

Shop Manual

DL450-3 Wheel Loader

Serial Number 10001 and Up

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Wheel Loader Safety

Edition 1

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SAFETY INSTRUCTIONS



WARNING

AVOID DEATH OR SERIOUS INJURY

Instructions are necessary before operating or servicing machine. Read and understand the Operation and Maintenance Manual and signs (decals) on machine. Follow warnings and instructions in the manuals when making repairs, adjustments or servicing. Check for correct function after adjustments repairs or service. Untrained operators and failure to follow instructions can cause death or serious injury.

APPLICABLE MODELS

The contents of this section apply to the following models and serial number ranges.

MODEL	SERIAL NUMBER RANGE
DL200-3	10001 and Up
DL250-3	10001 and Up
DL300-3	10001 and Up
DL350-3	10001 and Up
DL420-3	10001 and Up
DL450-3	10001 and Up
DL550-3	10001 and Up

SAFETY MESSAGES

Safety messages and safety decals included in this manual and on the machine provide instructions how to operate, service and maintain the machine. Safety messages and safety decals indicate potential hazards and describe safety precautions required to avoid hazards. Operator and maintenance personnel should read and understand these safety messages and decals before beginning operation or maintenance.

SAFETY ALERT SYMBOL

Be Prepared - Get to Know All Operating and Safety Instructions.

This is a Safety Alert Symbol. Wherever it appears in this manual or on safety decals on the machine, you should be alert to the potential for personal injury or accidents. Always observe safety precautions and follow recommended procedures.

Signal Words

The signal words "DANGER," "WARNING," "CAUTION" are used throughout safety messages and safety decals in this manual or on the machine. They indicate an existence of, and the relative seriousness of, a hazard. All three indicate that a safety risk is involved. Observe the precautions indicated whenever a Safety Alert Symbol is present, no matter which signal word appears next to it.

DANGER

DANGER - This signal word is used on safety messages and safety labels and indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

WARNING

WARNING - This signal word is used on safety messages and safety labels and indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION

CAUTION - This signal word is used on safety messages and safety labels and indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury.

Engine

Edition 1

SAFETY INSTRUCTIONS



WARNING

AVOID DEATH OR SERIOUS INJURY

Instructions are necessary before operating or servicing machine. Read and understand the Operation and Maintenance Manual and signs (decals) on machine. Follow warnings and instructions in the manuals when making repairs, adjustments or servicing. Check for correct function after adjustments repairs or service. Untrained operators and failure to follow instructions can cause death or serious injury.

APPLICABLE MODELS

The contents of this section apply to the following models and serial number ranges.

MODEL	SERIAL NUMBER RANGE
DL350-3	10001 and Up
DL420-3	10001 and Up
DL450-3	10001 and Up

DC13 ENGINE

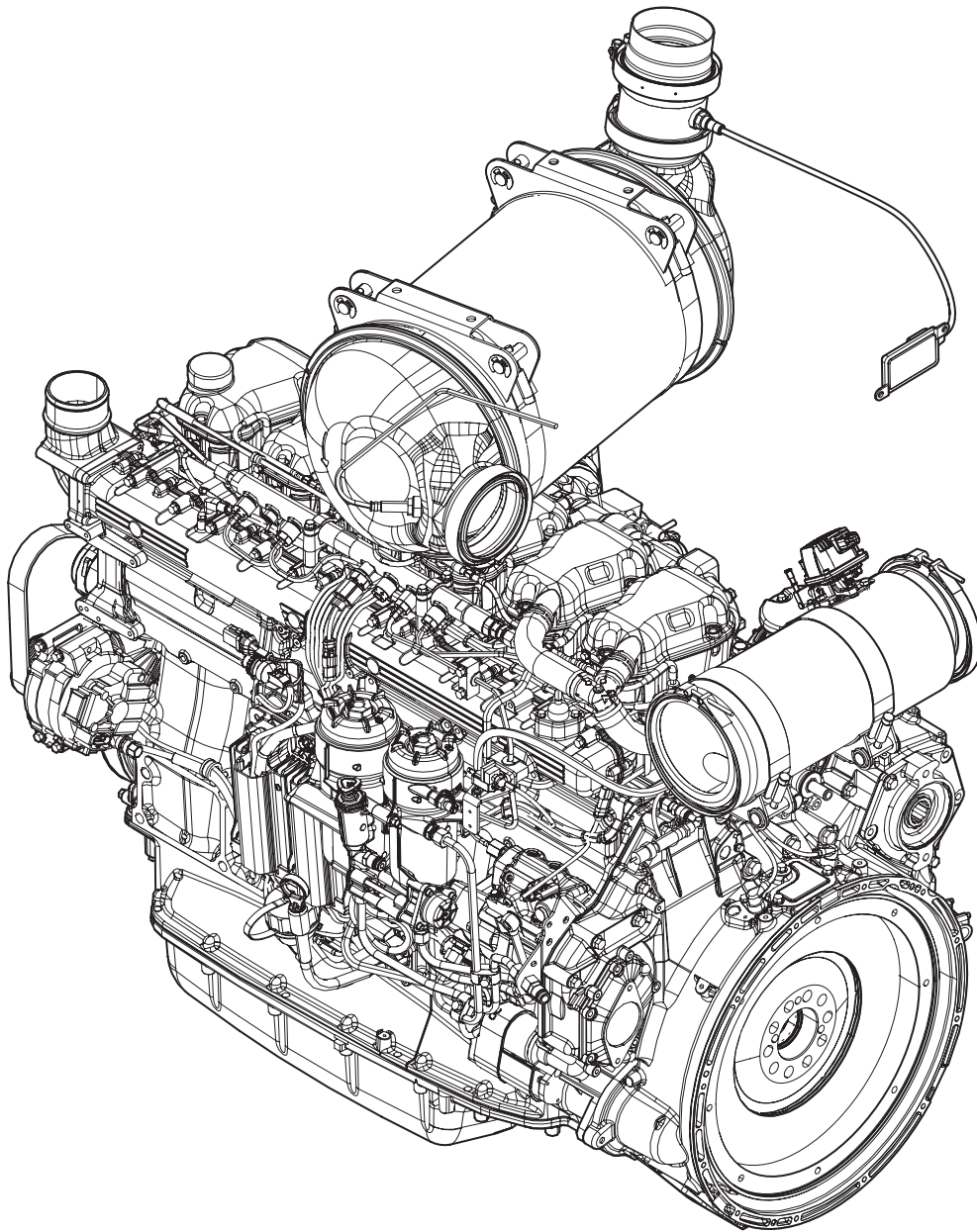


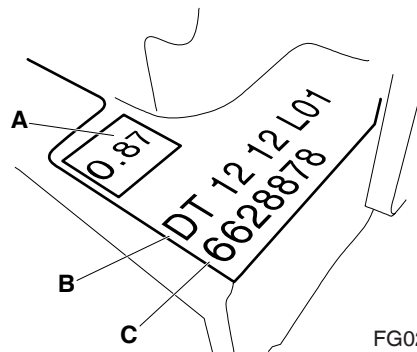
Figure 1

ENGINE IDENTIFICATION

Engine Data Plate

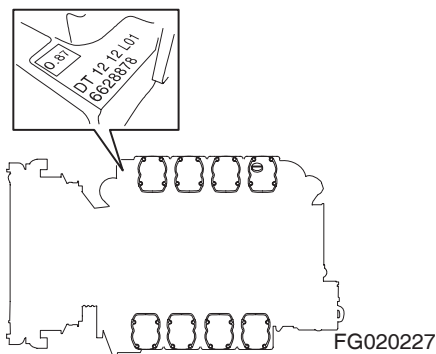
Applies to engines with cylinder block generation 2.

Reference Number	Description
A	Smoke Value
B	Engine type
C	Engine serial number



FG020225

Figure 3

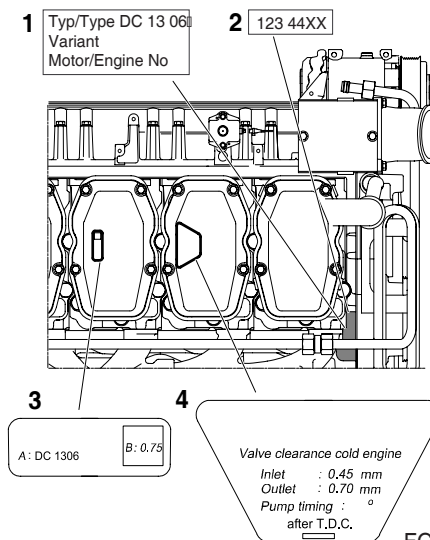


FG020227

Figure 4

Engine data on plate, on 9 and 13 liter engines with XPI

Reference Number	Description
1	Engine Type and Engine Serial Number
2	Engine Serial Number, Stamped
3	Smoke Data
4	Valve Clearance



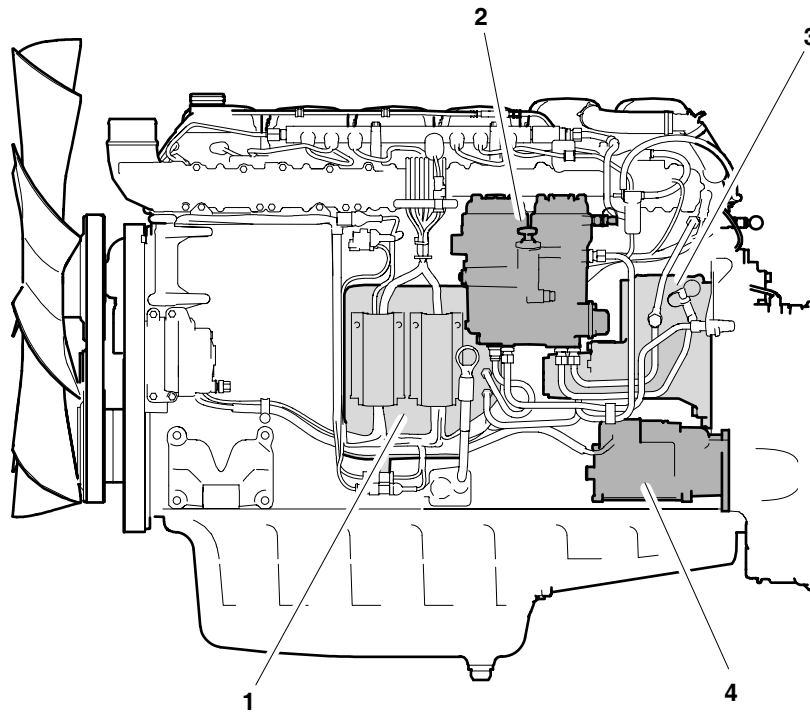
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Figure 5

Mounting the Engine in a Universal Stand

Preparations before commencing work:

- Remove engine from the machine.



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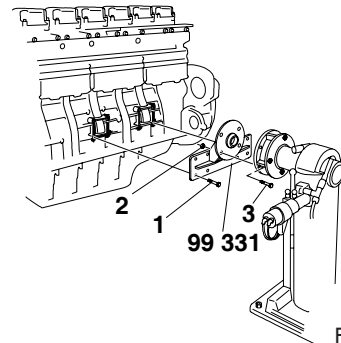
Figure 6

Reference Number	Description
1	Engine Control Unit
2	Fuel Filter

Reference Number	Description
3	High-pressure Pump and Feed Pump
4	Starter Motor

1. Mount the engine in the universal stand.

Reference Number	Description
1	Bolt M10x30 (8 off)
2	Nut M16 (4 off)
3	Bolt M16x50 (4 off)



FG020232

Figure 7

ENGINE SPECIFICATION

ITEMS		SPECIFICATION
Engine	Type	4-Cycle Water Cooled, Waste Gate Turbocharge, Air to Air Intercooled Direct Injection
	Emission	US EPA Tier 4i (EU Stage IIIB)
	Maker and Model	DC 13
	Injection System	Extra high-pressure fuel injection system, XPI
	Rated Net Power	256 kW (339 HP) @ 1,800 rpm (SAE J1349)
Valve Clearance	Intake Valve	0.45 mm
	Exhaust valve	0.70 mm
Number of cylinders and Configuration		6, Straight
Rotating Direction (from Flywheel)		Counterclockwise
Oil Pressure (bar, kg/cm ²)	Normal with the engine at operating temperature, operating speed	3 - 6
	Min. permitted at idling speed	0.7
Crankcase pressure with closed crankcase ventilation		-55 - +20
Using Lubrication Oil		ACEA-E3, E4, E5 or E7 (for fuel with low sulfur content)
Oil Filter		Paper filter form Scania
Interval between oil changes		500 h
Working Principle		4 Stoke Engine
Cylinder Diameter		130 mm
Piston Stroke		160 mm
Displacement		12.7 dm ³
Compression Ratio		17.3:1
Number of teeth on the flywheel		158
Low Idle Speed		600 - 750 rpm
Max. full load speed		2100 rpm
Weight, without Coolant and Oil		1050 kg
Cooling System	Volume, excluding radiator	16 dm ³
	Coolant Temperature	80 - 90
	Number of Thermostats	1
	Thermostat, Opening Temperature	2,100 ±50
Electrical System	Type	1-pin, 24V, DC
	Starter Motor (Standard Equipment)	1-pin, 24V, 5.5 kW
	Alternator (Standard Equipment)	1-pin, 28V, 100 A

MOTOR

Removal and Installation of Motor

NOTE: Replace coolant hoses if there is clear damage to the coolant hoses which were removed.

1. Drain the oil and coolant.
2. Remove air filter and inlet pipe between the turbocharger and air filter. Cover the turbocharger inlet pipe.
3. Undo the connections for coolant, charge air pipes between engine and charge air cooler, and bleed pipe for the expansion tank.
4. Undo the cable harness with clamping.

NOTE: The engine lifting eyes 99 637 are designed for lifting the engine only, not the engine with connected equipment (high voltage current generator, gearbox, reverse gear, etc.) or frame. All three lifting eyes must be used.

5. Fasten the lifting chain 98 094 to the rear lifting eyes 99 637.
6. Fasten the lever block 587 308 to the front lifting eye.

NOTE: The lifting eyes 99 637 are designed to manage a maximum inclination angle of 30° when lifting an engine.

7. Undo the engine insulator bolts and lift away/out the engine.

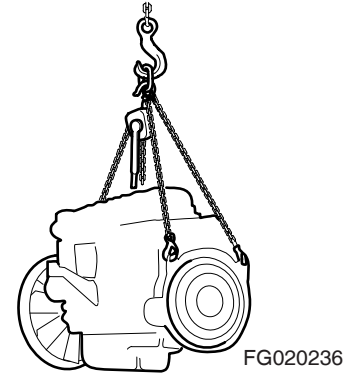


Figure 8

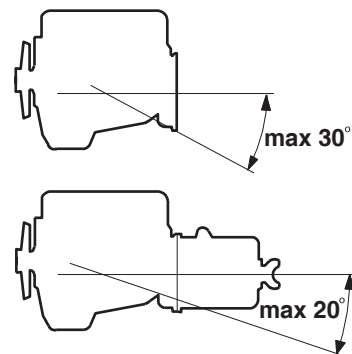


Figure 9

Installing Engine

1. Fasten the lifting chain 98 094 to the rear lifting eyes.

NOTE: The engine lifting eyes 99 637 are designed for lifting the engine only, not the engine with connected equipment (high voltage current generator, gearbox, reverse gear, etc.) or frame. All three lifting eyes must be used.

NOTE: The lifting eyes 99 637 are designed to manage a maximum inclination angle of 30° when lifting an engine.

2. Fasten the lever block 587 308 to the front lifting eye.
3. Lift the engine, position it on the engine insulators and screw it into place.

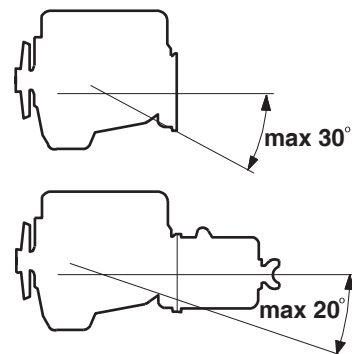


Figure 10

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