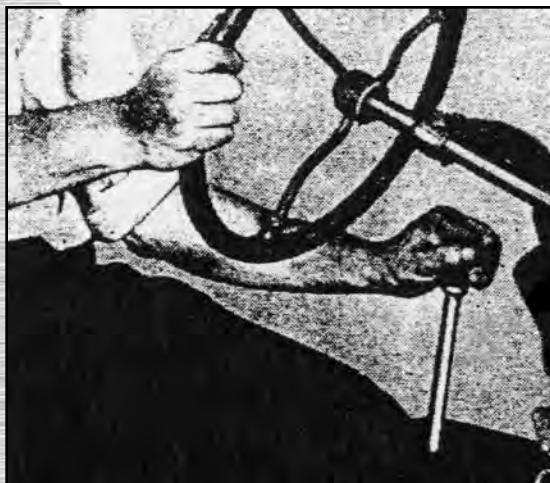




Caterpillar
Operator's Manual
D353
Industrial Engine
S/n 46B2437 & Up



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Operator's Manual

OPERATION GUIDE

QUICK REFERENCE TABS

ENGINE OPERATION

LUBRICATION AND MAINTENANCE CHART

LUBRICATION AND MAINTENANCE PROCEDURES

D353 INDUSTRIAL ENGINE

46B2437-UP

FORM NUMBER FOR
COMPLETE GUIDE
GEG00308

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LUBRICATION AND MAINTENANCE CHART

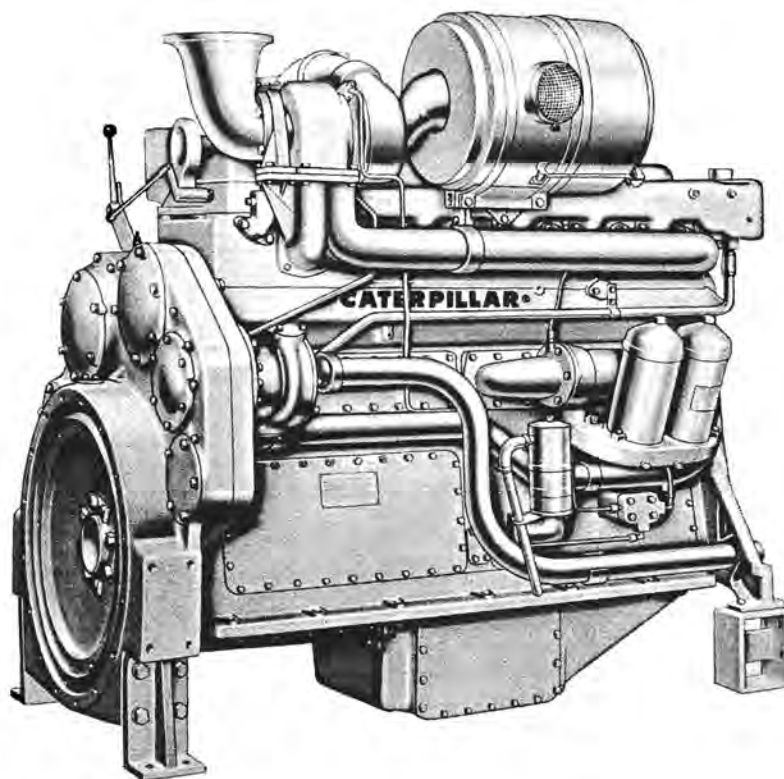
The LUBRICATION AND MAINTENANCE CHART lists all serviceable items which are either standard equipment or attachments commonly ordered on your model of engine.

Items needing periodic maintenance are grouped according to frequency of service. Items needing service as required are grouped according to the general system of which they are a part, and follow the periodic interval items.

The page letter and number in the right hand column of the chart is the reference page for the detailed instructions in the LUBRICATION AND MAINTENANCE PROCEDURES. These procedures are grouped according to the various engine systems, e.g., the Diesel Engine Lubrication System is A, the Air Induction and Exhaust System is B, etc.

The number following the letter indicates the page number within that system, e.g., B-2 is the second page in the Air Induction and Exhaust System.

Items which do not pertain to your engine may be lined out to customize your charts.



D353 **INDUSTRIAL ENGINE** 46B2437-UP

LUBRICATION AND MAINTENANCE PROCEDURES

ENGINE LUBRICATION SYSTEM

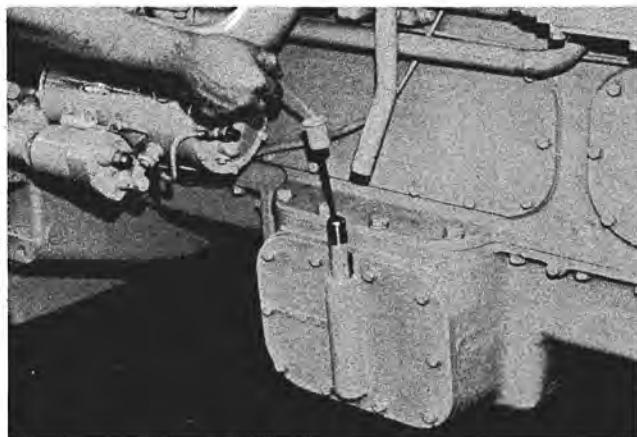
DIESEL ENGINE LUBE OIL

CHECKING OIL PRESSURE GAUGE READING

After starting and during operation, frequently observe the oil pressure gauge. If the gauge indicator registers below "NORMAL", or if the indicator fluctuates, check the oil level and take corrective measures.

CHECKING OIL LEVEL

Check the oil level with the engine idling. Oil level must be between the ADD and FULL marks on the oil level gauge. Add oil as required. See Lubrication and Maintenance Chart for proper oil.



CHECKING CRANKCASE OIL LEVEL

DRAINING CRANKCASE LUBE OIL

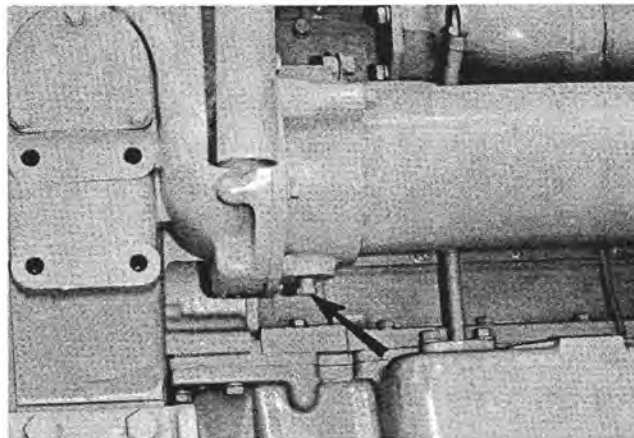
With engine stopped and oil warm:

1. Wipe dirt from each oil filter housing.
2. Remove the oil filter housing drain plug(s).



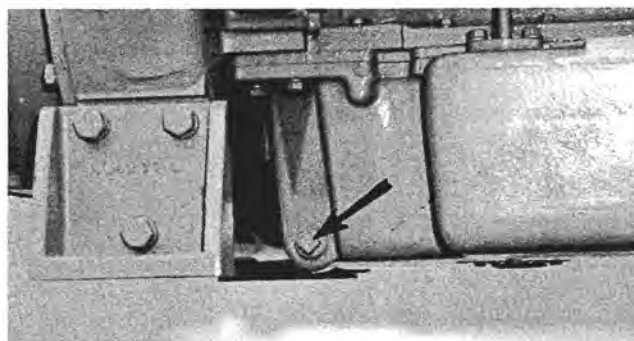
REMOVING OIL FILTER DRAIN PLUG

3. Remove the oil cooler drain plug.



OIL COOLER DRAIN PLUG

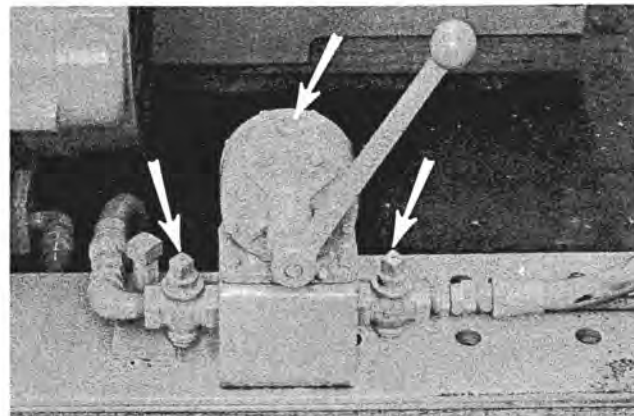
4. Remove the crankcase oil plug.



REMOVING CRANKCASE DRAIN PLUG

OR If a sump pump is used

- a. Connect a suitable drain to the pump outlet.
- b. Open the valve to the engine crankcase.



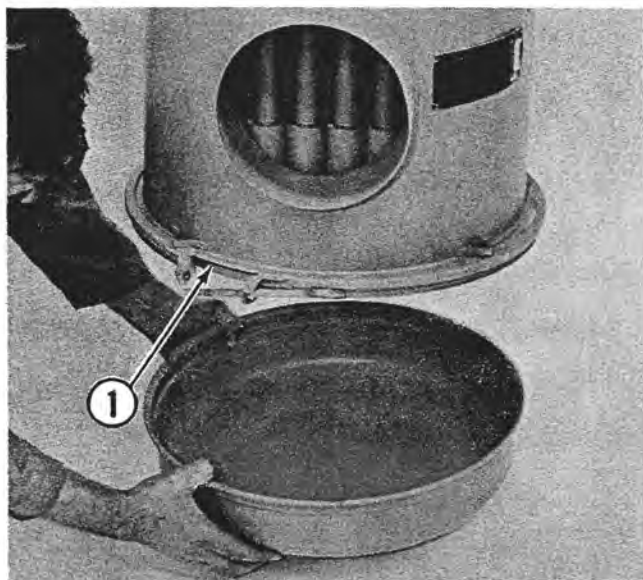
SUMP PUMP VALVES

INDE
Pg. K-

TWO STAGE AIR CLEANER

EMPTYING DUST COLLECTOR CUP

1. Loosen the clamping bolt on the lower body.
2. Remove and empty the dust collector cup.
3. Inspect and install the seal; install a new seal if necessary.



REMOVING DUST CUP

1. Seal

4. Inspect the tubes in the lower body. If dirty, clean the tubes with a round bottle brush.
5. Install the dust collector cup.

CLEANING THE LOWER BODY

1. Remove the dust collector cup.
2. Loosen the clamping bolt on the upper body.



REMOVING LOWER BODY

1. Seal

3. Remove the lower body. Clean the tubes from both ends.
4. Inspect and install the upper body seal. Install a new seal if it is damaged.

INSTALLING REPLACEMENT FILTER ELEMENT

1. Remove the cover.



REMOVING COVER AND INNER COVER

2. Remove the inner cover and filter element. In cold weather, a stuck inner cover may be removed by warming the air cleaner cover to 70-75°F (21-24°C).



REMOVE ELEMENT

3. Clean all parts of the air cleaner.
4. Inspect the replacement element for damage and cleanliness.
5. Install the element, inner cover, and wing nut. Tighten the wing nut to prevent dust from bypassing the filter element.
6. Install the cover.

If, after servicing the air cleaner, the exhaust smoke and/or loss of power continues; or the service indicator locks in the raised position, discard that element and install a new element. Install a new element at least once a year.

PRECLEANER

SERVICING

When the precleaner body is 3/4 full, remove and empty the precleaner. Wash the precleaner in water.

ENGINE VALVES

VALVE LASH

PREPARING TO CHECK ADJUSTMENT

1. Stop the engine. Allow it to cool at least 20 minutes.
2. Remove the flywheel housing timing cover(s).



REMOVING TIMING COVER(S)

3. Wipe dirt from the base of the valve covers.
4. Remove the valve covers.
5. Move the compression release lever to the START position.



COMPRESSION RELEASE LEVER

6. Bar the flywheel counterclockwise. Align the "TDC 1-6" timing mark with the timing pointer on the flywheel housing.

NUMBERING OF CYLINDERS

CYLINDERS	FRONT	1	2	3	4	5	6	REAR
VALVES		I-E	I-E	I-E	I-E	I-E	I-E	

D342 AND D353 ENGINES

VALVES	F	I-I	I-I	I-I	I-I	I-I	I-I	R
CYLINDERS	R	1	2	3	4	5	6	A
VALVES	T	E-E	E-E	E-E	E-E	E-E	E-E	R

D343 ENGINES ONLY

CHECKING ADJUSTMENT

1. Observe the rocker arms for cylinder No. 1. Determine if the piston is on compression or exhaust stroke.

Compression stroke: Exhaust and inlet valves are closed.

Exhaust stroke: Exhaust valves are pushed open, intake valves remain closed.

2. With NO. 1 CYLINDER ON COMPRESSION STROKE, check the lash of the following valves; adjust if necessary.

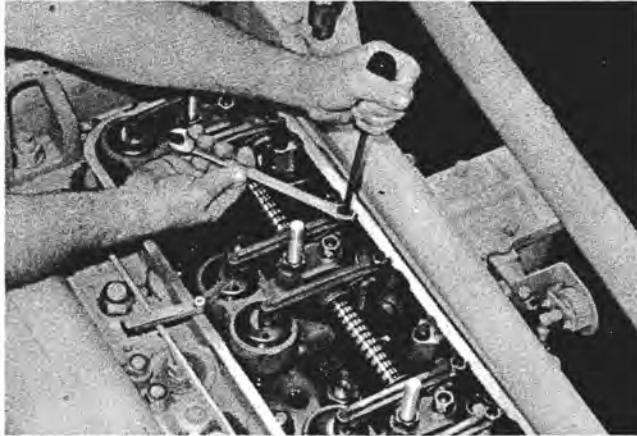
NO. 1 CYLINDER ON COMPRESSION STROKE (COUNTERCLOCKWISE ROTATION) Viewed from Flywheel					
VALVES	CYLINDERS	VALVE LASH (Inches)			
		D342	D343	D353	
Exhaust	1-3-5	.020	.030	.030	
Inlet	1-2-4	.016	.018	.018	
.020 Inch = 0,51 mm. .030 Inch = 0,76 mm.					
.016 Inch = 0,41 mm. .018 Inch = 0,46 mm.					

3. Bar the flywheel counterclockwise one revolution. Align the "TDC 1-6" timing mark with the timing pointer on the flywheel housing.
4. With NO. 1 CYLINDER ON EXHAUST STROKE, check the lash of the following valves; adjust if necessary.

NO. 1 CYLINDER ON COMPRESSION STROKE (COUNTERCLOCKWISE ROTATION) Viewed from Flywheel					
VALVES	CYLINDERS	VALVE LASH (Inches)			
		D342	D343	D353	
Exhaust	2-4-6	.020	.030	.018	
Inlet	3-5-6	.016	.018	.018	
.020 inch = 0,51 mm. .030 inch = 0,76 mm.					
.016 inch = 0,41 mm. .018 inch = 0,46 mm.					

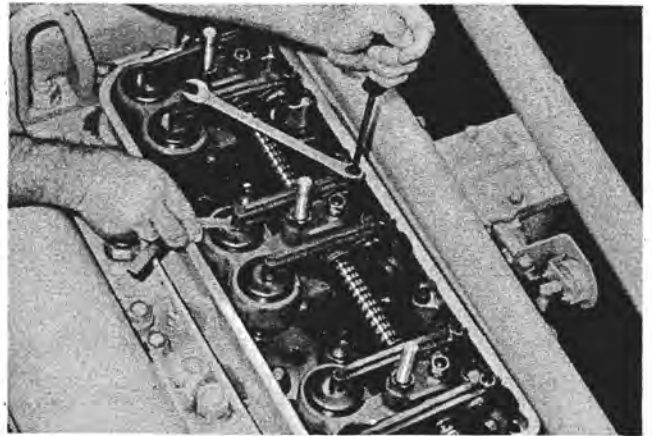
ADJUSTING VALVE LASH D342 and D353 Engines

1. Loosen the locknut on the adjusting screw.



LOOSENING LOCKNUT

2. Hold the locknut and turn the adjusting screw to obtain the proper lash.

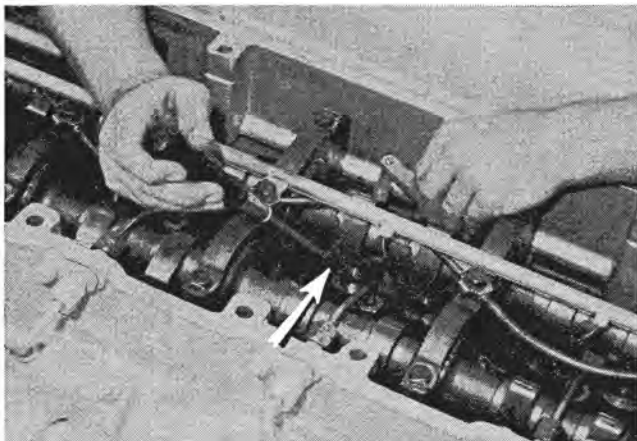


ADJUSTING VALVE LASH

3. Hold the adjusting screw and tighten the locknut.
4. Recheck the lash.

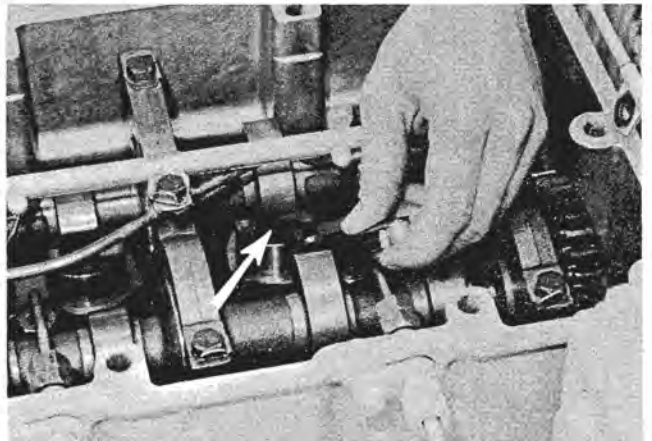
D343 Engines

1. Insert a cross point (Phillips) screwdriver in the hole in the side of the cam follower and engage the cam follower adjuster gear.



ADJUSTING VALVE LASH (D343 Engine only)

2. Turn the screwdriver clockwise to increase lash or counterclockwise to decrease lash.
3. Recheck the lash.



CHECKING VALVE LASH

VALVE ROTATORS

CHECKING ROTATION

After checking all valve clearances, and before installing the valve covers:

1. Start the engine.
2. Move the governor control to low idle position.