

**I 021F
I 121F
TIER IV**

Service Manual

Print No. 84571203B

CASE
CONSTRUCTION

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INTRODUCTION

Torque

1021F	NA --- WE
1121F	NA --- WE

Alternator

Alternator pulley retaining nut	95 - 109 N·m (70 - 80 lb ft)
Battery terminal nut	6 - 8 N·m (55 - 72 lb in)
Indicator light terminal nut	2 - 3 N·m (16 - 24 lb in)

Axle

Planetary carrier lock screws	200 N·m (148 lb ft)
Brake spring retainer cover	34 N·m (25 lb ft)
Axle wheel end screw plug	50 N·m (37 lb ft)
Nut Securing Brake Tube to Connector	100 N·m (74 lb ft)
Brake Tube Fitting to Wheel End Fitting	36 N·m (27 lb ft)
Axle housing bolts	560 N·m (413 lb ft)
Input flange slotted nut	1200 N·m (885 lb ft)
Differential releasing housing cover bolts	185 N·m (136 lb ft)
Differential housing cover bolts	400 N·m (295 lb ft)
Wheel mounting bolts	644 - 719 N·m (475 - 530 lb ft)
Axle breather valve	4 - 6 N·m (35 - 53 lb in)
Front axle mounting bolts	1519 - 1708 N·m (1120 - 1260 lb ft)
Rear trunnion cover bolts	103 - 115 N·m (76 - 85 lb ft)
Rear trunnion spacer bolts	285 - 319 N·m (210 - 235 lb ft)
Trunnion casting mounting	651 - 732 N·m (480 - 540 lb ft)

Chassis

Cab and canopy mounting bolts	773 - 854 N·m (570 - 630 lb ft)
Counterweight mounting bolts	1125 - 1261 N·m (830 - 930 lb ft)
Lower step support bolts	27 - 31 N·m (20 - 23 lb ft)
Battery hold down bolts	651 - 732 N·m (480 - 540 lb ft)

Cooling

Cooling frame mounting	271 - 298 N·m (200 - 220 lb ft)
Fan mounting nut	109 - 122 N·m (80 - 90 lb ft)

DEF system

Heater valve bolts	17 - 19 N·m (13 - 14 lb ft)
Dosing module bolts	7 - 8 N·m (58 - 68 lb in)
DEF control module/pump assembly mounting bolts	20 - 28 N·m (15 - 21 lb ft)

Drivetrain

Flex plate to flywheel bolts	33 - 41 N·m (24 - 30 lb ft)
Carrier bearing bolt	149 - 163 N·m (110 - 120 lb ft)
Drive line mounting bolts	136 - 149 N·m (100 - 110 lb ft)
Transmission sight gauge mounting bolts	3 - 5 N·m (24 - 48 lb in)
Transmission shock mount nuts	929 - 1044 N·m (685 - 770 lb ft)
Transmission-to-bracket bolts	1125 - 1275 N·m (830 - 940 lb ft)
Transmission-to-flywheel housing bolts	54 - 60 N·m (40 - 44 lb ft)
Transmission fill tube bolts	17 - 33 N·m (151 - 292 lb in)
Banjo tube bolt	160 N·m (118 lb ft)

INTRODUCTION

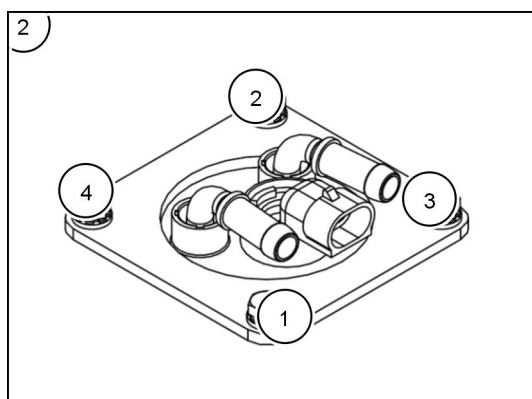
Bypass valve hose clamps	10 - 11 N·m (90 - 100 lb in)
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Engine

Air intake hose clamps	4 - 5 N·m (35 - 44 lb in)
Aspirator hose clamps	3 N·m (30 lb in)
Muffler flex tube clamp	18 - 22 N·m (13 - 16 lb ft)
Muffler clamp at turbo	5 - 6 N·m (44 - 53 lb in)
Starter motor mounting bolts	41 - 48 N·m (30 - 35 lb ft)
Engine support bracket-to-rear chassis bolts	386 - 434 N·m (285 - 320 lb ft)
Engine shock mount nuts	397 - 447 N·m (293 - 330 lb ft)

Fuel tank

Tighten the fuel sender bolts in the sequence as shown in the image (2) to a torque of **6 - 8 N·m (53 - 71 lb in)**.



RCPH111WHL117AAR 1

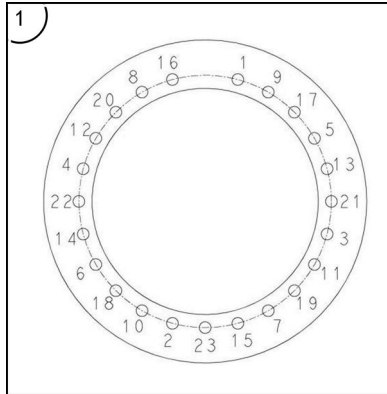
Fuel sender mounting bolts	6 - 8 N·m (53 - 71 lb in)
Fuel tank skid plate bolts (bolts and nuts are to be torqued only one time. Replace as necessary)	122 - 164 N·m (90 - 121 lb ft)
Fuel tank mounting bolts (bolts and nuts are to be torqued only one time. Replace as necessary)	301 - 407 N·m (222 - 300 lb ft)

Hydraulics

Priority valve mounting bolts	85 - 102 N·m (63 - 75 lb ft)
Main hydraulic pump elbow	85 - 102 N·m (63 - 75 lb ft)
Hydraulic tank sight gauge mounting	3 - 6 N·m (27 - 53 lb in)
Surge tank hose clamp mounting	48 N·m (35 lb ft)
Brake pump mounting bolts	149 - 170 N·m (110 - 125 lb ft)
Hydraulic oil tank suction hose clamps	10 - 11 N·m (90 - 100 lb in)
Split, half clamp flange bolts (hydraulic tank-to-pumps and priority valve-to-pump)	73 - 90 N·m (54 - 67 lb ft)
Split, half clamp flange bolts (priority valve-to-loader valve)	198 - 242 N·m (146 - 179 lb ft)
Pump mounting bolts	149 - 170 N·m (110 - 125 lb ft)

Wheels

Tighten the wheel nuts in two stages. First, tighten the wheel nuts in the sequence as shown in the image (1) to a torque of **278 N·m (205 lb ft)**. Second, tighten the wheel nuts in the sequence as shown in the image (1) to a torque of **640 - 720 N·m (472 - 531 lb ft)**.



RCPH11WHL202AAH 2

Wheel nuts	First stage: 278 N·m (205 lb ft) . Second stage: 640 - 720 N·m (472 - 531 lb ft)
------------	--



SERVICE MANUAL

Engine

**1021F
1121F**

Engine - Speeds

1021F \ 1121F

Machine idled (alternate low idle)	570 - 630 rpm
Machine idled (cold weather alternate accelerated low idle)	1170 - 1230 rpm

Engine - Remove

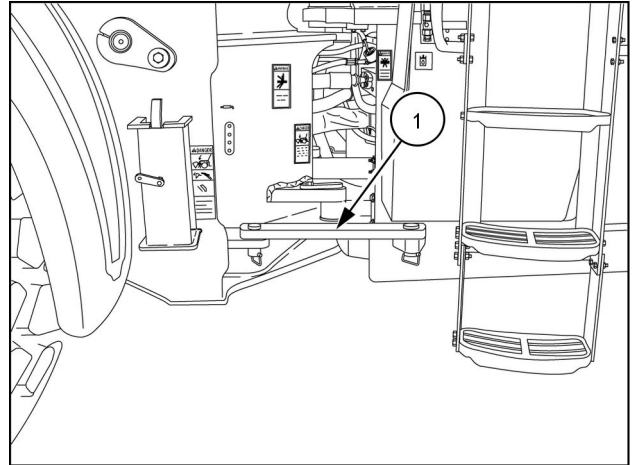
1021F	NA --- WE
1121F	NA --- WE

Prior operation:

Engine hood - Remove (90.105)

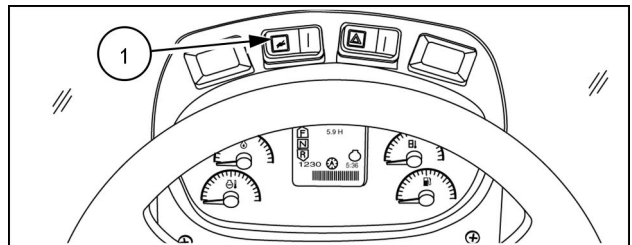
NOTE: Put caps on the fittings and plugs in the hoses to prevent foreign material from entering the system when disconnecting fuel lines or hydraulic hoses.

1. Park the machine on a level surface and lower the bucket to the ground. Put the articulation lock (1) in the locked position.



RCPH11WHL039AAH 1

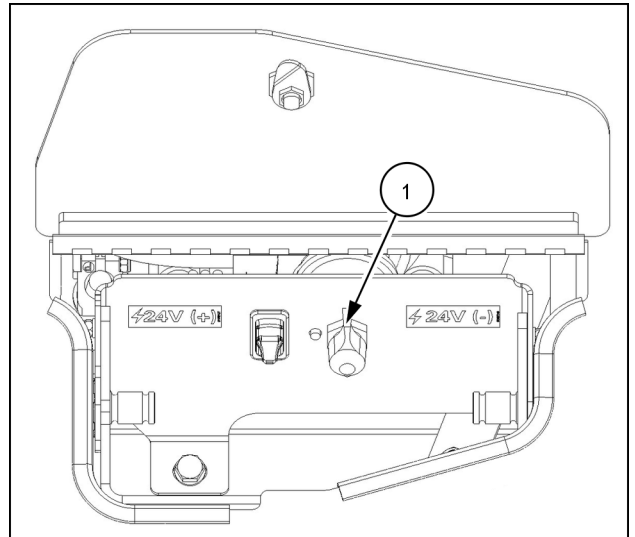
2. Key in the run position, engine off, place the pilot control switch (1) in the normal operation position.



RCPH10WHL982FAH 2

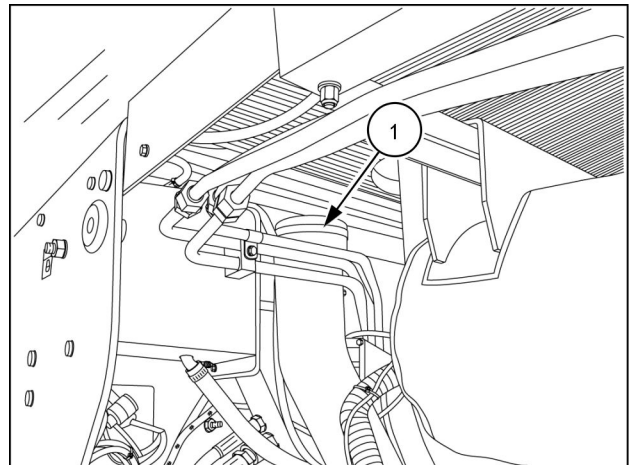
3. Move the loader hydraulic control handle to the raise and lower position in order to release any hydraulic pressure in the lift circuit.
4. Move the loader control handle in and out of the tilt position several times, this will relieve any pressure in the pilot accumulator.
5. Release the pressure in the ride control accumulator with the bleeder valve in the ride control valve load travel stabilizer.
6. Depress the brake pedal several times to discharge brake accumulators.
7. Slowly loosen the filler cap on the hydraulic oil tank to release air pressure.

- Put the master disconnect switch **(1)** in the off position.



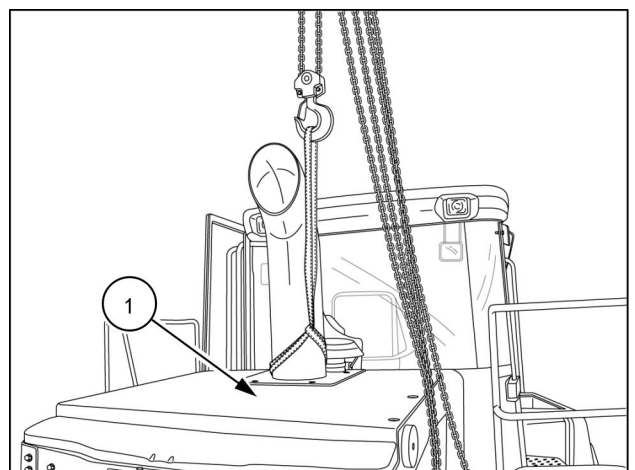
RCPH11WHL094AAH 3

- Drain the engine radiator coolant.
- Drain the engine oil.
- Loosen the hose clamp **(1)** on the air intake hose under the air inlet hood.



RCPH11WHL053AAR 4

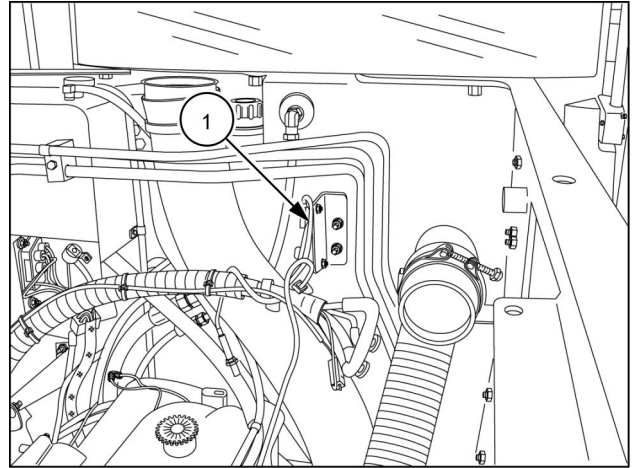
- Remove the mounting bolts on the exhaust stack hood. Attach lifting equipment to the exhaust stack. Remove the exhaust stack hood **(1)**.



RCPH11WHL010AAR 5

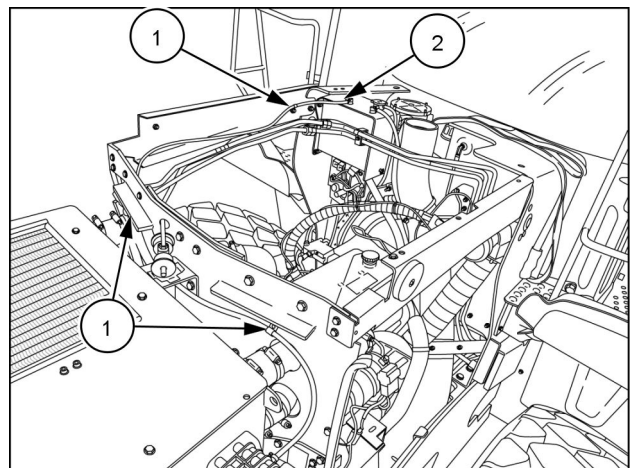
- Remove the SCR muffler. See **Selective Catalytic Reduction (SCR) muffler and catalyst - Remove (10.500)**.

14. Remove the SCR line support bracket **(1)**.



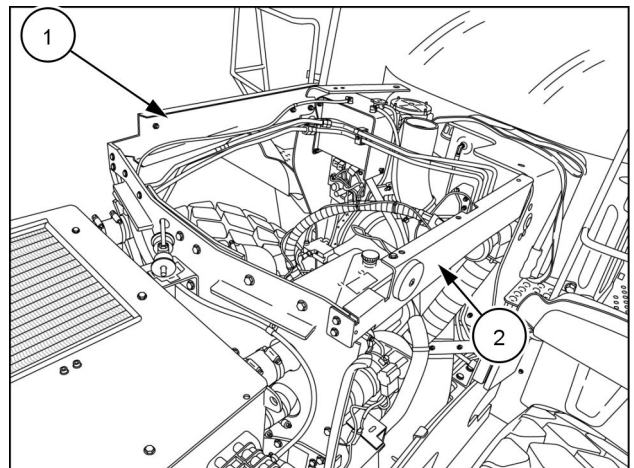
RCPH11WHL011AAR 6

15. Disconnect the deaeration tank overflow hose **(2)**.
16. Remove the P-clamps **(1)** that secure the overflow hose to the wall and brackets. Position the overflow hose away from the engine and engine wall.



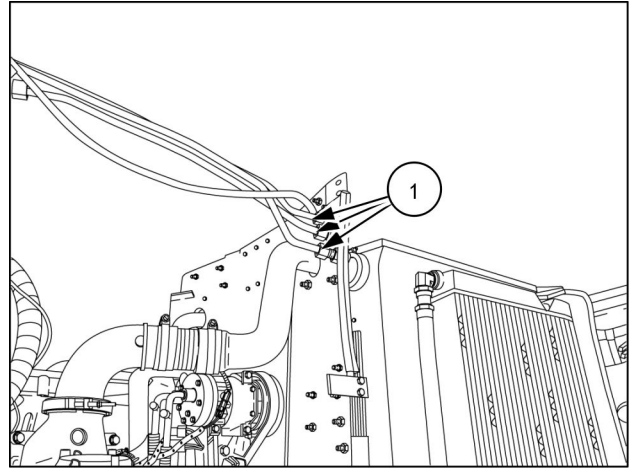
RCPH11WHL012AAR 7

17. Remove the left bracket **(1)** and right bracket **(2)**.



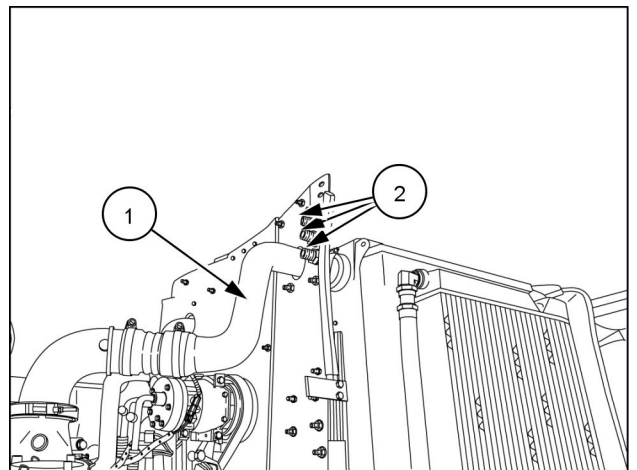
RCPH11WHL012AAR 8

18. Remove the hydraulic oil lines **(1)**.



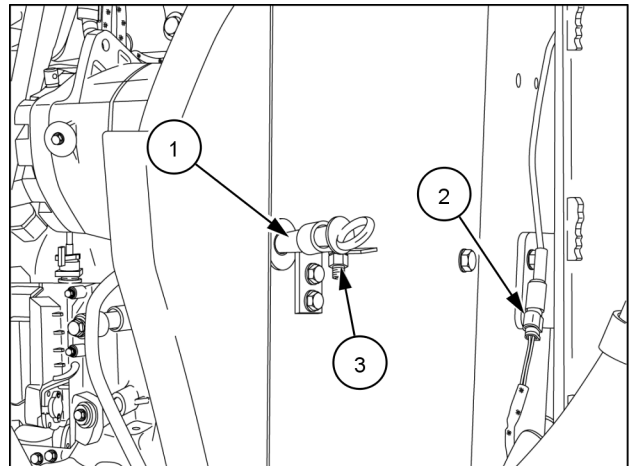
RCPH11WHL013AAR 9

19. Remove the after air cooler tube **(1)** .
20. Remove the bulkheads **(2)**.



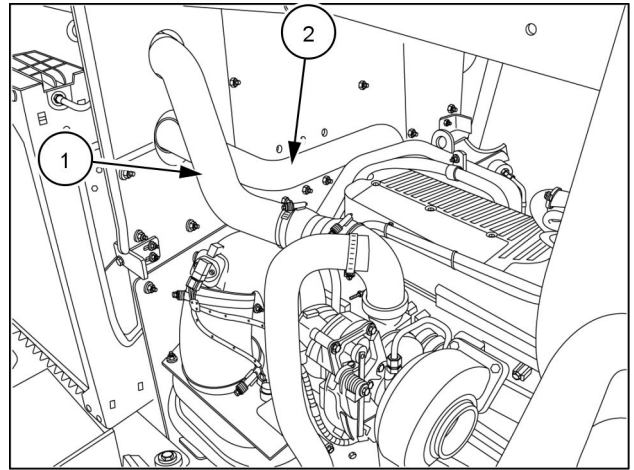
RCPH11WHL014AAR 10

21. Remove the oil dipstick P-clamp **(3)** . Pull the oil dipstick tube **(1)** through the wall.
22. Label and disconnect the hood lift strut electrical connector **(2)**.



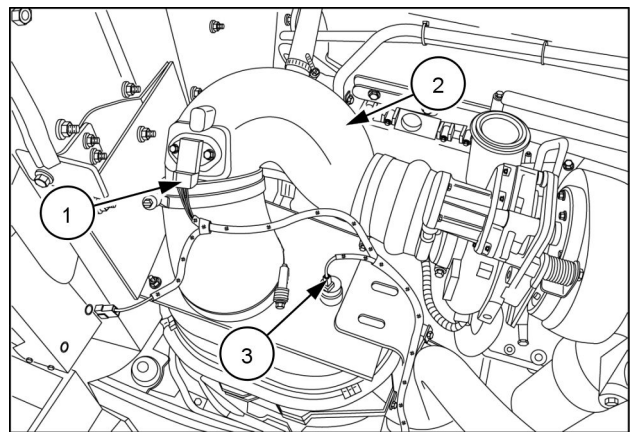
RCPH11WHL015AAR 11

23. Remove the before air cooler tube (1).
24. Remove the upper radiator tube (2).



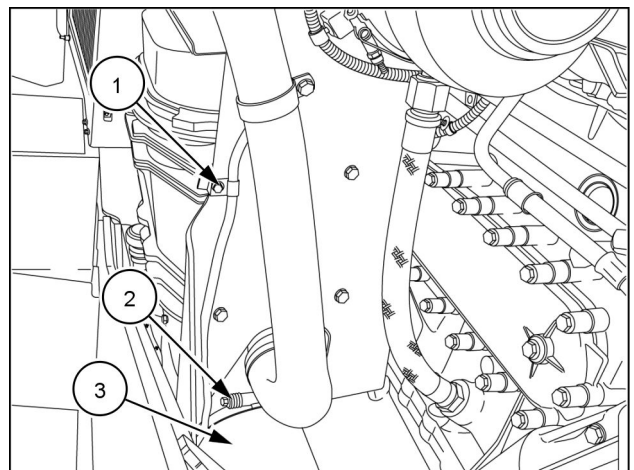
RCPH11WHL016AAR 12

25. Label and disconnect the humidity sensor electrical connector (1).
26. Remove the turbo inlet tube (2).
27. Label and disconnect the air filter restriction sensor electrical connector (3).



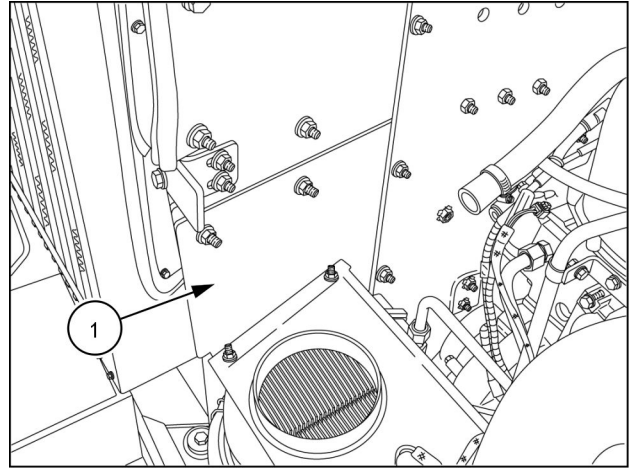
RCPH11WHL017AAR 13

28. Remove the wire harness P-clamp (1).
29. Loosen the hose clamp on the air intake hose (2). Disconnect the air intake hose (3).



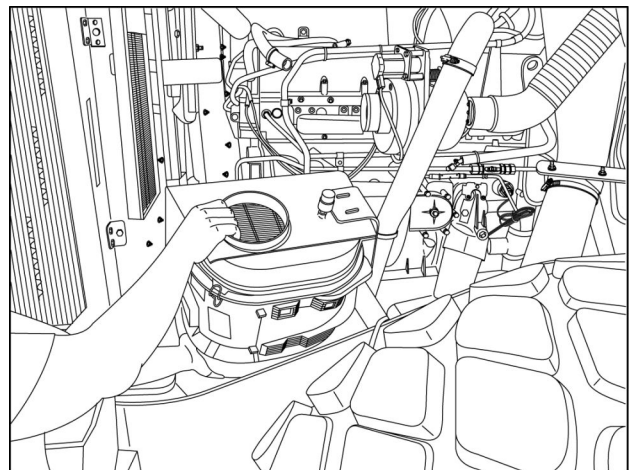
RCPH11WHL018AAR 14

30. Remove the lower, right panel (1) on the engine wall.



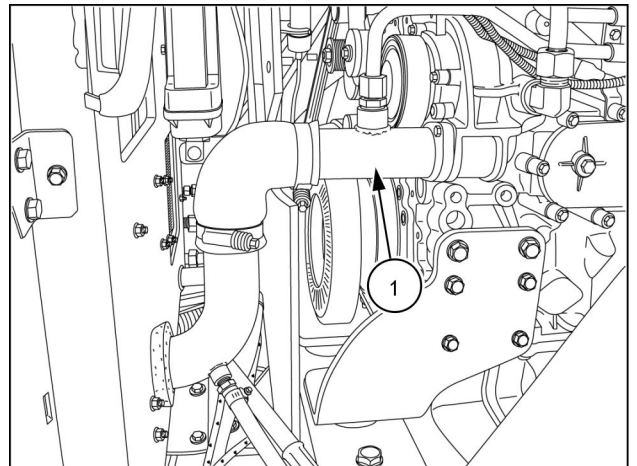
RCPH11WHL020AAR 15

31. Remove the air box assembly.



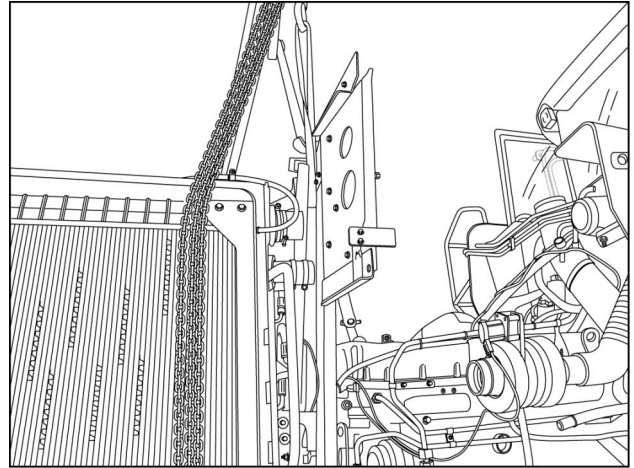
RCPH11WHL019AAR 16

32. Remove the lower radiator tube (1) .



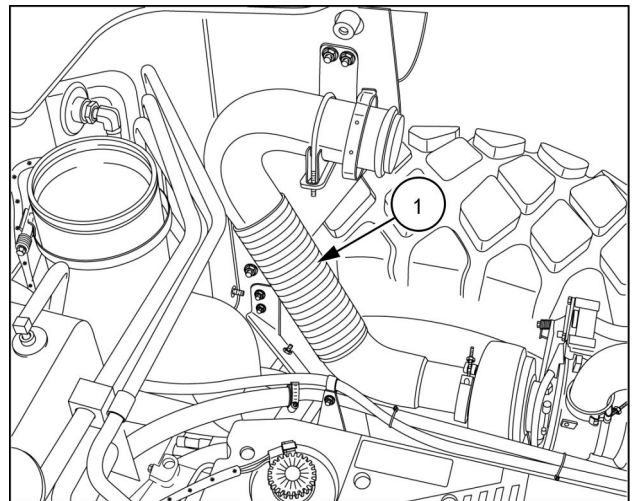
RCPH11WHL021AAR 17

33. Attach lifting equipment to the engine wall. Remove the engine wall's hold-down bolts. Lift and remove the engine wall.



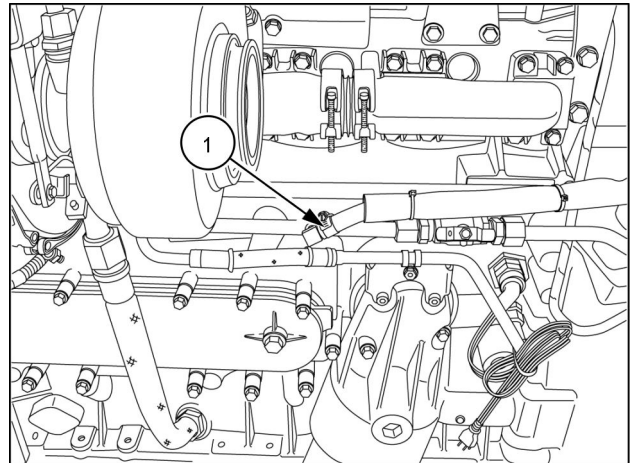
RCPH11WHL039AAR 18

34. Remove the turbo exhaust tube (1).



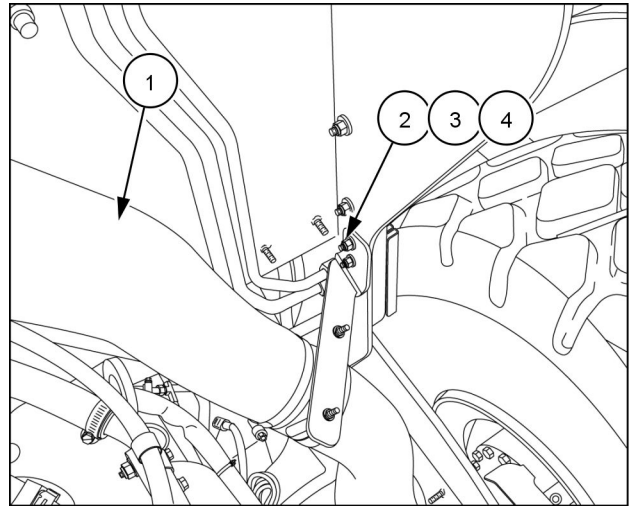
RCPH11WHL022AAR 19

35. Disconnect the SCR coolant solenoid heater hose (1).



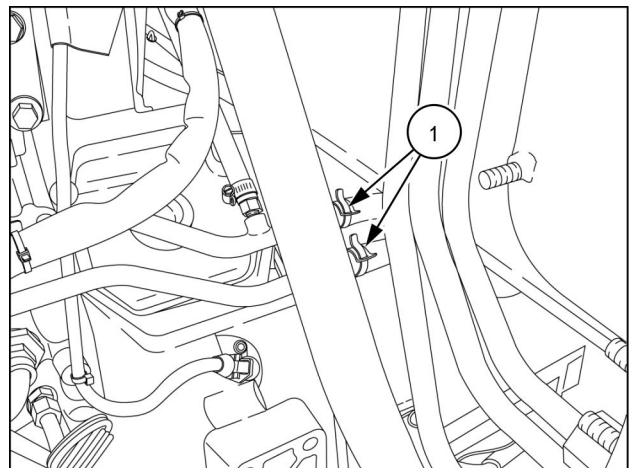
RCPH11WHL044AAR 20

36. Remove two bolts (2), washers (3), and nuts (4). Remove the air intake hose (1).



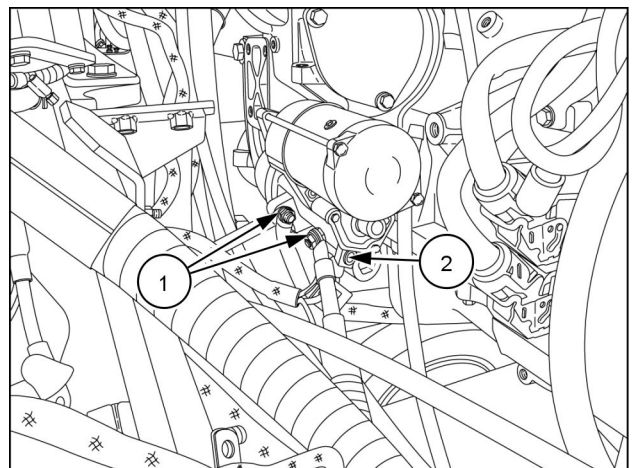
RCPH11WHL023AAR 21

37. Disconnect the inlet and outlet heater core heater hoses (1).



RCPH11WHL038AAR 22

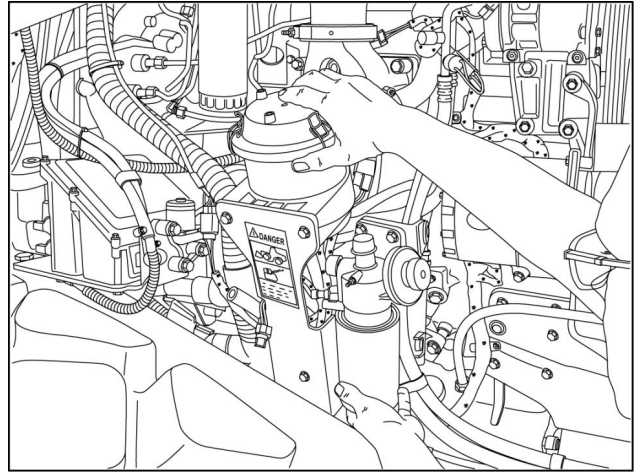
38. Disconnect the starter battery cables (1) and starter switch wire (2).



RCPH11WHL049AAR 23

39. Disconnect the following from the crank case ventilation/fuel filter bracket assembly:

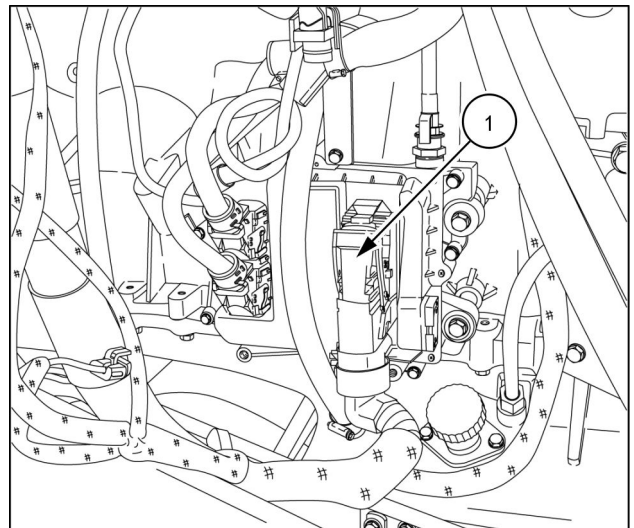
- Fuel pump electrical connector
- Water sensor electrical connector
- Ground wire
- Wire harness P-clamp
- Crank case filter inlet hose
- Crank case filter outlet hose
- Crank case filter oil return hose
- Fuel pump inlet tube
- Fuel pump outlet tube



RCPH11WHL040AAR 24

40. Remove the crank case ventilation/fuel filter bracket assembly.

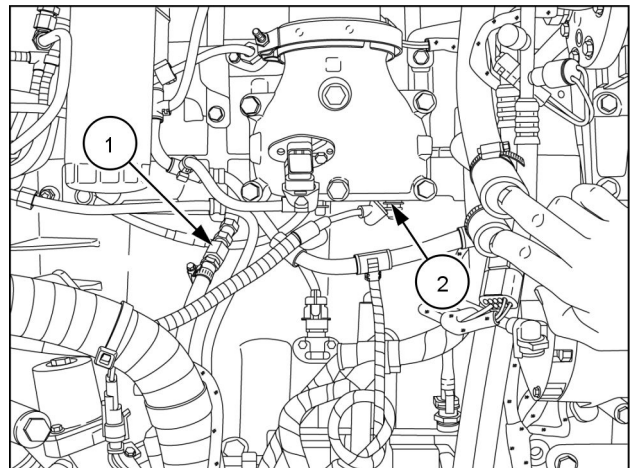
41. Label and disconnect the engine control module electrical connector (1).



RCPH11WHL041AAR 25

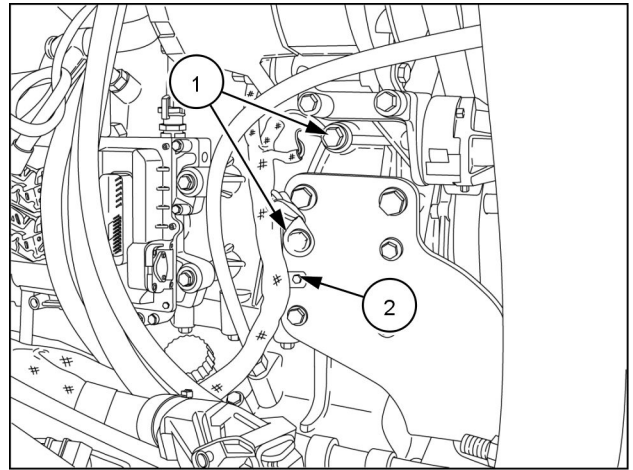
42. Disconnect the fuel return line (1).

43. Disconnect the battery positive wire (2) on the air grid heater.



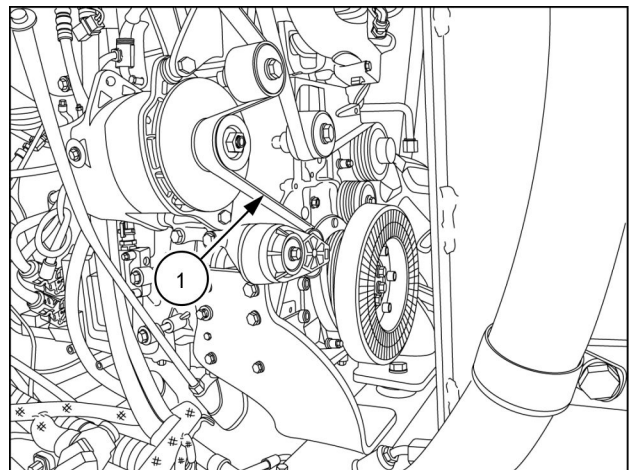
RCPH11WHL042AAR 26

44. Disconnect the engine ground wires **(1)**.
45. Remove the wire harness P-clamp **(2)**.



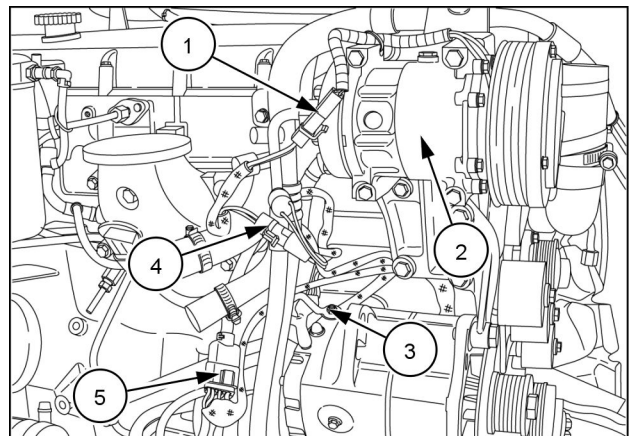
RCPH11WHL043AAR 27

46. Remove the engine serpentine belt **(1)**.



RCPH11WHL051AAR 28

47. Label and disconnect the A/C compressor electrical connector **(1)**.
48. Label and disconnect the A/C pressure switch electrical connector **(4)**.
49. Remove the alternator power wire. **(3)**.
50. Label and disconnect the bulk electrical connector **(5)**.



RCPH11WHL045AAR 29

51. Remove the A/C compressor **(2)**. Position the A/C compressor **(2)** away from the engine.



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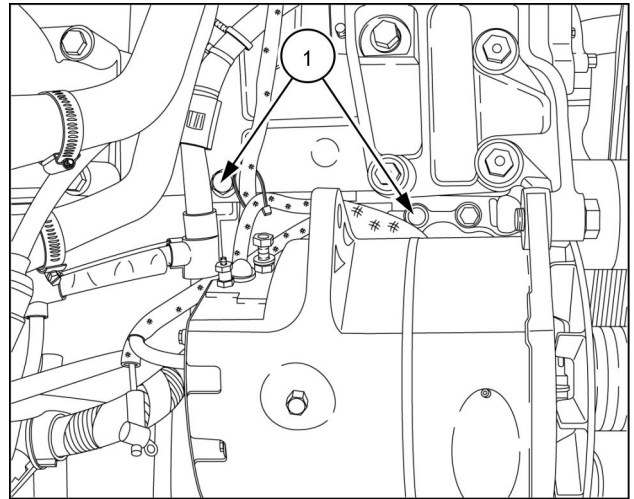
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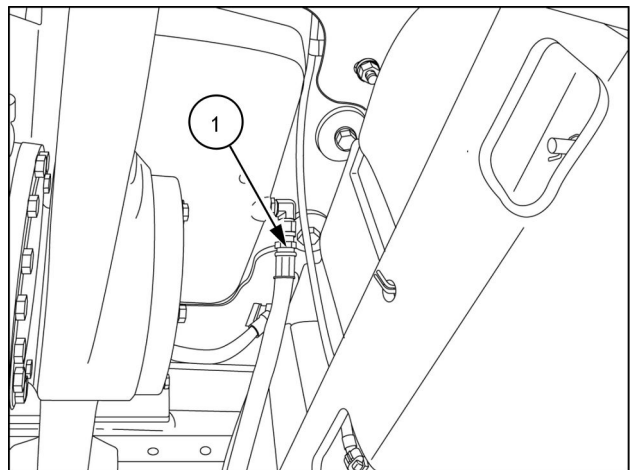
Thank you so much for reading

52. Remove the wire harness P-clamps (1).



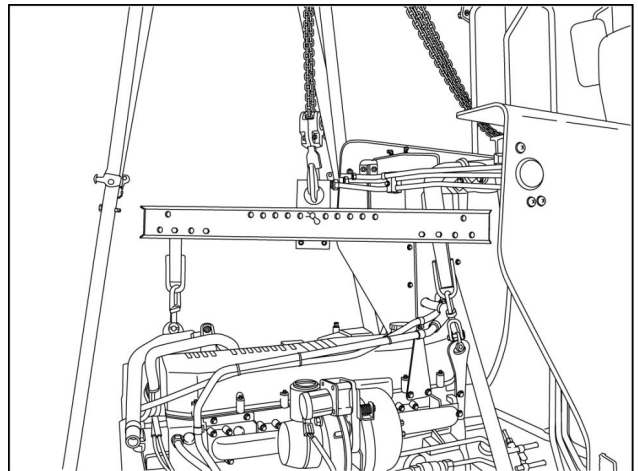
RCPH11WHL046AAR 30

53. Remove the engine oil drain tube (1).



RCPH11WHL047AAR 31

54. Attach lifting equipment to the engine. Support the engine.



RCPH11WHL048AAR 32

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