

580N

Loader Backhoes

Service Manual

Part Number
71114480
1st Edition
English 05/2015





SERVICE MANUAL

- 580N 4x2 - Without cab [HBZN580NEBAH02214 -]**
- 580N 4x2 - With cab [HBZN580NHBAH02549 -]**
- 580N 4x4 - Without cab [HBZN580NCCA03762 -]**
- 580N 4x4 - With cab [HBZN580NJBAH02348 -]**

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INTRODUCTION

Safety rules

▲ DANGER

Improper operation or service of this machine can result in an accident.

Any unauthorized modifications made to this machine can have serious consequences. Consult an authorized dealer on changes, additions, or modifications that may be required for this machine. Do not make any unauthorized modifications.

Failure to comply will result in death or serious injury.

D0030A

Before you weld, cut, or drill holes on any part of this machine, make sure the part is not cast ductile iron. See your dealer if you do not know if a part is cast ductile iron. The following are cast ductile iron parts:

- two wheel drive steering link
- dump links
- front axle
- stabilizers
- extendable dipper
- swing tower
- bucket linkage

Unauthorized modifications to cast ductile iron parts can cause injury or death. Welding, cutting, or drilling can cause cast ductile iron to break. Do not weld, cut, or drill to repair or to attach items to cast ductile iron parts on this machine.

Safety rules

Before welding on the machine you must do the following.
If you have any questions about welding on the machine contact your dealer.

- Disconnect the batteries.
- Disconnect the alternator terminal wires.
- Disconnect the instrument cluster.
 - One connector for mechanical fuel injection engines.
- Disconnect the controller for backhoe pilot controls, if equipped (one connector).
- Disconnect the controller for the loader 4 in 1 bucket or auxiliary hydraulics, if equipped (one connector, located under the loader valve at the rear, left underside of the machine).

Safety rules

⚠ DANGER

Improper operation or service of this machine can result in an accident.
Do not operate this machine or perform any lubrication, maintenance, or repair on it until you have read and understood the operation, lubrication, maintenance, and repair information.
Failure to comply will result in death or serious injury.

D0010A

⚠ WARNING

Maintenance hazard!
Always perform all service procedures punctually at the intervals stated in this manual. This ensures optimum performance levels and maximum safety during machine operation.
Failure to comply could result in death or serious injury.

W0132A

⚠ WARNING

Pressurized system!
Before attempting any service procedure, it is your responsibility to know the number of accumulators on the machine, and the correct procedure for releasing the pressure of each accumulator.
Failure to comply could result in death or serious injury.

W0136A

NOTICE: *Extreme working and environmental conditions require shortened service intervals.*

Use Case fluids, lubricants, and filters for the best protection and performance of your machine. All fluids, lubricants, and filters must be disposed of in compliance with environmental standards and regulations. Contact your dealer with any questions regarding the service and maintenance of this machine.

Read the safety decals and information decals on the machine. Read the Operator's Manual and safety manual. Understand the operation of the machine before you start any service.

Before you service the machine, put a 'Do Not Operate' tag on the steering wheel or over the key switch. Ensure the tag is at a location where everyone who might operate or service the machine may see clearly. One tag is included with your new machine. Additional tags are available from your dealer.

Plastic and resin parts

- Avoid using gasoline, paint thinner, etc. when cleaning plastic parts, console, instrument cluster, etc.
- Use only water, mild soap, and a soft cloth when you clean these parts.
- Using gasoline, thinners, etc. can cause discoloration, cracking, or deformation of the part being cleaned.



SERVICE MANUAL

Engine

- 580N 4x2 - Without cab [HBZN580NEBAH02214 -]**
- 580N 4x2 - With cab [HBZN580NHBAH02549 -]**
- 580N 4x4 - Without cab [HBZN580NCCA03762 -]**
- 580N 4x4 - With cab [HBZN580NJBAH02348 -]**

Engine - Speeds stall test normal (all models)

NOTE: The following specifications are for engines with more than 50 hours of operation.

NOTE: Engine RPM speed is based on the ISO14396 Cetane number of at least 51 and density between 820 - 845 kg/m³ (1382 - 1424 lb/yd³). Fuel inlet 38 °C (100 °F) ± 2 °C (36 °F)

Model 580N

| Function | Engine RPM speed |
|-------------------------|------------------|
| Rated speed – full load | 2200 RPM |
| Idle speed | 875 - 1025 RPM |
| High idle– no load | 2300 - 2450 RPM |
| Torque converter stall | 2180 - 2310 RPM |
| Backhoe hydraulic stall | 2230 - 2330 RPM |
| Loader hydraulic stall | 2230 - 2330 RPM |
| Combined stall | 1610 - 1890 RPM |

Engine - Speeds stall test check sheet (580N only)

Results from stall test procedure (fill in values accordingly)

| ID | RPM test valve | Stall test component (specified value) |
|----|----------------|---|
| 1 | | Loader hydraulic stall speed (2230 - 2330 RPM) |
| 2 | | Backhoe hydraulic stall speed (2230 - 2330 RPM) |
| 3 | | Torque converter stall speed (2180 - 2310 RPM) |
| 4 | | Combined - loader hydraulic and torque converter - stall speed (1610 - 1890 RPM) |

Stall test reference chart

| ID | RPM | Results |
|----|--------------|---|
| 1 | 2230 to 2330 | All systems operating within normal specified RPM values. |
| 2 | 2230 to 2330 | |
| 3 | 2180 to 2310 | |
| 4 | 1610 to 1890 | |
| 1 | Above 2330 | Engine problem. Check engine speeds according to instructions in NEED IU REFERENCE for details. Refer to the engine service manual. |
| 2 | 2230 to 2330 | |
| 3 | Above 2310 | |
| 4 | Above 1890 | |
| 1 | Below 2230 | Engine problem. Check engine speeds according to instructions in NEED IU REFERENCE for details. Replace the fuel and air filters NEED IU REFERENCE for details. Refer to the engine service manual. |
| 2 | 2230 to 2330 | |
| 3 | Below 2180 | |
| 4 | Below 1610 | |
| 1 | Below 2230 | Hydraulic system problem(s). Check the setting of the main relief valve. Check the output of the hydraulic pump. |
| 2 | 2230 to 2330 | |
| 3 | 2180 to 2310 | |
| 4 | Below 1610 | |
| 1 | Above 2330 | Hydraulic system problem(s). Check the setting of the main relief valve. Check the output of the hydraulic pump. Check for leakage in the loader control valve. |
| 2 | 2230 to 2330 | |
| 3 | 2180 to 2310 | |
| 4 | Above 1890 | |
| 1 | 2230 to 2330 | Hydraulic system problem(s). Check the setting of the main relief valve. Check the output of the hydraulic pump. |
| 2 | Below 2230 | |
| 3 | 2180 to 2310 | |
| 4 | 1610 to 1890 | |
| 1 | 2230 to 2330 | Hydraulic system problem(s). Check the setting of the main relief valve. Check the output of the hydraulic pump. |
| 2 | Below 2230 | |
| 3 | 2180 to 2310 | |
| 4 | 1610 to 1890 | |

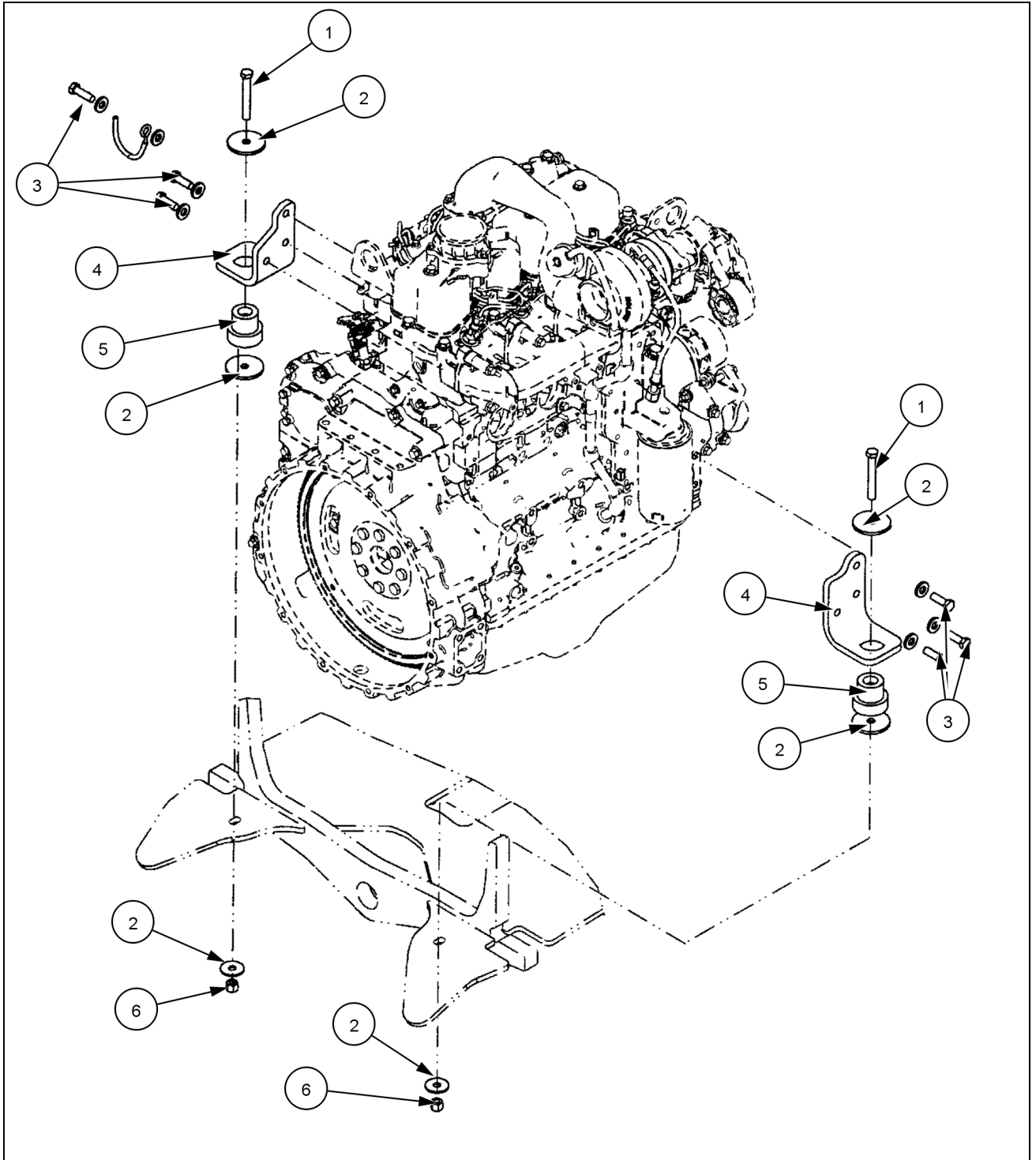
Engine - Engine and crankcase

| ID | RPM | Results |
|----|--------------|--|
| 1 | 2230 to 2330 | Torque converter or transmission problems. |
| 2 | 2230 to 2330 | |
| 3 | Above 2310 | |
| 4 | Above 1890 | |
| 1 | 2230 to 2330 | Torque converter or transmission problems. |
| 2 | 2230 to 2330 | |
| 3 | Below 2180 | |
| 4 | Below 1610 | |

Engine - Exploded view

| | | | |
|----|------------------------------|----|----------------------------|
| 1. | Engine mounting bracket bolt | 4. | Engine mounting bracket |
| 2. | Flat washer | 5. | Engine mounting stabilizer |
| 3. | Engine mounting bolts | 6. | Lock nut |

Engine - Engine and crankcase



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Engine - Service instruction - Engine repair service manual

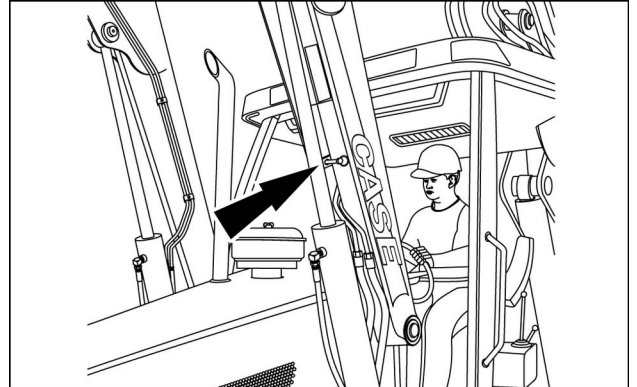
1. For engine repair, see engine service manual 87630273.

Engine - Remove

Put identification tags on all disconnected hoses and wires. Close disconnected hoses and fittings with caps and plugs.

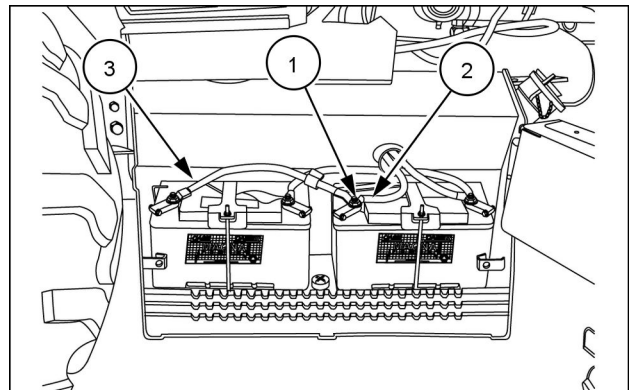
NOTE: The images in this procedure may be different from your machine. The images are for reference only.

1. Park the machine on a level surface. Raise the loader and lock the support strut to hold the loader.



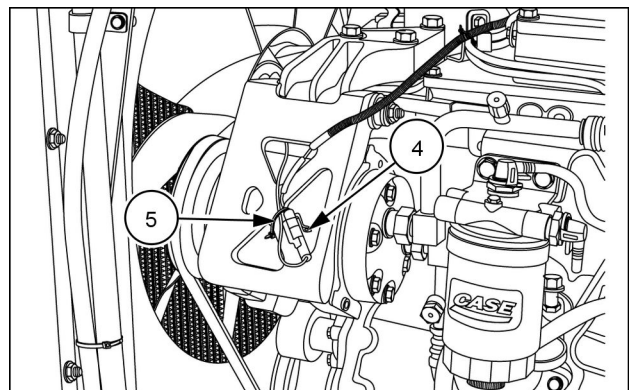
RCPH10TLB022AAL 1

2. Remove the battery cover from the right step. If the machine has only one battery, disconnect the negative battery cable from the battery.
3. If the machine has two batteries, remove the terminal nut (1). Remove the negative battery cable (2) from the terminal. Move the negative battery cable away from the battery. Make sure the jumper cable (3) is installed on the terminal and start the terminal nut (2) onto the terminal.



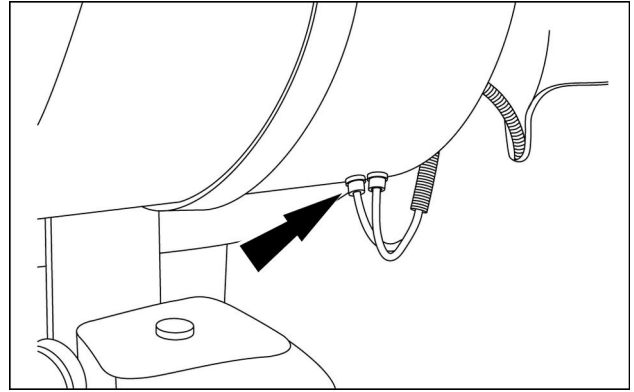
RCPH10TLB030AAL 2

4. If equipped with air conditioning, discharge air conditioning system.
5. Remove the radiator wrapper, fan shroud, radiator, oil coolers and, if equipped with air conditioning, the condenser assembly. See **Radiator - Remove (10.400)** for the procedures.
6. If equipped with air conditioning, disconnect the electrical connector (4). Remove the tie strap (5). Disconnect the hoses from the compressor.



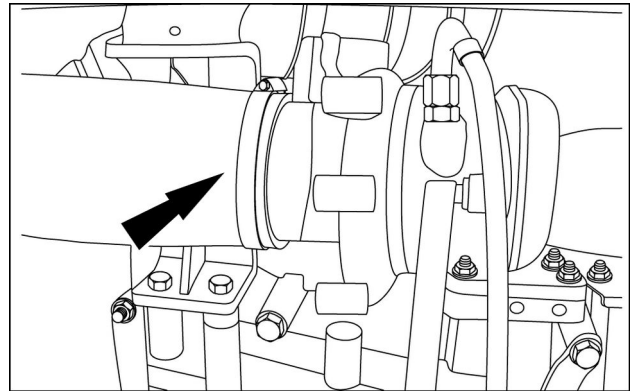
RCPH10TLB042AAL 3

7. Remove the plastic clamp. Disconnect the electrical connectors for the air restriction indicator.



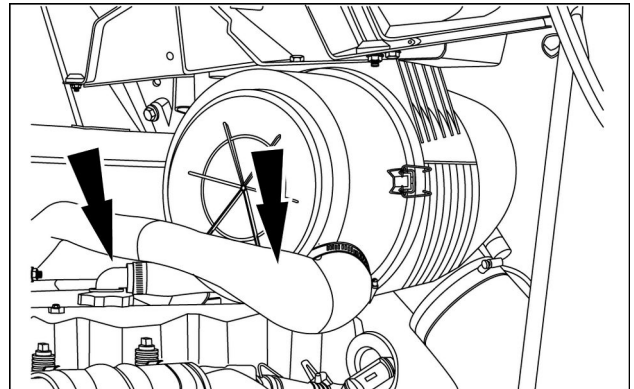
RCPH10TLB025AAL 4

8. Loosen the clamp on the air cleaner hose at the turbocharger. Disconnect the air cleaner hose from the turbocharger.



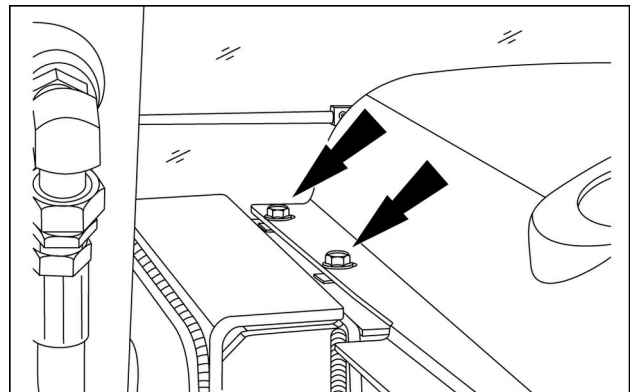
RCPH10TLB024AAL 5

9. Disconnect crank case ventilation hose and the aspiration hose.



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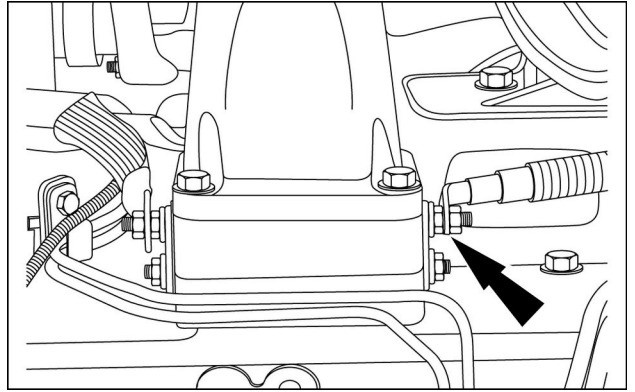
10. Remove the hex head bolts and flat washers that secure the fixed hood to the columns. Remove the fixed hood and air cleaner as one assembly.



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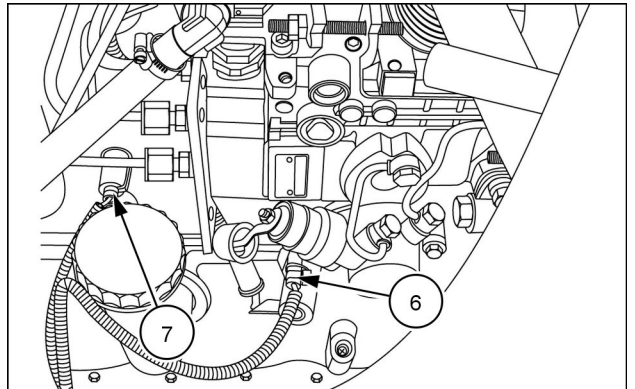
11. Remove muffler and brackets from engine.

12. If installed, disconnect the grate heater positive cable and sensor wires.



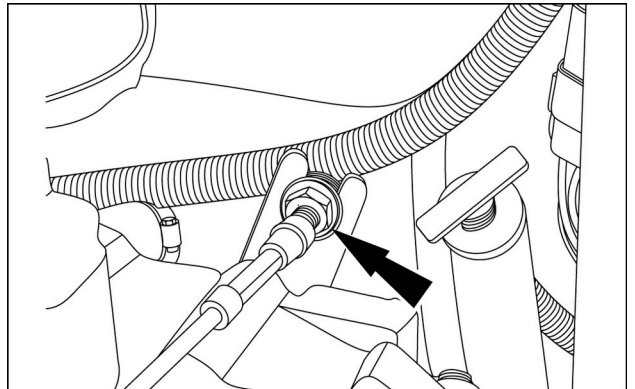
RCPH10TLB036AAL 8

13. Disconnect the electrical connector for the fuel injection pump (6) and the oil pressure sensor (7).



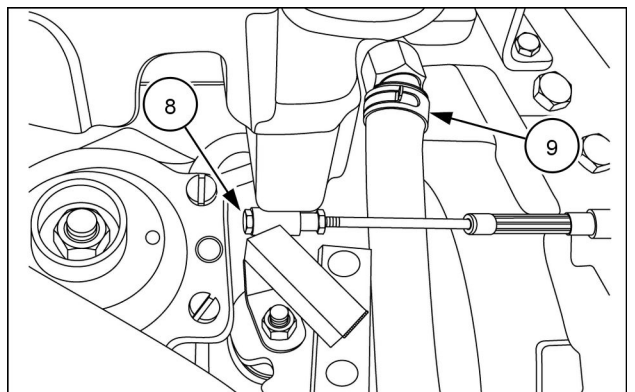
RCPH10TLB040AAL 9

14. Disconnect the throttle cable from the mounting bracket.



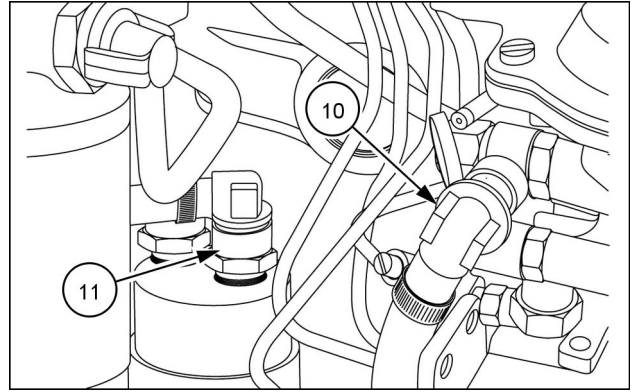
RCPH10TLB034AAL 10

15. Disconnect the throttle rod (8). If equipped, disconnect the heater hose (9).



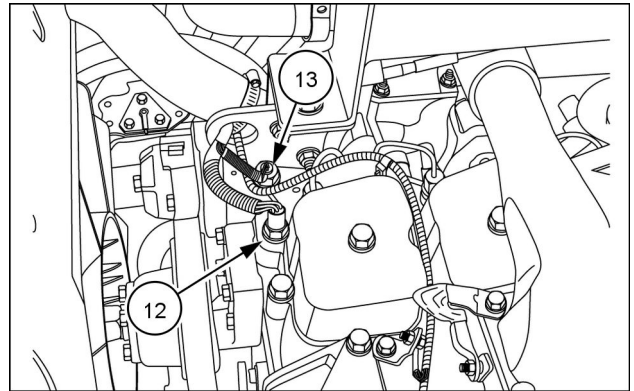
RCPH10TLB035AAL 11

16. Disconnect the fuel return line (10) and the fuel input line (11).



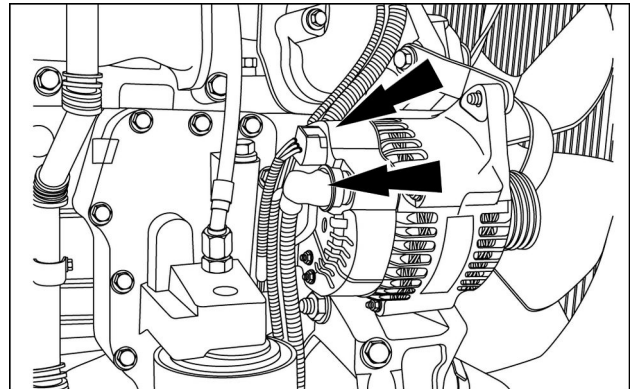
RCPH10TLB041AAL 12

17. Disconnect the coolant temperature sensor (12) and the coolant temperature switch (13).



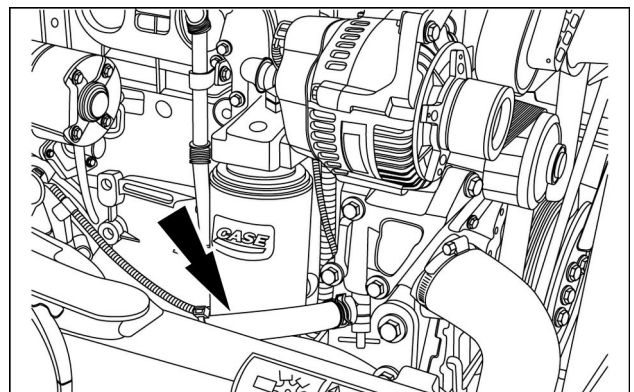
RCPH10TLB039AAL 13

18. Disconnect the wires from the alternator.



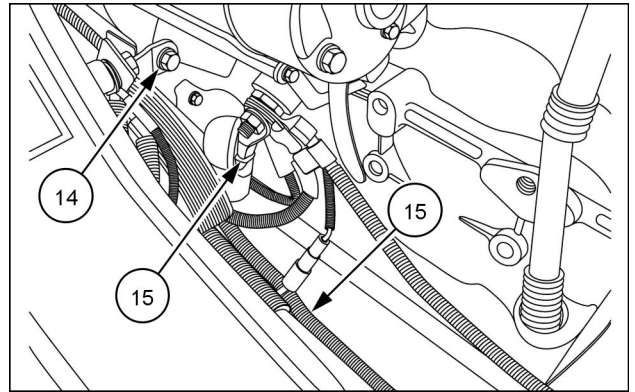
RCPH10TLB037AAL 14

19. Disconnect the heater hose, if equipped.



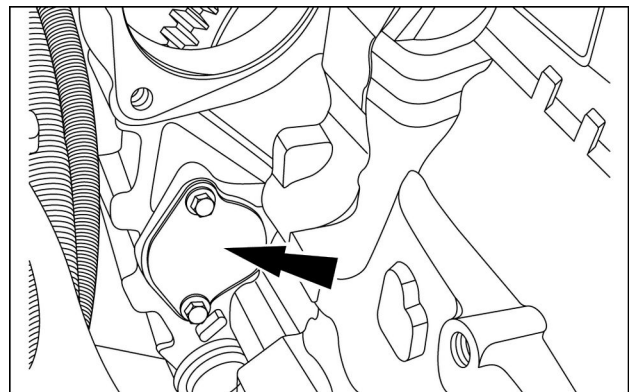
RCPH10TLB043AAL 15

20. Disconnect the ground strap (14). Disconnect the wires (15) from the starter.



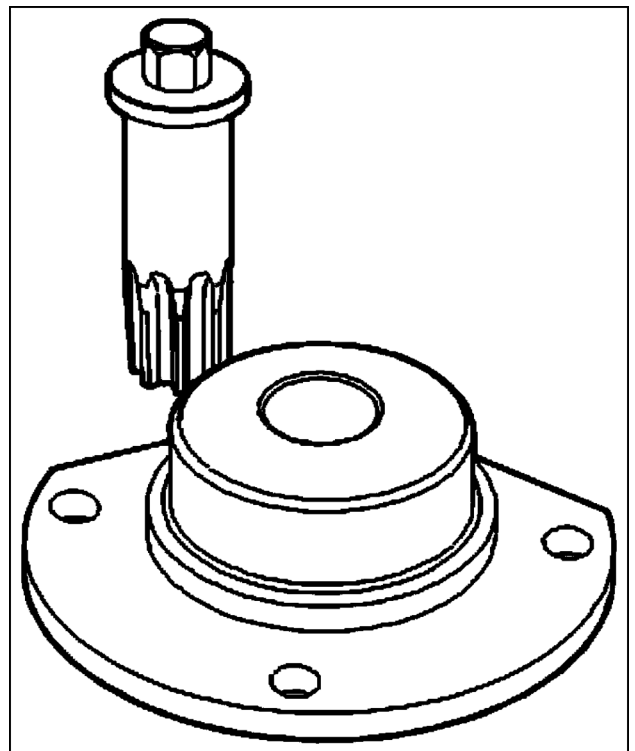
RCPH10TLB038AAL 16

21. Remove the starter from the engine. Remove the access cover from the housing of the flexplate fixing bolts.



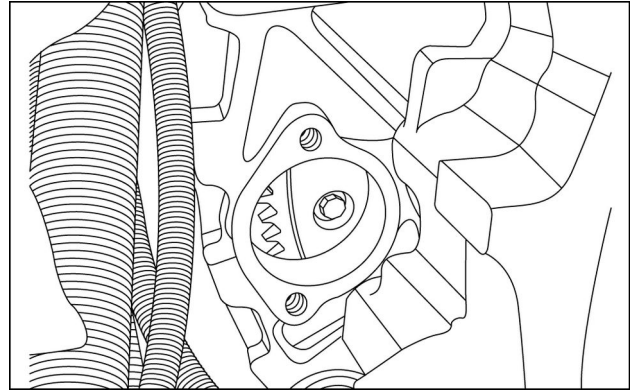
RCPH10TLB026AAL 17

22. Install the engine turning tool, **380000988**, to turn the flywheel for access to the cap screws.



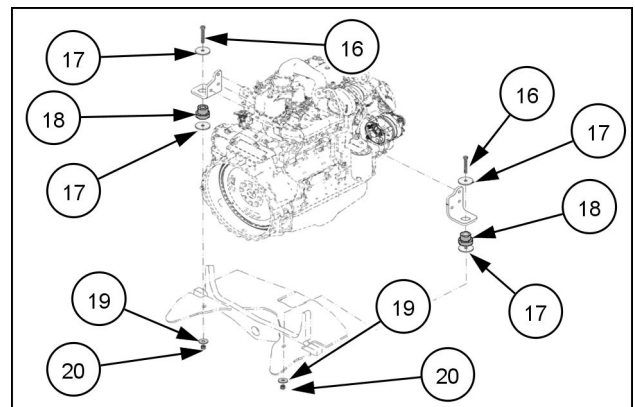
RCPH10TLB005BAL 18

23. Remove four cap screws that fasten the flywheel to the flex plate.



RCPH10TLB027AAL 19

24. Connect lifting equipment to the lifting eyes on the engine to remove the engine from the machine.
25. Remove the two bolts (16), the four washers (17), the bushings (18), the washers (19), and the nuts (20) that secure the engine on the chassis.



COIL14TLB0143FA 20

26. Loosen and remove the 12 cap screws and flat washers that fasten the transmission to the engine. Move the heater hose and clamps out of the way.
27. Move the engine forward and raise the engine. Remove the engine from the machine.

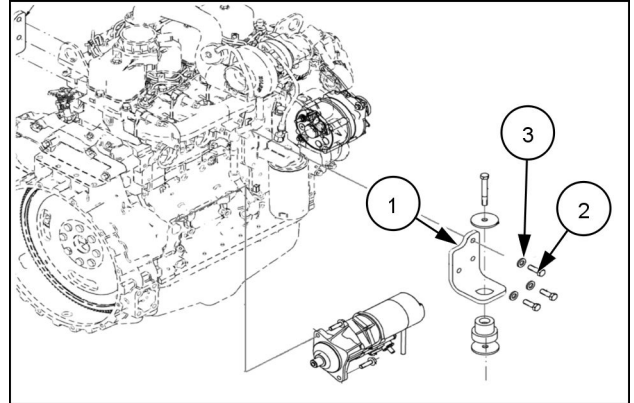
NOTICE: Make sure that the flex plate/converter assembly stays in place on the transmission. If the engine will be separated from the transmission for an extended period of time fasten the flex plate/converter assembly in place on the transmission.

Engine - Install

If applicable, remove caps and plugs from previously disconnected hoses and fittings. Remove identification tags after making the hose and wire connections.

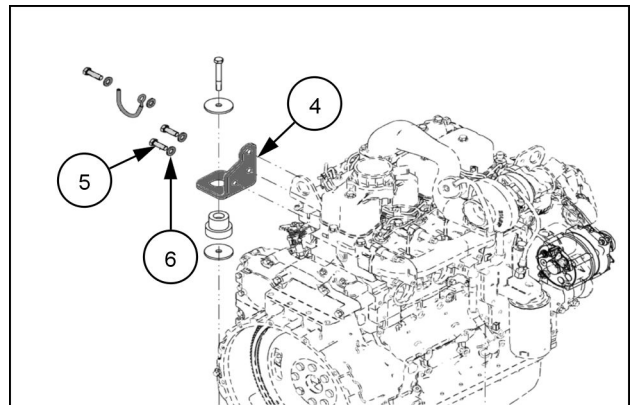
NOTE: The photos in this procedure may be different from your machine and are for reference only.

1. Use three bolts (2) and three washers (3) to attach the cradle (1) on the left-hand side of the engine. Tighten the bolts to a torque of **80 - 90 N·m (59 - 66 lb ft)**.



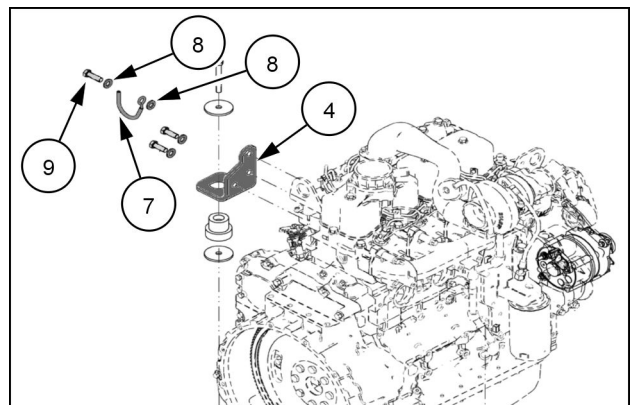
COIL14TLB0144FA 1

2. Use two bolts (5) and two washers (6) in both of the bottom holes of the cradle (4) to attach the cradle (4) on the right-hand side of the engine. Tighten the bolts to a torque of **80 - 90 N·m (59 - 66 lb ft)**.



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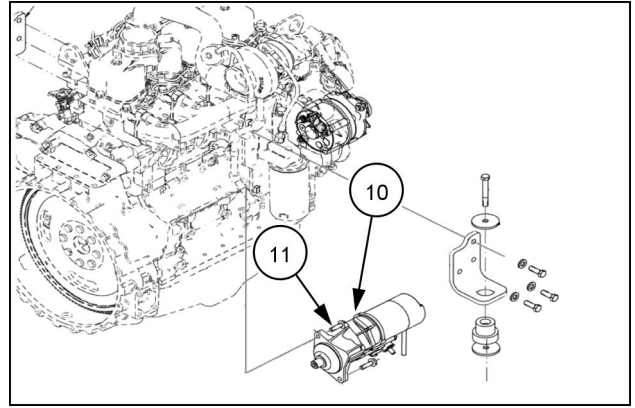
3. Secure the cradle of the hose (7) on the top hole of the cradle (4) in the following order:
One washer (8) on the hose cradle (7) and one washer (8) on the bolt (9).
Ensure that you secure the hose cradle correctly, as shown in the illustration. Tighten the bolts to a torque of **80 - 90 N·m (59 - 66 lb ft)**.



COIL14TLB0147FA 3

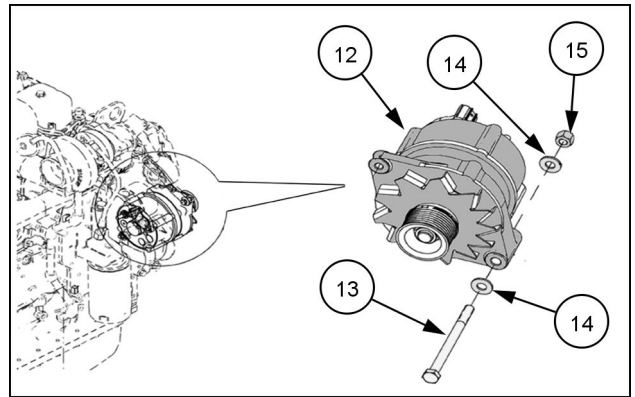
4. Use two bolts (11) to install the starter motor (10) on the engine.

NOTE: Apply torque of **43.0 N·m (31.7 lb ft)**



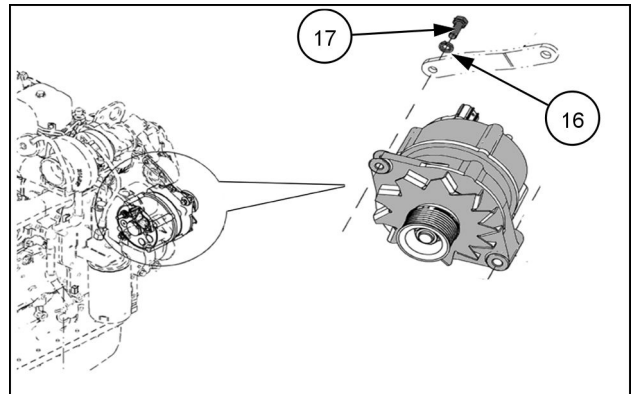
COIL14TLB0144FA 4

5. Attach the bottom of the alternator (12) to the engine with one bolt (13), two washers (14), and one nut (15).



COIL14TLB0145AA 5

6. Complete the installation of the alternator. Use a washer (16) and a bolt (17) to secure the alternator on the upper rod. Note the assembly position as shown in the illustration



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Suggest:

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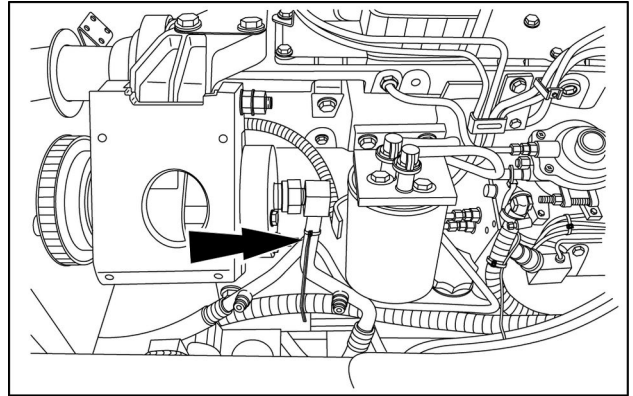
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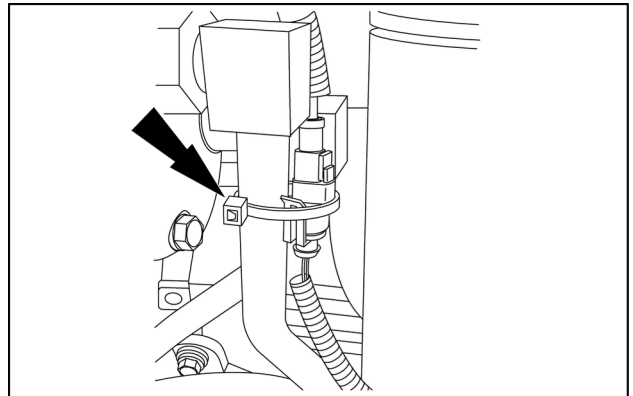
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7. Attach the starter motor jumper cables with plastic clamps so that it does not interfere with other components.



COIL14TLB0124AA 7



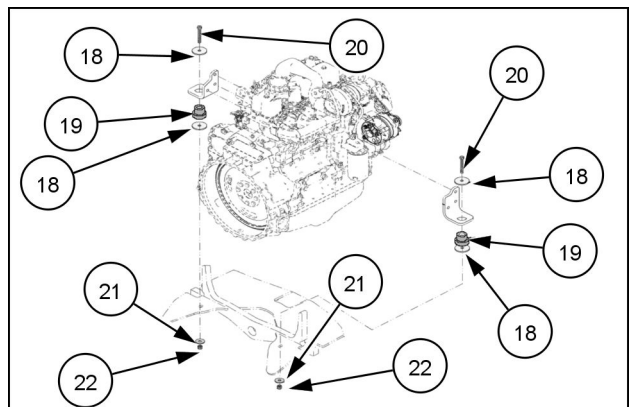
COIL14TLB0125AA 8

8. Use an appropriate lifting device to position the engine next to the chassis.

NOTICE: Make sure that the flex plate/converter assembly stays in place on the transmission.

9. Move the heater hose and clamps out of the way. Install and tighten the 12 flat washers and cap screws securing the transmission to the engine. Tighten cap screws to a torque of **52 - 57 N·m (38 - 42 lb ft)**.

10. Secure the engine mount to the chassis as follows:
 - A – Place the washer (18) between the chassis and the engine mount
 - B – Position the bushing (19) over the washer (18)
 - C – Position the engine mount over the bushing (19)
 - D – Position the washer (18) and the bolt (20) over the engine mount.
 - E – Secure the motor assembly that has already been positioned with a washer (21) and a nut (22), below the chassis on the bolt (20).
 Tighten the bolts to a torque of **95.0 N·m (70.1 lb ft)**.



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11. Disconnect the lifting equipment from the lifting eyes on the engine.

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