



POLARINE PROVIDES A HEAT REDUCING OIL FILM FOR BEARINGS, GEARS AND CYLINDERS

Polarine kills friction. It can't break up nor run thin like poor oils. It prevents overheating of parts—saves shutting down to let the engine cool. Tractors, trucks and automobiles get constant, protective lubrication from each gallon of Polarine.

Polarine saves fuel by supplying a continuous piston-to-cylinder oil film that gets all possible power out of the fuel. Does not congeal at low temperatures. Consumes with hardly a trace of carbon.

Keeps bills for overhauling and repairs small. Made in three grades—Imperial Polarine, Imperial Polarine Heavy, and Imperial Polarine A. For motors that require an unusually heavy lubricant. Sold in one-half, one and four-gallon sealed cans. Also in steel barrels and half-barrels. Ask the Imperial man at our nearest station to recommend the lubricant that will be most economical and efficient for your engine.

Imperial Polarine for sale by good dealers everywhere. Ask for Polarine Book on Automobile Lubrication.

Polarine

FRICITION REDUCING MOTOR OIL

IMPERIAL OIL LIMITED

Power • Heat • Light • Lubrication
• Branches in all Cities



the new operator must make an adjustment, try the tractor and then shut down to see if the bearings are heated. After a man has run a tractor for a time he should be able to tell by the sound if bearings are too loose. On the contrary, he must not be alarmed if the bearings seem warm, because they naturally will do this if the engine has an enclosed crankcase.

Neither can the tractor be run with loose piston pin parts. If there is no adjustment provided, new parts must be put in when wear occurs.

Other bearings on the tractor should be inspected frequently and adjusted when needed. Those who purchase tractors nowadays have less of this to do because ball bearings and roller bearings are used so largely. But on some types and in some places an occasional tightening is needed. The bearings of all shafts used for

driving valves, magnetos or governors should be kept in good snug running condition.

The careful adjustment of the valve gear is highly important. No tractor can pull well with valves badly out of time. All bearings, cams and lever bearings should be kept in position. Also it is absolutely necessary to adjust valves properly for opening and closing. No definite rule can be given for this because every make of engine has certain methods of setting the valves. However, it will be found that the "end of exhaust" is the important setting as a usual thing.

The valves may need grinding occasionally. The important part of valve grinding is the "clean up." All grease and cutting matter should be carefully cleaned away. Unless one has done some grinding, he should have experienced help the first time valves are to be ground.

Regarding the Magneto

The magneto requires adjustment once in a while. The best rule here is to follow carefully the printed instructions of the maker. Do not try to improve upon the suggestions until thoroughly experienced. Besides the trouble is often found outside the magneto which may require no change. The good operator makes sure of spark plugs and connections before he touches the magneto.

Spark coils require only an infrequent adjustment. It should not be necessary to clean contact points until they plainly show that they need cleaning. As for the inside of the coil, the "greenhorn" should let it alone.

In general, ignition equipment should be kept clean. All contacts should be kept clean and tight. Oil and grease are bad, especially for insulated wires. Dust or water in high tension parts will certainly

cause poor ignition. One other thing: When the ignition system is working properly do not fuss with it. "Good enough" is best.

Carburetor-Adjustment Pointers

The adjustment of the carburetor is another one which causes new operators a deal of concern. Of course, a final adjustment is a good thing, but to my notion the best plan is to get an adjustment with which the tractor will pull well at average loads. Unless the operator is very careful, an effort to get a close adjustment will give a weak, slow-burning mixture, which may cause slow burning and heating. A very common error is that of tightening the spring of the auxiliary air valve too much. This tends to reduce compression. A good plan is to go slowly on carburetor adjustments. It is better to burn a half gallon too much fuel per day than to run with a mixture which lacks "pep" in a hard pull. Above all things the manufacturer's directions should be followed, for he has spent experimental money to find how to set the carburetor.

Gear Mesh and Alignment

Another matter which should be watched is gear mesh and alignment. A great deal of power may be lost if gears get out of proper set. They should run square and true and mesh deep. Just the other day I saw a big tractor gear set with six-inch faces in bad order. They had been run out of line until they had worn so that there was really but five inches of actual bearing surface for the teeth. Besides, the shaft bearings were worn so badly that the gears lacked fully three-eighths of an inch of meshing deeply enough. Yet there was a provision made for taking up end play and also one for spacing the shafts properly for gear mesh. The best tractor operators give careful attention to gears and gear set bearings.

To get the best out of the tractor, the pistons, rings and cylinders must be kept in order. In the first place, good oil must be used. In the second place, the carburetor must be set properly and the cooling system kept in order to prevent overheating and carbonization. In case there is any question regarding the condition of pistons, they should be pulled and the rings carefully loosened and fitted in the grooves. When putting pistons in place care must be exercised to prevent jamming the ring grooves so that the rings stick. Any hard or rough spots should be chipped or filed from the piston surfaces.

Lubricating the Tractor

As for lubrication, it is probably the most neglected and yet most necessary part of successful tractor work. Many operators have the notion that once a day is

Continued on page 60