



Shop Manual

DX225LC-5 Excavator

Serial Number **1001 and Up**

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Track Excavator Maintenance Safety

Edition 1

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

Replace with Safety Messages Section on pages III and IV in the Doosan Operation & Maintenance Manual.

GENERAL

Safe Operation is Operator's Responsibility

Only trained and authorized personnel should operate and maintain the machine.

Follow all safety rules, regulations and instructions when operating or performing maintenance on machine.

- Do not operate machine if you are under the influence of drugs or alcohol. An operator who is taking prescription drugs must get medical advice to determine if he or she can safely operate a machine.
- When working with other personnel on a work site, be sure that all personnel know nature of work and understand all hand signals that are to be used.
- Be sure that all guards and shields are installed in their proper location. Have guards and shields repaired or replaced immediately if damaged.
- Be sure that you understand the use and maintenance of all safety features such as safety lever and seat belt. Use them properly.
- Never remove, modify or disable any safety features. Always keep them in good operating condition.
- Always check for and know the location of underground and overhead utility lines before excavating.
- Failure to use and maintain safety features according to instructions in this manual, Safety Manual and Shop Manual can result in death or serious injury.

Know Your Machine

Know how to operate your machine. Know the purpose of all controls, gauges, signals, indicators and monitor displays. Know the rated load capacity, speed range, braking and steering characteristics, turning radius and operating clearances. Keep in mind that rain, snow, ice, loose gravel, soft ground, slopes etc., can change operating capabilities of your machine.

Proper Work Tools and Attachments

Only use work tools and attachments that are recommended by DOOSAN for use on DOOSAN machines. When installing and using optional attachments, read instruction manual for attachment, and general information related to attachments in this manual. Because DOOSAN cannot anticipate, identify or test all attachments that owners may want to install on their machines, contact DOOSAN for written authorization and approval of attachments, and their compatibility with optional kits.

Attachments and attachment control systems that are compatible with the machine are required for safe and reliable machine operation. Do not exceed maximum operating weight (machine weight plus attachment) that is listed on ROPS certification plate.

Make sure that all guards and shields are in place on machine and on work tool. Depending on type or combination of work equipment, there is a potential that work equipment could interfere with the cabin or other parts of machine. Before using unfamiliar work equipment, check if there is any potential of interference, and operate with caution.

While you are performing any maintenance, testing, or adjustments to attachments, stay clear of the following areas: cutting edges, pinch points, and crushing surfaces.

Never use attachment as a work platform or manlift.

Contact your DOOSAN distributor about auxiliary hydraulic kits for attachments installation. If you are in doubt about compatibility of a particular attachment with a machine, consult your DOOSAN distributor.

Pressurized Fluids

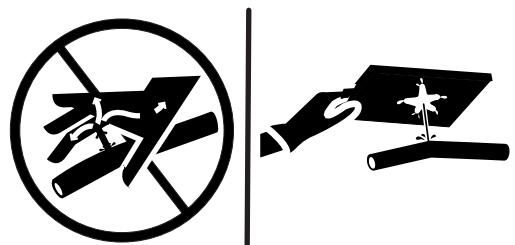
Pressurized air or fluids can cause debris and/or fluids to be blown out. This could result in death or serious injury.

Immediately after operations are stopped, coolant, engine oil, and hydraulic oil are at their highest temperatures and the radiator and hydraulic tank are still under pressure. Always wait for temperature to cool down. Follow specified procedures when attempting to remove caps, drain oil or coolant, or replacing filters. Always wait for temperature to cool down, and follow specified procedures when performing these operations. Failure to do so can result in death or serious injury.

When pressurized air and/or pressurized water is used for cleaning, wear protective clothing, protective shoes, and eye protection. Eye protection includes goggles or a protective face shield.

Pressure can be trapped in a hydraulic system and must be relieved before maintenance is started.

Releasing trapped pressure can cause sudden machine movement or attachment movement. Use caution if you disconnect hydraulic lines or fittings.



FG018457

Figure 1

High-pressure oil that is released can cause a hose to whip or oil to spray. Fluid penetration can result in death or serious injury. If fluid enters skin or eyes, get immediate medical attention from a physician familiar with this injury.

Obey all local laws and regulations for disposal of liquids.

To prevent hot coolant from spraying out, stop engine and wait for coolant to cool. Using gloves, slowly loosen cap to relieve pressure.

Flying or Falling Objects

On work sites where there is a potential hazard that flying or falling objects can hit operator's cabin, select and use a guard to match operating conditions for additional operator protection.

Working in mines, tunnels, deep pits, and loose or wet surfaces, could produce hazard of falling rocks or flying objects. Additional protection for operator's cabin could be required such as an Operator Protection Guard (OPG) or window guards. Contact your DOOSAN distributor for information on available protective guards.

To prevent personnel from being struck by flying objects, keep personnel out of work area.

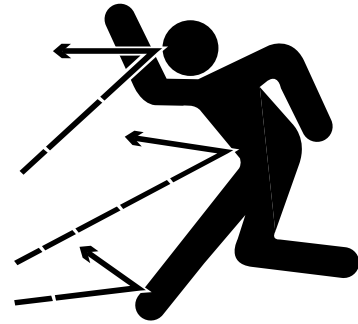


Figure 2

HAOA110L



Figure 3

HAOA100L

Engine

Edition 1

ENGINE DISASSEMBLY

Engine Disassembly



CAUTION

AVOID INJURY

- Prepare the necessary tools and genuine parts before engine disassembly.
 - Prepare a shelf to keep removed parts.
 - Keep the working area well lighted and clean.
 - Keep your hands clean at all times during service.
 - Keep parts removed from the engine in the removal order.
 - Make sure that removed parts are not mixed and do not touch each other.
-

Disassemble the engine according to the following procedure:

1. Drain coolant.
 - A. Check that the engine and radiator is sufficiently cooled down.
 - B. Place a container in front of the coolant drain plug.
 - C. Remove the radiator cap.
 - D. Open the drain valve on the bottom of the radiator to drain coolant.
 - E. Remove the coolant drain plugs from the cylinder block and oil cooler.
 - F. Drain coolant into the prepared container.
 - G. After draining coolant, install the drain plug.

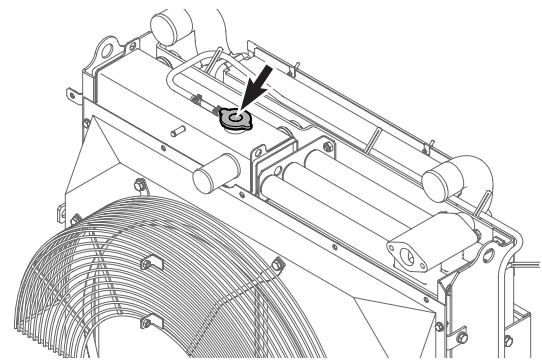


Figure 10

EX1404285



DANGER

AVOID DEATH

- Never open the radiator cap while the engine is hot. If opening the radiator cap while the engine is still hot, hot coolant may spurt, resulting in a severe burn. Open the radiator cap after confirming that the engine is sufficiently cooled down.
 - Put a label on the coolant container not to get mixed with other containers. If you swallow coolant, seek professional medical help immediately.
-

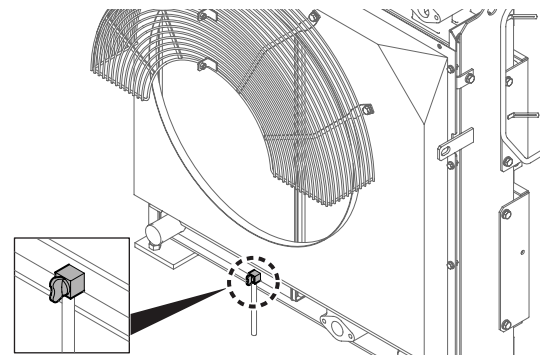


Figure 11

EX1404306



WARNING

AVOID DEATH OR SERIOUS INJURY

Used coolant should be discarded according to the local regulations. Never discard used engine oil to the ground, ditch, sewer, river, sea, etc. Such action can pollute the environment. Discarding used engine oil improperly can result in punishment due to violation of the corresponding regulation.



CAUTION

AVOID INJURY

When changing coolant, make sure that it is not left on any belt or electric part.

2. Separate the dipstick.
 - A. Pull out the dipstick.
3. Drain engine oil.
 - A. Place a container under the engine to collect drained engine oil.
 - B. Remove the drain plug from the oil pan and drain engine oil into the prepared container.
 - C. Remove the oil filler cap.
 - D. Remove the engine oil filter.
 - E. After draining engine oil, install the engine oil filter and drain plug.

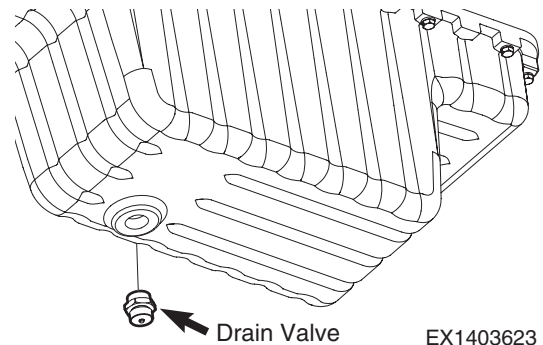


Figure 12



WARNING

AVOID DEATH OR SERIOUS INJURY

Used oil should be discarded according to the local regulations. Never discard used engine oil to the ground, ditch, sewer, river, sea, etc. Such action can pollute the environment. Discarding used engine oil improperly can result in punishment due to violation of the corresponding regulation.

4. Remove the intercooler.
 - A. Remove all the hoses and air pipes from the intercooler.
 - B. Unscrew the intercooler mounting bolts to remove the intercooler.

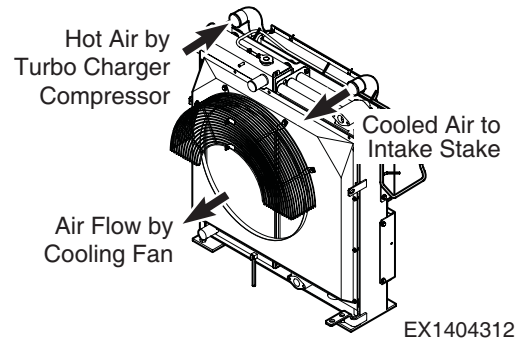


Figure 13

5. Remove the cooling fan.
 - A. Remove the fan guide and bracket.
 - B. Unscrew the flange mounting bolt to remove the flange and cooling fan.

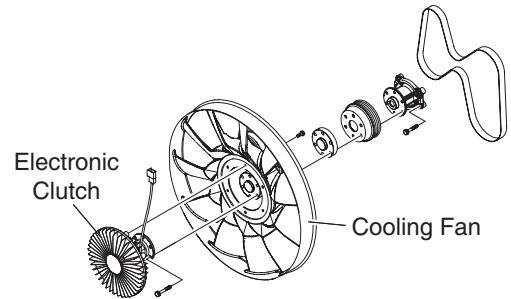


Figure 14

6. Remove the belt.
 - A. Unscrew the tension adjusting bolts and mounting bolts of the A/C compressor, air compressor and alternator.
 - B. Remove the belt.

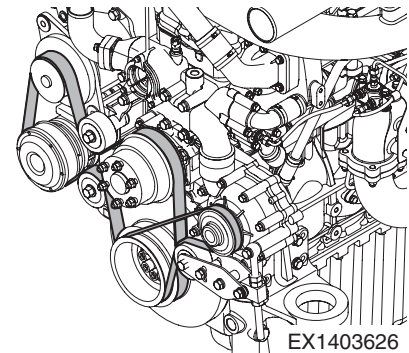


Figure 15

7. Remove the engine from the machine.
8. Disconnect the cables and harnesses of the engine from each sensor.
9. Remove the alternator and A/C compressor.
 - A. Unscrew the mounting bolt to remove the alternator.
 - B. Unscrew the idle puller mounting bolt to remove the A/C compressor.

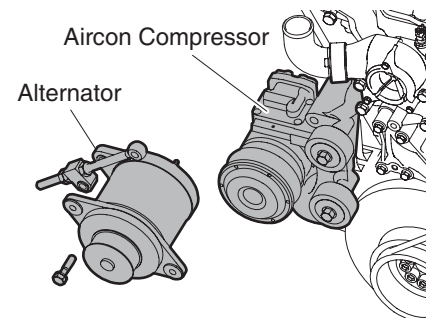


Figure 16

10. Remove the breather.
 - A. Unscrew the mounting clamp screw to disconnect the rubber hose.
 - B. Remove the breather valve assembly.

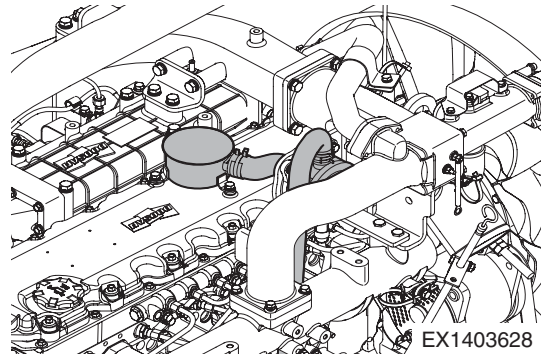


Figure 17

11. Disconnect the air pipe and remove the air heater.
 - A. Unscrew the mounting bolt to disconnect the air pipe and remove the air heater.



CAUTION

AVOID INJURY

Never let foreign materials enter the turbocharger.

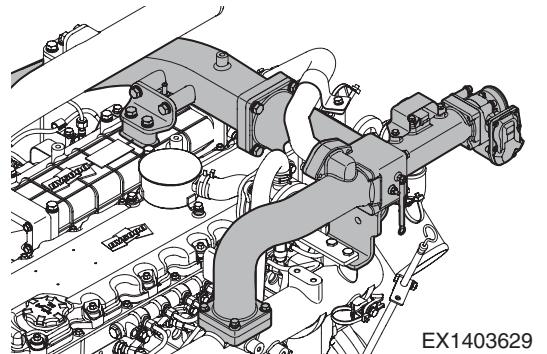


Figure 18

12. Remove the fuel filter.
 - A. Unscrew the hollow screw from the fuel filter and disconnect the fuel hose.
 - B. Unscrew the fuel filter mounting bolt to remove the fuel filter.

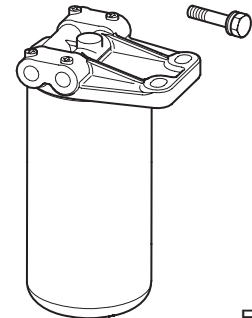


Figure 19

13. Disconnect the intake stake.
 - A. Unscrew the mounting bolt to disconnect the air hose.

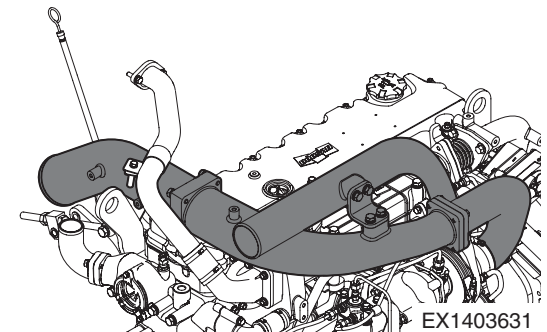


Figure 20

14. Separate the intake manifold.
 - A. Unscrew the intake manifold mounting bolts to remove the intake manifold from the cylinder block.
 - B. Remove the gasket and clean the gasket mounting surface thoroughly with a scraper.

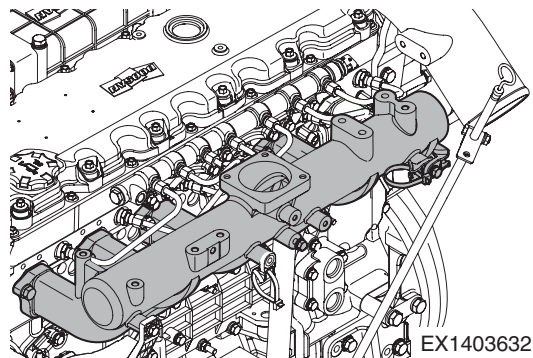


Figure 21

15. Remove the common rail and high-pressure pipe.
 - A. Disconnect the high-pressure pipe between the fuel high-pressure connector and common rail.
 - B. Unscrew the common rail mounting bolts to remove the common rail.



CAUTION

AVOID INJURY

- Seal the common rail thoroughly after removing it to prevent foreign materials from entering it.
 - Once the fuel high-pressure pipe is disconnected, it cannot be reused.
-

16. Remove the fuel high-pressure pump.
 - A. Unscrew the fuel high-pressure pump mounting bolts to remove the fuel high-pressure pump.

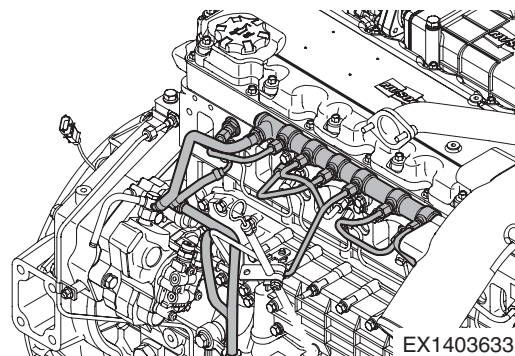


Figure 22

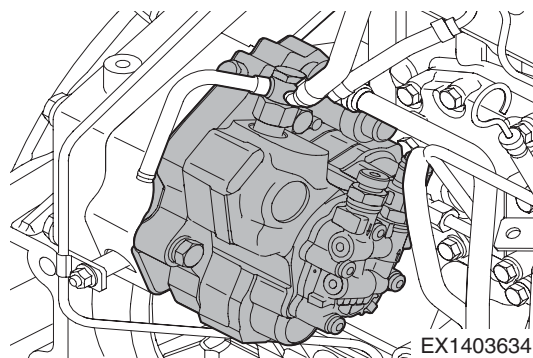


Figure 23

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