

Shop Talk

FUEL KNOCK

With the advent of hot weather it is again time to think about fuel knock.

There are several reasons why fuel knock will be particularly noticeable. First of all is the fact that the octane ratings of both premium and regular gasolines have been reduced. This reduction is due to the scarcity of tetraethyl lead, caused by the heavy military requirements.

There is nothing that can be done to alter the character of the gasoline, but there are a number of things which can be checked in order that the available gasoline may be used to the best advantage. These are:

1. Spark timing.
 2. Water temperature and the condition of the water jacket.
 3. Carburetor adjustment.
 4. Carbon deposits.
 5. Owners' driving habits.
1. Your first impulse may be to retard the spark, because it is the easiest thing to do. You must remember, however, that a late spark means high fuel consumption. You should never retard the spark from the standard setting until everything else has been checked, and not unless the owner understands that it will mean a loss in gasoline economy.

You should, however, check the condition of the distributor. Be sure that the fixed and the automatic advance are correct. Be sure that the automatic mechanism is not sticky, because this may result in occasional excessive advance at the lower speeds even though the distributor checks correctly on a fixture. A badly worn cam may also be responsible for an erratic spark setting.

2. The hotter the motor the greater the knock tendency. You have noted that fuel knock is moderate when the engine is cool, and anything you do to keep the water temperature down will be helpful. Be sure that the system is clean and free from leaks, and that the air circulation is normal.

Sometimes a water distributing tube which has rusted out will cause unequal circulation and excessive heat in the rear cylinders. A heavy scale deposit in the water jacket will also

increase the knock tendency, because it will prevent the transfer of heat from the combustion chamber to the water. This may occur without any marked rise in water temperature.

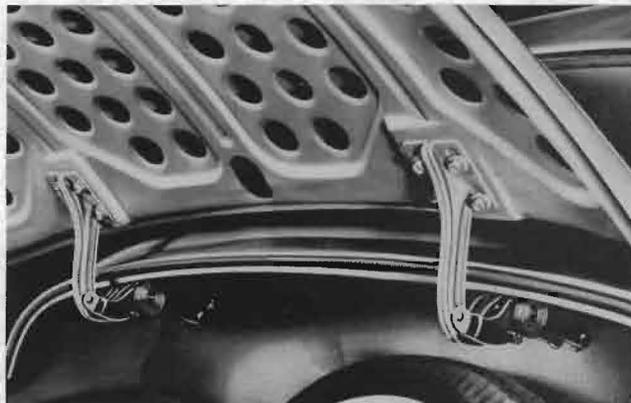
3. Sometimes you may find that the carburetor has been set with a very lean adjustment in order to save gasoline. Such an adjustment will raise the motor temperature and increase knock. It will also increase the possibility of burnt valves. Moreover, it does not help fuel economy. Best results are obtained when the carburetor, choke and air cleaner are standard.

4. Of course you know that carbon deposits in the combustion chamber increase the knock tendency. When the head is removed to clean carbon it is well to consider the advisability of using two cylinder head gaskets if the car is operated in hilly territory or if the owner is critical of fuel knock.

The use of two gaskets will permit the engine to operate for a longer period before the carbon must be cleaned again. Under average operating conditions there will be little difference in performance or in fuel economy. When two gaskets are used special care must be taken to see that the cylinder head nuts are properly tightened.

5. The owner who drives with a "heavy foot" will always have more trouble with fuel knock. Point out to him that by avoiding heavy acceleration and by using the gears at slow speeds he will be able to eliminate most of the fuel knock and will not need to have carbon removed as frequently. He will also improve his gasoline economy.

REAR DECK LID LEAKS



In checking rear deck lid leaks pay particular attention to the condition of the rubber weatherstrip where the top of the lid makes contact with the body.

It is at this point that leaks are most likely to occur and are the most serious. You must make sure that the edge of the lid makes a good contact and you must also be sure that it does not bear so heavily that the rubber is forced out of position.

When you install a new rubber you must be certain that it is firmly seated when it is cemented in the retaining trough. Then coat the upper surface with soapstone or powdered graphite so that the edge of the metal does not pull or tear the rubber. For the same reason the metal edge should be as smooth as possible.

In a few Clipper bodies you may find that as the lid closes, the shoulder at the upper edge of the reinforcing panel contacts the rubber, and that this contact pulls the rubber loose in the trough.

Sometimes the interference is caused by the fact that the door is improperly located, with insufficient clearance at the upper edge, and the centering of the door in the opening corrects the interference. In other cases, however, it may be necessary to relieve the corner of the reinforcing panel in order to obtain a clearance.

"LEAD BASE" BABBITT

For many years the conventional babbitt material in main and connecting rod bearing shells was known as a "tin base" babbitt.

In the meantime a great deal of work was done with lead as an alternate base material. This work was accelerated by the war program and the necessity for conserving the tin supply.

The lead base babbitt has given excellent results and has been found entirely satisfactory. We started the use of lead babbitt bearings with the 20th Series production and have been greatly pleased with their performance. It is doubtful whether we would return to the use of tin even if an unlimited supply were available.

While there is little or no difference in the performance of the two bearings, there is a distinct difference in appearance. The lead babbitt is darker in color and is not as "shiny" as the tin. The difference is even more noticeable after the bearings have been used.

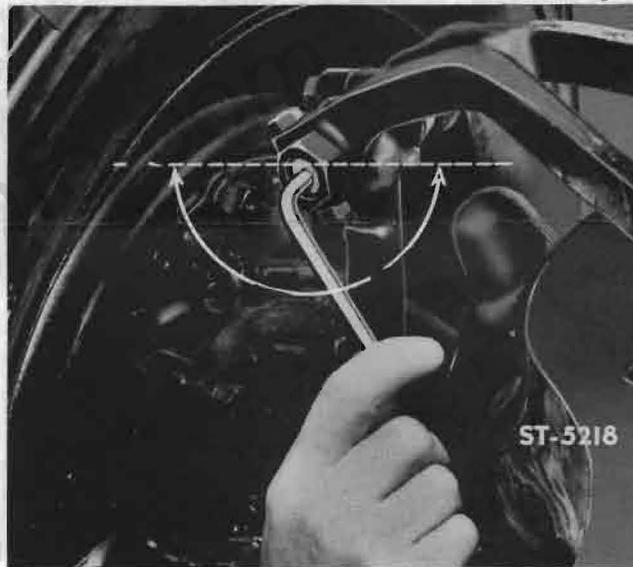
Some service stations, inspecting bearing shells removed from an engine, have felt that the darker and slightly roughened surface of the lead babbitt indicated a corrosive condition in the engine oil. This is not the case and the mechanic quickly becomes familiar with the characteristic appearance of the new bearing.

CAMBER ADJUSTMENT— CLIPPER

The camber adjustment on the Clipper models should be held within close limits.

The adjustment can be made easily and accurately, and we suggest that you modify our original specification of $\frac{1}{4}^\circ$ plus or minus $\frac{1}{2}^\circ$. Set the camber at 0° plus or minus $\frac{1}{4}^\circ$, and try to have the readings for the two wheels about the same.

If there is a considerable variation between the camber of the two wheels you will probably notice two results. First, the car will tend to lead toward the side where the camber is the greatest. Second, you are apt to notice increased tire wear on this same side. The wear will occur on the outside of the tire.



CAMBER 0° PLUS OR MINUS $\frac{1}{4}^\circ$

When an owner complains that the steering leads to one side or the other you should make sure that the camber is correct. There is a greater tendency for the steering to lead to the right because the car is usually on the right side of the crown of the road, and the car tends to move down the slope. The weight of the driver, when he is alone, may offset this tendency. If not, see that you have a trifle less camber on the right side.

If the steering leads so strongly that a constant pull on the wheel is necessary to hold the car straight, you will find the tire wear, described above, on the side to which the car tries to travel.

LOW OIL PRESSURE

When it is found that the engine oil pressure is unusually low the condition should be investigated without delay.

Naturally, the first step is to see that there is oil in the crankcase, and the second step is to make sure that the gauge reading is correct. The checking of the gauge is described in the June issue of the Service Counsellor.

It is seldom that the oil pump relief valve is responsible, and it will usually be necessary to drop the crankcase oil pan. If you find a heavy sludge condition you should check the Float-O screen.

The clogging of the Float-O screen may cause a drop in oil pressure, although it will not cause a complete loss of pressure. When the screen clogs, the pump suction pulls the screen away from the cover so that the opening in the center of the screen permits the oil to enter the system. When the screen is clean the center ferrule bears against the cover, so that the opening is sealed.



If the screen is clogged a sludge deposit will also be found in the pan and inside the crankcase. The sludge should be removed as thoroughly as possible, otherwise it may be picked up by the oil and the screen may plug again.

It is good practice to clean the pan and screen at least once a year. (As recommended on Page 102 of the Service Manual). This is particularly important in the case of slow driven cars, whose operating temperatures are low, because it is in these cars that the sludge collection is greatest. When you find a heavy sludge deposit in the valve chambers you can be sure that there is a corresponding deposit in the pan.

The screen can be cleaned by washing it in gasoline, or a similar solvent, and blowing it out by directing compressed air in through the elbow. When you replace the screen make sure that the upper connection is tight, where the oil tube is fastened to the crankcase. This is particularly important in the case of the flanged connection in the Super Eight.

Of course, there are many possible causes for low oil pressure. With the pan removed the complete engine oiling system can quickly be checked with an oil test tank. This is a good practice to follow whenever the oil pressure is abnormally low or when bearing leakage is suspected.

NEW SERVICE SIGN



The picture will give you a good idea of how the new Service Sign will look. A new order blank and agreement form has been sent to dealers with a folder showing the sign in colors.

SIZE: 42" in diameter.

CONSTRUCTION: Double-faced panel, finished in vitreous porcelain enamel in three colors, as illustrated, on a single sheet of 18-gauge steel.

SHIPPING WEIGHT: Approximately 70 pounds.

PRICE: Complete, crated, with hanging equipment and porcelain enameled reflectors (not including lamps) f. o. b. Detroit, not to exceed \$25.00.