

AXIAL-FLOW® 7230
AXIAL-FLOW® 8230
AXIAL-FLOW® 9230

Combine

PIN YDG222001 and above

SERVICE MANUAL

Part number 47636947

English

November 2013

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SERVICE MANUAL

AXIAL-FLOW 7230 [YDG222001 -]
AXIAL-FLOW 8230 [YDG222001 -]
AXIAL-FLOW 9230 [YDG222001 -]

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INTRODUCTION

Safety rules Signal word definitions

AXIAL-FLOW 7230 WE, AXIAL-FLOW 8230 WE, AXIAL-FLOW 9230 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

AXIAL-FLOW 7230, AXIAL-FLOW 7230 WE, AXIAL-FLOW 8230, AXIAL-FLOW 8230 WE, AXIAL-FLOW 9230, AXIAL-FLOW 9230 WE, AXIAL-FLOW 30 Series

WARNING

Risk of harm during maintenance of the machine!

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

Failure to comply could result in death or serious injury.

W1242A

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

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

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

Safety rules - Ecology and the environment

AXIAL-FLOW 7230 WE, AXIAL-FLOW 8230 WE, AXIAL-FLOW 9230 WE

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

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

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

Helpful hints

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



SERVICE MANUAL

Engine

AXIAL-FLOW 7230 [YDG222001 -]
AXIAL-FLOW 8230 [YDG222001 -]
AXIAL-FLOW 9230 [YDG222001 -]

Engine - Remove

AXIAL-FLOW 7230

WARNING

Avoid injury! Always do the following before lubricating, maintaining, or servicing the machine.

1. Disengage all drives.
 2. Engage parking brake.
 3. Lower all attachments to the ground, or raise and engage all safety locks.
 4. Shut off engine.
 5. Remove key from key switch.
 6. Switch off battery key, if installed.
 7. Wait for all machine movement to stop.
- Failure to comply could result in death or serious injury.

W0047A

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:

Engine cooling system - Drain fluid (10.400)

Prior operation:

Deaeration tank - Remove (10.400)

Prior operation:

Engine hood - Remove (90.105)

Prior operation:

Radiator hoses - Remove (10.400)

Prior operation:

Air intake system - Remove (10.202)

Prior operation:

Fan and drive - Remove (10.414)

Prior operation:

Air conditioning - Service instruction (50.200)

Prior operation:

Fuel supply lines Low pressure - Remove (10.210)

Prior operation:

Aftercooler - Remove (10.310)

Prior operation:

Rotary screen drive belt or chain - Remove (10.418)

Prior operation:

Selective Catalytic Reduction (SCR) exhaust treatment - Remove (10.500)

Prior operation:

Diesel Exhaust Fluid (DEF)/AdBlue® lines - Remove (10.500)

Prior operation:

Diesel Exhaust Fluid (DEF)/AdBlue® delivery line to dosing injector - Remove (10.500)

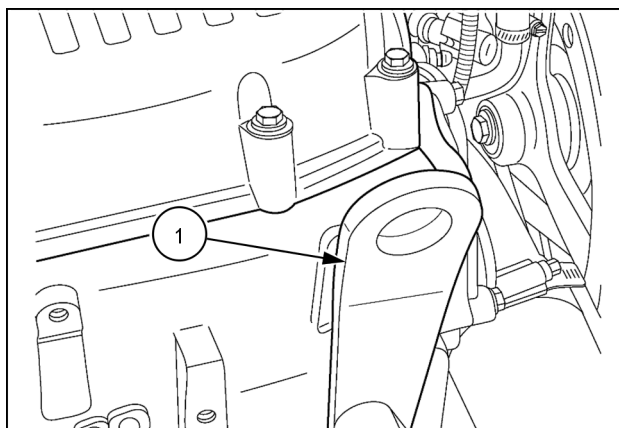
Prior operation:

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

Prior operation:

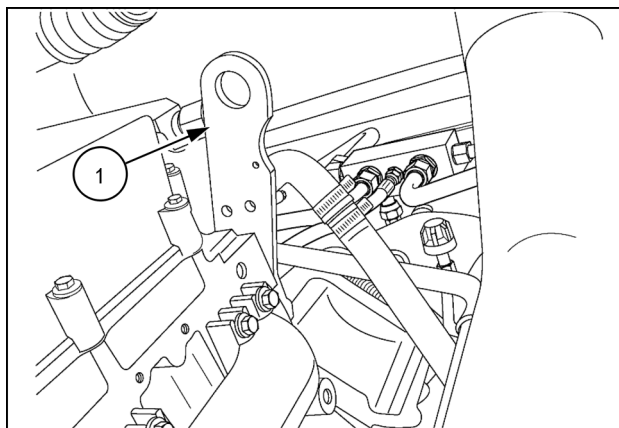
Central wire harness - Remove (55.100)

1. Attach a suitable chain to the front lift eye (1) at the front of the engine.



86070259 1

2. Attach a suitable chain to the back lift eye (1) at the rear of the engine.

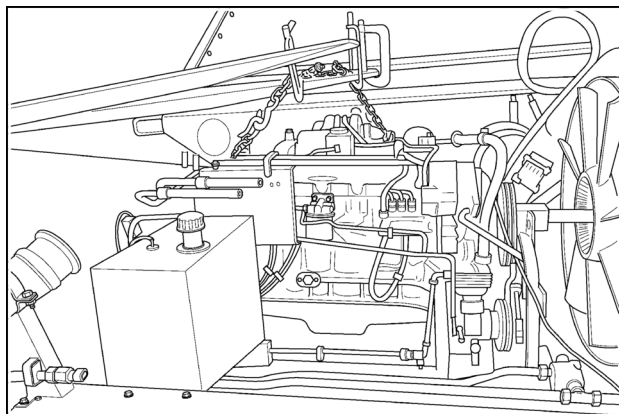


86070260 2

3. Connect the lift chain to a suitable lifting device.
4. Raise the lifting device enough to support the engine during removal of the engine mounting bolts.

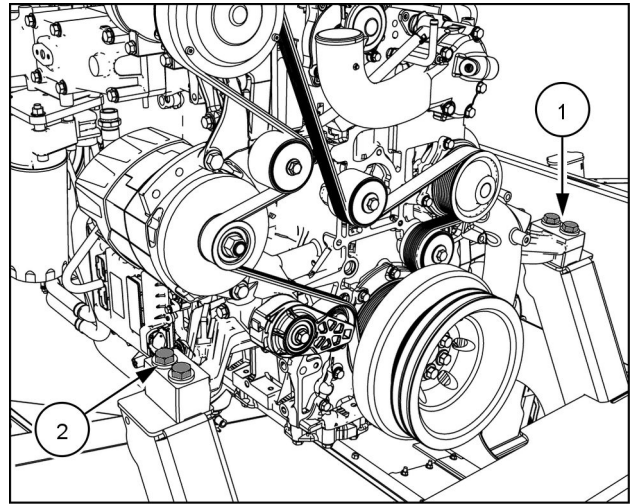
NOTE: Illustration is for reference only. It may not be the actual engine.

NOTE: The lifting device should be rated for at least **907.2 kg (2000 lb)**. Allow enough clearance to lift the engine from the combine, approximately **7.0 m (23 ft)** from the floor.



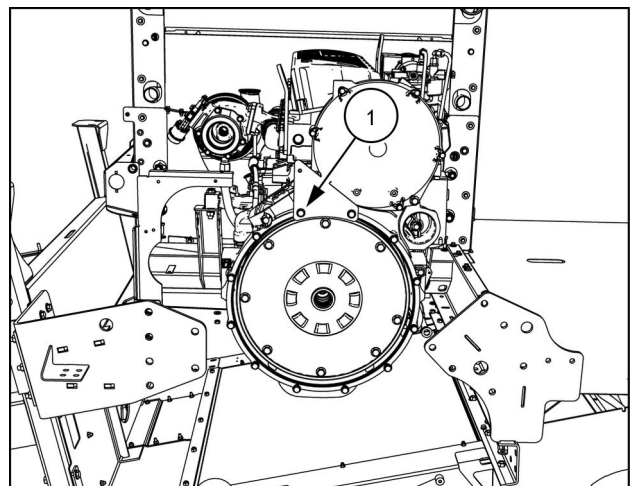
10013136 3

5. From the grain tank side of the engine, loosen the front, engine mounting bolts **(1)**. Do not remove the mounting bolts at this time.
6. From the platform side, loosen the front, engine mounting bolts **(2)**. Do not remove the mounting bolts at this time.



NHIL13AF01521AA 4

7. From the rear of the engine, loosen but do not remove all the bolts and washers **(1)** that couple the engine to the gearbox. There are twelve bolts and washers in total.
8. For safety reasons to the radiators, place a sheet of plywood, cut to size, in front of the cooler box for protection.
9. With the engine securely supported by the lifting device, remove all of the engine mounting bolts and the engine to the gearbox coupling bolts that were loosened in the previous steps.
10. Slide the engine towards the cooler box to disengage the flex plate from the gearbox input shaft.
11. Carefully lift the engine from the frame and remove from the combine.



NHIL13AF01522AA 5

Next operation:
Engine - Install (10.001).

Engine - Install

AXIAL-FLOW 7230 WE

⚠ WARNING

Avoid injury! Always do the following before lubricating, maintaining, or servicing the machine.

1. Disengage all drives.
 2. Engage parking brake.
 3. Lower all attachments to the ground, or raise and engage all safety locks.
 4. Shut off engine.
 5. Remove key from key switch.
 6. Switch off battery key, if installed.
 7. Wait for all machine movement to stop.
- Failure to comply could result in death or serious injury.

W0047A

⚠ 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.

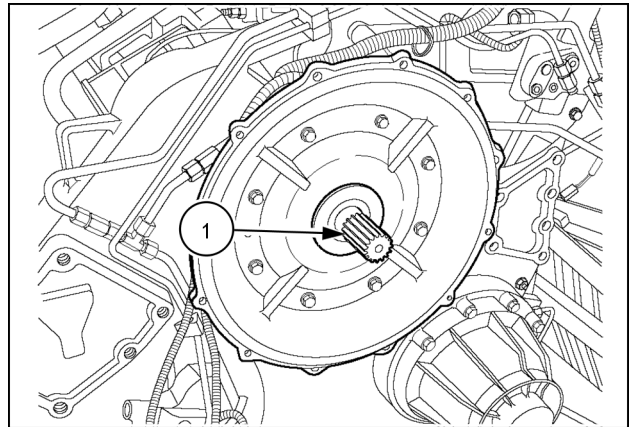
Failure to comply could result in death or serious injury.

W0396A

Prior operation:

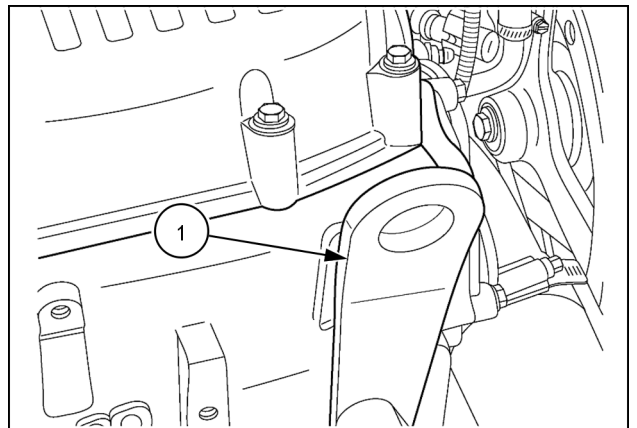
Engine - Remove (10.001)

1. Before installing the engine, apply **LOCTITE® SILVER GRADE ANTI-SEIZE 767** to the input shaft (1) of the gear-box.



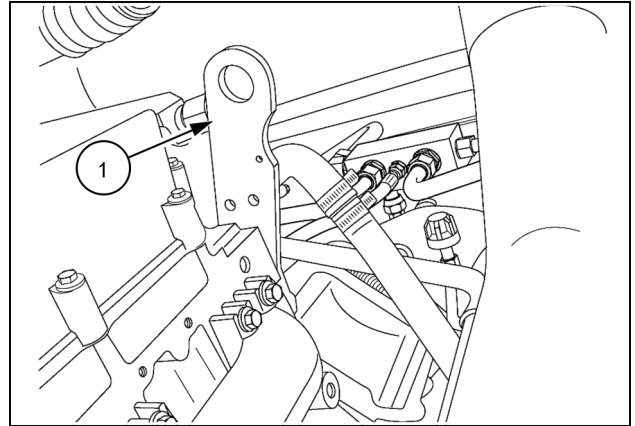
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2. Attach a suitable chain to the front lift eye (1) at the front of the engine.



86070259 2

3. Attach a suitable chain to the back lift eye (1) at the rear of the engine.

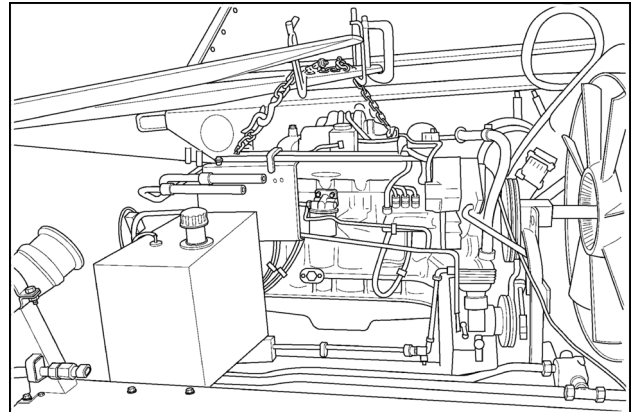


86070260 3

4. Connect the lift chain to a suitable lifting device.
5. Carefully lift the engine above the combine and lower into position in the frame.

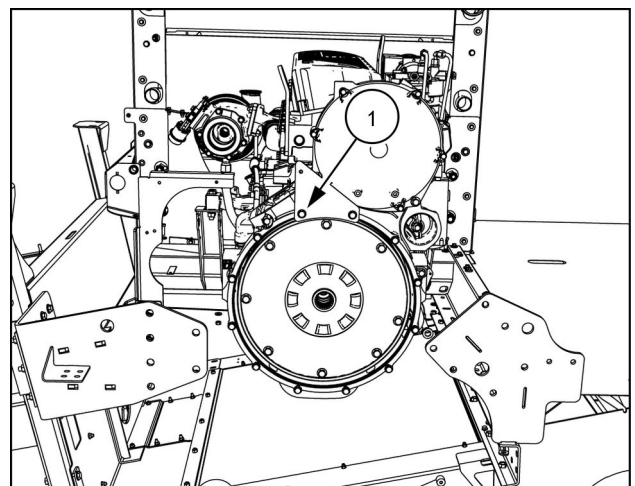
NOTE: Illustration is for reference only. It may not be the actual engine.

NOTE: The lifting device should be rated for at least **907.2 kg (2000 lb)**. Allow enough clearance to lift the engine from the combine, approximately **907.2 kg (2000 lb)** from the floor.



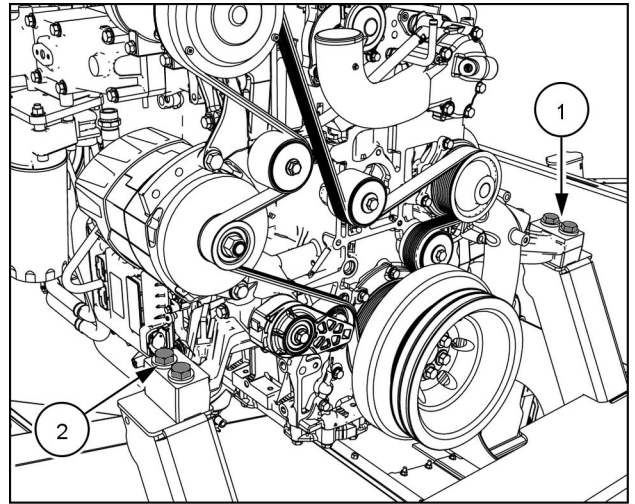
10013136 4

6. For safety reasons to the radiator, place a sheet of plywood, cut to size, in front of the radiator for protection.
7. Slide the engine towards the gearbox onto the gear box input shaft.
8. Align the holes of the gearbox with the engine and hand start a bolt with a washer (1) on each side of the coupling, going back and forth until all bolts with a washers are installed.



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9. With the engine positioned in the frame, align the front mounting hole on the grain tank side and install the bolt with washers **(1)** into the mount. Do not tighten yet.
10. Align the front mounting hole on the platform side. Install the bolt with washers **(1)** into the mount.
11. Tighten and torque the front engine mounting bolts to **217 Nm (160.1 lb ft)**.
12. Tighten and torque the engine gearbox bolts to **41 - 51 Nm (30.2 - 37.6 lb ft)**.



NHIL13AF01521AA 6

Next Operations

Central wire harness - Install (55.100)

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

Diesel Exhaust Fluid (DEF)/AdBlue® lines - Install (10.500)

Selective Catalytic Reduction (SCR) exhaust treatment - Install (10.500)

Diesel Exhaust Fluid (DEF)/AdBlue® delivery line to dosing injector - Install (10.500)

Rotary screen drive belt or chain - Install (10.418)

Aftercooler - Install (10.310)

Fuel supply lines Low pressure - Install (10.210)

Air conditioning - Service instruction (50.200)

Fan and drive - Install (10.414)

Air intake system - Install (10.202)

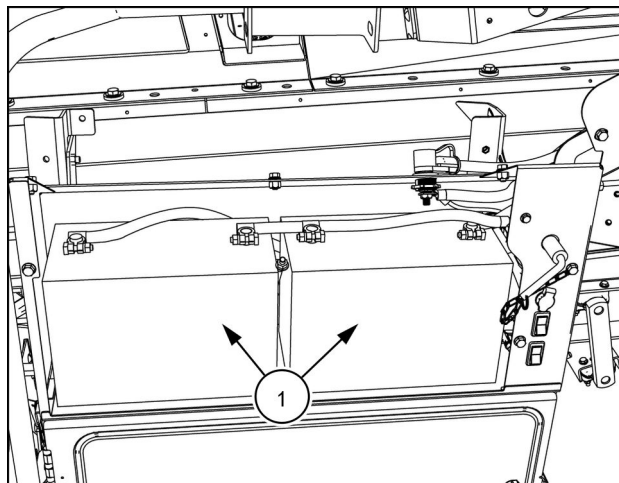
Radiator hoses - Install (10.400)

Engine hood and panels - Install (90.100)

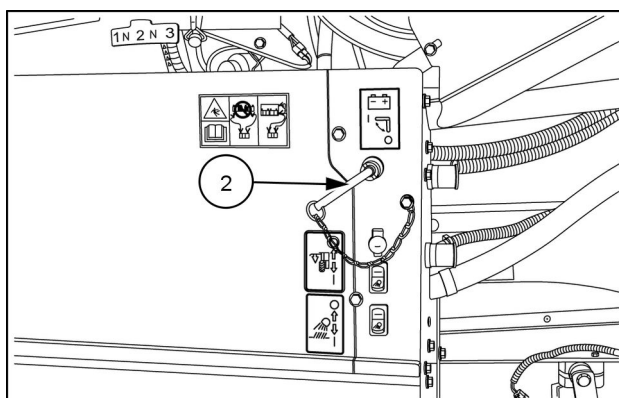
Deaeration tank - Install (10.400)

Engine cooling system - Filling (10.400)

13. Connect the battery cables to the batteries (1) if they were removed or engage the battery connect switch (2).

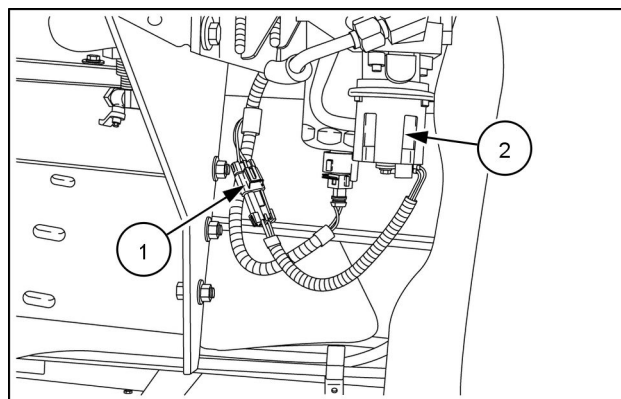


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NHIL13AF00586AA 8

14. Disconnect the fuel pump wire connector (1) to disable the fuel pump (2).
15. Check the engine oil level and top off if necessary.
16. Crank the engine over for three ten second intervals. This will distribute lubricating oil to the engine operating systems and will allow oil pressure to be built before starting the engine.

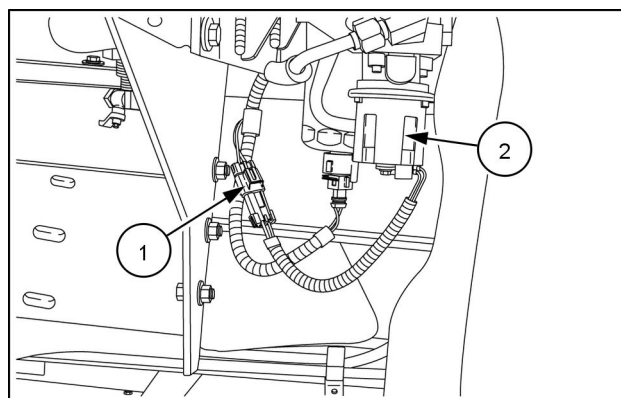


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17. Connect the fuel pump wire connector (1) to the fuel pump (2) and bleed the air from fuel injection system, as described in the Operators manual.
18. Start the engine and check all hoses, fittings and clamps for leaks.

NOTICE: Monitor the instrument warning light bar at all times during initial engine start up to ensure the engine has proper oil pressure. Shut down the engine immediately if oil pressure is not adequate.

19. Ensure all electrical components are working properly.



NHIL13AF00582AA 10

Engine - Remove

AXIAL-FLOW 8230, AXIAL-FLOW 9230

WARNING

Avoid injury! Always do the following before lubricating, maintaining, or servicing the machine.

1. Disengage all drives.
 2. Engage parking brake.
 3. Lower all attachments to the ground, or raise and engage all safety locks.
 4. Shut off engine.
 5. Remove key from key switch.
 6. Switch off battery key, if installed.
 7. Wait for all machine movement to stop.
- Failure to comply could result in death or serious injury.

W0047A

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:

Engine cooling system - Drain fluid (10.400)

Prior operation:

Deaeration tank - Remove (10.400)

Prior operation:

Engine hood - Remove (90.105)

Prior operation:

Radiator hoses - Remove (10.400)

Prior operation:

Air intake system - Remove (10.202)

Prior operation:

Fan and drive - Remove (10.414)

Prior operation:

Air conditioning - Service instruction (50.200)

Prior operation:

Fuel supply lines Low pressure - Remove (10.210)

Prior operation:

Aftercooler - Remove (10.310)

Prior operation:

Rotary screen drive belt or chain - Remove (10.418)

Prior operation:

Selective Catalytic Reduction (SCR) exhaust treatment - Remove (10.500)

Prior operation:

Diesel Exhaust Fluid (DEF)/AdBlue® lines - Remove (10.500)

Prior operation:

Diesel Exhaust Fluid (DEF)/AdBlue® delivery line to dosing injector - Remove (10.500)

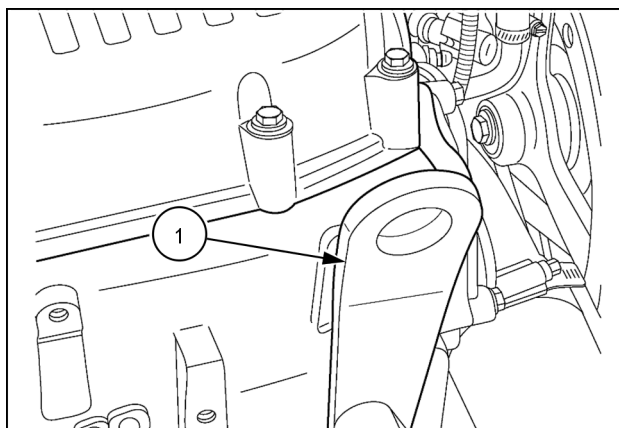
Prior operation:

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

Prior operation:

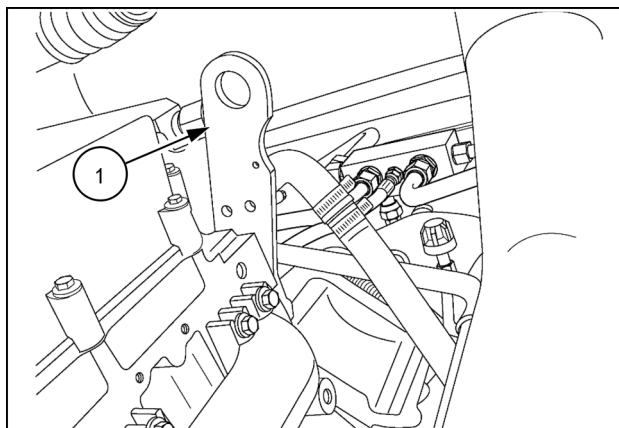
Central wire harness - Remove (55.100)

1. Attach a suitable chain to the front lift eye (1) at the front of the engine.



86070259 1

2. Attach a suitable chain to the back lift eye (1) at the rear of the engine.

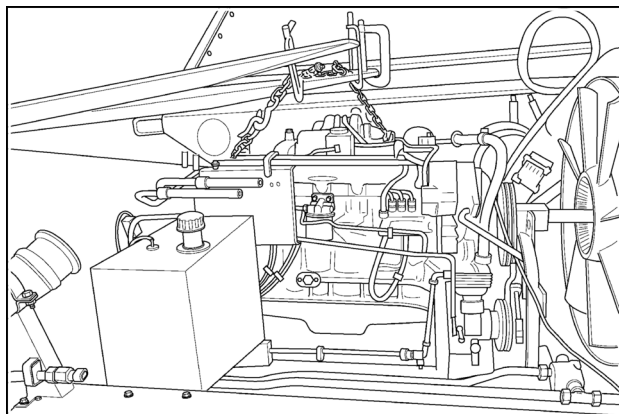


86070260 2

3. Connect the lift chain to a suitable lifting device.
4. Raise the lifting device enough to support the engine during removal of the engine mounting bolts.

NOTE: Illustration is for reference only. It may not be the actual engine.

NOTE: The lifting device should be rated for at least **907.2 kg (2000 lb)**. Allow enough clearance to lift the engine from the combine, approximately **7.0 m (23 ft)** from the floor.



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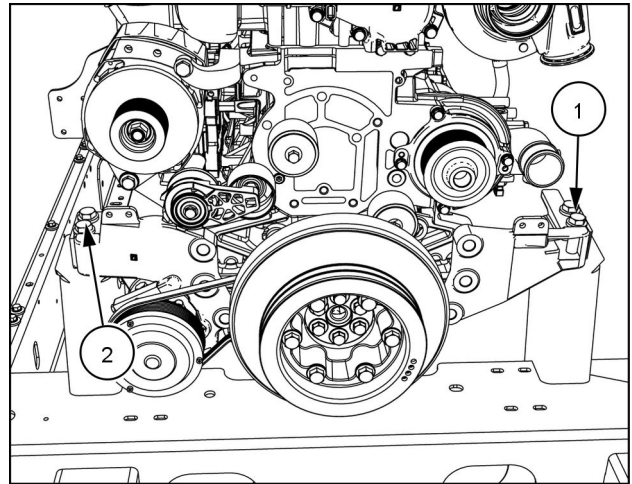
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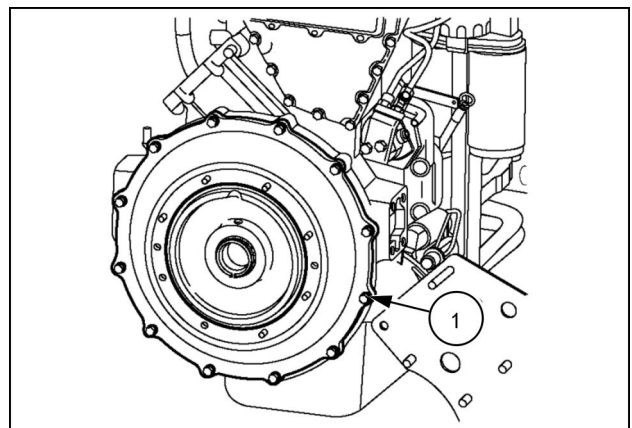
Thank you so much for reading

5. From the grain tank side of engine, loosen the front two engine mounting bolts **(1)**. Do not remove the mounting bolts at this time.
6. From the platform side, loosen the two front, engine mounting bolts **(2)**. Do not remove the mounting bolts at this time.



NHIL13AF01524AA 4

7. Loosen but do not remove all the bolts and washers **(1)** that couple the engine to the gearbox. There are twelve bolts and washers in total.
8. For safety reasons to the radiators, place a sheet of plywood, cut to size, in front of the cooler box for protection.
9. With the engine securely supported by the lifting device, remove all of the engine mounting bolts and the engine to the gearbox coupling bolts that were loosened in the previous steps.
10. Slide the engine towards the cooler box to disengage the flex plate from the gearbox input shaft.
11. Carefully lift the engine from the frame and remove from the combine.



83090610 5

Next operation:
Engine - Install (10.001).

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