The FORD LUBRICATION SYSTEM

"What it needs."

The

FORD LUBRICATION SYSTEM

What It Needs

WHY not settle once and for all this question of the correct oil for your Ford?

Correct Lubrication is the most important single factor in securing smooth, efficient and economical operation of your Ford.

There are two lubrication mistakes that Ford owners frequently make. One is to use an oil of poor quality. The other is to use an oil of too heavy a body.

NOTE

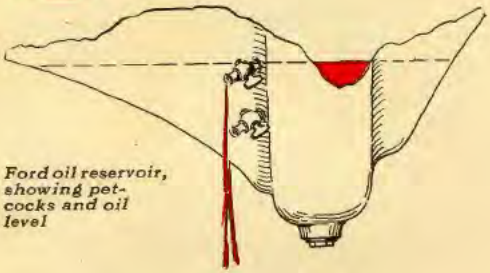
The Ford Manual is definite on these points. In answer to the question, "What kind of Oil should be used?" it says (Page 45, Answer 100):

> "We recommend only light high-grade gas engine oil for use in the Model T motor. A light grade of oil is preferred as it will naturally reach the bearings with greater ease and consequently less heat will develop, on account of friction. The oil should, however, have sufficient body so that the pressure between the two bearing surfaces will not force the oil out and allow the metal to come in actual contact. Heavy and inferior oils have a tendency to carbonize quickly, also 'gum up' the piston rings, valve stems and bearings. In cold weather a light grade of oil having a low cold test is absolutely essential for the proper lubrication of the car. Graphite should not be used as a lubricant in the engine or the transmission as it will have a tendency to short-circuit the magneto."

You will note that this recommendation lays special emphasis on the use of a *light high-grade* oil. Oils can be both too light as well as too heavy. The grades "light," "medium" or "heavy" are not safe guides in determining the correct oil for your Ford.

Let us show you exactly why your Ford engine operates best on a high-grade oil of the correct body such as Gargoyle Mobiloil "E."

POINT 1



Ford oil reservoir, showing pet-cocks and oil level

Point 1—Insuring the Correct Oil Level

First, you pour in the oil. Your Ford Manual tells you to open the top pet-cock on the oil reservoir, and to pour oil into the filler until it runs from this top pet-cock.

Suppose you pour in an oil *heavier* than "E." It is easy to supply too much, unless the oil flows out freely when the upper pet-cock level is reached. Heavier-bodied oils flow sluggishly. Consequently, there is a danger of over-supply.

When you pour in Gargoyle Mobiloil "E," it runs out at once when the oil is up to the pet-cock level. The correct oil level is obtained with CERTAINTY.

POINT 2

From actual photograph, showing carbon formation on head of piston

Point 2—Carbon from Too Much or Too Heavy Oil

But possibly you do not think that this over-supply of oil makes any difference. Well, let us see what happens.

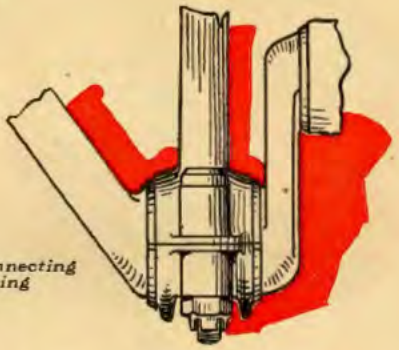
You notice that there is no splash trough for the rear cylinder. It is lubricated by the fly-wheel splash. (The third cylinder also receives some of this splash.)

If there is *too much* oil in the reservoir there will be too much oil splashed to the third and fourth cylinders. From the cylinder walls this excessive amount of oil reaches the combustion chambers where it is burned up.

With an over-supply of oil heavier than "E," don't be surprised if you find extra heavy carbon deposits in these rear cylinders.

The exceptionally clean-burning character of Gargoyle Mobiloil "E" minimizes the tendency toward carbon formation in the combustion chambers.

POINT 3

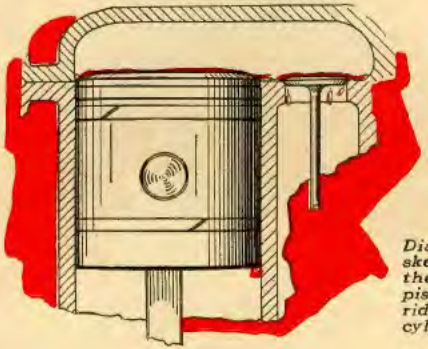


Ford connecting rod bearing

Point 3—Reaching the Friction Surfaces

Next let us look at the connecting rods and splash troughs. Cylinders 1, 2 and 3 are lubricated by the dipping of the connecting rods into the troughs underneath. Remember that these connecting rods have no oil holes, no oil grooves, no dippers. To lubricate the friction surfaces the oil must work its way through the close clearances between the ends of the bearings and the crank cheeks, and then distribute itself over the bearing surfaces.

Gargoyle Mobiloil "E" is sufficiently fluid to reach and lubricate these surfaces with ease. An incorrect or heavier oil very often does not.

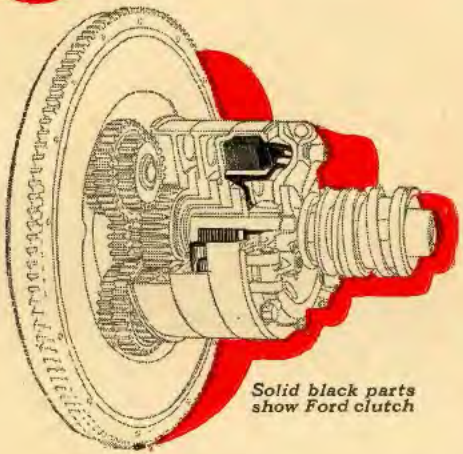


Diagrammatic sketch showing the effect of the piston "over-riding" the cylinder bore

Point 4—Preventing Valve Gumming

Next, let us consider the pistons. The Ford pistons overrun the top of the cylinder bore. Consequently, any oil carried up by the piston rings is forced into the valve chambers. A heavy oil does not burn up readily, but remains to gum the valves.

Gargoyle Mobiloil "E," being a clean-burning oil, is readily consumed and expelled. It does not remain to foul the valves, seats, and stems.



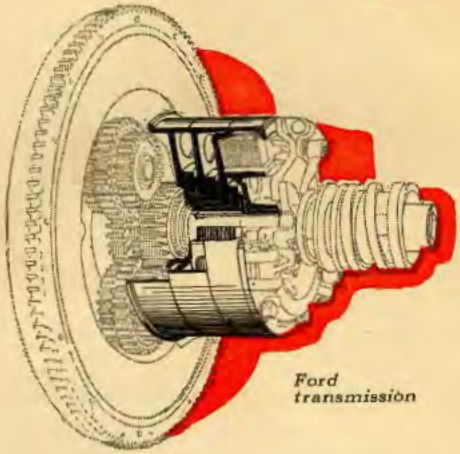
Solid black parts show Ford clutch

Point 5—The Clutch

The Ford multiple disc clutch runs "wet"—is continually in a spray of engine oil. All manufacturers of this type of clutch recommend an oil which will give positive, quick engagement with no slipping, and an instantaneous release.

Heavier oils used in Ford engines cause a drag between the clutch plates. "Creeping" is the result. The car starts ahead when the engine starts, although the clutch is released.

Gargoyle Mobiloil "E" gives positive and immediate clutch engagement and disengagement. There is no "creeping."

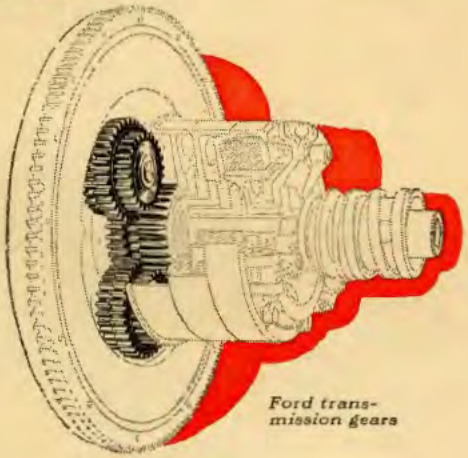


Ford transmission

Point 6—The Transmission

Just a word about the transmission. In the Ford you have a planetary transmission employing three *close-fitting* sleeves, mounted on an extension of the crank-shaft. A heavy-bodied oil is not well adapted to work into and thoroughly lubricate the sleeves and bearings.

The body and character of Gargoyle Mobiloil "E" enable it to distribute thoroughly and meet this lubrication need perfectly.



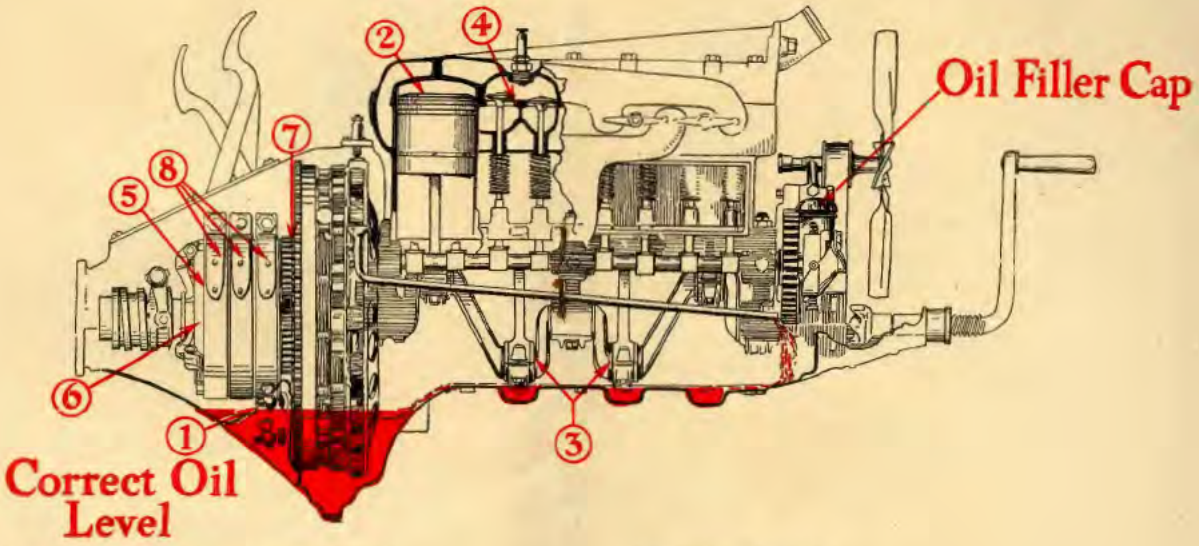
Ford transmission gears

Point 7—The Gears

As to the transmission gears: There are three sets of triple gears mounted on close-fitting pivots. These gears are bronze bushed. The bearings fit tightly —in fact, so tightly that oil heavier than "E" is handicapped in working into and correctly lubricating the bushings and pins.

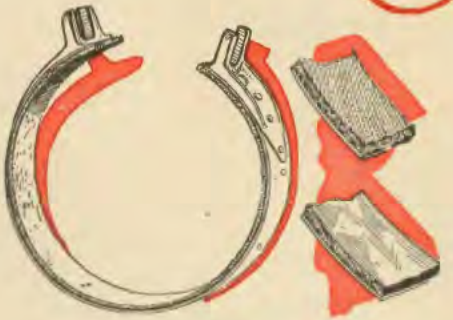
Gargoyle Mobiloil "E" is of such body that it freely creeps in between the close-fitting parts and thoroughly lubricates the gears and bearings.

Important points in the Ford Lubrication System



1. Insuring correct oil level
2. Carbon from too much or too heavy oil
3. Reaching the Friction surfaces
4. Preventing valve gumming
5. The Clutch
6. The Transmission
7. The Gears
8. Chattering of transmission bands

For full discussion of each point, see text



1. Ford transmission band
2. Appearance of lining when new
3. Smooth spots on worn lining

Point 8—Chattering

Chattering of Ford transmission bands comes from incorrectly adjusted bands or worn out linings, and is aggravated by unburned fuel mixed with the lubricating oil. In such cases the diluted oil should be replaced with fresh oil and the bands correctly adjusted or the linings renewed.

Gargoyle Mobiloil "E" is free from foreign material and animal fat. Its use and proper attention to the adjustment and renewal of the bands will give the greatest possible freedom from chattering. At the same time it will correctly lubricate the engine.

CAUTION—There are many anti-chatter oils offered to Ford owners. These oils usually contain compounds such as animal fats, ammonia, wool grease, soap, etc., to overcome chattering of the transmission bands. Such oils should not be used.

Compounded oils of this character are not suited to the correct lubrication of the Ford engine. They are productive of excessive carbon formation and, in the presence of any moisture in the crankcase, produce emulsions which seriously interfere with and impair free and complete oil circulation.

To overcome transmission band chattering, follow the procedure outlined.

After careful consideration of the above Ford characteristics the Vacuum Oil Company's Board of Engineers saw plainly the need for a free-flowing oil of high quality, and with minimum carbonizing tendencies.

To meet these exacting needs of the Ford engine, clutch, and transmission, Gargoyle Mobiloil "E" is manufactured.

The results secured by Ford owners through the use of Gargoyle Mobiloil "E" is ample proof of the high quality of this oil and the correctness of this recommendation.

Put Gargoyle Mobiloil "E" in your Ford today.

Detailed Instructions for Ford Car Lubrication

Engine. Open upper level testing pet-cock on right rear side of fly-wheel housing and fill reservoir with Gargoyle Mobiloil "E" through breather pipe opening on right side of timing-gear case until oil just begins to drip from pet-cock.

Inspect oil level daily. Never permit oil level to fall below that of the lower pet-cock.

Caution. Be sure pet-cock is not stopped up. Do not overfill. Always test oil level with engine stopped. If engine is running, pet-cocks will not indicate correct level.

Periodic Draining. Every 1,000 miles remove drain plug from bottom of oil reservoir and drain off old oil. Drain immediately after stopping the engine while the oil is warm and thoroughly agitated. This will carry off most of the sediment.

Do not flush with kerosene. It is impossible to drain all the kerosene from the splash troughs and oil wells. The trapped kerosene will remain to cut the body and impair the lubricating value of the fresh oil. If flushing is deemed necessary, use a quart of fresh oil. After draining, refill reservoir to correct level with fresh Gargoyle Mobiloil "E."

Differential. Gargoyle Mobiloil "CC," which is a straight mineral oil of semi-fluid character and of the highest quality, will correctly lubricate the differential of the Ford passenger car. When a compounded grease is preferred, Mobilubricant, a light-colored, medium-bodied grease, is recommended.

Fill the housing through the filler opening until the level stands approximately 1½ inches below the lower side of the filler opening. Replenish supply every 1,000 miles. Every 5,000 miles drain the housing, flush with kerosene, and refill with fresh lubricant.

The Ford Truck

Identically the same engine is found under the hood in the Ford truck as in the touring car.

It is filled in exactly the same manner and calls for the same oil—Point 1.

It will have the same tendency towards carbon formation if an oil heavier in body than Gargoyle Mobiloil "E" is used—Point 2.

The connecting rods are the same as in the passenger car engine and make necessary the same oil to insure its reaching the surfaces of the bearings—Point 3.

The pistons also overrun the cylinder bore and the same oil is required to prevent fouling of the valves—Point 4.

The clutch and transmission are also identical. Thus, to prevent car creeping and when starting engine, to make certain that the oil will reach all surfaces, the same oil, Gargoyle Mobiloil "E," should be used—Points 5, 6, 7.

Point by point, the engines are the same and have the same requirements.

On the Model TT Ford (Commercial Model) the final drive gearing is of the worm type. The proper lubricant for this type of gearing is Gargoyle Mobiloil "C," which is a heavy dark fluid oil especially manufactured for the purpose.

The Fordson Tractor

In the Fordson Tractor you will find an engine differing in many praticulars from the truck and passenger car engine. Its work is much more severe, being usually heavily loaded, and as a result, engine temperatures are much higher.

For this reason a heavier, richer oil must be used.

Gargoyle Mobiloil "BB" is of the proper body and character to provide adequate lubrication under these high engine temperatures.

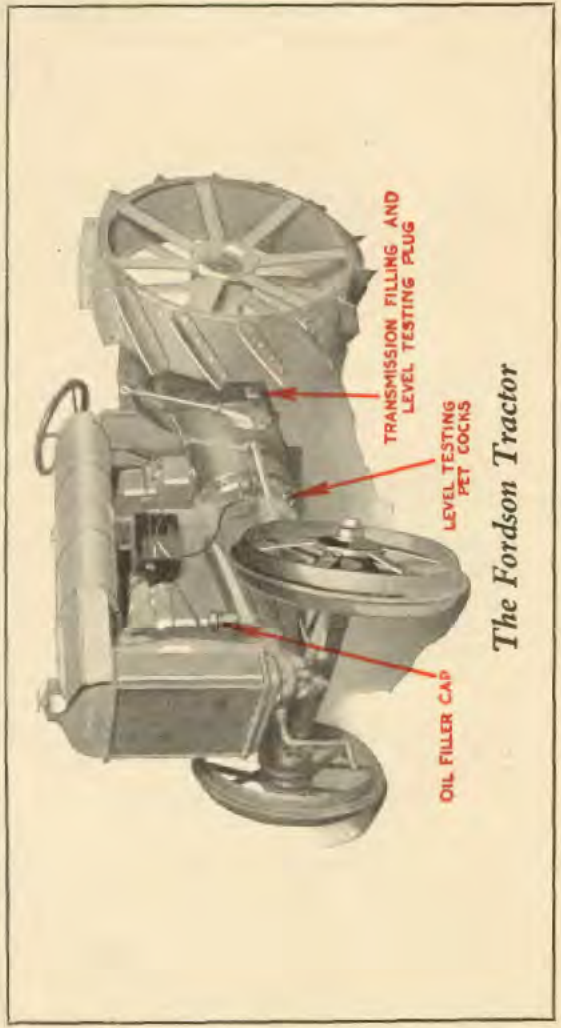
In the tractor engine the direct splash of oil by the fly-wheel does not reach the cylinders as it does in the car or truck; instead, each cylinder has its own splash trough. In addition, the Fordson pistons but very slightly overrun the top of the cylinder bore.

For this reason an excessive quantity of oil will not reach the cylinders. The higher engine operating temperatures of the tractor will burn the oil cleanly, provided too heavy an oil is not used.

Gargoyle Mobiloil "BB" is exceptionally clean burning under these temperatures and it will minimize both carbon formation in the combustion chambers and fouling of the valves.

During cold winter weather an oil of greater fluidity should be used to insure prompt oil circulation and permit easy cranking of the engine. Engine operating temperatures are lower during this winter season.

Gargoyle Mobiloil "A" is of the proper body and character to provide lubrication under these lower temperatures and will also retain its fluidity under cold weather conditions.



The Fordson Tractor

Transmission—Differential Final Drive

The transmission is of the conventional gear type, the final drive being through a worm. These are in a single compartment separate from the engine crankcase. The proper lubricant for this type of gearing is Gargoyle Mobiloil "C," a heavy, dark colored fluid oil, especially manufactured for the purpose.

Detailed Instructions for Fordson Tractor Lubrication

Engine. Fill the engine reservoir through the breather pipe to the upper pet-cock level, twice daily, with Gargoyle Mobiloil "BB" in summer and Gargoyle Mobiloil "A" in winter.

Caution. Be sure the pet-cock is not stopped up. Test oil level with engine stopped and tractor level. Do not overfill.

Periodic Draining. Every 50 hours of actual operation remove drain plug from bottom of the engine oil reservoir and drain off old oil. Drain immediately after stopping the engine while the oil is warm. Do not flush with kerosene.

Transmission and Final Drive. Every 100 hours or every two weeks of actual operation, remove the drain plug from the bottom of the transmission housing, and drain off the old oil while oil is warm. Refill with Gargoyle Mobiloil "C."

Miscellaneous Parts. Lubricate weekly with Gargoyle Mobiloil "C," the rear axle bearings, through plugs on upper side of axle, and the fan bearing. Lubricate daily with engine oil, the steering joints, spindle arms and front axle trunnion. Where grease cups are supplied, use Mobilubricant, giving cups two turns daily. Front wheel hubs pack with Mobilubricant every other week.

The Engine

Gargoyle Mobiloil "E"

A straw colored oil of highest quality, especially suited to the Ford engine. It possesses excellent lubricating properties and will retain its fluidity at low temperatures. Contains practically no free carbon.

The Differential

Gargoyle Mobiloil "CC"

Gargoyle Mobiloil "CC" is a heavy mineral lubricant of semi-fluid character and of the highest quality which will correctly lubricate the differential of your Ford passenger car.

Mobilubricant

When a compounded grease is preferred, we recommend Mobilubricant, a light-colored, medium-bodied grease. Mobilubricant is particularly suited for pressure grease cups, differential, universal, and for packing the front wheels of your Ford car.

Gargoyle Mobiloil "E" is sold in all sized packages, from a gallon can to a barrel or steel drum (with faucet) for your home garage.

Vacuum Oil Company

NEW YORK, U. S. A.

GARGOYLE

Mobiloil

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