Caterpillar

Operator's Manual

619

Tractor

S/n 89E1 & Up

90E1 & Up

Operator's Manual

CT-O-619 TRAC

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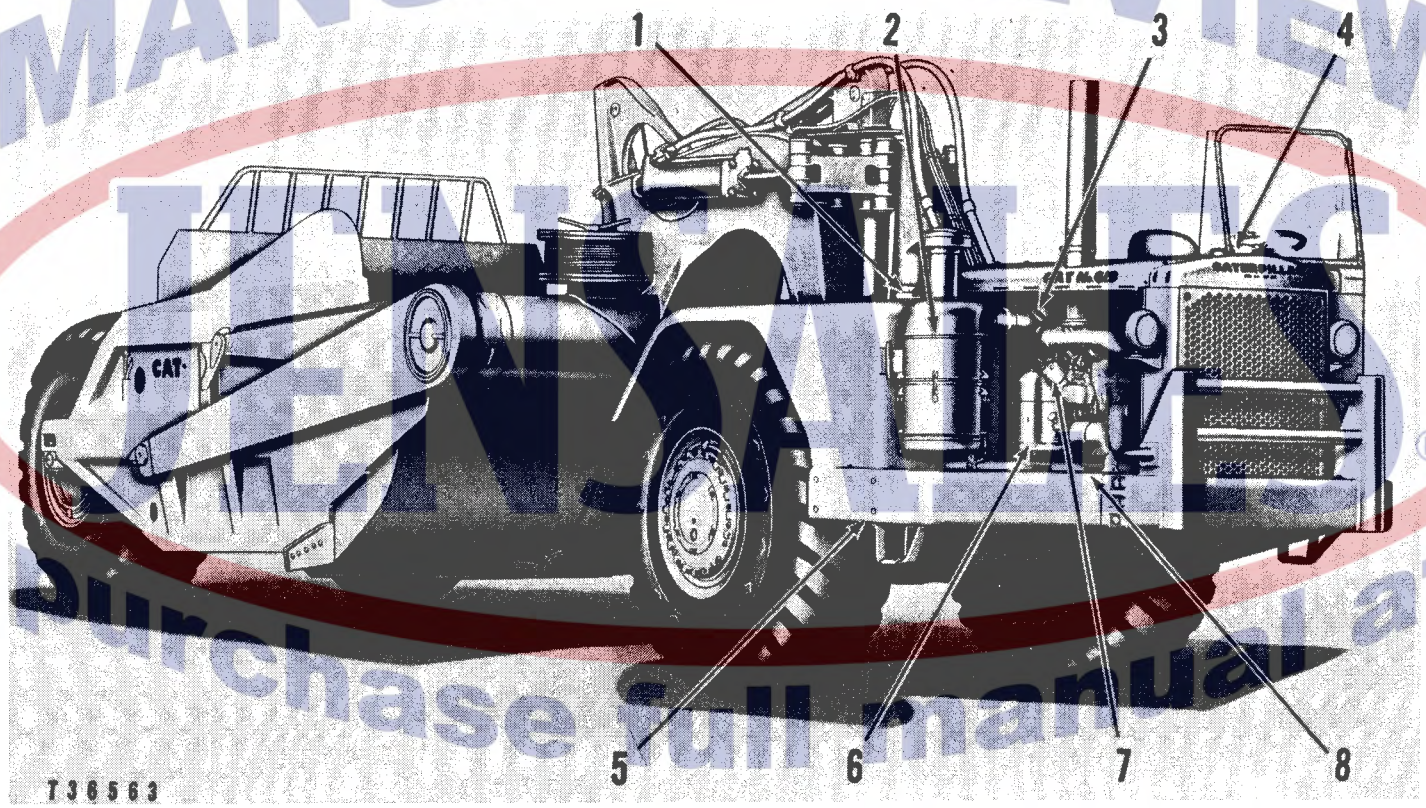

NO. 619–TRACTOR — RIGHT FRONT VIEW

1–Diesel fuel tank filler cap. 2–Diesel engine air cleaner. 3–Turbocharger. 4–Radiator filler cap. 5–Air supply reservoirs. 6–Diesel engine crankcase lubricating oil filters. 7–Diesel engine crankcase filler cap. 8–Battery compartment.

S.A.E. Grade of Oil

The grade of oil is classified in terms of viscosity (fluidity or flow ability) and is identified with numbers called SAE numbers. There are two distinct series of numbers within the SAE numbering system, one being for crankcase lubricating oils and the other for transmission and axle lubricants. The lower SAE numbers within each of these two series are more fluid and flow more readily than do those with the higher numbers within the sames series. The fact that flow characteristics overlap in the recommended transmission oils and crankcase lubricating oils is shown in the TEMPERATURE AND VISCOSITY RANGE CHART where either of these oils may be used in the gear compartment.

To determine if the oil in the compartments will flow in cold weather, remove the oil level gauge or dip a finger into the oil before starting and if the oil will flow off, the oil is fluid enough to circulate properly.

The oil that has been diluted for cold weather operations should be drained and replaced with undiluted oil at the end of the cold season when dilution is no longer required.

The following chart will aid in the selection of the proper SAE grade of oil to be used in the various compartments at the prevailing atmospheric temperature.

TEMPERATURE AND VISCOSITY RANGE CHART

Compartment	SAE GRADE OF OIL TO USE AT PREVAILING ATMOSPHERIC TEMPERATURE			
	Above +32°F.	+32°F. to +10°F.	+10°F. to −10°F.	−10°F. and Lower
Diesel Engine Crankcase Starting Engine Crankcase	Superior Lubricants (Series 3) Only			
	SAE 30	SAE 10W	SAE 10W	*Dilute SAE 10W
Starting Engine Air Cleaner Breather Elements Electric Starting Motors	Superior Lubricants (Series 3), Straight Mineral or MIL-L-2104A			
	SAE 30	SAE 10W	SAE 10W	SAE 10W
Gear Compartments Transmission Differential Final Drives	MIL-L-2105 Oil Only			
	SAE 90	SAE 80	SAE 80	*Dilute SAE 80
Hydraulic Control System	Superior Lubricants (Series 3) or MIL-L-2104A			
	SAE 10W	SAE 10W	**Dilute SAE 10W	**Dilute SAE 10W

*In lower temperatures it may be necessary to dilute oil with kerosene so it will be fluid enough to insure free circulation. This should be done before stopping, then operate the machine for a few minutes to mix the kerosene and oil. Evaporation in the engine crankcase under steady operation may make it necessary to again add kerosene to maintain proper fluidity.

**For temperatures below +10°F. dilute the oil with kerosene so it will be fluid enough to insure free circulation. Begin dilution of the oil at +10°F. and increase the amount of kerosene up to a maximum of 25% of the volume of oil at temperatures of −10°F. and lower.

Crankcase Lubricating Oil Change Periods

The crankcase lubricating oil change periods for these engines have been carefully established for the purpose of protecting the service life of the engine as economically as possible.

Change the oil and filter elements after the first 10 service hours of operation of a reconditioned engine.

DIESEL ENGINE CRANKCASE LUBRICATING OIL CHANGE PERIOD CHART
USE ONLY SUPERIOR LUBRICANTS (Series 3)

FUEL SULPHUR CONTENT	OIL CHANGE PERIOD*	FILTER CHANGE PERIOD
0.4% or less	250 Service Hrs.	250 Service Hrs.
0.4% to 1.0%**	125 Service Hrs.	125 Service Hrs.

*Regardless of time operated, the crankcase oil and filter elements should be changed at least every six months.

**Reduce change period one half when sulphur content is greater than 1.0%.

BALL AND ROLLER BEARING LUBRICANT
(Abbreviated BR)

(BR) This lubricant is a mixture of mineral oil and metallic soaps. Use No. 2 grade for most temperatures. For extremely low temperatures use No. 0 or No. 1 grade.

This grease can be applied to all bearing points — plain bushings, ball bearings and roller bearings — where equipped with hydraulic pressure fittings or when bearings are hand packed.

Use only a high grade Ball and Roller Bearing Grease of short fiber. This grease must be satisfactory in anti-friction bearings at speeds up to 3000 RPM at a maximum temperature of 300°F. It is a grease with sufficient adhesive qualities to cling to the bearings in all extremes of high and low operating temperatures.

TRANSMISSION AND AXLE LUBRICANTS
(Abbreviated GL)

Gear Compartments

(GL) MIL-L-2105 Oils (Abbreviated GL) are of the mild-type EP gear lubricants and should be used in compartments where extreme gear loads and speeds are a factor. Use an oil conforming to the requirements of MIL-L-2105 specifications in the transmission, differential and final drives. Be sure your oil supplier furnishes a MIL-L-2105 oil that is filterable. If the transmission oil filter becomes plugged, damage to the transmission may result. See the topic, SAE GRADE OF OIL, for the SAE grades recommended.

Oils having higher concentration of extreme pressure additives, as those conforming to MIL-L-002105A specifications, should not be used.

CO Crankcase Lubricating Oil

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STARTING ENGINE AIR CLEANER

(Tractors 90E1-Up)

Inspect the oil in the air cleaner cup every 50 service hours. Wash and refill cup to oil level bead when oil will not flow freely or if the sediment in the cup is ¼ inch deep. See the topic, "Air Cleaners".

Refill the cup with the same S.A.E. grade of oil as is used in the diesel engine crankcase and the same type of oil may also be used. However, it is permissible to use, clean, undiluted reclaimed oil or the most inexpensive straight mineral oil.

See the topic, "Crankcase Lubricating Oil".

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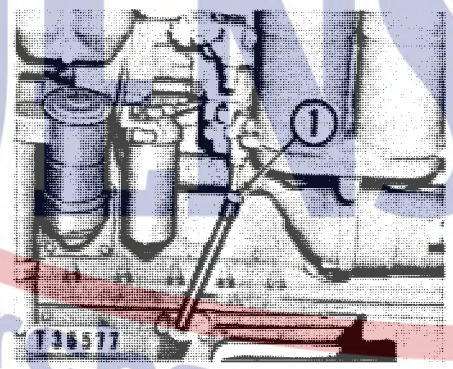
DIESEL ENGINE CRANKCASE

Use only Superior Lubricants (Series 3)



Check oil level with engine running every 10 service hours. Oil level should be between the "full" and "add oil" marks on gauge (1). The oil level maintained at the "full" mark is more desirable, however, any level above the "add oil" mark is permissible.

The oil level may be considerably higher than the "full" mark on the gauge if the full capacity of crankcase oil is checked after the engine has been stopped for several minutes. See the topic, "Crankcase Lubricating Oil"– Also see Note A.

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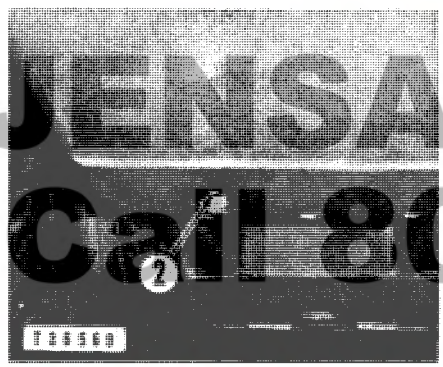
DIESEL ENGINE CRANKCASE



Drain crankcase at (2) while the engine is hot. When equipped with gasoline starting engine, which has an interconnected oil system with the diesel engine, also drain the starting engine crankcase and the starter pinion housing. See the topics, "Starting Engine Crankcase" and "Starter Pinion Housing." For recommended oil change periods see the topic "Crankcase Lubricating Oil Change Periods." Also see the topics, "Crankcase Lubricating Oil" and "Crankcase Lubricating Oil System." See Note B.

NOTE A: The diesel engine has a guard to protect the gauge from spray so the oil level should be checked when hot with the engine running at low idle speed. Always check the oil level with the engine in a level position.

NOTE B: Caterpillar Diesel Engines are built in a clean modern diesel engine factory and each crankcase is filled with a good quality of new crankcase oil. For these reasons the initial crankcase oil change period for this engine should be at the usual crankcase oil change period. See the topic "Diesel Engine Crankcase Lubricating Oil Change Periods."