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*Maintenance choice is clear:*

# Lubricate Or Languish



Author Stanley Metsker, left, is getting lubrication recommendations on an H. D. Hudson Company sprayer from sales representative Cooper B. Baldrige of Memphis, Tenn.

**A**NYONE who is responsible for the care of machinery must know something about lubrication.

The life and service of a machine depends to a large extent upon the care it is given. It is a constant problem to see that each need is met with the proper lubricant at the proper time and in the proper amount. Results of neglect are expensive.

Lubricants generally are either an oil or a grease. An oil has four specific functions to serve in the modern engine. It must lubricate, seal, cool and cleanse. To perform its most important function, that of lubricating, the oil must possess three properties, the ability to:

- make surfaces “slippery;”
- adhere to metal surfaces;
- maintain a lubricating film between all friction surfaces under varying extremes of pressure and temperature.

Sometimes certain chemicals are added to oils to help take care of specific problems. These chemicals are called additives. Among reasons they are added are to:

- better protect bearings;
- resist oxidation of the oil;
- better resist wear;
- better disperse the oil;
- hold dirt in suspension (detergents);
- make the oil flow better;
- make the oil thicker;
- keep the oil from foaming;
- resist rust.

Fortunately most of us never have to worry about which additive to use. Oil companies make oils to do certain jobs and add the additives accordingly.

All you have to do to take advantage of these additives is to buy good oil from a good company in the MM or MS class. Oil classifications are explained later. Remember that oils for severe operating conditions will contain more additives than the oils for light duty and will therefore cost more.

## Detergent Oils

Detergent oils are generally used in all but the lightest of engine applications. Detergents in oils dissolve gummy or resinous deposits and even more important they keep the minute solid particles formed by fuel and oil deterioration in suspension so they will be drained out with the oil change instead of being left in the engine.

A reasonable oil change practice is a money-saving practice. The secret to using these detergent oils to their fullest potential is to change

them before they become overloaded with dirt. Because this type of oil keeps carbonaceous material in the crankcase in suspension, it becomes discolored sooner than would straight mineral-type oil. Oil color, therefore, loses its meaning as a means of determining oil cleanliness.

Detergent oil is not recommended for use if your engine has been in service for a long time using non-detergent oils, because the contaminants it loosens in the system by its purging action may cause plugging of the oil lines and oil pump screen, resulting in damage to your engine. Under normal operating conditions, oil should be changed every 100 hours in a tractor.

### What API Ratings Mean

The American Petroleum Institute (API) lists the following motor oil classifications for gasoline engines:

**ML**—Light duty, favorable operating conditions for mild engines with no abnormal lubrication requirements.

**MM**—Moderate to severe operating conditions where deposits or bearing corrosion may be a problem when crankcase oil temperatures are high.

**MS**—Unfavorable or severe operating conditions where there are special lubrication requirements for deposits, wear, or bearing corrosion control, due to operating conditions or engine design or fuel characteristics.

Current automotive engine design and motorist driving habits would fall in the MS category. An MS type oil should be used in most tractors and even in most single-cylinder engines.

The Society of Automotive Engineers (SAE) classification indicates the viscosity of an oil. An SAE 10 would be thinner than an SAE 30 oil. SAE 10-20-30 can be used all year long.

In addition to the oils mentioned above, some of the following special use oils may be needed:

—Penetrating oil, for loosening tight nuts and bolts;

—Cutting oil, for making threads on pipes or bolts;

—Turbine pump oil, a highly-refined oil for turbine pump motors;

—Gear oils, for transmissions, differentials and gear boxes.

The best advice on how to take care of your machinery comes in the form of a booklet which is sent

along with the machine. These instruction booklets should be kept for future reference.

The purpose of any lubricant is to reduce friction between two moving parts.

To keep two metal surfaces separated, the lubricant must keep the metal wet with oil and resist being displaced by pressure. A lubricating grease must also serve other purposes such as cooling, prevent corrosion and keep out contaminants. For most purposes a multi-purpose grease can be used.

The Jacobsen Turf King triplex mower is a good example of a machine with many different lubrication requirements. The sealed bearing that acts as a V-belt idler for the belt running to the front reel never needs to be greased. In contrast, the bearings at each end of the shaft that hold the rollers for the mowing units need grease every four hours the machine is run. Other bearings on this machine need grease at other intervals.

### Follow Makers Instructions

Each machine has definite needs and can only perform at its best when the manufacturer's instructions are carefully followed.

**A WORD OF CAUTION:** If you use water or steam to clean equipment, be careful about forcing water into bearings. It is a good idea to grease the equipment after washing to force water out of the bearings. Also, keep water out of the air filter.

Constant lubrication is necessary but over-lubrication is also bad.

Some men put so much grease into motors that they would fail from excess grease clogging up the windings. Over-greasing also can push out grease seals and let in dirt.

Following is a list of lubricants that you generally need for turf-grass equipment:

**Oils**—Motor oils of class MS. An SAE 30 oil for summer and a 10 or 20 for winter, or 10-20-30 year around. Outboard motor oil for two cycle engines. SAE 90 or 140 oil for gear boxes. Hydraulic oil. Penetrating oil. Cutting oil. Turbine pump oil. Other special oils for special cases.

**Grease**—Water pump grease is sometimes needed, but for most jobs a multi-purpose grease will do.

Lubrication is a job that must be done. When done right, you will have equipment that runs better, longer and cheaper. You must lubricate or languish in the mire of your own neglect.

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