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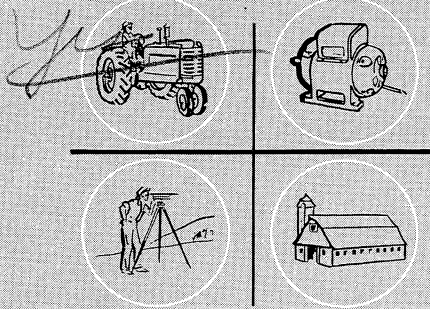
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1972

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SELECTING CRANKCASE OIL

C. B. Richey, Agricultural Engineering Department

Two important changes have recently been introduced with regard to crankcase oils for both gasoline and diesel engines. One is the development of a new "super" grade oil for automobiles; the other is the revision of the API oil service classifications.

NEW "SE" GRADE OIL

Today's automobile engines run hotter than ever before — and not just because of horsepower. Emission controls, pressurized cooling systems, air conditioning, automatic transmission fluid cooling, sustained high-speed driving, bigger engines with lower compression ratios, trailer towing — all contribute to higher operating temperatures. Prolonged high-temperature operation has caused many of the multi-viscosity oils to thicken excessively between the modern long oil-change periods.

A new top-grade motor oil, designated SE, is now available which retains the cold weather-short distance advantage of multi-viscosity oils but thickens less between changes. SE oil is recommended for most 1972-model cars but can also be used in place of lower grades in older-model cars.

REVISED OIL SERVICE CLASSIFICATIONS

Motor oils are classified according to engine type and intended use. A standardized letter designation is given for each class to indicate the type of service for which the manufacturer recommends his oil.

The American Petroleum Institute (API) recently revised these oil service classifications, adding the new SE grade and changing the letter designations of the existing grades. The table on

the back shows these changes for both gasoline and diesel engine oils.

Two things should be kept in mind when referring to the API oil service classifications in the table. First, the letter designation alone on a brand of oil only indicates the type of service for which the oil supplier recommends his product and does not necessarily guarantee that it meets the manufacturer's recommended specification or performance test for a particular engine. Thus, the user must still rely on the integrity of the oil supplier.

Secondly, the API classifications are not to be confused with SAE (Society of Automotive Engineers) viscosity numbers. SAE ratings refer to the fluidity of an oil at 0°F. in the case of numbers ending with a "W", and at 210°F. in the case of numbers without a "W". Multi-grade oils use special additives which reduce the change in viscosity with temperature. Therefore, a multi-grade oil may rate as SAE 10W for cold-weather starting at 0°F. but still maintain body for an SAE 30 rating at 210°F.

A SPECIAL WORD TO TRACTOR OPERATORS

Multi-viscosity oils may be beneficial for light-duty usage of farm tractors during fall, winter and spring, when great temperature fluctuations can be expected. However, most tractor manufacturers recommend single-viscosity oils for heavy-duty service at temperatures above 32°F., especially in diesels, because these oils are apparently less subject to deterioration and thickening under high temperatures than the multi-grades.

CD oils are required for fully-supercharged farm diesel tractors in high-speed heavy-duty operation and for some heavy-duty gasoline models.

Table 1. Service Classifications of Crankcase Oils for Gasoline and Diesel Engines

Designation Old	New	Engine type and/or intended use	Performance information
CLASSIFICATIONS FOR GASOLINE ENGINE OILS			
ML	SA	For small utility engines in mild service and for bearing lubrication.	No additives required, although pour and/or foam depressants may be included.
MM	SB	For minimum-duty gasoline engine service.	Contains additives to increase anti-scuff properties and resistance to oil oxidation and bearing corrosion. Available since the 1930's.
MS	SC	For 1964-1967 automobile warranty maintenance requirements.	Contains increased additives for control of high- and low-temperature engine deposits, wear, rust and corrosion.
MS	SD	From 1968-1970 and some 1971 automobile warranty maintenance requirements.	Contains increased additive levels over SC.
--	SE	For 1972 automobile warranty maintenance requirements.	Provides additional protection over SD against oil oxidation, high-temperature engine deposits, rust and corrosion.
CLASSIFICATIONS FOR DIESEL ENGINE OILS			
DG	CA	For diesel engines operated in mild to moderate duty with high-quality fuels. Occasionally includes gasoline engines in mild service.	Provides protection from bearing corrosion and from high-temperature deposits in diesel engines without turbo-chargers if the fuels used are of such quality that they impose no unusual requirements for wear and deposit protection. Widely used in the late 1940's and 1950's.
DM	CB	For diesel engines operated in mild to moderate duty, but with lower quality fuels that necessitate more protection from wear and deposits. Occasionally includes gasoline engines in mild service.	Provides necessary protection from bearing corrosion and from high-temperature deposits in diesel engines without turbo-chargers and using higher sulfur fuels. Introduced in 1949.
DM	CC	For lightly supercharged diesel engines operated in moderate to severe duty, and for certain heavy duty gasoline engines.	Provides protection from high-temperature deposits in lightly supercharged diesels and also from rust, corrosion and low-temperature deposits in gasoline engines. Introduced in 1961 and used in many trucks, industrial and construction equipment, and farm tractors.
DS	CD	For supercharged diesel engines operated in high-speed, high-output duty requiring highly effective control of wear and deposits.	Provides protection from bearing corrosion and from high temperature deposits in supercharged diesel engines when using fuels of a wide range of quality. Introduced in 1955.