

**COTTON EXPRESS® 420**  
Cotton Picker

**SERVICE MANUAL**

**Part number 47466123**  
2<sup>nd</sup> edition English  
August 2013



# Contents

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## INTRODUCTION

|   |      |
|---|------|
| Engine.....   | 10   |
| [10.001] Engine and crankcase .....                     | 10.1 |
| Transmission.....                                       | 21   |
| [21.114] Mechanical transmission .....                  | 21.1 |
| [21.130] Mechanical transmission external controls..... | 21.2 |
| [21.145] Gearbox internal components.....               | 21.3 |
| [21.182] Differential.....                              | 21.4 |
| Rear axle system.....                                   | 27   |
| [27.550] Non-powered rear axle.....                     | 27.1 |
| Hydrostatic drive.....                                  | 29   |
| [29.218] Pump and motor components.....                 | 29.1 |
| Brakes and controls .....                               | 33   |
| [33.202] Hydraulic service brakes .....                 | 33.1 |
| Hydraulic systems.....                                  | 35   |
| [35.000] Hydraulic systems.....                         | 35.1 |
| [35.106] Variable displacement pump .....               | 35.2 |
| Cab climate control .....                               | 50   |
| [50.200] Air conditioning .....                         | 50.1 |
| Electrical systems.....                                 | 55   |
| [55.100] Harnesses and connectors.....                  | 55.1 |
| [55.DTC] FAULT CODES.....                               | 55.2 |
| Product feeding .....                                   | 60   |
| [60.600] Cotton picking .....                           | 60.1 |
| [60.610] Cotton conveyor.....                           | 60.2 |
| Lubrication system.....                                 | 71   |

|  |           |
|--|-----------|
| [71.460] Grease lubrication system .....   | 71.1      |
| <b>Crop storage / Unloading .....</b>      | <b>80</b> |
| [80.200] Cotton basket and compactor ..... | 80.1      |

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# INTRODUCTION

# Contents

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## INTRODUCTION

|   |    |
|---|----|
| Foreword .....  | 3  |
| Frame - Note to the Owner .....                               | 4  |
| 420 COTTON EXPRESS NA   |    |
| Personal safety .....   | 5  |
| Torque - Minimum tightening torques for normal assembly ..... | 6  |
| Torque - Standard torque data for hydraulics .....            | 11 |
| Basic instructions - Chain Wear Tables - Roller Chains .....  | 13 |
| General specification - Biodiesel Fuels .....                 | 15 |
| Capacities .....  | 16 |
| Consumables .....   | 18 |
| Consumables – Loctite product chart .....                     | 19 |
| Product identification .....                                  | 22 |
| Part identification .....                                     | 23 |

## Foreword

Soil, air, and water are vital factors of agriculture and life in general. When legislation does not yet rule the treatment of some of the substances required by advanced technology, sound judgment should govern the use and disposal of products of a chemical and petrochemical nature.

**NOTE:** *The following are recommendations that may be of assistance:*

- Become acquainted with and ensure that you understand the relative legislation applicable to your country.
- Where no legislation exists, obtain information from suppliers of oils, filters, batteries, fuels, antifreeze, cleaning agents, etc., with regard to their effect on man and nature and how to safely store, use, and dispose of these substances.
- Agricultural consultants will, in many cases, be able to help you as well.

## Helpful hints

- Avoid filling tanks using cans or inappropriate pressurized fuel delivery systems that may cause considerable spillage.
- In general, avoid skin contact with all fuels, oils, acids, solvents, etc. Most of them 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 draining off used engine coolant mixtures, engine, gearbox and hydraulic oils, brake fluids, etc. Do not mix drained brake fluids or fuels with lubricants. Store them safely until they can be disposed of in a proper way to comply with local legislation and available resources.
- Modern coolant mixtures, i.e. antifreeze and other additives, should be replaced every two years. They should not be allowed to get into the soil, but should be collected and disposed of properly.
- Do not open the air-conditioning system yourself. It contains gases that should not be released into the atmosphere. Your CASE IH dealer or air conditioning specialist has a special extractor for this purpose and will have to recharge the system properly.
- Repair any leaks or defects in the engine cooling 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 as penetrating weld splatter may burn a hole or weaken them, allowing the loss of oils, coolant, etc.

## Frame - Note to the Owner

420 COTTON EXPRESS NA

**CALIFORNIA  
PROPOSITION 65 WARNING**

Diesel engine exhaust and some of its constituents are known to the State of California to cause cancer, birth defects, and other reproductive harm.

Battery post, terminals and related accessories contain lead and lead compounds.

**Wash hands after handling**

BT09A213 1

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## Personal safety

### **⚠ WARNING**

**Risk of harm during maintenance of the machine!**

**Before you start servicing the machine, attach a DO NOT OPERATE warning tag to the machine in a visible area.**

**Failure to comply could result in death or serious injury.**

W1242A

Attach a DO NOT OPERATE (TAG) to the machine in an area that is clearly visible whenever the machine is not operating properly and/or requires service.

Complete the tag information for the "REASON" the tag is attached by describing the malfunction or service required. Validate the reason for attaching the tag by signing your name in the designated area on the tag.

The tag should only be removed by the person who signed and attached the tag, after validating the repairs or services have been completed.



# **SERVICE MANUAL**

**Engine**

**420 COTTON EXPRESS**

# Contents

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## Engine - 10

|                                     |      |
|-------------------------------------|------|
| [10.001] Engine and crankcase ..... | 10.1 |
|-------------------------------------|------|



## **Engine - 10**

### **Engine and crankcase - 001**

#### **420 COTTON EXPRESS**

# Contents

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## Engine - 10

### Engine and crankcase - 001

#### TECHNICAL DATA

|                     |   |
|---------------------|---|
| Engine              |   |
| Special tools ..... | 3 |

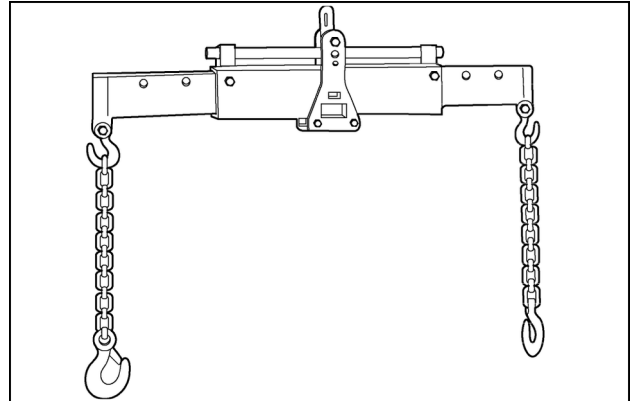
#### SERVICE

|               |    |
|---------------|----|
| Engine        |    |
| Remove .....  | 4  |
| Install ..... | 18 |

## Engine - Special tools

**NOTICE:** Lift equipment, boom, equalizer, chains and slings used to remove and install the engine must be rated to handle the engine weight - **770 kg (1700 lb)**, or personal injury or equipment damage may occur.

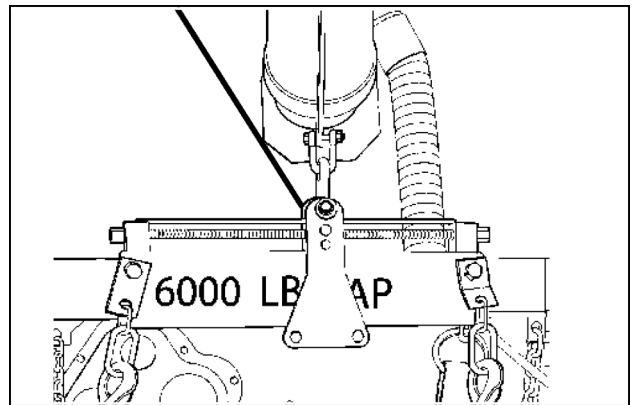
An equalizer with an adjustable tilt feature can speed engine removal and installation on the cotton picker.



20103152 1

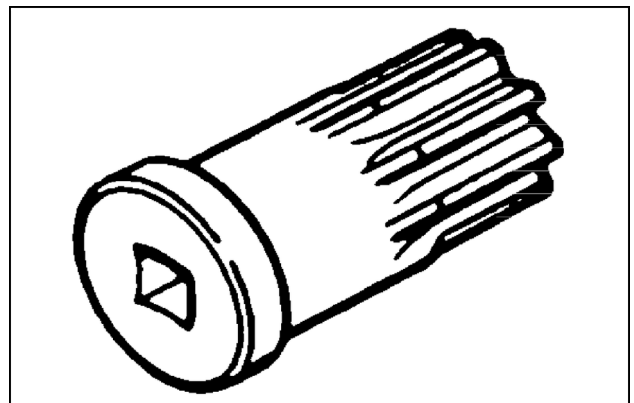
**OEM4130** or equivalent

A boom arm mounted to a lift truck or a mobile lifting crane is recommended for engine removal and installation between the basket and the chassis.



RD01E137N 2

**LIFT TRUCK BOOM**



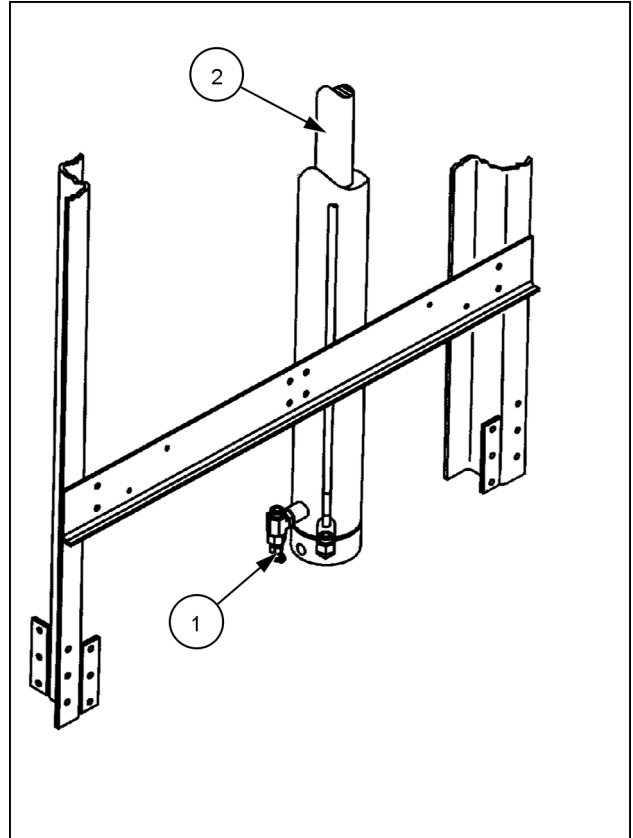
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**CAS-1690**

## Engine - Remove

**NOTE:** Retain all hardware removed during this procedure for reinstallation.

1. If the basket can be raised with the engine, go to step 5.
2. If the basket cannot be raised with the engine, locate the diagnostic coupler (1) at the bottom of the front basket lift cylinder (2). The coupler is capped and should be used to connect an alternate hydraulic source to the basket lift circuit.



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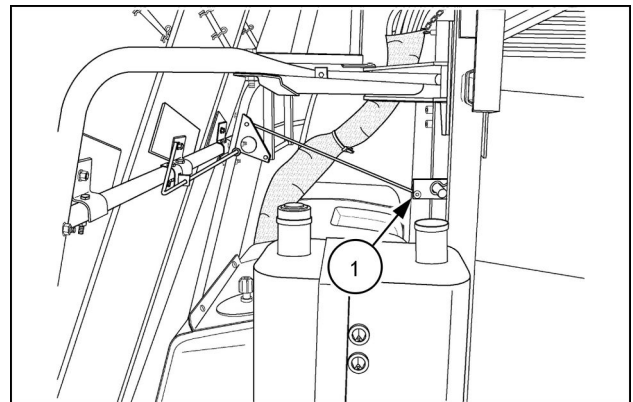
3. Use a tractor remote valve or other source to raise the basket and engage the front (1) and rear (2) safety locks.

**NOTE:** The hydraulic power source must have sufficient flow to properly raise the basket. If the basket front does not begin to raise when the basket rear raises, lower the basket and use an alternate source with sufficient flow.

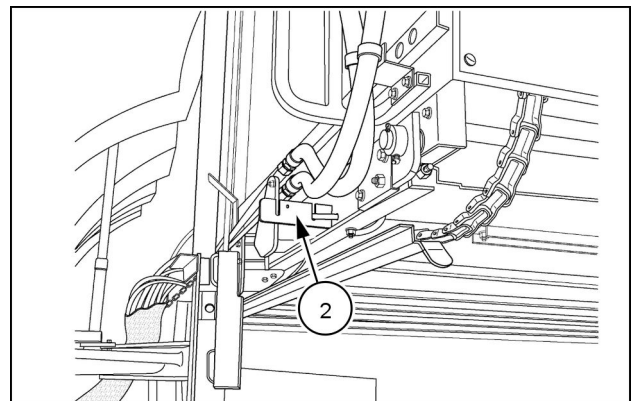
**NOTE:** When an engine is reinstalled, use the same hydraulic power source to lower the basket. This removes the five gallons of hydraulic fluid added to the cotton picker circuit when the basket was raised.

**NOTE:** If hydraulic fluids with different performance characteristics were mixed to raise the basket, both reservoirs - cotton picker and hydraulic source - may have to be drained and refilled with new hydraulic fluid.

4. Continue with step 6.
5. Raise the basket and engage the front (1) and rear (2) safety locks. Shut off the cotton picker and remove the key from the cab.

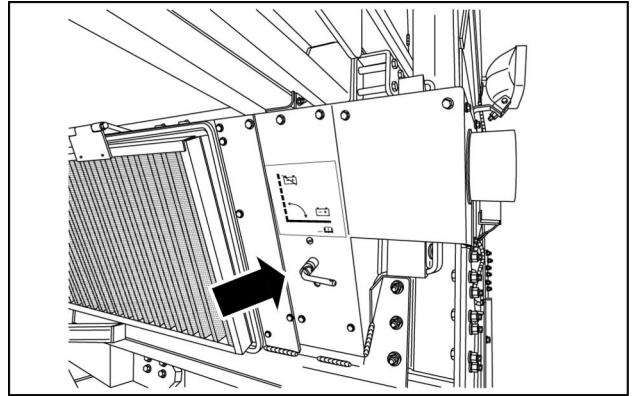


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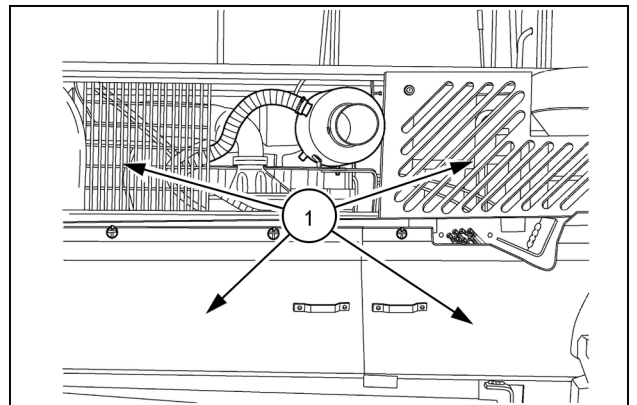
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6. Disconnect the batteries by rotating the lever to the vertical position.



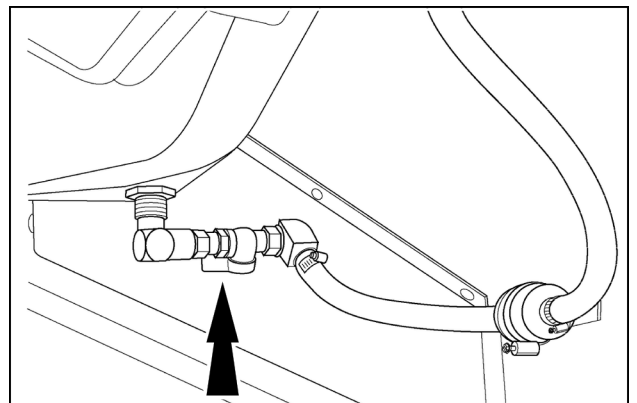
NHIL12COT0311AA 4

7. Remove the side panels (1) on both sides of the machine.



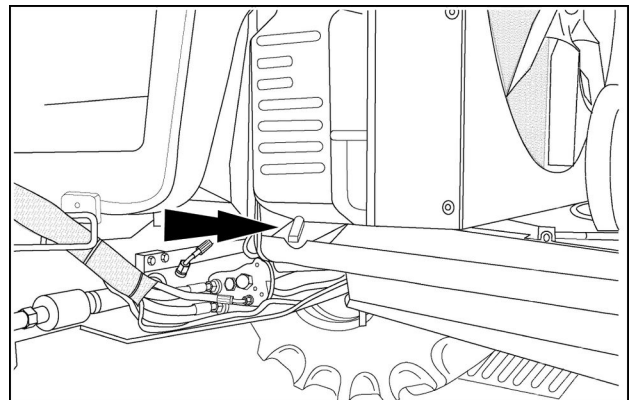
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8. Turn off the fuel at the shutoff valve.



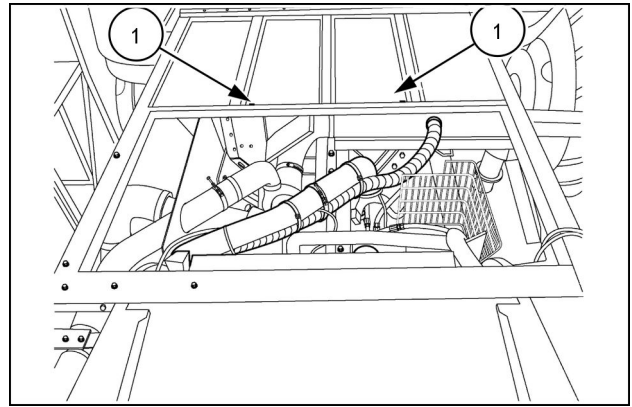
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9. Drain engine coolant into an appropriate container.



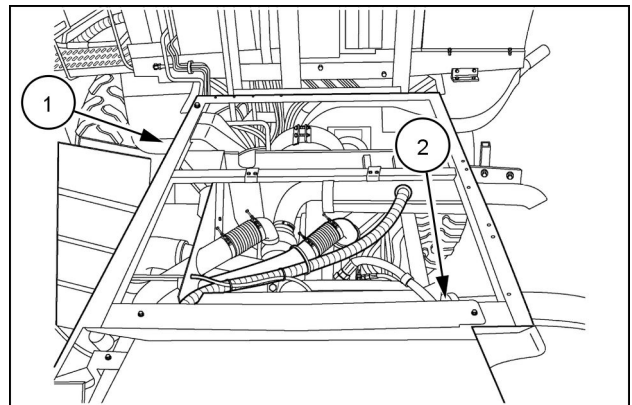
20103160 7

10. Open the engine compartment door. Remove the nuts at the hinges **(1)** from the underside of the door, and remove the door.
11. Open the fan compartment door. Remove the nuts from the underside of the door at the hinges, and remove the door.



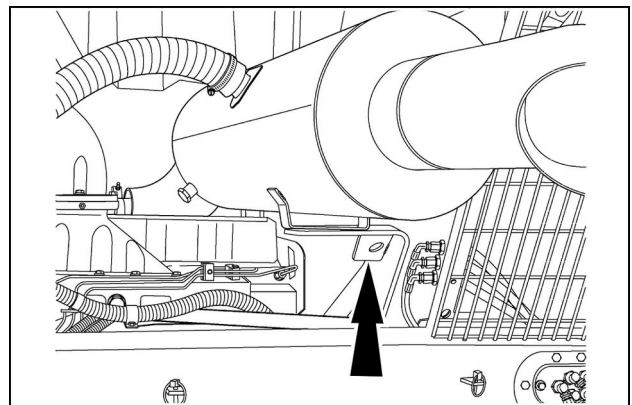
20103161 8

12. Remove the door support channel **(1)** by removing the two nuts and bolts on both ends of the channel. Remove the channel brace(s) at the same time.
13. Remove the engine door support **(2)** by removing the nut and bolt at both ends.



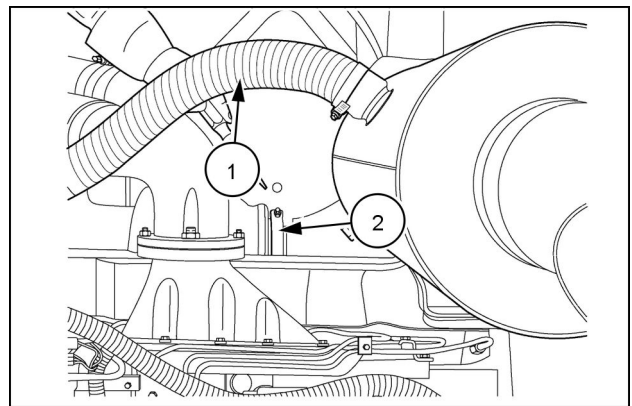
20103162 9

14. Remove the right mounting bolt and nut for the muffler.



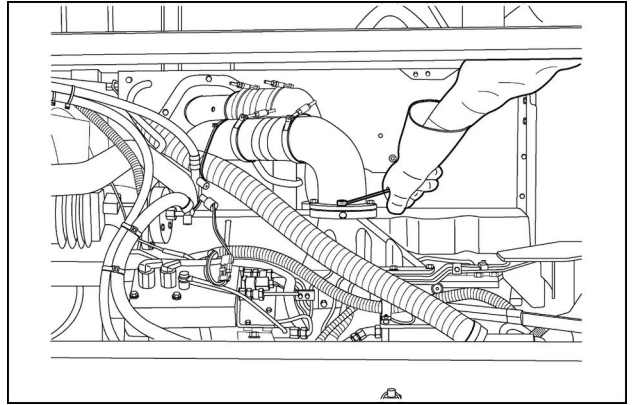
20103163 10

15. Loosen the clamp and remove the aspirator hose **(1)** from the muffler. Cut any tie straps securing the hose in the engine compartment, and move the hose out of the way.
16. Loosen the turbocharger clamp **(2)** and remove the muffler from the compartment.



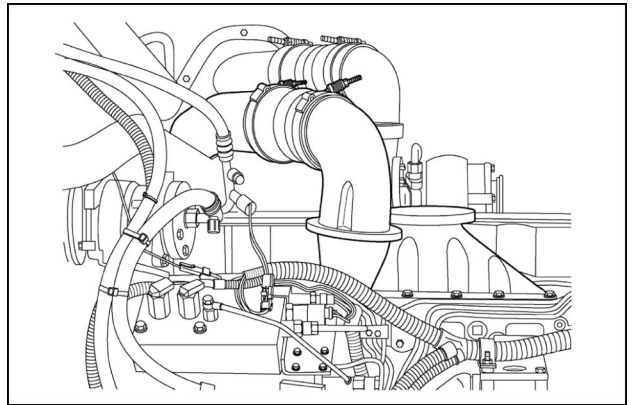
20103164 11

17. Remove the charge air line to the manifold by removing the four bolts and nuts and the gasket.



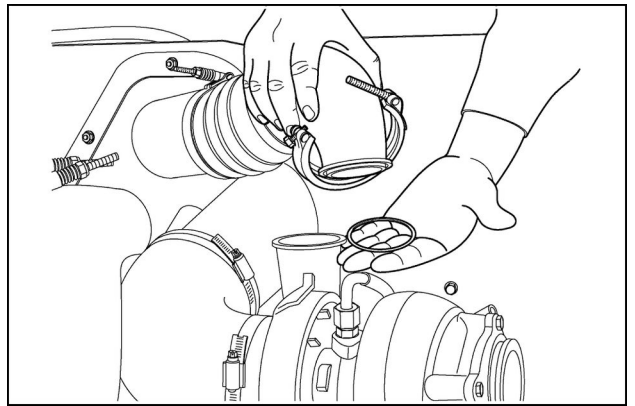
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18. Seal the manifold and charge air line with duct tape.



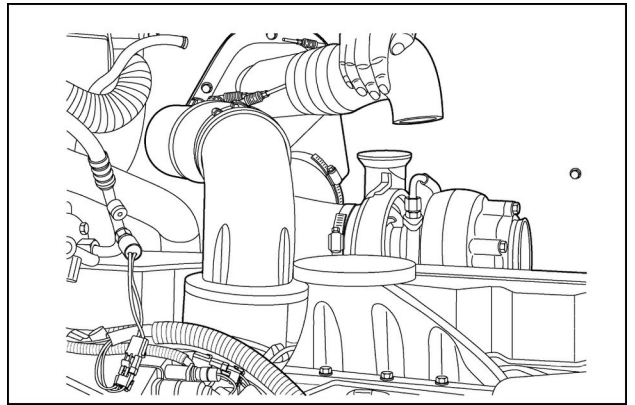
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19. Loosen the clamp and remove the turbo air line to the turbocharger. Retain the O-ring.



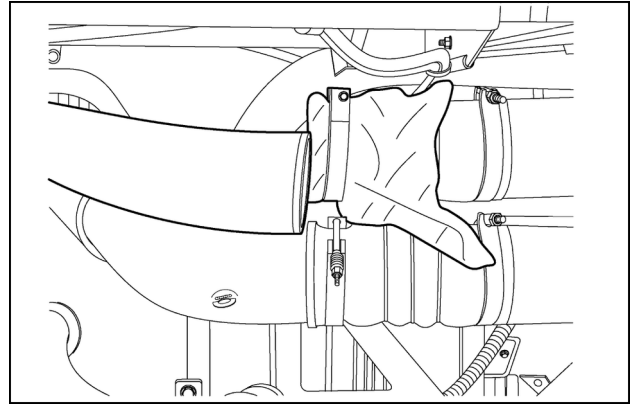
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20. Seal the opening with duct tape.



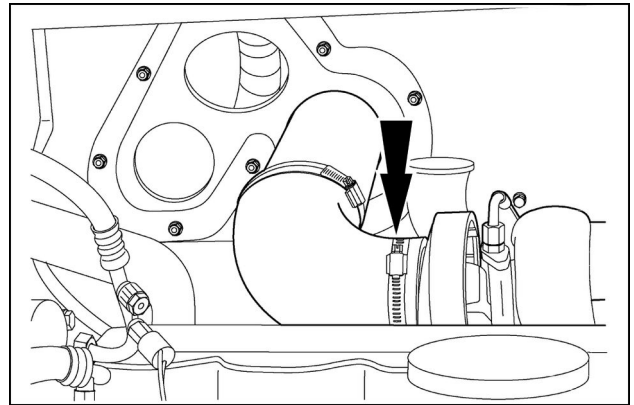
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21. At the opposite end of the charge air and turbocharger air tubes, loosen the clamps and remove the tubes from the Left engine sheet. Use a clean shop cloth or tape to seal the tubes and openings.



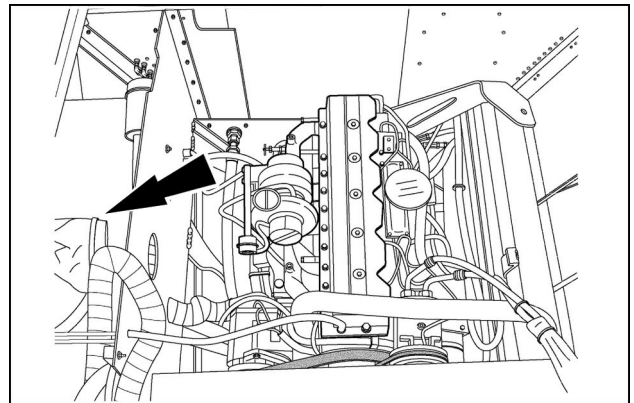
20103169 16

22. Loosen the clamp and remove the air cleaner line to the turbocharger. Loosen the clamp on the other end beyond the left-hand engine sheet, and remove line from the compartment.



20103170 17

23. Use a clean shop cloth and clamp to seal off the cleaner line. Seal the turbocharger inlet with tape.

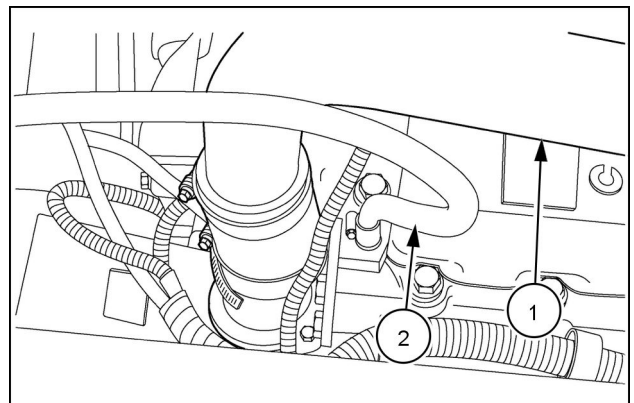


20103171 18

24. Loosen the clamp and remove the upper radiator tube (1).

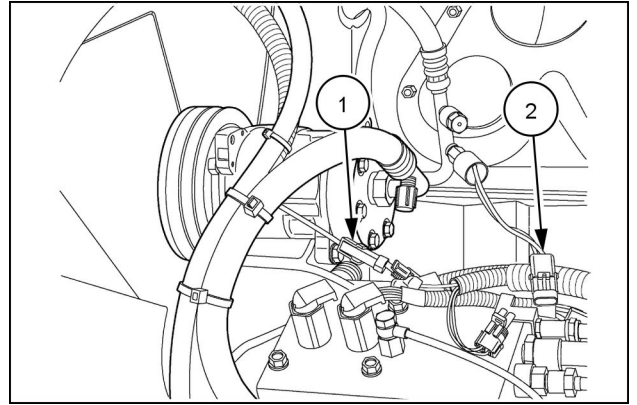
**NOTE:** Be prepared to collect some coolant when the tube is removed.

25. Loosen the clamp and remove the engine head vent line (2).



20103172 19

26. At the air conditioning compressor, disconnect the harness to the compressor clutch (1) and the high pressure switch (2).

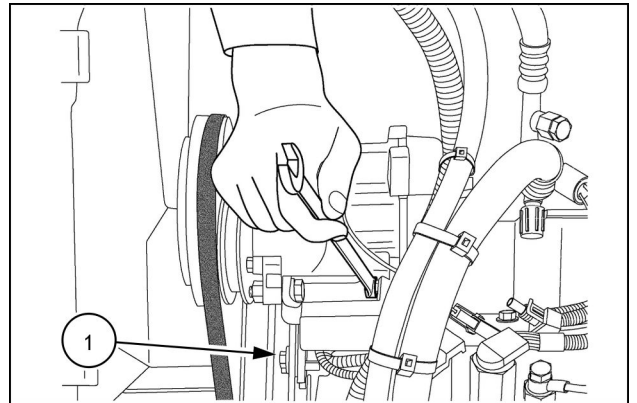


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27. Remove the two mounting bolts and nuts (1) for the compressor and the bolt from the adjusting strap, and remove the compressor with hoses.

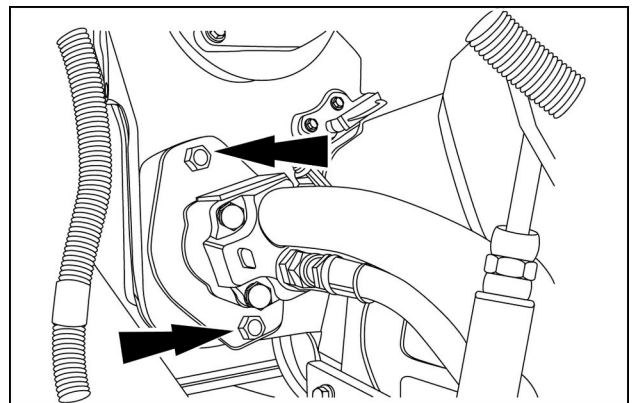
**NOTE:** Hang the compressor clutch belt from the drive pulley for now.

28. Move the compressor with hoses outside the engine compartment and support the assembly.



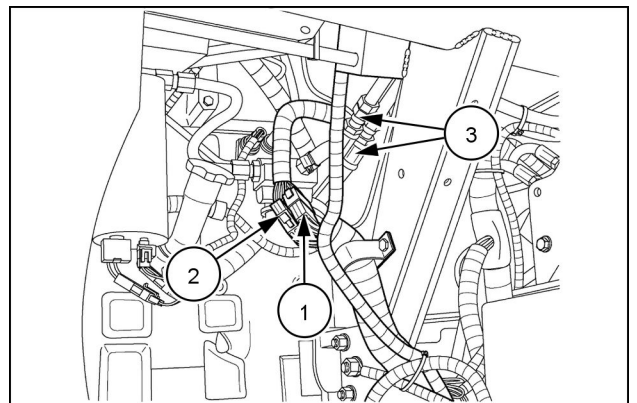
20103174 21

29. Remove the bolts and gasket to remove the rotary screen pump with hoses from the engine. Move the assembly outside the engine compartment.



RD01E131N 22

30. Disconnect the 12 pin connectors (1) and the six pin connector (2). Disconnect the (3) fuel lines.



20103176 23



**Suggest:**

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

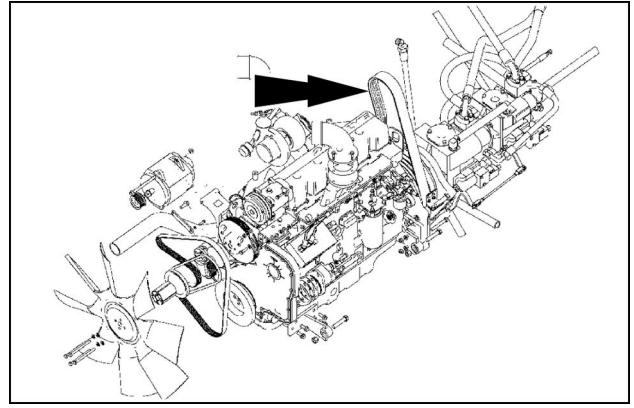
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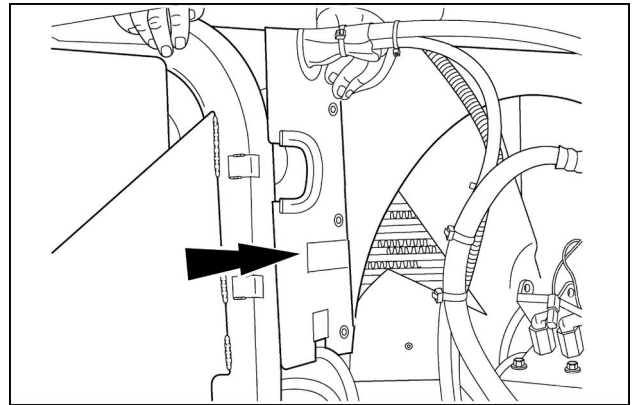
**Thank you so much for reading**

31. Use **13 mm (1/2 in)** socket drive in the belt tensioner to remove the fan/alternator belt from the pulleys.



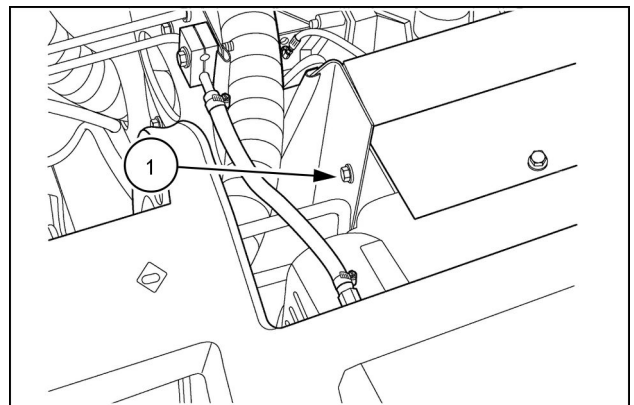
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32. To remove the fan shroud, remove the air deflection shroud on the right-hand side of the shroud by removing the bolts.



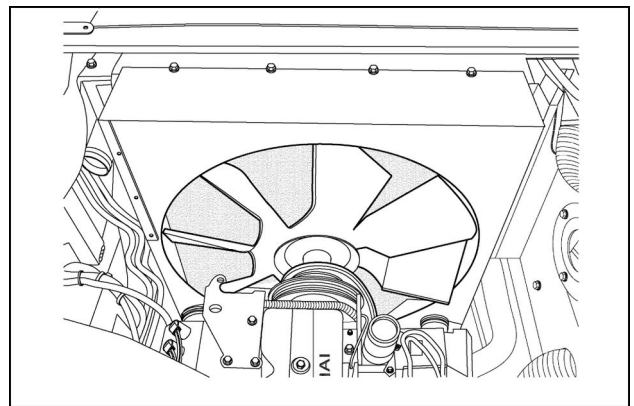
20103178 25

33. Remove the bolts **(1)** securing the shroud to the left engine sheet.



20103179 26

34. Remove the bolts across the bottom of the shroud from underneath the machine. On the left-hand side of the shroud, remove the hydraulic clamp secured to the welded nut.



20103180 27

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