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MANUAL PREVIEW

Caterpillar

Operator's Manual

12

Motor Grader

S/n 99E1 & up

Operator's Manual

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CT-O-#12 GRADR

**OPERATION AND
MAINTENANCE
INSTRUCTIONS**

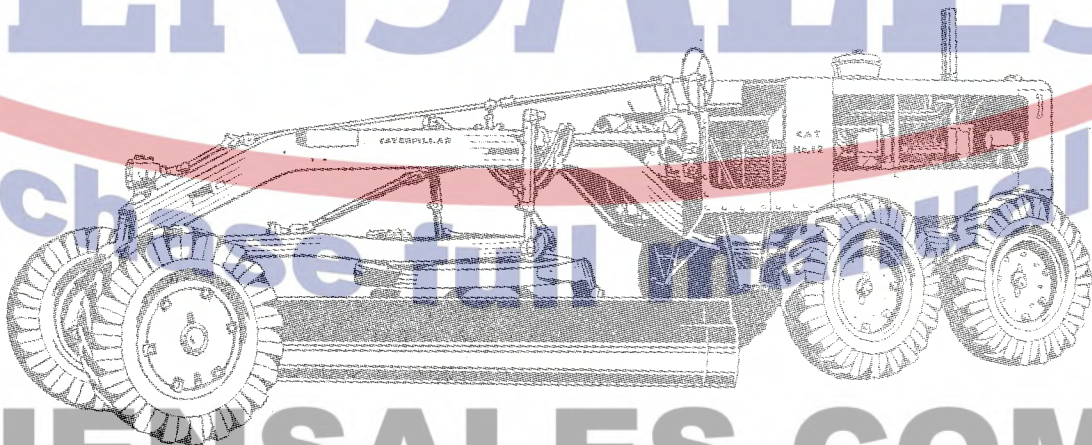
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CATERPILLAR

NO. 12

MOTOR GRADER



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**SERIAL NUMBERS
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CO Crankcase Lubricating Oil



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DIESEL ENGINE CRANKCASE

Use Superior Lubricants (Series 3) Only.

Every 10 service hours check oil level with the engine running. A guard to protect the gauge from spray makes it possible to do this. Always check the oil level when hot, with the engine running at low idle speed and the engine in a level position. Oil level should be between the "full" and "add oil" marks on gauge (1). Add oil when the oil level falls to the "add oil" mark. Do not overfill. For recommended lubricants see the topic "Description of Lubricants".

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.

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DIESEL ENGINE CRANKCASE

Every 500 or 250 service hours, depending on the fuel sulphur content, drain crankcase at (2) with the motor grader level and while the engine is hot. See the topics, "Description of Lubricants" and "Crankcase Lubricating Oil System." See Note A.

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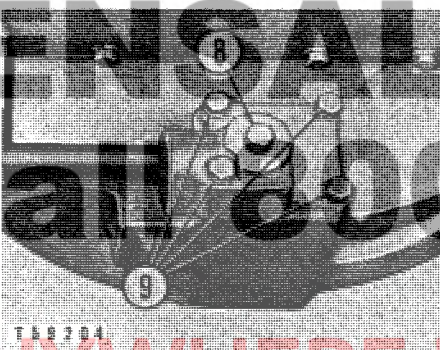
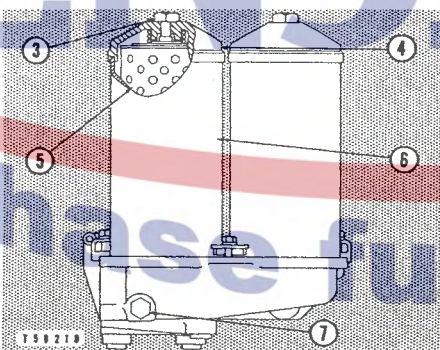
DIESEL ENGINE CRANKCASE LUBRICATING OIL FILTER

Every 250 service hours drain the oil filter housing and replace the elements with new Caterpillar elements. Remove the drain plug (7) cover screws (3) and covers (4). Remove the elements (5) from the housing (6) and install the new elements. Clean and install the drain plug and the covers. Run the engine for two minutes, then add oil to bring level to full mark on gauge.

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FLYWHEEL CLUTCH COMPARTMENT

Turn the drain plug (8) counterclockwise to drain the flywheel clutch compartment, on earlier motor graders remove drain plug to drain flywheel compartment, each time the diesel engine crankcase is drained.

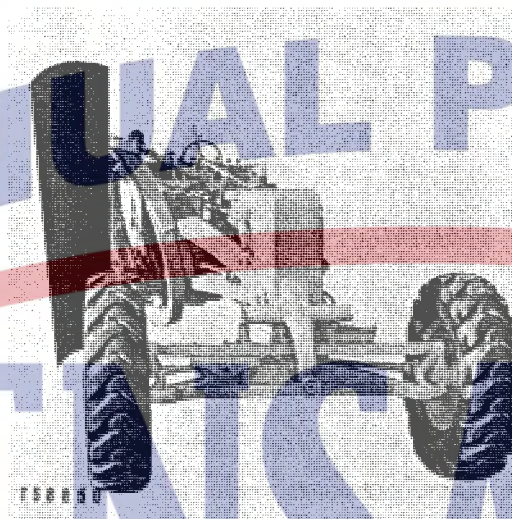


NOTE A: Caterpillar Diesel Engines are built in a clean modern diesel engine factory and each crankcase is filled with a good quality of new crankcase oil. For these reasons the initial crankcase oil change period for this engine should be at the usual crankcase oil change period. See the topic, DIESEL ENGINE CRANKCASE LUBRICATING OIL CHANGE PERIODS.

Angular positions of the blade and blade pitch positions will be relatively the same for grading and maintaining in reverse as they would be for forward operations.

CUTTING BANKS

To reach a bank sloping position, rotate the circle to bring the blade at an angle of approximately 20° to the machine at the right side of the



**MOTOR GRADER SET
TO CUT BANKS**

frame. Move the center shift to the right as the left side of the circle is lowered and the right side is raised. Continue to operate the controls until the desired position is reached.

The blade should be set for cutting action, and the front wheels may be leaned as required to hold the machine against the load.

When making a turn at the end of the cut, the upper end of the blade may be tilted down and returned to its former position when the turn is completed, without stopping the motor grader.



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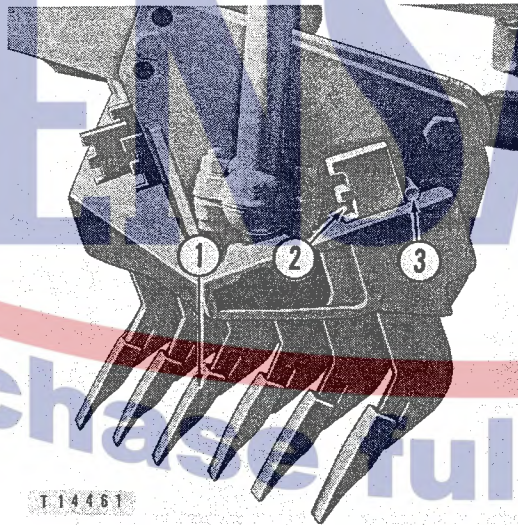
BLADE IN POSITION TO TURN AT END OF CUT

teeth and greatly increases the danger of breakage. The use of fewer than six teeth in extremely heavy work is not advised.

It is not necessary to remove the scarifier block for ordinary ditch or bank work. It is desirable, however, in ditching to remove two or more of the teeth nearest to the point of the blade. If the reverse blade position is to be used, it is necessary to remove all teeth and adjust lift link to its shortest length. This will allow the end of the blade to pass under the block.

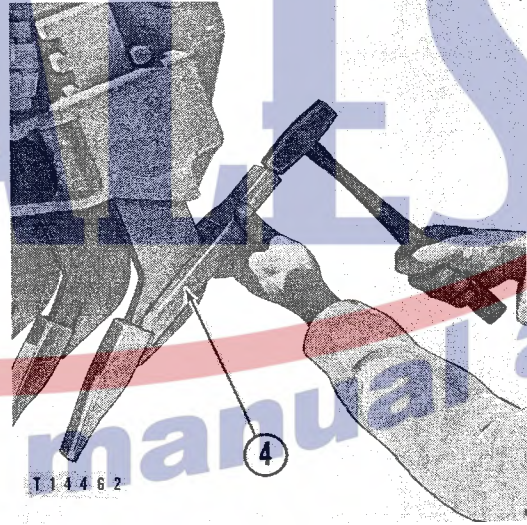
Tooth Length Adjustment: The portion of the tooth extending below the scarifier block may be varied by means of notches in the front edge of each tooth and a mating lug cast in the scarifier block.

To remove a tooth or vary its working length, remove the locking pin (3) that holds it in place and move the tooth into the notch (2) desired.



TOOTH LENGTH ADJUSTMENT

- 1-Replaceable tips. 2-Adjusting notches.
3-Locking pin.



SCARIFIER TIP REMOVAL

- 4-Tip removing tool.

This adjustment enables varying the tooth length to suit the type of material being worked.

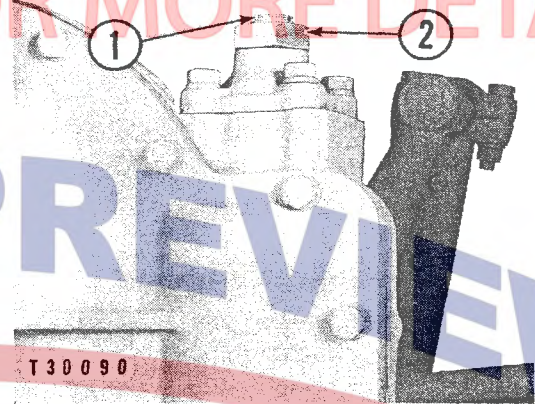
Replaceable tips (1) for the scarifier teeth permit increased service being obtained from the teeth. When the tips become worn or damaged, they may be driven off and new ones installed. A tip removal tool (4) is furnished with each scarifier group.

Worm Shaft Adjustment: Loosen the locknut (2) on the adjusting screw (1). Turn the screw in until it is tight, and then back off slightly and tighten the locknut.

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WORM SHAFT ADJUSTMENT

1-Adjusting screw. 2-Locknut.

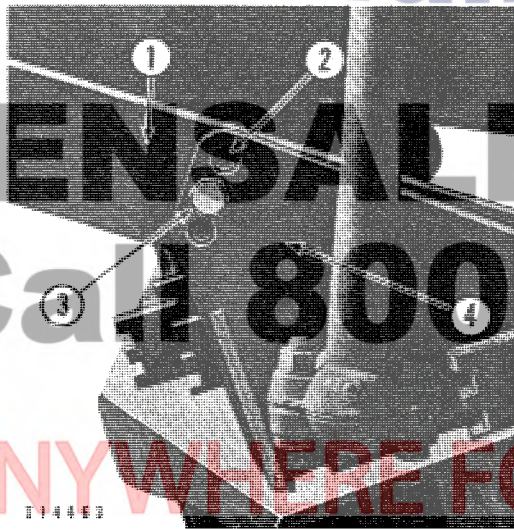


Tooth Pitch Adjustment: The pitch of the teeth may be varied to secure the best possible penetration for the type of material being scarified.

To vary the tooth angle, place the scarifier on the ground and remove the bolts (3) holding the side plates (4) of the scarifier block to the drawbar (1). Operate the scarifier control until the desired set of holes (2) in the scarifier side plates are aligned with the hole in the drawbar; then reinstall the bolts.

When scarifying exceptionally hard surfaces, it is important the teeth be tilted at the greatest possible angle. This permits the teeth to slide under and tear up the material rather than cut through it.

Some scarifier groups have adjusting links between the drawbar and scarifier, which permits this adjustment being made, rather than side plates. Adjustment is made in the same manner.



TOOTH PITCH ADJUSTMENTS

1-Drawbar. 2-Adjusting holes.
3-Bolt. 4-Side plates.

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Washing The Scarifier Housings: Remove the drain plugs and allow the old oil to drain thoroughly. Fill to the correct levels with kerosene,

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