can be moved forward and backward in relation to the reflector. This adjustment should be made until the ray of light thrown out by the lamp is equal to the others. In order to first ascertain, however, that it is the focal adjustment which is incorrect it would be a good idea to take the bulbs out of the lamps and interchange them. Then if the same light gives the greatest illumination and the reflectors are both clean it will certainly be a matter of adjusting the focus.

What is meant by spark advance and spark retard? Does advancing the spark mean to increase its volume?

Advancing and retarding does not affect the volume of the spark, but rather the time it takes place in the cylinder in relation to the piston position. If the spark occurs when the piston is past dead center it is then termed retarded. If before dead center then it is advanced.

When cranking a motor very slowly the spark must be retarded; otherwise an explosion may take place in the cylinder before the piston has reached top center and reverse. This reversing is termed a kick and will often break the arm. The amount of advance to give the spark when driving depends upon the speed of the motor. If the motor is pulling hard and turning over slowly then the spark cannot be so far advanced. If turning freely and fast then the full advance is advisable.

I have a 1910 car, which has magneto only for the ignition system. I find it difficult to start the motor. Last year I had no trouble. Will you please explain the cause of this?

When starting on magneto the spark lever should be advanced. If this was done and your engine does not start easily then clean and readjust the platinum points on the circuit breaker. Since you have a 1910 car and have doubtless used it considerably we would advise your having the magnets remagnetized.

I had the motor in my car overhauled recently, and since that time it runs well at a slow rate of speed, but when I go faster than twenty miles an hour it misses. I have four coils with buzzers; no magnets. What do you think is wrong?

If you are sure that the carburetor is adjusted properly, re-light speed we would suggest that you check out the timing so that the valve will make a clean contact with the segments of contact pieces. If they are rather dirty the roller on the end of the timing shaft would not make a good electrical connection with them when going very fast.

I am overhauling my car, which has been driven about 20,000 miles and is in very good condition, except that it does not seem to have the power which it had a few months ago. In cranking the motor I notice that the compression is not as strong. I am under the impression that I should install new piston rings. However, I do not wish to do this unless it is absolutely necessary. The rings seem to be in first class condition. Some advise me one way, others another. What is your opinion?

It is customary to overhaul a motor which has been run for any great length of time to renew the piston rings. These rings, not under strict tension and are subject to considerable wear. They are not expensive and if properly fitted will considerably increase the power of the motor. With a loss of compression you can hardly expect to obtain the full benefit from your motor. The old rings, no doubt, are the cause of this loss of power, and accordingly should be replaced.

It has been suggested that instead of using alcohol or other anti-freezing solutions in the radiator that I drain the water entirely out and put in kerosene. Would this provide effective cooling on moderately warm winter days, and would any other harm be done than the action on the rubber hose?

This is not advised. Of course it would not freeze and would cool the motor, although pure kerosene is much more volatile than water, and it would evaporate rapidly with an accompanying evil smell. Furthermore, a leaky hose line is no place for such a readily ignited fluid as kerosene. In any event kerosene would soon set the rubber lining because of its deleterious action.

Will you please give me all the information you can on soldering aluminum?

Aluminum is soldered by the use of a blow torch. A solder which may be used without flux is composed of seventy-five and five-tenths parts of tin, eighteen parts of zinc and two and five-tenths parts of aluminum. The parts should be slightly heated before applying. The solder should be forced in place by means of a stiff metal brush. Another solder which requires a flux, however, is made up of 80 per cent tin and 20 per cent zinc, stearic acid being used as a flux.

The objection to soldering aluminum is that the joints are not very strong.

Is there anything that may be used to brighten up the glass or mica used for windows in cars or motorcars? Mine are getting yellow and are somewhat scratched.

Use a solution of vinegar and water. Be sure, however, that the solution does not get on to the curtain material other than the mica. Of course this will not take the scratches out of the mica, but it will restore it to its original color.

How does one fit rabbit bearings on crank shaft and connecting rods, either when putting in new ones or when taking up slack in old ones?

If only slightly worn, bearings may be adjusted by removing shims or by filing the bearing caps. If the bearings are scored or worn out of round or if new bearings are put in, the surfaces must be scraped.

If the bearing surfaces are in good condition and not worn out of shape a slight adjustment should be sufficient to make them tight. There are usually several shims under the bearing cap, and by removing these one by one the looseness will disappear. Remove only enough shims to make the bearing a snug but not a tight fit. When shims are not used the lost motion may be removed by planing the bearing cap in a vise and filing down the surface. In case too much material is removed a copper or paper shim or shims should be inserted to make the cap fit. In filing, the flat surface of the bearing cap should be preserved, the file not only being held flat against the surface, but the movement of the tool being carefully executed.

If the gearing is scored, new or worn out of round it will need scraping. This should be done by an experienced man. Connecting rod bearings may be scraped without tearing down the motor, but if the main bearings require scraping the motor must be disassembled and the crank case placed upside down with the crank shaft and flywheel still in position. The main bearing caps are removed, and the crank shaft bearing surfaces are planed with a solution of prussian blue. After rotating the crank shaft a few times and removing it the high spots of the bearings will be coated with the blue. These spots are carefully removed with a special scraping tool, care being taken not to cut too deep. Then the crank shaft is reassembled and the operation repeated until the few large high spots have given place to more evenly distributed small ones, showing that the bearing surfaces contact at practically every point.

How often should a storage battery be cleaned and refilled with liquid?

A storage battery should be tested and filled with pure water without fail once every week in summer and every two weeks in winter.

A CHANCE FOR AN OREGON BOY TO BECOME NAVAL OFFICER

An unexpected vacancy for a midshipman from Eastern Oregon in the U. S. Naval Academy at Annapolis has been created by the recent order of the President directing that the midshipmen of the class of 1918 be graduated in September 1917.

Congressman Nick Sinnott has decided to make designation of principal and three alternates for this vacancy on basis of a competitive examination to be held simultaneously on May 8th in the following cities:

Klamath Falls, Ontario, Baker, Pendleton, Lakeview, Bend, La Grande, The Dalles.

The examination will be held under charge of the U. S. Civil Service Commission. Every boy eligible to take same and desiring to do so should report to the secretary of the local civil service board of examiners at the postoffice in one of the above cities at 9 o'clock a. m., May eighth; and if possible notify Congressman Sinnott at Washington that he intends to enter the competition.

Any young man is eligible to enter the competition who is now an actual bona fide resident of the Second Congressional District of Oregon, and citizen of the United States, provided that on June 27, 1917, the date of the official entrance examination he shall be between the ages of 16 and 20 years.

The examination will consist of the subjects of algebra, geometry, and grammar, for which three hours are allowed, and, after an intermission of one hour, geography, United States history, and arithmetic, for which three hours are allowed.

Prospective contestants can get information concerning the Naval Academy and sample questions by writing to Congressman N. J. Sinnott, Room 242, House of Representatives, Washington, D. C.

PROPOSED SALE OF IMPROVEMENT BONDS.

Notice is hereby given that sealed proposals for the purchase of the municipal bonds hereinafter described will be received at the office of the Warm Springs Irrigation District at Vale, Oregon, till 3 p. m. of Tuesday the 15th day of May 1917, to-wit:

SEVEN HUNDRED AND FIFTY THOUSAND DOLLARS in Gold Bonds, of Series No. 1, Issue No. 1, of the denomination of One Thousand Dollars each, numbered consecutively 1 to 750 inclusive, dated January 1, 1917, bearing six per cent interest payable semi-annually on the first day of January and July of each year principal and interest payable at the fiscal agency of the State of Oregon in New York city, N. Y.

These are Municipal bonds authorized by vote of the District under and by virtue of the Statutes of the State of Oregon and the organization of the District and have been adjudicated and decreed as the regular and valid obligation of the District; Their maturity under the Statute is as follows:

- \$37,000 redeemable at the end of 21 years.
- \$45,000 redeemable at the end of 22 years.
- \$53,000 redeemable at the end of 23 years.
- \$60,000 redeemable at the end of 24 years.
- \$67,000 redeemable at the end of 25 years.
- \$75,000 redeemable at the end of 26 years.
- \$82,000 redeemable at the end of 27 years.
- \$97,000 redeemable at the end of 28 years.
- \$112,000 redeemable at the end of 29 years.
- \$120,000 redeemable at the end of 30 years.

The purpose for which these bonds are authorized and to which the proceeds will be applied is to unify and increase the capacity of the irrigation systems embraced in the District by constructing a reservoir to hold the flood waters of the Malheur river and improve the various canals so as to

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Apply to Harry B. Cockrum, First National Bank, Ontario, Oregon, or J. Humfeld, General Agent, Mortgage Company of America, No. 22 Alasworth Bldg., Portland, Oregon.

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Each proposal must be accompanied by a certified check of one per cent of the bid. The purchaser will be required to print said bonds at his own expense.

The Board of Directors reserve their Statutory right to reject any and all bids.

Full information may be obtained by addressing the Secretary at Vale, Oregon.

By resolution of the Board of Directors dated April 7, 1917.

THE WARMSPRINGS IRRIGATION DISTRICT.
By R. E. Weant, President.

Attest
John Rigby, (Corporate Seal)
Secretary.
First publication, April 12, 1917.
Last publication, May 10, 1917.

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