

I 150M Stage IIIB Crawler Dozer

*PIN NCDCI 1500 and above; PIN NDDCI 1000 and above;
PIN NEDCI 1000 and above; PIN NFDCI 1000 and above*

SERVICE MANUAL

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CASE
CONSTRUCTION



SERVICE MANUAL

1150M Long Track (LT) [NCDC11500 -], 1150M Long Track (LT) [NDDC11000 -], 1150M Long Track (LT) [NEDC11000 -], 1150M Long Track (LT) [NFDC11000 -], 1150M Wide Track (WT) / Low Ground Pressure (LGP) [NCDC11500 -], 1150M Wide Track (WT) / Low Ground Pressure (LGP) [NDDC11000 -], 1150M Wide Track (WT) / Low Ground Pressure (LGP) [NEDC11000 -], 1150M Wide Track (WT) / Low Ground Pressure (LGP) [NFDC11000 -]

Link Product / Engine

Product	Market Product	Engine
1150M Long Track (LT) [NCDC11500 -]	Europe	F4HFE613F*A002
1150M Long Track (LT) [NDDC11000 -]	Europe	F4HFE613F*A002
1150M Long Track (LT) [NEDC11000 -]	Europe	F4HFE613F*A002
1150M Long Track (LT) [NFDC11000 -]	Europe	F4HFE613F*A002
1150M Wide Track (WT) / Low Ground Pressure (LGP) [NCDC11500 -]	Europe	F4HFE613F*A002
1150M Wide Track (WT) / Low Ground Pressure (LGP) [NDDC11000 -]	Europe	F4HFE613F*A002
1150M Wide Track (WT) / Low Ground Pressure (LGP) [NEDC11000 -]	Europe	F4HFE613F*A002
1150M Wide Track (WT) / Low Ground Pressure (LGP) [NFDC11000 -]	Europe	F4HFE613F*A002

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Contents

INTRODUCTION

Engine.....	10
[10.001] Engine and crankcase	10.1
[10.202] Air cleaners and lines	10.2
[10.206] Fuel filters	10.3
[10.216] Fuel tanks	10.4
[10.304] Engine lubrication system.....	10.5
[10.310] Aftercooler.....	10.6
[10.400] Engine cooling system	10.7
[10.414] Fan and drive	10.8
[10.500] Selective Catalytic Reduction (SCR) exhaust treatment.....	10.9
Hydrostatic drive.....	29
[29.218] Pump and motor components.....	29.1
Brakes and controls	33
[33.110] Parking brake or parking lock	33.1
[33.202] Hydraulic service brakes	33.2
Hydraulic systems.....	35
[35.000] Hydraulic systems.....	35.1
[35.300] Reservoir, cooler, and filters.....	35.2
[35.104] Fixed displacement pump.....	35.3
[35.105] Charge pump.....	35.4
[35.359] Main control valve.....	35.5
[35.741] Dozer blade cylinders	35.6
Tracks and track suspension.....	48
[48.130] Track frame and driving wheels.....	48.1
[48.100] Tracks	48.2

[48.134] Track tension units	48.3
[48.138] Track rollers	48.4
[48.140] Dropbox and final drive	48.5
Cab climate control	50
[50.100] Heating	50.1
[50.104] Ventilation	50.2
[50.200] Air conditioning	50.3
Electrical systems	55
[55.000] Electrical system	55.1
[55.011] Fuel tank system	55.2
[55.014] Engine intake and exhaust system.....	55.3
[55.015] Engine control system.....	55.4
[55.030] Service brake electrical system	55.5
[55.050] Heating, Ventilation, and Air-Conditioning (HVAC) control system.....	55.6
[55.100] Harnesses and connectors.....	55.7
[55.201] Engine starting system	55.8
[55.202] Cold start aid	55.9
[55.301] Alternator.....	55.10
[55.302] Battery.....	55.11
[55.408] Warning indicators, alarms, and instruments	55.12
[55.512] Cab controls.....	55.13
[55.518] Wiper and washer system.....	55.14
[55.988] Selective Catalytic Reduction (SCR) electrical system	55.15
[55.DTC] FAULT CODES.....	55.16
Dozer blade and arm.....	86
[86.110] Dozer blade	86.1
[86.124] Dozer pushbeams and struts	86.2
Platform, cab, bodywork, and decals	90

[90.150] Cab	90.1
[90.160] Cab interior trim and panels	90.2
[90.120] Mechanically-adjusted operator seat	90.3
[90.124] Pneumatically-adjusted operator seat	90.4
[90.100] Engine hood and panels	90.5



INTRODUCTION

Foreword - Important notice regarding equipment servicing

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All repair and maintenance work listed in this manual must be carried out only by qualified dealership personnel, strictly complying with the instructions given, and using, whenever possible, the special tools.

Anyone who performs repair and maintenance operations without complying with the procedures provided herein shall be responsible for any subsequent damages.

The manufacturer and all the organizations of its distribution chain, including - without limitation - national, regional, or local dealers, reject any responsibility for damages caused by parts and/or components not approved by the manufacturer, including those used for the servicing or repair of the product manufactured or marketed by the manufacturer. In any case, no warranty is given or attributed on the product manufactured or marketed by the manufacturer in case of damages caused by parts and/or components not approved by the manufacturer.

The manufacturer reserves the right to make improvements in design and changes in specifications at any time without notice and without incurring any obligation to install them on units previously sold. Specifications, descriptions, and illustrative material herein are as accurate as known at time of publication but are subject to change without notice.

In case of questions, refer to your CASE CONSTRUCTION Sales and Service Networks.

Safety rules

1150M

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Personal safety



This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible death or injury.

Throughout this manual you will find the signal words DANGER, WARNING, and CAUTION followed by special instructions. These precautions are intended for the personal safety of you and those working with you.

Read and understand all the safety messages in this manual before you operate or service the machine.

 DANGER indicates a hazardous situation that, if not avoided, will result in death or serious injury.

 WARNING indicates a hazardous situation that, if not avoided, could result in death or serious injury.

 CAUTION indicates a hazardous situation that, if not avoided, could result in minor or moderate injury.

FAILURE TO FOLLOW DANGER, WARNING, AND CAUTION MESSAGES COULD RESULT IN DEATH OR SERIOUS INJURY.

Machine safety

NOTICE: Notice indicates a situation that, if not avoided, could result in machine or property damage.

Throughout this manual you will find the signal word Notice followed by special instructions to prevent machine or property damage. The word Notice is used to address practices not related to personal safety.

Information

NOTE: Note indicates additional information that clarifies steps, procedures, or other information in this manual.

Throughout this manual you will find the word Note followed by additional information about a step, procedure, or other information in the manual. The word Note is not intended to address personal safety or property damage.

Safety rules - Ecology and the environment

1150M

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Soil, air, and water quality is important for all industries and life in general. When legislation does not yet rule the treatment of some of the substances that advanced technology requires, sound judgment should govern the use and disposal of products of a chemical and petrochemical nature.

Familiarize yourself with the relative legislation applicable to your country, and make sure that you understand this legislation. Where no legislation exists, obtain information from suppliers of oils, filters, batteries, fuels, anti-freeze, cleaning agents, etc., with regard to the effect of these substances on man and nature and how to safely store, use, and dispose of these substances.

Helpful hints

- Avoid the use of cans or other inappropriate pressurized fuel delivery systems to fill tanks. Such delivery systems may cause considerable spillage.
- In general, avoid skin contact with all fuels, oils, acids, solvents, etc. Most of these products contain substances that may be harmful to your health.
- Modern oils contain additives. Do not burn contaminated fuels and or waste oils in ordinary heating systems.
- Avoid spillage when you drain fluids such as used engine coolant mixtures, engine oil, hydraulic fluid, brake fluid, etc. Do not mix drained brake fluids or fuels with lubricants. Store all drained fluids safely until you can dispose of the fluids in a proper way that complies with all local legislation and available resources.
- Do not allow coolant mixtures to get into the soil. Collect and dispose of coolant mixtures properly.
- The air-conditioning system contains gases that should not be released into the atmosphere. Consult an air-conditioning specialist or use a special extractor to recharge the system properly.
- Repair any leaks or defects in the engine cooling system or hydraulic system immediately.
- Do not increase the pressure in a pressurized circuit as this may lead to a component failure.
- Protect hoses during welding. Penetrating weld splatter may burn a hole or weaken hoses, allowing the loss of oils, coolant, etc.

Battery recycling

Batteries and electric accumulators contain several substances that can have a harmful effect on the environment if the batteries are not properly recycled after use. Improper disposal of batteries can contaminate the soil, groundwater, and waterways. CASE CONSTRUCTION strongly recommends that you return all used batteries to a CASE CONSTRUCTION dealer, who will dispose of the used batteries or recycle the used batteries properly. In some countries, this is a legal requirement.



Mandatory battery recycling

NOTE: The following requirements are mandatory in Brazil.

Batteries are made of lead plates and a sulfuric acid solution. Because batteries contain heavy metals such as lead, CONAMA Resolution 401/2008 requires you to return all used batteries to the battery dealer when you replace any batteries. Do not dispose of batteries in your household garbage.

Points of sale are obliged to:

- Accept the return of your used batteries
- Store the returned batteries in a suitable location
- Send the returned batteries to the battery manufacturer for recycling

Safety rules

1150M

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General safety rules

Use caution when operating the machine on slopes. Raised equipment, full tanks and other loads will change the center of gravity of the machine. The machine can tip or roll over when near ditches and embankments or uneven surfaces.

Never permit anyone other than the operator to ride on the machine.

Never operate the machine under the influence of alcohol, drugs, or while otherwise impaired.

When digging or using ground engaging attachments be aware of buried cables. Contact local utilities to determine the locations of services.

Pay attention to overhead power lines and hanging obstacles. High voltage lines may require significant clearance for safety.

Hydraulic oil or diesel fuel leaking under pressure can penetrate the skin, causing serious injury or infection.

- DO NOT use your hand to check for leaks. Use a piece of cardboard or paper.
- Stop engine, remove key and relieve the pressure before connecting or disconnecting fluid lines.
- Make sure all components are in good condition and tighten all connections before starting the engine or pressurizing the system.
- If hydraulic fluid or diesel fuel penetrates the skin, seek medical attention immediately.
- Continuous long term contact with hydraulic fluid may cause skin cancer. Avoid long term contact and wash the skin promptly with soap and water.

Keep clear of moving parts. Loose clothing, jewelry, watches, long hair, and other loose or hanging items can become entangled in moving parts.

Wear protective equipment when appropriate.

DO NOT attempt to remove material from any part of the machine while it is being operated or components are in motion.

Make sure all guards and shields are in good condition and properly installed before operating the machine. Never operate the machine with shields removed. Always close access doors or panels before operating the machine.

Dirty or slippery steps, ladders, walkways, and platforms can cause falls. Make sure these surfaces remain clean and clear of debris.

A person or pet within the operating area of a machine can be struck or crushed by the machine or its equipment. DO NOT allow anyone to enter the work area.

Raised equipment and/or loads can fall unexpectedly and crush persons underneath. Never allow anyone to enter the area underneath raised equipment during operation.

Never operate engine in enclosed spaces as harmful exhaust gases may build up.

Before starting the machine, be sure that all controls are in neutral or park lock position.

Start the engine only from the operator's seat. If the safety start switch is bypassed, the engine can start with the transmission in gear. Do not connect or short across terminals on the starter solenoid. Attach jumper cables as described in the manual. Starting in gear may cause death or serious injury.

Always keep windows, mirrors, all lighting, and Slow Moving Vehicle (SMV) emblem clean to provide the best possible visibility while operating the machine.

Operate controls only when seated in the operator's seat, except for those controls expressly intended for use from other locations.

Before leaving the machine:

1. Park machine on a firm level surface.
2. Put all controls in neutral or park lock position.
3. Engage park brake. Use wheel chocks if required.
4. Lower all hydraulic equipment — Implements, header, etc.
5. Turn off engine and remove key.

When, due to exceptional circumstances, you would decide to keep the engine running after leaving the operator's station, then the following precautions must be followed:

1. Bring the engine to low idle speed.
2. Disengage all drive systems.

3. **WARNING**

**Some components may continue to run down after disengaging drive systems.
Make sure all drive systems are fully disengaged.
Failure to comply could result in death or serious injury.**

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Shift the transmission into neutral.

4. Apply the parking brake.

 General maintenance safety

Keep area used for servicing the machine clean and dry. Clean up spilled fluids.

Service machine on a firm level surface.

Install guards and shields after servicing the machine.

Close all access doors and install all panels after servicing the machine.

Do not attempt to clean, lubricate, clear obstructions or make adjustments to the machine while it is in motion or while the engine is running.

Always make sure working area is clear of tools, parts, other persons and pets before you start operating the machine.

Unsupported hydraulic cylinders can lose pressure and drop the equipment causing a crushing hazard. Do not leave equipment in a raised position while parked or during service, unless securely supported.

Jack or lift the machine only at jack or lift points indicated in this manual.

Incorrect towing procedures can cause accidents. When towing a disabled machine follow the procedure in this manual. Use only rigid tow bars.

Stop the engine, remove key and relieve pressure before disconnecting or connecting fluid lines.

Stop the engine and remove key before disconnecting or connecting electrical connections.

Scalding can result from incorrect removal of coolant caps. Cooling system operates under pressure. Hot coolant can spray out if a cap is removed while the system is hot. Allow system to cool before removing cap. When removing a cap turn it slowly to allow pressure to escape before completely removing the cap.

Replace damaged or worn tubes, hoses, electrical wiring, etc.

Engine, transmission, exhaust components, and hydraulic lines may become hot during operation. Take care when servicing such components. Allow surfaces to cool before handling or disconnecting hot components. Wear protective equipment when appropriate.

When welding, follow the instructions in the manual. Always disconnect the battery before welding on the machine. Always wash your hands after handling battery components.



SERVICE MANUAL

Engine

1150M Long Track (LT) [NCDC11500 -], 1150M Long Track (LT) [NDDC11000 -], 1150M Long Track (LT) [NEDC11000 -], 1150M Long Track (LT) [NFDC11000 -], 1150M Wide Track (WT) / Low Ground Pressure (LGP) [NCDC11500 -], 1150M Wide Track (WT) / Low Ground Pressure (LGP) [NDDC11000 -], 1150M Wide Track (WT) / Low Ground Pressure (LGP) [NEDC11000 -], 1150M Wide Track (WT) / Low Ground Pressure (LGP) [NFDC11000 -]

Engine - Remove

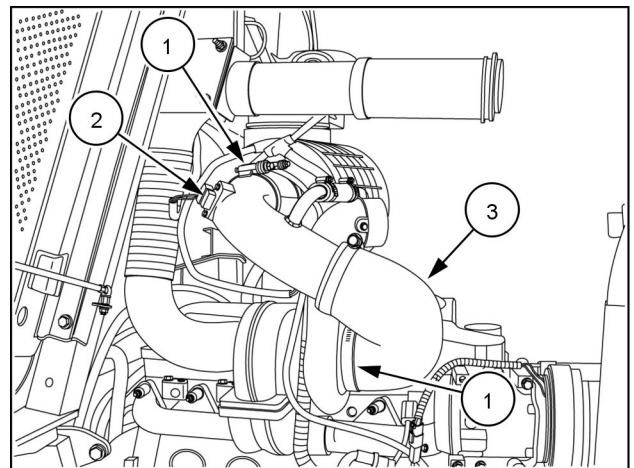
1150M

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1. Park machine on a firm, level surface.
2. Lower all equipment to the ground.
3. Engage parking brake and shut engine off.
4. Relieve system of hydraulic pressure by actuating all hydraulic functions. Remove key when complete.

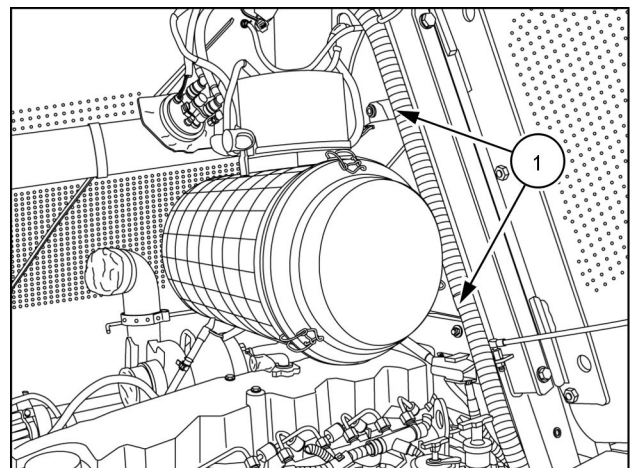
NOTE: Wait 90 seconds after engine shutdown before turning master battery disconnect switch OFF. After engine shutdown, the Selective Catalytic Reduction (SCR) system module continues to run and conducts a purge cycle.

5. Turn master battery disconnect switch to the OFF position.
6. Remove cooling package. See **Radiator - Remove (10.400)**.
7. Loosen clamps (1), disconnect electrical connectors (2), and remove air cleaner hose (3). Close all openings.



RAIL12DOZ0705BA 1

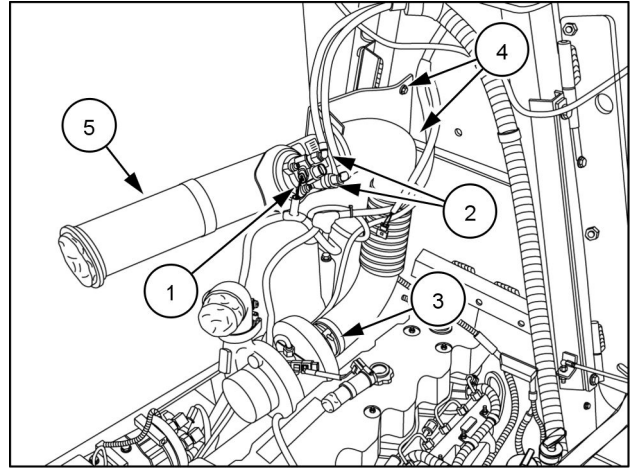
8. Disconnect electrical connector, remove six bolts and washers (1), and remove air filter assembly with bracket. Close all openings.



RAIL12DOZ0706BA 2

NOTICE: Emissions sensors in the exhaust system and on the vehicle may be damaged by vibration from use of impact wrenches or hammers during service work. Avoid using these tools when servicing components close to the sensors. Remove the sensors with care if use of these tools cannot be avoided.

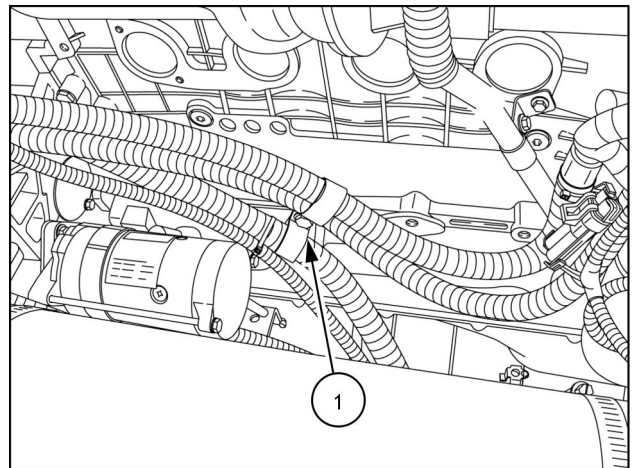
9. Disconnect electrical connectors (1) and disconnect DEF/AdBlue supply and return hoses (2). Remove clamp (3), two bracket bolts and washers (4), and turbocharger to muffler pipe (5). Close all openings.



RAIL12DOZ0707BA 3

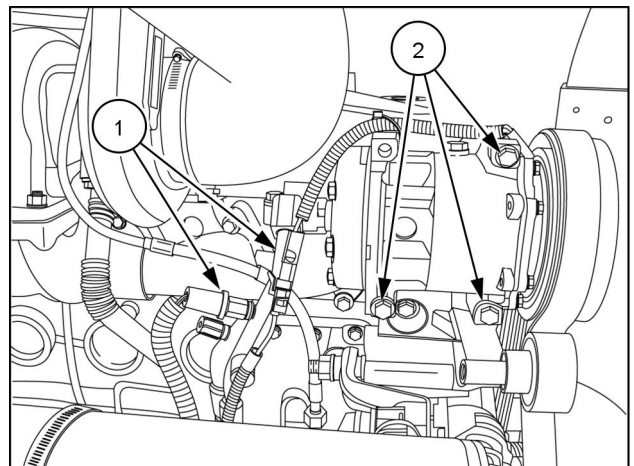
NOTE: Evacuation of the air conditioning system is not required for engine removal.

10. Remove air conditioning and heater hose clamp (1) from engine block.



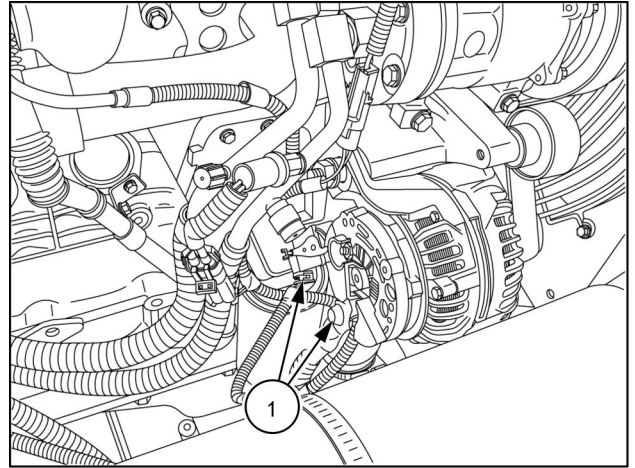
RAIL12DOZ0708BA 4

11. Disconnect electrical connectors (1), remove three bolts (2), and set air conditioning compressor (with hoses attached) aside.



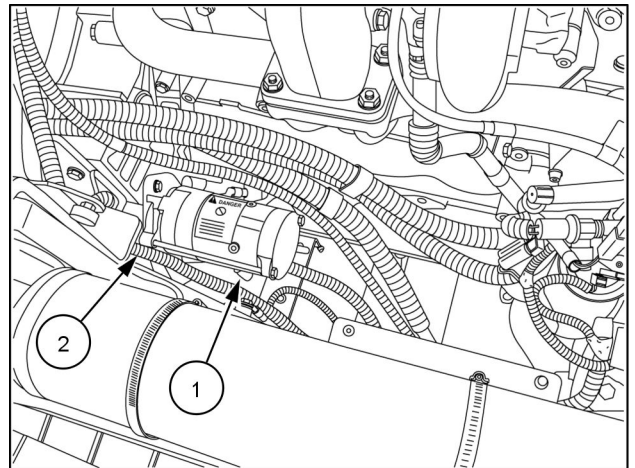
RAIL12DOZ0727BA 5

12. Disconnect all electrical connections **(1)** from alternator.



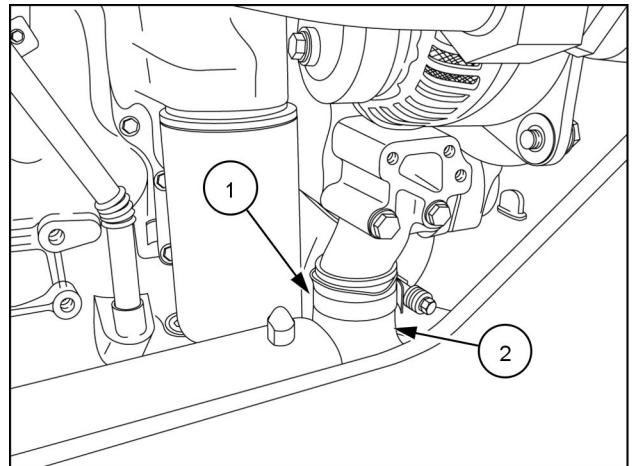
RAIL12DOZ0786BA 6

13. Remove starter electrical connections **(1)**. Remove starter mounting bolt **(2)** and remove ground strap.



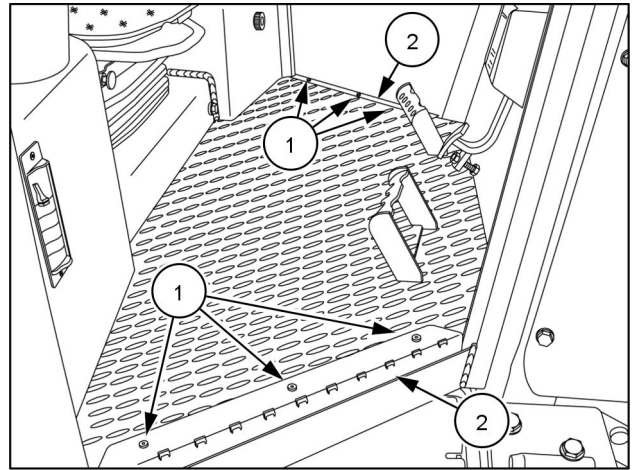
RAIL12DOZ0949BA 7

14. Loosen clamp **(1)** and remove lower radiator hose **(2)**. Close all openings.

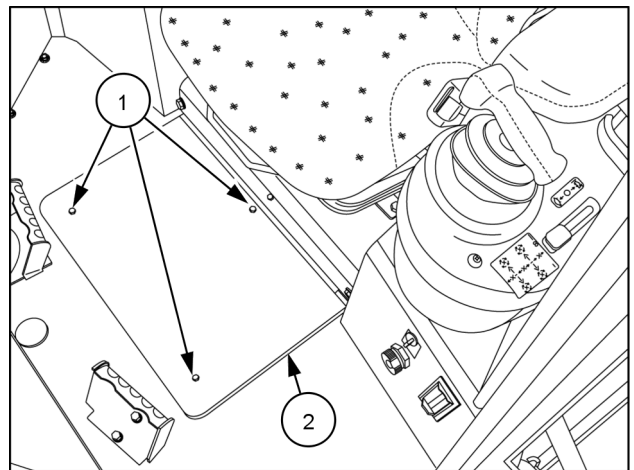


RAIL12DOZ0710BA 8

15. Remove six screws (1), two cab floor mat brackets (2), and cab floor mat.



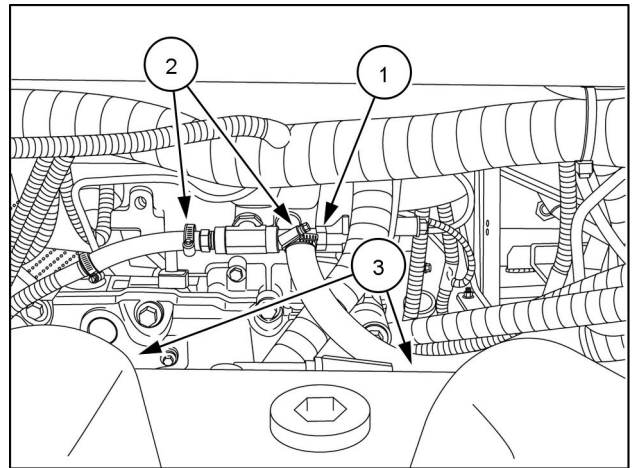
16. Remove three bolts and washers (1) and remove cab floor access panel (2).



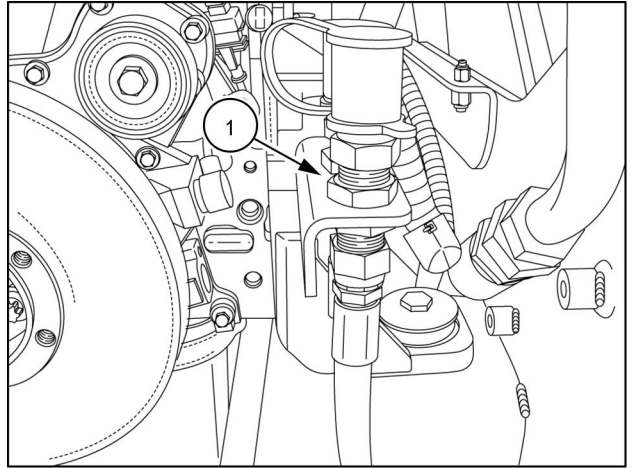
17. Close valve (1) and disconnect two heater hoses (2) at rear of engine. Close all openings.

NOTE: View is forward from cab floor access.

18. Remove two clamp bolts (3) and remove wiring harness from rear of engine.

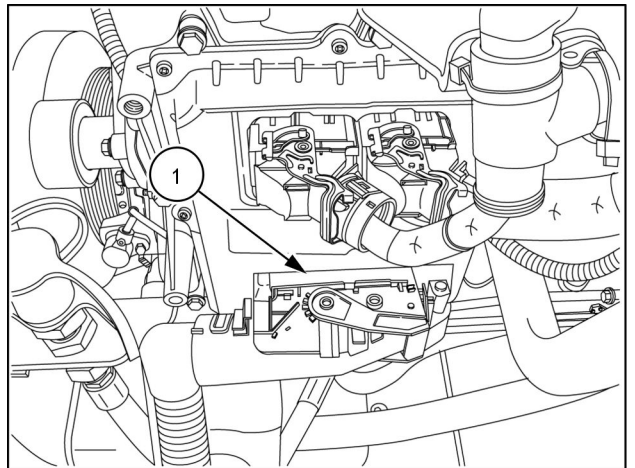


19. Disconnect coolant quick drain/fill line **(1)** at engine bracket. Close all openings.



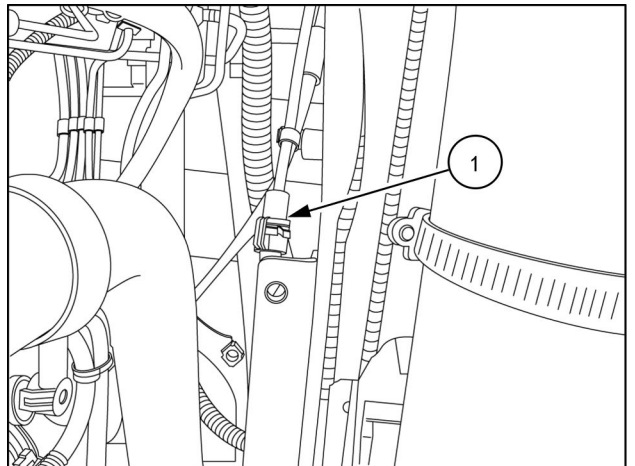
RAIL12DOZ0711BA 12

20. Disconnect main wiring harness connector **(1)** at ECU.



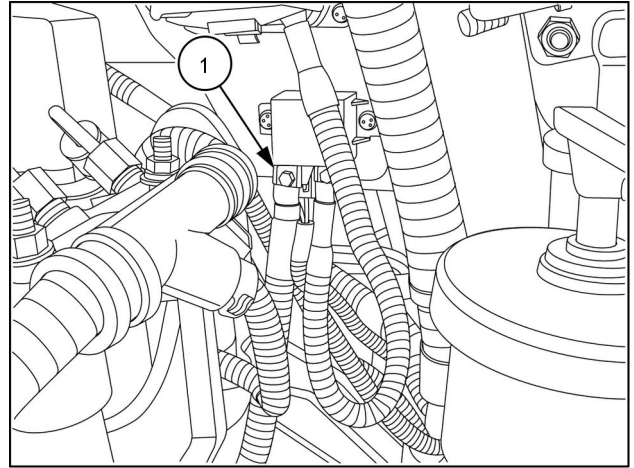
RAIL12DOZ0712BA 13

21. Disconnect fuel supply and return lines **(1)** at left side front frame.



RAIL12DOZ0924BA 14

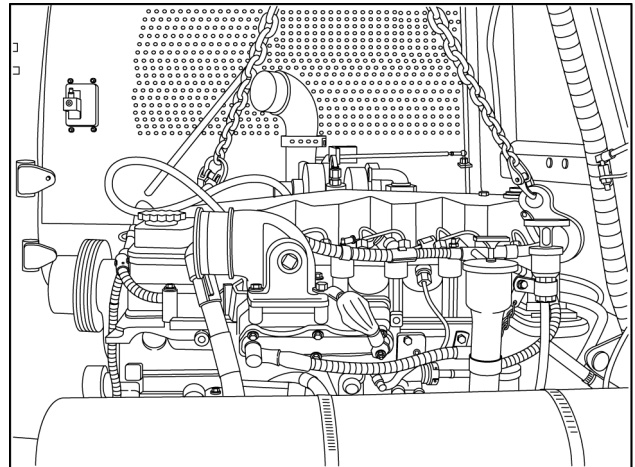
22. Disconnect positive lead (1) from intake air heater relay.



RAIL12DOZ0925BA 15

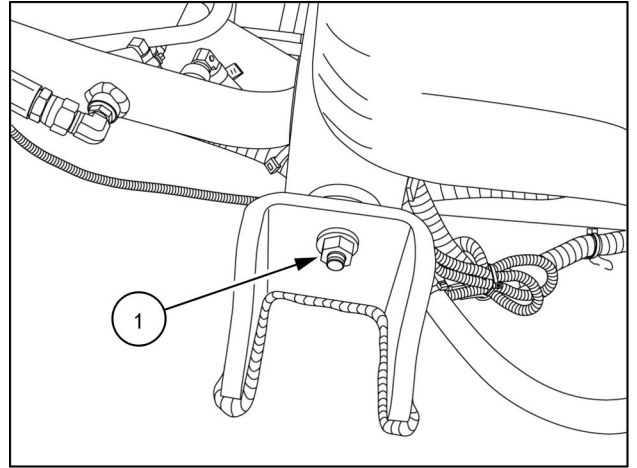
NOTICE: Engine weighs approximately 635 kg (1400 lb). Use proper lifting equipment to prevent personal injury or property damage.

23. Support engine with an appropriate lifting device.

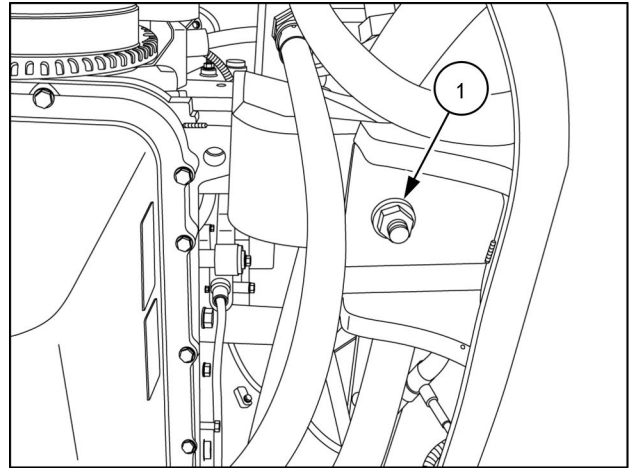


RAIL12DOZ0713BA 16

24. Remove two front motor mount bolts, washers, and nuts **(1)**. Note location and quantity of washers for installation.

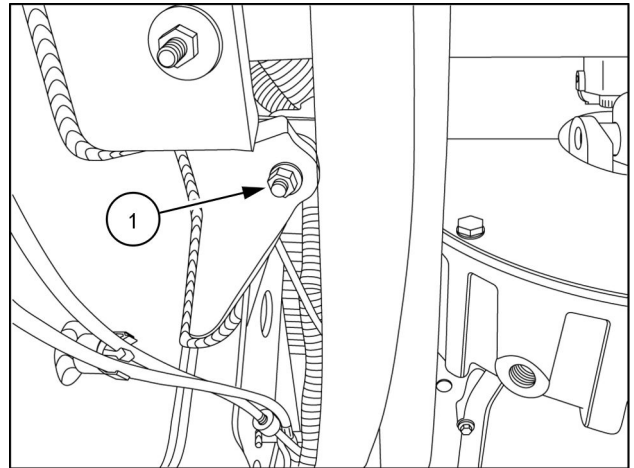


RAIL12DOZ0717BA 17

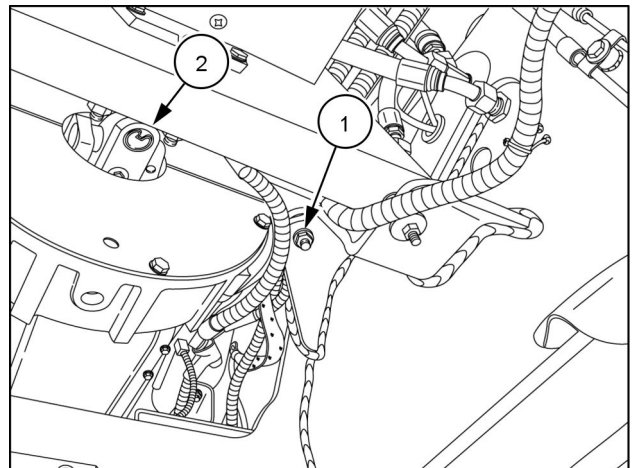


RAIL12DOZ0718BA 18

25. Remove two rear motor mount bolts, washers, and nuts **(1)**.
26. Lift engine slightly and move forward to disengage driveshaft **(2)** from pump. Continue lifting engine to remove.



RAIL12DOZ0720BA 19



RAIL12DOZ0719BA 20

27. Repair or replace components as necessary.

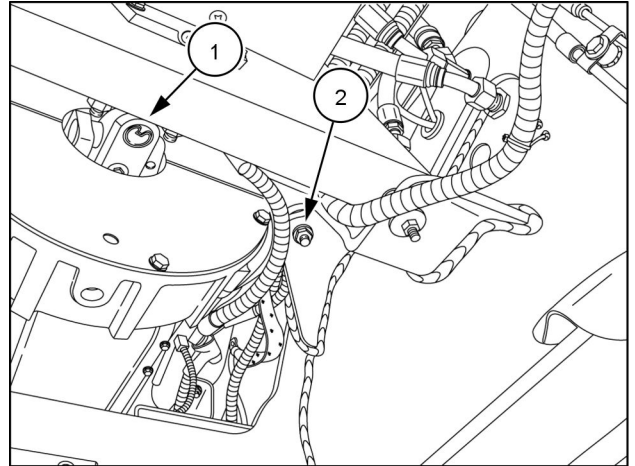
Engine - Install

1150M

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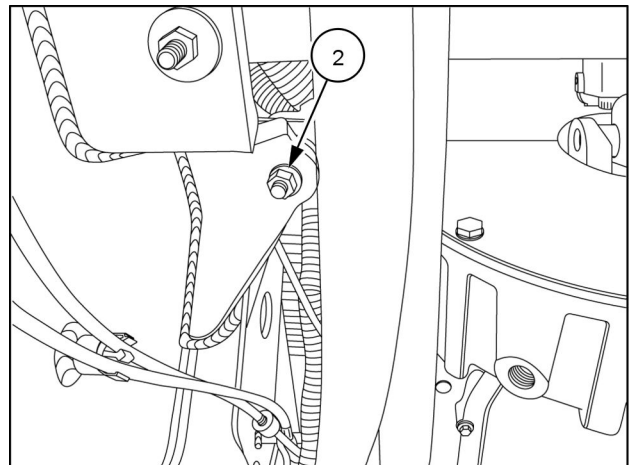
NOTICE: Engine weighs approximately **635 kg (1400 lb)**. Use caution when handling to prevent injury.

1. Attach an appropriate lifting device to engine.
2. Lower engine into machine. Driveshaft **(1)** must engage pump.



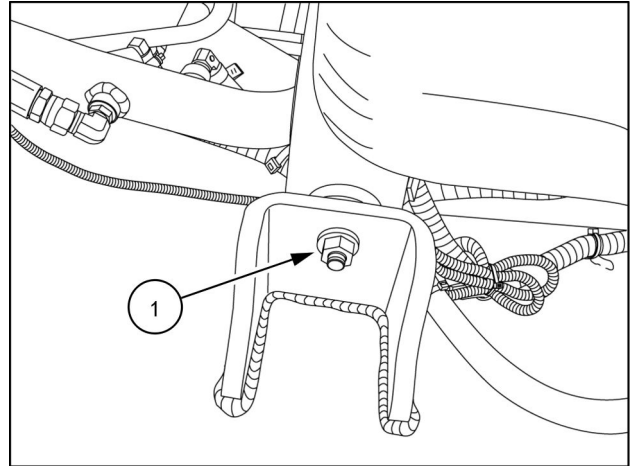
RAIL12DOZ0719BA 1

3. Install two rear motor mount bolts, washers, and nuts **(2)**. Install washers as noted during removal. Torque to **205 - 231 N·m (151 - 170 lb ft)**.

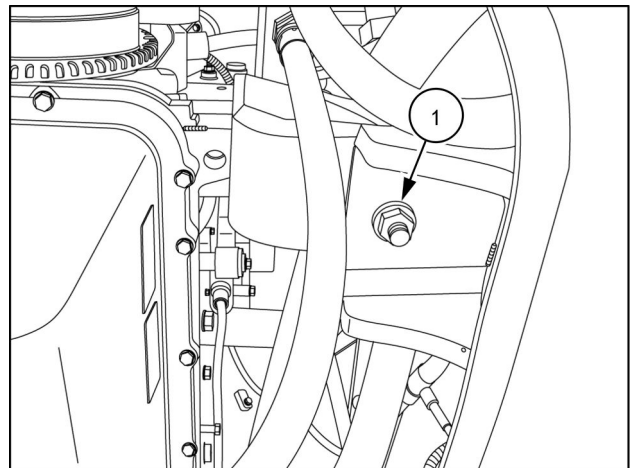


RAIL12DOZ0720BA 2

4. Install two front motor mount bolts, washers, and nuts **(1)**. Install washers as noted during removal. Torque to **205 - 231 N·m (151 - 170 lb ft)**.

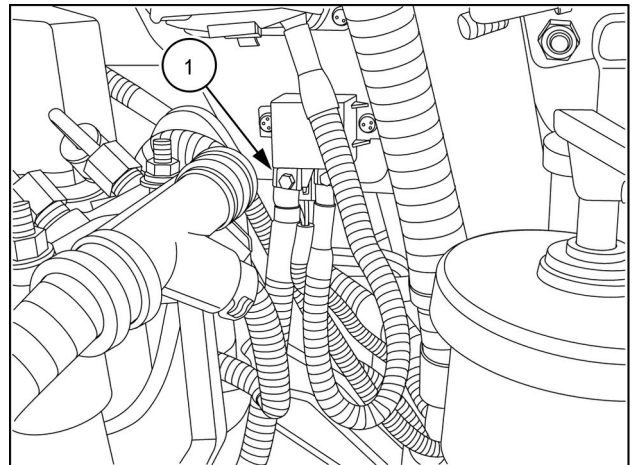


RAIL12DOZ0717BA 3



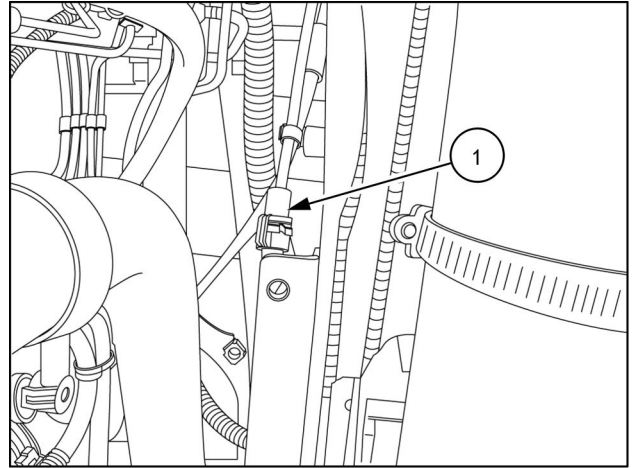
RAIL12DOZ0718BA 4

5. Remove lifting device from engine.
6. Connect positive lead **(1)** to air heater relay.



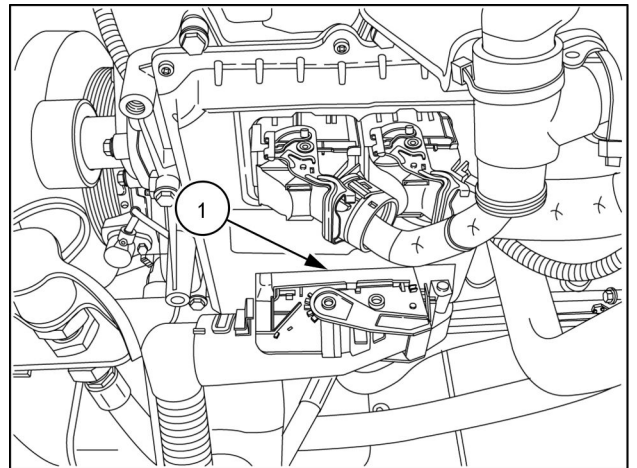
RAIL12DOZ0925BA 5

7. Connect fuel supply and return lines **(1)** at left side front frame.



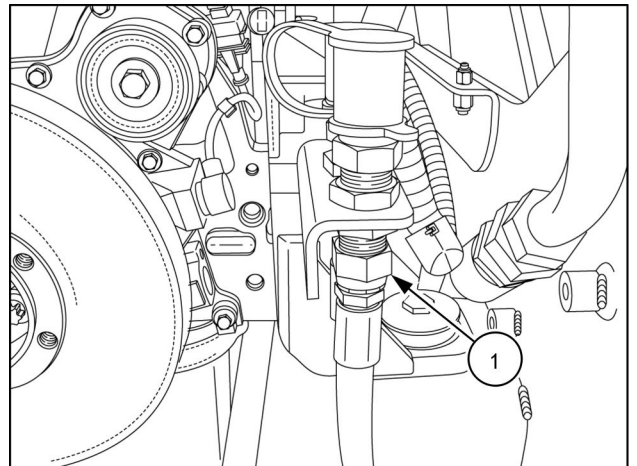
RAIL12DOZ0924BA 6

8. Connect main wiring harness connector **(1)** at ECU.



RAIL12DOZ0712BA 7

9. Connect coolant quick drain/fill line **(1)** at engine bracket.

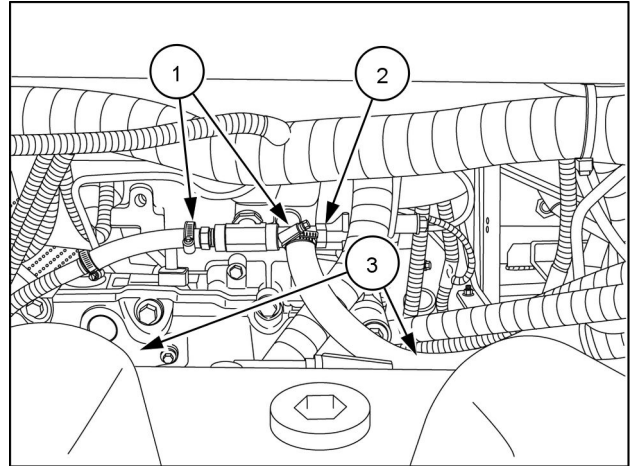


RAIL12DOZ0711BA 8

10. Connect two heater hoses (1) at rear of engine and open valve (2).

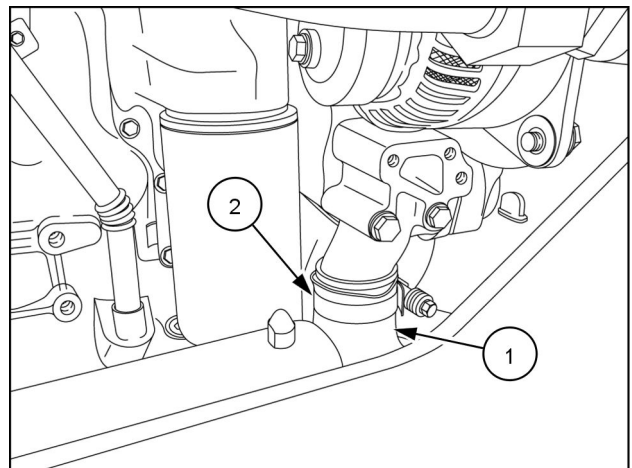
NOTE: View is forward from cab floor access.

11. Install wiring harness to rear of engine with two clamps (3).



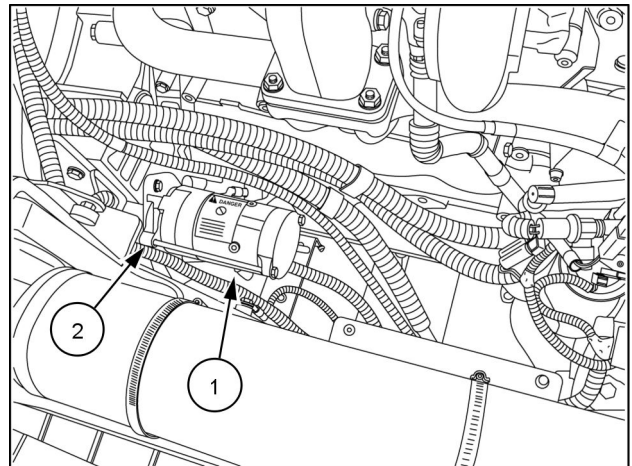
RAIL12DOZ0923BA 9

12. Install lower radiator hose (1) with clamp (2).



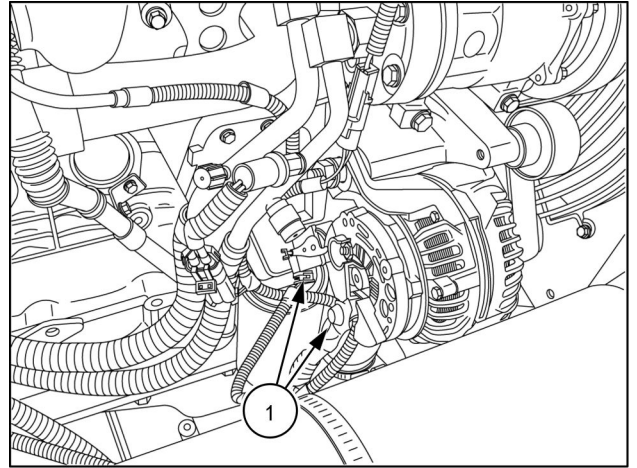
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13. Install electrical connections (1) to starter. Remove starter mounting bolt (2) to install ground strap.



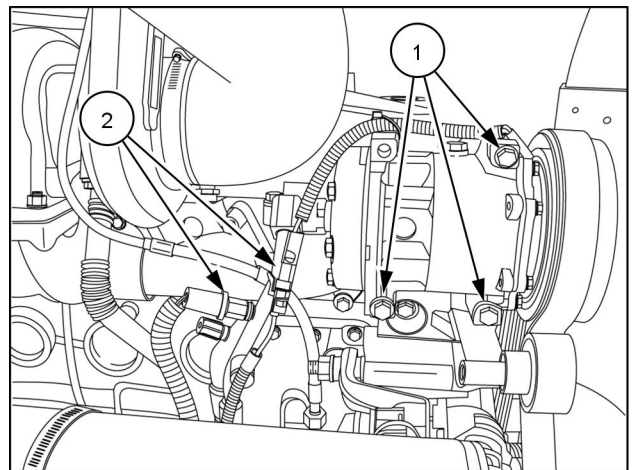
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14. Connect all electrical connections **(1)** to alternator.



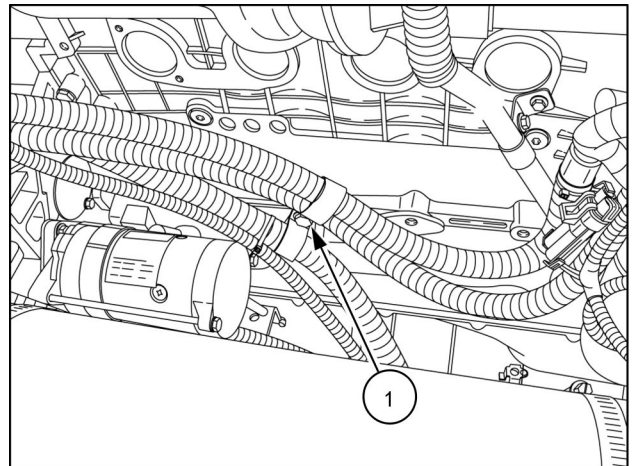
RAIL12DOZ0786BA 12

15. Install air conditioning compressor to engine with three bolts **(1)**. Connect electrical connectors **(2)**.



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16. Install air conditioning and heater hose clamp **(1)** to engine block.



RAIL12DOZ0708BA 14



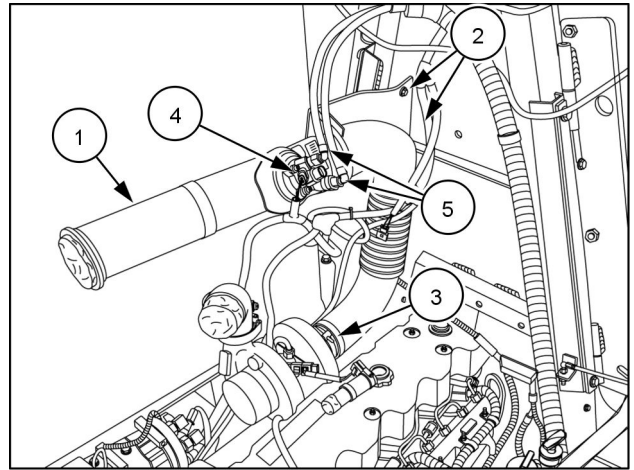
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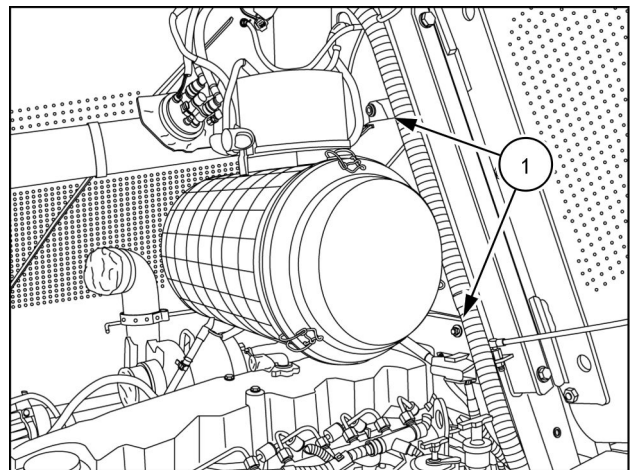
Thank you so much for reading

17. Install turbocharger to muffler pipe **(1)** with two bracket bolts and washers **(2)** and connect with clamp **(3)**. Connect electrical connections **(4)** and connect DEF/AdBlue supply and return hoses **(5)**.



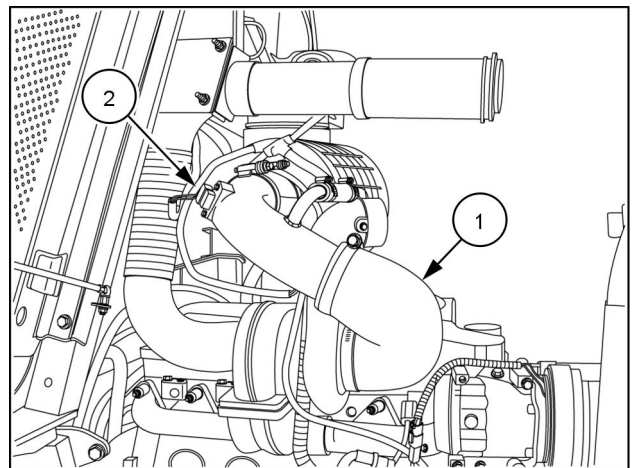
RAIL12DOZ0707BA 15

18. Install air filter and bracket assembly with six bolts and washers **(1)** and connect electrical connector.



RAIL12DOZ0706BA 16

19. Install air cleaner hose **(1)** and connect electrical connectors **(2)**.



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