

BARNEY OLDFIELD'S AUTOMOBILE LETTER

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Among the most important parts of the internal combustion engine are the bearings which support the crankshaft and connecting rods. Without these parts the operation of the engine is impaired in corresponding degree.

In this country these engine bearings are always what are called "plain bearings," that is to say a bronze shell with an inner lining of babbit composition. Almost always these bearings are made in two parts in such a way that when they are fitted together they form a complete cylinder. Between the halves are placed shims, which may be of solid or laminated metal.

In operation the crankshaft revolves inside this bearing, resting directly on the soft metal lining. Obviously, unless the entire works are copiously lubricated, the friction generated will melt the soft metal and let the shaft down on the bronze shell of the bearing. But short of this the natural wear gradually erodes out a portion of the lining metal, so that the crankshaft in turning develops a little play. This results in a knock and when this occurs we know that it is time to take up the bearings.

Now taking up engine bearings is no job to look forward to with the best of circumstances. It requires considerable skill and experience beyond those possessed by the ordinary car owner. No one should try to adjust the bearings without watching a skilled mechanic do the job first, but at that I think I can give some hints on how to do the work, which will be valuable to my readers.

The only entirely satisfactory way of fitting the connecting bearings is to take the engine out on the work bench and do the fitting when the crankshaft has been removed. The mere removal of looseness by filing the shims or removing a lamination is not properly adjusting the bearings. It gets rid of the play temporarily but does not give an accurately fitting bearing. When the bearing is simply tightened against the shaft in this way the original looseness will develop again before long. For this reason the only wholly satisfactory method of doing the work is to put the engine on the bench and proceed as follows: The crank pin, or that part of the crankshaft that runs in the connecting rod bearing, is spread lightly with Prussian blue or lamp black made into a paste with a little oil. The connecting rod shims are made just a trifle smaller and the connecting rod is placed in its proper position on the crank pin. The crank pin connecting rod is then turned around so that the bearing surfaces will rub against each other. After this has been done about a dozen times the connecting rod is removed and a cloth is used to take off the excess color from the bearing. This will leave the high spots on the bearing showing. These high spots are now removed by means of a bearing scraper. Sometimes the entire half of a bearing will show high color and obviously it all needs scraping. When only scattered spots show color, these must be carefully scraped, care being used that the cuts do not go too deep. The cuts must be cleaned so that the metal is not left with a number of rough spots. This scraping process will have to be repeated a number of times, the crank pin colored and the rod placed in position and twisted a few times, removed and the high spots scraped after each operation. When this has been done often enough, there will be formed what is known as a bearing surface, that is to say, little spots all over the bearing surface of both

halves of the bearing, while the connecting rod will turn freely on its pin. It must not be so free that it can be whirled around and yet it must not be so tight that any great amount of effort must be used to turning it.

The ideal bearing surface will show a small high spot about every thirty seconds of an inch. This process of fitting must be carried out with every bearing of the rod bearing and the attempt is made to get each bearing in fit with the same degree of tightness.

The crankshaft bearings are scraped in the same way as the connecting rod bearings, but it is not usually possible for the car owner to take the engine out of the chassis and operate on the work bench. In this case the best the owner can do, as a general thing, is to scrape the lower half of each crankshaft bearing. It is by far the best to scrape the crankshaft bearings with the connecting rods detached from the shaft. In this way the exact degree of crankshaft bearing tightness may be readily determined, especially if the rod bearings are first scraped in. Many repair shops have equipment for reaming bearings and then running them in. This means simply wearing them down to the proper fit by running the engine by means of a belt. Obviously, the car owner is seldom in a position to do this.

Two important points are very frequently neglected by the car owner when he is fitting crankshaft bearings. One of these is the removal of end play and the other is shaft alignment. For example if the rear bearing is not properly scraped it is likely to throw the crankshaft out of alignment with the clutch, a condition which will make endless trouble. Also when only one bearing has been scraped and the shaft is still likely to be sprung slightly out of line and again trouble will result.

I mentioned the danger of end play which tends to cause bucking at slow car speed. This trouble usually results from worn flanges and when a flange is badly worn, it is difficult to overcome, except by replacing the whole bearing.

In conclusion let me say this about fitting bearings, while the operation is difficult and calls for real skill, no car owner who aims to become a complete mechanic will want to pass the job on the repairman. He should not make it the first job he tackles on his car, but he should make it his aim to learn how to do it when he feels that his skill is able to meet the test of a real workman's job.

QUESTIONS AND ANSWERS.

Barney Oldfield:
Kindly publish something on the care to take of leather upholstery in a car. Is there a preparation for it?
A. C. B.

Use double boiled linseed oil, sweet oil, or go to the supply store and get some good leather dressing. Ask for upholstery dressing. Moisten a cloth with the oil and rub over the surface, then go over the surface again with a clean cloth.

Barney Oldfield:
I want to ask you for your help. I have a Willys Overland Runabout Model 41 No. T-59368, you may perhaps be able to tell the horse power stroke and bore.

Will also ask you where I can get an instruction book for the same car. You can get all of this information, including the instruction book, from

the Willys-Overland company, Toledo, Ohio.

Barney Oldfield:
Which is the proper method to use in descending a hill with car in gear, and using motor as a brake and having the throttle closed. A says, the ignition should be cut out. B says the ignition should be left on to ignite any gas that might leak through the throttle and thus prevent a back fire when the ignition cutting A's method is cut in after the descent?
E. W. B.

You get better engine braking with the spark off, in fact if the grade is long always shut off the ignition. Leave the throttle closed.

Barney Oldfield:
Can you please tell where I can buy parts for a Metz roadster. It is a friction drive. The wheel that grips the friction plate is worn uneven, and the machine will not pull evenly. Do you know of anything to line this wheel with? Or do you know where I can buy a new liner?
Another question I want to ask you is, why does the self starter on this car refuse to turn the engine over when you push the foot pedal in? It turns it over when the cylinder head is off, but when it is on it just pulls the chain tight, but does not move the engine. Do you think there is too much compression? If so, what remedy would you use to overcome it?

You can get the spare part from the Metz Motor company, Waltham, Mass. The starter is weak, due probably to a weak battery. When the head is off, it takes very little power to crank the engine. Try it by hand and see for yourself. There isn't too much compression.

Barney Oldfield:
I have a 1918 Cole Eight. The same belt is used for the fan and generator. Every week or two I have to have the generator raised. Then in time drop and have a link taken out as the belt stretches so. I have had two belts which are links of leather (I think) with little pieces of asbestos between. Could you suggest any belt I could use that would be more satisfactory?
I should also like to know what you think of C-4 fuel. Will it injure the motor?
C. L. H.

I really cannot help you in suggesting a better belt, but I can say avoid allowing the belt to get dirty and don't put too much tension on it. I do not know what C-4 fuel is. Enlighten me.

Barney Oldfield:
I have a Royal car, 1915. I can find no trouble with flow of gas or spark. When running in low, if not pulling too hard, it seems to run O. K., but when pulling hard in any gear or when running even idle in high some cylinders don't fire and then all cease firing and she goes dead. The batteries are strong.
Can you tell me what the trouble is and how to remedy it?
C. L. S.

This may be caused by the plugs being partly fouled or dirty. You then get a weak spark which will idle the motor and fire under weak compression but not under load. Look to the spark plugs and make sure you get a good fat spark. Also see that the float is full right after the engine goes dead. If it is not clean out the fuel line.

MILBURN PLANT IS CRIPPLED BY FIRE

But Deliveries Will Be Made in January.

Resourcefulness of American Industry Emphasized in Incident.

TOLEDO, O., Dec. 22.—Although the Milburn Wagon Company was expected to be greatly handicapped by the million dollar fire that swept its big Toledo, Ohio, plants early in the week, all distributors and dealers of the company, largest manufacturers of electrical vehicles in the world, are promised deliveries in January and February. And by March 1, the rebuilt plant will be on a 100 per cent production basis.

The wonderful resourcefulness of American industry, so marked during the war, has not been emphasized to a greater extent than in this week's experience of the Milburn. While the fires still raged large temporary quarters were engaged and architects were on the ground making plans for rebuilding on a better and larger scale. So remarkable has been the progress that the company 10 days after the fire will be producing electric automobiles.

Through the rescue of practically all uncompleted electric and a bountiful quantity of materials, immediate deliveries can be had by all Milburn dealers. Production may be somewhat reduced for a few weeks but it will go right ahead and by March 1 will be larger than ever before.

One of the reasons for Milburn's ability to resume production so promptly was a fire freak which left its body department intact and unharmed. The buildings that house the body departments escaped the flames.

Buildings Destroyed.
The departments that suffered so greatly were the painting and trimming buildings. These were destroyed, but before the fire had been pronounced under control, the company had made arrangements to house these departments in other buildings.

The buildings which housed the partially completed and completed electric were the last to take flame, giving ample time to remove all of them to Milburn Plant No. 2 where they will be completed and shipped.

The main offices of the company

have been removed to the heart of the business district in a building that formerly housed the central Red Cross headquarters.

Officials said that when the new buildings, to be erected on the site of those destroyed by fire, are completed, Milburn production will be practically doubled, and these buildings will be in full production not later than March 1st.

NEW "SMILE" CAR IS BEING DESIGNED

Rumors are about to the effect that the American Motors corporation has something interesting to disclose in the new Smile Car, which has been in process of development at the com-

pany's Plainfield plant for some months. This model is said to be the personal achievement of Guy Morgan who joined the American Motors corporation as vice-president and general manager last July.

"It is a fact that we have something up our sleeve," said P. W. Hanel vice-president and supervisor of sales when questioned, "but we are not quite ready to let the secret out. Frankly the results of our tests of the new car are so startling and the features of its construction so unusual that we hesitate to give out the details. However, it will all come out at the national automobile show, where the chassis will be exhibited for the first time. We are confident that this new model will more than justify the reputation for 'Miles of

Smiles' which our product has already won by its unequalled performance on the road."

The exact character of these features, has not yet been disclosed, but it is known that they are distinct innovations. The company plans to get into production on the new model in March, when building operations now under way at its Plainfield plant will enable it to undertake a production schedule of 500 cars a month. In order to provide for the rapidly growing demand for the company's product, which has exceeded all calculations, particularly in southern territory, it is also reported that arrangements have been concluded for the establishment of a separate assembling unit at a central point in the south.—New York Sun.

DOSS TIRES

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