
D180

(Tier 3)

CRAWLER DOZER

Workshop Manual

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THIS ALERT SYMBOL SIGNALS IMPORTANT MESSAGES INVOLVING YOUR SAFETY.

Read and heed carefully the safety instructions listed and follow the precautions recommended to avoid potential risks and to safeguard your health and your safety.

You will find this symbol in the text of this Manual referred to the following key words:

WARNING - Cautions directed to avoid improper repair interventions involving potential consequences for the safety of the personnel performing the repairs.

DANGER - These warnings qualify specifically potential dangers for the safety of the operator or other persons directly or indirectly involved.

IMPORTANT NOTICE

All maintenance and repair interventions explained in this Manual **must be performed exclusively by the Service Organisation of the Manufacturer**, observing strictly the instructions explained using, whenever necessary, the recommended specific tools.

Whoever performs the operations reported without following exactly the precautions is responsible on his own, for the damages that may result.

Neither the Factory nor any Organisations in its Distribution Network, including but not limited to national, regional or local distributors, are responsible for any liability arising from any damage resulting from defects caused by parts and/or components not approved by the Factory for use in maintaining and/or repairing products manufactured or merchandised by the Factory.

In any case, no warranty of any kind is made or shall be imposed with respect to products manufactured or merchandised by the Factory, when failures are caused by the use of parts and/or components not approved by the Factory.

AVOID ACCIDENTS

Most accidents, whether they occur in industry, on the farm, at home or on the road, are caused by the failure of some individuals to follow simple and fundamental safety rules and precautions. For this reason **MOST ACCIDENTS CAN BE PREVENTED** by recognising the real cause and doing something about it before the accident occurs.

Regardless of the care used in the design and construction of any type of equipment, there are many conditions that cannot be completely safeguarded against without interfering in the reasonable accessibility and efficient operation.

A careful operator is the best insurance against an accident. The complete observance of one simple rule would prevent many serious accidents.

The rule is simple: never attempt to clean, lubricate or maintain a machine while it is in motion.



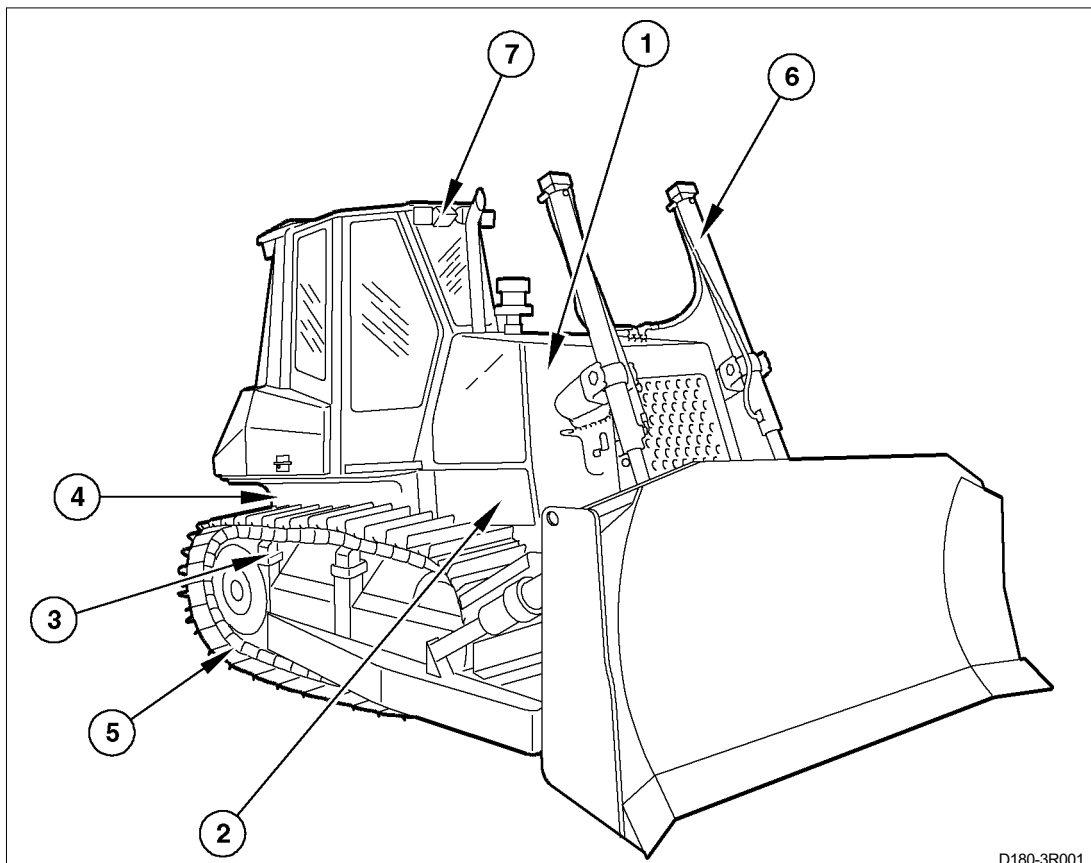
WARNING

Prior to engaging in any maintenance, adjustment or repair operation on machines having hydraulically, mechanically, and/or cable controlled equipment (such as shovels, loaders, dozers, excavators etc.) be certain the equipment is lowered to the ground.

If it is necessary to have the equipment partially or fully raised to gain access to certain items, be sure the equipment is suitably supported by means other than the devices used for controlling the equipment.

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D180-3R001

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SECTION 0
GENERALITIES

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WARNING

Study carefully this Manual before starting, operating, maintaining, fuelling or servicing the machine.

Read and heed all safety rules before any intervention.

SAFETY RULES

- Do not allow unauthorised personnel to operate service or maintain this machine.
- Do not wear rings, wrist watches, jewellery, loose or hanging apparels, such as ties, torn clothing, scarves, unbuttoned or unzipped jackets that can catch on moving parts. Wear proper safety equipment as recommended for the job. Examples: hard hat, heavy gloves, ear protection, safety glasses or goggles, reflector vests, respirator. Consult your employer for specific safety equipment requirements.
- Keep operator's compartment, stepping points, grab-rails and handles clear of foreign objects, oil, grease, mud or snow accumulation to minimise the danger of slipping or stumbling. Clean mud or grease from shoes before attempting to mount or operate the machine.
- Do not jump on or off the machine. Keep two hands and one foot, or two feet and one hand in contact with step grab rails and handles at all times.
- Do not use controls or hoses as hand holds when climbing on or off machine. Hoses and controls are movable and do not provide a solid support. Also, controls may be inadvertently moved causing accidental machine or equipment movement.
- Never attempt to operate the machine or its tools from any position other than seated in the operator's seat.
- Keep head, body, limbs, hands and feet inside operator's compartment at all times, to reduce exposure to hazards outside the operator's compartment.
- Be careful of slippery conditions on stepping points, hand rails, and on the ground. Wear safety boots or shoes that have a high slip resistant sole material.
- Do not leave the machine until it is completely stopped.
- Check the seat safety belt at least twice a year. If there are signs of wear or fraying or other signs of weakness that could lead to failure, replace it.

STARTING

- NEVER START NOR OPERATE AN UNSAFE MACHINE.

Before operating a machine, always ensure that any unsafe condition has been satisfactorily remedied.

- Check brakes, steering and attachment controls before moving. Advise the proper maintenance authority of any malfunctioning part or system.
- Be sure all protective guards or panels are in place, and all safety devices provided are in place and in good operating conditions.
- Be sure exposed personnel in the area of operation are clear of the machine before moving it or its attachments. **WALK COMPLETELY AROUND** the machine before mounting. Sound horn.
- Before starting machine, check, adjust and lock the operator's seat for maximum comfort and control of the machine.
- Fasten your seat belt (when provided).
- Obey all flag signals and signs.
- Due to the presence on the machine of flammable fluids, never check or fill fuel reservoirs or batteries near open flames, smoking materials or sparks.
- REMEMBER THAT STARTING FLUID IS FLAMMABLE. Follow strictly the recommendations printed on containers and in the Operation and Maintenance Manual.
- DO NOT PUNCTURE OR BURN CONTAINERS.
- Containers must be stored in fresh, well ventilated places, out of reach of unauthorised persons. Follow strictly the instructions provided by the Manufacturer.
- Never use these products near open flames, smoking materials or sparks.

OPERATION

- Do not run the engine of this machine in closed areas without proper ventilation to remove deadly exhaust gases.
- Roll Over Protective Structures are required on loaders, dozers, graders, excavators.

SAFETY RULES

NEVER OPERATE machines without ROPS.

- Make sure the Operator's compartment is free of foreign objects, especially if not firmly secured. Never use the machine to transport objects, unless proper securing points are provided.
- Check monitoring instruments at start-up and frequently during operations. In case the brake pressure gauge shows a pressure lower than the minimum operating pressure, stop immediately the machine .
- DO NOT CARRY RIDERS ON MACHINE
- Study and familiarise with escape routes alternate to normal exit routes.
- Seat belts are required by current regulations to be provided with Roll Over Protection Structures or cabs. Keep safety belts fastened around you during operation.
- For your personal protection, do not climb on or off machine while machine is in motion.
- Make sure that exposed persons in the area of operation are clear of the machine, before starting the engine and operating the equipment. Sound horn. Obey all indications provided by flags and signals.
- NEVER COAST the machine down grades and slopes with the transmission in neutral or neutralised.

Choose and shift into the most appropriate gear to keep the speed required, thus preventing any loss of control.

- Do not operate machinery in a condition of extreme fatigue or illness. Be especially careful towards the end of working shift.
- Do not operate machine with brakes out of adjustment.
- Operate the machine at speeds slow enough to ensure complete control at all times.
- Travel slowly over rough terrain, on slopes or near drop-offs, in congested areas or on ice or slippery surfaces.
- When backing, always look to where the machine is to be moved. Be alert to the position of exposed personnel. DO NOT OPERATE if exposed personnel enter the immediate work area. STOP THE MACHINE.
- Maintain a safe distance from other machines. Provide sufficient clearance for ground and visibility conditions. Yield right-of-way to loaded machines.
- Maintain clear vision of areas of travel or work.

Keep cab windows clean and repaired.

- When machines are operating in tandem, the pusher (rear) must be equipped with the appropriate deflectors to protect the unit in front from the air stream coming from the radiator.
- When pulling or towing through a cable or chain, do not start suddenly at full throttle; take-up slack carefully.

Inspect carefully for flaws or troubles before using.

- Avoid kinking chains or cables. Do not pull through a kinked chain or cable to the high stresses and possibility of failure of the kinked area. Always wear heavy gloves when handling chains or cables.
- Be sure chains and cables are anchored and the anchor points are strong enough to handle the expected load. Keep exposed personnel clear of anchor points and cables or chains.
- DO NOT PULL UNLESS OPERATOR'S COMPARTMENT OF MACHINES INVOLVED ARE PROPERLY GUARDED AGAINST POTENTIAL CABLE OR CHAIN BACKLASH.
- Be alert to soft ground conditions close to newly constructed walls. The fill material and weight of the machine may cause the wall collapse under the machine.
- In darkness, check area of operation carefully before moving in with machine. Use all lights provided. Do not move into area of restricted visibility.
- If engine has a tendency to stall for any reason under load or idle, report this for adjustment to proper maintenance authority immediately. Do not continue to operate machine, until condition has been corrected.
- On machines supplied with suction radiator fans, be sure to periodically check engine exhaust parts for leaks, as exhaust fumes are dangerous to the operator.
- In case of closed type cabs, always keep an opening with the outside, to ensure a constant air circulation.
- Operators must know thoroughly the performances of the machine they are operating. When working on slopes or near sudden level drops of the terrain, avoid areas where ground is loose or soft since rolling-over or loss of control of machine could result.
- Where noise exposure exceeds 90 dBA for 8 hours, wear approved ear protection.
- When counterweights are provided, do not work machine if they have been removed.

SECTION 1

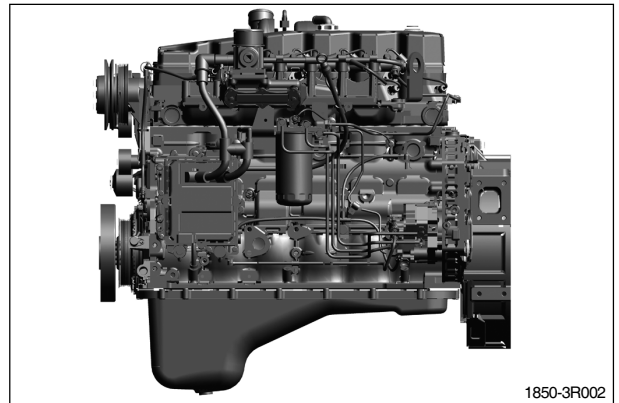
ENGINE

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1.1 GENERAL SPECIFICATIONS

1. The engine is a diesel for heavy duty applications characterised by several design concepts tending towards simplicity and a high compactness.



Series C							
Length		Width		Height		Weight	
mm	in	mm	in	mm	in	kg	lb
1050	41.3	685	26.9	945	37.2	550	1212.5

2. The engine incorporates, in a single solution, all the most important characteristics and advantages of modern diesel technology.

Technology

- In-line cylinders
- Water cooled
- 4 stroke
- Turbocharged
- Aftercooled
- Direct injection
- Metric dimensions
- Air flow cooling

3. The engine has been entirely designed with metric dimensions. the only discrepancy with these specifications involves the use of connections for pipes and plugs with SAE standards. The specifications of accessories change depending upon the Supplier. Technical publications list metric values with the equivalent SAE values.

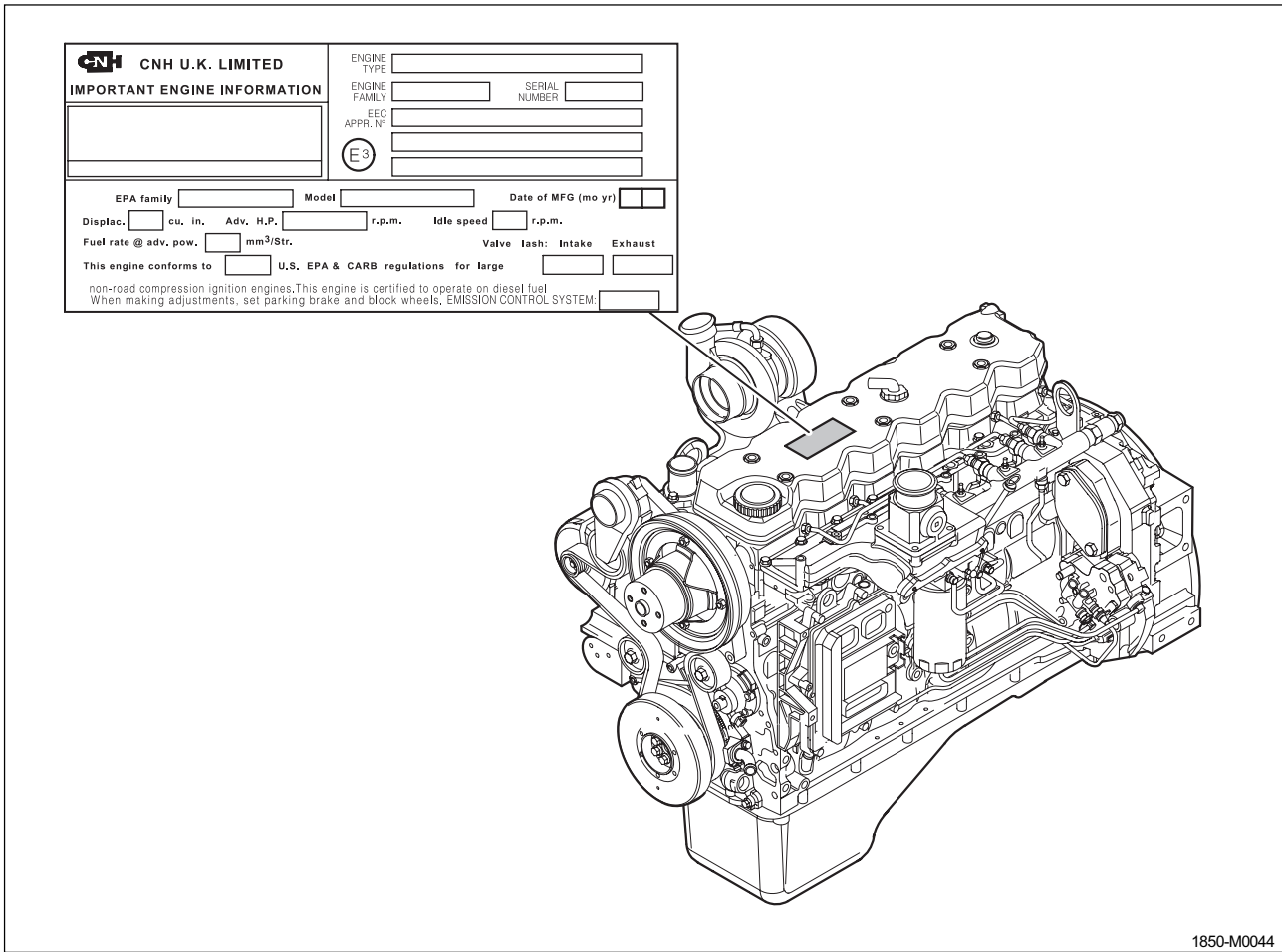
Engine components

- Metric specifications

Pipes connections and plugs

- SAE standards

IDENTIFICATION OF THE ENGINE



1850-M0044

Engine data plate

The engine data plate provides the identification data and other important information about the engine.

Have the engine data here below available when contacting a Iveco Authorised Repair Centre. The information data on the plate are compulsory when procuring Spare Parts.

Note – Do not change the engine data plate unless authorised by IVECO.

The total displacement of the engine is 6.7 litres (1.7 gal), the bore is 104 mm (4 in) and the stroke 132 mm (5.1 in).

The firing order is the same as for the other in-line, 6 cylinder Iveco engines, 1-5-3-6-2-4.

Specifications of engine series

Total displacement	6,7 litri
Bore	104 mm
Stroke	132 mm
Firing order	1-5-3-6-2-4

1.2 ENGINE DATA

Generalities

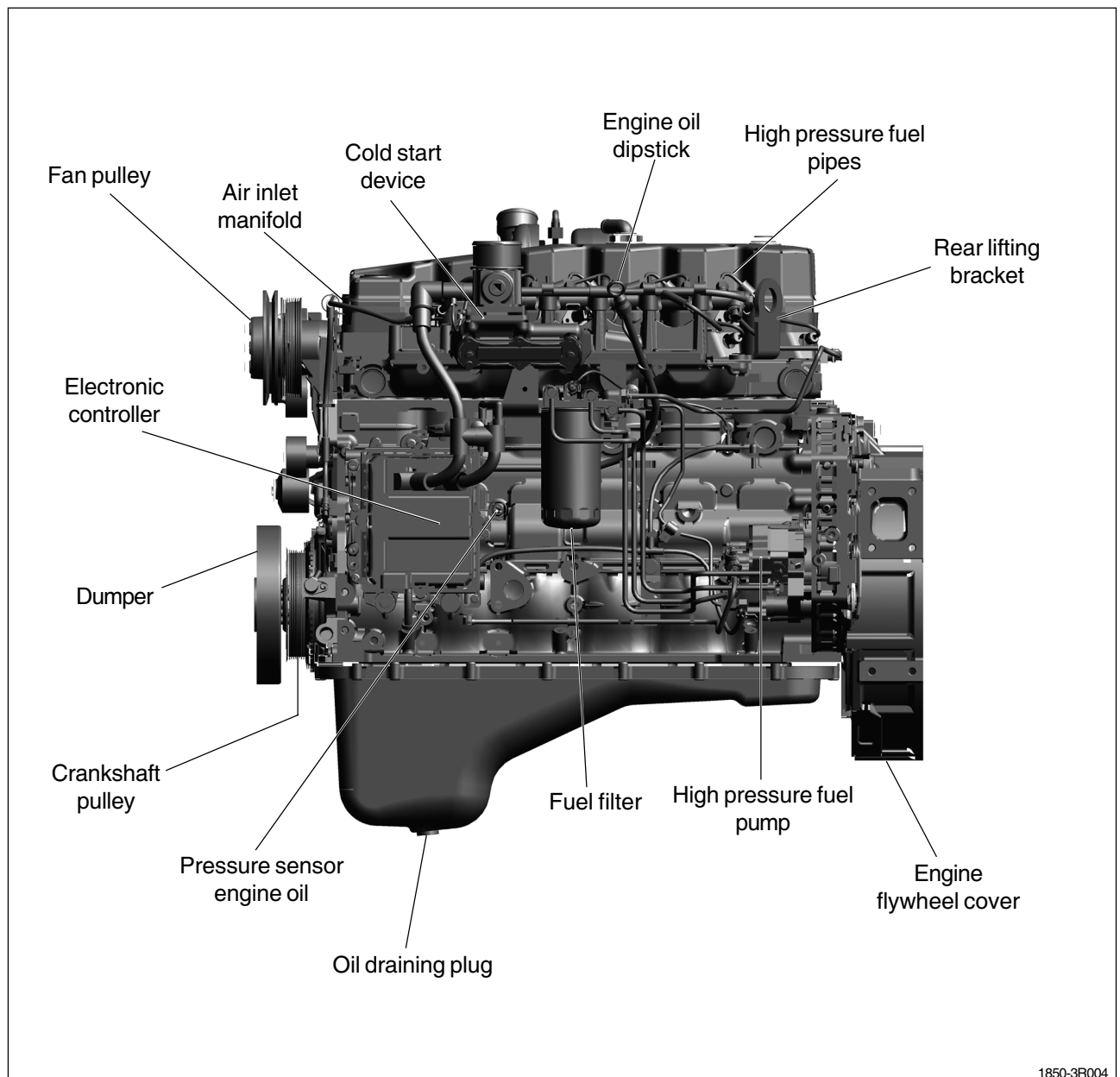
	D180 LT/XLT	D180 LGP
Bore:	104 mm [4.0 in]	104 mm [4.49 in]
Stroke:	132 mm [5.1 in]	132 mm [5.32 in]
Total displacement:	6.7 L [408.8 in ³]	6.7 L [408.8 in ³]
Net flywheel power (ISO 9249)	196 HP / 146 kW	210 HP / 157 kW
Low idle	780÷920 rpm	780÷920 rpm
High idle	2030÷2170 rpm	2030÷2170 rpm
Implem. stall	2020÷2160 rpm	2020÷2160 rpm
Torque converter / transmission stall	1710÷1850 rpm	1785÷1925 rpm
Total stall	1640÷1840 rpm	1725÷1925 rpm
Maximum torque	860Nm	952Nm A 1400 min ⁻¹
Compression ratio	16.5 : 1	16.5 : 1
Firing order:	1-5-3-6-2-4	1-5-3-6-2-4
Valve clearance		
Intake:	0.30 mm [0.012 in]	0.30 mm [0.012 in]
Exhaust:	0.61 mm [0.024 in]	0.61 mm [0.024 in]
Engine rotation (seen from front side of engine):	Clockwise	Clockwise
Intake	Turbocharged with after-cooled	Turbocharged with after-cooled

1.3 DIAGRAMS OF ENGINE

The illustrations here below provide information on the engine components, the location of filters, the draining points and the access locations for engine instrumentation and controls.

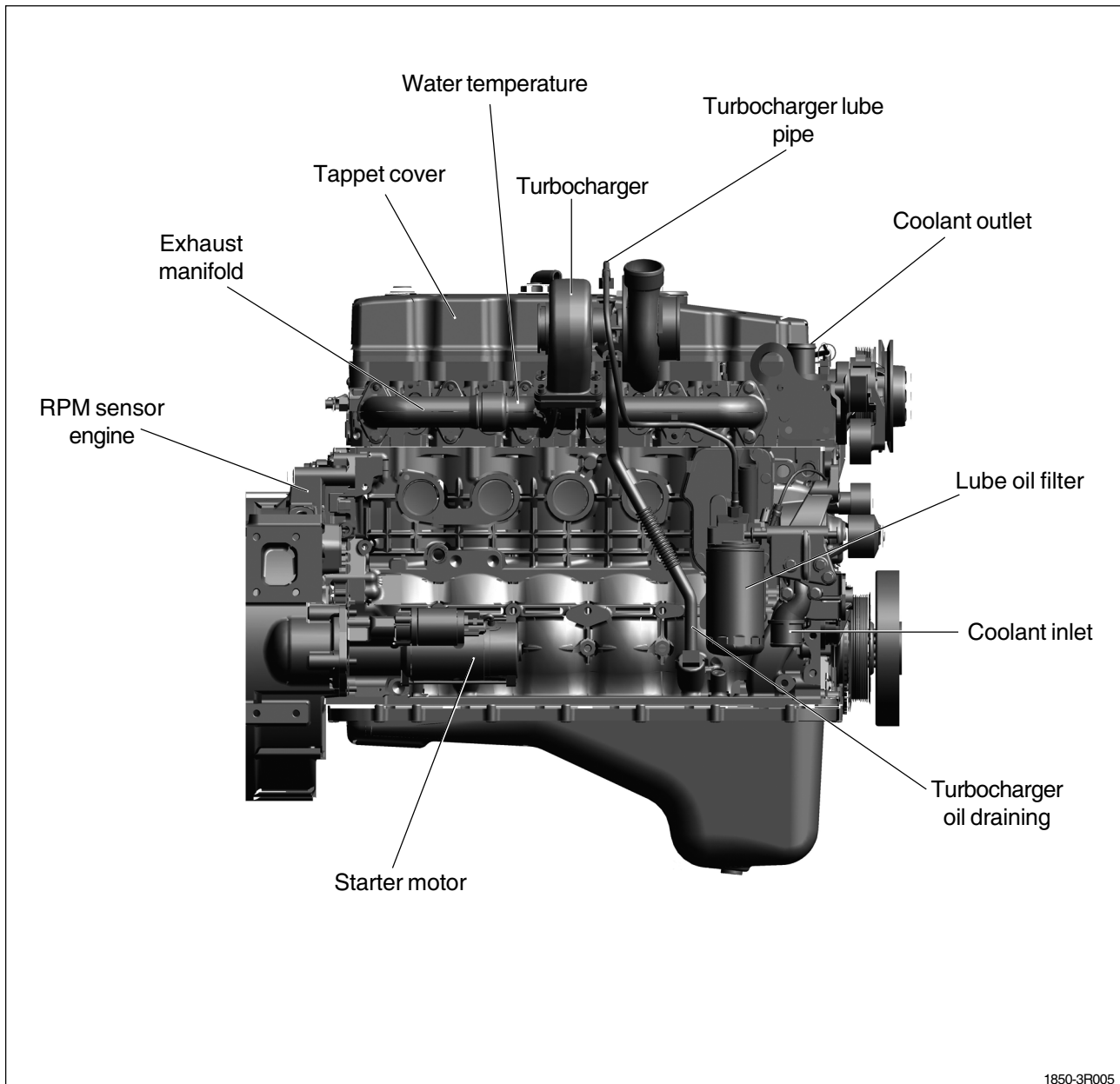
The illustrations and the configuration of the components shown in these diagrams are of a general nature. The locations of some components change depending upon the application and the installation.

For the removal, testing, overhaul and installation of the engine, please refer to the Workshop Manual IVECO.

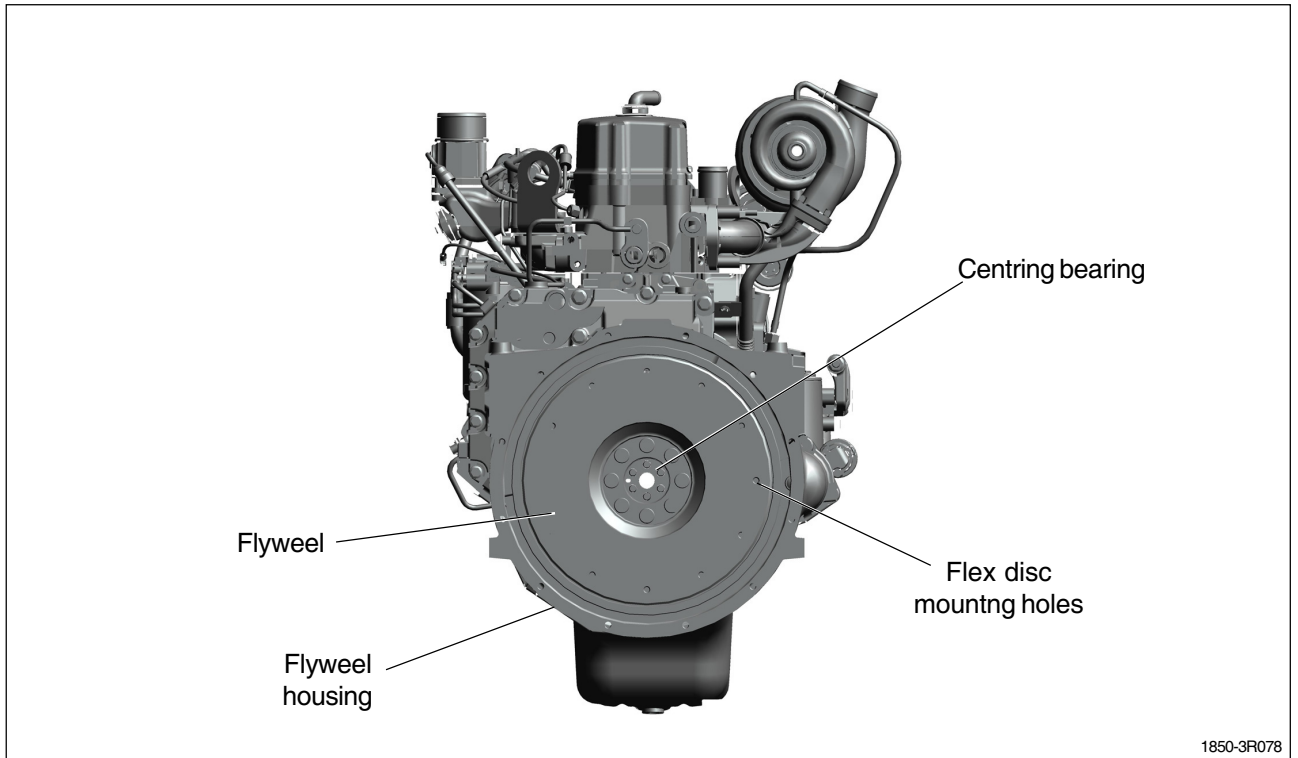


1850-3R004

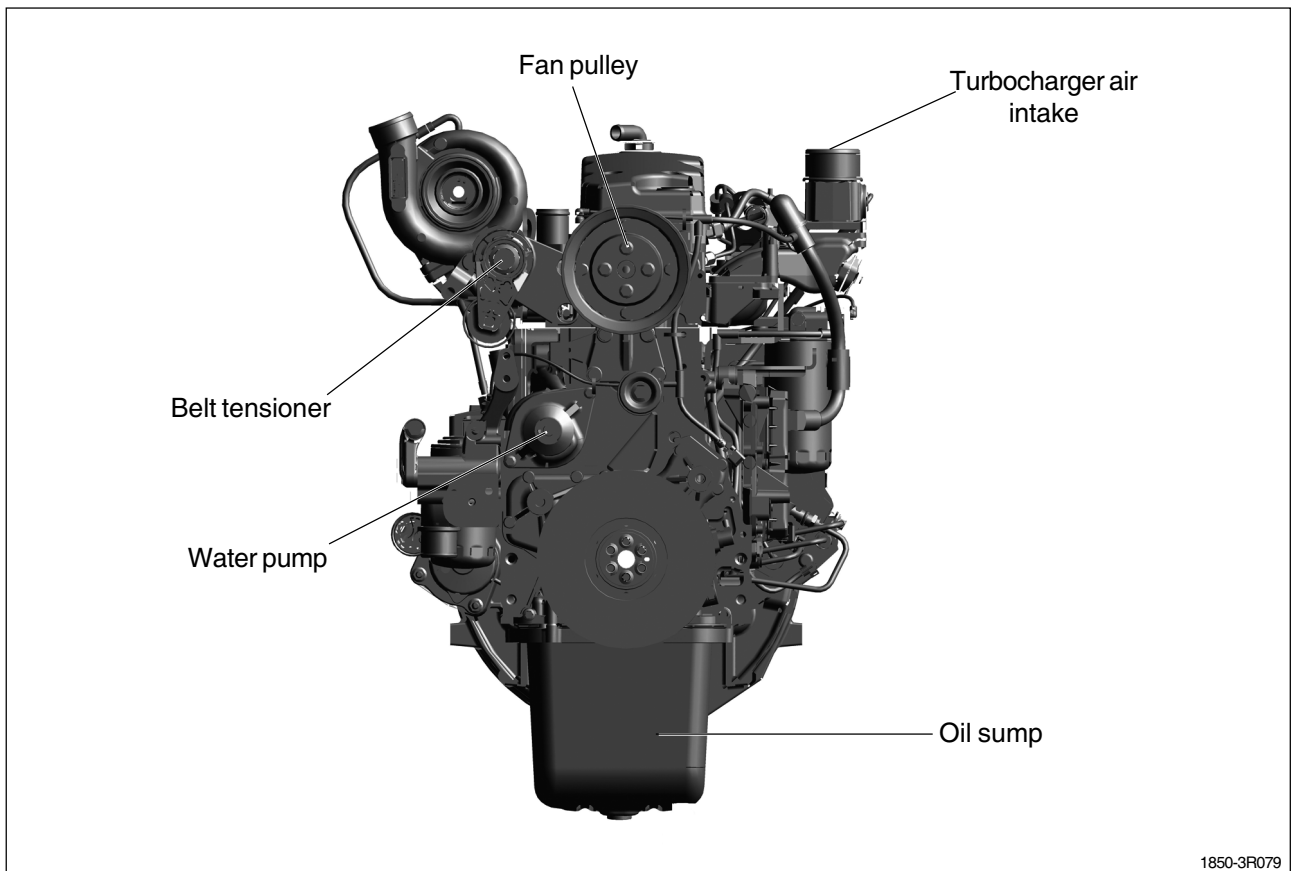
View from left side



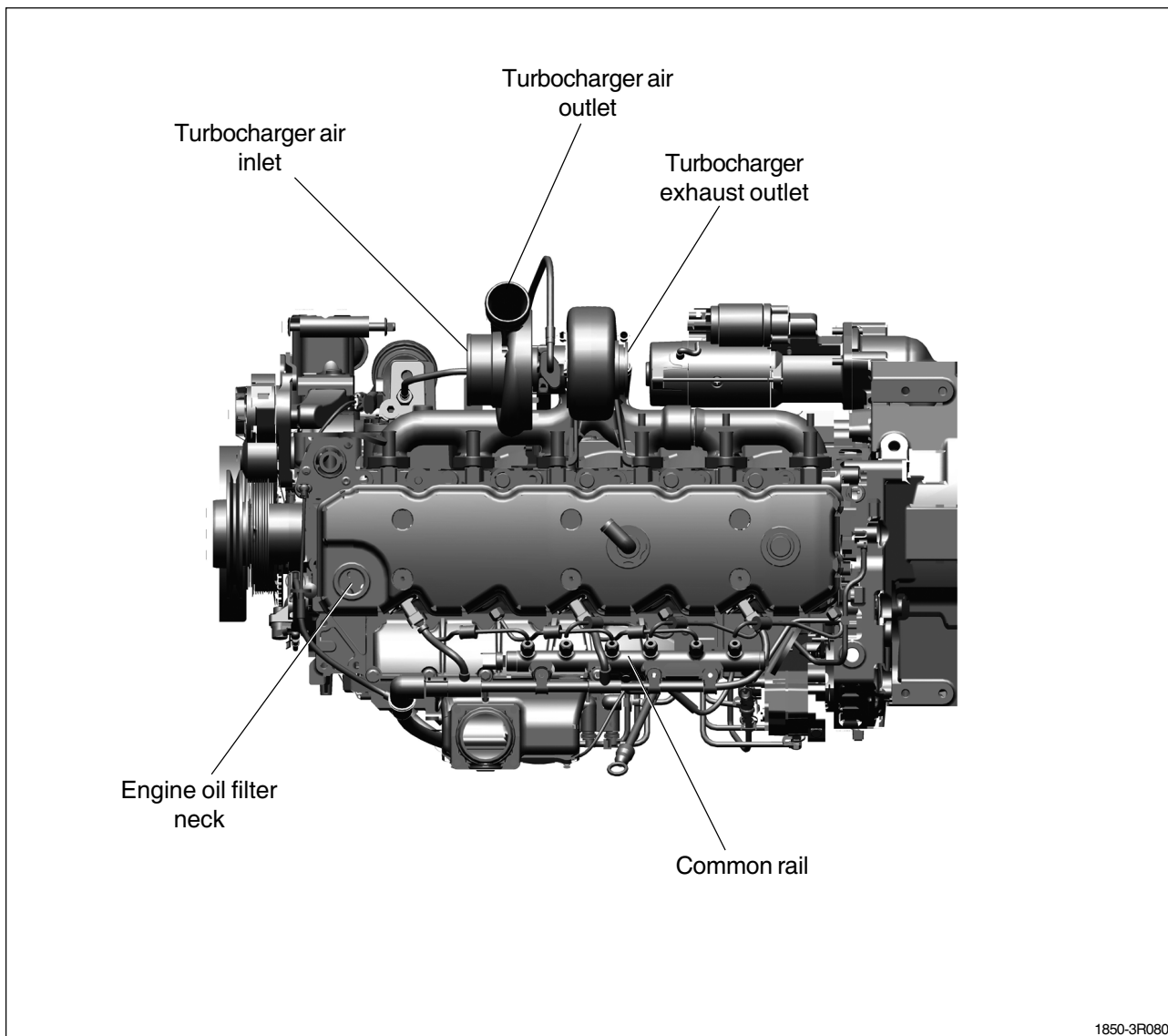
View from left right



Rear view



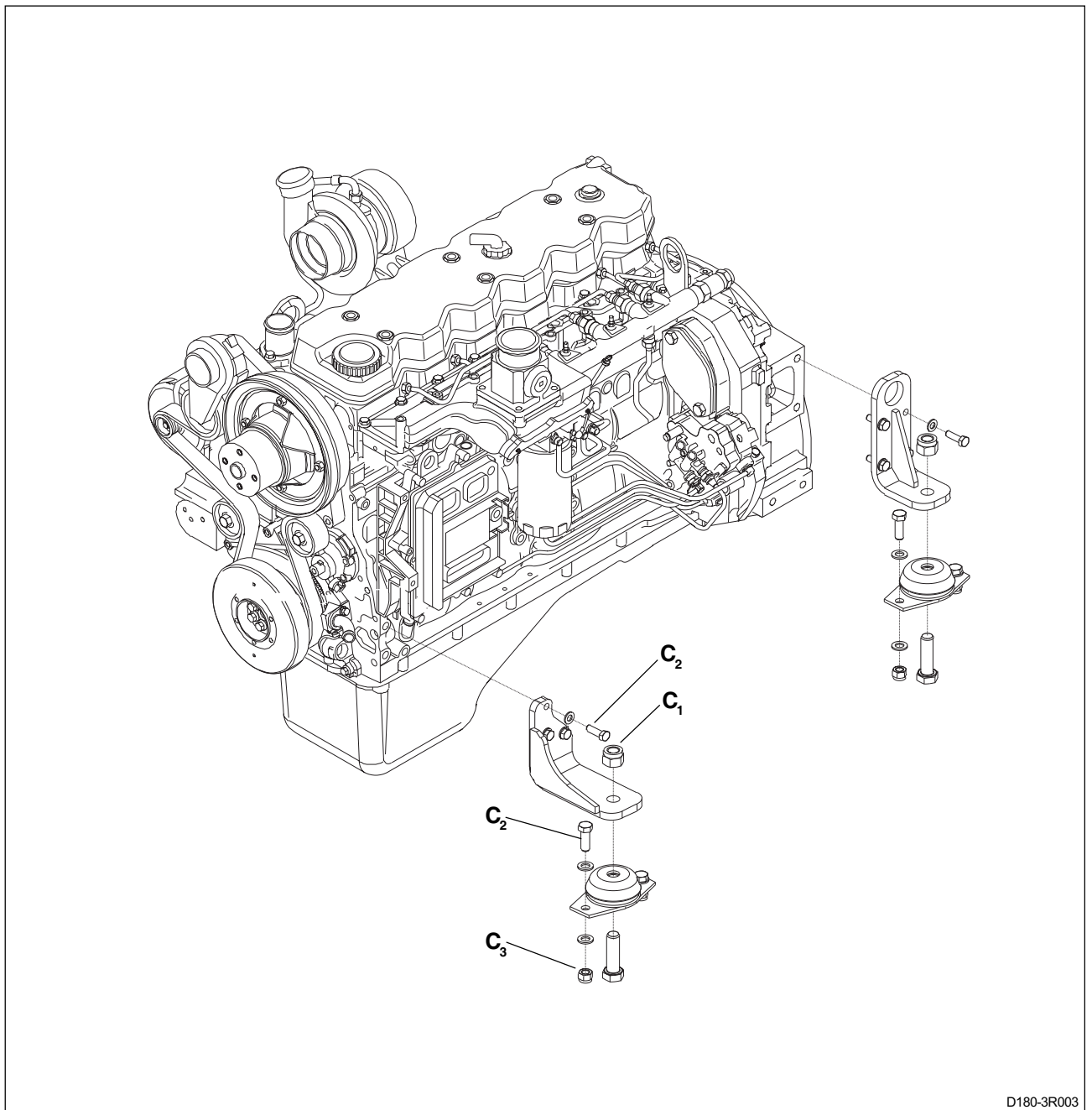
Front view



1850-3R080

View from above

1.4 MOUNTING OF ENGINE ON FRAME



D180-3R003

Tightening torques

- C₁. Self-locking nut M24 x 2 108 daNm (796.3 lbf.ft)
 C₂. Screw TE M12 x 1.75 11 daNm (81.1 lbf.ft)
 C₃. Self-locking nut M16 x 1.5 30 daNm (22.1 lbf.ft)

ENGINE/CONVERTER REMOVAL AND INSTALLATION

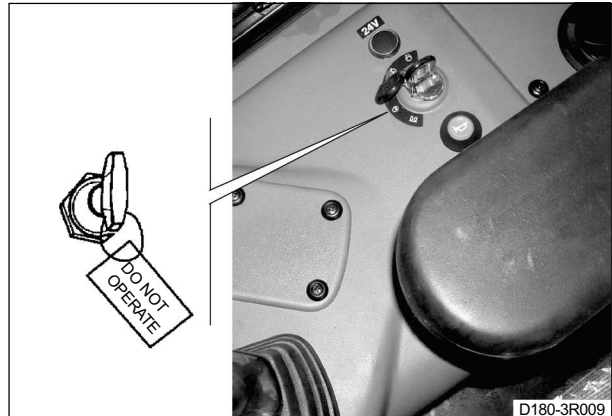
REMOVAL OF ENGINE GROUP ASSEMBLY

Turn the **STARTER SWITCH** into **OFF** and place the "**DO NOT START**" notice as indicated in the figure.



WARNING

Do not allow unauthorized persons to repair or maintain this machine. Read carefully the **Operation and Maintenance Manual** prior to starting, operating, maintaining or refueling and repairing the machine.



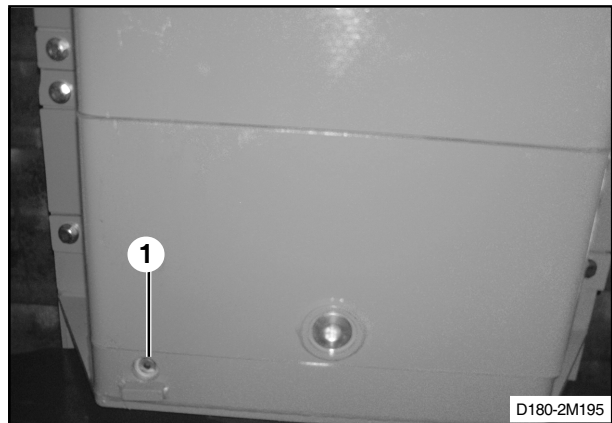
Oil draining

Remove plug (1) from the bottom of the machine, with the transmission oil warm, and let it drain into a container with a 40 liter (10 USG) capacity, at least.

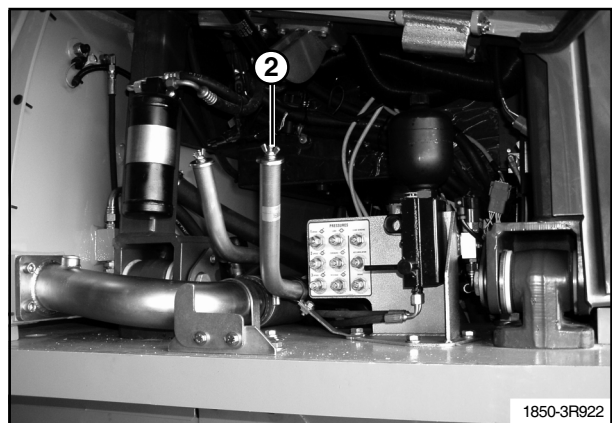


DANGER

Pressurized fluid: before removing the plug or the cover turn it slowly to release the pressure. See the **Instruction Manual**.



To facilitate the draining, open the right panel under the cab and loosen plug (2) from the transmission oil filler neck.





Suggest:

If the above button click is invalid.

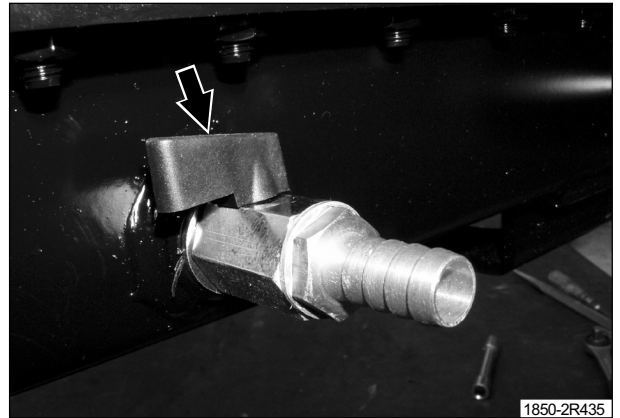
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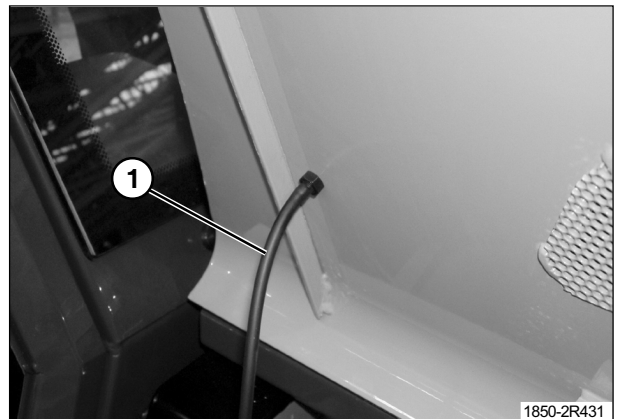
With engine cold, drain the coolant from the radiator by opening the valve indicated in the figure, located at the bottom of the radiator itself. To facilitate the draining, remove the coolant filler cap on the radiator.



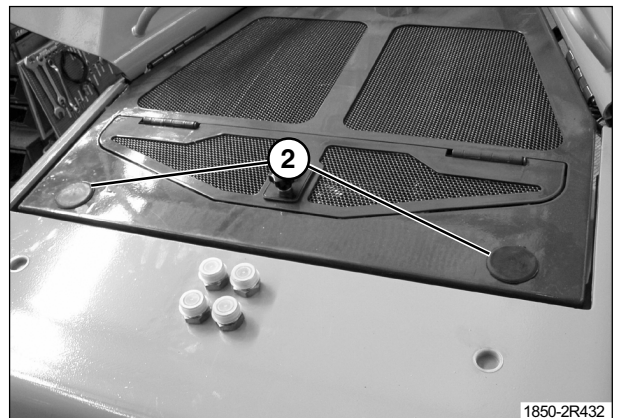
Remove the windshield washer liquid pipes (1) from the engine hood upper panels.

 **WARNING**

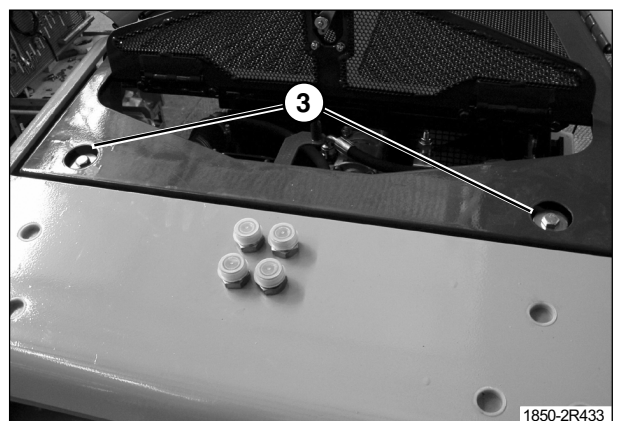
Handle all components with great care. Never place hands or fingers between parts. Wear approved protective clothing such as glasses, gloves and safety shoes.



Remove the plastic protection caps (2) (q.ty 4) of the screws securing the engine hood.



Remove the engine hood securing screws (3) (q.ty 4) complete with washers and vibration damper rubber rings.



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