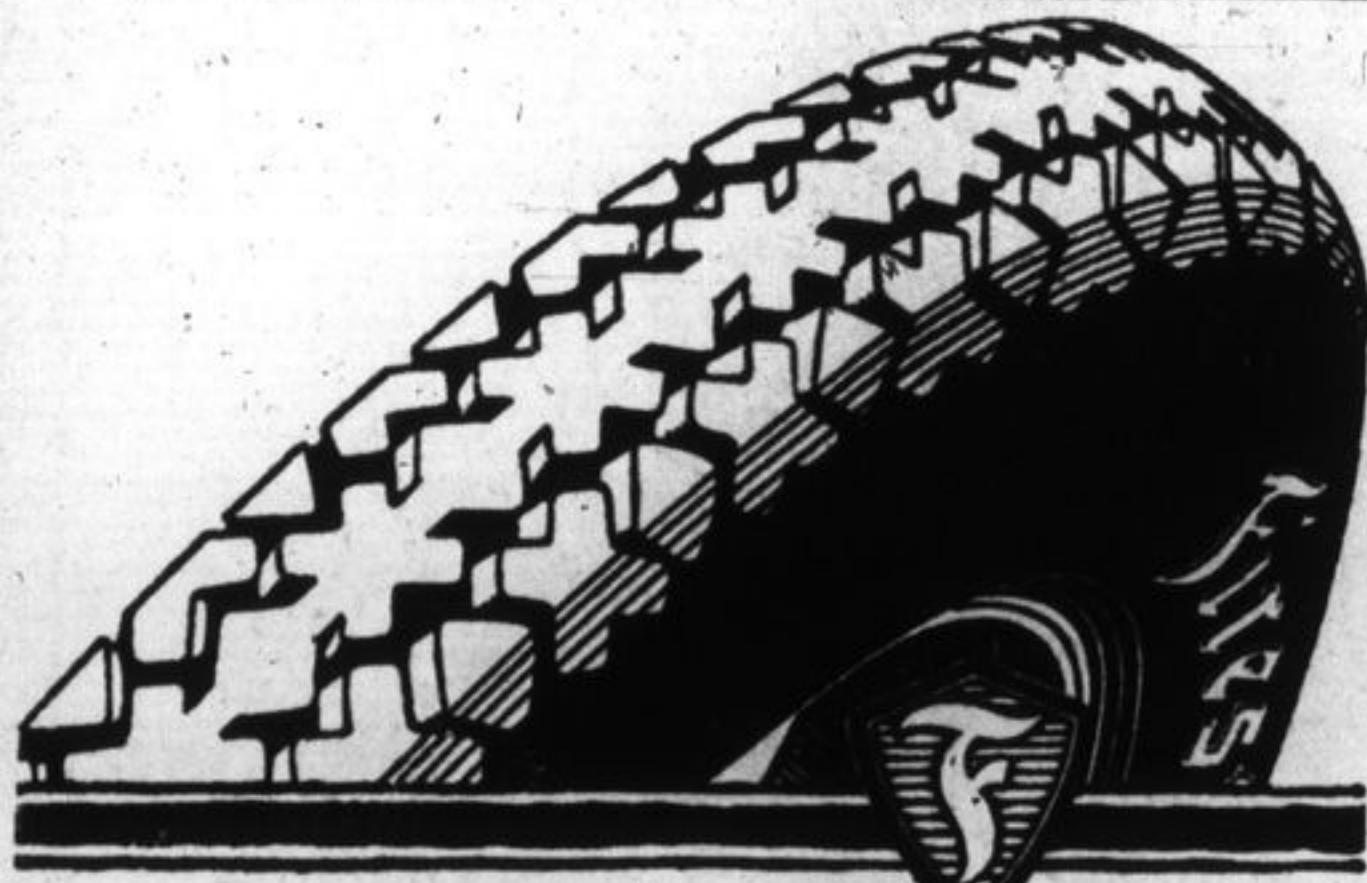


IN THE AUTOMOBILE WORLD



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HINTS FOR THE MOTORIST

By ALBERT L. CLOUGH

Testing Cylinders For Gas Tightness

The First Requisite Of A Powerful, Economical Engine Is Good Compression

THE OCCASIONAL TESTING OF THE ENGINE'S COMPRESSION, with a view to detecting cylinder leaks, should be an item in the maintenance schedule of every car. To make this test, choose a time when the engine is warm, remove all spark-plugs except that in number one cylinder and attach the handcrank. The crank should turn perfectly freely through one full rotation and more than half of another and then cranking should suddenly meet with a strong resistance as the inlet valve of number one cylinder closes. This resistance should be sustained and the crank should tend to fly backward when the force applied to it is removed, because the gas, as it is compressed by the piston, acts as a spring. It should be possible to crank the piston partly through this compression stroke and have the crank spring back quite a number of times before the gas contained in the cylinder leaks out, if the valves, piston rings and the gaskets are in first rate condition, and if this is the case, the cylinder under test is all right, so far as gas tightness is concerned. If, on the contrary, the resistance offered to cranking is only temporary and the piston can be moved through its compression stroke with very little effort, with a hardly perceptible tendency for the crank to spring back, when released, and if meanwhile a hissing sound of escaping gas is heard, the cylinder under test is leaky and is incapable of developing adequate compression. When cylinder number one has thus been tested and the result noted, the spark-plug should be taken out and screwed into number two cylinder and a similar test of its gas tightness made—this procedure being repeated until all the cylinders have been tried out and memoranda made of their condition. If an engine is fitted with priming-cocks, it is not absolutely essential to remove any spark-plugs to make the compression test, it being only necessary to keep all the priming-cocks open except the one in the cylinder under test. However, as the passage of gas through these cocks is rather slow and makes a noise that prevents leakage from the cylinder being tested from being readily heard, the slight labor of removing and replacing the spark-plug is fully warranted by the more positive results that are thereby obtained. Instead of judging, by the "feel" of the crank, how well each cylinder retains its charge, the readings obtained from a pressure gage screwed into the spark-plug hole of each cylinder successively, can be used, but there is no great advantage in using such an instrument.

NOISY TIMING-GEARS



W. M. C. asks: What is the remedy for noisy timing-gears? Although my engine has seen a lot of service, it runs well, but I am annoyed by the growling of these gears, especially when it is running idle.

Answer: If these are straight-tooth gears, perhaps the engine manufacturer can now supply replacement gears of the spiral-tooth type, which will run more quietly, but if the distance between shaft centers has been considerably altered by the adjustment of crankshaft bearings, you will have to take this into account in ordering the new gears. Unless the crankshaft bearings are properly tight, there will be noise. There are non-sonorous gears, of fabric or composition, which run very quietly and these are made to replace the metal gears of most popular engines. One gear of this type, mating with an unground gear, is a largely used combination. The more uniformly you can make

FOUR-WHEEL BRAKE QUERY

H. E. T. asks: A motorcar salesman recently stated to me that four-wheel brakes afford double the stopping effect that rear-wheel brakes do. Is this so?

Answer: We believe this statement involves some exaggeration. According to the best mathematical analysis we have seen of this problem, four-wheel brakes afford about 75 per cent. added retarding effect, when applied just short of the locking point. Our impression is that the practical results fall somewhat short of even this value, because it is quite usual to adjust just matters that the front brakes cannot readily be made to bring their wheels to the locking point, even in straight ahead running, even sacrificing some of their theoretical retarding effect. This whole matter is by no means one of exact calculation and is still open to discussion, but we feel that it is excessive to claim double the retarding power for the four-wheel brake equipment.



The Obstructed Carburetor Jet

WHEN AN ENGINE that is warm and has perfect ignition, rather suddenly begins to fire irregularly, when its throttle is opened slightly and to fire but occasionally—perhaps with carburetor explosions—or to fall to fire at all, when its throttle is fully opened, the cause may be lack of fuel, occasioned by the obstruction of the carburetor spraying-jet or jets, by dirt lodged in them. Sometimes this can be diagnosed by applying a very intense suction to the jets, which may cause enough gasoline to pass through them to wash out the obstruction. To accomplish this result the following procedure is sometimes advised, which if successful, will obviate the necessity of taking the carburetor apart: With the car running at good speed, on a level road or slight downgrade, simultaneously open the throttle wide and close the choker tight for a few seconds and then at once restore both throttle and choker to their normal positions. The rapidly rotating engine acts as a powerful suction pump and, with the choker closed, this suction acts at full force upon the jets. Whether or not "the operation proves a success," the engine will not run properly until its gasoline-flooded cylinders clear themselves out, but very often, when they have done this, normal working of the carburetor will be found to have been restored.

KEROSENE AS A NON-FREEZING ANTIFREEZE



L. B. V. asks: Is it a good thing to use lamp oil in the radiator of a car, instead of water, in cold weather?

Answer: It is certainly much better to keep the cooling system filled with kerosene than with water in cold weather as freezing will thereby be prevented. If every bit of water is drained out, before filling with kerosene, and if there are no leaks in the cooling system, some people find kerosene quite satisfactory, but it is generally conceded that a mixture of denatured alcohol and water in the right proportions or a suitable mixture of alcohol, glycerine and water is the best anti-freeze liquid.

ENGINE LUBRICATION TROUBLES



M. J. R. writes: The oil gage of my 1915 car doesn't indicate at all, while the engine is running, although I have refilled with fresh oil. Why is this? I use a quart of oil to each ten gallons of gas and the engine smokes. Why this waste? Is eight quarts sufficient for one filling of this engine?

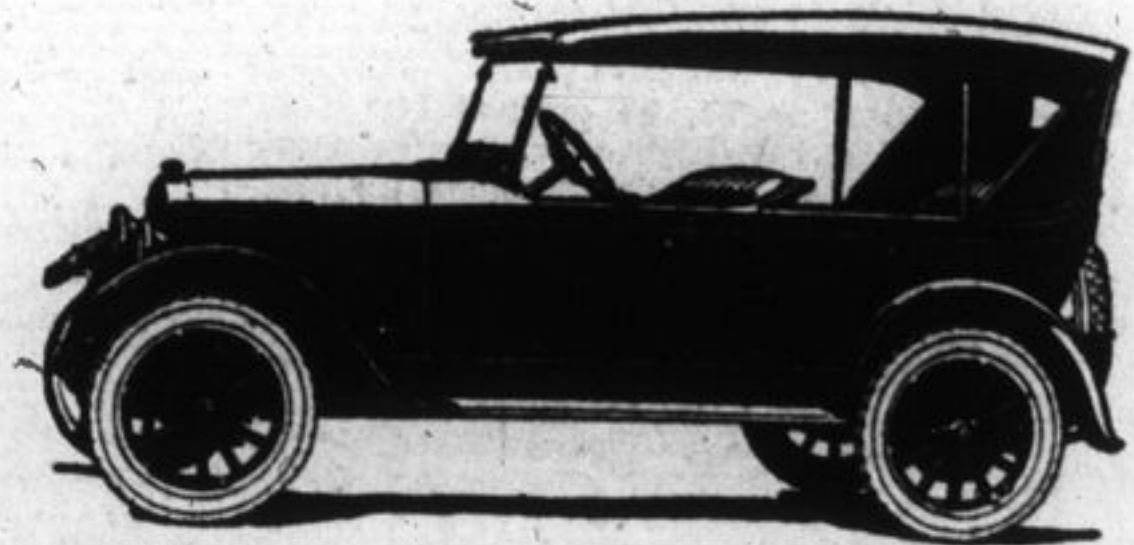
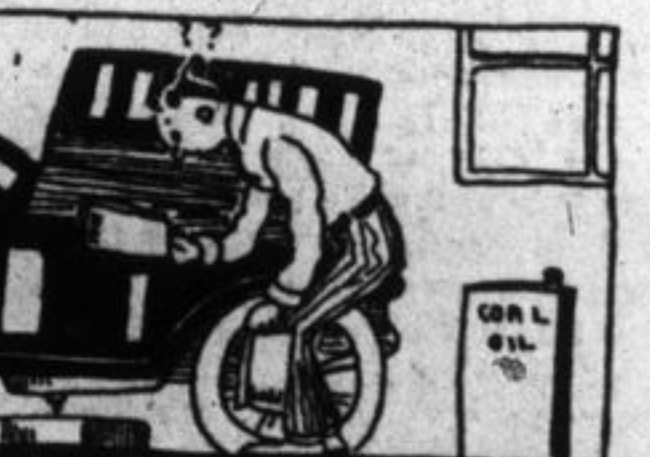
Answer: We suggest this test. Disconnect the oil gage tube at the pump, when the engine is idling. If oil escapes under pressure from the hole, the pump is working and the gage is fitted to the respective engine to which it applied.

Questions of general interest to the motorist will be answered by Mr. Clough in this column, space permitting. If an immediate answer is desired, enclose self-addressed, stamped envelope.

FLUSHING OUT THE CRANK-CASE

P. W. S. writes: With the car I formerly owned, the instructions were not to flush out the crankcase with kerosene after draining off the old oil, but with the one I now drive, the use of kerosene is recommended. Why this difference of opinion? Which is right?

Answer: If the construction is such that all the kerosene can be drained, so that none will remain to mix with and thin the fresh oil, flushing out the crank case with kerosene, by turning the engine over, is quite generally approved, but if the design is such that considerable of the kerosene has to be left in the crank case to dilute the new oil, its use is commonly advised against. If the lubrication system comprises splash basins, which when once filled with kerosene cannot be emptied of it, its use is not favored, but with most full pressure lubricating systems all liquid in the crankcase can be emptied and the use of kerosene as a flushing liquid is comparatively unobjectionable. Probably both instructions were fitted to the respective engines to which they applied.



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Come see what this Light-Six offers. See its many extra values, its beauty, its comfort, its luxury.

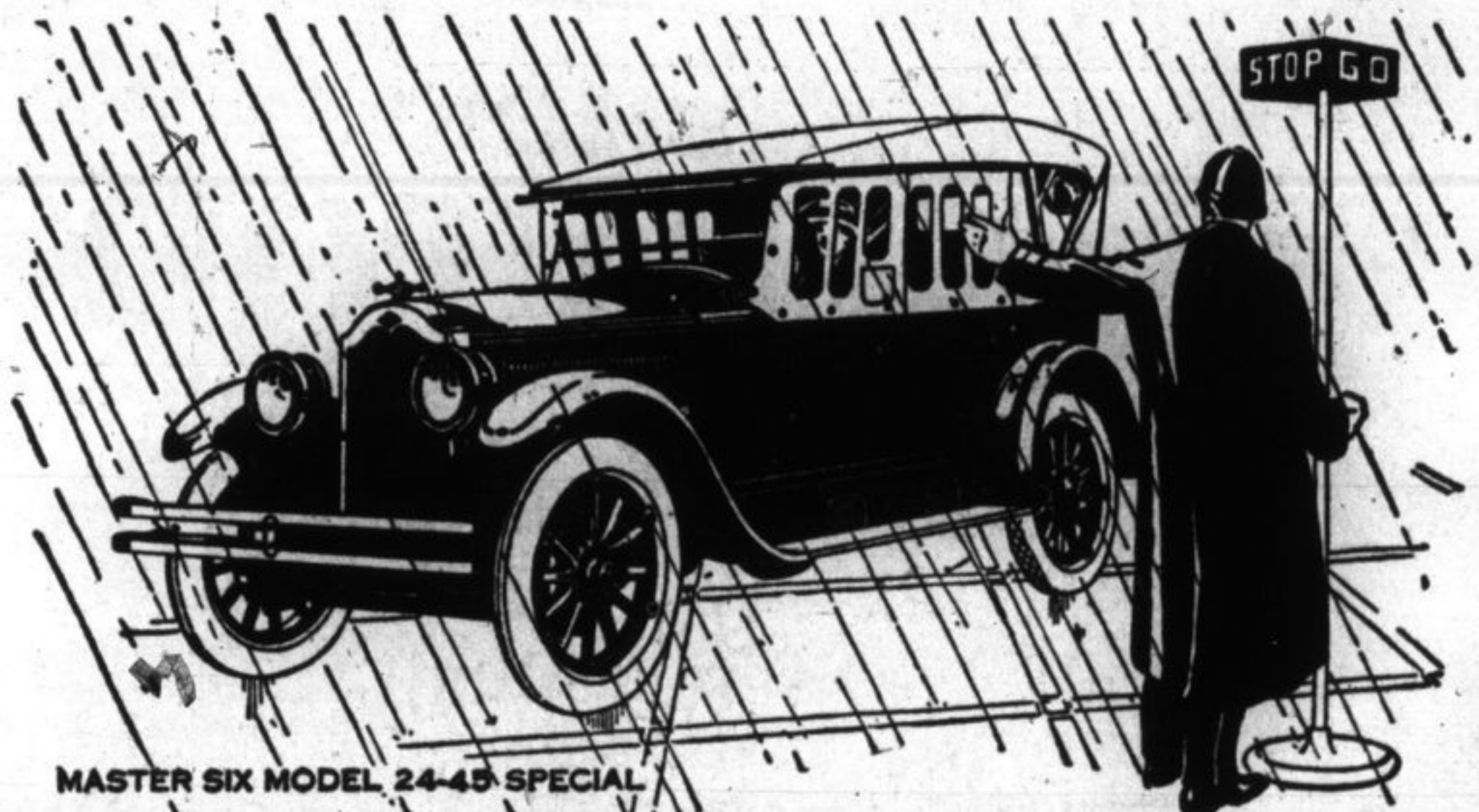
Do that and you will choose this car if you have in mind anywhere near this price.

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