

580N
580SN WT
580SN
590SN
Tier 3
Tractor Loader Backhoe

SERVICE MANUAL

Part number 47860801

English
March 2015





SERVICE MANUAL

**580N Four-Wheel Drive (4WD) TIER 3 , 580N Two-Wheel Drive (2WD) TIER 3 ,
580N Two-Wheel Drive (2WD) TIER 3 , 580SN Four-Wheel Drive (4WD) TIER
3 , 580SN Four-Wheel Drive (4WD) TIER 3 , 580SN Two-Wheel Drive (2WD)
TIER 3 , 580SN Two-Wheel Drive (2WD) TIER 3 , 580SN WT Four-Wheel Drive
(4WD) TIER 3 , 590SN Four-Wheel Drive (4WD) TIER 3 , 590SN Two-Wheel
Drive (2WD) TIER 3**

Link Product / Engine

Product	Market Product	Engine
580N Two-Wheel Drive (2WD) TIER 3	Middle East Africa	F4GE9454K*J603
580N Two-Wheel Drive (2WD) TIER 3	North America	F4GE9454K*J603
580N Two-Wheel Drive (2WD) TIER 3	Latin America	F4GE9454K*J603
580N Two-Wheel Drive (2WD) TIER 3	Australia New Zealand	F4GE9454K*J603
580N Two-Wheel Drive (2WD) TIER 3	Asia Pacific	F4GE9454K*J603
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580N Two-Wheel Drive (2WD) TIER 3	North America	F4GE9454K*J603
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580N Two-Wheel Drive (2WD) TIER 3	Latin America	F4GE9454K*J603
580N Four-Wheel Drive (4WD) TIER 3	Middle East Africa	F4GE9454K*J603
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580N Four-Wheel Drive (4WD) TIER 3	Australia New Zealand	F4GE9454K*J603
580SN Two-Wheel Drive (2WD) TIER 3	Australia New Zealand	F4HE0484G*J108
580SN Two-Wheel Drive (2WD) TIER 3	Asia Pacific	F4HE0484G*J108
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580SN Two-Wheel Drive (2WD) TIER 3	Asia Pacific	F4HE0484G*J108
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580SN Two-Wheel Drive (2WD) TIER 3	Latin America	F4HE0484G*J108

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Product	Market Product	Engine
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590SN Four-Wheel Drive (4WD) TIER 3	Asia Pacific	F4HE9484C*J106

Contents

INTRODUCTION

Engine.....	10
[10.001] Engine and crankcase	10.1
[10.216] Fuel tanks	10.2
[10.218] Fuel injection system.....	10.3
[10.254] Intake and exhaust manifolds and muffler	10.4
[10.400] Engine cooling system	10.5
Transmission.....	21
[21.112] Power shuttle transmission.....	21.1
[21.113] Powershift transmission	21.2
[21.134] Power shuttle transmission external controls	21.3
[21.135] Powershift transmission external controls.....	21.4
[21.154] Power shuttle transmission internal components	21.5
[21.155] Powershift transmission internal components.....	21.6
Front axle system	25
[25.100] Powered front axle	25.1
[25.102] Front bevel gear set and differential	25.2
[25.108] Final drive hub, steering knuckles, and shafts	25.3
[25.400] Non-powered front axle	25.4
Rear axle system.....	27
[27.100] Powered rear axle.....	27.1
[27.106] Rear bevel gear set and differential.....	27.2
[27.120] Planetary and final drives	27.3
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
[35.102] Pump control valves.....	35.2
[35.104] Fixed displacement pump.....	35.3
[35.106] Variable displacement pump.....	35.4
[35.204] Remote control valves.....	35.5
[35.300] Reservoir, cooler, and filters.....	35.6
[35.350] Safety and main relief valves.....	35.7
[35.359] Main control valve.....	35.8
[35.525] Auxiliary hydraulic valves and lines.....	35.9
[35.703] Stabilizer hydraulic system.....	35.10
[35.723] Front loader bucket hydraulic system.....	35.11
[35.726] Excavator and backhoe hydraulic controls.....	35.12
[35.736] Boom hydraulic system.....	35.13
[35.737] Dipper hydraulic system.....	35.14
[35.738] Excavator and backhoe bucket hydraulic system.....	35.15
[35.739] Swing arm hydraulic system.....	35.16
[35.740] Telescopic arm hydraulic system.....	35.17
Frames and ballasting.....	39
[39.100] Frame.....	39.1
[39.129] Stabilizers.....	39.2
Steering.....	41
[41.101] Steering control.....	41.1
[41.200] Hydraulic control components.....	41.2
[41.216] Cylinders.....	41.3
Wheels.....	44
[44.511] Front wheels.....	44.1
[44.520] Rear wheels.....	44.2

Cab climate control	50
[50.200] Air conditioning	50.1
Electrical systems	55
[55.024] Transmission control system	55.1
[55.100] Harnesses and connectors	55.2
[55.201] Engine starting system	55.3
[55.301] Alternator	55.4
[55.302] Battery	55.5
[55.408] Warning indicators, alarms, and instruments	55.6
[55.525] Cab engine controls	55.7
[55.991] Telematics	55.8
[55.DTC] FAULT CODES	55.9
Front loader and bucket	82
[82.100] Arm	82.1
[82.300] Bucket	82.2
Booms, dippers, and buckets	84
[84.100] Bucket	84.1
[84.114] Boom pivoting support	84.2
[84.910] Boom	84.3
[84.912] Dipper arm	84.4
Platform, cab, bodywork, and decals	90
[90.105] Machine shields and guards	90.1
[90.114] Operator protections	90.2
[90.124] Pneumatically-adjusted operator seat	90.3
[90.150] Cab	90.4
[90.151] Cab interior	90.5
[90.154] Cab doors and hatches	90.6



INTRODUCTION

Foreword - Important notice regarding equipment servicing

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

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

Unless otherwise instructed, always perform these steps before you service the machine:

1. Park the machine on a flat, level surface.
2. Place the backhoe in the transport position with the swing lock pin installed for transport.
3. Place the loader bucket on the ground, with the bottom of the loader bucket parallel to the surface.
4. Place the direction control lever and the transmission in neutral.
5. If you need to open the hood to perform service, raise the loader arms and install the support strut.
6. Shut down the engine.
7. Place a 'Do Not Operate' tag on the key switch so that it is visible to other workers or remove the key.

Safety rules - Ductile iron



⚠ DANGER

Altering cast ductile iron can cause it to weaken or break.

Before you weld, cut, or drill holes on any part of this machine, make sure that the part is not cast ductile iron.

Failure to comply will result in death or serious injury.

D0148A

Altering cast ductile iron can cause it to weaken or break. Unauthorized modifications to cast ductile iron parts can cause death or serious injury. Do not weld, cut, drill, repair, or attach items to cast ductile iron parts on this machine.

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 items are examples of cast ductile iron parts. There may also be other parts made of cast ductile iron that are not on the list below.

- two-wheel drive steering link
- dump links
- front axle
- stabilizers
- extend-a-hoe
- swing tower
- bucket linkage
- Air-Conditioning (A/C) compressor mounting bracket

Do not make any unauthorized modifications. Consult an authorized dealer before making any changes, additions, or modifications to this machine.

Safety rules - Ecology and the environment

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



SERVICE MANUAL

Engine

**580N Four-Wheel Drive (4WD) TIER 3 , 580N Two-Wheel Drive (2WD) TIER 3 ,
580N Two-Wheel Drive (2WD) TIER 3 , 580SN Four-Wheel Drive (4WD) TIER
3 , 580SN Four-Wheel Drive (4WD) TIER 3 , 580SN Two-Wheel Drive (2WD)
TIER 3 , 580SN Two-Wheel Drive (2WD) TIER 3 , 580SN WT Four-Wheel Drive
(4WD) TIER 3 , 590SN Four-Wheel Drive (4WD) TIER 3 , 590SN Two-Wheel
Drive (2WD) TIER 3**

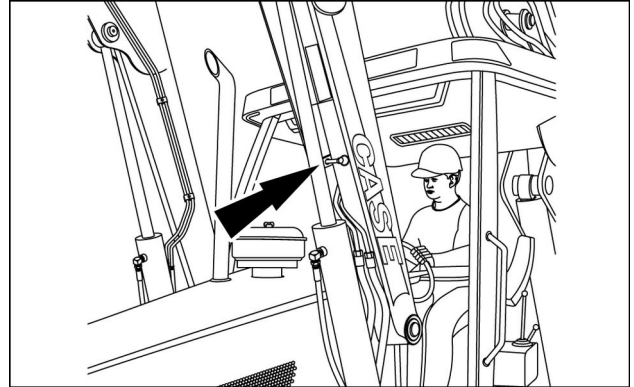
Engine - Remove - 580N only

580N Four-Wheel Drive (4WD) TIER 3	
580N Two-Wheel Drive (2WD) TIER 3	---

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

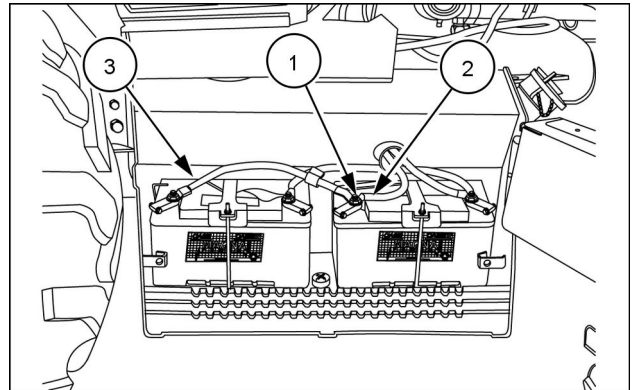
NOTE: The photos in this procedure may be different from your machine and are for reference only.

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



RCPH10TLB022AAL 1

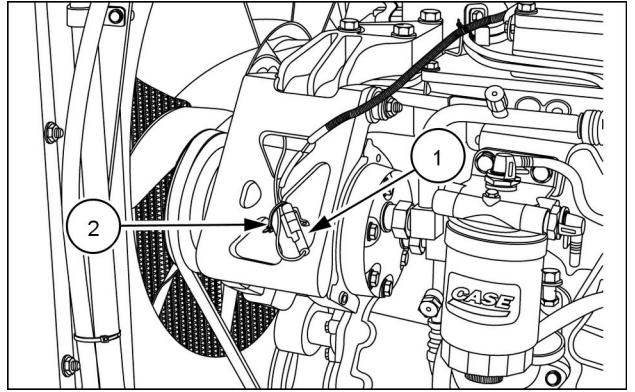
2. Remove the battery cover from the right step. If the machine has only one battery, disconnect the negative battery cable from the battery.
3. If the machine has two batteries, remove the terminal nut (1). Remove the negative battery cable (2) from the terminal and move the negative battery cable away 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

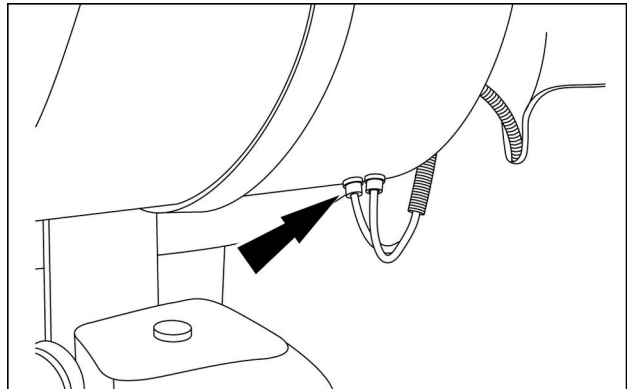
4. If equipped with air conditioning, discharge the air conditioning system.
5. Remove the radiator wrapper, fan shroud, radiator, oil coolers and, if equipped with air conditioning, the condenser assembly. See **Radiator - Remove - 580N only (10.400)** for procedures.

6. If equipped with air conditioning, disconnect the electrical connector (1). Remove the tie strap (2). Disconnect the hoses from the compressor.



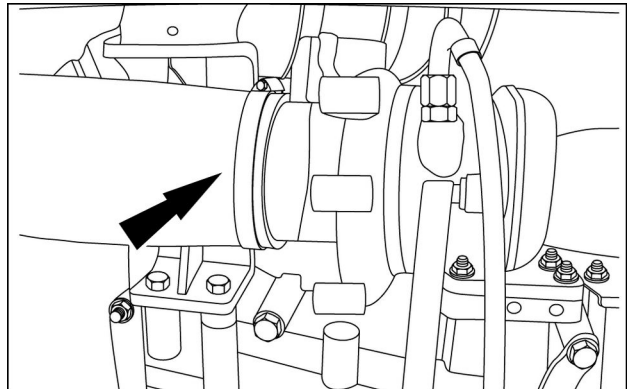
RCPH10TLB042AAL 3

7. Remove the tie strap. Disconnect the electrical connectors for the air restriction indicator.



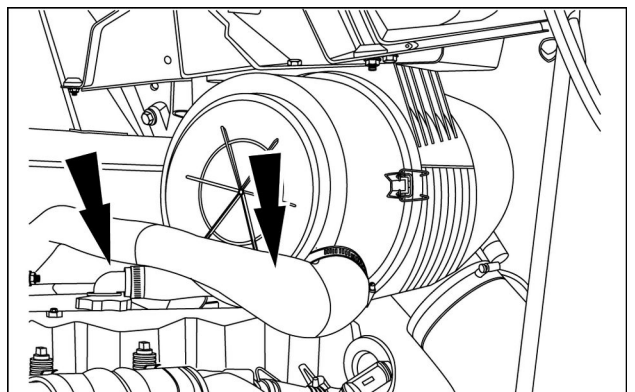
RCPH10TLB025AAL 4

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



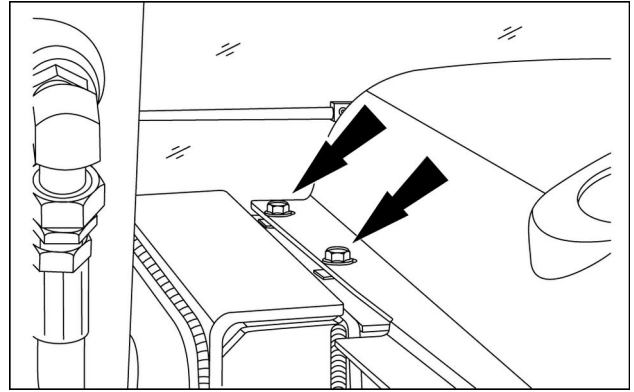
RCPH10TLB024AAL 5

9. Disconnect crankcase ventilation hose and the aspiration hose.



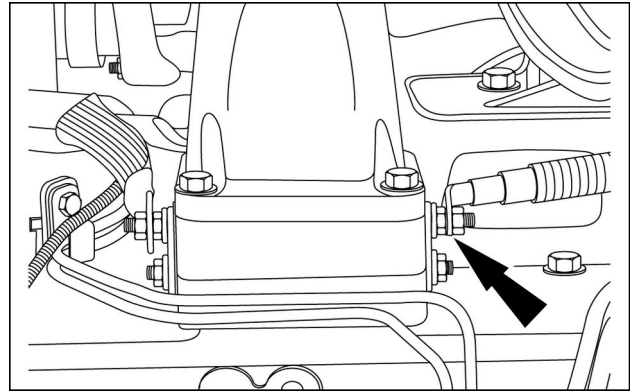
RCPH10TLB031AAL 6

10. Remove the cap screws and flat washers that fasten the fixed hood to the uprights. Remove the fixed hood and air cleaner as an assembly.



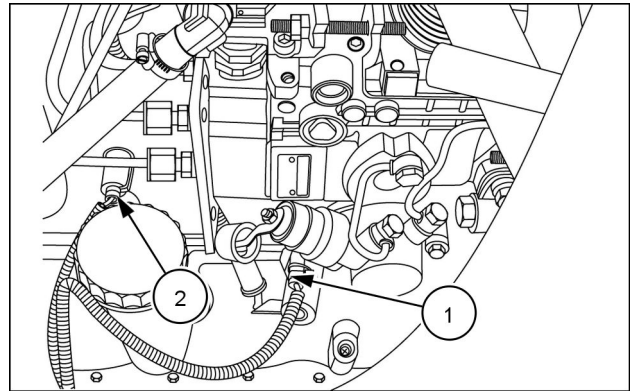
RCPH10TLB023AAL 7

11. Remove muffler and brackets from engine.
12. If equipped, disconnect grid heater positive cable and sensor wires.



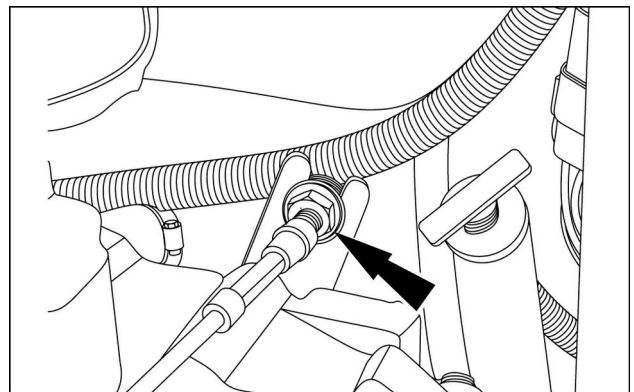
RCPH10TLB036AAL 8

13. Disconnect the electrical connector for the fuel injection pump (1) and oil pressure sender (2).



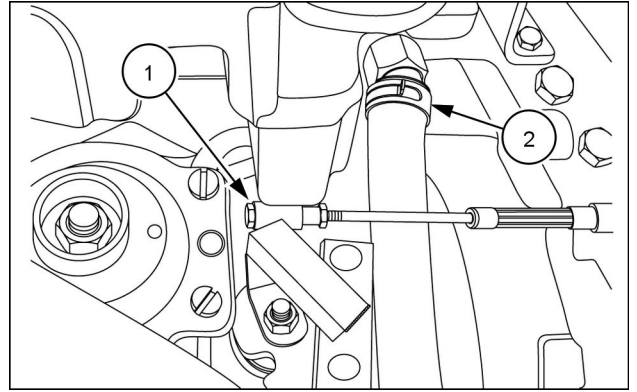
RCPH10TLB040AAL 9

14. Disconnect the throttle cable from the mounting bracket.



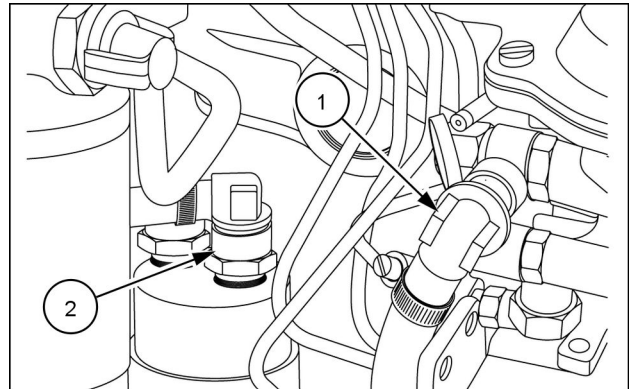
RCPH10TLB034AAL 10

15. Disconnect the throttle rod (1). If equipped, disconnect the heater hose (2).



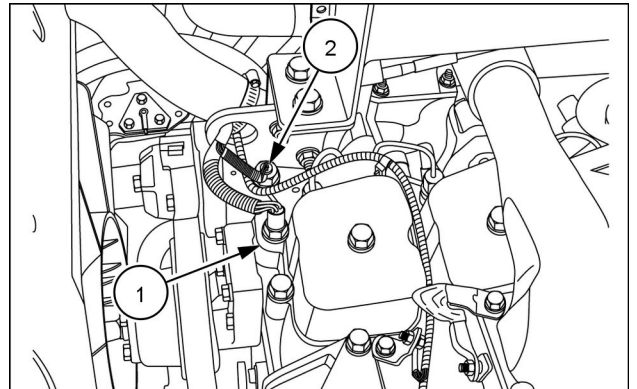
RCPH10TLB035AAL 11

16. Disconnect the fuel return line (1) and the fuel input line (2).



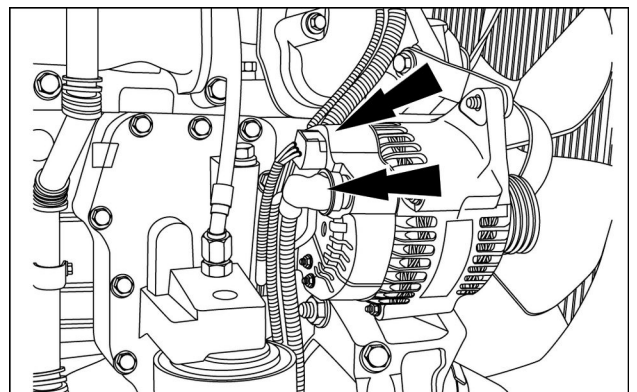
RCPH10TLB041AAL 12

17. Disconnect the coolant temperature sender (1) and coolant temperature switch (2).



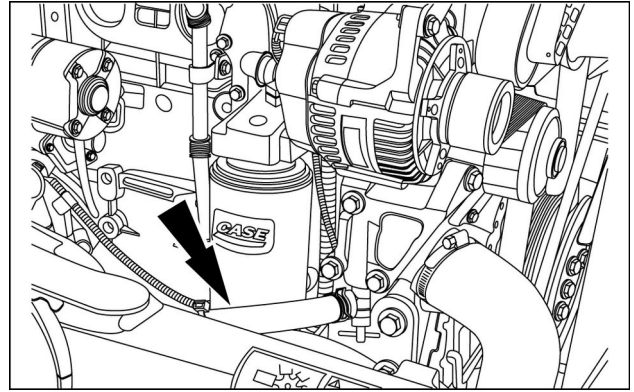
RCPH10TLB039AAL 13

18. Disconnect the wires from the alternator.



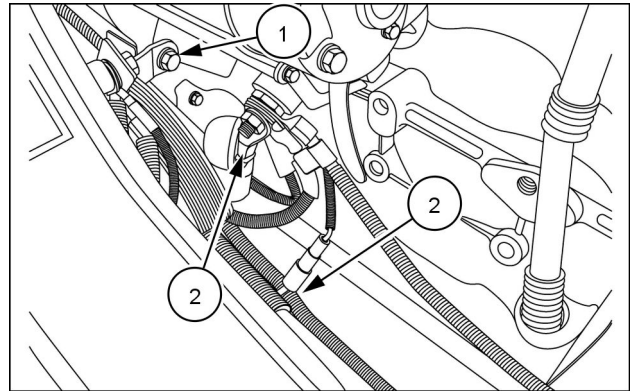
RCPH10TLB037AAL 14

19. Disconnect the heater hose, if equipped.



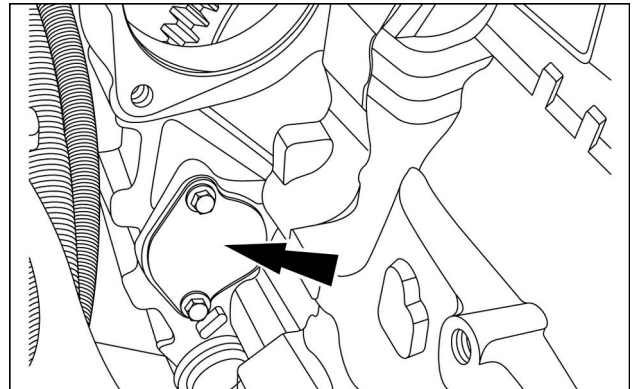
RCPH10TLB043AAL 15

20. Disconnect the ground strap (1). Disconnect the wires (2) from the starter.



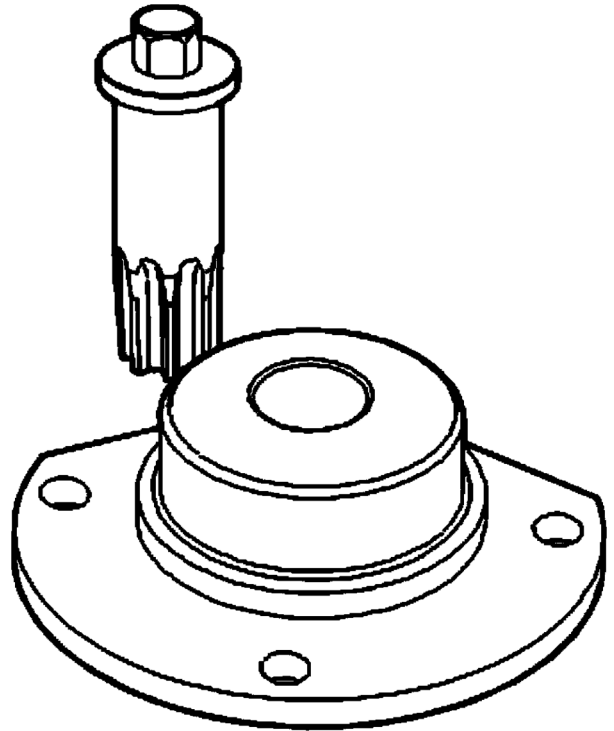
RCPH10TLB038AAL 16

21. Remove the starter from the engine. Remove the access cover from the bell housing.



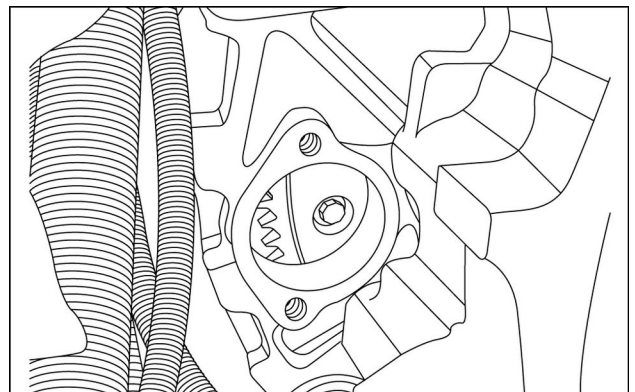
RCPH10TLB026AAL 17

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



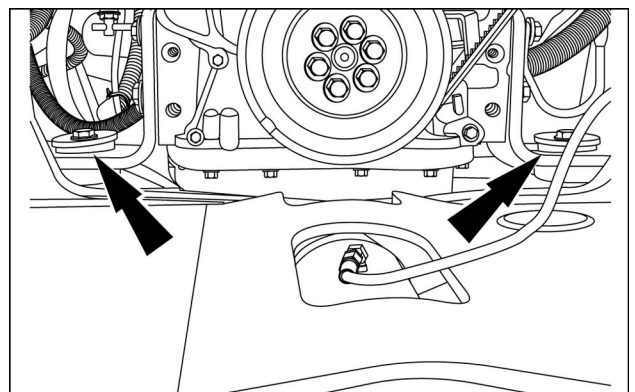
RCPH10TLB005BAL 18

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 hold the engine in place.
25. Remove the bolts, flat washers, and nuts from the front engine mount.



RCPH10TLB028AAL 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.*

Next operation:

Engine - Install - 580SN, 580SN-WT, 590SN only (10.001).

Engine - Install - 580N only

580N Four-Wheel Drive (4WD) TIER 3	
580N Two-Wheel Drive (2WD) TIER 3	---

Prior operation:

Engine - Remove - 580N only (10.001).

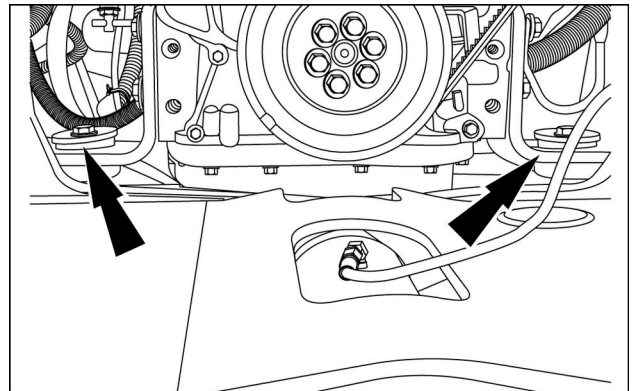
If applicable, remove caps and plugs from previously disconnected hoses and fittings. Remove identification tags after making the hose and wire connections.

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

1. Position the engine in the machine.

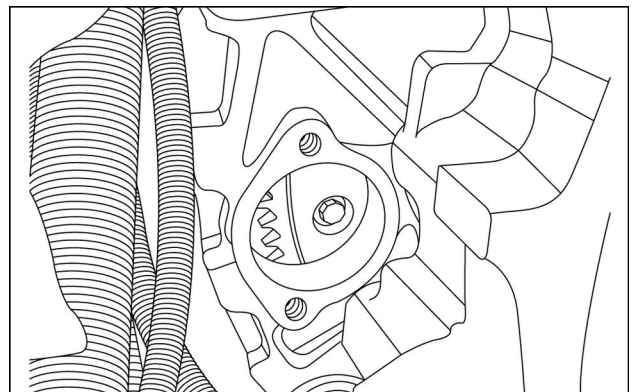
NOTICE: Make sure that the flex plate/converter assembly stays in place on the transmission.

2. 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)**.
3. Install and tighten the front engine mounting bolts, flat washers, and nuts. Tighten the self locking nuts to a torque of **90 - 100 N·m (66 - 74 lb ft)**.



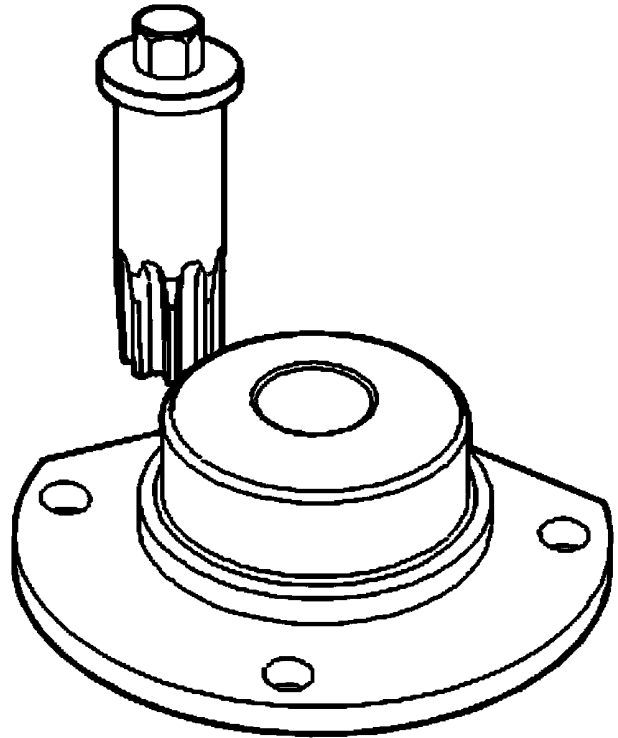
RCPH10TLB028AAL 1

4. Disconnect the lifting equipment from the lifting eyes on the engine.
5. Tighten the four cap screws that fasten the flywheel to the flex plate. Tighten cap screws to a torque of **52 - 57 N·m (38 - 42 lb ft)**.



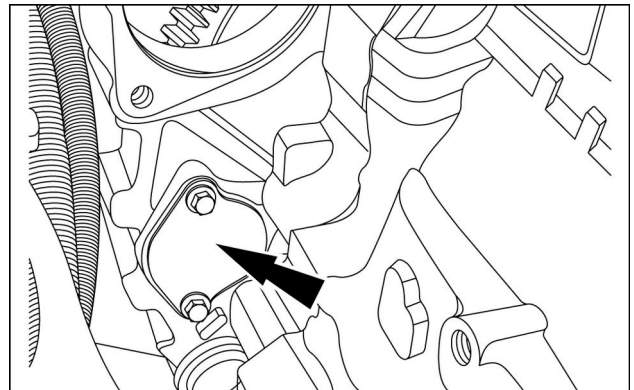
RCPH10TLB027AAL 2

6. Remove the engine turning tool, **380000988**.



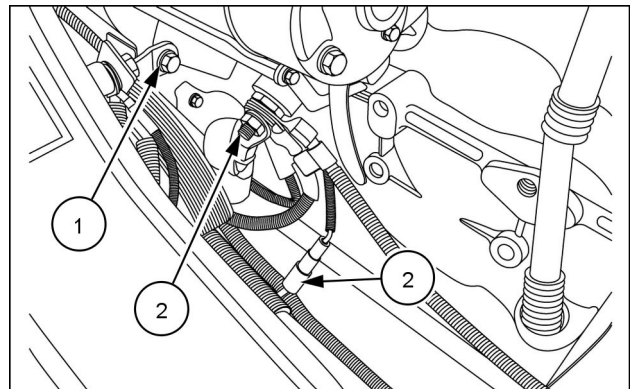
RCPH10TLB005BAL 3

7. Install the access cover to the bell housing. Install the starter onto the engine.



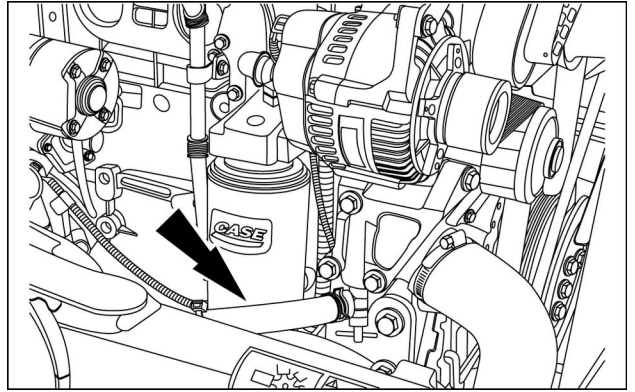
RCPH10TLB026AAL 4

8. Connect the wires (2) from the starter. Attach the ground strap (1).



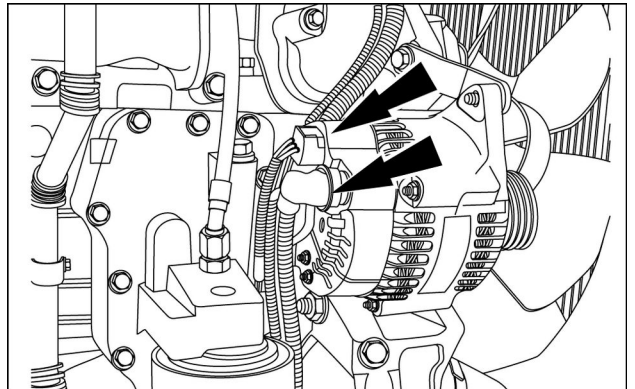
RCPH10TLB038AAL 5

9. If equipped, connect the heater hose.



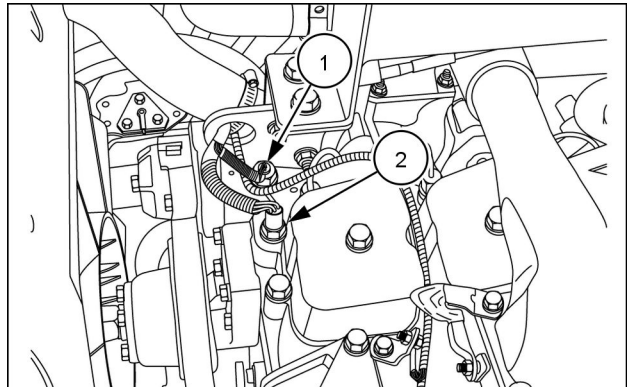
RCPH10TLB043AAL 6

10. Connect the wires from the alternator.



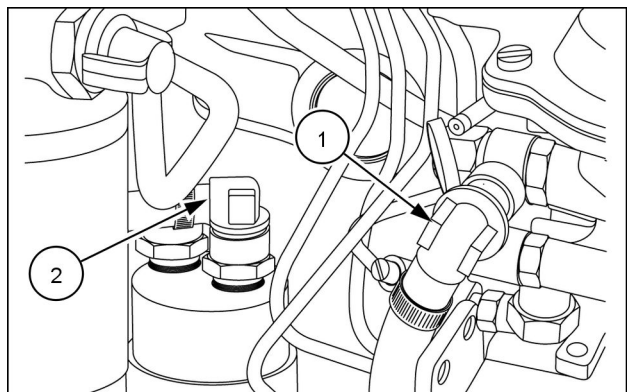
RCPH10TLB037AAL 7

11. Connect the coolant temperature sender (1) and coolant temperature switch (2).



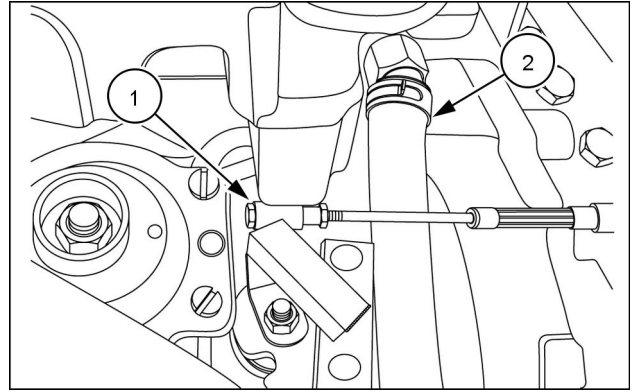
RCPH10TLB039AAL 8

12. Connect the fuel return line (1) and the fuel input line (2).



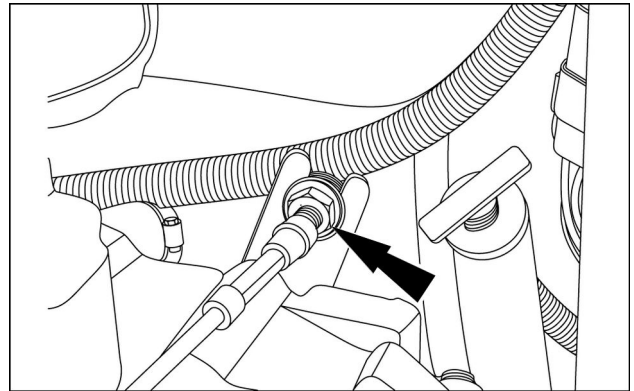
RCPH10TLB041AAL 9

13. Connect the throttle rod (1). If equipped, connect the heater hose (2).



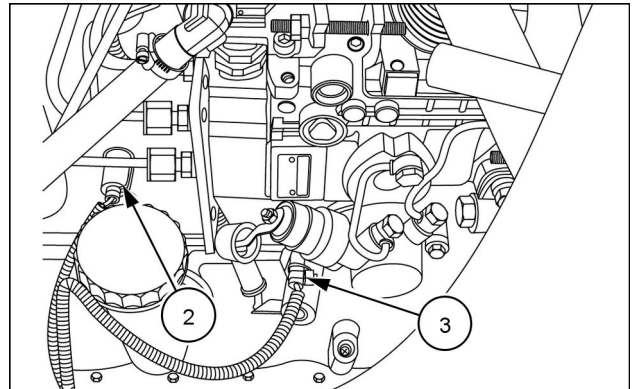
RCPH10TLB035AAL 10

14. Connect the throttle cable from the mounting bracket.



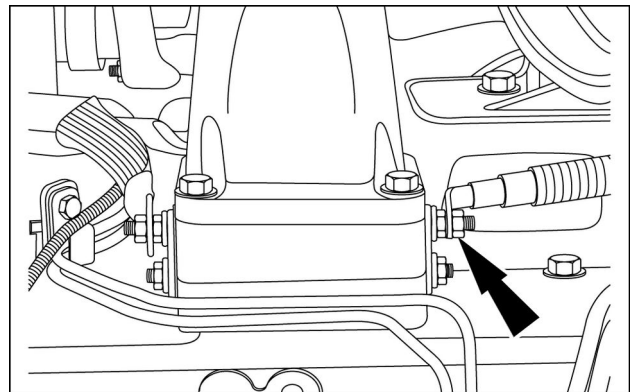
RCPH10TLB034AAL 11

15. Connect the electrical connector for the fuel injection pump (1) and oil pressure sender (2).



RCPH10TLB040AAL 12

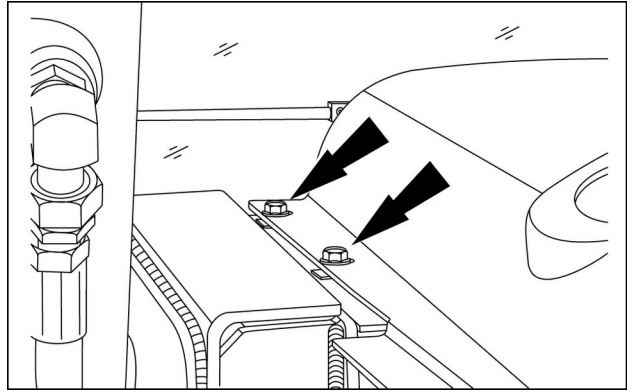
16. If equipped, connect the grid heater positive cable and sensor wires.



RCPH10TLB036AAL 13

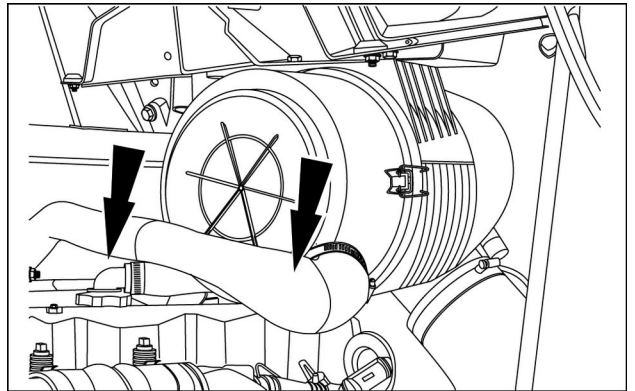
17. Attach the muffler and brackets to the engine.

18. Install the fixed hood and air cleaner. Secure the fixed hood to the uprights with flat washers and cap screws.



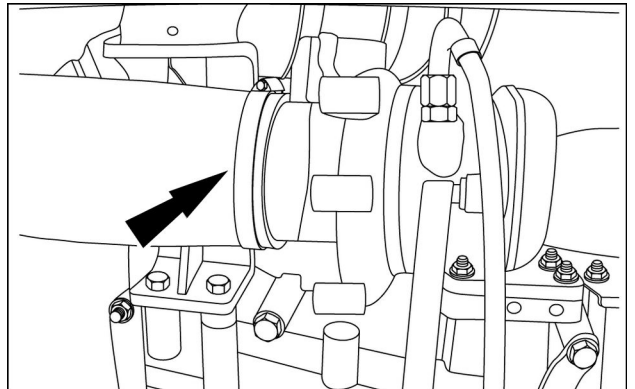
RCPH10TLB023AAL 14

19. Attach the aspiration hose and the crank case ventilation hose.



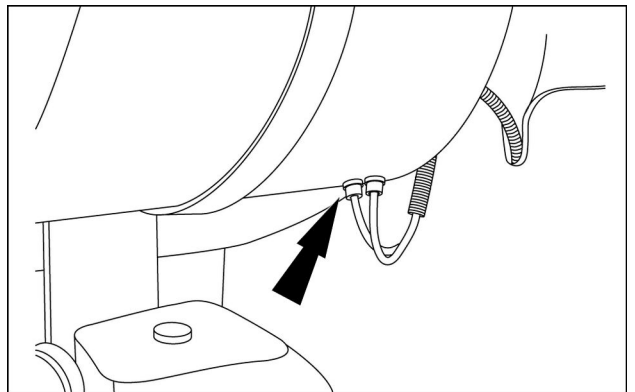
RCPH10TLB031AAL 15

20. Connect the air cleaner hose from the turbocharger. Tighten the clamp on the air cleaner hose at the turbocharger.



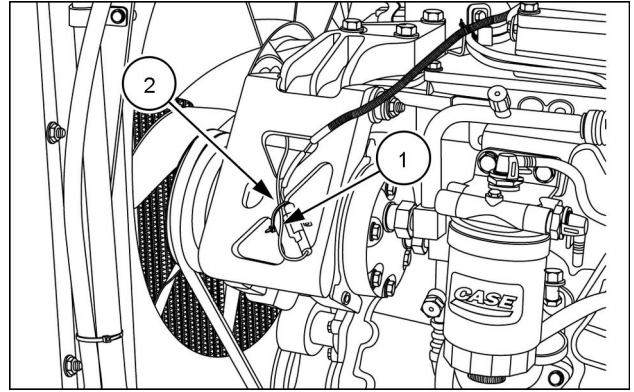
RCPH10TLB024AAL 16

21. Connect the electrical connectors for the air restriction indicator. Secure with a tie strap.



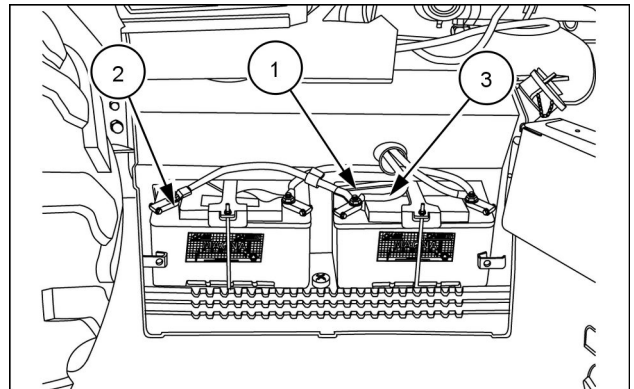
RCPH10TLB025AAL 17

22. If the machine is equipped with air conditioning, connect the electrical connector (1). Connect the hoses from the compressor. Secure with a tie strap (2).



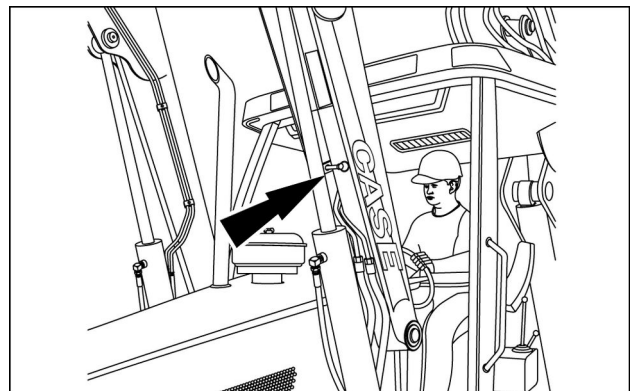
RCPH10TLB042AAL 18

23. Install the radiator wrapper, fan shroud, radiator, oil coolers and, if equipped with air conditioning, condenser assembly. See **Radiator - Install - 580N only (10.400)** for removal procedures.
24. If equipped with air conditioning, see **Air conditioning - Charging - Air conditioner system evacuation and recharging (50.200)** to recharge air conditioning system.
25. If the machine has two batteries, remove the terminal nut (1) from the jumper cable (3). Attach the negative battery cable (2) to the terminal and install the terminal nut (1).
If the machine has only one battery, connect the negative battery cable to the battery.



RCPH10TLB030AAL 19

26. Install the battery cover on the right-hand step.
27. Release the support strut lock and lower the loader bucket.



RCPH10TLB022AAL 20

28. Fill the engine and cooling system. See **Capacities ()** for specifications.

Engine - Remove - 580SN, 580SN-WT, 590SN only

580SN Four-Wheel Drive (4WD) TIER 3	---
580SN Two-Wheel Drive (2WD) TIER 3	---
580SN WT Four-Wheel Drive (4WD) TIER 3	
590SN Four-Wheel Drive (4WD) TIER 3	
590SN Two-Wheel Drive (2WD) TIER 3	

Prior operation:

Battery - Basic instructions (55.302)

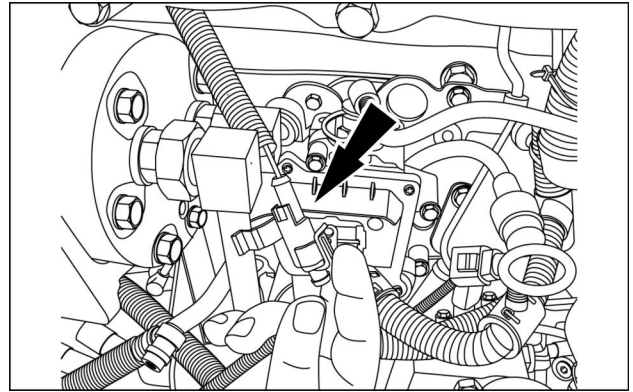
Prior operation:

Engine hood - Remove (90.105)

Prior operation:

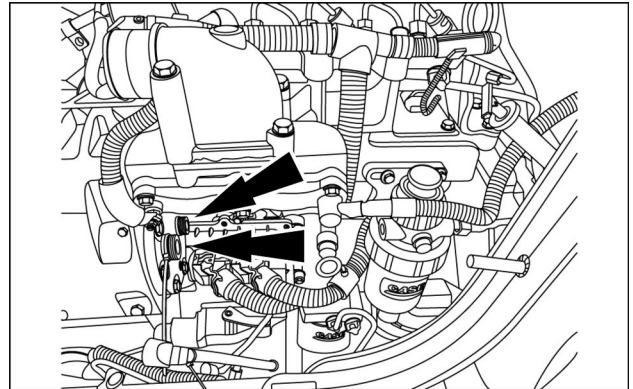
Radiator - Remove (10.400)

1. Remove and disconnect compressor electrical connection.



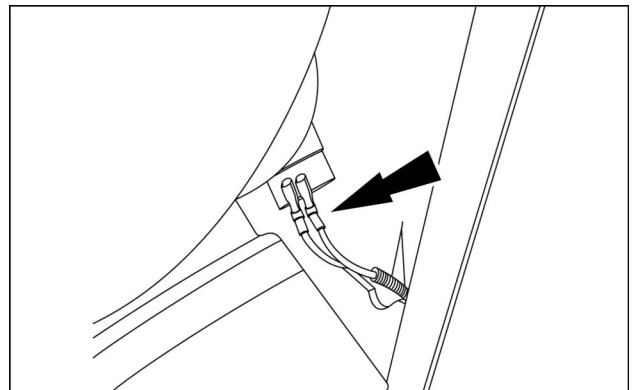
RCPH11TLB033AAM 1

2. Identify, tag and disconnect the high pressure and low pressure A/C lines.



RCPH11TLB034AAM 2

3. Disconnect the air restriction indicator.



RCPH11TLB035AAM 3



Suggest:

If the above button click is invalid.

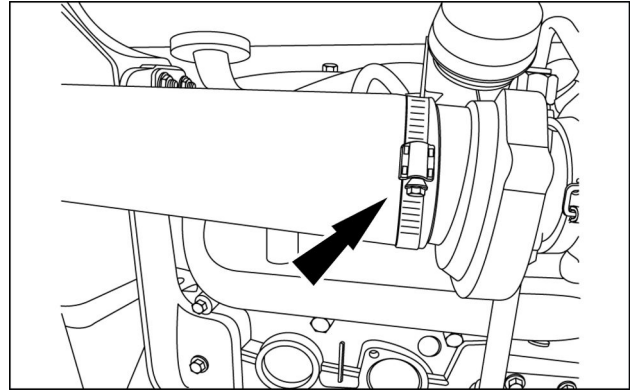
Please download this document

first, and then click the above link

to download the complete manual.

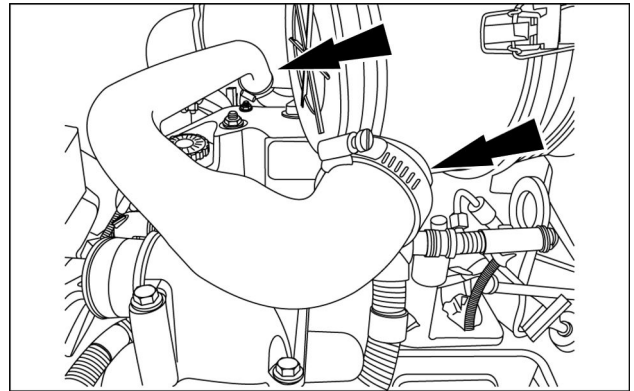
Thank you so much for reading

4. Remove the air cleaner to turbo tube.



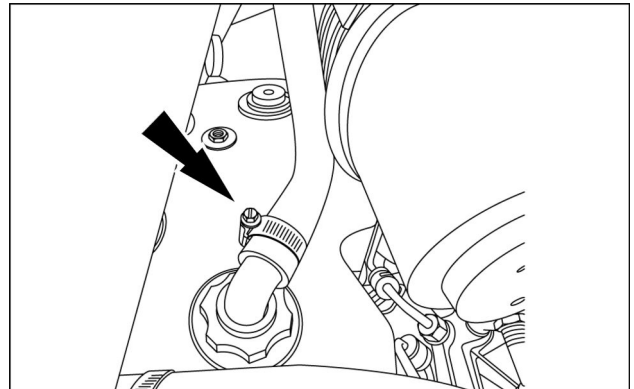
RCPH11TLB036AAM 4

5. Remove the aspirator tube.



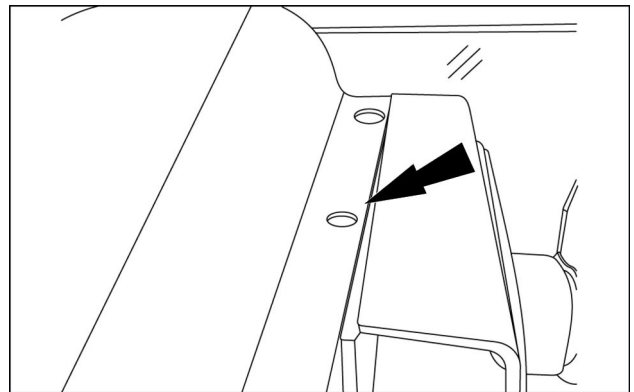
RCPH11TLB037AAM 5

6. Remove crank case vent.



RCPH11TLB038AAM 6

7. Remove fixed hood hardware.



RCPH11TLB039AAM 7

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