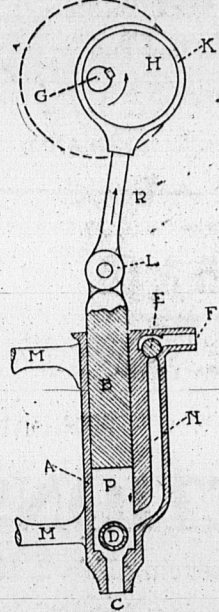


HINTS FOR The Motorist

BY ALBERT L. CLOUGH

OIL PUMPS AND HOW THEY WORK, CONTINUED—THE PLUNGER PUMP

The illustration shows, in principle an oil pump of the plunger type, operated by an up and down motion and essentially like the domestic force-pump. The parts are shown in partial cross-section, per end of the plunger pump B at the hinge L, with the result that as G turns plunger B moves up and down and R oscillates as well as having an up and down motion. In the diagram, the plunger B is shown making its up-stroke and oil entering the space P through passage C, which has been opened by the unseating of ball valve E, as a result of the tendency toward a vacuum in P as it enlarges by the upward motion of the plunger. The suction in P also acts to hold ball valve E tightly closed. The condition continues until B has reached the top of its stroke and the cylinder space under it is filled with oil. B then commences to descend and, as it does so, exerting pressure upon the oil under it, which closes the ball valve D preventing oil from being forced back through inlet C. At



the same time oil pressure, communicated through N opens ball valve E allows oil to be forced to the engine supply-pipes through discharge passage F, which action goes on until B reaches the lowest point in its stroke. These actions are kept in indefinitely, the pump filling on its up stroke and discharging on its down stroke. This type of pump has positive suction power and is capable of filling itself with oil.

CARBURETOR SOMETIMES WORKS BADLY



N. P. asks: What is your theory as to the cause of the following trouble which I have expected several times? When I open the throttle widely to speed up my car, it occasionally fails to gain much headway, seems to run sluggishly and soon begins to miss more and more frequently and nearly stops. By almost shutting the throttle it finally begins to run regularly again at low speed. At other times it accelerates all right?

Answer: The most likely explanation seems to be that on these occasions, the carburetor gives a greatly over-rich mixture, which chokes the engine and finally fouls the plugs so that firing becomes uncertain. With a carburetor depending upon an automatic air valve to keep the mixture properly lean at high speeds, the failure of this valve to open would produce the effects which you describe. Yours may be such a carburetor and you may find that the valve occasionally sticks and fails to unseat.

RENEW ENGINE OIL FREQUENTLY

A Warm Engine is Conductive To Oil Economy

Do you realize that your engine requires special lubrication care in cold weather? This is especially true if it is kept in a cold garage allowed to stand out of doors for long periods and is mainly used on runs too short to cause it to become thoroughly warm. Under such conditions it will be necessary to draw off and renew the engine oil at least twice as often as is required in warm weather, in order to safeguard the engine bearings. This is because the oil becomes thin and other-wise contaminated from the increased mixture with it of unburned portions of the gasolene and of water, which condense and find their way into the crankcase in cold weather instead of escaping through the exhaust and the breather-pipe as they largely do in hot weather. If it has been found that the engine oil requires renewal each 1,000 miles in summer, it is probable that, under the above mentioned conditions, it should be changed after each 500 miles of running in order to get rid of kerosene fuel deposits and of water and renew every 300 miles in not uncommonly found desirable. In the case of a car housed in a warm place, not left idle on the

street for long periods and so adjusted that its engine runs fairly warm, a change of oil after each 500 miles may be sufficient, but it is impossible to tell just how often it should be done except by a chemical analysis of the oil that is drawn off. At any rate it is well to be upon the safe side and change the oil in winter at one-half the mileage that it is changed in summer. The warmer the engine can be kept, the longer the oil will serve before becoming thinned with unburned fuel, escaping down past the pistons and before becoming mixed with water from condensed steam, resulting from the burning of the water in the gasolene, which water may freeze in the oil pump, strainer or piping obstructing or even bursting them and interrupting lubrication. The provision of a warm garage, the consistent use of a radiator cover, blanket, radiator cap, or thermostat water temperature regulator, and the free application of exhaust heat to warm the carburetor air and the intake piping are the most effective means of avoiding a cold engine and securing maximum service from each filling of oil.

EXTRA GASKET TO REDUCE COMPRESSION



J. E. S. writes: I am operating a Ford on kerosene and the maker of the carburetor has advised me to reduce the compression of the engine by inserting another gasket, under the cylinder head, because kerosene will not stand the compression that gasoline will. My engine runs well on kerosene, just as it is. Will the additional gasket result in more power?

Answer: There is no reason to think that putting in the extra gasket will give you more power, but rather the contrary. If your engine does not knock, you should advise you to leave matters as they are. The reason for fitting the extra gasket is to do away with the knocking that the use of kerosene generally causes, but as you say your engine is running well, there seems no need of a change. If it should commence to knock, you might try the additional gasket.

GENERATOR CUTS OUT AT HIGH SPEED



R. J. asks: What can cause the ammeter to show "change" at low speed and "discharge" at high speed?

Answer: Wrong setting of the third brush on the generator commutator may do this. The third brush connection acts to reduce the field current with increasing speed in order to prevent too high a charge rate under these conditions.

ARE YOU WEAK AND RUN DOWN?

In This Condition Only a Tonic Medicine Can Renew Your Health.

The condition of being "run down" is one that doctors do not recognize as a disease. The physician of today who gets his training in a hospital where only severe disorders are encountered knows little about it. But those who are run down in health know that it is not a fancied affliction. The expression "run down," applied to health, means a condition in which all the bodily functions are enfeebled. Appetite fails, the digestion is impaired, the nerves are impoverished, the complexion becomes pale or waxy, there is no animation, but rather worry and mental depression. Fatigue is a constant symptom. No particular organ being affected, you must look for relief to the blood. As it circulates through every part of the body, any improvement in the condition of the blood is quickly felt throughout the entire system. A restorer of the blood and tonic of the nerves, Dr. Williams' Pink Pills stand at the head of all such medicines. Every dose of these pills helps to enrich the blood and strengthens the nerves, and thus the various organs regain their tonic and the blood recovers its full vigor. Ample proof of this is given in the statement of Mr. William Devine, Gerrard Street East, Toronto, who says: "Two years ago while employed as a conductor on the Toronto Street Railway, I became much run down. I consulted a doctor who gave me medicine, but it proved fruitless as I was constantly growing weaker. My appetite completely failed and I fell away in weight until I only weighed 125 pounds. I was sometimes taken with fainting spells, and finally felt compelled to resign my position. I tried what I thought was lighter work, but with no better results. I was growing weaker and weaker. One day a chum urged helping me try Dr. Williams' Pink Pills, but by this time I was heartily tired of medicine, as nothing I had taken did me any good. Finally I could no longer refuse to try them. After a time I felt my health improving, and I gladly continued their use, with the result that I was finally enabled to go back to my old position fully restored to health. I owe this splendid condition to Dr. Williams' Pink Pills, and I can strongly recommend them to any one suffering as I did."

Dr. Williams' Pink Pills can be obtained through any medicine dealer, or may be had by mail, post paid, at 50 cents a box or six boxes for \$2.50 form The Dr. Williams' Medicine Co., Brookville, Ont.

Sunday School Lesson

SUNDAY SCHOOL LESSON

THE BOLDNESS OF PETER AND JOHN

Acts 4: 1-31

Golden Text—"Stand fast in the faith, quit you like men, be strong." (1. Cor. 16:13.)

The Result of Peter's Witnessing—In his first sermon, on the great day of Pentecost, Peter ascribed to Christ the coming of the Holy Spirit and, appealing to the conscience of his hearers, aroused their sense of guilt in having crucified their King. Three thousand were converted and joined the Christian fellowship. In his second sermon after the healing of the lame man, Peter ascribed the miracle to faith in the power of Jesus Christ, again accused the people of guilt in crucifying him, and appealed to them to accept him as One who fulfilled their hopes, the One promised to their fathers and forefathers by their prophets. Many more believe and their conversion then brought the number of Christ's followers to five thousand.

The Arrest.—Peter's second address was abruptly broken off by the coming of Christ's enemies. Hitherto the rulers had paid no heed to the work of the apostles. Either they did not know or they ignored the many wonders and signs wrought by the apostles and the growing numbers who believe in the Nazarene, but now the attention of priests, the captain of the temple, of Sadducees, was drawn to the great concourse of people in Solomon's Porch. They were greatly offended at Peter's preaching, for the Sadducees did not believe in the immortality of the soul, and in proclaiming the resurrection of Jesus, Peter was preaching this doctrine. They arrested the two apostles, and because it was evening, time for the guards to close the temple gates and to take the night watch, they put them in prison for the night. The first of the long line of persecutions was begun.

The arrest took place at "eventide," which was usually reckoned from 6 p. m. The hours between that and the healing of the lame man, 2 p. m., when they were occupied by preaching of which we have only a summary.

The Trial and Afterwards.—Peter and John stand as prisoners in the presence of the Sanhedrin, the great Jewish tribunal at Jerusalem. Annas and Caiaphas, before whom Jesus had been brought, were his judges. When they were released, after being commanded not to speak or teach in the name of Jesus, the two apostles went at once to their own company, told them what had happened, and prayed for power to do just what they were then commanded not to do, to speak with boldness. "And they were all filled with the Holy Spirit, and they spake the word of God with boldness."

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And what of the men who followed him? Timid and shrinking at the outset, they became lionlike in their courage, and doglike in their devotion, so that whether it was Peter and John before the Sanhedrin, Stephen before his murderers, or Paul before Hebrew Prince or Roman Emperor, the one outstanding fact, that which cannot but impress the impartial observer, is the strong, stalwart manliness they displayed, an honor to their world. You greatly mistake, therefore, if you imagine that Christian life stifles manliness, that the

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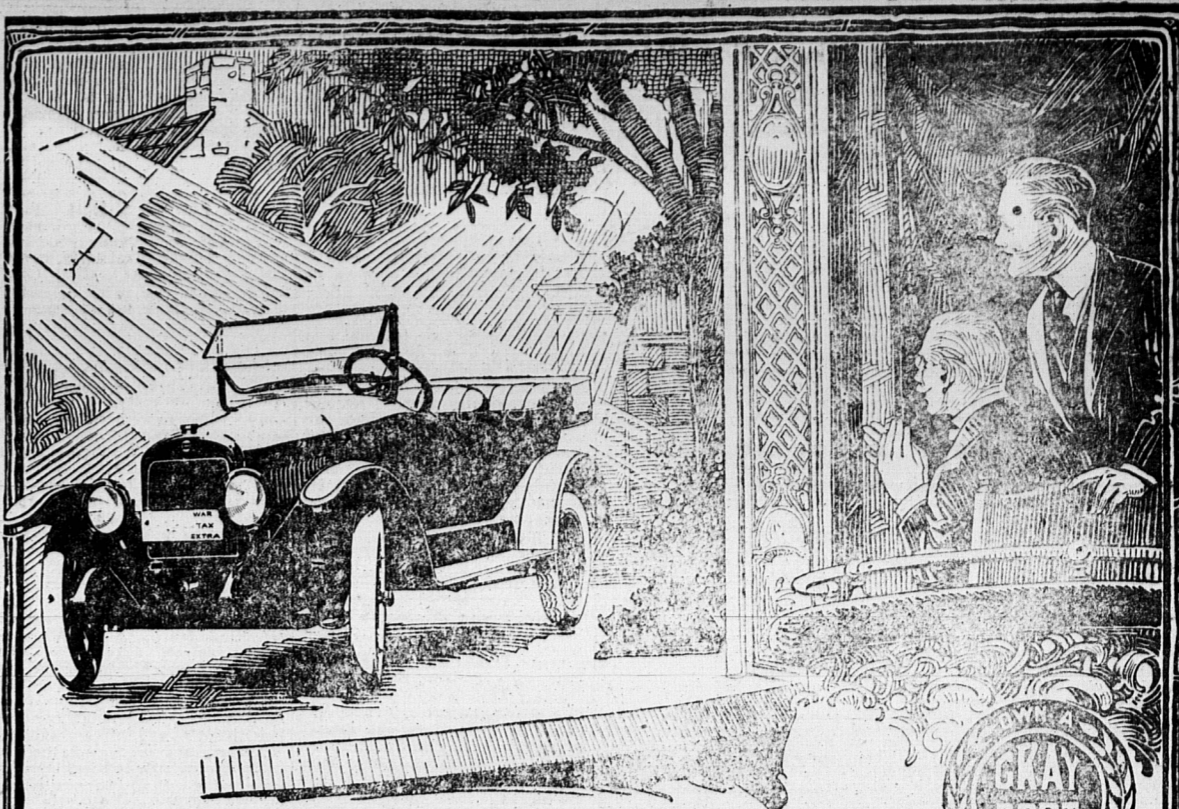
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Yet there is not a feature of the Gray-Dort which your car should be without—not one which you can really afford to do without.

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Automotive engineering raced ahead during the war. Gray-Dort policies called for peace-time values. In this new car these two meet.

You'll find here a bigger gasoline tank—and placed in the rear for good looks and convenience.

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Like cars costing \$2,000 and up, the new Gray-Dort has side curtains opening with the doors.

The emergency brake is on a lever—as in big cars.

Your first ride as a passenger in the rear seat will impress you with the roominess of the Gray-Dort.

And your first ride in the driving compartment will give you the same impression—because the cowl is shorter—and smarter.

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The top, hand-tailored along new lines, is entirely becoming.

You will find many more refinements in the Gray-Dort—refinements which you will not find in other light cars—at every one means many dollars added to the value of the Gray-Dort.

Many THOUSAND GOOD GRAY-DORTS PRECEDED THIS CAR.

These betterments, important as they are, must not overshadow the best: fitness and reliability of the Gray-Dort.

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Gray-Dort production has been doubled for this year. But it will probably not meet the demand for Gray-Dort cars. We advise you to see the Gray-Dort now.

Gray-Dort Motors, Limited
Chatham - Ontario
U.S. Factory—Dort Motor Co., Flint, Mich.

Sterns, McNutt & White Ltd.
159 Queen St. Phone 521.

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LACK OF REST

worry, over-work or imperfect nourishment, all in a measure contribute to and are the beginnings of nervous prostration.

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is a decided help to those who are nervous, in that it provides an easily assimilated food that quickly builds up the general health by nourishing the whole body. Give less attention to worry; enjoy regular rest and sleep and take Scott's Emulsion regularly after meals

Scott's never fails to nourish and strengthen.

The exclusive grade of cod-liver oil used in Scott's Emulsion is the famous S. & B. Process, made in Norway and refined in our own American Laboratories. It is a guarantee of purity and palatability unsurpassed.

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