

MOTORS AND MOTORING:

A Page Full of Interest to the Owner or Prospective Owner of an Automobile.

THINGS THAT HAPPEN INSIDE YOUR MOTOR IF IMPROPERLY LUBRICATED

If Car Owners Keep Their Cars Supplied With Best Oils and Greases Adapted to it 70 Per Cent of Troubles of Motorists Would be Avoided

We read many warnings about lubrication—about using the kind of oil best suited to the motor, changing the oil in the reservoir frequently, etc. But seldom is this important motoring problem so clearly and interestingly treated as in an article by Mr. Richard B. Bennett in "Motor Life", part of which is printed here.

There's nothing so true in all motorology as this: If every car owner would keep his car supplied with the best oils and greases adapted to it, 70 per cent of the troubles of motorists would be avoided.

Funny, too, isn't it, if you come to think about it? You put six months' income into a car and bring it home for the family to admire. It's admirable, all right. It's the embodiment of every principle known to mechanics, from high tension to hydraulics; it's the apex of the most modern standardized perfection. With honest-to-goodness care, its normal life will run from fifty to a hundred thousand miles, and it may be much longer. But, if you don't look out, at 10,000 it has reached the dangerous years, and at 20,000 it is swiftly sinking into senile debility. You can't break the commandments and stay young—not without a painful lot of expensive overhauling, anyhow.

A Typical Case

Suppose we take a typical case of the race that kills. You trot your special Spic Six out on its first few thousand miles, driving pretty carefully for the first thousand, so as not to burn her up. You don't mind watching the oil gauge, and when it drops low you run to a station and tell 'em to shoot you a quart or two of oil.

"Light or medium?" asks the man in overalls.

"Oh, medium, I guess," you say, because "medium" sounds like a good average. For the rest your selection depends on the kind of oil the station you happen to pull up to happens to have. After a while "3,000" tumbles into place on the speedometer, and you decide it's about time to find out what the old girl can do. She has got eased in long ago by this time, so here goes! Twenty miles of copious concrete ahead when you start calling for action; the indicator slips to 50, 55, 60. Ain't it grand? Well, better be sensible; so you set the hand throttle to a casual 45, and lean back to watch her purr. Perhaps there's a rough over-tone to the purr, but life is too glorious just now for fine distinctions. Oh, boy, what a car! Can't tell a hill when she sees one.

Presently you do notice a hint of labor in the drone of the motor, but figure it will pass in a minute—probably a speck of dust in the carburetor that will soon flood out; so you forget it, to be wakened after a bit by a musical little tap. It gets louder. Something wrong, by hickey! Then, just as you whip back the lever to slow down, the tap becomes a whack, ending in an unquotable piece of slambang racket somewhere in the motor. Before you kill the garage man at the cross roads where you had to leave the car after the haul-in, let's listen to the reason for the \$47.53 that looks so modestly at you from the bill he offers. You are getting off lucky.

Wrist-Pin Yells Murder

Here's what you would have seen if you had been inside of the car since the day you started to run it. It was a dandy job, to start with—every joint cozy, every bearing snug. But it was new metal, and as surface ground itself against surface, tiny little filings washed off into the oil and sank into the pan below. There were even more of these little particles than there should have been, for you had called for just any old kind of oil, and that wasn't the right kind. Some of it was poor stuff that scorched under friction and left the bearings hot and dry. At other times you got the best oil on the market, but you called for "medium", whereas your car was designed with broad bearing surfaces of narrow clearance, calling for light oil. The "medium" was in as bad a fix as a fat man trying to get through a jammed street car in a hurry—it simply wasn't

built for it; so the bearings got hotter than ever and wore away swiftly, sending still more filings into the oil below. Dust came in through the breather tubes and air intake, carbon began to accumulate, and as the motor never got a good cleaning out, there formed in the reservoir a sandlike mixture of metal, oil and grits of many kinds. Some of this, floating back and forth with the oil flow, choked up the filter; some formed in the trough that holds the oil for the splash, with not a ghost of a chance to get down through the stopped filter into the safer lower story of the pan.

Hurry Call

When you stepped on her on that grand stretch of road, the motor sent in a hurry call for more oil. The pump got busy instant and started to flush the friction surfaces with a sticky muck of burned oil, carbon, steel filings and terra firma. As the speed increased, the pump worked harder, and the harder it drove the more dirt it sent in for the work. Finally the wrist-pin bearing in number four began to dry up and yell murder.

Just then along came a piece of gooey the size of a match head, a committee made up of all the materials that should have been washed out many hundred miles ago, got halfway through an oil groove, and stuck. Look over a few bearings and you will understand. You'll find some of them marked with small channelings running at angles across their surfaces, reminding you of the worm markings along the trunk of a tree under the bark. Of course they are straighter than worm cuts, and located with scientific care and accuracy, their purpose being to insure an ample supply of oil in the critical places at all times.

The rest of the story is short enough. That bit of synthetic muck stopped the flow of oil through the groove, the bearing went completely dry and gripped the wrist pin so tightly that it was torn loose, and the continued motion of the engine, gouging the loose pin against the cylinder wall like a cold chisel soon scored the cylinder so badly that it had to be rebored, or at least patched by a patented process. To do this the motor had to be taken down, cleared and emptied, and the block hauled to town, left a few days, brought back and reassembled; and the bill made out that let you off, so easy. You can be glad you didn't get a strained or broken crankshaft along with the rest.

Motor's Internal Bath

Fortunately the case we've cited was merely an imaginary one. We'll say you have driven the three thousand and got away with it. If every 500 miles or so you have drained the bottom of the crankcase, flushed what sediment you could out through the drain plug with kerosene and a little extra oil, and refilled with good oil, your motor should be in first-class order; but it is imperative for good service that every two, or at most three thousand miles it should have a washout that will make it feel good. For this job we should have within easy touch a gallon can of kerosene, an old hand-basin or a half-gallon tin can, with the top neatly removed, to serve its stead, some rags or waste, a stiff paint brush (one-in, size will do), a wire motor-cleaning brush (or, if such a one is not available a strong scrub brush), a ratchet wrench with extension, or at least a long socket wrench, and a spark-plug wrench. Pour a quart of kerosene into the basin or tin can, and you are ready to start.

Take out the spark plugs, to begin with, and drop them into the kerosene; when the last one is out, the first will be soaked enough to start cleaning it. If they have not been cleaned for a long time, it will be a good plan to disassemble them far enough to brighten up the porcelain insulations on the outside, examining them carefully for any cracks that might cause misfiring. For cleaning the insides of the plugs, you can buy brushes made for the purpose, but if you will take a soft piece of wire two and a half inches long, flatten half of it with a hammer against the anvil of the vise, and then file it to a good edge, you will have a scraper that will do the work very handily. Before replacing the plugs, clean out the plugseats in the motor head, being careful not to brush any of the accumulated dirt down into the motor. See, too, that the plug gaskets

are in good condition, for if they are not, they may cause loss of compression.

To Clean It of Dust and Oil

Next, dip some waste into the kerosene and go over the motor to clean it of dust and oil. The corners you can't well reach with the waste, you can get at with the one-inch brush mentioned above. Don't forget the dust pan if there is one around your engine; it will probably be so thickly encrusted with dust and sand oil that you had best begin shovelling the worst off with a broad putty knife, finishing with a kerosene swabbing.

The internal bath is the most important part of the process. This means a thorough flushing out of the oil system as can be obtained without any real disassembling. The details of the job will be found described for each car in the manual that comes with it. The general order will be somewhat as follows: Drain oil from reservoir and return plug; flush motor with half a gallon of clean oil (method of flushing will differ in different cars; the more oiled parts it can reach and still allow complete draining of kerosene, the better); crank motor by hand for a minute or two, or with self-starter for half a minute, but do not run it on its own power; remove oil pan and scour it out thoroughly, cleaning oil screen; drain off all oil again; replace drain plug and oil pan; refill case with clean oil, seeing that splash trough is well filled, so splash can begin operating the moment motor starts.

A GOOD TIME TO SPEED UP ADVERTISING

(B. C. Forbes, in Forbes' Magazine.) "How's business with you?" I asked the head of a leading advertising agency. Instead of the reply now most often received to that question, "Slowing up", he said cheerfully, "Fine doing better". He went on to say that more headway can be made now in selling advertising than was possible when so many manufacturers were overstocked, during the recent spectacular activity. "When business is coming pouring in without exercise of any effort," he explained, "advertising and sales work often are neglected. Manufacturers have had a chance during the last couple of months to reflect that all their production and all their profits and everything else must come from their advertising and selling effort. Now that they can handle more business they are willing to give more attention to advertising and selling. If this policy be followed generally, then we ought to see good business during the second half of the year."

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MAKING THE MOST OF OUR FORESTS

Canada has lost close to half a billion dollars since the beginning of the war by allowing the shipment of raw pulpwood to the United States to be manufactured into paper in American mills and by American workmen. This itself is a strong argument for the imposition of an embargo on the export of Canadian pulpwood and suggests the need for not only a thorough but an early survey of the situation by the Dominion government. The forest problem of Canada is not acute; but it might easily become acute if fires, insects and cutting are allowed to denude the forests without proper reforestation programmes. It is essential that Canada make the most of the forest assets that it has and one way of doing this is to bring the raw materials to a higher state of manufacture in Canada before allowing their shipment abroad. Natural conditions are bringing this about to a partial degree; the concentration of experienced labor and of vast water powers being responsible for the establishment of many paper mills in Canada, but the influence of natural conditions might well be supplemented by legislative authority.

A further suggestion is heard now; that not only should Canadian pulpwood be forbidden the privilege of export but that sulphite and groundwood should not be shipped from Canada. Perhaps the time is not ripe for such a measure, which is more drastic than the other. It would work a hardship on many pulp mills that have been established with Canadian capital and that are still dependent on foreign paper mills to take their product. But a few years hence it may be that we will see such an embargo in as favorable a light as that in which the pulpwood embargo is showing itself. As an easy step to this end the suggestion is made that an export duty should be levied on pulp shipped from Canada, the money to be earmarked for reforestation; in other

words, insuring that when Canada's trees leave the country in the shape of pulp they should pay for the planting of other trees to take their place. The ultimate step from this would be an export duty on all forest products to continue the development of new planting.—Financial Post.

HOLIDAY SALADS

Orange Salad—Peel the oranges, slice them crossways, take out the seeds, and cover with a dressing made in the proportion of three spoonfuls of salad oil to one spoonful of lemon juice, and add salt and a dash of cayenne; flavor, if desired, with a little grated orange rind. Fine as accompaniment of cold pork or poultry.

Egg and Cheese Salad—Put slices of hard-boiled eggs in a dish, grate on nice cheese, add another layer of eggs, and so on alternately. Put a few capers and finely chopped pickles on top, pour

a mayonnaise dressing over all, and sprinkle grated cheese on top.

Celery Salad—Wash and wipe half a dozen heads of celery. Cut with shears in a salad bowl. Mix the yolk of one egg, one teaspoon of mustard, a little salt and pepper and the juice of two lemons with two tablespoons of water. Stir well together, drop over it three ounces of salad oil, then add a spoonful of hot water, and pour over the celery.

Chicken Salad—Take the meat from one cold boiled chicken, and two teacups celery; do not chop either, but cut each into dice, and mix. Put two teacups cream into a sauce pan and boil; stir in four eggs, well beaten, until it becomes like thick cornstarch; put the saucepan into cold water and stir on half a bottle of salad dressing; stirring to keep it from curdling; add vinegar to taste. When cold, pour over the chicken and celery.

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