

Shop Manual
DL300-5/DL350-5
Wheel Loader

Serial Number 10001 and Up

DOOSAN and the DOOSAN logo are registered trademarks of DOOSAN Corporation in the United States and various other countries around the world.

950106-01256E

April 2014

Table of Contents

1 Safety	1 Wheel Loader Safety
2 Specifications	1 Specifications
3 General Maintenance	1 General Maintenance Instructions 2 Standard Torques
4 Engine	1 Engine
5 Drivetrain	1 Transmission and Torque Converter (4WG) 2 Transmission and Torque Converter (5WG) (Option) 3 Front Axle 4 Rear Axle 5 Driveshaft
6 Steering	1 Power Steering System 2 Steering Unit 3 Steering Pump 4 Flow Amplifier 5 Jerk Softener & Accumulator
7 Brake	1 Service Brake 2 Brake & Pilot Supply Valve 3 Charging Block 4 Parking Brake 5 Brake Pedal Valve 6 Accumulator 7 Brake Filter

8 Cooling System

- 1 Cooling System
- 2 Fan & Brake Pump
- 3 Fan Motor
- 4 Fan Control Valve

9 Hydraulic System

- 1 Main Pump
- 2 Main Control Valve
- 3 Pilot System
- 4 Hydraulic System
- 5 Hydraulic System Troubleshooting

10 Frame

- 1 Articulation Center
- 2 Cabin
- 3 Counterweight
- 4 Oil Tank
- 5 Fuel Tank
- 6 Cylinders

11 Electrical System

- 1 Electrical System
- 2 Air Conditioner

12 Options

- 1 Emergency Steering
- 2 Load Isolation System
- 3 Auto Grease System

13 Schematic

- 1 Hydraulic Schematic/Electrical Schematic

Wheel Loader Safety

Edition 1

Table of Contents

Wheel Loader Safety

Safety Instructions	1-1-5
Safety Messages	1-1-5
General	1-1-7
Operation	1-1-18
Maintenance	1-1-31
Transportation	1-1-46
Environment and Circumstances.....	1-1-48

SAFETY INSTRUCTIONS



WARNING

AVOID DEATH OR SERIOUS INJURY

Instructions are necessary before operating or servicing machine. Read and understand the Operation & 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.

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 must 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.

Other Signal Words

In addition to safety signal words, the following signal words are used to indicate proper and effective use of machine.

IMPORTANT

This signal word identifies procedures which must be followed to avoid damage to machine.

NOTE: *The word "NOTE" identifies information for effective use.*

1. Turn battery disconnect switch to "ON" position.
2. Close battery compartment door.

Engine

SAFETY INSTRUCTIONS



WARNING

AVOID DEATH OR SERIOUS INJURY

Instructions are necessary before operating or servicing machine. Read and understand the Operation & 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.

OVERVIEW

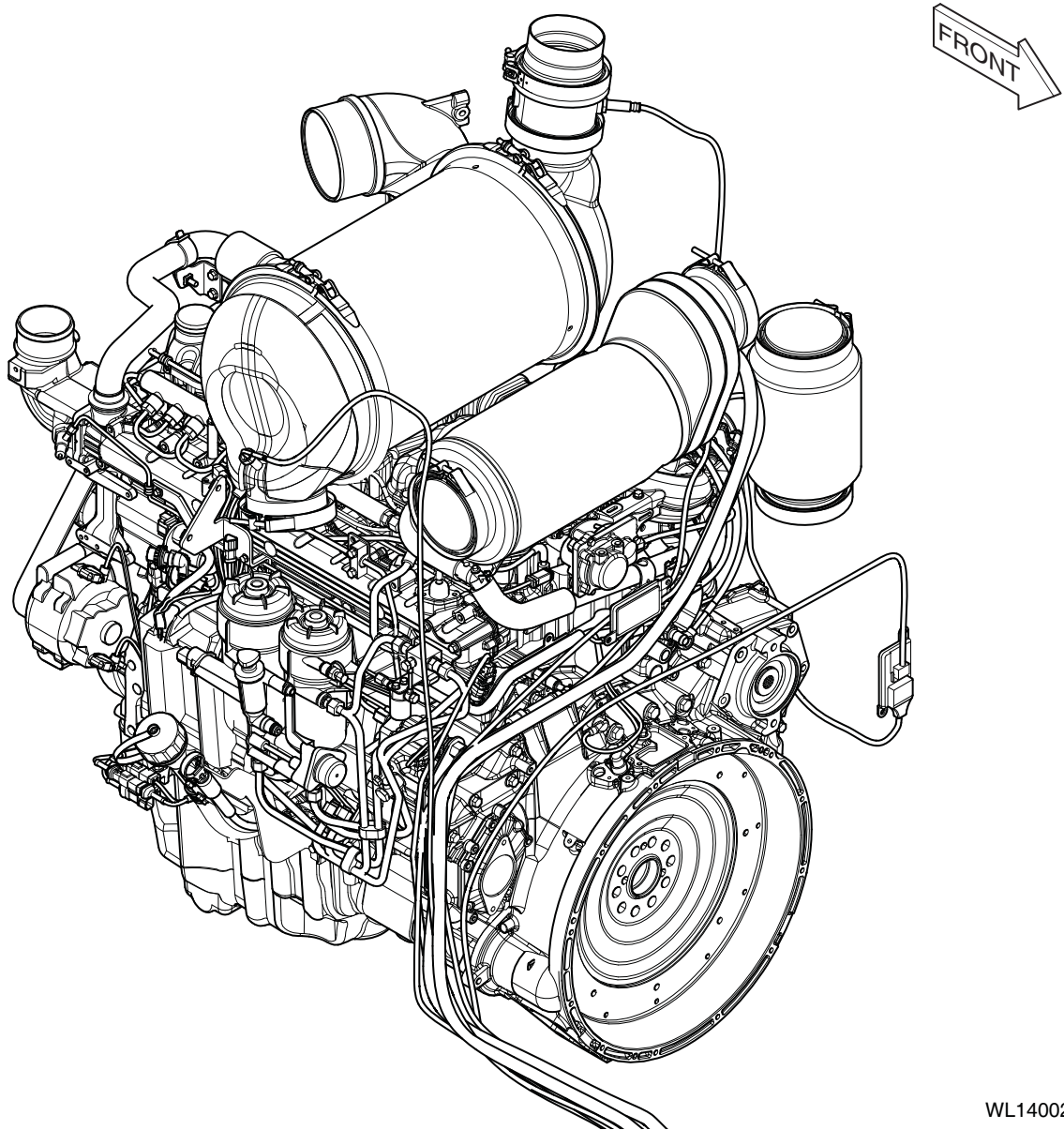


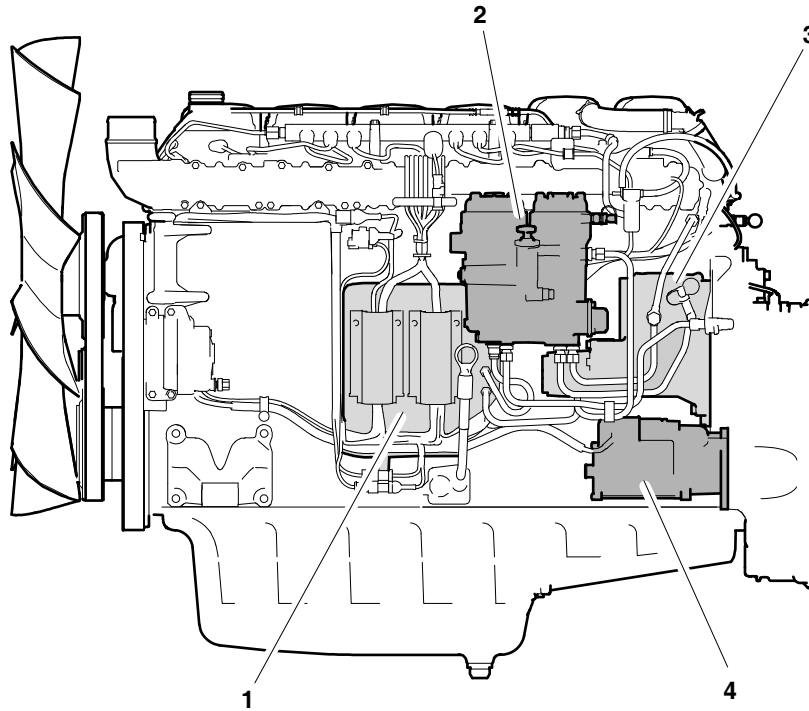
Figure 1

WL1400224

Mounting the Engine in a Universal Stand

Preparations before commencing work:

- Remove engine from the machine.



FG020231

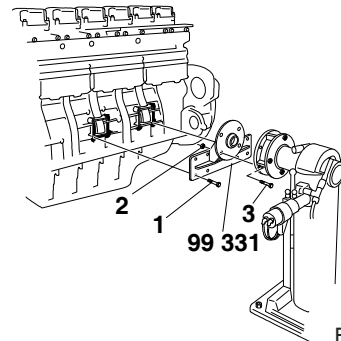
Figure 3

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 M10 x 30 (8 off)
2	Nut M16 (4 off)
3	Bolt M16 x 50 (4 off)



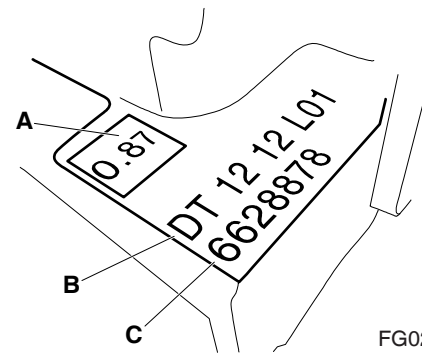
FG020232

Figure 4

ENGINE IDENTIFICATION

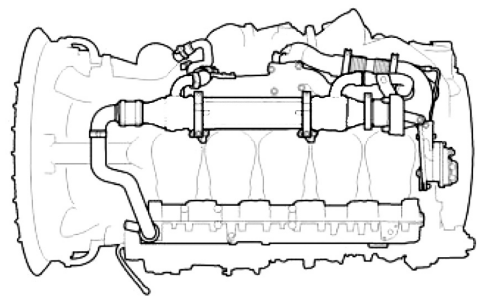
Engine Data Plate

Reference Number	Description
A	Smoke Value
B	Engine Type
C	Engine Serial Number



FG020225

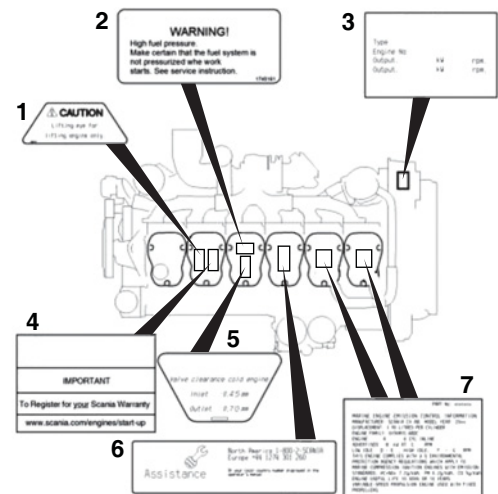
Figure 5



EX1400089

Figure 6

Reference Number	Description
1	Warning! Only for Lifting Engines
2	Warning! Draining the Fuel Housing. Warning! High Fuel Pressure
3	Engine Power
4	Important! Warranty Registration
5	Valve Clearance
6	Assistance
7	Information on Emissions



WL1400009

Figure 7

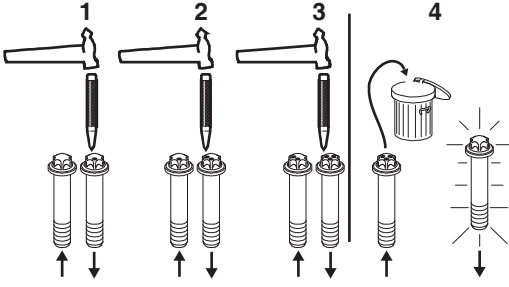
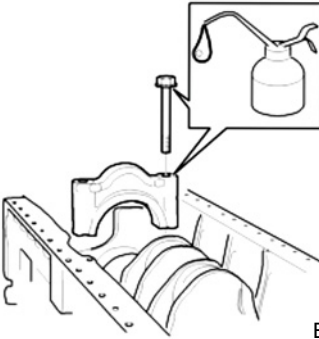
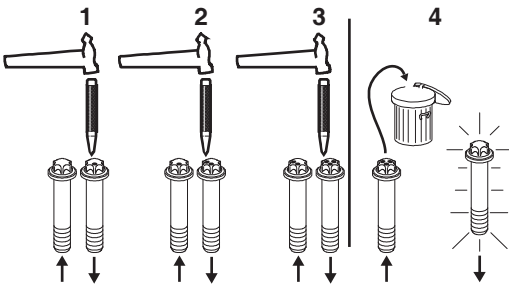
ENGINE SPECIFICATION

Items		Specification
Engine	Type	4-Cycle Water Cooled, Waste Gate Turbocharge, Air to Air Intercooled Direct Injection
	Emission	US EPA Tier 4 Final (EU Stage IV)
	Model	DC 9
	Injection System	Extra High-pressure Fuel Injection System
	Rated Net Power	202 kW (271 HP) @ 1,800 rpm (SAE J1995)
Valve Clearance	Intake Valve	0.45 mm
	Exhaust valve	0.70 mm
Number of Cylinders and Configuration		5, Straight
Rotating Direction (from Flywheel)		Counterclockwise
Oil Pressure	Normal with the Engine at Operating Temperature, Operating Speed	3.1 - 6.1 kg/cm ² (3 - 6 bar, 43.5 - 87 psi)
	Min. Permitted at Idling Speed	0.71 kg/cm ² (0.7 bar, 10.2 psi)
Crankcase Pressure with Closed Crankcase Ventilation		-5.4 - 2.0 bar
Using Lubrication Oil		ACEA-E5 or E7 (for Fuel with Ultra Low Sulfur Content)
Oil Filter		Paper Filter
Interval Between Oil Changes		500 h
Working Principle		4 Stoke Engine
Cylinder Diameter		130 mm
Piston Stroke		140 mm
Displacement		9,300 cc
Compression Ratio		17:1
Number of Teeth on the Flywheel		158
Low Idle Speed		600 - 750 rpm
Max. Full Load Speed		2,100 rpm
Weight, without Coolant and Oil		1,035 kg
Cooling System	Volume, Excluding Radiator	16,000 cc
	Coolant Temperature	90 - 95°C
	Number of Thermostats	1
	Thermostat, Opening Temperature	80°C
Electrical System	Type	1-pin, 24V, DC
	Starter Motor (Standard Equipment)	1-pin, 24V, 6 kW
	Alternator (Standard Equipment)	1-pin, 28V, 100 A

IMPORTANT

Tightening torques for threaded joints in engines.

If the tightening torque is not available in the table for each engine, refer to the special and normal tightening torques tables.

Engine Assembly	
Cylinder Block	
<ul style="list-style-type: none"> Piston cooling nozzle: 23 Nm 	
Main Bearing Cap	
<p>NOTE: <i>The screws can only be reused 3 times. Mark the screws each time before installing.</i></p> <ul style="list-style-type: none"> Torx screw (M19): 110 Nm + 90° Hexagon screw (M19): 110 Nm + 90° 	 <p style="text-align: right;">EX1301810</p>  <p style="text-align: right;">EX1301811</p>
Connecting Rod Cap	
<p>NOTE: <i>The screws can only be reused 3 times. Mark the screws each time before installing.</i></p>	 <p style="text-align: right;">EX1301810</p>

Buy Now



Our support email:

ebooklibonline@outlook.com