

OVERHAULING RULES GIVEN TO MOTORIST

System for Complete Repair of Motor Explained.

TIME-SAVING OF VALUE

Spring Search for Car Trouble Is Made Simple by Composite Way of Hunting.

The only satisfactory method of handling the spring overhaul problem is to begin at the front end of the car, the engine, and work backwards, taking each unit in turn and giving it the attention it needs.

If the engine has a detachable head, the first thing to do is to remove the head for an inspection of the interior. Perhaps the carbon may need removal. Porchance the bearings need attention. If this latter, the oil sump must come off. Now the entire interior of the engine is laid bare.

First examine the bearings, both main and rod, to see if they need taking up. If so, do the work, taking care not to get the bearings too tight. The play must be taken up in such a way that both sides are equally free to move.

If it is necessary to retighten the bearings, the crankshaft ought really to be removed. This, however, is beyond the ability of the average car owner. To take up the rod bearings calls for scraping, and happily this may be done without removing the rods. Suppose we describe the operation briefly: Take off the bearing cap and remove a thin shim.

Next smear the shaft with lampblack and oil, replace the rod, tighten the cap bolts carefully and turn the engine over several times. Next take off the bearing cap once more, rub the part with a cloth and note the black spots that appear on it. These spots should be scraped down with a scraper.

If it is possible to get the whole rod out so much the better, because with the rod out it is possible to treat the upper half of the bearing in the same way. In most modern engines the rod may be taken out either through the top or the bottom of the engine, but in the older engines the bottom is too big to go through the opening.

Always remember that a properly fitted bearing will not be so tight that the rod or shaft cannot be turned, but at the same time it must be a snug fit. This condition will be indicated by the distribution of black spots all over the surface after the lampblack and oil test described above.

Having finished with the bearings, the car owner will next give the lubrication system a careful overhaul. In the case of the main splash system the lower half of the crankcase should be mopped out with a cloth, the oil having been thoroughly drained out. If the lubrication system employs pipes and strainers, kerosene should be forced through the piping and the screens be taken out and cleaned.

Look After Piston Rings. While the attention is still focused on the engine, it may be found that the piston rings need renewal or that the cylinders have been scored. If the latter is the case regrinding or reboring must be resorted to, according to the condition.

Next the valve system will call for attention. The valves should be removed and ground. While they are out inspect them carefully for warped heads and worn or bent stems. Each valve should be fitted in its guide and if there is too much play a bushing should be installed in the guide or else a new valve should be fitted with an oversize stem.

The cooling system will undoubtedly need a good cleaning out and the rubber hose connections should be renewed. To clean out the system a solution of washing soda and water should be poured into the radiator and then the engine should be run for two or three hours or the solution may be left in for a day's running. If this is possible, and then drained out after which the cooling system should be flushed out with clear water and finally refilled with radiator fluid. This will serve to clean out the scale which has undoubtedly gathered during the last running season. If a water pump is installed, the packing nut ought to be removed and the packing renewed. Incidentally do not screw down the holding nut of the pump too hard.

Ignition System. The ignition system will undoubtedly call for considerable attention. All terminals should be cleaned, insulation breaks should be carefully taped, connections should be tightened and loose wires be fastened down, so that they will not swing or touch hot metal. It is a good plan to run all the wires in conduits if this precaution has not already been taken. The ignition unit should be given a careful cleaning and the points be trimmed flat.

The starting and lighting system will need only minor attention, but do not neglect them. Give the bearings in the clutch and the gearerator the lubrication they need. If silent chains are used they should be cleaned and thoroughly lubricated. All chain slack should be taken up and this applies in case the car has timing gears driven by chain.

The fan assembly may need a little tightening up and the clutch should certainly get a generous share of the attention. All connections and bearings in the clutch unit should be lubricated generously. The transmission bearings may need replacement or taking up and this is, unfortunately, a job for the repairman. The ordinary owner cannot hope to "get away with it."

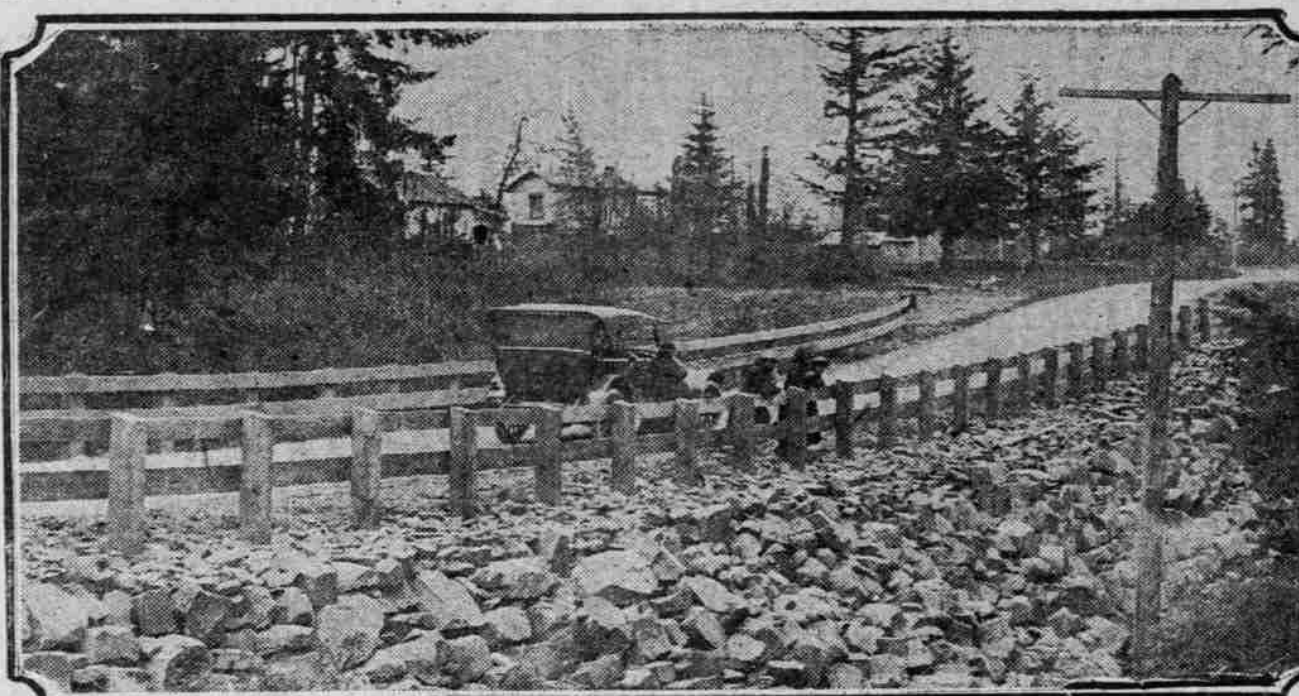
Tighten Up All Units. A general tightening up of all the various mechanical and chassis units is very much in order. If the chassis has torque members, these must be tightened up. Give the whole chassis a careful inspection for missing nuts, bolts, spring clips, etc.

Go over the steering gear from the wheel to the axles. Replace all shaky parts and take up any slack. The braking system should be carefully gone over. The bands may have to be replaced and all the linkage should be tested to see if it needs adjustment or repair.

The rear end unit will demand considerable attention. If noises have developed, the cause ought to be hunted down and replacements made to cure them. In most cases the car owner will have to trust rear axle repairs to the shop expert.

But whatever the owner's capabilities, he should not delay doing his utmost and having the rest done by the repair man, for in a very brief time the active touring season will have opened and then a day wasted in making repairs will be bitterly regretted.

BEST ROUTE TO SEATTLE NOW IS THAT VIA GOBLE



DUPLEX LIMITED IS HERE

SPEED VEHICLE HANDLED BY NEW MOTOR FIRM.

Shives-Howe Motor Company Takes Distributing Agency in Oregon and South Washington.

Ed Howe, for several years automobile and truck salesman with the Northwest Auto company, and James Shives, well known in the contracting and lumber business, have formed the Shives-Howe Motor company and taken the distributing agency in Oregon and southern Washington for the Duplex truck.

The Duplex has long been known in this territory as a 4-wheel drive truck exclusive. Its manufacturer has just added a new truck to the line, however, known as Duplex Limited. This is a 1 1/2-ton truck, equipped with United States nobby cord pneumatic tires, and built especially for high-speed freight and bus service. It will make 25 to 30 miles per hour on regular schedules with ease, and its speed is limited chiefly by legal requirements.

This truck also comes with full electric light and starting equipment. The first carload of three of these Duplex Limiteds just arrived from the factory and the trucks are on display at the quarters of the Shives-Howe Motor company at Chapman and Yamhill streets. The truck has a 145-inch wheel base, and 5000-pound capacity, including body. The new firm will also handle the 4-wheel drive vehicle made by Duplex.

PORTLAND FIRM EXPANDS

D. C. WARREN MOTOR CAR CO. HAS BROAD FIELD.

Companies in Los Angeles, Phoenix and Spokane All Are Links of Chain.

W. F. Stine, formerly of Portland but now general manager of the California Motor company in Los Angeles and the Southern Motor company in Phoenix, Ariz., was in Portland last week on a visit with W. R. DeLay, president of the D. C. Warren Motor Car company. The two southern companies managed by Mr. Stine are part of a chain of motor car companies on the Pacific coast of which the Portland firm is the home link.

Besides the new companies in Los Angeles and Phoenix, which only recently were opened, it also controls the Interstate Motor company of Spokane, which handles the Moon, Velle, Allen and Dori there.

The D. C. Warren Motor Car company has the Peerless, Velle and Allen in the Oregon and southwestern Washington territory. The California Motor company has the Moon for southern California and the Southern Motor company the Moon and Allen.

Mr. Stine brought word that the California Motor company will soon occupy its new building in Los Angeles at 1029 Figueroa street in the heart of motor row.

LUBRICANT MAN IS VISITOR

H. L. Hewson Is Here on Behalf of Dixon's Lubricants.

H. L. Hewson of the Joseph Dixon Crucible company, Jersey City, N. J., well known to automobile and accessory men in this part of the country, is on the Pacific coast in the interests of Dixon's automobile lubricants. Mr. Hewson, who is considered an authority on scientific lubrication, has been associated with the lubricant end of the Dixon business for ten years. Much of this time was spent in handling railway lubrication problems, which are some of the most difficult known to mechanics. Recently, however, the demand of western motorists for Dixon's lubricants has grown to such an extent that it was necessary for him to make a special trip to the coast.

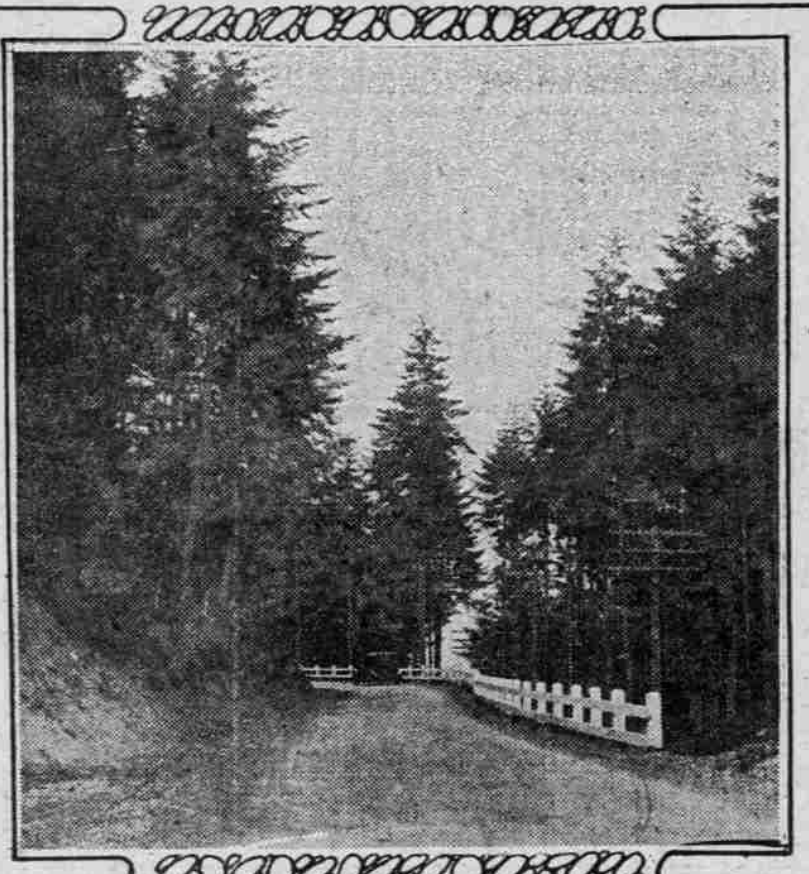
"The popularity of these lubricants," according to Mr. Hewson, "is based entirely on the superior results obtained by motorists and truck owners. Because of their composition Dixon's lubricants cannot 'squeeze out' under pressure. For the same reason they do not break up under intense heat or congeal in cold weather, allowing the gears to run dry. All three of these points have made them especially adapted to this territory, where heavy grades make perfect lubrication a most vital factor in the operation of motor vehicles."

SEND-OFF BANQUET HELD

Fields Motor Car Co. Sales Force Honors Bradley E. Sargent.

Bradley E. Sargent, sales manager for the Fields Motor Car company until recently, when he was selected by Clifford M. Steves assistant sales manager for the Chevrolet Motor company of California as his personal assistant, was guest of honor Friday night at a banquet for members of the sales force of the Fields Motor Car company. The banquet was held at the Benson hotel. Mr. Sargent was presented by Leroy R. Fields of the Fields Motor Car company with a gold cigarette case and match box in token of the esteem in which the firm held his services.

William T. Belcher succeeded to his position with the company. Mr. Sar-



Only 12 miles of the 42 to Goble are not paved, and though they are very rough, there is hard bottom all the way.

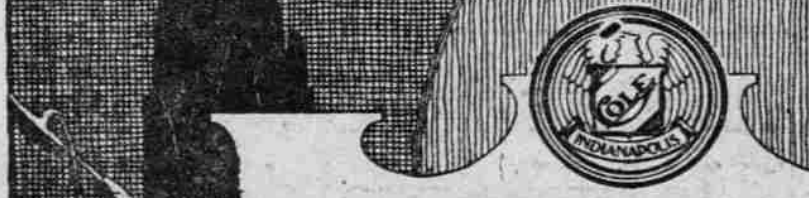
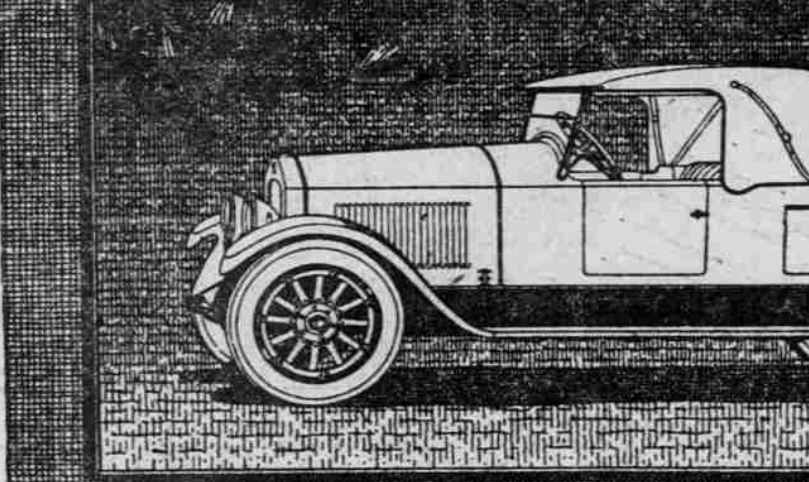
Now that the Pacific highway is again passable without towing between Portland and Olympia, Tacoma and Seattle, motorists will do well for the present to go down the Oregon side to Goble, thence ferrying across the Columbia river to Kalama at a cost of \$2.58, rather than take the main highway to Kalama via Vancouver, Wash. This latter road is passable, but there is a long detour around by way of Ridgefield, made necessary by road construction work. In a run to Goble last Sunday in a Hudson super-six sent out by the C. L. Boss Automobile company, the lower Columbia river highway to Goble was found in good condition, all things considered. Only 12 miles are now unpaved from Scappoose almost to Deer Island. While this 12 miles is very rough indeed, there is good bottom all the way. The Hudson made the run to Goble easily in an hour and 35 minutes.

gent left Portland last week for Oakland, Cal. to assume his new duties.

Use Brakes Less. learning to control the vehicle by means of the throttle and thus spare the brakes the wear and tear that constant use brings. One big truck operator in a western city makes this the first lesson that his drivers are taught; and the lesson pays dividends, not only in money saved in repairs,

but in time that would be lost by the trucks for frequent renewing of brake bands.

Battery Filler. A very convenient filler for putting electrolyte in battery jars is made by steaming an old jar until it is soft and then forming a sort of spout at one side by means of two pieces of board. When the jar cools it retains the shape that has been given it.



Cole Aero-EIGHT

BALANCED TO ZERO

Why does the Aero-EIGHT pick-up so swiftly and have so great a fund of reserve power?

An aviator can tell you the moment he takes the wheel and feels the car respond to the touch of the accelerator.

It's the minute balance of every unit that enables the mechanism to respond without effort or restraint when under way.

Aerotype engineering has increased the limits of motor car possibility, and Cole engineers have been the first to apply these principles to the automobile.

Aeroplane balance is one of the characteristics which the name of the Aero-EIGHT implies. It is balanced to zero, so that every unit is able to function 100 per cent.

NORTHWEST AUTO CO. Alder at Eighteenth
COLE MOTOR CAR COMPANY, INDIANAPOLIS, U.S.A.

THERE'S A TOUCH OF TOMORROW IN ALL COLE DOES TODAY

\$200 IN CASH PRIZES

GIVEN BY THE REPUBLIC TRUCK DISTRIBUTORS TO THE HIGH SCHOOL STUDENTS OF OREGON FOR THE BEST ESSAYS ON THE FOLLOWING SUBJECTS:

- 1—How the Motor Truck Benefits the Railroads.
- 2—The Motor Truck as a Farming Asset.
- 3—The Benefits Derived From Good Roads.
- 4—The Motor Truck in Emergency Transportation.
- 5—How the Motor Truck Has Speeded Up the Commercial Life of Our Nation.

The distribution will be as follows:

- \$100 for first prize
- 50 for second prize
- 25 for third prize
- 15 for fourth prize
- 10 for fifth prize

Each essay must not exceed one thousand words in length and must deal with only one of the above subjects, but students are not limited to one essay.

Contest closes at noon, Saturday, May 22d, and the winning essays will be forwarded to the Republic Motor Truck Company of Alma, Michigan, to be entered in their National \$1000 Scholarship offer for the Grand Winner.

Sign your name in full with address and mail to

CONTEST MANAGER,
Roberts Motor Car Co., Inc.
Distributors of Republic Trucks
PARK & EVERETT STS., PORTLAND, OR.

Judges will be appointed by Automobile Editors of The Oregonian, Journal and Telegram.

Bend, Oregon
Feb 12, 1920

Allen and Hebard
Portland, Or.

Gentlemen - I placed two of your Thermoid casings, six by six with _____ have been replaced twice, while the Thermoids are still doing business. I do not know mileage run, but the rubber is worn thin as paper with no breaks or cracks. They seem good for considerable use yet.

Very truly yours
R. L. Winters

Let us help you solve your tire troubles.

Crolide Compound

Non-Porous Treads.
Save you money, labor and tubes.

Must make good or we will.

6000 miles Guaranteed
Small sizes 7500
Cord Tires 8000 Miles
Telephone Broadway 3223
Dealers Write for Wholesale Prices

Thermoid

Makers of the famous Thermoid Hydraulic Compressed Brake Lining

ALLEN & HEBARD CO.

64-66 Broadway, Between Oak and Pine
"WHERE YOU GET VALUE RECEIVED"