

**DV209D**  
**DV210D**  
**DV209CD Combi**  
**DV210CD Combi**  
**Tier 4B (final)**

**Double Drum Compactor**

*DV209D - PIN DDDD209DNGNTX2002 and above;*  
*DV210D - PIN DDDD210DNGNTP2003 and above;*  
*DV209CD Combi - PIN DDDD209CDNGNTG2001 and above;*  
*DV210CD Combi - PIN DDDD210CDNGNTH2001 and above*

**SERVICE MANUAL**

**Part number 48123413**

2<sup>nd</sup> edition English

March 2017

Replaces part number 48032926

**CASE**  
CONSTRUCTION



## **SERVICE MANUAL**

**DV209CD Combi DV209CD Combi Asphalt Compactor - Tier 4B (final)  
[DDDD209CDNGTG2001 - ]**

**DV209D TIER 4B (FINAL) Double Drum Compactor [DDDD209DNGNTX2002 - ]**

**DV210CD Combi DV210CD Combi Asphalt Compactor - Tier 4B (final)  
[DDDD210CDNGNTH2001 - ]**

**DV210D TIER 4B (FINAL) Double Drum Compactor [DDDD210DNGNTP2003 - ]**

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## **INTRODUCTION**

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## Safety rules

Double Drum DV

NA


### 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.

---

## Personal safety

Double Drum DV

NA

### **General safety rules**

Use caution when you operate 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 or drugs, or while you are 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 the engine, remove the key, and relieve the pressure before you connect or disconnect fluid lines.
- Make sure that all components are in good condition. Tighten all connections before you start the engine or pressurize 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 while components are in motion.

Make sure that all guards and shields are in good condition and properly installed before you operate the machine. Never operate the machine with shields removed. Always close access doors or panels before you operate 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 the engine in enclosed spaces as harmful exhaust gases may build up.

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

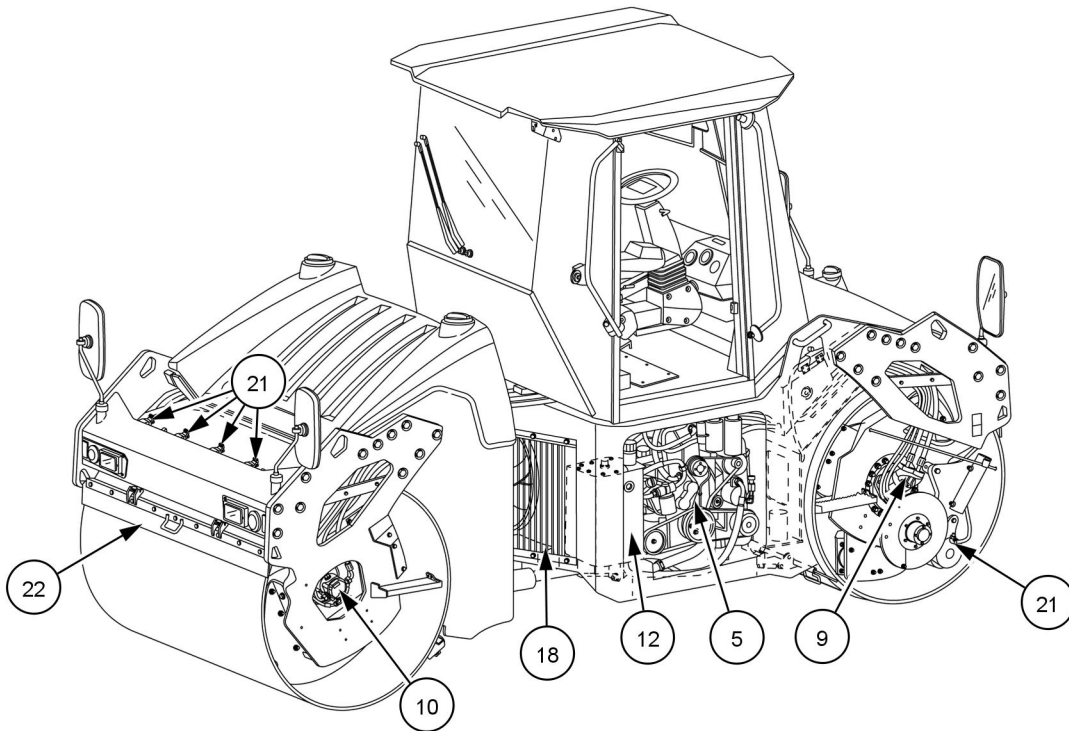
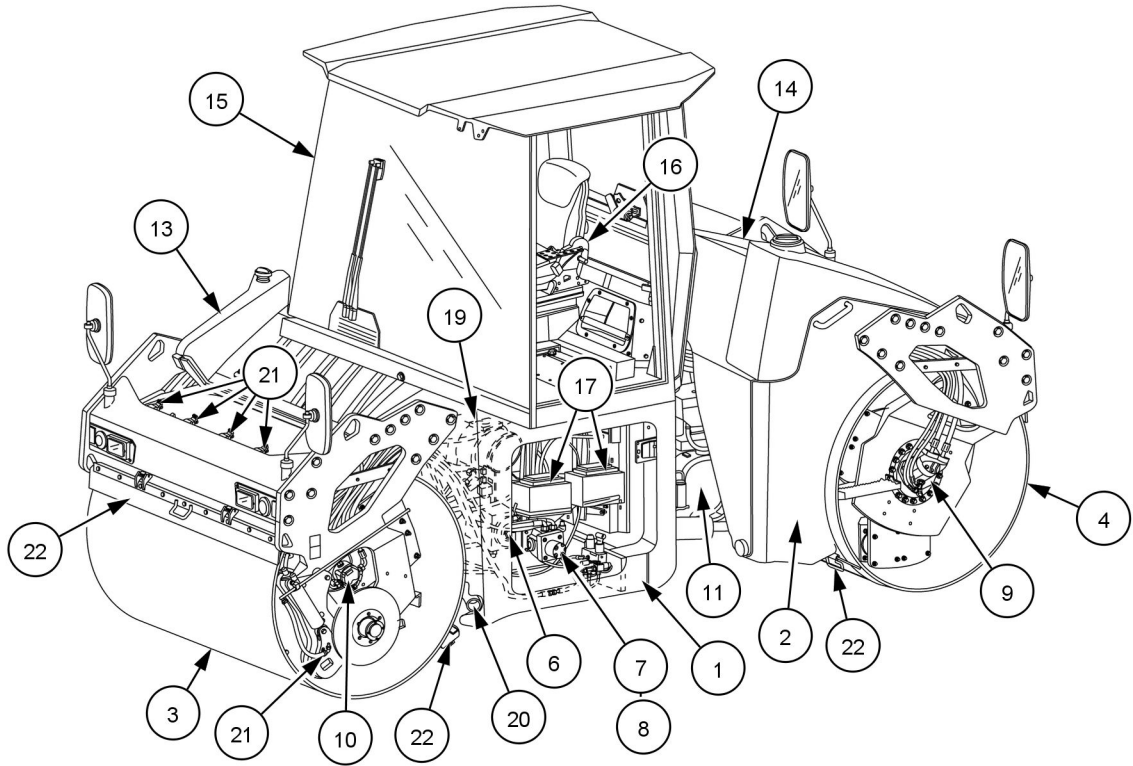
Start the engine only from the operator's seat. If you bypass the safety start switch, the engine can start with the transmission in gear. Do not connect or short across terminals on the starter solenoid. Attach jumper cables as described in the manual. Starting in gear may cause death or serious injury.

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

# Product identification - Machine components

Double Drum DV

NA



RAIL14COM0271HC 1

## INTRODUCTION

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1. Front frame
2. Rear frame
3. Front drum
4. Rear drum
5. Engine
6. Hydrostatic pump for travel (roll)
7. Hydrostatic pump for vibration of front drum
8. Hydrostatic pump vibration of rear drum
9. Travel hydrostatic motor
10. Vibration hydrostatic motor
11. Steering joint
12. Hydraulics tank
13. Fuel tank
14. Sprinkling tank
15. Cab with integrated Roll Over Protective Structure (ROPS) frame
16. Driver's control stand
17. Batteries
18. Combined cooler
19. Air filter
20. Exhaust pipe
21. Sprinkling jets
22. Drum scrapers



## **SERVICE MANUAL**

### **Engine**

**DV209CD Combi DV209CD Combi Asphalt Compactor - Tier 4B (final)  
[DDDD209CDNGTG2001 - ]**

**DV209D TIER 4B (FINAL) Double Drum Compactor [DDDD209DNGNTX2002 - ]**

**DV210CD Combi DV210CD Combi Asphalt Compactor - Tier 4B (final)  
[DDDD210CDNGNTH2001 - ]**

**DV210D TIER 4B (FINAL) Double Drum Compactor [DDDD210DNGNTP2003 - ]**

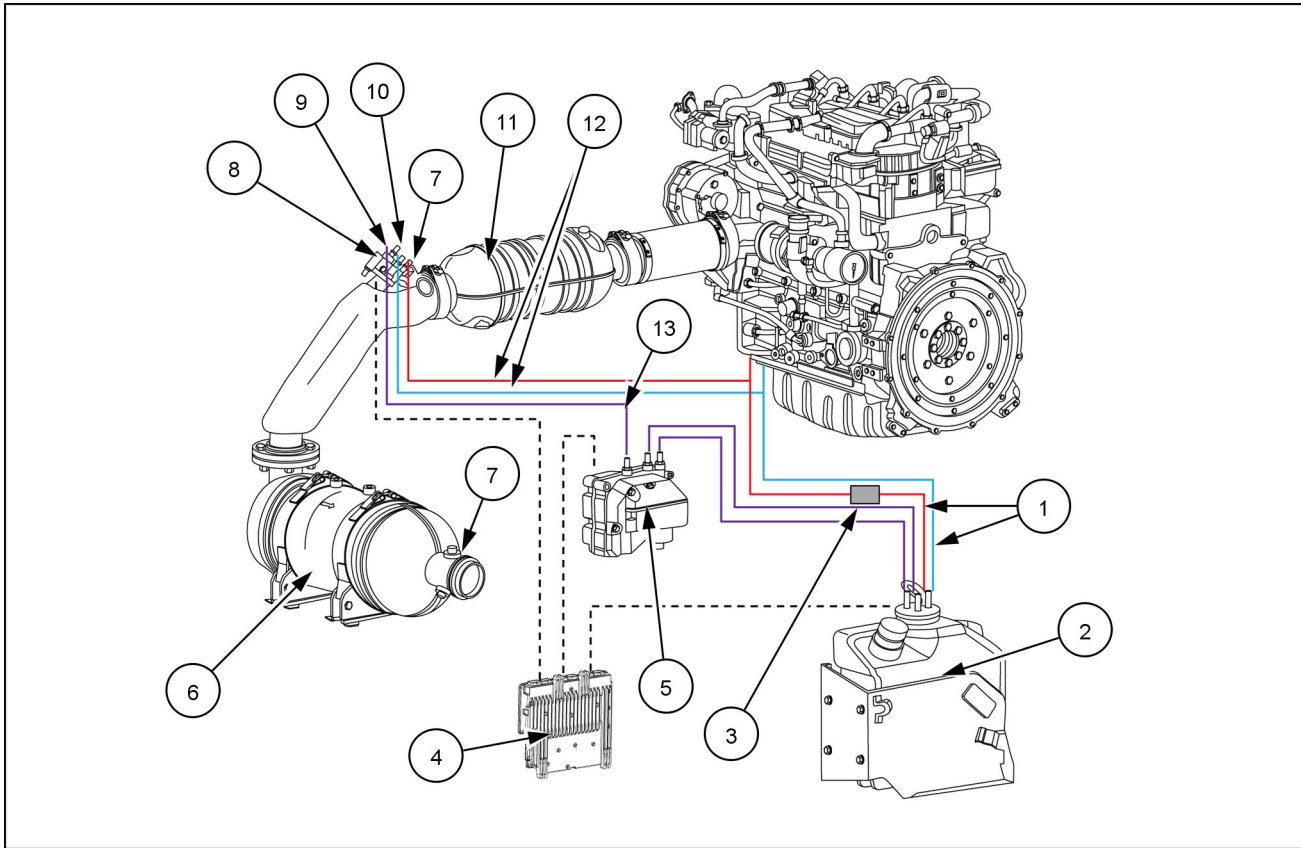
## Engine - General specification

DV209CD Combi	NA
DV209D	NA
DV210CD Combi	NA
DV210D	NA

Engine type	TCD 3.6 L4
Working principle	Four-stroke diesel engine
Charging	Turbocharger with charge air cooling
Type of cooling	water-cooled
Cylinder arrangement	in series
No. of cylinders	4
Bore/stroke	<b>98 mm (3.86 in) / 120 mm (4.72 in)</b>
Total displacement	<b>3621 cm<sup>3</sup> (221 in<sup>3</sup>)</b>
Combustion process	Direct injection
Injection system	Common Rail
Exhaust gas recirculation	externally cooled
Exhaust gas aftertreatment	Oxidation diesel engine catalyst and diesel particulate filter and selective catalytic reduction
Valves per cylinder	2
Firing order of the engine	1-3-4-2
Direction of rotation looking onto the flywheel	left
Engine power rating according to ISO 3046	See engine rating plate
Speed (nominal revolutions)	See engine rating plate
Injection timing	See engine rating plate
Coolant volume	<b>4.6 L (1.22 US gal)</b>
Permissible continuous coolant temperature	max. <b>110 °C (230 °F)</b>
Temperature difference between coolant inlet/outlet	<b>8 °C (15 °F)</b>
Start of thermostat opening	<b>86 °C (187 °F)</b>
Thermostat fully open	<b>102 °C (216 °F)</b>
Lubricating oil change volume (with filter)	<b>8 L (2.1 US gal)</b>
Lube oil temperature in the lube oil tray, maximum	<b>125 °C (257 °F)</b>
Lubricating oil pressure minimum (low idle, engine warm)	<b>80 kPa (11.6 psi)</b>
Permissible maximum combustion air temperature after charge air cooler	<b>50 °C (122 °F)</b>
V-belt tension: V-belts AVX (width: 13 mm)	Pre-tensioning: <b>600 – 700 N (134.9 – 157.4 lb)</b> Re-tensioning: <b>350 – 450 N (78.7 – 101.2 lb)</b>
V-rib belt tensioning	Automatic tensioning spring-loaded clamping roller
Weight without cooling system according to DIN 70020-A	<b>350 kg (772 lb)</b>

## Engine - Overview

DV209CD Combi	NA
DV209D	NA
DV210CD Combi	NA
DV210D	NA



RAIL16COM0100FA 1

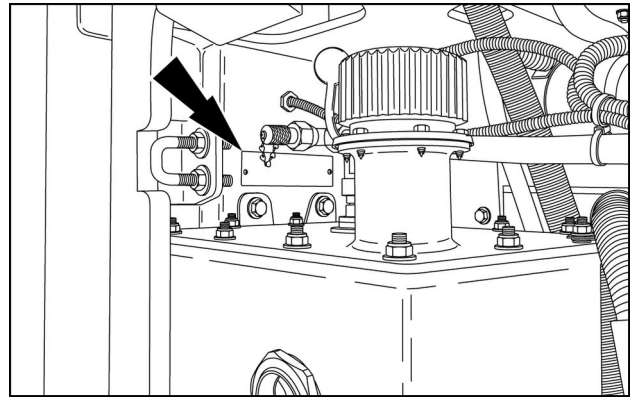
### Exhaust after-treatment system

S. No	Description
1.	Coolant line to pre-heat the AdBlue tank
2.	Diesel Exhaust Fluid (DEF) tank
3.	Solenoid valve
4.	Engine control unit
5.	Diesel Exhaust Fluid (DEF) supply pump
6.	Selective Catalytic Reduction (SCR) catalytic converter
7.	NOX sensor
8.	Dosing device
9.	Pressure sensor
10.	Temperature transmitter
11.	Diesel Oxidation Catalytic (DOC) converter
12.	Coolant line to cool the dosing device
13.	Diesel Exhaust Fluid (DEF) line

## Engine - Component identification

DV209CD Combi	NA
DV209D	NA
DV210CD Combi	NA
DV210D	NA

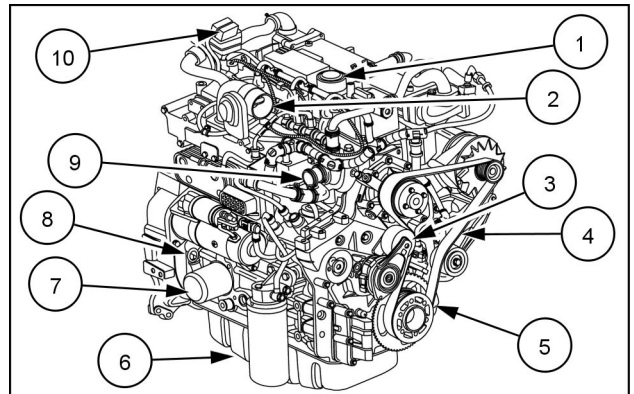
### Engine name plate (1)



RAIL16COM0003AA 1

### View from right

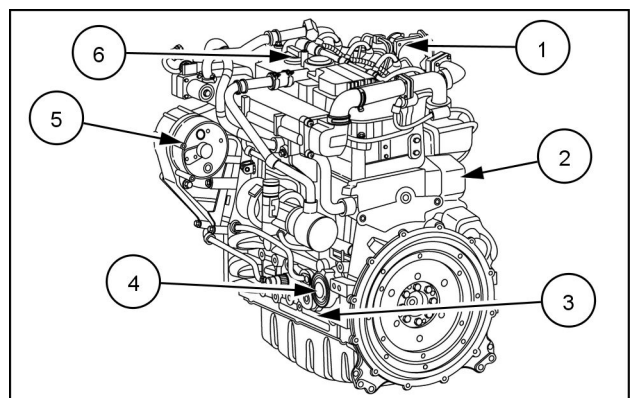
1. Crankcase breather
2. Throttle valve
3. Tension pulley
4. V-rib belt
5. Coolant inlet
6. Lubricating oil drain plug
7. Lube oil replacement filter
8. Lubricating oil dipstick
9. Coolant outlet
10. Differential flow manometer



RAIL16COM0079AA 2

### View from left

1. Combustion air inlet
2. Lube oil cooler
3. Lubricating oil dipstick (optional)
4. Lube oil replacement filter - Optional
5. Alternator
6. Lubricating oil filling



RAIL16COM0080AA 3

## Engine - Remove

DV209CD Combi	NA
DV209D	NA
DV210CD Combi	NA
DV210D	NA

**Prior operation:**

Remove the cab (refer to **Cab frame - Remove (90.150)**).

**Prior operation:**

Remove the platform (refer to **Cab floor - Remove (90.150)**).

**Prior operation:**

Remove the vibration pump for the front drum (refer to **Pump - Remove - Front drum vibrations (35.903)** ).

**Prior operation:**

Remove the vibration pump for the rear drum (refer to **Pump - Remove - Rear drum vibrations (35.903)** ).

**Prior operation:**

Remove the travel pump (refer to **Hydraulic travel system - Remove - Travel pump (35.353)**).

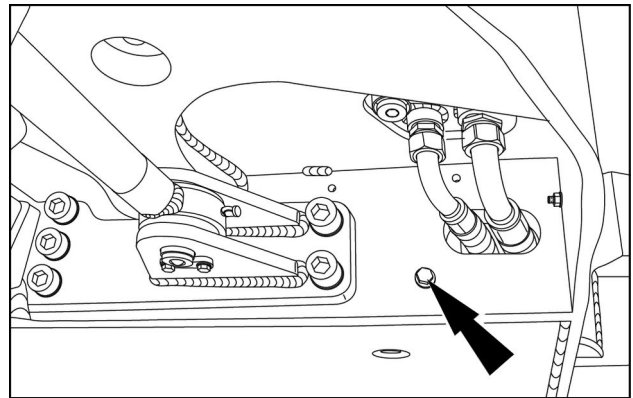
**Prior operation:**

Remove the Diesel Exhaust Fluid (DEF) tank (refer to **Diesel Exhaust Fluid (DEF)/AdBlue®/ARLA tank - Remove (10.500)**).

1. Place a suitable drain collector with adequate capacity under the frame to collect the drain oil.

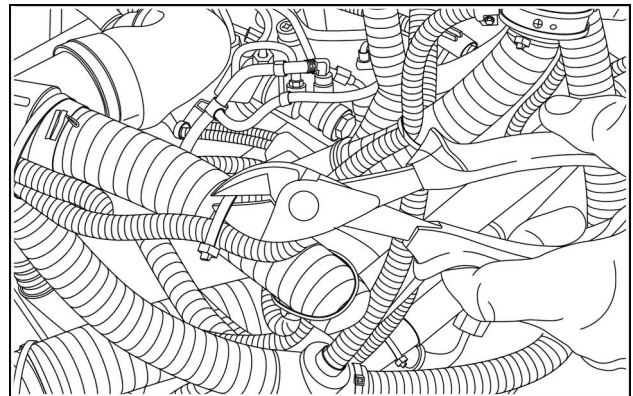
**NOTE:** Approximate drain volume: **9 L (2.4 US gal)**.

2. Remove the drain plugs and drain the engine oil.



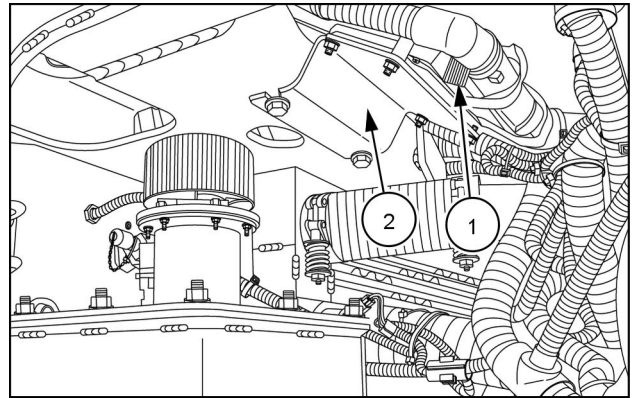
RAIL14COM0411AA 1

3. Remove the tie wraps as required.



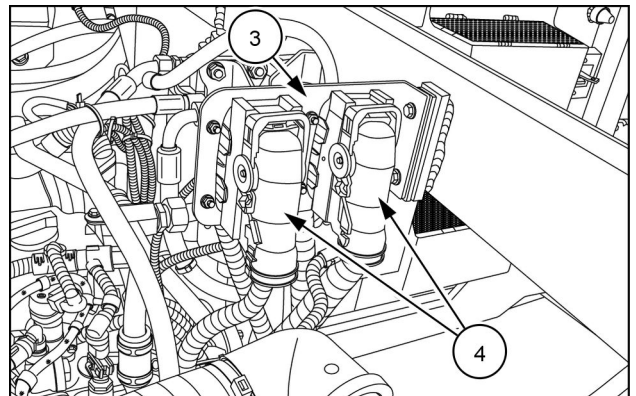
RAIL14COM0412AA 2

4. Unbolt the bracket **(2)** holding the Engine Control Unit (ECU) **(1)**.



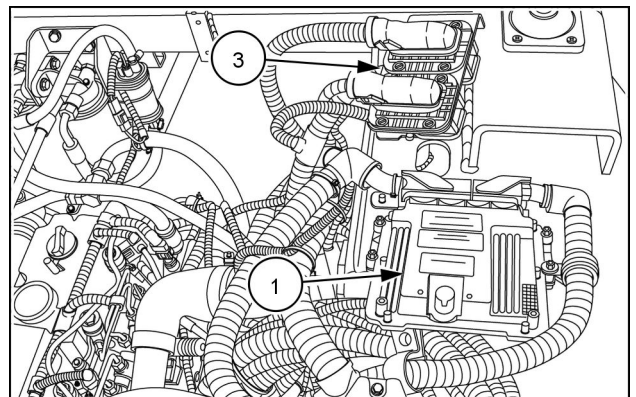
RAIL14COM0413AA 3

5. Unbolt the bracket **(3)** with the connectors **(4)**.



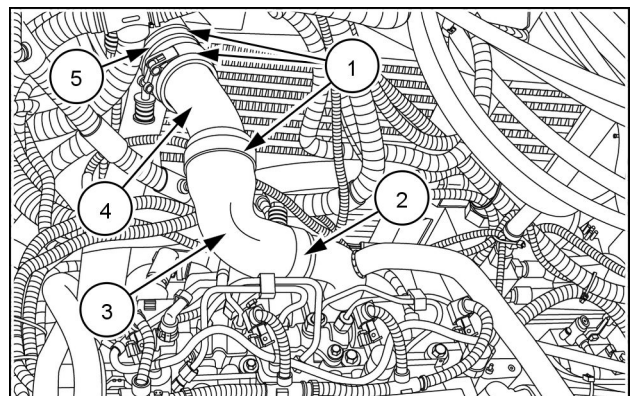
RAIL14COM0414AA 4

6. Lay the ECU with bracket **(1)** and connector bracket **(3)** off to the side.



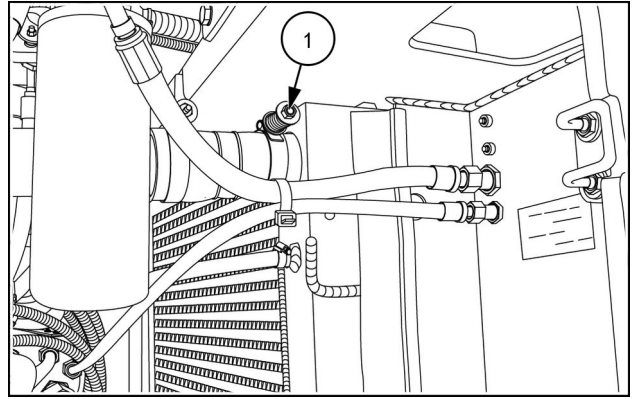
RAIL14COM0415AA 5

7. Remove the clamps **(1)** and **(2)**.
8. Remove the ducts **(4)**, **(5)** and **(3)** and clamps **(1)** from the intercooler.



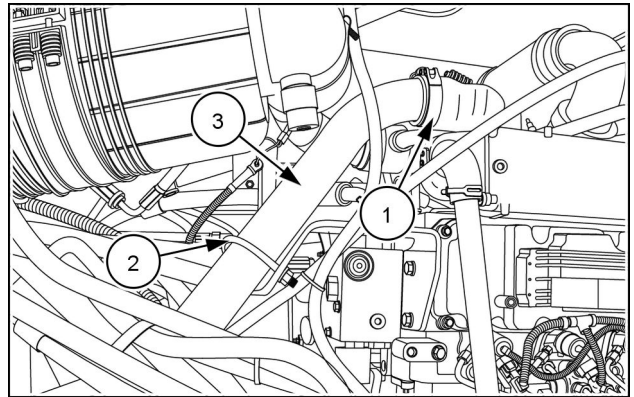
RAIL14COM0416AA 6

9. Remove the clamp **(1)**.



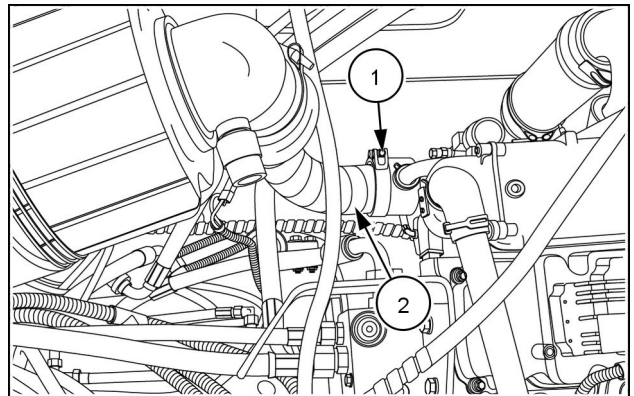
RAIL14COM0417AA 7

10. Remove the clamp **(1)** and **(2)** and then remove the pipe **(3)**.



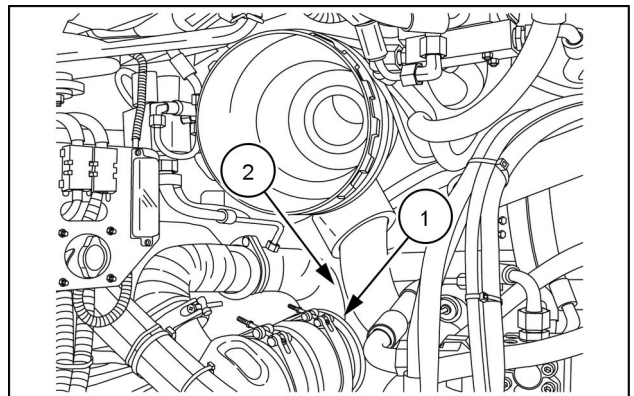
RAIL14COM0418AA 8

11. Remove the clamp **(1)**.  
12. Disconnect the hose **(2)** to the air cleaner.



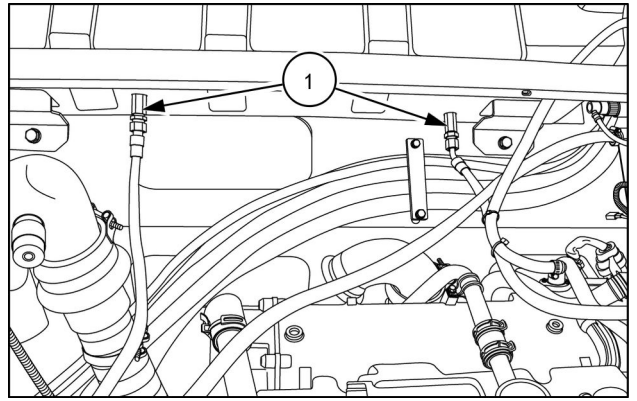
RAIL14COM0419AA 9

13. Remove the clamp **(1)**.  
14. Remove the duct **(2)**.



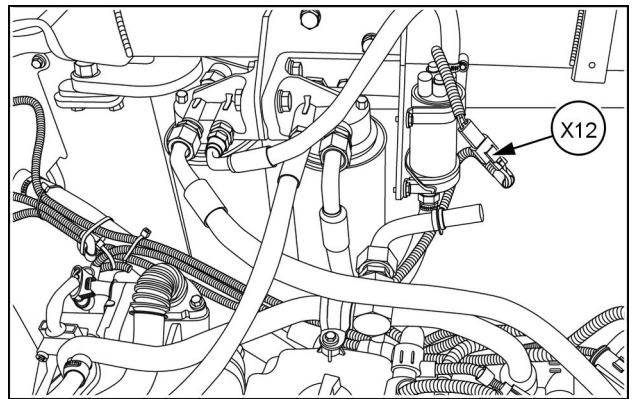
RAIL16COM0081AA 10

15. Close the fuel shut-off valves (1).



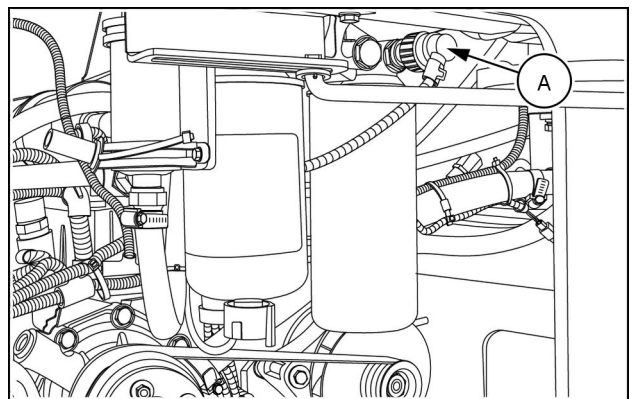
RAIL14COM0421AA 11

16. Disconnect the connector (X12) from the fuel pump.



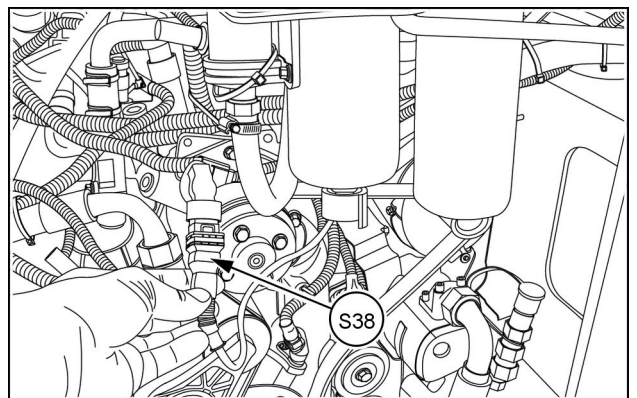
RAIL14COM0422AA 12

17. Disconnect the connector (A) from the fuel pressure sensor.



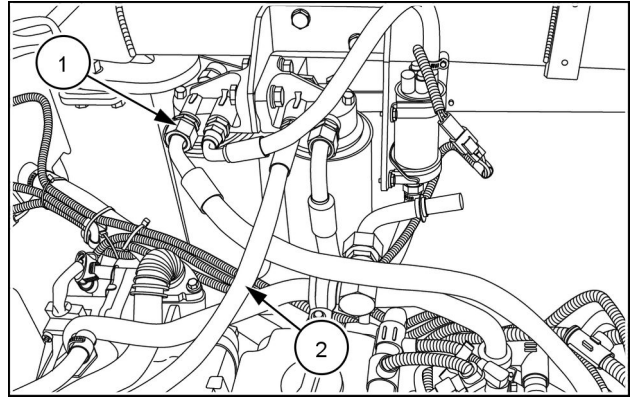
RAIL14COM0423AA 13

18. Disconnect the connector from the Water in fuel switch (S38).



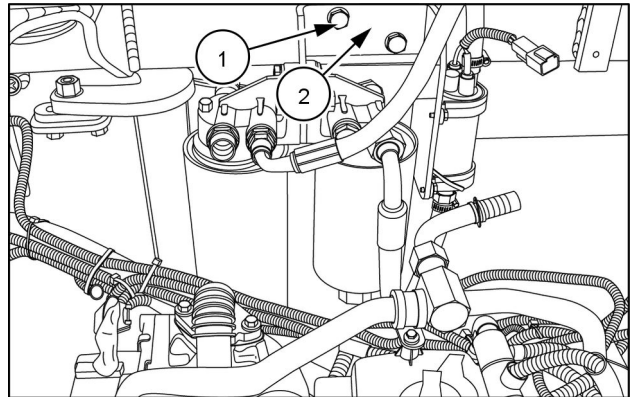
RAIL14COM0424AA 14

19. Remove the hoses (1) and (2) from the filter assemblies.



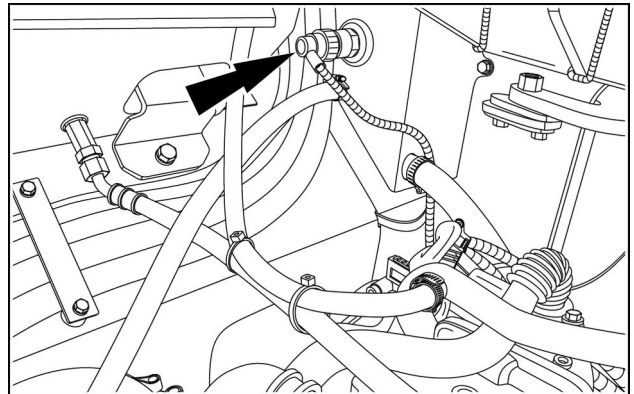
RAIL14COM0425AA 15

20. Remove the attaching hardware (1) and bracket (2) with the filter assemblies.



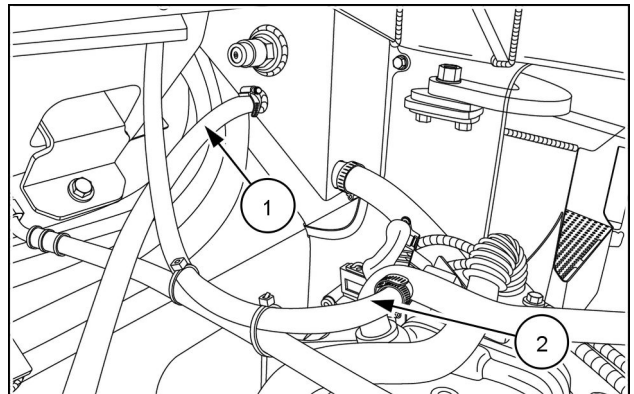
RAIL14COM0426AA 16

21. Disconnect the connector from the coolant level sensor.



RAIL14COM0427AA 17

22. Disconnect the hoses (1) and (2).



RAIL14COM0428AA 18



**Suggest:**

**If the above button click is invalid.**

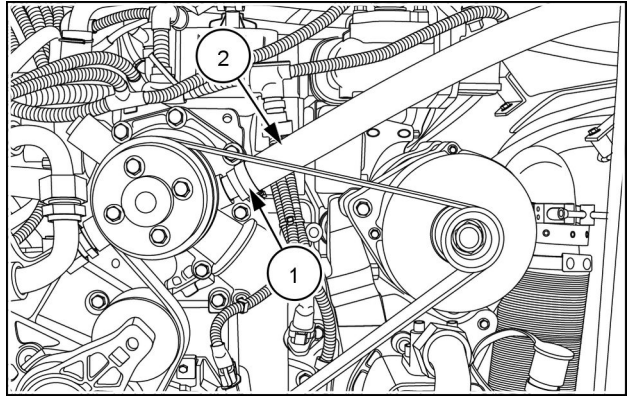
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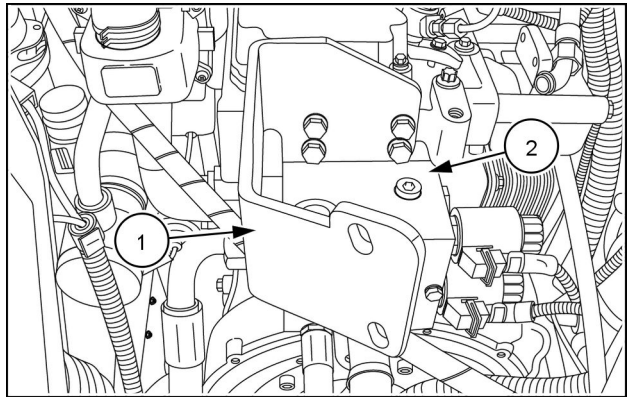
**Thank you so much for reading**

23. Remove the clamp (1) and disconnect the hose (2) from the coolant pump.



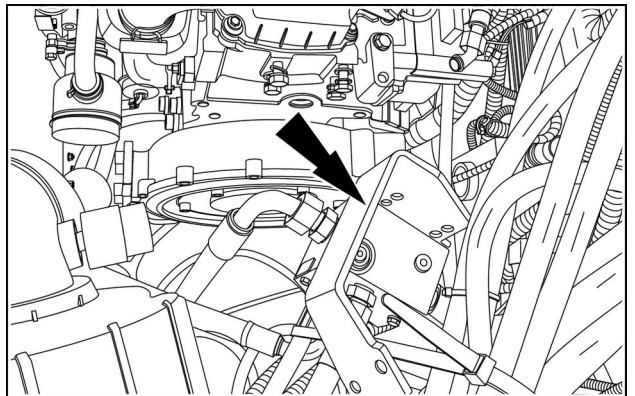
RAIL14COM0429AA 19

24. Remove the attaching hardware and bracket (1) with the differential lock valve (2).



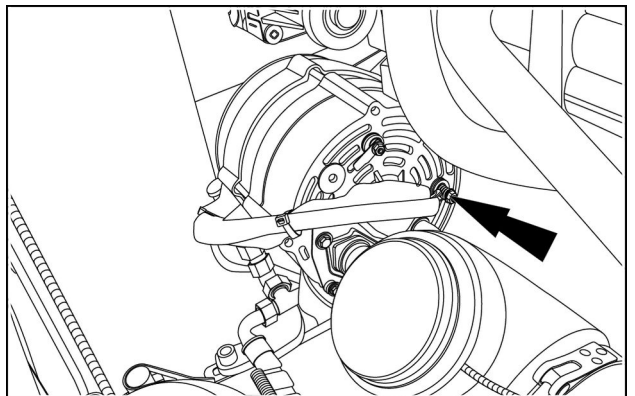
RAIL14COM0430AA 20

25. Move the bracket assembly out of the work area and secure it with a tie-wrap.



RAIL14COM0431AA 21

26. Disconnect the D+ terminal from the alternator.



RAIL14COM0432AA 22

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