

836C
836C AWD
856C
856C AWD
Stage IV
Motor Grader

SERVICE MANUAL

Part number 47829048B

English

June 2016

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CASE
CONSTRUCTION

Link Product / Engine

Product	Market Product	Engine
836C	Europe	F4HFE6133*B003
836C AWD	Europe	F4HFE6133*B003
856C	Europe	F4HFE613Y*B003
856C AWD	Europe	F4HFE613Y*B003

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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

800C

WE


Personal safety





This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible death or injury.

Throughout this manual you will find the signal words DANGER, WARNING, and CAUTION followed by special instructions. These precautions are intended for the personal safety of you and those working with you.

Read and understand all the safety messages in this manual before you operate or service the machine.

 DANGER indicates a hazardous situation that, if not avoided, will result in death or serious injury.

 WARNING indicates a hazardous situation that, if not avoided, could result in death or serious injury.

 CAUTION indicates a hazardous situation that, if not avoided, could result in minor or moderate injury.

FAILURE TO FOLLOW DANGER, WARNING, AND CAUTION MESSAGES COULD RESULT IN DEATH OR SERIOUS INJURY.

Machine safety

NOTICE: Notice indicates a situation that, if not avoided, could result in machine or property damage.

Throughout this manual you will find the signal word Notice followed by special instructions to prevent machine or property damage. The word Notice is used to address practices not related to personal safety.

Information

NOTE: Note indicates additional information that clarifies steps, procedures, or other information in this manual.

Throughout this manual you will find the word Note followed by additional information about a step, procedure, or other information in the manual. The word Note is not intended to address personal safety or property damage.

Personal safety

Carefully read this Manual before proceeding with maintenance, repairs, refuelling or other machine operations.

Repairs have to be carried out only by authorized and instructed staff; specific precautions have to be taken when grinding, welding or when using mallets or heavy hammers.

Not authorized persons are not allowed to repair or carry out maintenance on this machine. Do not carry out any work on the equipment without prior authorization.

Ask your employer about the safety instructions in force and safety equipment.

Nobody should be allowed in the cab during machine maintenance unless he is a qualified operator helping with the maintenance work.

If it is necessary to move the equipment to carry out repairs or maintenance, do not lift or lower the equipment from any other position than the operator's seat.

Never carry out any operation on the machine when the engine is running, except when specifically indicated.

Stop the engine and ensure that all pressure is relieved from hydraulic circuits before removing caps, covers, valves, etc.

All repair and maintenance operations should be carried out with the greatest care and attention.

Service stairs and platforms used in a workshop or in the field should be built in compliance with the safety rules in force.

Any functional disorders, especially those affecting the safety of the machine, should therefore be rectified immediately.

⚠ DANGER

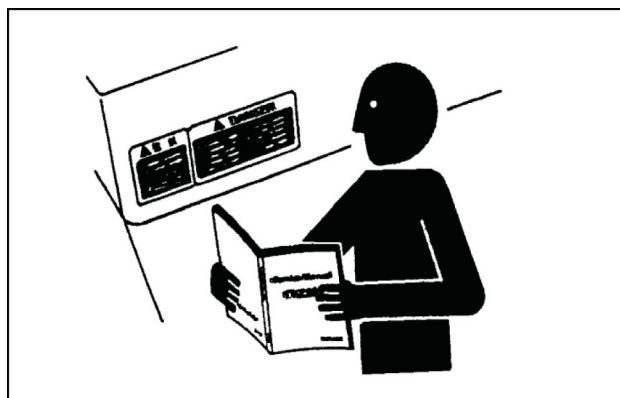
Unexpected movement!

Make sure parking brake is applied. Secure machine with wheel chocks.

Failure to comply will result in death or serious injury.

D0013A

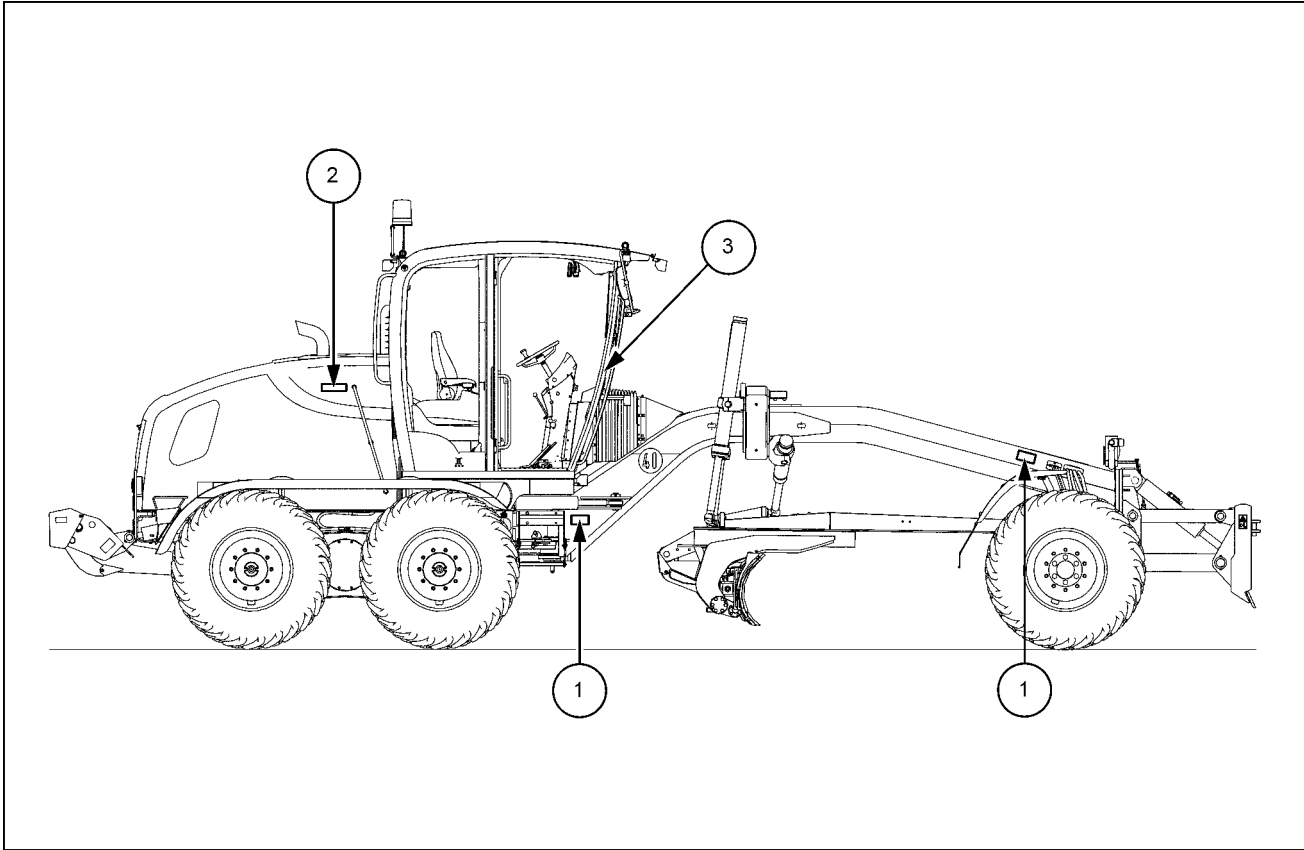
Before performing any work on the machine, attach a maintenance in progress tag. This tag can be applied on the dashboard, on the cab door, or at any other well visible place.



TULI12WEX2004AA 1

Product identification

Record the machine and part identification numbers. When ordering parts, obtaining information or assistance, always supply your dealer with the type and serial number of your machine or accessories. Keep a record of these numbers and your Manufacturer's Statement of Origin in a safe place. If the machine is stolen, report the numbers to your local law enforcement agency.



SS14C118 1

Pos.	Designation	Pos.	Designation
1	Model plate of the machine	3	Model plate of the cab
2	Model plate of the engine		



SERVICE MANUAL

Engine

836C AWD

836C

856C AWD

856C

Engine - General specification

Type	836C	836C AWD	856C	856C AWD
Manufacturer	FPT	FPT	FPT	FPT
Name	NEF 6Cyl 115 kW 4Valve TAA	NEF 6Cyl 115 kW 4Valve TAA	NEF 6Cyl 142 kW 4Valve TAA	NEF 6Cyl 142 kW 4Valve TAA
Model/Code	F4HFE6133*B003	F4HFE6133*B003	F4HFE613Y*B005	F4HFE613Y*B005
Turbo-charging	yes	yes	yes	yes
Cooling	Charge air/water	Charge air/water	Charge air/water	Charge air/water
Charge air cooling	Turbocharged	Turbocharged	Turbocharged	Turbocharged
Injection	Common rail	Common rail	Common rail	Common rail
Cylinder	6	6	6	6
Displacement	6700 cm³ (409 in³)	6700 cm³ (409 in³)	6700 cm³ (409 in³)	6700 cm³ (409 in³)
Power output	115 kW (156 Hp)	115 kW (156 Hp)	142 kW (193 Hp)	142 kW (193 Hp)
Torque	725 N·m (535 lb ft) / 1400 RPM	725 N·m (535 lb ft) / 1400 RPM	850 N·m (627 lb ft) / 1400 RPM	850 N·m (627 lb ft) / 1400 RPM
Nominal speed	2100 RPM	2100 RPM	2100 RPM	2100 RPM

Engine - Remove

⚠ WARNING

Heavy objects!

Lift and handle all heavy components using lifting equipment with adequate capacity. Always support units or parts with suitable slings or hooks. Make sure the work area is clear of all bystanders. Failure to comply could result in death or serious injury.

W0398A

Prior operation:

Rear wheels - Remove (44.520).

Hood - Remove (90.100).

Selective Catalytic Reduction (SCR) muffler and catalyst - Remove (10.500)

Battery - Remove (55.302).

Radiator - Remove (10.400).

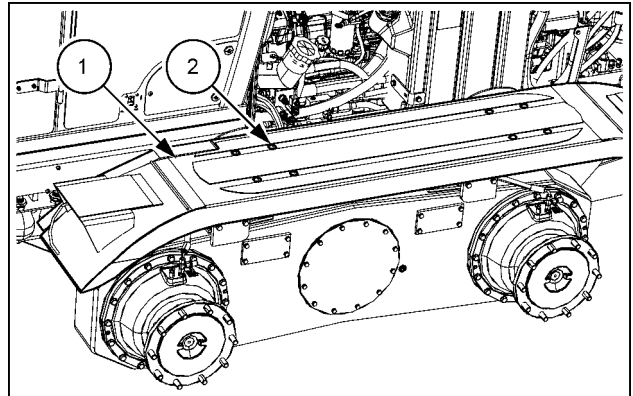
Engine support and mounts - Remove (10.001).

Engine hood panel rear support - Remove (90.100).

NOTE: If the optional air conditioning system is installed, drain off the refrigerant if a filling/draining system is available. If this is not available, the air conditioning compressor should be detached from the engine, the condenser from the combination cooler and the filter-drier from the bracket without cutting off the refrigerant lines.

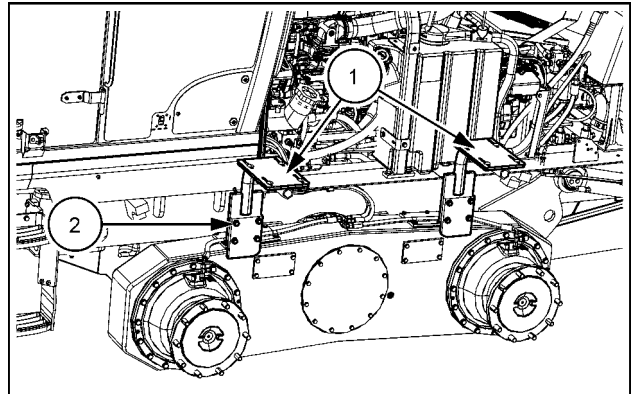
NOTE: Emissions sensors mounted in the exhaust stream are sensitive to extreme vibrations. Use of tools that generate extreme vibrations, such as impact wrenches and hammers, will result in damage to emission sensors. Avoid using these tools during any service procedure in close proximity of emission sensors. If the use of these tools cannot be avoided, remove the sensors using extreme caution prior to performing any service procedure.

1. Remove the screws (2).
2. Remove the two rear wheel cover (1) from the rear axle.



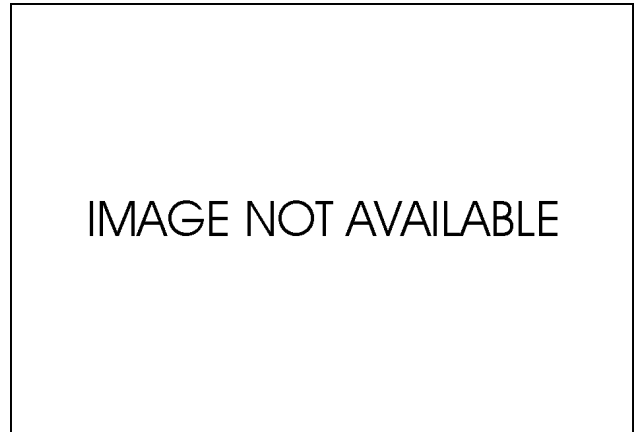
SS14J050 1

3. Remove the screws (2).
4. Remove the four wheel cover brackets (1) from the rear axle.



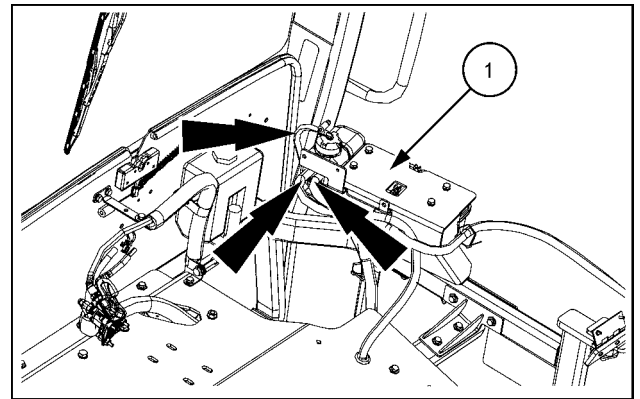
SS14K001 2

5. Detach the ground cables for the engine, cab and battery from the grounding point on the right inside the frame.



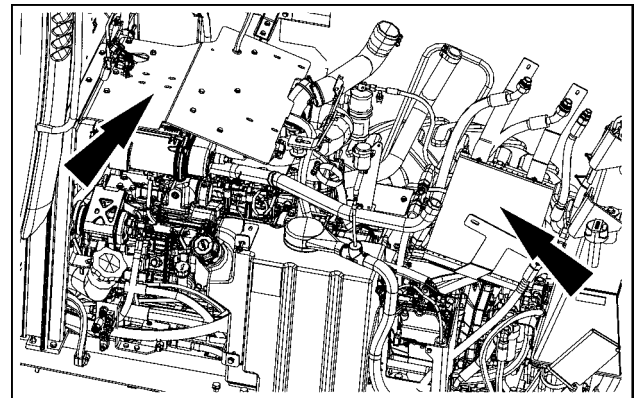
INA 3

6. Remove the hoses from the Organic Acid Technology (OAT) coolant tank (1).
7. Remove the Organic Acid Technology (OAT) coolant tank (1).



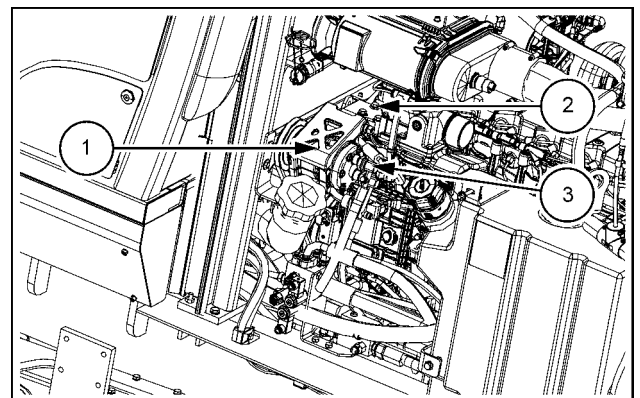
SS14K002 4

8. Remove the attachments.



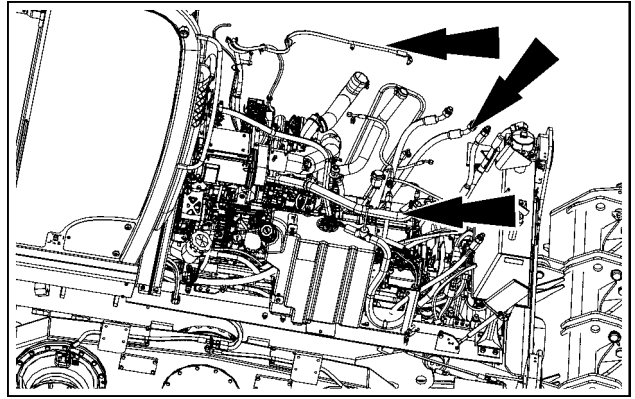
SS14K037 5

9. Remove the hoses (3) from the fuel pump (1).
10. Remove the screws (2).
11. Remove the fuel pump (1).



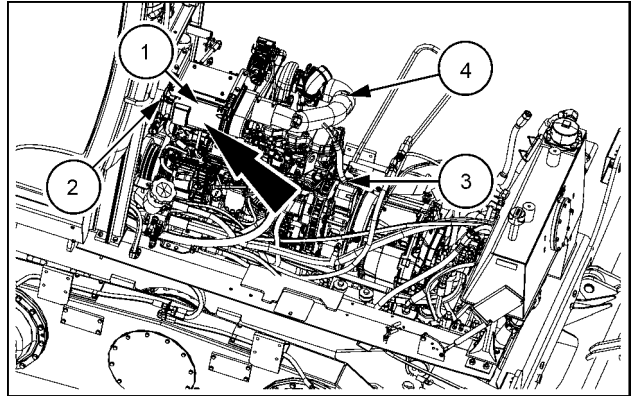
SS14K006 6

12. Remove the hoses.



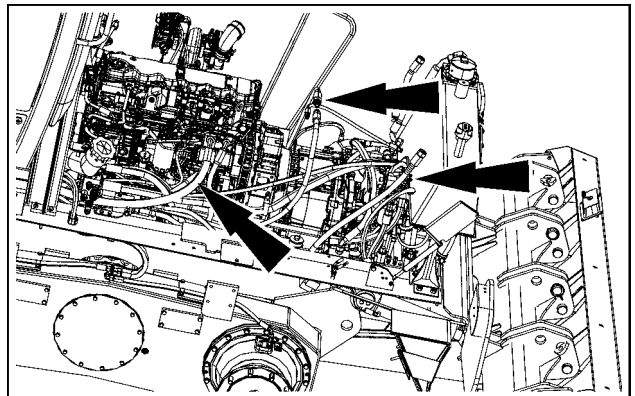
SS14K007 7

13. Remove the hose (3).
14. Loosen the clamp (4).
15. Loosen the clamps (2) from the air intake system (1).
16. Remove the air intake system (1).



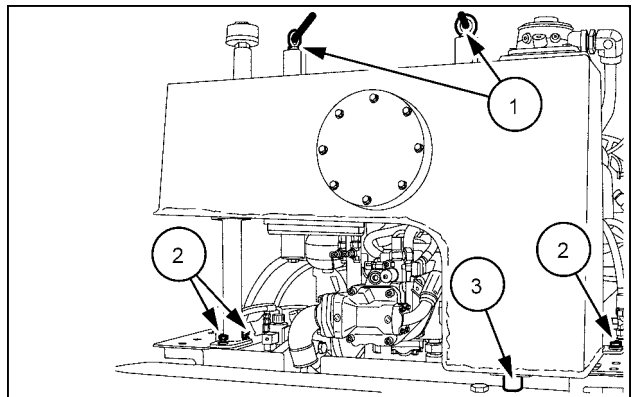
SS14K008 8

17. Remove the hoses.



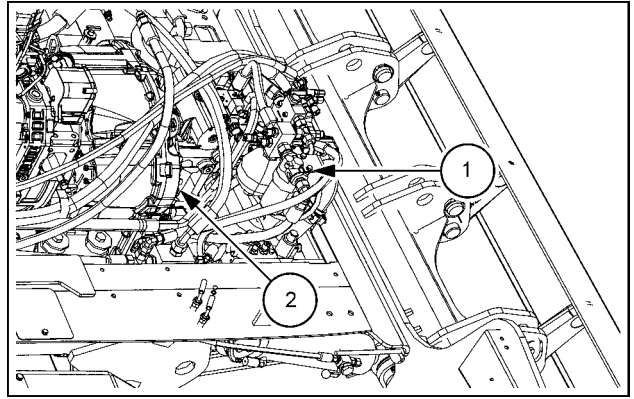
SS14K009 9

18. Detach all hydraulic lines from the hydraulic fluid tank.
19. Screw in two M12 eye bolts (1) into the hydraulic fluid tank and secure with lifting gear.
20. Remove the three mounting bolts (2).
21. Remove the mounting bolt (3) from the underside.



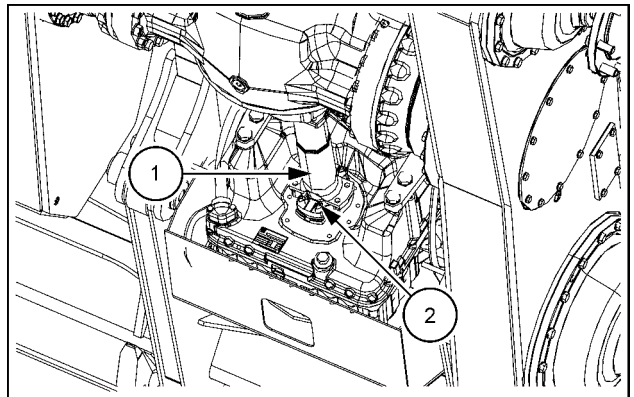
SS14K010 10

22. Detach all hydraulic lines from the pump unit **(1)**.
23. Remove the screws **(2)**.
24. Remove the pump unit **(1)** from the transmission.



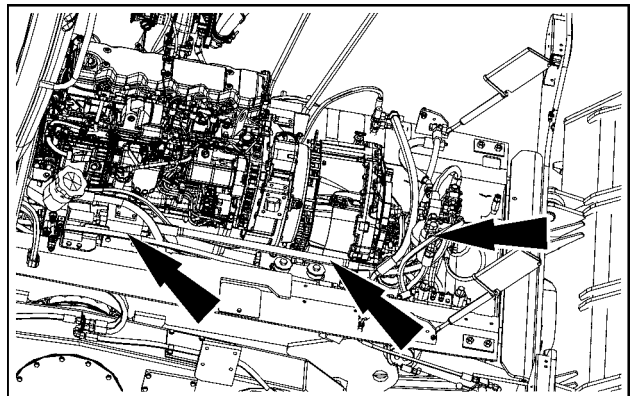
SS14K011 11

25. Unscrew the 4 cap bolts **(2)**.
26. Remove the power transmission shaft **(1)** at the transmission side.



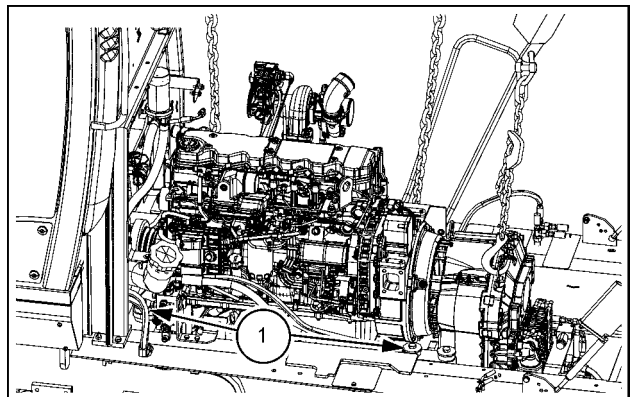
SS14K012 12

27. Remove the hydraulic components and hoses.



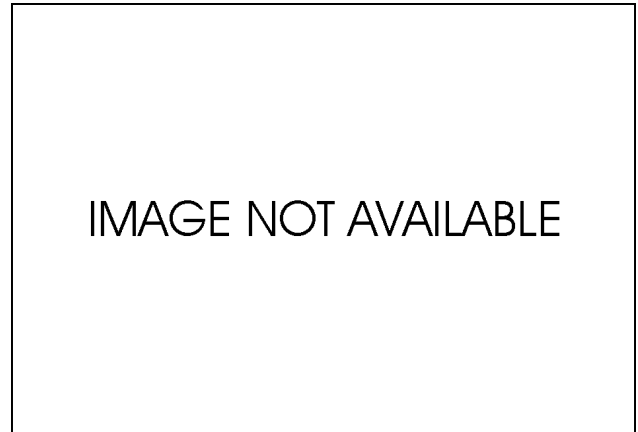
SS14K013 13

28. Secure the engine-transmission pump unit with lifting gear.
29. Loosen the assembly mounting bolts **(1)**.
30. Carefully raise the engine out of the grader frame.



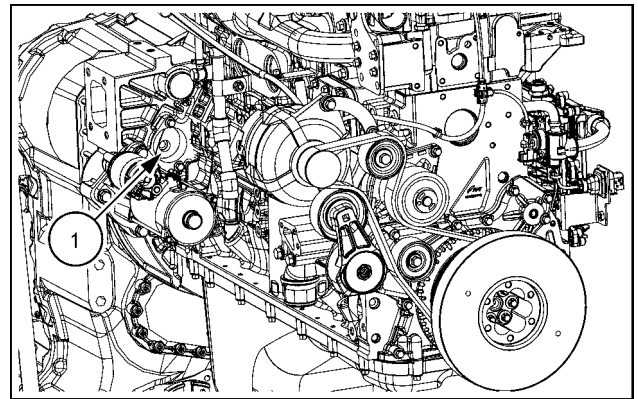
SS14K014 14

31. Set the engine-transmission-pump unit down on a suitable assembly stand, and secure them.



INA 15

32. Secure the transmission using lifting gear.
33. Remove the cover from the flywheel housing to gain access to the four bolts (1) that connect the flywheel to the torque converter.
34. After loosening the first bolt (1), turn the engine by hand until the second bolt is located at the hole and can be loosened.
35. Remove the other two bolts in the same way.



SS14K015 16

Next operation:
Powershift transmission - Remove (21.113).

Engine - Install

⚠ WARNING

Heavy objects!

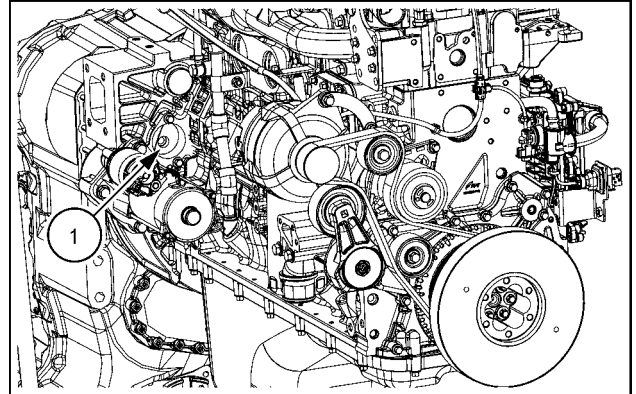
Lift and handle all heavy components using lifting equipment with adequate capacity. Always support units or parts with suitable slings or hooks. Make sure the work area is clear of all bystanders. Failure to comply could result in death or serious injury.

W0398A

Prior operation:

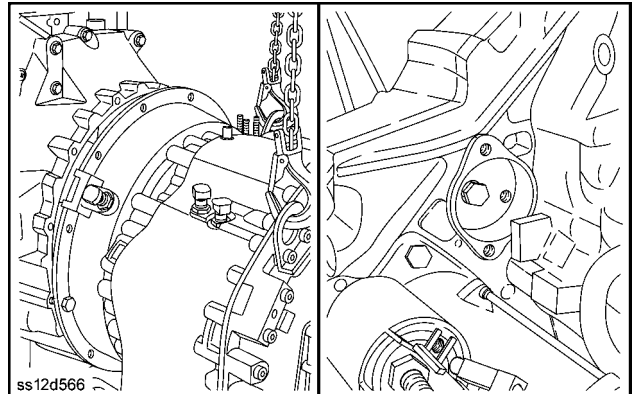
Powershift transmission - Install (21.113).

1. Insert the first of the four bolts (**10**) into the hole in the flywheel housing and tighten temporarily.
2. Turn the engine by hand and, in the same way, insert and temporarily tighten the other three bolts.



SS14K015 1

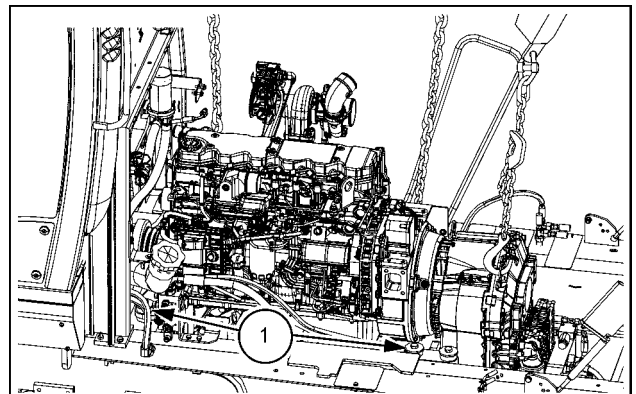
3. Progressing crosswise, tighten the transmission outer mounting bolts on the engine. Tighten the bolts with **44 N·m (32.5 lb ft)**.
4. Tighten the four inner mounting bolts that fasten the flywheel to the torque converter. Tighten the bolts with **44 N·m (32.5 lb ft)**.



ss12d566

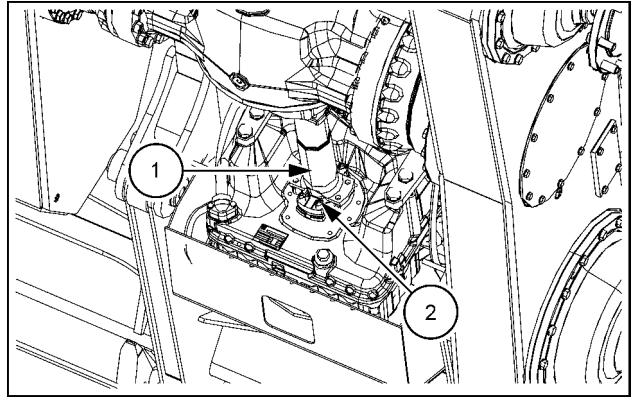
SS12D566 2

5. Check the engine mounts and replace if necessary.
6. Set the engine-transmission unit in the frame, by using the lifting equipment. When doing so, check that it is not catching on any hydraulic hoses or electrical lines.
7. Screw in the assembly mounting bolts (**1**) and tighten them.



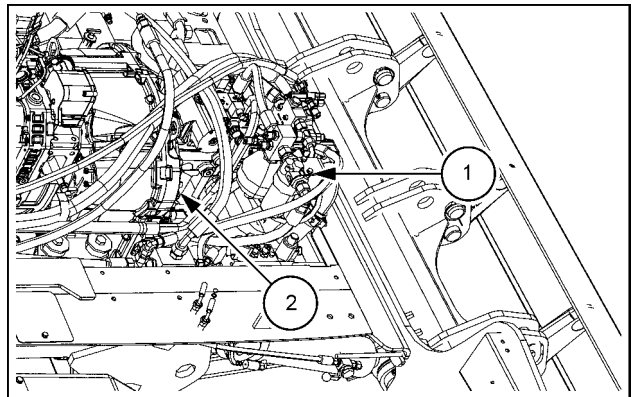
SS14K014 3

8. Fix the power transmission shaft (1) to the transmission with the four cap bolts (2).



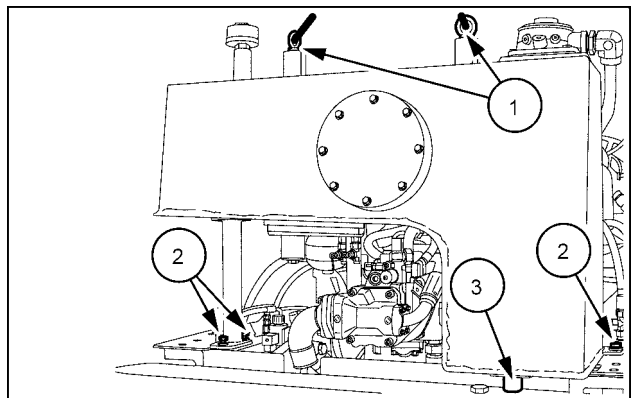
SS14K012 4

9. Install the pump unit (1) to the transmission.
10. Fix the pump unit (1) with the screws (2).
11. Attach all hydraulic lines on the pump unit (1).



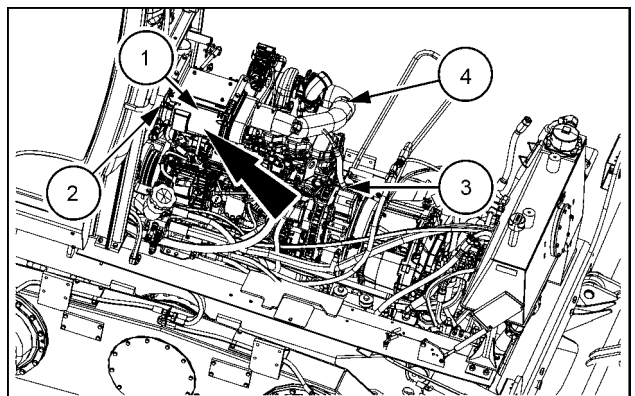
SS14K011 5

12. With the lifting equipment, lift the hydraulic fluid tank onto the frame and align at the holes.
13. Fix the hydraulic fluid tank to the frame with screws (2) and (3).
14. Unscrew the two M12 eye bolts (1) and remove them.
15. Connect the appropriate hydraulic lines to the hydraulic fluid tank.



SS14K010 6

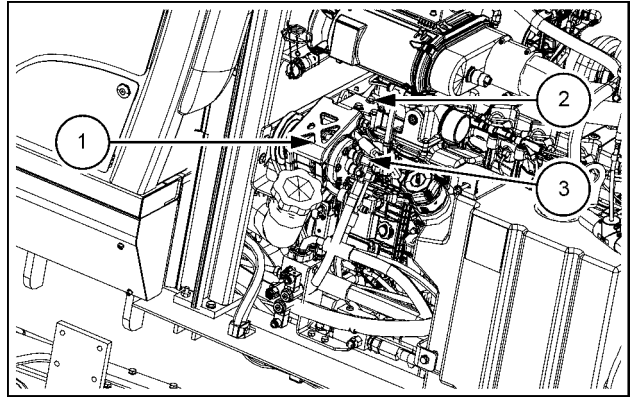
16. Install the air intake system (1).
17. Lift the Selective Catalytic Reduction muffler (SCR) (1) into the machine.
18. Fix the clamps (2).
19. Fix the clamp (4).
20. Attach the hose (3).



SS14K008 7

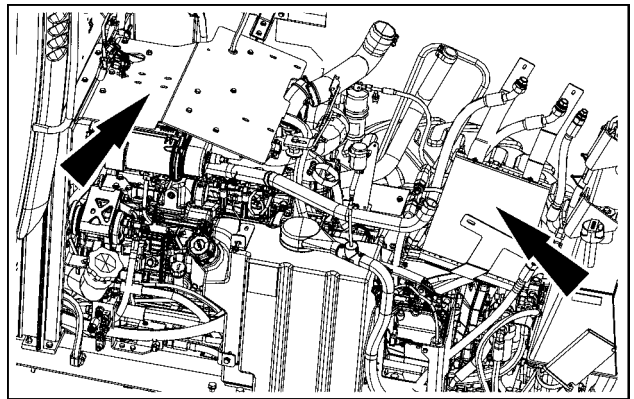
21. Install the DEF/AdBlue tank, refer to **Diesel Exhaust Fluid (DEF)/AdBlue® tank - Install (10.500)**.

22. Install the fuel pump (1) with the screws (2).
23. Attach the hoses (3) on the fuel pump (1).



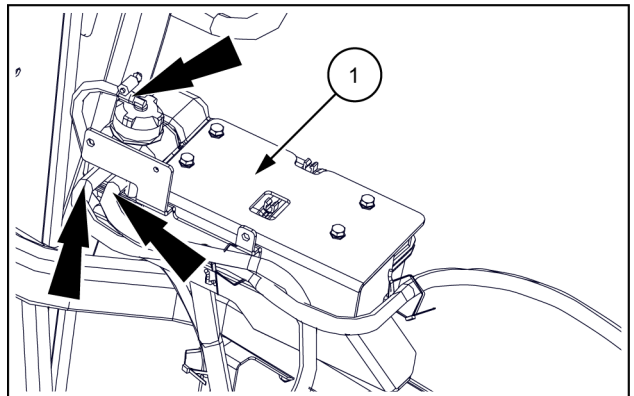
SS14K006 8

24. Install the following attachments.



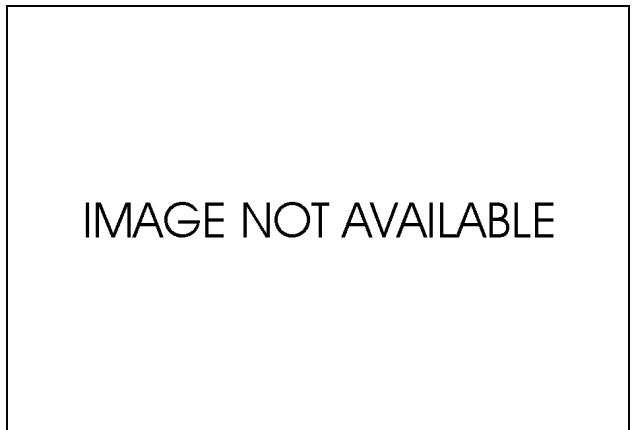
SS14K037 9

25. Install the Organic Acid Technology (OAT) coolant tank (1).
26. Attach the hoses to the Organic Acid Technology (OAT) coolant tank (1).



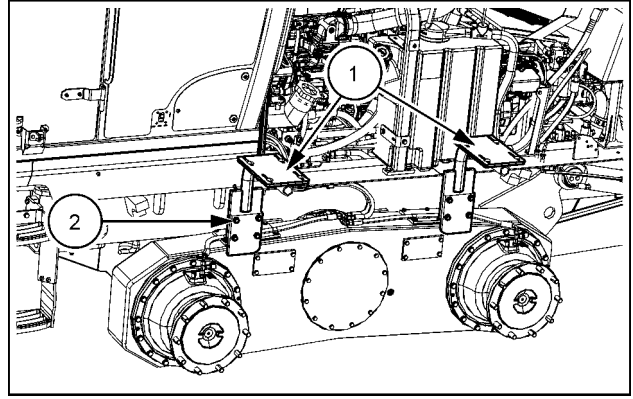
SS14K017 10

27. Connect the ground cables for the engine, cab, and battery to the grounding point on the right inside the frame.



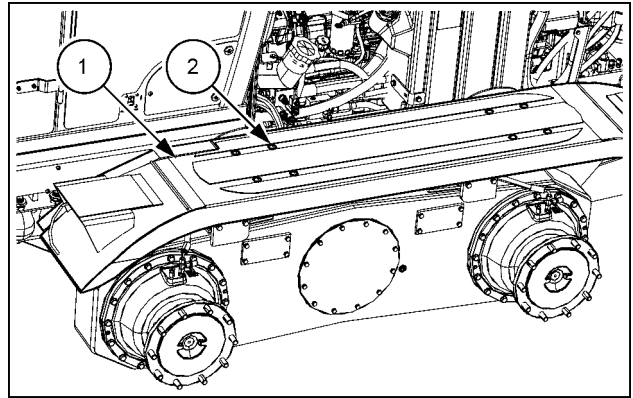
INA 11

28. Install the four wheel cover brackets (1) on the rear axle with the screws (2).



SS14K001 12

29. Install the two rear wheel cover (1) on the rear axle with the screws (2).



SS14J050 13

Next operation:

Engine hood panel rear support - Install (90.100).

Selective Catalytic Reduction (SCR) muffler and catalyst - Install (10.500)

Engine support and mounts - Install (10.001).

Radiator - Install (10.400).

Battery - Install (55.302).

Hood - Install (90.100).

Rear wheels - Install (44.520).

Engine - Complete (10.001).

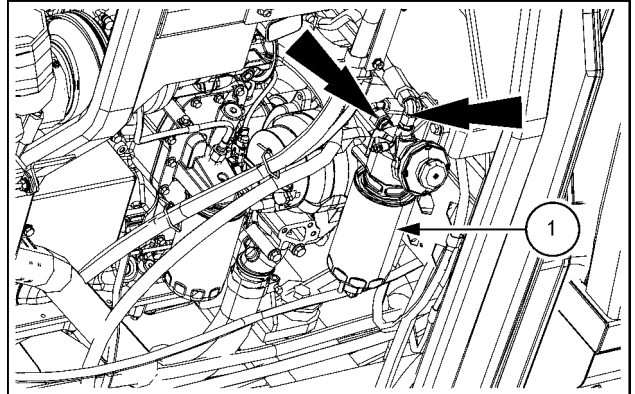
Engine - Complete

1. Fill with hydraulic fluid and engine coolant.
2. If draining/filling equipment is available, fill the air conditioning system with refrigerant.
3. Start the engine and carry out a function test.
4. Check all connections for leaks.
5. If necessary, top up the hydraulic fluid and engine coolant.

Engine support and mounts - Remove

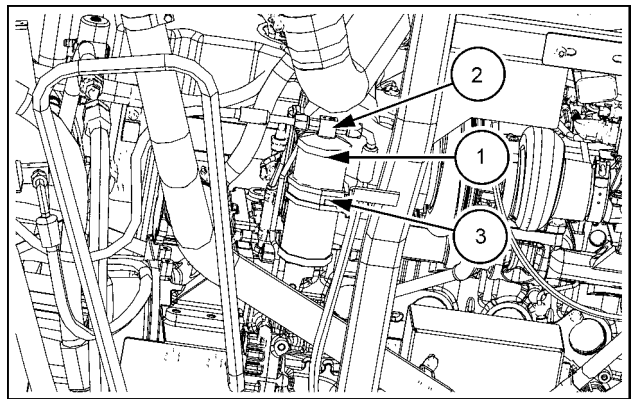
Removing support bracket together with exhaust muffler and handrail

1. Remove the hoses from the fuel pre-filter (1).
2. Remove the fuel pre-filter (1).



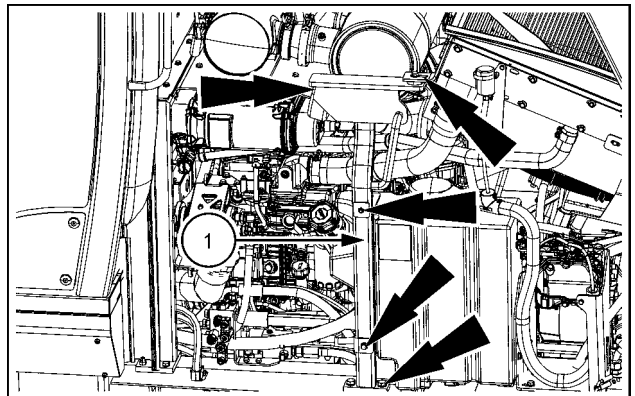
SS14K003 1

3. Loosen the clamp (3) from the dryer (1) of the air conditioning.
4. Loosen the hoses at the screw fitting (2).
5. Remove the dryer (1).



SS14K004 2

6. Secure the bracket (1) using lifting gear.
7. Loosen the mounting bolts from the right side.
8. Loosen the mounting bolts from the left side.
9. Raise the bracket (1), taking care to detach the flexible exhaust line from the exhaust pipe to the turbocharger.



SS14K022 3



Suggest:

If the above button click is invalid.

Please download this document

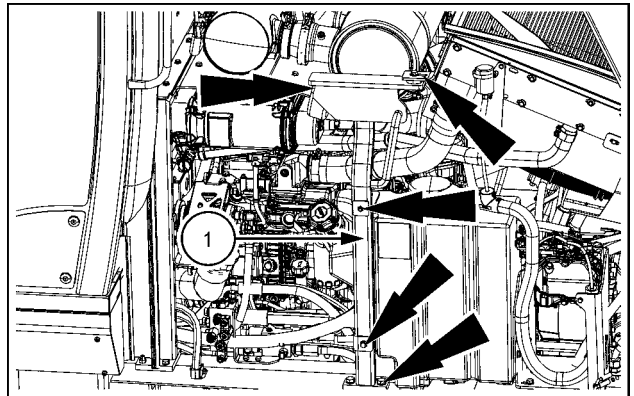
first, and then click the above link

to download the complete manual.

Thank you so much for reading

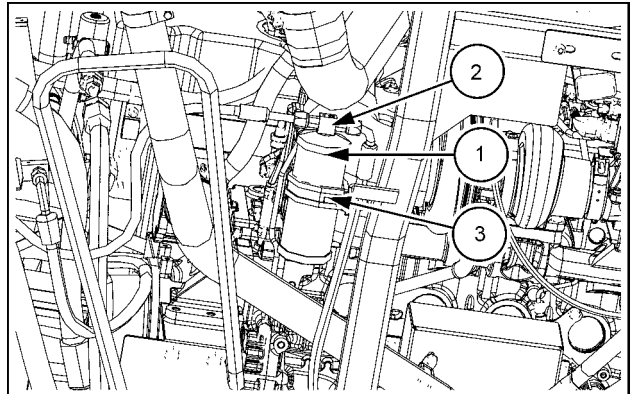
Engine support and mounts - Install

1. Install the bracket **(1)** using lifting gear.
2. Fix the mounting bolts from the right side.
3. Fix the mounting bolts from the left side.
4. Attach the flexible exhaust line from the exhaust pipe to the turbocharger.



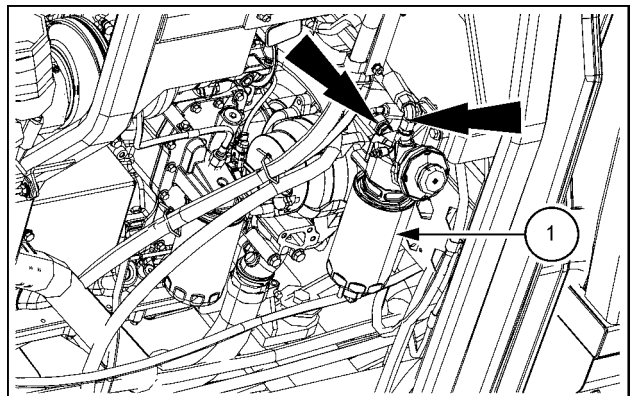
SS14K022 1

5. Install the dryer **(1)** and fix it with the clamp **(3)**.
6. Fix the hoses at the screw fitting **(2)**.



SS14K004 2

7. Install the fuel pre-filter **(1)**.
8. Attach the hoses to the fuel pre filter **(1)**.



SS14K003 3

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