Needless Expense in Car Operation

Herbert Chase Shows How Gasolene Waste May Be Largely Obviated.

POOR CARBURETION CAUSES FUEL LOSS

A. C. A. Tests Disclose Surprising Appetite of Slowly Idling Engine.

(By Herbert Chase, Laboratory Engineer, A. C. A.)

With gasolene selling at present high figures, it is becoming more and more important to effect all possible saving in fuel consumption. Not only is the efficient use of fuel beneficial by way of reducing present operating costs, but further, prices are dependent, to some extent, upon the total daily consumption of the millions of gasolene engines now in use. Furthermore, it is a fact well known to engineers that the most efficient car of a given weight, from a standpoint of fuel consumption, is likely to be the one most easily and satisfactorily operated.

The first and most important item to receive attention in securing maximum mileage on minimum fuel is the carburetor. It is not an exaggeration to say that there are many cars in operation today which use fully twice as much fuel as they would use if fitted with a really efficient carburetor and a properly designed inlet manifold, while the average car probably uses from 10 to 20 per cent more fuel than would be necessary if the engine were fitted with these two requisites.

There are on the market to-day a number of well designed and reasonably efficient carburetors, which cost no more in most cases, and in some instances much less, than the inefficient instrument usually employed, yet motor car builders persist in using an inferior accessory which frequently impairs an otherwise creditable performance on the part of the car.

Thorough waterjacketing of the carburetor is very desirable, and this jacketing should be applied to the inlet manifold as well for the purpose of supplying heat to vaporize gasolene deposited on the inner walls of the manifold. With the heavy and comparatively non-volatile fuel now used, complete volatilization within the carburetor is very seldom, if ever, accomplished, and some of the liquid particles of gasolene passing into the manifold are certain to be deposited.

"Loading," or the formation of puddles of gasolene, results if the design is such that the deposited fuel does not drain back into the carburetor. When the manifold becomes "loaded" the mixture is likely to be overrich and cause irregular running.

To avoid this difficulty it is common practice to open the throttle suddenly and permit the engine to race. The sudden rush of air through the manifold helps clean it out, but the gasolene therein is wasted and a smoky exhaust results. Heating the manifold results in vaporizing the deposited gas and avoids the waste, besides making a more even running motor.

The function of the carburetor is to meter the air and gasolene and to atomize the latter as thoroughly as possible. The change from a liquid to a gaseous state takes place largely in the manifold and cylinders, and is greatly facilitated by proper atomizing of the fuel. It is in this important function that many carburetors fail, with the result that some fuel never enters into efficient combustion and is wasted.

The tendency to deposit fuel carried in suspension in a column of moving air is much less when the velocity is high. Hence a comparatively small diameter of manifold is much preferable to the large size used successfully a few years ago, when fuel was of a better quality.

Heating the air supply to the carburetor is another method of aiding volatization and preventing deposition. It may be used to good advantage in helping decrease fuel consumption, particularly when the carburetor and manifold are not jacketed.

The carburetor which atomizes the fuel thoroughly must also meter the air and fuel properly, in order that the mixture may burn thoroughly. Many carburetors do not do this, at least at all speeds and loads, with the result that much of the fuel is incompletely burned. This loss is prolific with certain types, and cannot be entirely obviated in some cases without an entire change of carburetors.

Good ignition is, of course, a prime requisite for economy, and should be sought in all cases. Leaky valves and piston rings are not conducive to economy, nor is an accumulation of carbon in the cylinder. Valves should be "ground in," and carbon should be removed by scraping when other means fail.

Dragging brakes and unnecessary friction in other parts frequently cause a loss of power and consequent waste of fuel. Under this head may be placed losses due to the use of too heavy a grease in transmission and differential and those due to under-inflated tires, which absorb a very large percentage of the total power used in propelling the car. Well-inflated tires do not make an easy riding car, but do decrease friction losses and increase tire life.

Of course, the best carburetor may be abused, and the careless driver may be wasteful in many ways. One prolific source of waste, which is not appreciated by many, is that which takes place when a motor is allowed to idle, as when standing at the curb.

Some recent experiments along this line have been made by the club's laboratory staff. The results are rather surprising and very instructive.

It was found that a certain car, weighing 4,200 pounds, would travel about 9.1 miles per gallon of gasolene, when running in heavy traffic on Fifth avenue, at an average speed (including stops) of about 7.4 miles an hour. At an average speed of 13.9 miles an hour, with but very few traffic stops, the miles a gallon were increased to 11.8.

When, however, the car was allowed to stand at the curb, with the engine idling about as slowly as it would run (approximately 300 revolutions a minute), the consumption of fuel was not less than 4.8 pints an hour. In other words, the motor used as much fuel in idling for fifteen minutes as it would consume in about 1.8 miles of running in traffic at 7.4 miles an hour, or in about 1.4 miles at a speed of 13.9 miles per hour.

DOUBLE AUTO TAX CAUSES FRICTION

Motorists to Wage Fight Against Alleged Imposition.

JERSEY TEST CASE MAY BE HEARD SOON

Has Been Placed on Docket of United States Supreme Court for Future Argument.

A country-wide protest against the double tax on self-propelled vehicles is accumulating as a result of the attitude of the American Automobile Association and reflected in the procedure of its legislative board in advising all affiliated state bodies to fight vigorously the payment of a registration fee for revenue purposes and the imposition of a personal property tax, to which is added in some cases an annual charge for operator's license, and even a local wheel tax.

Motorists are greatly interested in the so-called "New Jersey test case" which the American Automobile Association recently had its general counsel, Charles Thaddeus Terry, place on the docket of the United States Supreme Court, and which it is expected may be argued before the year is ended by former United States Attorney General J. W. Griggs, of Paterson, N. J., who had the case in charge for the Associated Automobile Clubs of New Jersey during its progress through the state courts.

A decision from the highest court in the land would establish a ruling not likely to be dissented from by any state court. There has been a diversity of opinion in decisions thus far rendered by state courts in which the double tax has been passed upon. New Jersey and Connecticut have upheld the right of the commonwealth to exact a registration tax in addition to the owner of the vehicle being compelled to pay under the head of personal property.

Mississippi's Supreme Court ruled that the double tax was unconstitutional, and directed the return of the automobile registration fees. The state body in Ohio also obtained a favorable decision in the Court of Common Pleas in the case in which C. C. Janes figured as the appellant.

It so happens that Mr. Janes is also chairman of the American Automobile Association legislative board, and, in commenting on the matter, he has the following to say:

"It is my opinion that the average automobile owner has no objection to paying a registration tax if it is in lieu of all other taxes and the money thus raised is expended for roads maintenance. True it is that we are for the time being discriminated against as a special class of road users, but we are of the opinion that the time is near at hand when practically all highway transport will be of the motor-driven variety.

"Hence, for the present, we may waive our rights in the premises in this regard, but we do not intend to pay twice, and we further believe that the money raised, no matter by what form, should find its way into the highway fund."

WHY "SIX" IS POPULAR

Love of Luxury Responsible for Demand, Says Houpt.

"In spite of the fact that the six-cylinder car showed no headway in the recent European shows it will be a factor in the American field for some time to come," says Harry S. Houpt. "Road conditions have a bearing on this. A long time will elapse before America can boast of highways as fine as those on the other side.

"The love of luxury, however, has done more to popularize the six-cylinder idea than anything else. This qualification is conceded to the 'six' by a good percentage of America's best type of motor car owners. This, too, in face of the tremendous strides in perfecting the modern high grade four."

Santa Monica Practice to Begin Next Week

Eastern Contingent Starts for Coast to Witness Great Road Contests.

Considerable interest in the Vanderbilt Cup and Grand Prize races, to be run on the famous Santa Monica course, near Los Angeles, on February 21 and 23, respectively, is being manifested by the Eastern motor enthusiasts. The advance guard of the Eastern contingent will leave to-day. The party will include Mr. and Mrs. Fred J. Wagner, Mr. and Mrs. J. C. Nichols, E. C. J. McShane and William Allen. At Chicago the party will be joined by a number of enthusiasts, including C. G. Sinsabaugh and F. E. Edwards.

Finley J. Porter, manager of the Mercer racing team, will leave for the West early in the week. Practice trials on the course will begin February 16, and by that time practically all of the cars entered are expected to be at Santa Monica.

All the Eastern drivers already are on their way to the coast, including Spencer Wishart and Edward Pullen, who will be teammates of Barney Oldfield on Mercer cars; Ralph Mulford and Ralph De Palma.

The following officials for the Vanderbilt Cup race have been appointed: Referee, George Purdy Bullard, Attorney General for the State of Arizona, who founded the famous desert classic known as the Los Angeles-Phœnix road race; judges, A. B. Daniels, of Los Angeles; C. H. Cobb, of Fresno, and John F. McLain, of San Francisco.

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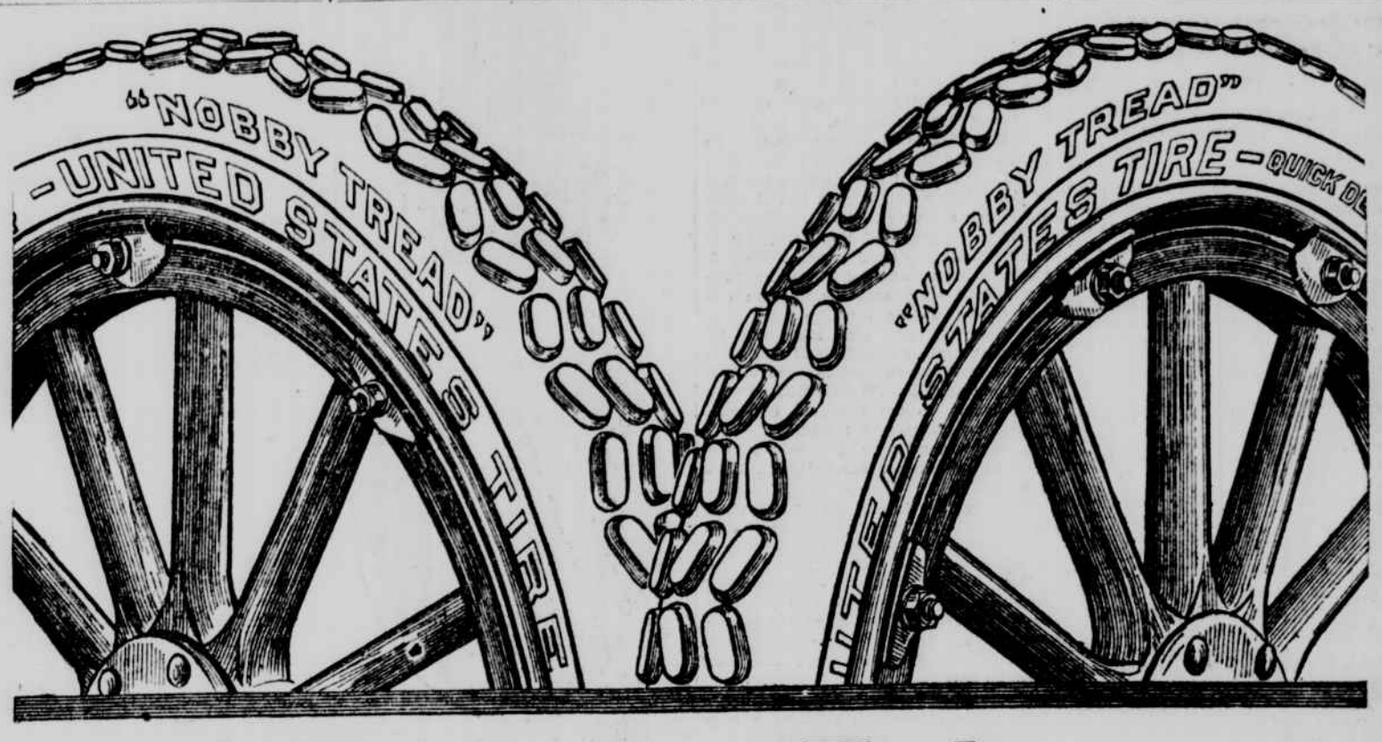

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34x4	24.35	26.05	38x5½	54.00	57.30

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