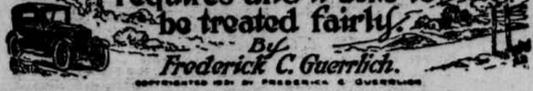


The Automobile Speaks

It tells you what it is, what it requires and it asks to be treated fairly.



No. 18.

THE FORCE SYSTEM OF LUBRICATION.

When the force system of lubrication is used the oil is pumped from the crank case and forced through a series of pipes to the main bearings. From the main bearings the oil goes to the connecting rod bearings through the arms of the crank shaft. In order for the oil to pass through the crank shaft arms holes are drilled in it, as shown in the illustration, Figure 1. Such a crank shaft is termed a "hollow crank shaft."

The oil will pass through the crank shaft arms because of the force from the pump and also because of the centrifugal force resulting from the quick revolution of the cranks.

When the oil reaches the crank pin it will pass through a small hole and so lubricate this crank pin or connecting rod bearing, after which it will flow

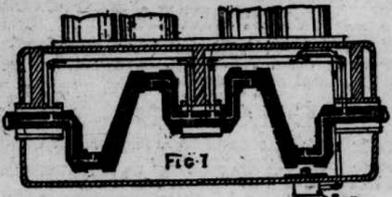


Fig. 1



Fig. 2

out from the sides of the bearing in a flat stream, and then because of the revolution of the crank be thrown out much the same as it is in the splash system. Thus some oil will get onto the pistons and cylinders; some will gather on the under side of the piston head and then drip into a hole on top of the connecting rod and so lubricate the wrist pin, while the cam shaft will be covered with oil.

There are many variations from the method used to lubricate the parts mentioned in the latter part of the above paragraph. Thus there is the full force system. In this system the oil, instead of coming out from the sides of the connecting rod bearings, is forced up through a small pipe placed on the sides of the connecting rods to the wrist pin. The wrist pin is hollow, then run out to the sides and so lubricate the piston and cylinder. A separate pipe will be run to the cam shaft bearings and the half time gears.

Many cars have a combination of the force and splash systems, the splash throwing the oil on all parts but the main bearings, which have the oil fed to them by the force system.

When the force system is used a pressure gauge which will indicate the action of the pump is usually placed on the instrument board or the dash.

THE PUMP OVER SYSTEM.

The pump over system differs from the force system only in that the pipes carrying the oil to the main bearings are not connected to the bearings, the oil instead pouring into a large hole over the bearings. As a rule this system is used in combination with a splash system, the splash getting the oil onto the connecting rod bearing, the wrist pin, piston and cylinder and cam shaft, while the main bearings are taken care of by the pouring over oil.

When overhauling a car mechanics should do nothing outside of cleaning to the oiling system. There are, however, a few points which must be remembered when tightening bearings. In a previous lecture you will remember that I mentioned the fact that the oil could not get into the bearings if the pressure were very great. One can, by tightening the bearings too much, get them so that the oil cannot enter, and this is very often done by auto mechanics, with the result that the bearings soon burn out. You should be able to revolve the crank shaft by hand and to move the connecting rods back and forth without much effort. The bearings should, however, fit "snug."

Unless "oil grooves," as shown in Figure 2, be cut in the bearing the oil will only get on the bearing in a line the thickness of the oil hole. The grooves are therefore cut in order to spread the oil the entire length of the bearing. Often in a worn bearing these grooves will have worn away in places, and they must therefore be recut. This can be done with a fine chisel or the point of a scraping tool.

KISSEL REDUCES \$500 ON DE LUXE MODELS

To definitely state its position as to Kiesel prices during 1921, and at the same time contributing to the general readjustment of prices by meeting the demand of the public for cars of de luxe equipment at popular prices, the Kiesel Motor Car Company announces that effective July 15 a revision of prices on the custom built de luxe models permits an additional \$500 reduction without changing in any way the de luxe equipment and features.

This reduction prices the de luxe speedster, tourster and touring at \$2,975 and

the de luxe coupe and sedan at \$3,775, f.o.b. factory.

The new coach sedan, Kiesel's latest model, that made its premier appearance at this year's national automobile shows, in New York and Chicago, is reduced from \$4,575 to \$4,075, while the urban sedan is reduced to \$4,150.

"This reduction is based on future materials, labor costs and inventory, not past or present prices," says Sidney B. Bowman, president of the Sidney B. Kiesel Motor Car Company. "In determining this new price reduction Kiesel figured the lowest prices obtainable for materials which will be received during the next several months, as well as reducing his present inventory to these lowest costs. In addition, he figured labor costs on present lowest basis and overhead on the basis of normal production capacity."

MOTOR CAR BIG ITEM IN FOREIGN TRADE

Would Benefit Under Proposed Automobile Duty.

The lower automobile duty in the proposed new tariff bill will aid American foreign trade, even though the act itself may need revision in the way of excessive duties on raw materials, is the opinion of J. Walter Drake, chairman of the foreign trade committee of the National Automobile Chamber of Commerce, Exports of motor vehicles and parts in 1920 headed the list of manufactured articles with a valuation of \$298,218,875 and were exceeded only by raw cotton, wheat and coal.

"With present unsettled conditions in the exchange, it is difficult to decide on a dutiable basis which will be most equitable to all nations. Under the American valuation system, an attempt was made in that direction. Its disadvantage unfortunately lies in the case with which duties may be increased arbitrarily. United States manufacturers, by enhancing the price of their goods, could establish a higher American valuation basis and consequently bring about the collection of a larger amount in duty," says Mr. Drake.

"The underlying object in proposing the American valuation probably was to approximate the c. i. f. value, which is used mostly abroad as dutiable basis but lends itself automatically to indirect discriminations.

"In Jugoslavina, passenger cars are dutiable at 48 per cent. of the c. i. f. value at the custom house in country of destination. This means with regard to American cars that the tax is also assessed on the cumulative charges for boxing, rail freight in the United States, overseas freight, lighterage and interest on the money outlay. An American medium priced car, because of these charges amounting to about \$400, would be assessed about \$200 more in duty than a car originating in Italy or Central Europe where these special charges would be practically non-existent. Incidents of this kind where the product of a friendly nation is assessed inequitably because of the dutiable basis, would be impossible under a system of American valuations. It is regrettable that this advantage should be offset by the weak feature referred to above.

"The American manufacturers as a group apply for a uniform duty of thirty per cent. on imported automobiles as against the prevailing rate of forty-five per cent. This uniform request is practically accorded by the Honorable Ways and Means Committee in recommending the duty of twenty-five per cent. on American valuations, which would be the equivalent of about thirty per cent. if the dutiable basis in the Underwood act were employed.

"A most commendable feature is the provision making the reduced rate applicable to motor products from such countries only as similarly favor American exporters. Thus, the British and French cars will be dutiable at twenty-five per cent. in the event only that American motor vehicles are subject to an identical duty when exported to either of those two countries. If, however, the rate is maintained as now at thirty-three and one-third or forty-five per cent. respectively, then British or French cars could be assessed as high as fifty per cent. when imported into the United States.

"The European manufacturers expressed some time ago their desire for a uniform automobile duty in the principal manufacturing countries. With the above United States tariff provision the attainment of that object is possible. Immediately after the armistice, arrangements were made between certain countries which worked to the disadvantage of the American exporter of automotive products. Czechoslovakia, for illustration, permits the importation, without special permit, of Italian motor vehicles. On the other hand, imports of these commodities from the United States are effectively obstructed because of the necessity of complying with such a governmental formality. The continuation of such practices, however, may be expected to cease as President Harding, under the Fordney tariff, will be authorized to assess additional duties on products of any kind from countries discriminating against American trade.

\$2,000,000 DEAL FOR AMERICAN SIX CARS

As one of many indications of the return of prosperity to the automobile industry, the American Motors Corporation of Plainfield, N. J., announces the completion of arrangements with one of the best known distributing organizations in the East providing for the disposal of more than \$2,000,000 worth of cars. The deal is a double barreled one involving on the one side a contract covering several of the largest distributing points in this section, including New York, Brooklyn, Newark and Philadelphia, and on the other hand participation in the management of the Plainfield plant by representatives on the board of directors. It is also understood that as a part of this arrangement the new element represented in the management has acquired a substantial financial interest in the American Motors Corporation. The interests identified with the distributing end of the combination have been widely known throughout automobile circles by their handling of a popular line of cars on which they have built up an enviable sales record. Through their various branches and allied dealers their deliveries have run as high as 500 cars a month, and it is estimated that they will absorb upward of half the entire output of the Plainfield plant.

In announcing this arrangement Robert Burner, president of the American Motors Corporation, states that it is the result of a policy of close alignment between the factory and distributor which the company has been gradually developing.

74-YEAR-OLD AUTOIST MAKES 5,275 MILE TRIP

W. J. Lander, a prominent citizen of Portland, Ore., 74 years old, arrived in New York a few days ago, stopping in at the Grand Automobile Company, 1388 Broadway, Velle distributors, to let them know that he had just completed a trip of 5,275 miles in his little car. Mr. Lander was delighted with his coast to coast trip. The aged auto enthusiast was accompanied on his trip by his son, E. Lander. They came by way of the Santa Fe trail to the Grand Canyon, then to Colorado Springs and over the Ocean Highway to Brooklyn. He averaged twenty-one miles a day of 6.25 miles an hour and more than 1,000 miles on two quarts of oil.

"To my mind there is no automobile to equal the Velle when it comes to pleasure riding," said Mr. Lander, among other things. "It was not until I had tried out numerous makes of other cars that I finally decided to make the trip in a Velle, which I lost no time in purchasing."

"The car caused me no trouble whatsoever," continued Mr. Lander, "during our coast to coast tour. The roads for the most part were unusually good and the riding was at times as easy and comfortable as though we were seated in a parlor car. We shall make the return trip by way of the northern route, the Lincoln Highway, to Yellowstone Park to Columbia Highway."

MOTERING THROUGH FINGER LAKE REGION

Lake Country of New York Affords Scenic Beauty.

Many motorists from the middle West pass through central New York each summer bound for the Adirondacks, the mountains of New England or the Atlantic coast resorts. And New Yorkers and New Englanders travel to the North and West to find playgrounds. The Automobile Club of America finds that many of them dash through the lake country of New York without stopping to appreciate the scenic beauty of this region, and J. M. Wells, chief roadman, points out some places of particular interest for our readers this week.

The Finger Lake section of central New York, with more glens and gorges than any other section of its area east of the Rockies, receiving recognition at last, is destined to become a favorite touring area.

This section is about 200 miles distant from New York city, 155 miles from Albany, 85 miles from Buffalo and 250 miles from Philadelphia.

The direct trunk line from New York city is over the Liberty Highway, which runs from New York through Hackensack, Tuxedo and Middletown, then across Sullivan county through Liberty to Hancock, continuing along the Delaware River through Windsor to Binghamton. From Binghamton the trunk line is followed to Owego, from which point there is a good connection to Ithaca via Canor and Whitesville. Many motorists enter the Finger Lakes region from Elmira via Montour and Watkins Glen.

Motorists coming from the West through Cleveland and Erie can approach the section by turning east at Winfield and following a hard surfaced road skirting the north shore of Chautauque Lake to Jamestown, thence through Salamanca, Olean, Hornell and Hammondsport.

Motorists from northern New England points going through Albany will find the Mohawk Valley in good condition through Utica and Syracuse to Skaneateles and Auburn, where the section can be entered from the north.

If the start is made from Toronto, Hamilton, Niagara Falls or Buffalo the ridge road can be used to Rochester and the route continued south through Mendon to Canandaigua.

From Buffalo the route is via Batavia, Canandaigua and Avon to Canandaigua.

Hard surfaced roads skirt the shores of the most prominent lakes, and if time permits an extended stay in the region good hotel accommodations can be found in the more prominent towns. Many short trips are available through country of unusual scenic interest.

NEW PISTON PREVENTS OIL CARBON IN MOTORS

Paul G. Tiamer, a hitherto comparatively little known figure in the automobile field, but an exhaustive student of automotive construction and fundamental principles of mechanics, brings the automobile back into the realm of undreamed possibilities from which it generally was thought to have been permanently eliminated years ago. By devising a piston whose expansion from heat is dissipated longitudinally within the core of the piston, and which, therefore, can be built without piston rings and with an even unbroken surface, Mr. Tiamer has opened up a whole vista of possibilities for the automobile.

When one of the cars equipped with ringless pistons had been run something over 2,000 miles it was taken down for examination and it was found that the piston heads, combustion chambers and valve seats were entirely free of oil carbon deposits.

The Tiamer Ringless Piston, briefly, is made in two parts, the outer shell or sleeve and the inner core. To assemble the piston the core is secured into the shell. It may be made of cast iron, aluminum composition or any of the various materials of which pistons are made. It weighs many ounces less than a piston of the old type made of the same metal and of the same material.

The shell is truly cylindrical and is made from two to three thousandths of an inch less in diameter than the cylinder for which it is made. This small space between the piston and the cylinder wall is occupied entirely by the oil film, which is fed by the splash of oil in the lower end of the cylinder wall and which works its way in partly by the action of the piston, partly by the capillary action of the oil. Though it might be supposed that the pressure of the exploding fuel would blow this oil film out and that the power thus would come into the crank case, the capillary action of the oil is so strong and the film so close to the wall that it is impossible for the oil film to move in the least under the momentary pressure. Moreover there is no wear on either piston or cylinder wall because the piston surface being perfectly even the oil film is maintained uniform and at no point does the metal of the cylinder wall and the metal of the piston come into contact.

In a test conducted to demonstrate this piston to a gathering of newspaper men and automotive engineers, a Ford car was run several miles on low speed with the throttle open wide and the fan entirely removed. Though the water boiled frantically, indicating an excessively overheated condition of the engine, it apparently had no debilitating effect whatsoever on the motor, which had as much power at the end of the test as at the start.

POERTNER WILL HANDLE DURANT CAR IN N. Y.

The new Durant car, representing the cumulative knowledge of Mr. Durant's thirty-five years experience in the manufacture of vehicles, is now ready for the public. To produce this car with more than the usual facilities Durant Motors, Inc., was incorporated Jan. 12, 1921. So perfectly had Mr. Durant's plans been made that exactly four months and seven days later the first Durant car, tested and complete in every detail, was placed on exhibition at the plant of the Durant Motor Company of New York, 560 Jackson avenue, Long Island City. In the first four weeks' exhibition requests for approximately 20,000 Durant cars were received from the Eastern dealers who inspected it.

The motor of the Durant car has been designed by Durant engineers and is of the valve-in-head type, embodying features not usually found in engines of the combustion type. The pistons can be taken out through lower part of cylinder block, making it unnecessary to remove head casting. The whole base is 39 inches. The Alasite system of lubrication is used. The five passenger touring model A-22 will sell at \$2,900, F. O. B. Lansing, Mich., and will be distributed in New York and surrounding territory by that well known distributor, William C. Poertner, at 1751 Broadway.

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