

Repair Technical Manual

F28 Stage V

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How to use this manual

This manual is to help dealers and technicians in the installation, servicing and repair of machine equipment. It is important to follow the instructions correctly and to use the special tools to do the procedures in the specified the repair time.

Contents

Refer to the table of contents at the start of each chapter for a list of the sections of the chapter.

Service tools

Where it is necessary to use a service tool to do an operation, the instruction refers to the related tool. To enable the technician to make the service tools, the measurements and illustrations for each tool are at the end of the applicable sections.

Repairs and the replacement of parts

During replacement operations, it is very important to use approved original parts. The warranty does not apply to the machine after the installation aftermarket parts. The installation of the incorrect parts can have a dangerous effect on the safety of the machine.

All tractors parts have a manufacturer guarantee. It is mandatory for dealers, agents and technicians to supply the approved parts.

Always obey these points during the repair and installation of replacement parts and accessories:

- The local regulations in some countries prevent the installation of parts that do not obey the specifications of the machine manufacturer.
- Always obey the torque values in the service manual.
- Use a locking device when it is specified. Always replace a locking device that has damage.

Safety

Repair safety

Always bear safety in mind when repairing or servicing the tractor.

Procedure

- Use tools and lifting devices in the correct way.
- Make sure that every tractor part is supported firmly, when removing components or splitting the tractor. While supporting the tractor, always check the center of gravity of the frame part. For example, the wedges must always be fitted between the front axle and engine to prevent axle oscillation when splitting the front frame of the tractor.
- Wear suitable protection when handling harmful chemicals.

WARNING: Take all necessary safety precautions when handling toxic or harmful chemicals (such as fuel, oil, grease or fluids).

- Be careful while handling pressurized circuits in the tractor.

WARNING: Opening pressurised circuits can be dangerous if the pressure is not released carefully.

Safety instructions – Engine

General

- The warnings cannot show all the dangerous situations that can occur.
- Make sure that you tell the applicable personnel if a dangerous situation occurs.
- Use only the approved equipment for the specified and general procedures.
- Examine tools for damage and that they are in correct work condition.
- Before you move loads, make sure that you know the:
 - Weight
 - Size
 - Path has no blockages.
- Make sure that you use only approved lift equipment. And that the supports are applicable for the size and dimensions.
- All the supports show the maximum capacity they are specified for.
- Only approved personnel are to use such tools.
- Stay at a safe distance from the load and do not do work below it.
- In the remove and install operations, always obey the specified instructions. Make sure that all the removed components do not accidentally hit other personnel.
- With procedures that 2 or more personnel are necessary. To prevent accidents make sure that the work area is free of objects that can cause injury to the personnel. And do not do any procedure that can cause injury to the personnel.
- No none approved personnel in the work area.
- Know the necessary data of the operation and safety of the machine before you do work on it.
- Obey all safety warnings.
- Make sure that personnel are not away from components that are in movement.
- When work on an assembly off the ground, make sure that you use the applicable supports. Engage the manual and automatic safety devices of the hydraulic lift.
- Obey all local regulations when you work with flammable materials, example natural gas.
- Remove the expansion tank cap only when the engine is cold and do it gradually to release the pressure in the system.
- Refuel the machine outdoors. Make sure that the area does not have source of ignition and do not smoke.
- Obey all local regulations when you stow dangerous materials. Example flammable or fluids that cause corrosion.
- Use applicable containers to stow dangerous materials.
- Do not change (drill or burn) pressurized containers and make sure that they are in correct working condition and replace if necessary. Discard all cloths soaked in dangerous materials in applicable containers.
- Only use manufacturer approved components.
- A clean work area is a safer work area, make sure that you clean all spills immediately.
- Make sure that all electrical equipment is in correct work condition and obey all local regulations.

Personnel

- When necessary put on your Personnel Protection Equipment (PPE).

- Make sure that all loose clothes do not catch on parts that move.
- Remove all jewelry before you do maintenance or repairs.
- The work area must have applicable airflow when you engage the engine. For example, an extractor fan.
- Do not breathe in the fumes from paint (welding), they are dangerous. Do the operation outdoors or in areas of sufficient airflow.
- When necessary put on applicable breather equipment. For example, if there is paint dust.
- Hot water or steam from the engine and radiator can cause burns.
- Do not touch the fluids that are in the machine systems.

Machine

- When you install components, make sure that they are clean and in correct work condition.
- Make sure that you use applicable containers for components that you remove. For example, bolts or nuts.
- Only use fasteners that are in correct work condition.
- Replace all removed parts that are nylon material.
- Do not let rubber components touch corrosive materials such as diesel fuel or petrol.
- To prevent damage to the electrical components. Make sure that you put a cover on all connectors and control units before you pressure wash the machine.
- Make sure that you tighten all fasteners to the specified torque. Speak to your approved dealer if necessary.
- Before you weld:
 - Disconnect all electronic control units, the power cable from the battery positive terminal and all connectors.
 - Remove paint with approved agents and clean applicable surfaces with soap and water.
 - Use applicable fire-resistant materials to prevent damage to components in which fluids or other flammable materials flow when welding.
- Remove ECUs when temperatures are more than 80o C. For example, if the machine is put in a dryer oven.

Environment

- Obey all local regulations when you discard fluids.

Safety instructions – Front axle and transmission

General

- Obey all safety instructions, how to prevent an accident, instructions and all local regulations at all times.
- Risks to different parts and components will decrease and the work condition for the personnel will also be safer.
- Do not use flammable material to clean parts when the parts are at an increased temperature, it can cause fire.
- Deep impacts can cause failure to the mechanical and electromagnetic components.
- Manufacturers approval is necessary to change the safety signs and decals.
- Always operate in a clean and dry environment.
- Keep a safe distance from the machine when applicable, for example during a test operation.

Maintenance

- Before you start maintenance or repair work. Make sure that all tools and equipment are in correct work condition.
- Only approved personnel are to do the maintenance and repair operations.
- In the condition of an component failure, replace the damaged components.
- During the lubrication operations, use the specified maintenance times.
- During the torque operations use the specified torques.
- Clean carefully the work environment and the machine before you do the maintenance operations.
- The work area must have sufficient illumination to do the procedures safely.
- Do not smoke when you do maintenance procedures on the machine.

Personal

- Be careful not to breathe chemical material in dangerous concentrations. Only use sprays and solvents in an area with sufficient airflow.
- Put on the correct protection when necessary.
- Use applicable ear protection to prevent injury to your ears.
- Use the correct clothes when you do work on the machine. Make sure that long hair is also safely tied up.

- Make sure that applicable first aid equipment is available to use at all times.
- Keep all emergency telephone numbers near to your telephone. If an incident occurs it can be important to get medical aid quickly.
- Keep your hands, feet and clothes away from parts that move.
- Do all maintenance operations when the machine is stopped.
- The work environment must always have good air flow.
- Do not breathe in poisonous material used during the machine maintenance. Always use the correct personal protective equipment.

Fire

- Always be prepared for fires:
 - Make sure that you keep the fire extinguisher near you.
 - Before you start the maintenance operation, identify the fire extinguisher nearest to you.
- Before you weld or heat a part, remove the paint from area to be welded or heated.
- Do not use sprays or other flammable materials near the welding area or near heat sources.
- When you use flammable material, you must remove them with soap and water before you weld.
- Remove all containers of flammable material from the work area.

Environment

- The work environment must always have good air flow:
 - If vents are not available, open the doors and the windows in the work area.
 - Only use work areas that have the correct dust and fume air filtration systems in position.
- Pollution by dangerous materials:
 - Lubricant and the cleaning/painting operations are special waste.
 - Make sure that you use the correct container to collect liquid and solid waste.
 - Discard all liquid and solid waste in the specified procedure.
 - Obey all local regulations.

Safety instructions – Electronics

General

- When you have to do maintenance on the electrical/electronic circuit, disconnect the batteries from the circuit. Disconnect the chassis ground cable first from the negative terminal of the battery.
- Before you connect the batteries to the system, make sure that you sufficiently insulate the system.
- Disconnect all external recharging equipment from the electrical socket before you remove the recharging equipment from the battery terminals.
- Do not cause sparks to see if voltage is in a circuit.
- Do not use a test lamp to measure circuit continuity. Use the correct control equipment only.
- Make sure that the wiring of electronic devices (length, type of cable, location, straps, connection of screen braiding, grounding, etc.) are to the correct standard for the system.
- Make sure that you carefully restore the system after repair or maintenance work.
- When you measure ECUs, on plug connectors and electrical connections, use the correct test lines only. Only use special plugs and plug-type bushes.
- Do not use not approved equipment such as bare metal wires, screwdrivers, pins or equivalent. This can cause a short circuit and can cause damage to plug-type connections. This can then cause contact problems.

Machine

- Do not use fast chargers to start up the engine. Startup must only be done with more batteries or applicable equipment.
- Incorrect polarization of voltage supply to the electronic control units (for example, incorrect polarization of batteries) can cause damage the control unit.
- Disconnect the batteries from the system before you charge them with an external unit. When you connect them to the system, only tighten the connectors (temperature sensors, pressure sensors, etc.) to the specified torque.
- Isolate the circuit before you disconnect the junction connector from an electronic control unit.
- Do not directly supply electrical current to components controlled by an electronic control unit with usual machine voltage.
- Make sure that the cable routing is such that they are not tight and as near to the chassis/body as they can be.
- When you complete maintenance on the electrical circuit, install the electrical connectors and wires to the correct position.
- Electromagnetic disturbances can cause interference when you programme keys.
- When you programme a key:
 - Make sure that there are no sources of electromagnetic disturbance near the keys or in the cab.

- Keys not in the programming panel must be a minimum of 1 m away from the machine.

Safety instructions – Hydraulics

General

- If the high-pressure hydraulic oil touches the skin, this will cause dangerous injuries. Get medical aid immediately if the hydraulic oil goes into your skin.
- Stop the machine and let it cool before you examine the hydraulic fluids. Use caution when you remove the pressure taps.
- Do not open hydraulic pipe connections while the machine operates. Release the hydraulic pressure before you do maintenance or repairs.
- Tighten all connections before you pressurize the system.
- Examine for leaks with a piece of wood or cardboard. This will prevent injury to the hands and the body.
- High pressure hydraulic fluid can cut the skin, cause bad burns or injury to the eyes.
- If hydraulic fluid causes injury to personnel, get medical aid quickly.
- If fuel goes into the skin you must remove it quickly or dangerous injury will result. Get medical aid immediately.

Welding

- Do not apply heat by welding, soldering or use a flame near pressurized fluid lines or other flammable materials.
- You can accidentally cut pressurized lines when heat goes in to more than the local flame area.
- You can make flammable spray when you put heat near pressurized fluid lines, this can cause burns to personnel.

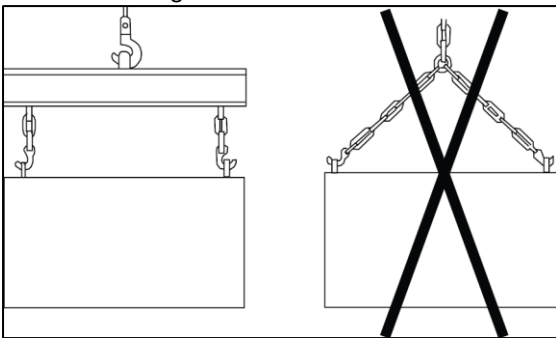
Handling heavy components

Before starting the procedure

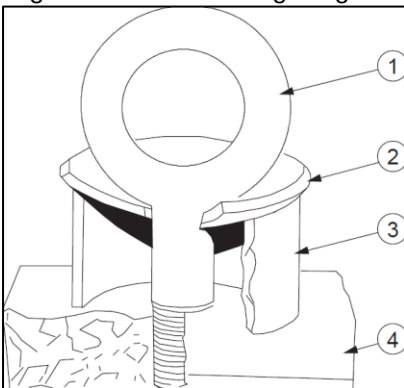
Unless instructions tell differently, we recommend that you use an adjustable lifting equipment in as many lifting operations as possible.

Procedure

- Make sure that the supporting slings are parallel to each other.
- Make sure that the supporting slings are as vertical as possible in relation to the lifted object.
- Use a triangular lifting configuration only when the capacity of the slings is much bigger than the weight of the lifting load.



Note that the eyebolt capacity is decreased when you lift a component at an angle less than 90°. This is the angle between the lifting slings and the removed or lifted object.



1. Eyebolt
2. Eyebolt support
3. Sleeve
4. Load

- When necessary, you can use an eyebolt support for the forged eyebolt. You can weld the sleeve to the plate, but it is not mandatory.

WARNING: If a part resists removal, check that all nuts and bolts have been removed and that there is no interference from adjacent parts.

- Do not do repair work on the lifted object when it is still attached to the lifting slings.

Cleaning components

To ensure long life of a machine, it is important to keep dirt and foreign material out of its vital working components. Enclosed compartments, seals and filters have been provided to keep the supply of air, fuel and lubricant clean. These protective devices must not be removed.

Cleaning and covering precautions should be taken while disconnecting hydraulics, fuel, lubricating oil or lines and while removing access covers or inspection plates.

Procedure

- Clean the point of disconnection and the surrounding area.
- Cap, plug or tape the line or opening to prevent the ingress of foreign material.
- Clean and inspect all parts.
- Make sure that all passages and holes are clear.
- Cover all parts to keep them clean.
- Make sure parts are clean when they are reassembled.
- Keep new parts in their wrapping until they are actually needed.

Assembling components

Before starting the procedure

NOTE: Before fitting new parts, remove rust-preventive compound from all machined surfaces.

NOTE: Do not fit any components other than those originally intended for a particular purpose. The use of other than original AGCO Parts replacement parts invalidates the responsibility of AGCO Power Inc. for meeting the emission requirements.

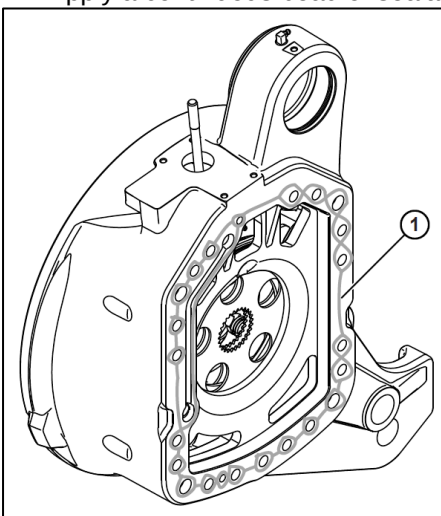
Procedure

- Complete each step-in sequence when reassembling a machine.
- Never partially assemble one part then start to assemble another.
- Make all recommended adjustments.
- Make sure that nothing has been overlooked.
- Always check the job on completion.
- Recheck the various adjustments before putting the machine back into service.

Applying sealants

Procedure

- Clean the surface from old sealant and grease.
- Apply a continuous bead of sealant on one counterpart surface.



1. Sealant

- Encircle all holes in the surface. Make sure that you do not plug oil lines and drillings with the sealant.
- Fit the parts as soon as possible.

Assembling rotating piston rings

IMPORTANT: It is recommended to replace rotating piston rings with new ones every time they are removed.

Procedure

- Make sure there are no dents in the piston ring.
- Make sure that the walls of the groove are undamaged and straight.

Assembling shims

Procedure

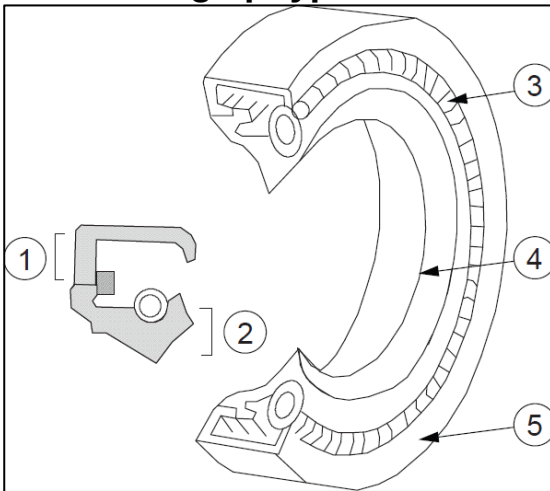
- Tie the shims together.
- Mark the locations of the shims before removal.
- Keep the shims clean.
- Do not bend the shims.

Assembling gaskets

Procedure

- Make sure that the holes in gaskets are lined up with lubricating oil passages in the mating parts.

Assembling lip type rubber seals



1. Heel
2. Toe
3. Case
4. Sealing element
5. Ring spring

Procedure

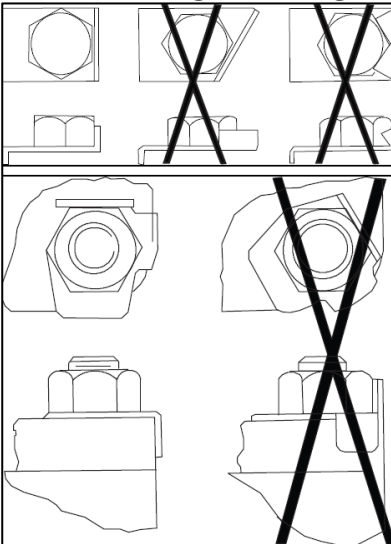
- Lubricate the lips of lip type rubber seals with oil before fitting.
- Do not use grease on seals, except for grease seals.

Assembling cables and wires

Procedure

- Label each cable or wire when removing or disconnecting a group of cables or wires to ensure correct assembly.

Assembling locking devices



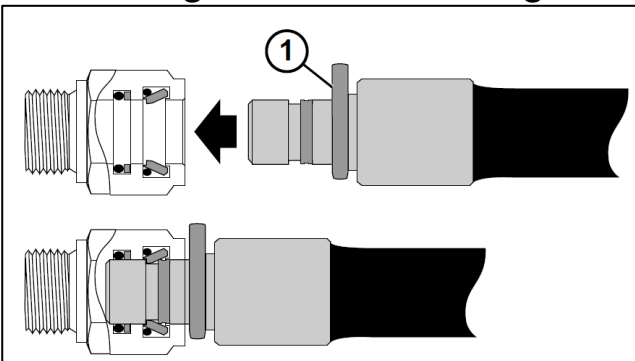
Procedure

- Prevent slackening of nuts and bolts.
- Slackening can be prevented by mechanical means such as lock washers, tab washers and cotter pins, or by Loctite type locking agents.
- Install flat retainers properly.
- Bend one end of the retainer against the edge of the part.
- Bend the other end against one of the nut or bolt head.
- Fit new retainers in compartments which house moving parts.
- Place a flat washer between the lock washer and the aluminium housing.

NOTE: Never fit a lock washer under a nut or screw to which a specified torque has to be applied.

NOTE: Always thoroughly degrease components before applying locking agents.

Connecting and disconnecting WEO connectors



1. Assembly stop

Procedure

To connect:

- Fit the assembly stop on the male part.
- Push the male part until the assembly stop reaches the female part.
- Pull back to verify the connection.

To disconnect:

- Remove the assembly stop.
- Push the male part completely into the female part and pull out.
- Fit the assembly stop.

Starting the engine after major maintenance

Before starting the procedure

Some parts in the exhaust system can be damaged easily by the increased amount of oil and impurities after maintenance work. The system can have excess oil after a major engine overhaul, for example when the pistons are lubricated during the assembly.

IMPORTANT: Excessive oil can damage the catalysts.

Procedure

Do not connect the exhaust system to the engine.

Run the engine for 1-2 minutes on high idle, that is, at full engine speed without load. Running the engine burns the extra oil and impurities from the engine.

CAUTION: Make sure the room is ventilated. Use hearing protectors.

Connect the exhaust system to the engine.

Safety precautions for the electrical system

Follow the safety precautions for the electrical system.

IMPORTANT: Make sure that the main power is turned off before disconnecting or reconnecting the battery.

IMPORTANT: Disconnect the negative lead of the battery first and connect it last.

IMPORTANT: Always connect the battery with the correct polarity.

IMPORTANT: Disconnect the negative battery lead before removing the alternator.

IMPORTANT: Never open the charging circuit while the engine is running.

IMPORTANT: Ensure good ventilation when charging.

IMPORTANT: Do not connect any additional electrical equipment, as this may damage components of the existing electrical system.

IMPORTANT: All electronic equipment is sensitive to electrostatic discharge (ESD). Take all necessary measures to minimize or eliminate the risk of equipment being damaged by ESD.

Technical data

General specifications

Engine

Model	Model 75	Model 95	Model 105
Engine type	F6BFL413A*V002	F6BGL413A*V015	F6BGL413A*V015
Engine power at 2300 rpm	55 kW / 75 hp	67.4 kW / 91 hp	75.6 kW / 103 hp
Number of cylinders	4	4	4
Displacement	2797 cm ³	2797 cm ³	2797 cm ³
Bore	99 mm	99 mm	99 mm
Stroke	90.8 mm	90.8 mm	90.8 mm
Maximum torque engine	1500 rpm	1500 rpm	1500 rpm
Maximum torque	358 Nm	382 Nm	416 Nm
Mechanical clutch	304.8 mm single plate	304.8 mm single plate	304.8 mm single plate

Electrical system

Battery	12 V - 80 Ah
Alternator	14 V - 100 A
Starter motor	3.2 kW

Transmission 12+12 speeds

Type	Mechanical
Reverser	Synchro
High and low range	-
Number of gears	4
Number of ranges	3
Machine speed	30 km/h

Transmission 24+24 speeds

Type	Mechanical
Reverser	Synchro
High and low range	Synchro
Number of gears	4
Number of ranges	3
Machine speed	40 km/h

Transmission 24+12 speeds

Type	Electro-hydraulic
Reverser	Power
High and low range	Power
Number of gears	4
Number of ranges	3
Machine speed	40 km/h

Steering system 4WD

Maximum system pressure	190 bar
Flow	100 cm ³

Air-conditioning system

Capacity	800 g
Refrigerant	R 134a

Brake system

Oil reservoir	0.5 L
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Tank capacities

Model	Tank	Platform, standard	Cab, narrow	Cab, standard
75	Front tank	72.9 L	72.9 L	72.9 L
75 with front PTO	Front tank	51.1L	51.1L	51.1 L
	Auxiliary tank	-	34.5 L	34.5 L
95	Left tank	25.7 L	34.5 L	34.5 L
	Right tank	46.7 L	-	-

Model	Tank	Platform, standard	Cab, narrow	Cab, standard
	AdBlue tank	9.6 L	9.6 L	9.6 L
105	Left tank	25.7 L	34.5 L	34.5 L
	Right tank	46.7 L	-	-
	AdBlue tank	9.6 L	9.6 L	9.6 L

Bulb specification

High beam lamp	12 V - 60W HB3
Rear work lamp bulb (platform models)	12 V - 55W H3
Head lamps	12 V - 60/55W H4 and 12 V 4W T4W
Rear lamps	12 V - R5W
Turn signal lamps	12 V - R21W
Beacon lamp	12 V - 50W H1
Cab work lamp	12 V - 55 W H3
License plate lamp	12 V - 10 W
Cab internal lamp	12 V - 2x10 W

Brakes

Control	Integrated mechanical and hydraulic functions
Brake configuration	Wet disc

Differential lock

Type	Mechanical, with shaft
Engage/disengage	Hydraulic

NOTE: The local regulations can limit the value specified in the tire load index chart.

Rear axle

Type		Planetary gear
Ratio		6:01
Flange space	Platform	1242 mm
	Cab, narrow	972 mm
	Cab, standard	1242 mm
Circle diameter of the wheel fasteners		Circle diameter of the wheel fasteners 203 mm
Diameter of the wheel disc center		152 mm
Number of wheel fasteners		8 on each wheel
Wheel fastener type		M18 x 1.5 mm
Maximum load capacity on the rear axle		3100 kg
Circle diameter of the wheel fasteners		203 mm

Rear PTO

Standard PTO speed	540 rpm	540e rpm	1000 rpm
Engine speed	1938 rpm	1648 rpm	1962 rpm
PTO shaft diameter	35 mm	35 mm	35 mm
Number of splines	6	6	21
Direction of rotation	Clockwise	Clockwise	Clockwise
Gear ratio: Engine speed / PTO rpm	3.6	3	1.9

Ground speed PTO

Standard PTO speed	540 rpm	540e rpm	1000 rpm
Ratio - rotation of the PTO shaft to 1 turn of the wheel	9.077	10.670	16.605

Front PTO

Standard PTO speed	1000 rpm
Engine speed	1940 rpm

PTO shaft diameter	35 mm
Number of splines	6
Direction of rotation	Clockwise
Gear ratio: Engine speed / PTO rpm	1.9

Front axle

	Narrow	Standard
Type	4WD	4WD
Maximum steering angle	55°	52°
Rake	6°	7°
Differential type	Limited slip	Limited slip
Flange gap	990 mm	1326 mm
4WD engage	Electro-hydraulic	Electro-hydraulic
Differential lock	Automatic	Automatic
Number of wheel fasteners	6	8
Fastener type	M18	M18
Diameter of the wheel disc center	162 mm	221 mm
Circle diameter of the wheel fasteners	205 mm	275 mm
Maximum load capacity	2200 kg	2200 kg

Hydraulic system

Hydraulic pump - Auxiliary spool valves/rear lift	Maximum pump piston displacement	25 cm ³
	Capacity	66.8 L/min
Hydraulic pump - Steering/transmission	Maximum pump piston displacement	11 cm ³
	Capacity	29.8 L/min
Hydraulic pump - Rear lift (optional)	Maximum pump piston displacement	11 cm ³
	Capacity	29.8 L/min

NOTE:The local regulations can limit the value specified in the tire load index chart.

Torque values for fasteners

Refer to the tables for the recommended torque values:

- 1 and 2 for mm threads.
- 3, 4, 5 and 6 for in threads.

Specified torque figures are in the text where it is necessary.

Tables 1, 3 and 5 show the usual torque values to apply to zinc-plated fasteners for:

- Standard nuts, coarse or fine threads with or without a flat washer or a lock washer.
- Weld nuts that have a height of more than or equal to 0.8 d.

Tables 2, 4 and 6 show the decreased torque values to apply to fasteners for:

- Zinc-plated self-locking nuts, phosphated or zinc-flake-coated nuts.
- Screws, thin nuts and weld nuts that have a height of less than 0.8 d.

To do a check of these torque values, loosen the fastener a quarter of a turn and then tighten again.

These values apply to dry assemblies. If the threads are lubricated, decrease the torque.

1 - Torque values for zinc dichromate-plated or white zinc-plated threads (mm)

Fastener	Tensile grade / torque Nm					
	ISO 4.6 (SAE 1-BS B)		ISO 8.8 (SAE 5-BS S)		ISO 10.9 (SAE 8-BS V)	
	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum
M3	0.5	0.7	1.3	1.7	1.8	2.4
M4	1.2	1.6	3.1	4.1	4.3	5.7
M5	2.2	3	6	8	8.5	11.5
M6	4	5	10	14	14	20
M8	9.5	12.5	25	35	36	46
M10	19	25	50	70	72	96
M12	33	43	90	120	120	160
M16	84	110	200	260	300	400
M20	160	210	420	560	600	800

Fastener	Tensile grade / torque Nm					
	ISO 4.6 (SAE 1-BS B)		ISO 8.8 (SAE 5-BS S)		ISO 10.9 (SAE 8-BS V)	
	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum
M24	280	360	720	960	1000	1300
M30	540	720	1400	1800	2100	2800
M36	950	1250	2500	3300	3600	4800

2 - Decreased torque values for phosphated or zinc-flake-coated threads (mm)

Fastener	Tensile grade / torque Nm					
	ISO 4.6 (SAE 1-BS B)		ISO 8.8 (SAE 5-BS S)		ISO 10.9 (SAE 8-BS V)	
	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum
M3	0.4	0.6	1	1.4	1.5	1.9
M4	1	1.3	2.5	3.3	3.4	4.6
M5	1.8	2.4	4.8	6.4	6.8	9.2
M6	3.2	4	8	11	12	16
M8	7.6	10	20	28	29	37
M10	15	20	40	56	57	77
M12	26	34	72	96	100	130
M16	68	88	160	210	240	320
M20	130	170	340	450	480	640
M24	230	290	570	770	800	1040
M30	430	570	1100	1400	1700	2200
M36	760	1000	2000	2600	2900	3800

3 - Torque values for zinc dichromate-plated or white zinc-plated threads (in)

Fastener	Tensile grade / torque lbf-ft					
	SAE 1 (ISO 4.6-BS B)		SAE 5 (ISO 8.8-BS S)		SAE 8 (ISO 10.9-BS V)	
	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum
#6	0.9	1.3	1.8	2.4	2.5	3.3
#8	1.7	2.3	3.4	4.4	4.7	6.3
#10	2.5	3.3	4.7	6.3	6.7	8.9
1/4	6	8	11	15	16	22
5/16	12	16	22	30	31	43
3/8	22	30	39	53	55	75
7/16	35	47	64	86	90	120
1/2	54	72	100	130	140	180
5/8	110	140	200	260	280	370
3/4	190	250	350	460	490	660
7/8	310	410	560	760	800	1060
1	460	620	840	1120	1200	1600
1 1/8	480	640	1050	1390	1700	2200
1 1/4	680	900	1500	2000	2400	3200
1 1/2	1200	1600	2600	3400	4100	5400

4 - Decreased torque values for phosphated or zinc-flake-coated threads (in)

Fastener	Tensile grade / torque lbf-ft					
	SAE 1 (ISO 4.6-BS B)		SAE 5 (ISO 8.8-BS S)		SAE 8 (ISO 10.9-BS V)	
	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum
#6	0.7	1	1.5	1.9	2	2.6
#8	1.4	1.8	2.7	3.5	3.8	5
#10	2	2.6	3.8	5	5.3	7.1
1/4	4.8	6.4	8.8	12	13	18
5/16	9.6	13	18	24	25	34
3/8	18	24	31	42	44	60
7/16	28	38	51	69	72	96
1/2	43	57	80	104	110	140
5/8	90	110	160	210	220	300
3/4	150	200	280	370	390	530
7/8	250	330	450	610	640	850
1	370	500	670	900	960	1280
1 1/8	390	510	840	1100	1360	1760
1 1/4	540	720	1200	1600	1920	2560
1 1/2	960	1300	2100	2700	3280	4320

5 - Torque values for zinc dichromate-plated or white zinc-plated threads (in)

Fastener	Tensile grade / torque lbf-ft					
	SAE 1 (ISO 10.9-BS B)		SAE 5 (ISO 8.8-BS S)		SAE 8 (ISO 10.9-BS V)	
	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum
#6	0.6	1	1.3	1.8	1.8	2.4
#8	1.3	1.7	2.5	3.2	3.4	4.6
#10	1.8	2.4	3.4	4.6	4.9	6.6
1/4	4.4	5.9	8	11	12	16
5/16	9	12	16	22	23	31
3/8	16	22	29	39	41	55
7/16	26	35	47	63	66	88
1/2	40	53	74	96	100	130
5/8	81	103	150	190	210	270
3/4	140	180	260	340	360	490
7/8	230	300	410	560	590	780
1	340	460	620	830	880	1180
1 1/8	350	470	775	1025	1200	1600
1 1/4	500	660	1100	1470	1800	2400
1 1/2	880	1180	1900	2500	3000	4000

6 - Decreased torque values for phosphated or zinc-flake-coated threads (in)

Fastener	Tensile grade / torque lbf-ft					
	SAE 1 (ISO 10.9-BS B)		SAE 5 (ISO 8.8-BS S)		SAE 8 (ISO 10.9-BS V)	
	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum
#6	0.5	0.8	1	1.4	1.5	1.9
#8	1	1.4	2	2.6	2.7	3.7
#10	1.5	1.9	2.7	3.7	3.9	5.3
1/4	3.5	4.7	6.6	8.8	9	13
5/16	7	9.4	13	18	18	25
3/8	13	18	23	31	32	44
7/16	20	28	37	51	53	71
1/2	32	42	59	77	82	106
5/8	65	83	120	150	160	220
3/4	110	150	210	270	290	390
7/8	180	240	330	450	470	630
1	270	370	500	660	710	940
1 1/8	280	380	620	820	1000	1300
1 1/4	400	530	880	1180	1400	1900
1 1/2	700	940	1500	2000	2400	3200

Torque values for hydraulic connections

Refer to the tables for the recommended torque values:

1. Hydraulic unions with a 37° flare.

EO2 hydraulic unions.

Hydraulic unions with a straight thread mm.

Hydraulic unions with a straight thread in.

Steel unions with a sealed thread.

Specified torque figures are in the text where it is necessary.

The specifications for these torques apply to zinc plated unions for hoses and hydraulic pipes including:

- Straight thread unions.
- Unions with a 37° flare.
- ORB unions.

These values apply to dry assemblies. If the threads are lubricated, decrease the torque.

IMPORTANT: Do not use a pipe wrench or a torque wrench to tighten the unions for pipes. Use the correct pipe wrench, flat open-end wrench or Allen key to prevent damage to the pipe and union.

1 - Torque values for hydraulic unions with a 37° flare

Outer diameter of pipe		Thread (in)	Torque Nm (tensile grade SAE J 514)	
mm	in		Minimum	Maximum
4	1/8	5/16 - 24 UNF	8	9
5	3/16	3/8 - 24 UNF	11	12

Outer diameter of pipe		Thread (in)	Torque Nm (tensile grade SAE J 514)	
mm	in		Minimum	Maximum
6	1/4	7/16 - 20 UNF	15	16
8	5/16	1/2 - 20 UNF	19	21
10	3/8	9/16 - 18 UNF	24	28
12	1/2	3/4 - 16 UNF	49	53
16	5/8	7/8 - 14 UNF	77	85
20	3/4	1-1/16 - 12 UN	107	119
22	7/8	1-3/16 - 12 UN	127	140
25	1	1-5/16 - 12 UN	147	154
32	1-1/4	1-5/8 - 12 UN	172	181
40	1-1/2	1-7/8 - 12 UN	215	226
50	2	2-1/2 - 12 UN	332	350

2 - Torque values for EO2 hydraulic unions

Pipe dimension mm	Torque Nm +10%
6 x 1	17
8 x 1	25
10 x 1	35
12 x 1	45
12 x 1.5	48
15 x 1.5	70
18 x 2	105
22 x 2	160
25 x 2	210
28 x 2	205

3 - Torque values for hydraulic unions with a straight thread (mm)

Thread mm	Torque Nm +10% / 0% (tensile grade ISO 6149-3)
M8 x 1	8
M10 x 1	15
M12 x 1.5	25
M14 x 1.5	35
M16 x 1.5	40
M18 x 1.5	45
M22 x 1.5	60
M27 x 2	100
M33 x 2	210
M42 x 2	205
M48 x 2	260
M60 x 2	315

4 - Torque values for hydraulic unions with a straight thread (in)

Thread (in)	Torque Nm (tensile grade SAE J 514)	
	Minimum	Maximum
5/16 - 24 UNF	8	9
3/8 - 24 UNF	11	12
7/16 - 20 UNF	18	20
1/2 - 20 UNF	23	26
9/16 - 18 UNF	29	33
3/4 - 16 UNF	49	53
7/8 - 14 UNF	59	64
1-1/16 - 12 UN	93	102
1-3/16 - 12 UN	122	134
1-5/16 - 12 UN	151	166
1-5/8 - 12 UN	198	218
1-7/8 - 12 UN	209	231
2-1/2 - 12 UN	296	325

5 - Torque values for steel unions with a sealed thread (in)

Pipe diameter (in)	Torque Nm	
	Minimum (*)	Maximum
1/8	20	30
1/4	40	50
3/8	60	80

Pipe diameter (in)	Torque Nm	
	Minimum (*)	Maximum
1/2	110	140
3/4	160	200
1	210	270
1-1/4	250	310

(*) The minimum value does not apply if a sealant product is applied to the thread.

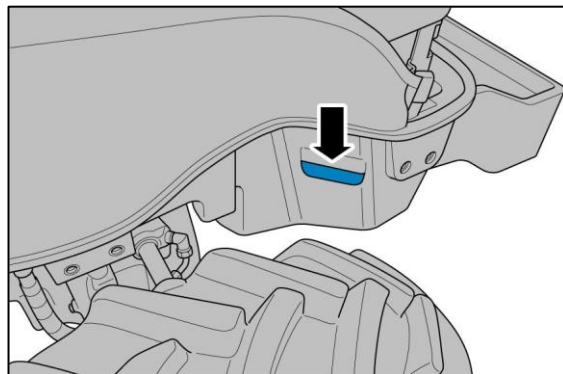
Identification

Identification plate / serial number plate locations

Each machine has the identification plates recorded in this section. The identification number on the plates is a numeric or alphanumeric ID that identifies the component or assembly in an issuing database. These serial numbers are necessary for warranty claims, when you order components or to identify a tractor or component. In addition, they are necessary for law enforcement to find your machine if stolen. Make sure that you keep the data on the identification plates clean and replace an identification plate with damage. Accurately record the serial number in the text boxes supplied.

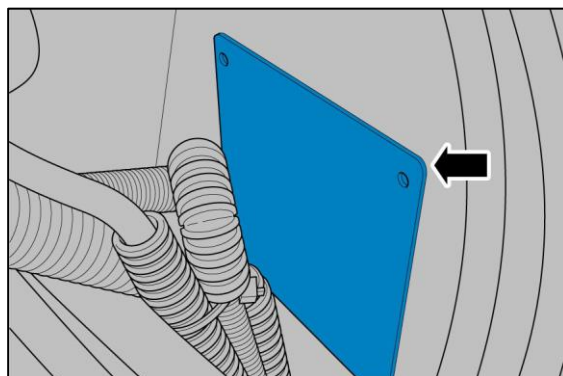
Vehicle identification number

The vehicle identification number is on the right side of the front support.



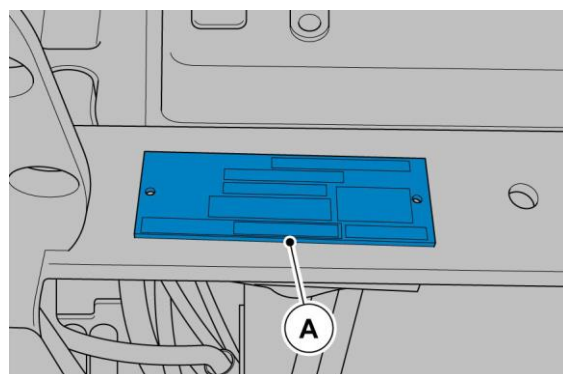
Product identification number

Because of the different local regulations in some countries. The location and dimensions of the product identification plate can be different.



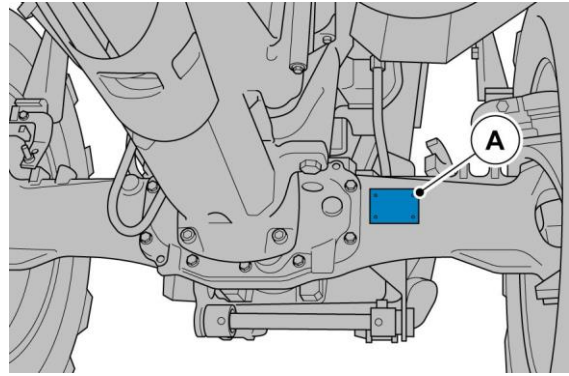
Safety structure plates

The safety structure plates are on the frame or pilasters in the position highlighted. The location of the safety structure plate can be different because of the vehicle model, chassis version and equipment configuration



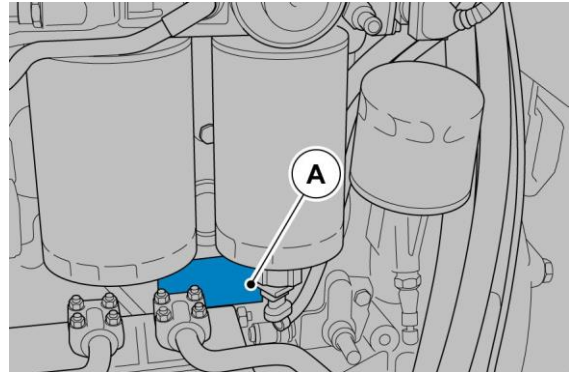
Front axle

The serial number plate for the front axle is on the rear right side of the axle.



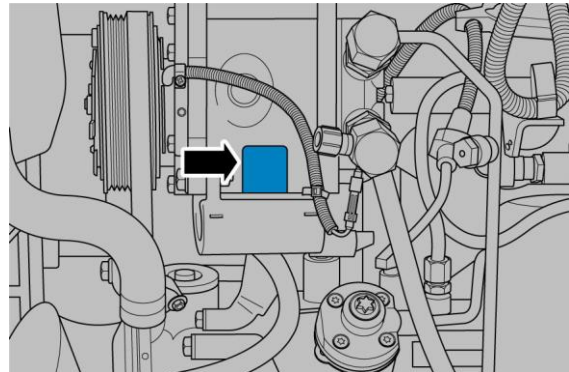
Engine

The serial number plate for the engine is on the left side of the engine.



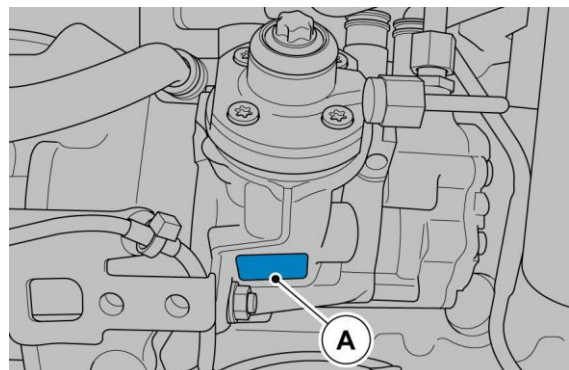
Air conditioning compressor

The serial number plate for the air conditioning compressor is on the compressor on the left side of the engine.



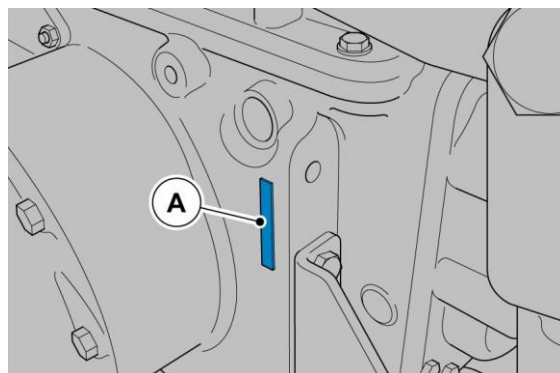
Fuel injection pump

The serial number plate for the fuel injection pump is on the pump on the left side of the engine.



Transmission

The serial number plate for the transmission (drive train) is on the rear of the machine below the left corner of the PTO housing.



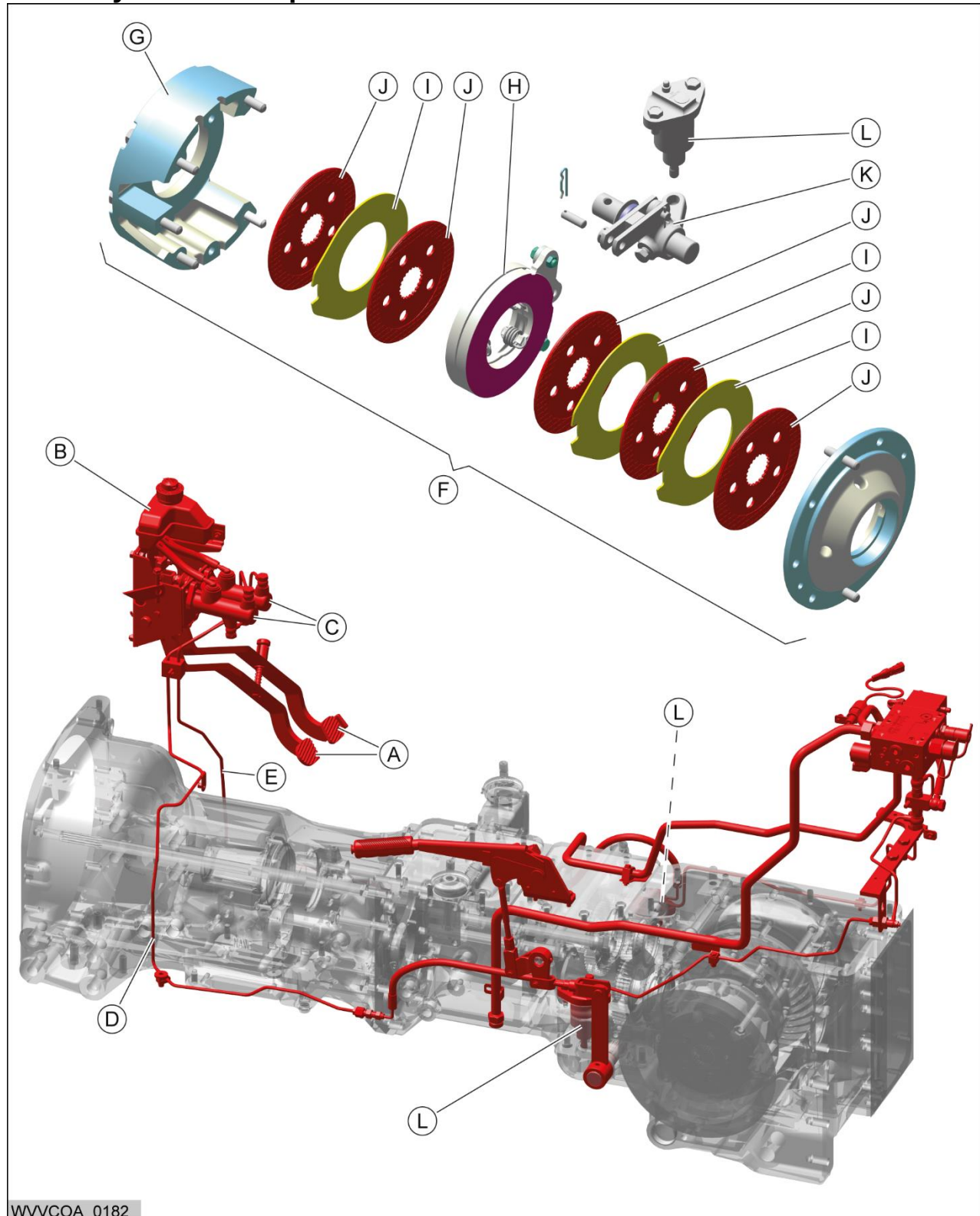
Braking system

WARNING: Risk of injury. Make sure that you bleed the brakes correctly after you do maintenance on the brake system hydraulics.

IMPORTANT: Damage to the machine and the environment. Clean all spills immediately.

NOTE: Examine the hydraulic pipes and hoses for wear or damage. Replace if necessary. Replace all gaskets and seals, if new pipes are being installed.

Brake hydraulic components



WVCOA_0182

- (A) Brake pedal (2 used).
- (B) Brake oil reservoir.
- (C) Brake cylinder (2 used).
- (D) Brake oil pressure pipe, left hand side.
- (E) Brake oil pressure pipe, right hand side.
- (F) Brake assembly (2 used).
- (G) Brake housing (2 used).
- (H) Brake reaction plate assembly (2 used).
- (I) Brake plate (6 used).
- (J) Brake disk (10 used).
- (K) Brake linkage (2 used).
- (L) Hydraulic actuator (2 used).

1. Make sure that the brake system operates correctly.
2. Examine for leaks.

Bleeding

WARNING: The machine can move without warning. The machine is heavy and can cause death or injury. Park the machine on a clean, hard and level area. Set the parking brake to ON and install the wheel chocks. The machine has parts that move without operator input. The parts that move can hit persons. Stop the engine on the machine and remove the ignition key.

NOTE: Two technicians are necessary to bleed the brake system, one to operate the brake pedals (E) and (F) and the other to operate the bleed screws (H) and (I).

Procedure

Disconnect the battery (see chapter [Connection/disconnection of the battery cut-off switch \(under 75Hp\)](#) - or - see chapter [Connection/disconnection of the battery cut-off switch \(over 75Hp\)](#)).

Remove the cover (A) (see chapter [Removal/refitting of the dashboard panels](#)).



Platform models

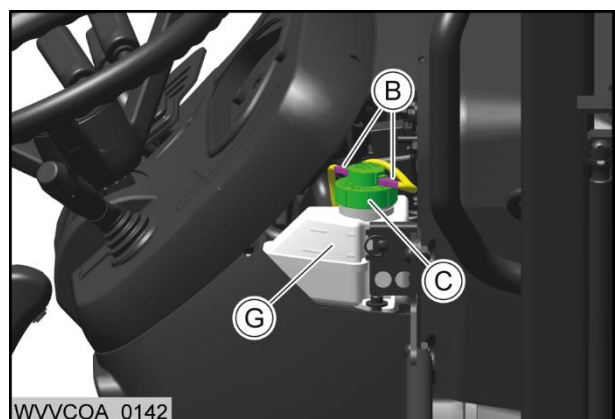


Cab models

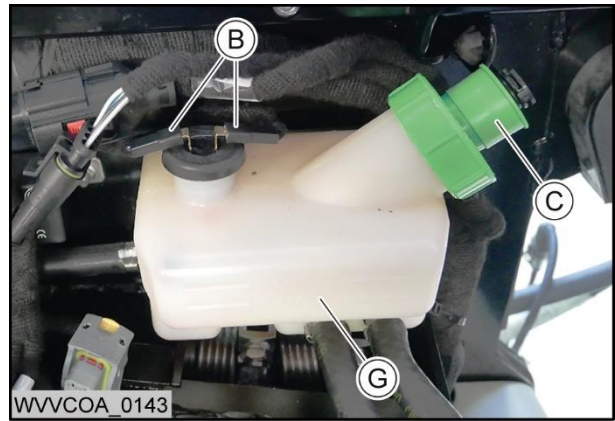
Disconnect the two electrical connectors (B) and remove the level sensor cap (C) from the brake fluid reservoir (G).

Make sure that the brake fluid reservoir (G) is full to the MAX level.

IMPORTANT: When you bleed the system the brake fluid level must not go below the minimum level. Use the specified brake fluid only (see chapter [Recommended lubricants and additives](#)). The incorrect brake fluid will cause damage to the machine.



Platform models

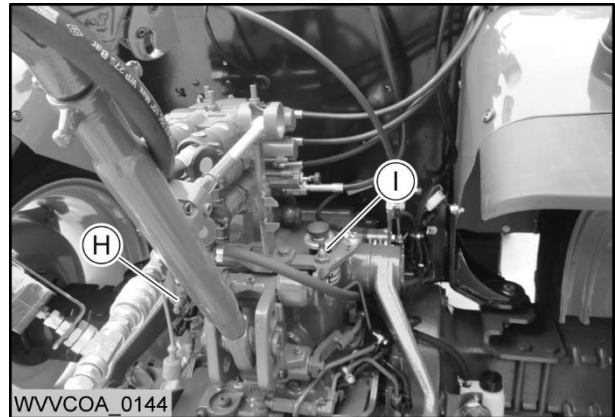


Cab models

Install a transparent flexible hose on the bleed screw (H).

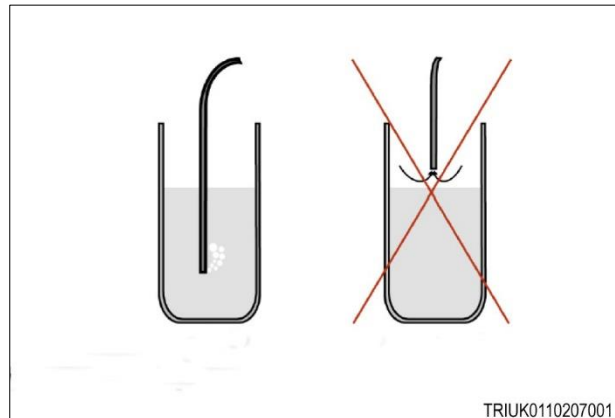
Install a transparent flexible hose on the bleed screw (I).

NOTE: Put a container in an applicable position to collect all fluids that come out during the procedure.



Use an applicable container to collect the brake fluid.

NOTE: Make sure that the transparent flexible hose is in the correct position in the container.



Pull the lock device (D) in the direction (R) to disconnect the left (E) and the right (F) brake pedals.

Turn the lock pin (D) clockwise and release it to lock it in position. The brake pedals (E) and (F) will now operate independently.

Loosen the bleed screw (H) to release brake fluid and air.

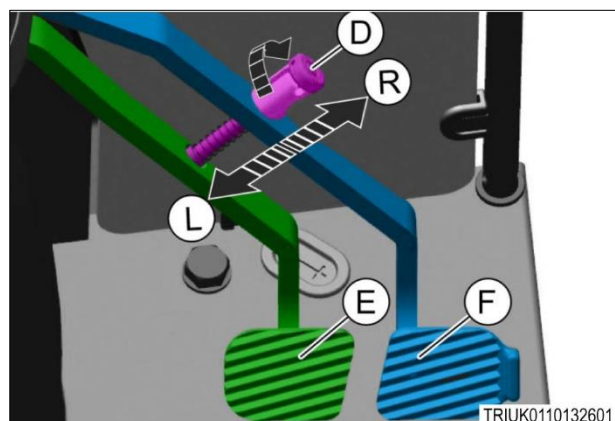
Push the pedal (F) down to remove brake fluid and air.

Repeat previous step until there is no air in the system.

Hold down the pedal (F) and tighten the bleed screw (H).

Loosen the bleed screw (I) to release brake fluid and air.

Push the pedal (E) down to remove brake fluid and air.



Repeat previous step until there is no air in the system.

Hold down the pedal (E) and tighten the bleed screw (I).

Remove the transparent flexible hose from the bleed screws (H) and (I).

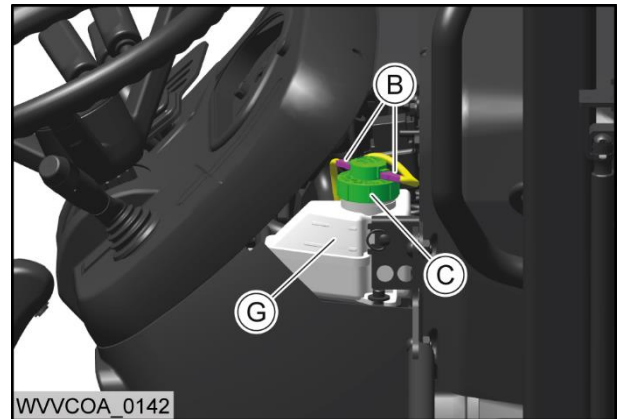
Tighten the bleed screws (H) and (I) to the standard torque.

Fill the brake fluid reservoir (G) to the maximum level indicator with the specified brake fluid (see chapter [Recommended lubricants and additives](#)).

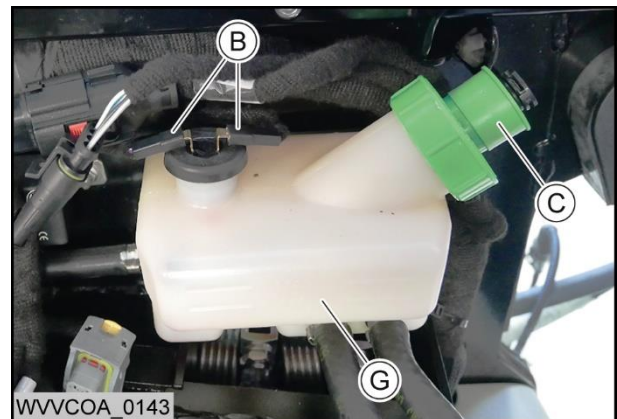
NOTE: Make sure that you remove and clean away spilt brake fluid.

Refit the level sensor cap (C) to the brake fluid reservoir (G) and connect the electrical connectors (B).

Make sure that there are no leaks.



Platform models



Cab models

Refit the cover (A) (see chapter [Recommended lubricants and additives](#))



Platform models



Cab models

Connect the battery (see chapter [Connection/disconnection of the battery cut-off switch \(under 75Hp\)](#) or see chapter [Connection/disconnection of the battery cut-off switch \(over 75Hp\)](#)).

Perform a road test to check the efficiency of the brakes.

Bleeding - with Trailer brake valve (optional)

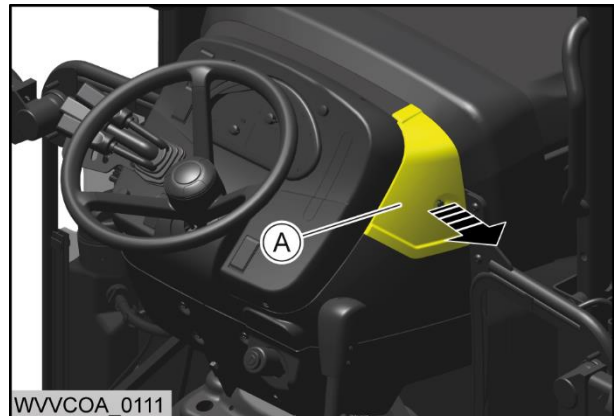
WARNING: The machine can move without warning. The machine is heavy and can cause death or injury. Park the machine on a clean, hard and level area. Set the parking brake to ON and install the wheel chocks. The machine has parts that move without operator input. The parts that move can hit persons. Stop the engine on the machine and remove the ignition key.

NOTE: Two technicians are necessary to bleed the brake system, one to operate the brake pedals (E) and (F) and the other to operate the bleed screw (H).

Procedure

1. Disconnect the battery (see chapter [Connection/disconnection of the battery cut-off switch \(under 75Hp\)](#), - or - see chapter [Connection/disconnection of the battery cut-off switch \(over 75Hp\)](#)).

Remove the cover (A) (see chapter [Removal/refitting of the dashboard panels](#)).



Platform models

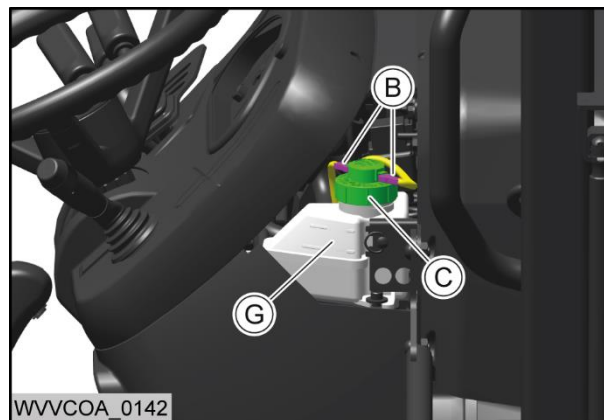


Cab models

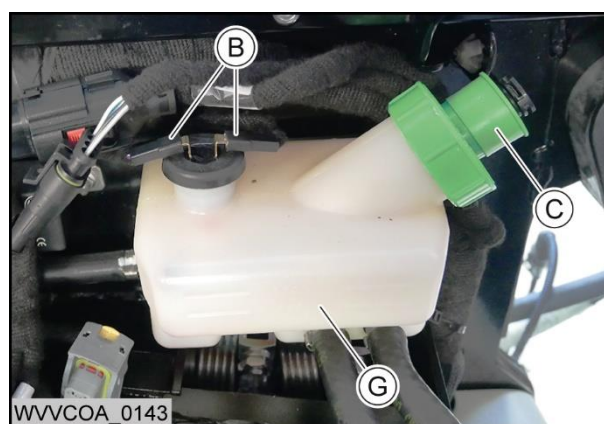
Disconnect the two electrical connectors (B) and remove the level sensor cap (C) from the brake fluid reservoir (G).

Make sure that the brake fluid reservoir (G) is full to the MAX level.

IMPORTANT: When you bleed the system the brake fluid level must not go below the minimum level. Use the specified brake fluid only (see chapter [Recommended lubricants and additives](#)). The incorrect brake fluid will cause damage to the machine.



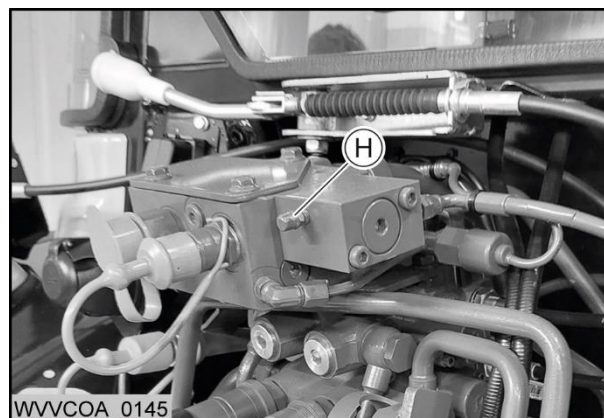
Platform models



Cab models

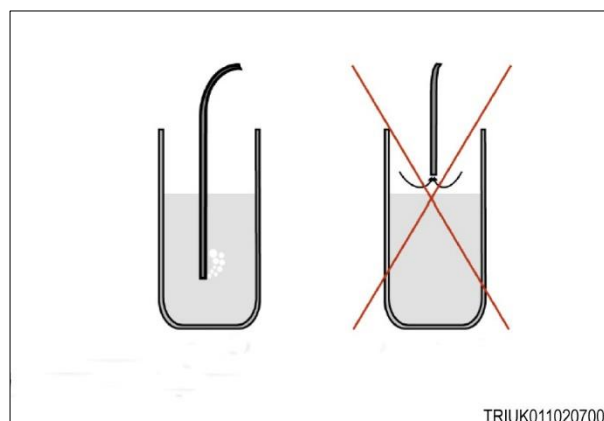
Install a transparent flexible hose on the bleed screw (H).

NOTE: Put a container in an applicable position to collect all fluids that come out during the procedure.



Use an applicable container to collect the brake fluid.

NOTE: Make sure that the transparent flexible hose is in the correct position in the container.



Pull the lock device (D) in the direction (R) to disconnect the left (E) and the right (F) brake pedals.

Turn the lock pin (D) clockwise and release it to lock it in position. The brake pedals (E) and (F) will now operate independently.

Operate the brake pedal (E) until you feel resistance.

Loosen the bleed screw (H) to release brake fluid and air.

Push the pedal (E) down to remove brake fluid and air.

Repeat previous step until there is no air in the system.

Hold down the pedal (E) and tighten the bleed screw (H).

Operate the brake pedal (F) until you feel resistance.

Loosen the bleed screw (H) to release brake fluid and air.

Push the pedal (F) down to remove brake fluid and air.

Repeat previous step until there is no air in the system.

Hold down the pedal (F) and tighten the bleed screw (H).

Turn the lock device (D) in the direction (R).

Release the lock pin (D) to connect the brake pedals (E) and (F).

Operate the brake pedals (E) and (F) until you feel resistance.

Loosen the bleed screw (H) to release brake fluid and air.

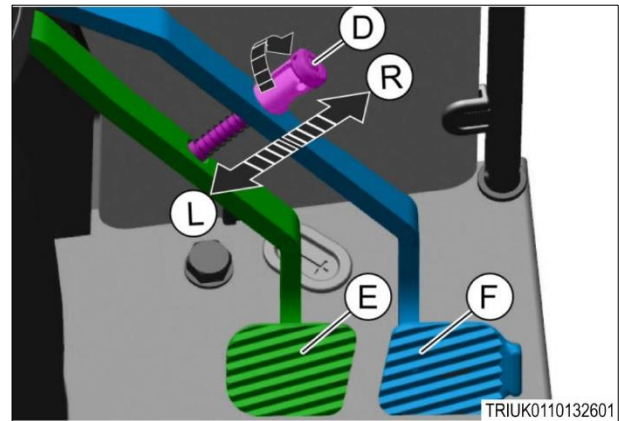
Push the brake pedals (E) and (F) down to remove brake fluid and air.

Repeat previous step until there is no air in the system.

Hold down the pedals (E) and (F) and tighten the bleed screw (H).

Remove the transparent flexible hose from the bleed screw (H).

Tighten the bleed screw (H) to the standard torque.

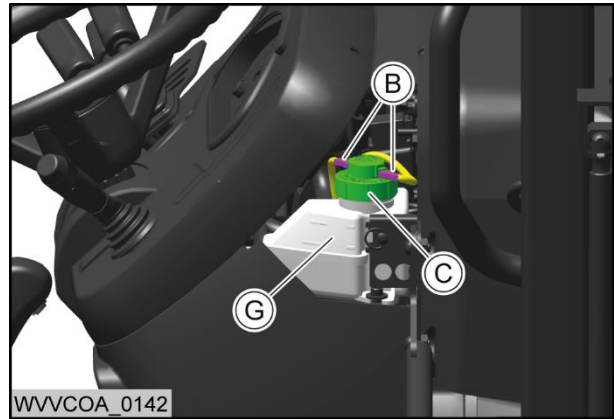


Fill the brake fluid reservoir (G) to the maximum level indicator with the specified brake fluid (see chapter [Recommended lubricants and additives](#)).

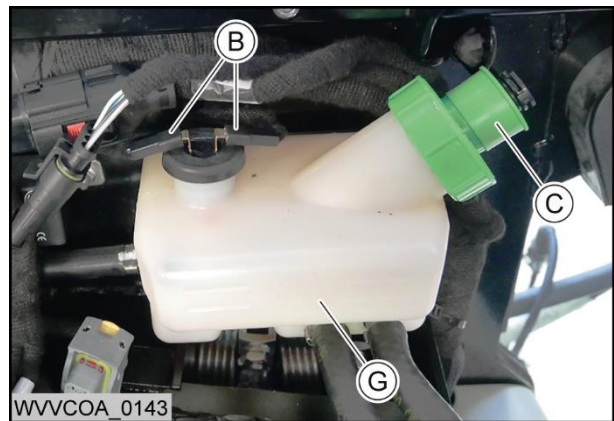
NOTE: Make sure that you remove and clean away spilt brake fluid.

Refit the level sensor cap (C) to the brake fluid reservoir (G) and connect the electrical connectors (B).

Make sure that there are no leaks.



Platform models



Cab models

Refit the cover (A) (see chapter [Removal/refitting of the dashboard panels](#)).



Platform models



Cab models

Connect the battery (see chapter [Connection/disconnection of the battery cut-off switch \(under 75Hp\)](#) - or - see chapter [Connection/disconnection of the battery cut-off switch \(over 75Hp\)](#)).

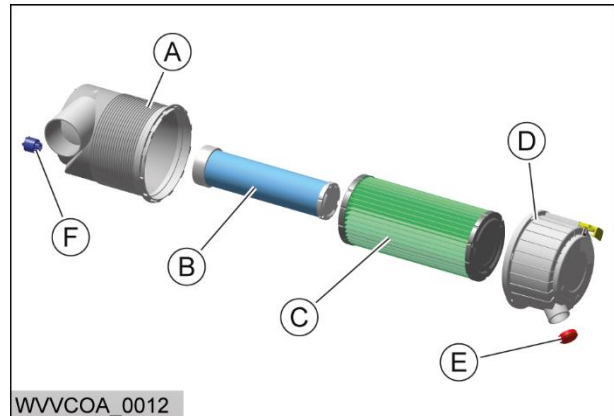
Perform a road test to check the efficiency of the brakes.

Cleaning

Components of the air filter housing

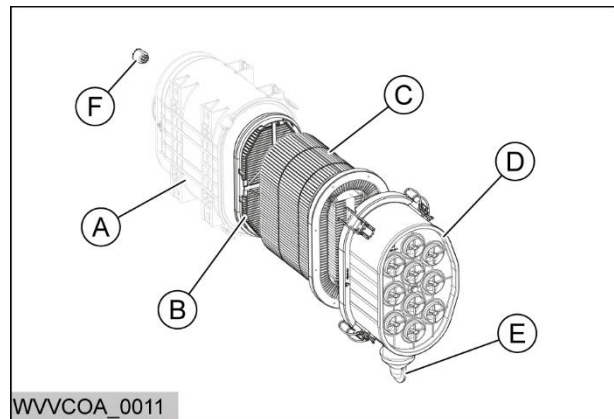
Only for models under 75Hp

- (A) Air filter housing.
- (B) Secondary (safety) filter element.
- (C) Primary filter element.
- (D) Air filter cover.
- (E) Dust unloader valve.
- (F) Air filter clogging sensor.



Only for models over 75Hp

- (A) Air filter housing.
- (B) Secondary (safety) filter element.
- (C) Primary filter element.
- (D) Air filter cover.
- (E) Dust unloader valve.
- (F) Air filter clogging sensor.



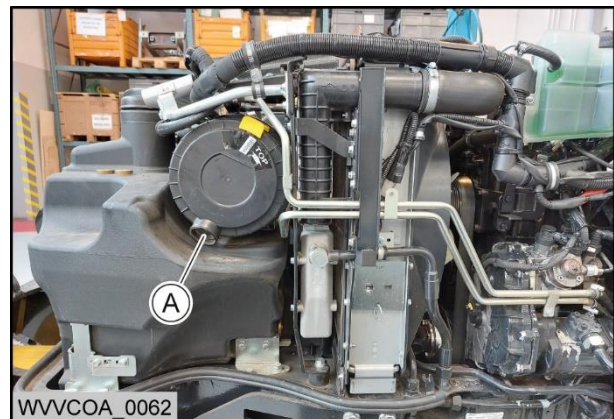
Dust valve

WARNING: The machine can move without warning. The machine is heavy and can cause death or injury. Park the machine on a clean, hard and level area. Set the parking brake to ON and install the wheel chocks. The machine has parts that move without operator input. The parts that move can hit persons. Stop the engine on the machine and remove the ignition key.

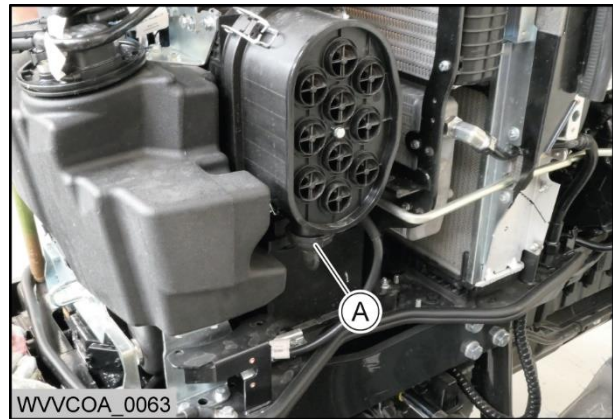
Procedure

1. Grass and chaff can decrease the performance of the dust valve (A). Remove and clean the dust valve (A) when necessary. If you find damage on the dust valve, replace it immediately.

NOTE: In high dust conditions, clean the dust valve (A) each day.



Under 75hp models



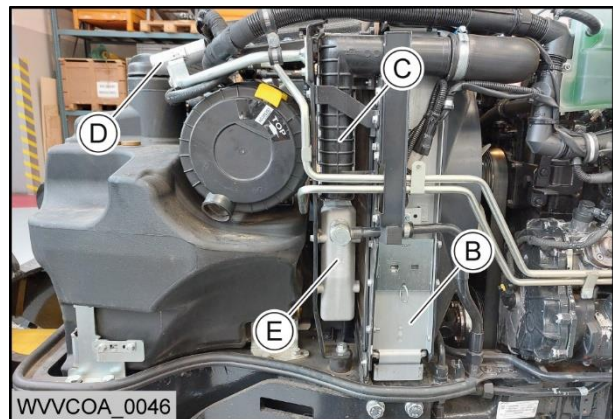
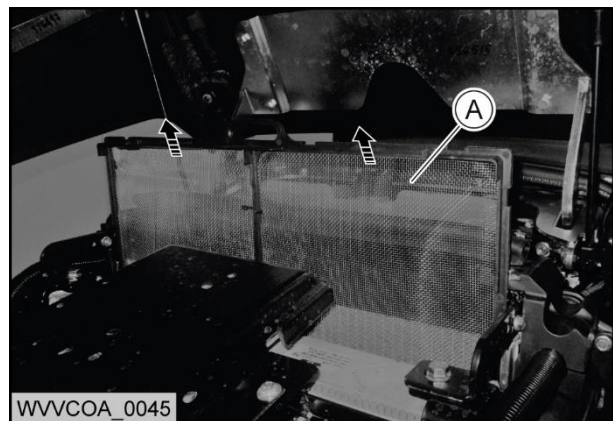
Over 75hp models

Radiator and the oil cooler

Procedure

1. Whenever dirt builds up on the front grille of the engine cover, stop the engine and clean it with a brush.
2. Open the engine cover and remove the internal grille (A) by pulling it upwards to allow the access to the cooling system.
3. Inspect if dirt has built up on the radiator (B), air cooler (C), fuel cooler (D) and oil cooler (E).
4. If so, remove any dust and dirt using water and/or compressed air.

CAUTION: Reduce compressed air pressure to less than 210 kPa when using for cleaning purposes. Clear area of bystanders, guard against flying chips, and wear personal protection equipment including eye protection.



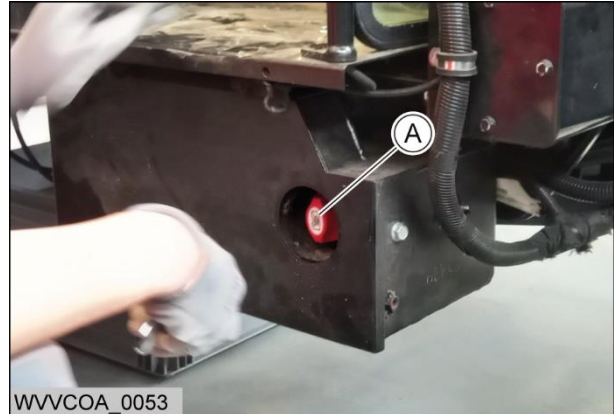
Connection/disconnection of the battery cut-off switch

Under 75Hp

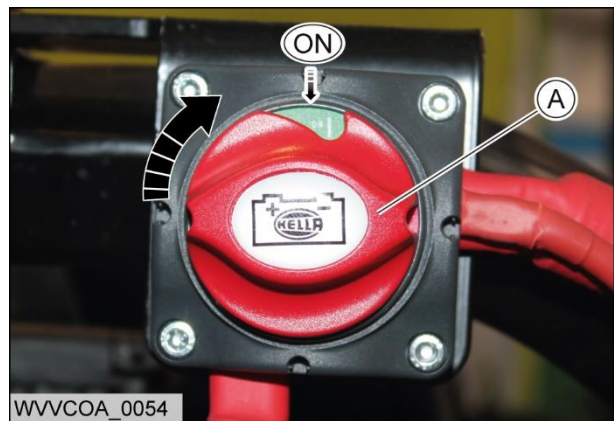
IMPORTANT: This knob (A) allows the battery to be disconnected from the tractor's electrical system.

Procedure

1. To connect the battery, the battery cut-off switch has to be turned ON: turn the knob (A) clockwise until the end of stroke and the green label "ON I" is visible.



To disconnect the battery, the battery cut-off switch has to be turned OFF: turn the knob (A) counterclockwise until the red label "0 OFF" is visible.

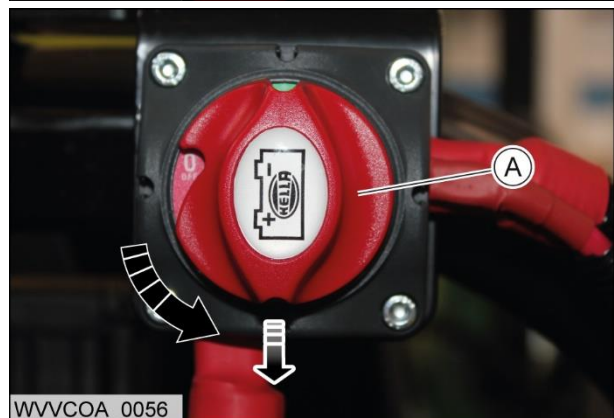
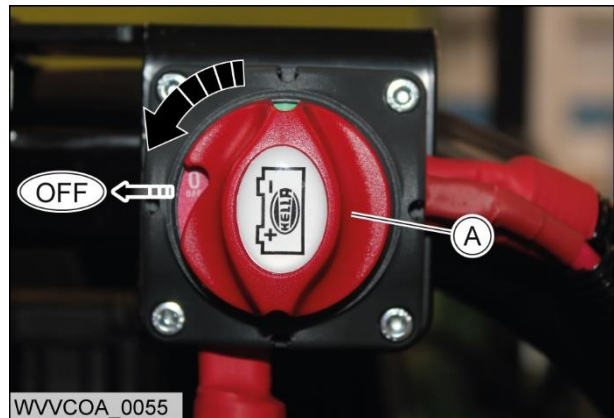


To remove the knob of the battery cut-off switch, for safety reasons, continue turning the knob (A) counterclockwise and extract the knob (A) by firmly pulling it outwards.

CAUTION: Do not use the battery cut-off switch to arrest the engine in case of emergency. Use the ignition key.

CAUTION: To avoid shock and burns, disconnect the battery before servicing on any part of the electrical system.

CAUTION: Never switch off the power at the battery cut-off switch while the engine is running! This may damage the electronic system of the tractor. In addition, the voltage peaks that will occur at the alternator may be dangerous.



IMPORTANT: During a long storage period always turn battery cut-off switch to the OFF-position (tractor electrical system disconnected from battery power supply). Battery will be discharged if the tractor is not used and the battery cut-off switch is in the ON position.

IMPORTANT: Before turning the battery cut-off switch to the OFF position, wait at least 60 seconds from the last engine stops (key - off). This allows the various control units to disconnect properly.

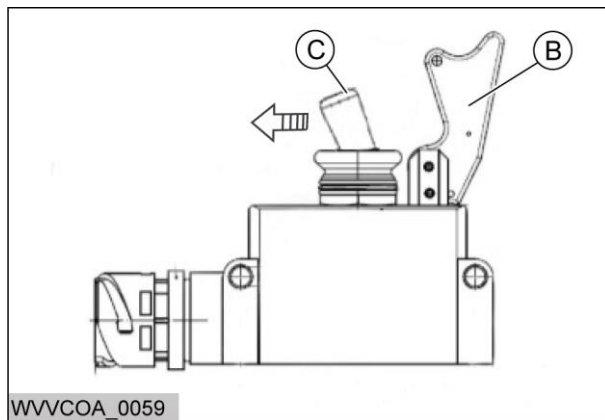
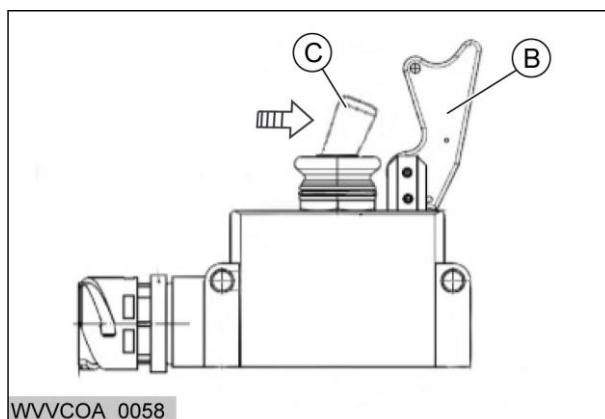
IMPORTANT: After turning the battery cut-off switch to the ON position, wait at least 10 seconds before turning the ignition key and start the engine. This allows the various control units to operate correctly.

Over 75Hp

IMPORTANT: This device (A) allows the battery to be disconnected from the tractor's electrical system.

Procedure

1. To **CONNECT** the battery, battery cut-off switch has to be disengaged: lift the safety cover (B) and push the lever (C) in the opposite direction of the wiring. Close the safety cover (B).
2. To **DISCONNECT** the battery, battery cut-off switch has to be engaged: lift the safety cover (B) and push the lever (C) in the same direction of the wiring. Close the safety cover (B).

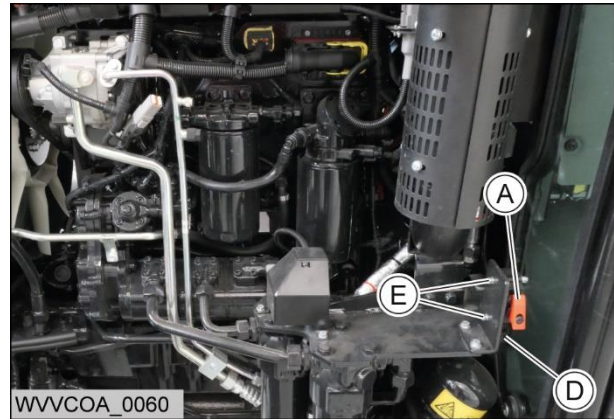


3. To remove battery cut-off switch from the vehicle, disconnect wiring connector (D) and remove fixing bolts (E) and relative nuts.

CAUTION: Do not use the battery cut-off switch to arrest the engine in case of emergency. Use the ignition key.

CAUTION: To avoid shock and burns, disconnect the battery before servicing any parts of the electrical system.

CAUTION: Never engage battery cut-off switch while the engine is running! This may damage tractor electronic systems. In addition, the voltage peaks that will occur at the alternator may be dangerous.



IMPORTANT: During a long storage period always ENGAGE battery cut-off switch (tractor electrical system disconnected from battery power supply). Battery will be discharged if the tractor is not used and the battery cut-off switch is disengaged.

IMPORTANT: Before engaging battery cut-off switch, wait at least 60 seconds from the last engine stop (key - off). This allows the various control units to disconnect properly.

IMPORTANT: After disengaging the battery cut-off switch, wait at least 10 seconds before turning the ignition key and start the engine. This allows the various control units to operate correctly.

Battery voltage check

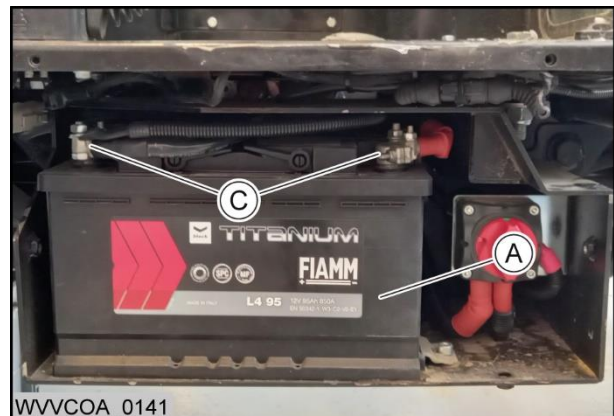
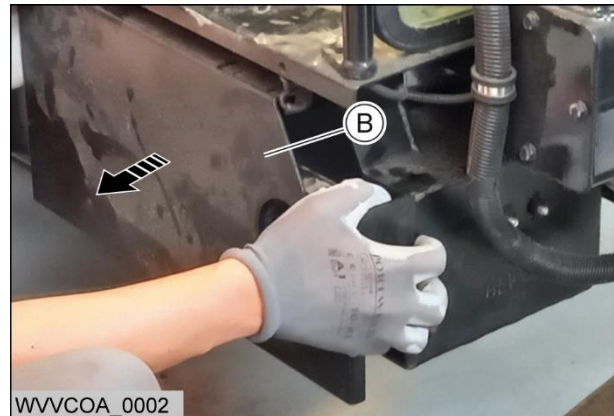
Under 75Hp

WARNING: The machine can move without warning. The machine is heavy and can cause death or injury. Park the machine on a clean, hard and level area. Set the parking brake to ON and install the wheel chocks. The machine has parts that move without operator input. The parts that move can hit persons. Stop the engine on the machine and remove the ignition key.

IMPORTANT: Do not try to open or repair the battery (A). Maintenance is not possible on a sealed battery.

Procedure

1. Disconnect the battery (A) (see chapter [Connection/disconnection of the battery cut-off switch \(under 75Hp\)](#)).
2. Remove the cover (B).
3. Check the battery charge by connecting a voltmeter/multimeter to the positive (+) and negative (-) battery connections (C): the measured voltage value must be 12V.
4. If the battery (A) shows no charge, replace the battery (see chapter [Removal/refitting of the battery \(under 75Hp\)](#)).
5. Carry out the removal procedure in reverse order.
6. Connect the battery (A) (see chapter [Connection/disconnection of the battery cut-off switch \(under 75Hp\)](#)).
7. Start the engine and make sure that the battery (A) operates correctly.



Over 75Hp

WARNING: The machine can move without warning. The machine is heavy and can cause death or injury. Park the machine on a clean, hard and level area. Set the parking brake to ON and install the wheel chocks. The machine has parts that move without operator input. The parts that move can hit persons. Stop the engine on the machine and remove the ignition key.

IMPORTANT: Do not try to open or repair the battery (A). Maintenance is not possible on a sealed battery.

Procedure

1. Disconnect the battery (A) (see chapter [Connection/disconnection of the battery cut-off switch \(over 75Hp\)](#)).

Open the engine cover and remove the engine side panels (see chapter [Removal/refitting the engine side covers](#)).

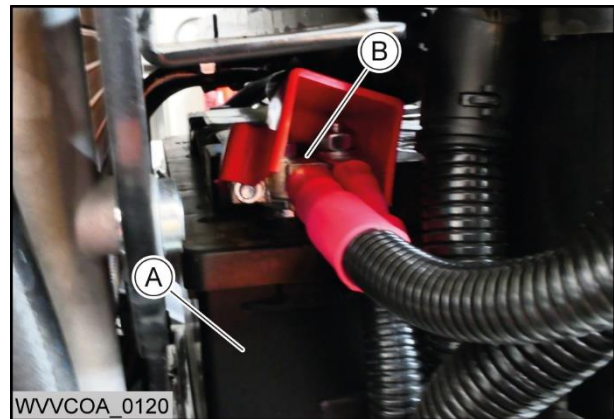
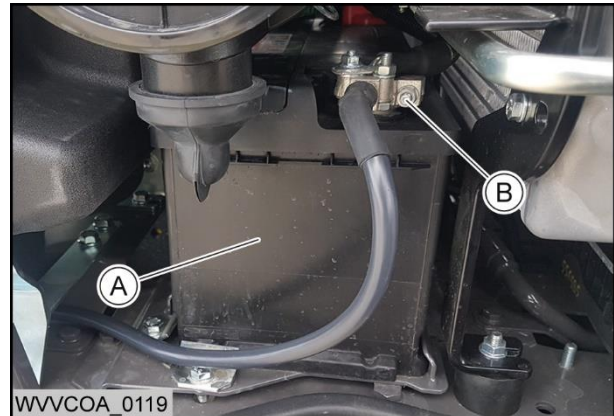
Check the battery charge by connecting a voltmeter/multimeter to the positive (+) and negative (-) battery connections (B): the measured voltage value must be 12V.

If the battery (A) shows no charge, replace the battery (see chapter [Removal/refitting of the battery \(over 75Hp\)](#)).

Refit the engine side panels (see chapter [Removal/refitting the engine side covers](#)) and close the engine cover.

Connect the battery (A) (see chapter [Connection/disconnection of the battery cut-off switch \(under 75Hp\)](#)).

Start the engine and make sure that the battery (A) operates correctly.



Examining

Blow-by hose

WARNING: The machine can move without warning. The machine is heavy and can cause death or injury. Park the machine on a clean, hard and level area. Set the parking brake to ON and install the wheel chocks. The machine has parts that move without operator input. The parts that move can hit persons. Stop the engine on the machine and remove the ignition key.

CAUTION: Risk of injury. Make sure that the engine is cold before you do this procedure.

Procedure

1. Open the engine cover.

Loosen the fixing clamp (A) and disconnect the blow-by hose (B) from the air filter pipe.

Loosen the fixing clamp (C) and disconnect the blow-by hose (B) from the engine.

Clean the blow-by hose (B) in an applicable solvent.

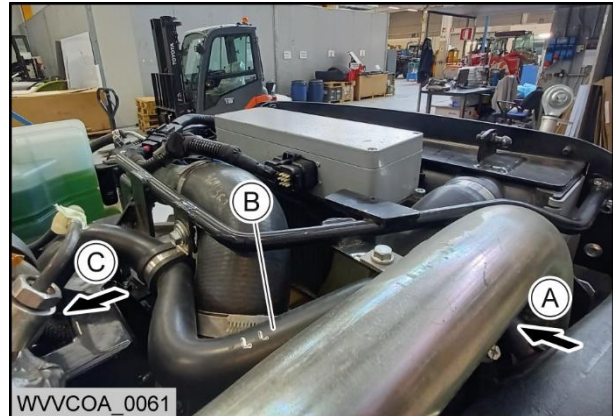
Examine the blow-by hose (B) for cracks that can cause leaks or a failure. Replace as necessary.

Connect the blow-by hose (B) to the engine. Install the clamp (C) and tighten to the standard torque.

Install the blow-by hose (B) to the air filter pipe. Install the fixing clamp (A) and tighten to the standard torque.

NOTE: Make sure that the blow-by hose (B) does not have a kink and is not caught between other components.

Close the engine cover.



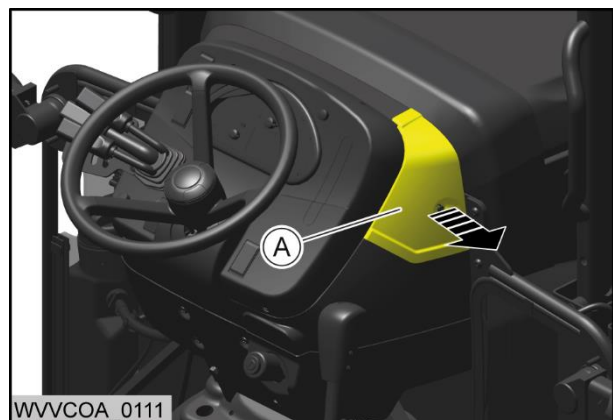
Brake fluid level (Platform version)

WARNING: The machine can move without warning. The machine is heavy and can cause death or injury. Park the machine on a clean, hard and level area. Set the parking brake to ON and install the wheel chocks. The machine has parts that move without operator input. The parts that move can hit persons. Stop the engine on the machine and remove the ignition key.

IMPORTANT: Servicing of the brake system must be done by your approved dealer. The hydraulic brake system has an isolated brake fluid reservoir. When the fluid level in the brake fluid reservoir is low, the low fluid level light will come on.

Procedure

1. Remove the cover (A) (see chapter [Removal/refitting of the dashboard panels](#)).



Disconnect the electrical connectors (B) and remove the level sensor cap (C) from the brake fluid reservoir (D).

Fill the brake fluid reservoir (D) to the maximum level indicator with the correct specification of brake fluid (see chapter [Recommended lubricants and additives](#)).

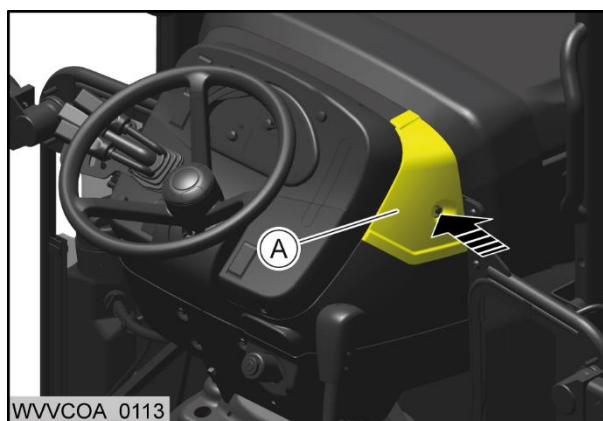
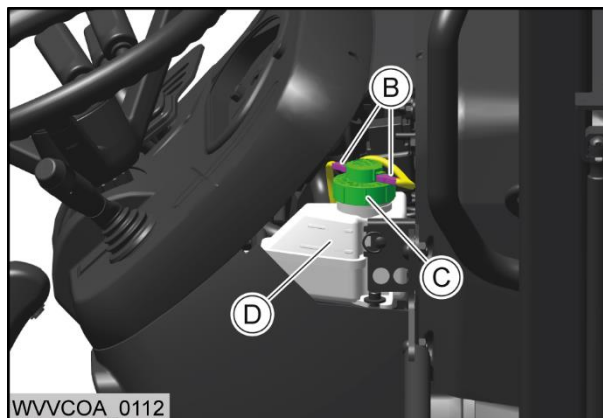
Refit the level sensor cap (C) to the brake fluid reservoir (D) and connect the electrical connectors (B).

Push the top of the level sensor cap (C), the brake fluid level indicator light must come on.

If the fluid level was low, make sure that there are no signs of leaks. Make also sure that the brake hoses and their hydraulic connections are in good condition and correctly connected.

NOTE: Clean carefully any residual of brake fluid from the surrounding area.

Refit the cover (A) (see chapter [Removal/refitting of the dashboard panels](#)).



Brake fluid level (Cab version)

WARNING: The machine can move without warning. The machine is heavy and can cause death or injury. Park the machine on a clean, hard and level area. Set the parking brake to ON and install the wheel chocks. The machine has parts that move without operator input. The parts that move can hit persons. Stop the engine on the machine and remove the ignition key.

IMPORTANT: Servicing of the brake system must be done by your approved dealer. The hydraulic brake system has an isolated brake fluid reservoir. When the fluid level in the brake fluid reservoir is low, the low fluid level light will come on.

Procedure

1. Remove the cover (A) (see chapter [Removal/refitting of the dashboard panels](#)).



Remove the level sensor cap (B) from the brake fluid reservoir (C).

Fill the brake fluid reservoir (C) to the maximum level indicator with the correct specification of brake fluid (see chapter [Recommended lubricants and additives](#)).

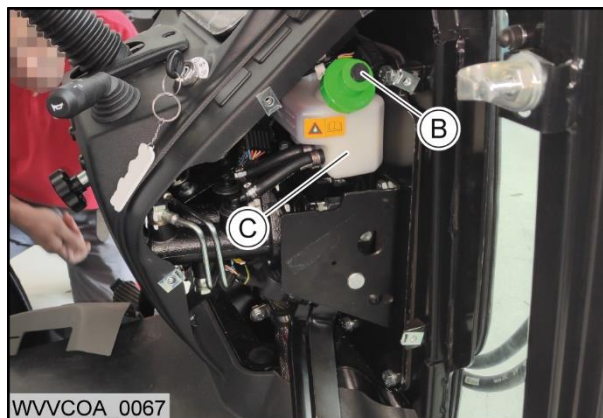
Refit the level sensor cap (B) to the brake fluid reservoir (C).

Push the top of the level sensor cap (B), the brake fluid level indicator light must come on.

If the fluid level was low, make sure that there are no signs of leaks. Make also sure that the brake hoses and their hydraulic connections are in good condition and correctly connected.

NOTE: Clean carefully any residual of brake fluid from the surrounding area.

Refit the cover (A) (see chapter [Removal/refitting of the dashboard panels](#)).



Coolant level

WARNING: The machine can move without warning. The machine is heavy and can cause death or injury. Park the machine on a clean, hard and level area. Set the parking brake to ON and install the wheel chocks. The machine has parts that move without operator input. The parts that move can hit persons. Stop the engine on the machine and remove the ignition key.

CAUTION: Risk of injury. Do not open the cap of the coolant expansion tank (A) while the engine is hot. Loosen the cap gradually to release the pressure, then remove it fully.

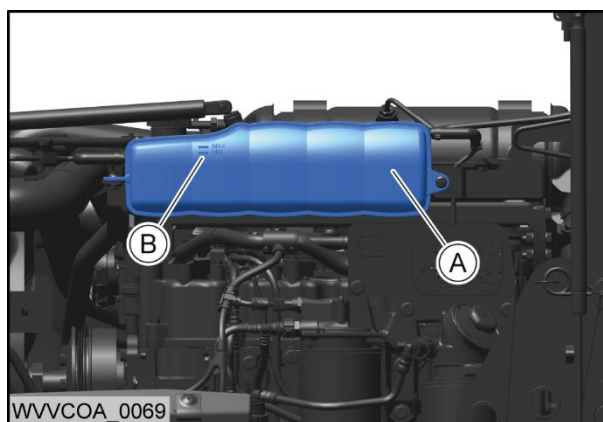
Procedure

1. Examine the radiator coolant level on the side of the expansion tank (A).

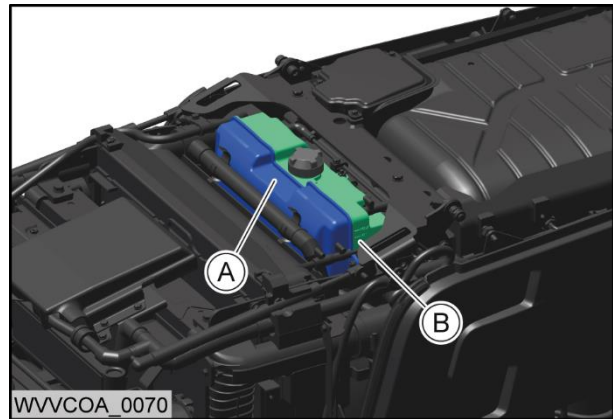
When the engine is cold, the coolant level must be on the "MIN" mark (B) on the level indicator.

If the level is low, top it up with the specified coolant (see chapter [Recommended lubricants and additives](#)).

If you find it is necessary to frequently fill the coolant after short operations, have the system examined by your approved dealer.



Under 75hp models



Over 75hp models

Fuel filter

WARNING: The machine can move without warning. The machine is heavy and can cause death or injury. Park the machine on a clean, hard and level area. Set the parking brake to ON and install the wheel chocks. The machine has parts that move without operator input. The parts that move can hit persons. Stop the engine on the machine and remove the ignition key.

DANGER: Risk of injury or death. Do work around fuel carefully. Do not work on the fuel system while you smoke or when near open flames or sparks. Always stop the engine before you refuel the machine.

CAUTION: Risk of injury. Examine the fuel filter (A) only when the engine is cold.

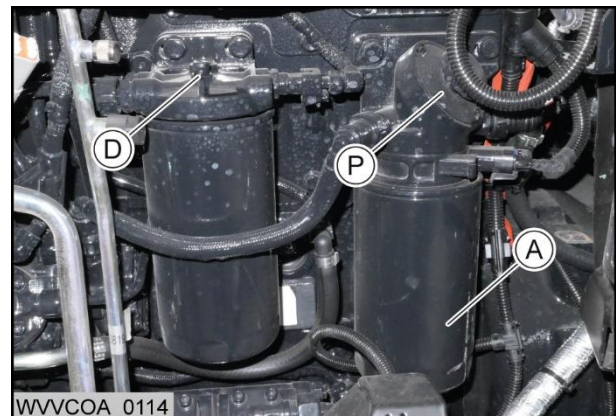
Procedure

1. Disconnect the battery (see chapter [Connection/disconnection of the battery cut-off switch \(under 75Hp\)](#) - or - see chapter [Connection/disconnection of the battery cut-off switch \(over 75Hp\)](#)).

Open the engine cover and remove the left engine side panel (see chapter [Removal/refitting the engine side covers](#)).

Disconnect the electrical connector (C) from the fuel filter (A).

Unscrew the bleed screw (D) and the WiF sensor (B) to drain the fuel.



NOTE: Arrange a suitable container in an applicable position to collect all fluids that come out during the procedure.

IMPORTANT: Do not let fuel get on the drive belt or the area around the machine

Retighten the WiF sensor (B) at a torque of 1.8 Nm (± 0.65 Nm) as soon as the fuel and unwanted material have drained out from the machine.

Operate the hand primer (P) on the fuel transfer pump until fuel appears at the bleed screw (D).

Tighten the bleed screw (D) after you fully remove the air from the system.

Connect the electrical connector (C) to the fuel filter (A).

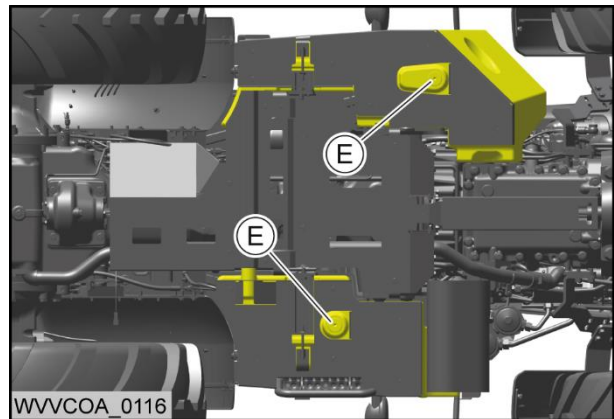
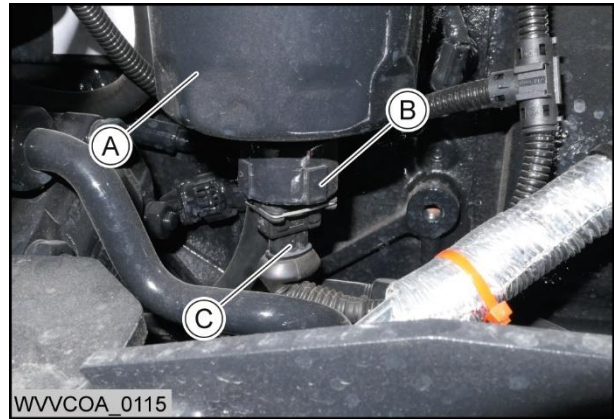
Connect the battery (see chapter [Connection/disconnection of the battery cut-off switch \(under 75Hp\)](#) - or - see chapter [Connection/disconnection of the battery cut-off switch \(over 75Hp\)](#)).

Start the engine and let it run at minimum speed for a short time to remove remaining air. Look for signs of leaks on the fuel system.

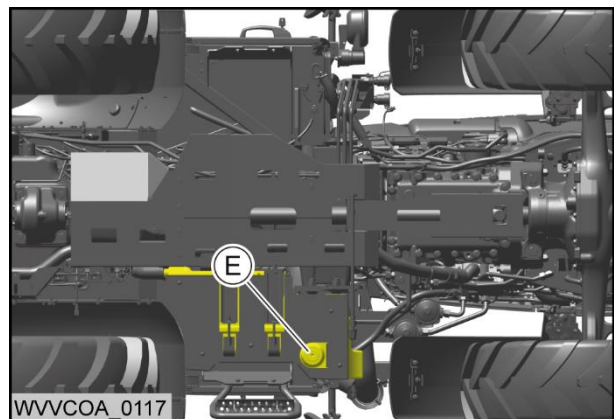
If there was water in the fuel filter (A), arrange a suitable container in an applicable position to collect contaminated fuel and open the fuel tank drain screw (E) to drain the remaining moisture and unwanted material from the fuel tank.

After having drained off any water from the system, retighten the drain screw (E) at a torque of 30 Nm.

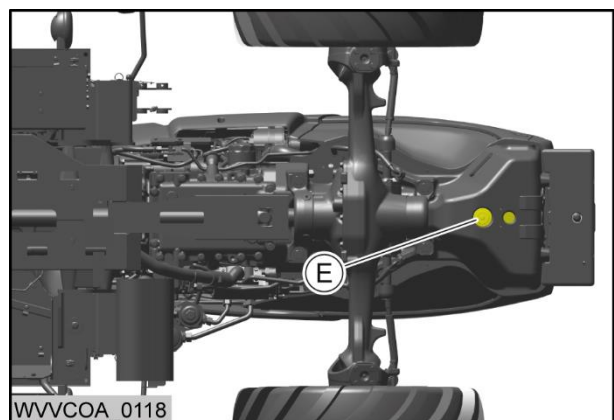
Refit the left engine side panel (see chapter [Removal/refitting the engine side covers](#)) and close the engine cover.



LH & RH Fuel Tanks



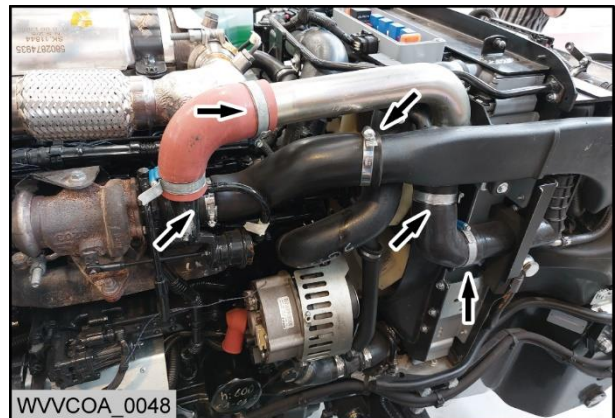
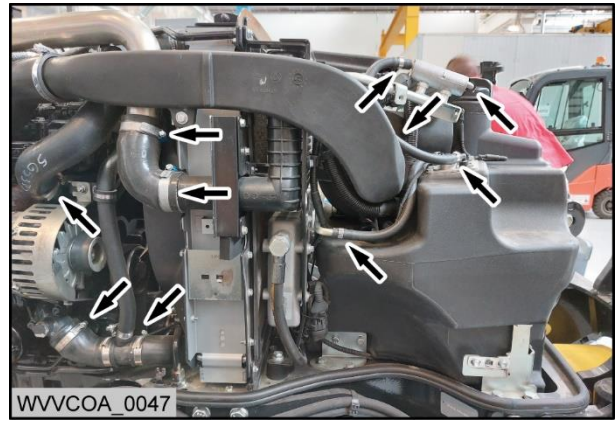
Rear & LH Fuel Tanks



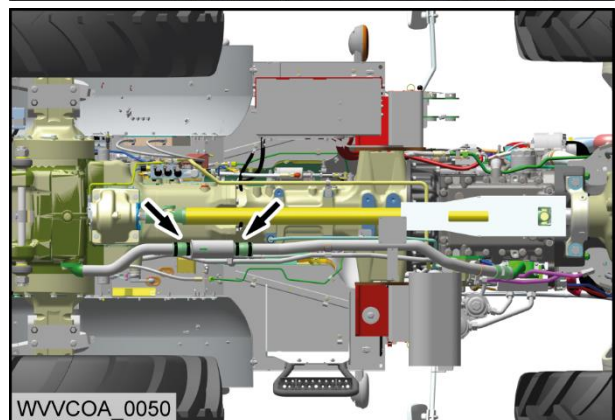
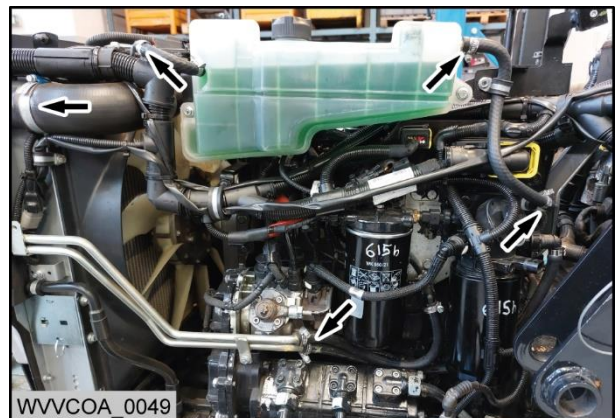
Underhood Fuel Tank

Hoses and the hose clips

1. Check the hose clamps of the following systems for tightness:
 - ✓ Air cleaner to engine intake or turbocharger
 - ✓ Cooling system
 - ✓ Hydraulic system
 - ✓ Fuel system



Check all the hoses for kinking or cracks that could cause leaks or failure. Replace as necessary.



Fill fuel tank

CAUTION: Handle fuel carefully. Do not refuel the machine while smoking or when near open flames or sparks. Always stop engine before refueling machine.

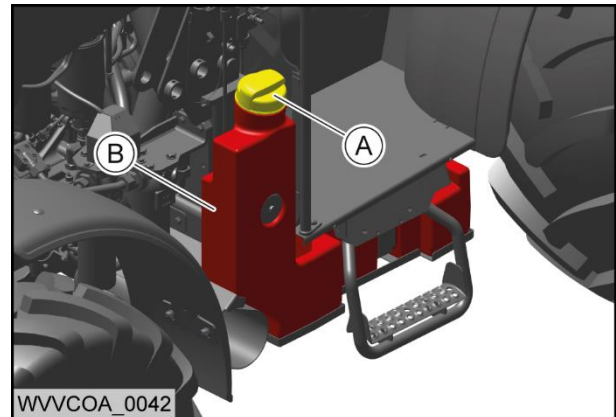
IMPORTANT: Ensure that there is no risk of any flames or sparks when filling the fuel tank. Stand in a well-ventilated location. Mop up any fuel spills. Before filling the fuel tank, carefully clean around the tank opening. Remove any residue of straw, hay or twigs that, in certain cases, could help start and then propagate a fire. When handling fuel, use containers intended for this purpose. The container used must be reserved exclusively for this purpose. Fuel Tanks LH & RH

The fuel tank is vented through the filler cap (A). If a new filler cap is required, always replace it with an original vented cap.

Left and right sided tanks are communicating, when refueling both are refilled.

Procedure

1. Fill the fuel tank (B) located on the left side of the vehicle:
 - ✓ until the fuel reaches the bottom of the filler neck.
 - ✓ at the end of each working day.



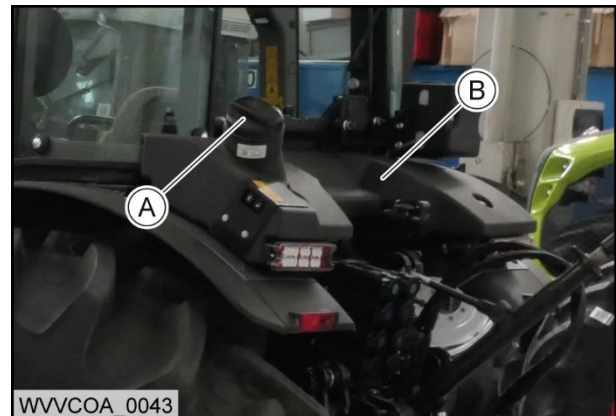
Fuel Tanks REAR & LH

IMPORTANT: The fuel tank is vented through the filler cap (A). If a new filler cap is required, always replace it with an original vented cap.

Rear and left sided tanks are communicating, when refueling both are refilled.

Procedure

1. Fill the fuel tank (B) located on the rear side of the vehicle:
 - ✓ until the fuel reaches the bottom of the filler neck.
 - ✓ at the end of each working day.

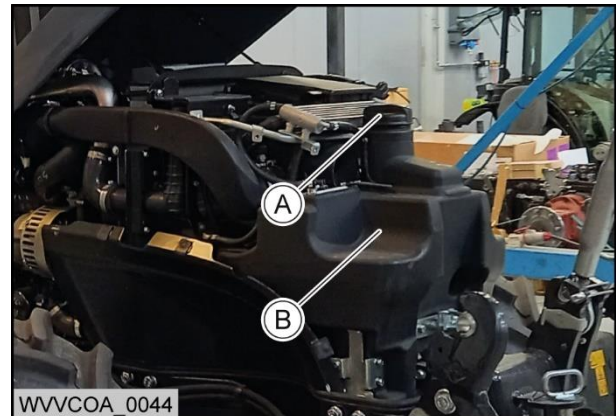


Fuel Tank Underhood

IMPORTANT: The fuel tank is vented through the filler cap (A). If a new filler cap is required, always replace it with an original vented cap.

Procedure

1. Fill the fuel tank (B) located under the bonnet of the vehicle:
 - ✓ until the fuel reaches the bottom of the filler neck.
 - ✓ at the end of each working day.



Fuel system - bleed

WARNING: The machine can move without warning. The machine is heavy and can cause death or injury. Park the machine on a clean, hard and level area. Set the parking brake to ON and install the wheel chocks. The machine has parts that move without operator input. The parts that move can hit persons. Stop the engine on the machine and remove the ignition key.

DANGER: Risk of injury or death. Do work around fuel carefully. Do not work on the fuel system while you smoke or when near open flames or sparks. Always stop the engine before you refuel the machine.

CAUTION: Risk of injury. Bleed the fuel system only when the engine is cold.

IMPORTANT: To avoid injection pump damage, DO NOT attempt to start the engine while bleeding the fuel system.

NOTE: Bleeding the fuel system is required when a filter is changed, or during an operation of the fuel suction system.

Procedure

1. Open the engine cover and remove the left engine side panel (see chapter [Removal/refitting the engine side covers](#)).

Make sure that the fuel tank is full.

Install a transparent flexible hose on the bleed screw (A).

NOTE: Arrange a suitable container in an applicable position to collect all fluids that come out during the procedure.

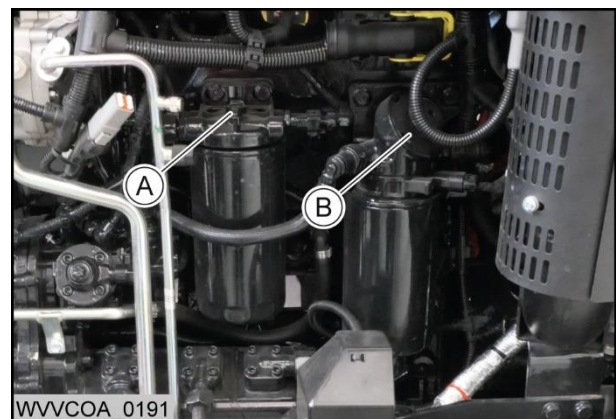
IMPORTANT: Do not let fuel get on the drive belt or the area around the machine. Make sure that you dispose of the unwanted fuel correctly. Make sure that you obey local regulations.

Loosen the bleed screw (A).

Operate the hand primer (B) on the fuel transfer pump until fuel appears at the bleed screw (A).

After completion of bleeding operation, retighten the bleed screw (A) to the torque of 4 Nm (± 1 Nm).

Start the engine and let it run at minimum speed for a few time to remove any residual air. Look for signs of leaks on the fuel system.



Refit the left engine side panel (see chapter [Removal/refitting the engine side covers](#)) and close the engine cover.

Neutral start system

Mechanical reverse transmission (24+24), neutral start

WARNING: The machine can move without warning. The machine is heavy and can cause death or injury. Park the machine on a clean, hard and level area. Set the parking brake to ON and install the wheel chocks. The machine has parts that move without operator input. The parts that move can hit persons. Stop the engine on the machine and remove the ignition key.

NOTE: When the ignition-key switch is turned to START position, the engine should be cranked only if the mechanical reverser lever (A) is in neutral position and the rear PTO lever (B) and the front PTO switch (C) (if present) are disengaged. The position of the gear-shift lever is independent.

IMPORTANT: If the starter motor turns the engine in these subsequent steps, have the neutral start system repaired by your approved dealer.

Procedure

1. Engage the parking brake lever.

Engage the rear PTO moving the rear PTO lever (B) into the position (P), press and hold the clutch pedal, move the mechanical reverser lever (A) into the neutral position and turn the ignition-key switch to START position. The starter motor must NOT crank the engine.

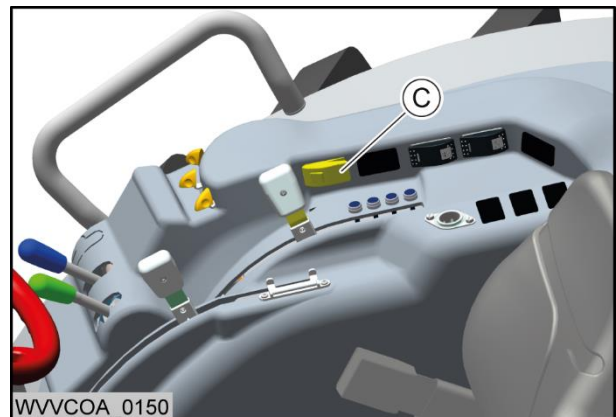
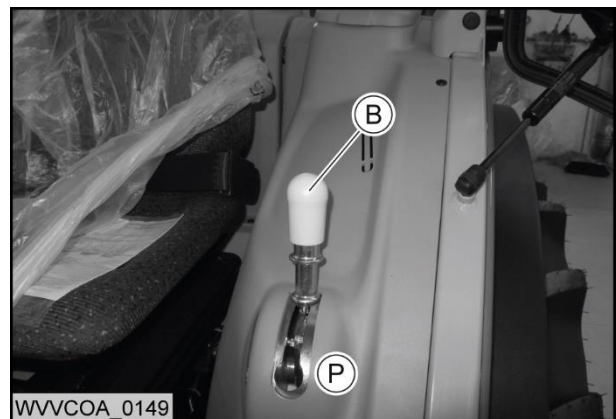
Turn the ignition-key switch to the OFF position.

Position the rear PTO lever (B) into the neutral position, press and hold the clutch pedal, move the mechanical reverser lever (A) out of neutral position and turn the ignition-key switch to START position. The starter motor must NOT crank the engine.

Turn the ignition-key switch to the OFF position.

Engage the front PTO by pressing the front PTO switch (C), press and hold the clutch pedal, move the mechanical reverser lever (A) into the neutral position and turn the ignition-key switch to START position. The starter motor must NOT crank the engine.

Turn the ignition-key switch to the OFF position.



Power shuttle transmission (24/12), neutral start

WARNING: The machine can move without warning. The machine is heavy and can cause death or injury. Park the machine on a clean, hard and level area. Set the parking brake to ON and install the wheel chocks. The machine has parts that move without operator input. The parts that move can hit persons. Stop the engine on the machine and remove the ignition key.

NOTE: When the ignition-key switch is turned to START position, the engine should be cranked only if the gear-shift lever (A) is in neutral position and the rear PTO switch (B) and the front PTO switch (C) (if present) are in disengaged position. The position of the shuttle lever is independent.

IMPORTANT: If the starter motor turns the engine in these subsequent steps, have the neutral start system repaired by your approved dealer.

Procedure

1. Engage the parking brake lever.

Engage the rear PTO by pressing the rear PTO switch (B), move the gear-shift lever (A) into the neutral position and turn the ignition-key switch to START position. The starter motor must NOT crank the engine.

Turn the ignition-key switch to the OFF position.

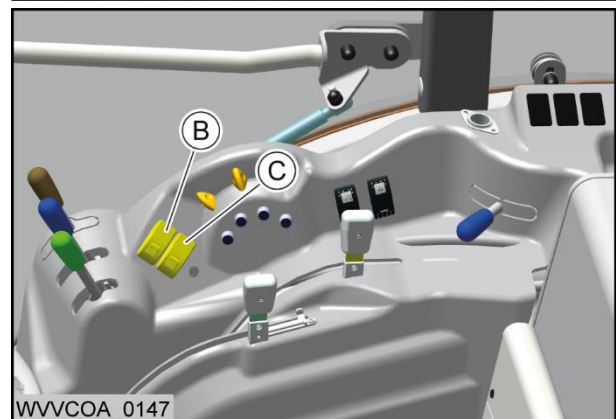
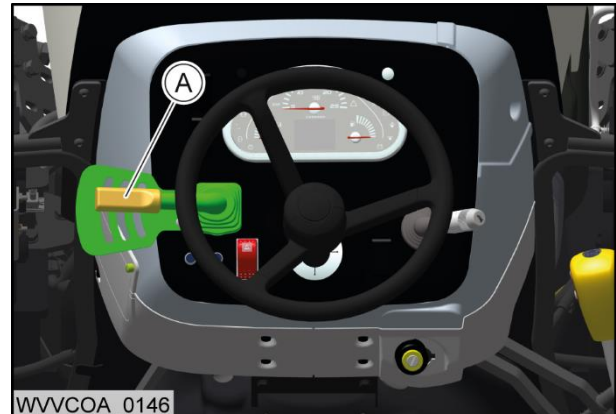
Engage the front PTO by pressing the front PTO switch (C), move the gear-shift lever (A) into the neutral position and turn the ignition-key switch to START position. The starter motor must NOT crank the engine.

Turn the ignition-key switch to the OFF position.

Move the gear-shift lever (A) out of neutral position and turn the ignition-key switch to START position. The starter motor must NOT crank the engine.

Turn the ignition-key switch to the OFF position.

Move the gear-shift lever (A) into the neutral position.

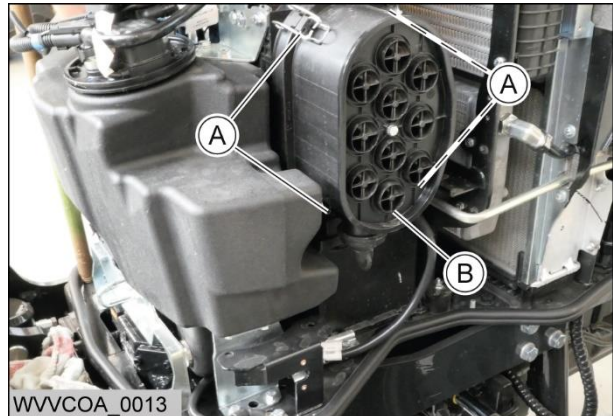


Removal/refitting

Air cleaner element

Removal

1. Open the engine cover.
Release the locking clips (A).
Remove the cover (B).

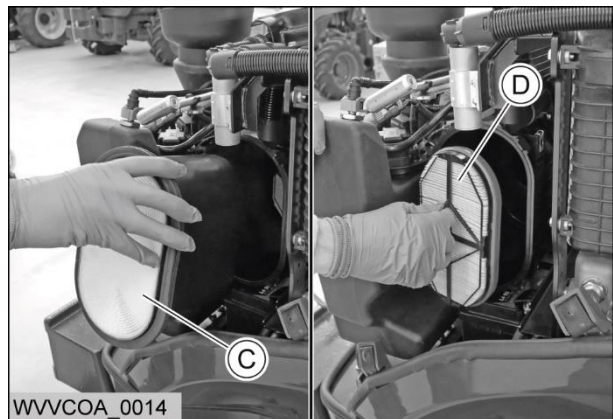


Pull the primary filter element (C) out of the air filter housing.

Pull the secondary filter element (D) out of the air filter housing.

Inspect, clean and / or replace the air cleaner elements (see chapter [Clean a dusty element](#)).

NOTE: The primary filter element (C) can be cleaned up to five times. Thereafter, or at the latest after 1500 hours of operation (or 2 years), it must be replaced.



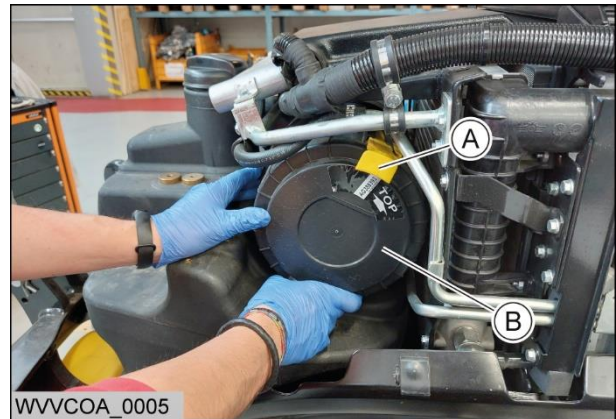
Refitting

1. Carry out the removal steps in reverse order.
Start the engine and check the correct efficiency.
Close the engine cover.

Air cleaner element

Removal

1. Open the engine cover.
Release the block lever (A).
Remove the cover (B).

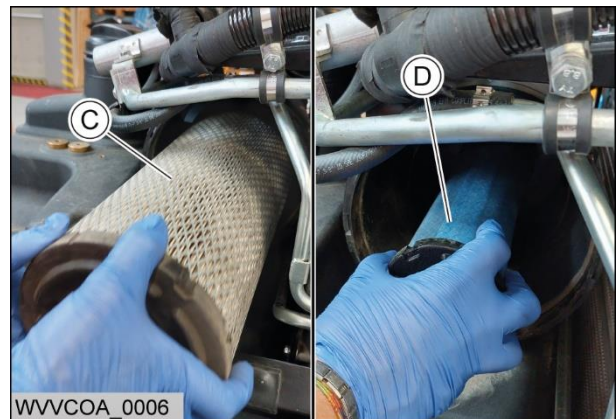


Pull the primary filter element (C) out of the air filter housing.

Pull the secondary filter element (D) out of the air filter housing.

Inspect, clean and / or replace the air cleaner elements (see chapter [Clean a dusty element](#)).

NOTE: The primary filter element (C) can be cleaned up to five times. Thereafter, or at the latest after 1500 hours of operation (or 2 years), it must be replaced.



Refitting

1. Carry out the removal steps in reverse order.
Start the engine and check the correct efficiency.
Close the engine cover.

Air-conditioning compressor

WARNING: The machine can move without warning. The machine is heavy and can cause death or injury. Park the machine on a clean, hard and level area. Set the parking brake to ON and install the wheel chocks.

WARNING: The machine has parts that move without operator input. The parts that move can hit persons. Stop the engine on the machine and remove the ignition key.

CAUTION: Unwanted release of refrigerant. Refrigerant is very cold and can cause injury. Put on Personal Protective Equipment when you do work on the refrigerant system.

Removal

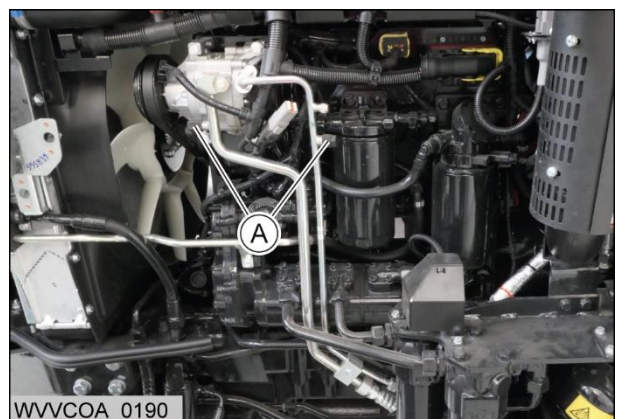
1. Disconnect the battery (see Connection/disconnection of the battery cut-off switch).

Open the engine cover.

Remove the engine panel from the left side.

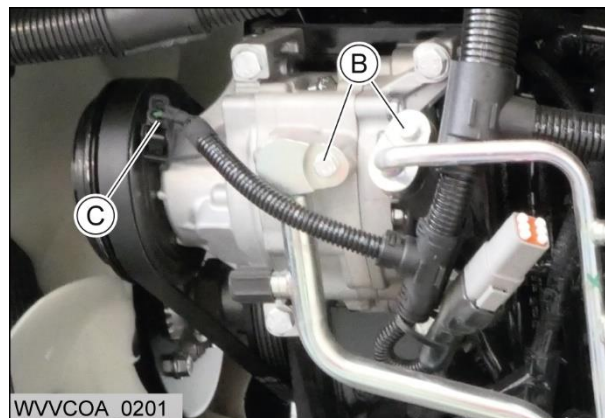
Remove the Air Conditioning Compressor Belt (see Replace the compressor drive belt).

Emptying the air conditioning system using the appropriate fittings (A). Discharge the air-conditioning circuit: recover the coolant gas using suitable refrigerant charging station tool.



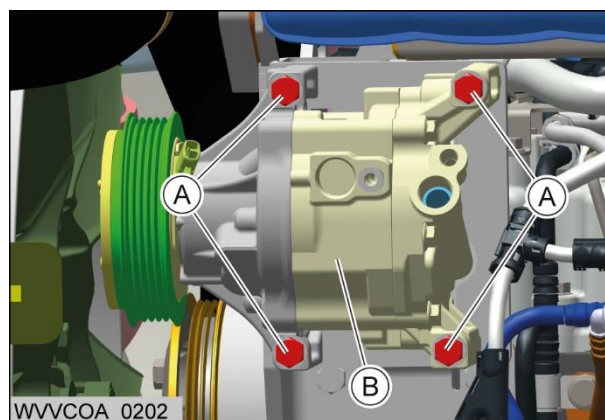
Remove the screws (B) and detach the pipes from the air-conditioning compressor.

Disconnect the connector (C)



Remove the screws (A).

Remove the air-conditioning compressor (B) from the engine.



Refitting

1. Install all the parts performing the procedure in reverse order.

Tightening the screws (A) at the specific torque 23 Nm.

Use an applicable air-conditioning refrigerant machine to fill the air-conditioning system.

Connect the battery (see Connection/disconnection of the battery cut-off switch).

Start the engine and switch the air conditioning ON. Examine the air conditioning for leaks with the appropriate equipment. Make sure that the air conditioning functions correctly.

Install the engine side panel.

Close the engine cover.

Air cooler

Preliminary operations

1. Disconnect the battery (see Connection/disconnection of the battery cut-off switch).

Remove the engine side panels (see Removal/refitting of the engine side panels).

Remove the air filter housing (see Removal/refitting of the air filter housing).

Remove the engine ECU (see Removal/refitting of the engine ECU).

Remove the fuel cooler (see Removal/refitting of the fuel cooler).

Only for 75Hp models - Remove the fuel tank (see Removal/refitting of the fuel tank).

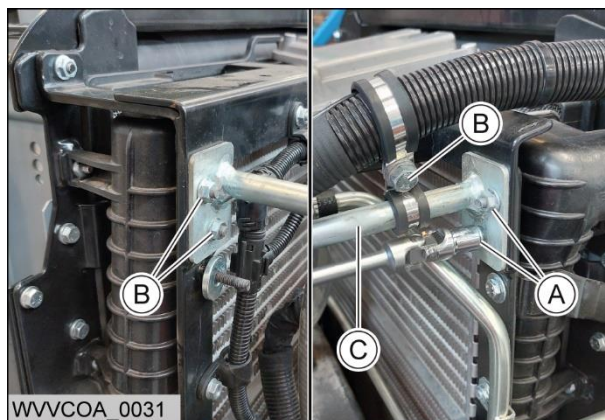
Only for over 75Hp models - Remove the DEF tank (see Removal/refitting of the DEF (Diesel Exhaust Fluid) tank).

Removal

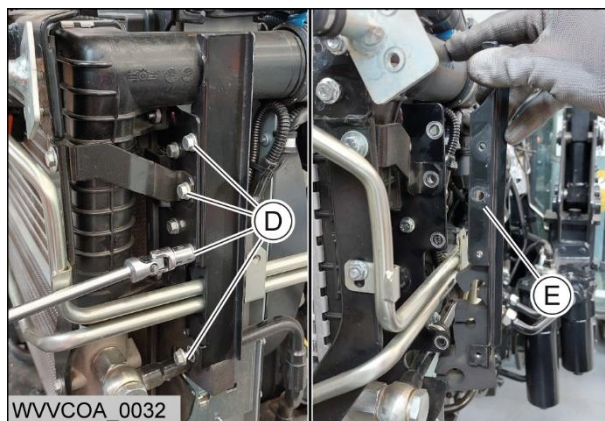
1. Remove the nuts (A).

Remove the screw (B) and release the wiring harness from the bracket (C).

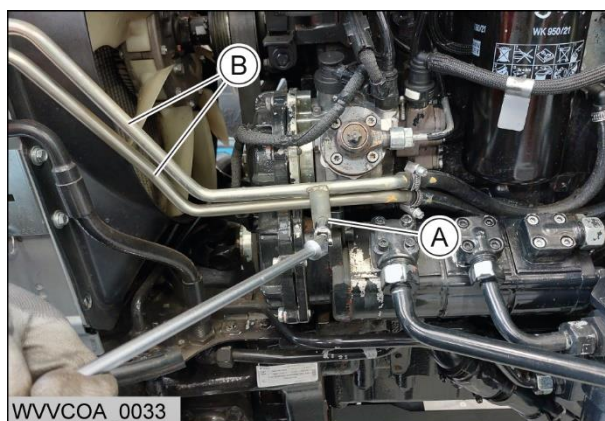
Remove the bracket (C).



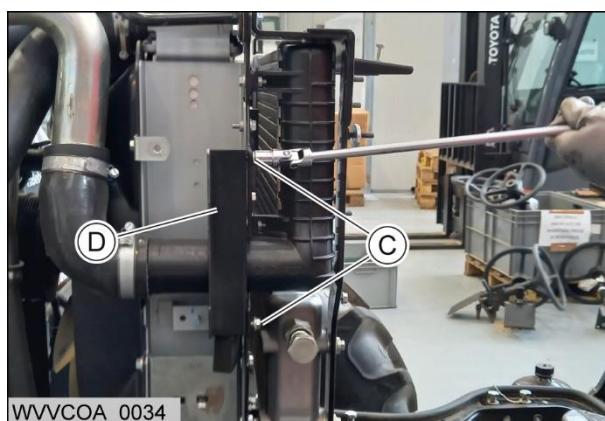
Remove the screws (D) and remove the bracket (E).



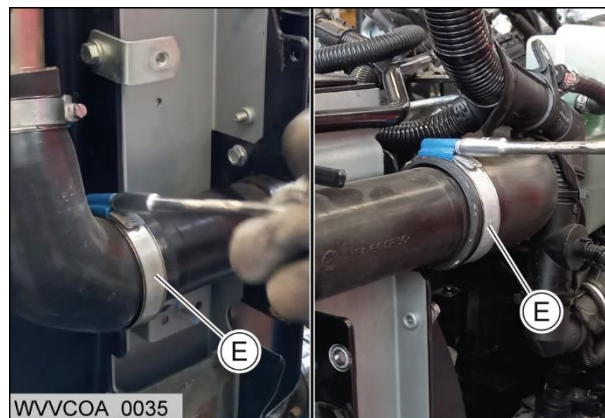
Remove the screw (A) and move the pipes (B) to the side.



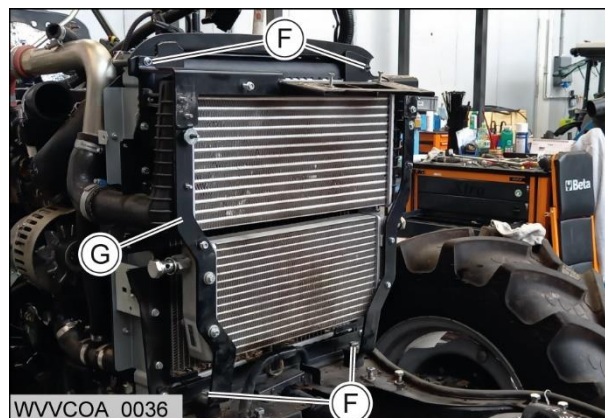
Remove the screws (C) and remove the bracket (D).



Release the clamps (E) on left and right side of the air cooler.



Remove the screws (F) and remove the bracket (G).



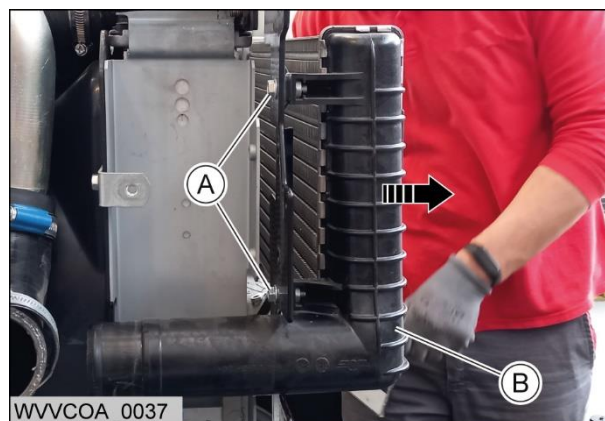
Remove the screws (A) and relative nuts.

Remove the air cooler (B).

Clean the air cooler (B) with compressed air or water. Straighten any bent fins.

CAUTION: Reduce compressed air pressure to less than 210 kPa (2 bar; 30 psi) when using for cleaning purposes. Clear area of bystanders, guard against flying chips, and wear personal protection equipment including eye protection.

Verify the integrity of the air cooler (B).



Refitting

1. Carry out the removal steps in reverse order.

NOTE: Make sure that all the hydraulic and electrical connections are properly fitted in place.

Start the engine.

Check that the intake system works correctly.

Check the tightness of the air intake system.

Only for over 75Hp models - Install the DEF tank (see Removal/refitting of the DEF (Diesel Exhaust Fluid) tank).

Only for 75Hp models - Install the fuel tank (see Removal/refitting of the fuel tank).

Install the fuel cooler (see Removal/refitting of the fuel cooler).

Install the engine ECU (see Removal/refitting of the engine ECU).

Install the air filter housing (see Removal/refitting of the air filter housing).

Install the engine side panels (see Removal/refitting of the engine side panels).

Connect the battery (see Connection/disconnection of the battery cut-off switch).

Air filter housing

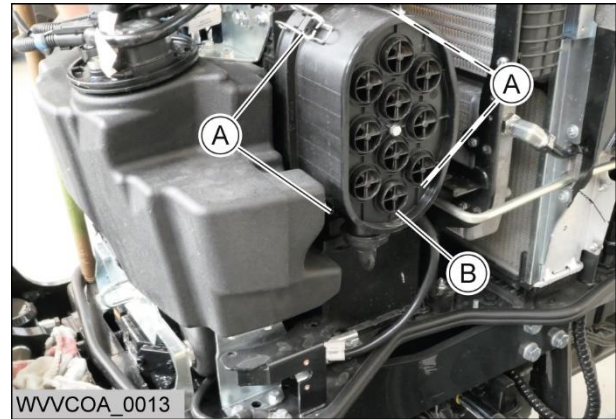
Removal

1. Open the engine cover.

Disconnect the battery (see Connection/disconnection of the battery cut-off switch).

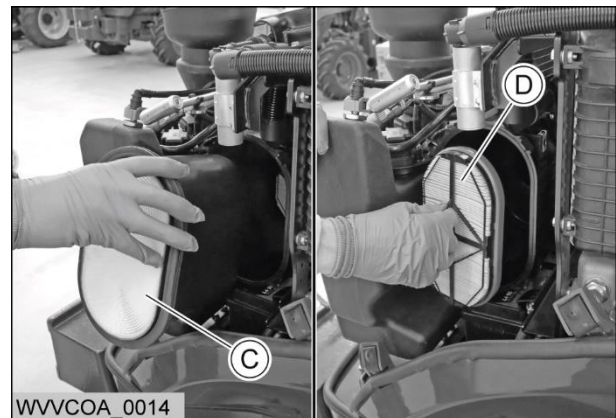
Release the locking clips (A).

Remove the cover (B).

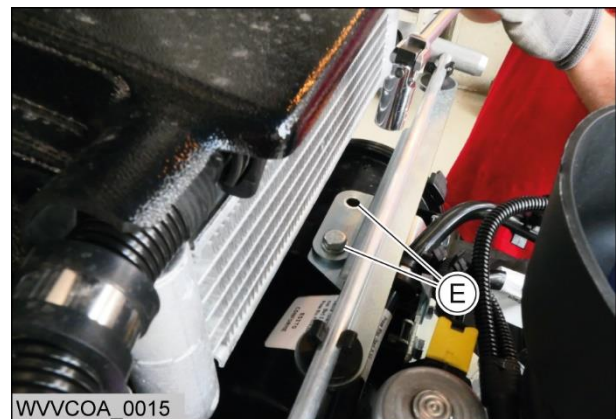


Pull the primary filter element (C) out of the air filter housing.

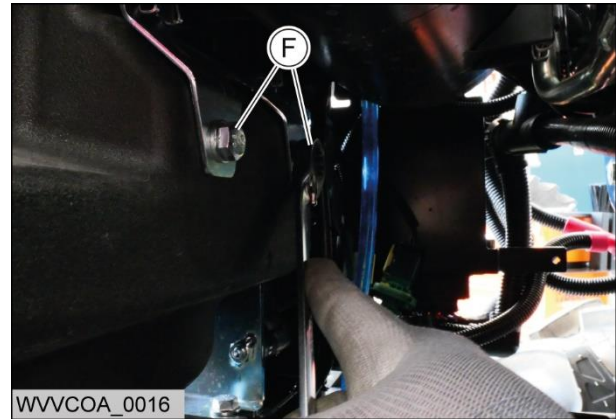
Pull the secondary filter element (D) out of the air filter housing.



Remove the screw (E) on the upper side of filter housing.



Release the screws (G) on the lower side of filter housing.



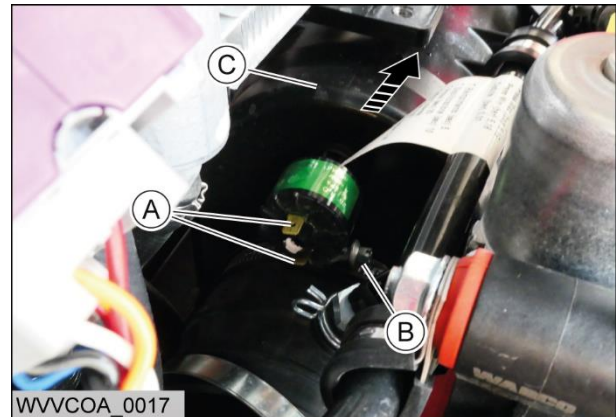
Disconnect the plug connections of air filter clogging sensor (A).

Release the clamp (B).

Carefully remove the air filter housing (C) by pulling it outward from the left side of the vehicle.

Check that the air filter housing (C) is intact - replace it if necessary.

If replacing the air filter housing (C), remove components from the old one that haven't been supplied and fit them onto the new one.



Refitting

1. Carry out the removal steps in reverse order.

NOTE: Make sure that all the electrical connections are securely fitted in place.

Connect the battery (see Connection/disconnection of the battery cut-off switch).

Start the engine and check the correct efficiency.

Close the engine cover.

Air filter housing

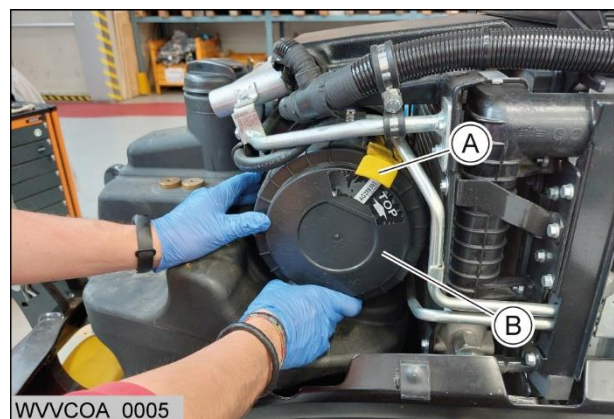
Removal

1. Open the engine cover.

Disconnect the battery (see Connection/disconnection of the battery cut-off switch).

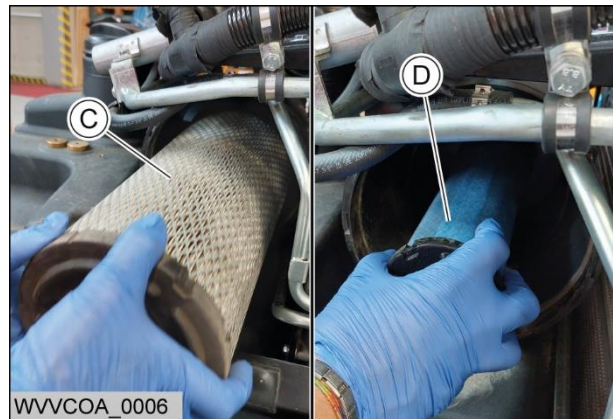
Release the block lever (A).

Remove the cover (B).

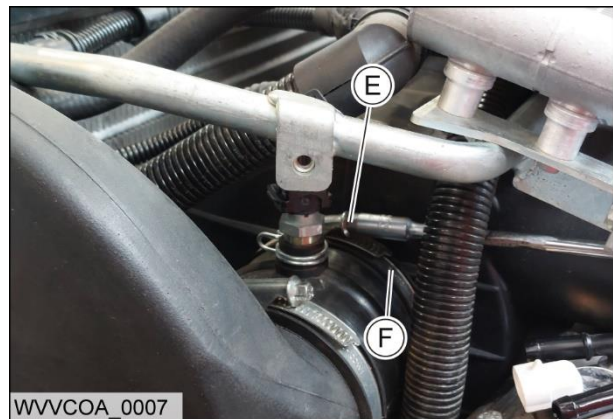


Pull the primary filter element (C) out of the air filter housing.

Pull the secondary filter element (D) out of the air filter housing.



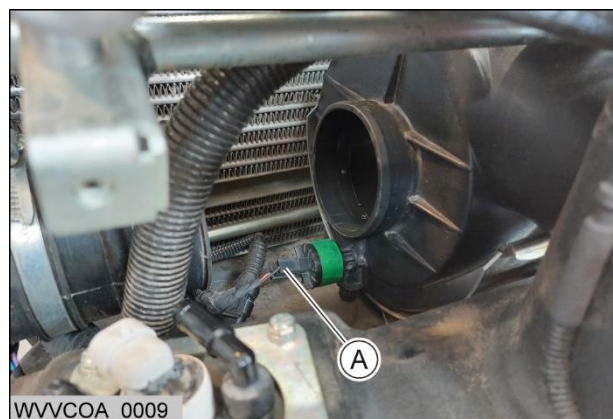
Remove the screw (E) and release the clamp (F).



Release the clamp (G).



Disconnect air filter clogging sensor (A).



Carefully remove the air filter housing (B) by pulling it outward from the left side of the vehicle.

Check that the air filter housing (B) is intact - replace it if necessary.

If replacing the air filter housing (B), remove components from the old one that haven't been supplied and fit them onto the new one.



Refitting

1. Carry out the removal steps in reverse order.

NOTE: Make sure that all the electrical connections are securely fitted in place.

Connect the battery (see Connection/disconnection of the battery cut-off switch).

Start the engine and check the correct efficiency.

Close the engine cover.

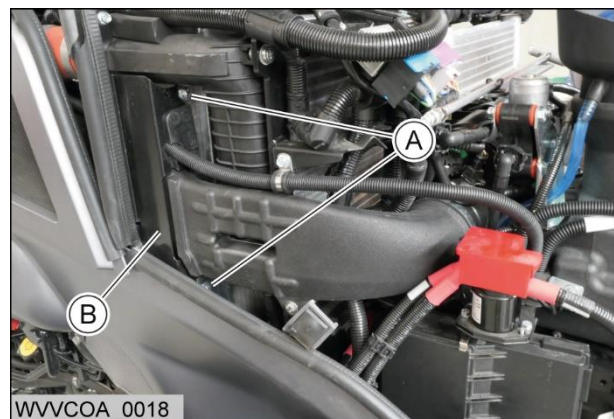
Air intake pipes

Removal

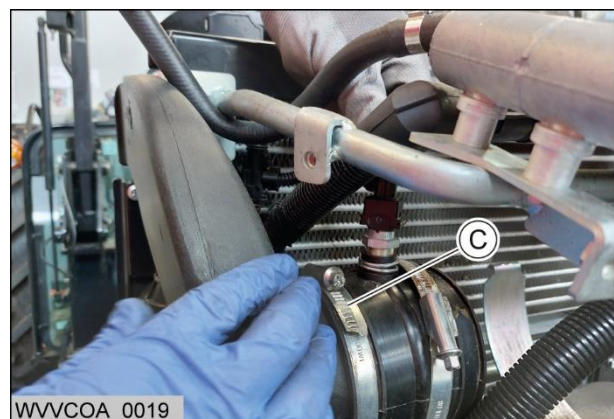
1. Disconnect the battery (see Connection/disconnection of the battery cut-off switch).

Open the engine cover.

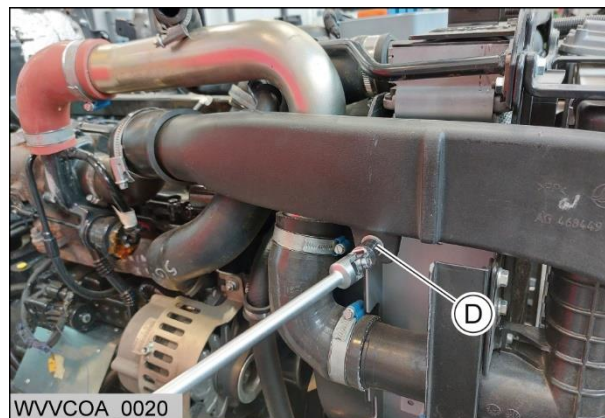
Only for cab models remove the screws (A) and remove the bracket (B).



Release the clamp (C).

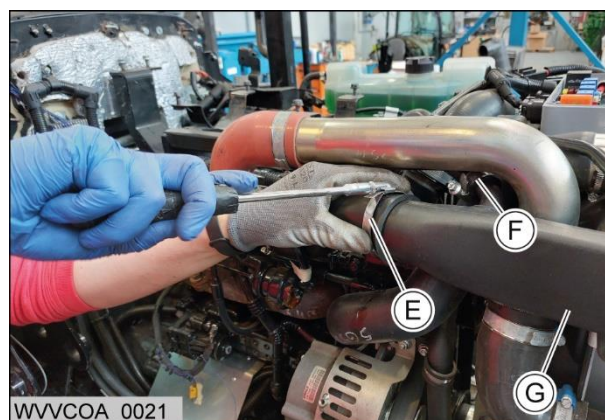


Remove the screw (D).



Release the clamp (E) and the clamp (F).

Remove the air intake pipe (G).



Refitting

1. Carry out the removal steps in reverse order.

NOTE: Make sure that all the hydraulic and electrical connections are securely fitted in place.

Connect the battery (see Connection/disconnection of the battery cut-off switch).

Check that the intake system works correctly.

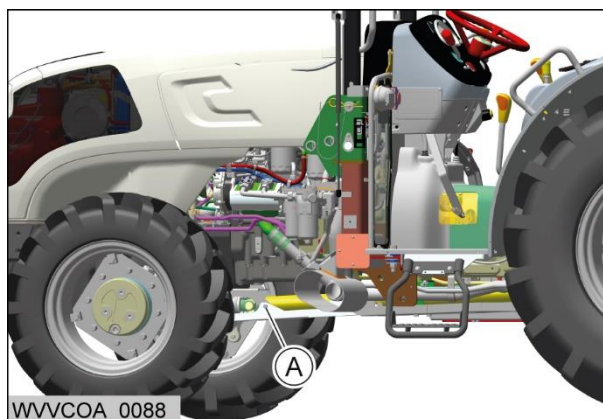
Check the tightness of the air intake system.

Close the engine cover.

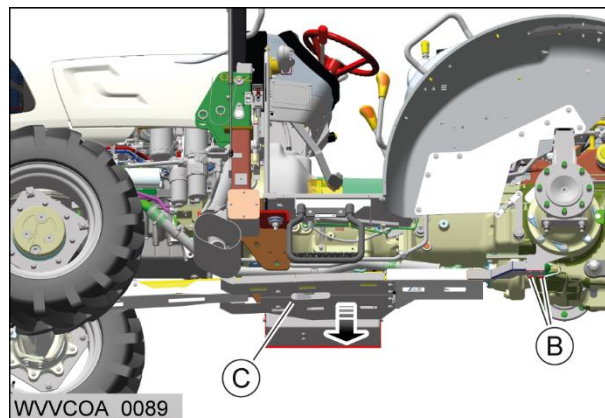
Articulated front axle drive shaft

Removal

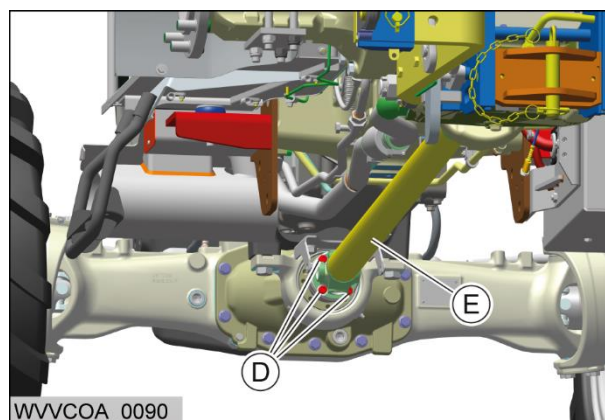
1. Remove the bolts (A) on the left and right side.



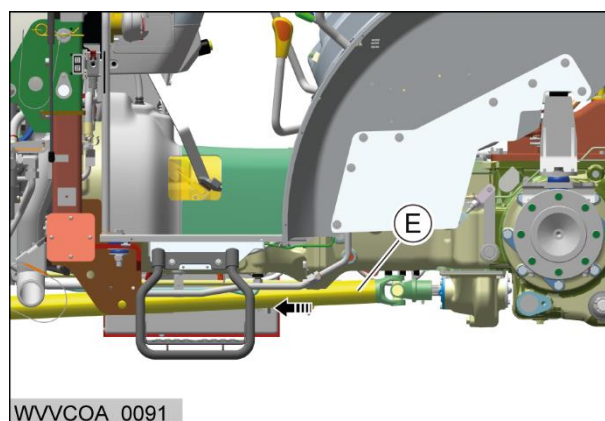
Remove the bolts (B) and remove the lower protections (C).



Remove the four bolts (D) from the shaft front joint.
Disengage the shaft (E) front flange from the front differential.



Slide the shaft joint (E) forward to disengage it from the rear differential shaft.



Refitting

1. Properly clean and grease the shaft and its seat on tractor.

Install in reverse order, ensuring that the shaft is securely fitted in place.

Tighten all fixings to the respective tightening torques, Bolts (D) 50 Nm.

Auxiliary fuel tank

WARNING: The machine can move without warning. The machine is heavy and can cause death or injury. Park the machine on a clean, hard and level area. Set the parking brake to ON and install the wheel chocks.

WARNING: The machine has parts that move without operator input. The parts that move can hit persons. Stop the engine on the machine and remove the ignition key.

WARNING: Risk of death or injury. Move fuel carefully, it is very flammable. Do not do work on the fuel system while smoking, or near to open flames or sparks.

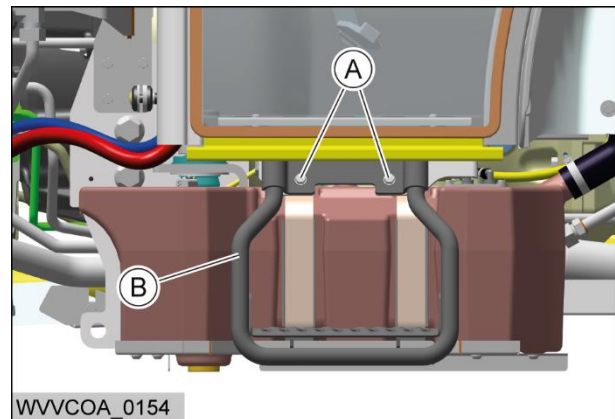
WARNING: Risk of death or injury. When you are near fuel, do not smoke, do work near heaters or other fire sources. Keep flammable fluids away from fire sources. Do not burn or make a hole in pressurised containers. Make sure that the machine is clean of grease, and unwanted material. Do not keep dirty cloths as they can ignite and burn freely.

CAUTION: Risk of injury. Make sure that the engine is cold to prevent burn injury.

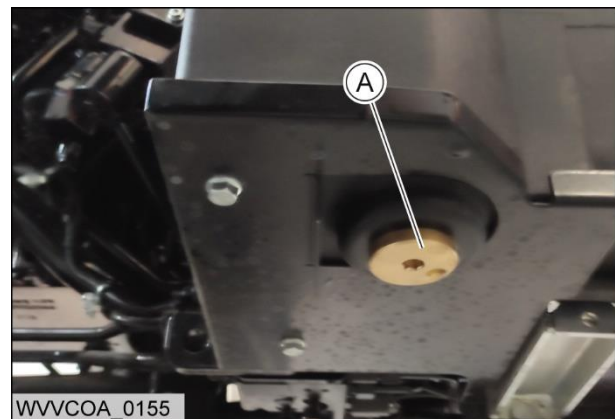
Removal

1. Disconnect the battery (see Connection/disconnection of the battery cut-off switch).

Remove the screws (A) and remove the step (B).



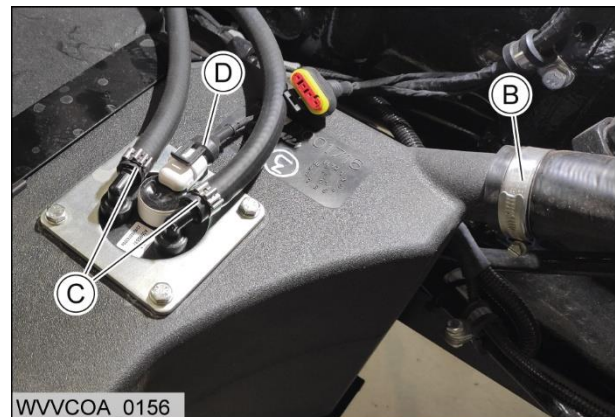
Remove the plug (A) and drain the fuel.



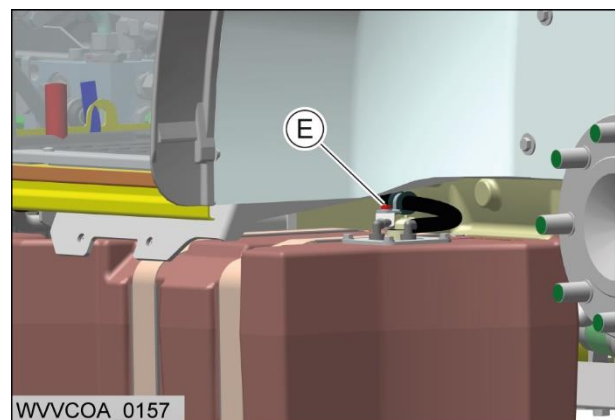
Remove the clamp (B) and detach the hose of front fuel tank.

Detach the hoses (C).

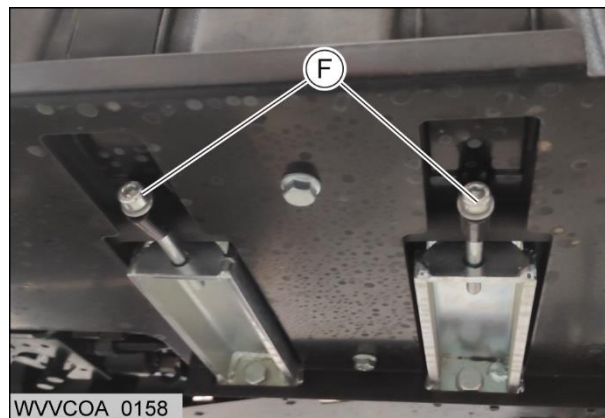
Disconnect the connector (D).



Remove the screw (E).

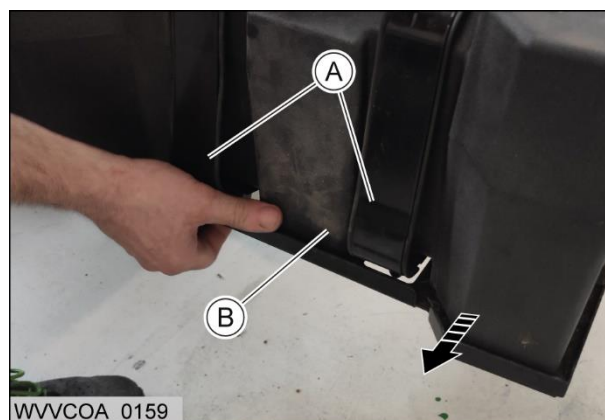


Remove the screws (F).



Release the fixing bars (A) and remove the auxiliary fuel tank (B).

Clean and examine the tank for damage. Replace the tank if necessary.



Refitting

1. Install all the parts performing the procedure in reverse order.

Connect the battery (see Connection/disconnection of the battery cut-off switch).

Make sure that there are no leaks.

Start the engine and make sure that the engine and fuel level sensor operate correctly.

Battery

Over 75Hp

Before starting the procedure

CAUTION: Keep all sparks and flames away from batteries, as gas given off by electrolyte is explosive. To avoid sparks, connect negative (ground) cable last and disconnect it first.

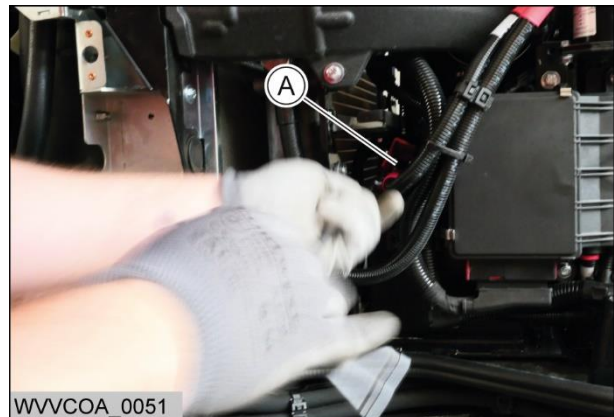
CAUTION: Pay close attention to the symbols marked on the battery.

CAUTION: To avoid shocks and burns, disconnect battery ground cable before servicing any part of electrical system.

Removal

1. Disconnect the battery (see Connection/disconnection of the battery cut-off switch).

Disconnect the battery positive pole (A).



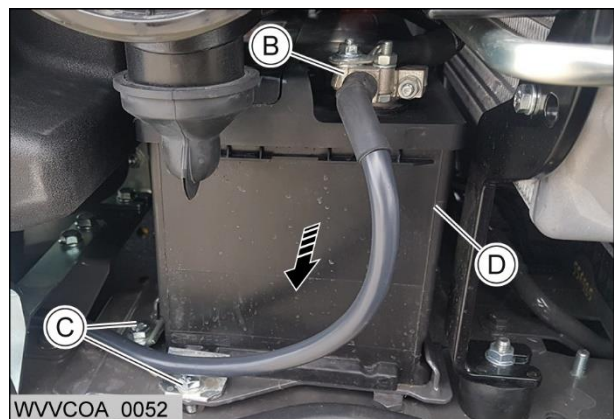
Disconnect the battery positive pole (B).

Remove the screw (C) and remove the locking plates.

Extract the battery (D).

Use a torch to check the electrolyte level. Clean and grease the battery terminals.

If necessary, change the battery and place it in its location.



Refitting

1. Carry out the removal steps in reverse order.

Connect the battery (see Connection/disconnection of the battery cut-off switch).

Ensure that the ground and positive cables are properly connected and that the battery operated correctly.

Under 75Hp

Before starting the procedure

CAUTION: Keep all sparks and flames away from batteries, as gas given off by electrolyte is explosive. To avoid sparks, connect negative (ground) cable last and disconnect it first.

CAUTION: Pay close attention to the symbols marked on the battery.

CAUTION: To avoid shocks and burns, disconnect battery ground cable before servicing any part of electrical system.

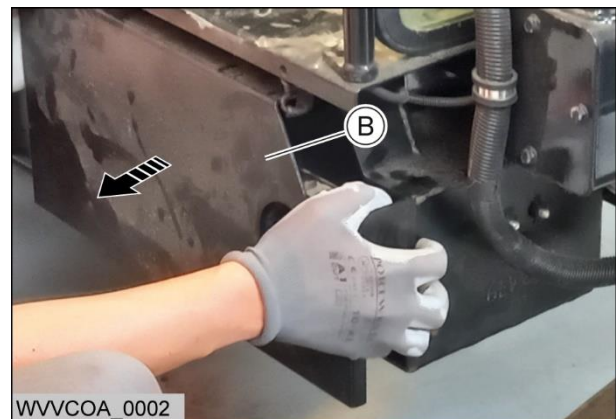
Removal

1. Disconnect the battery (see Connection/disconnection of the battery cut-off switch).

Remove the screws (A) on the left and right side.



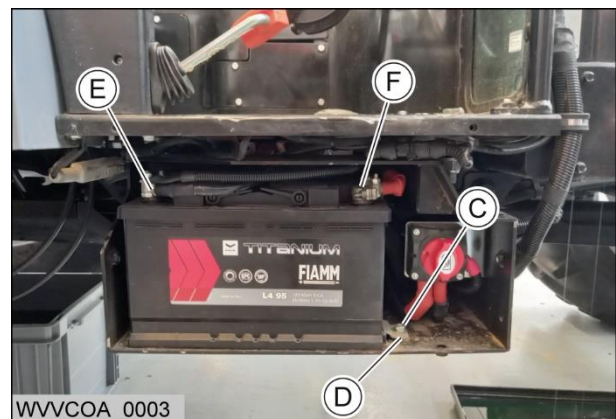
Remove the cover (B).



Remove the screw (C) and remove the bracket (D).

Disconnect the battery negative pole (E).

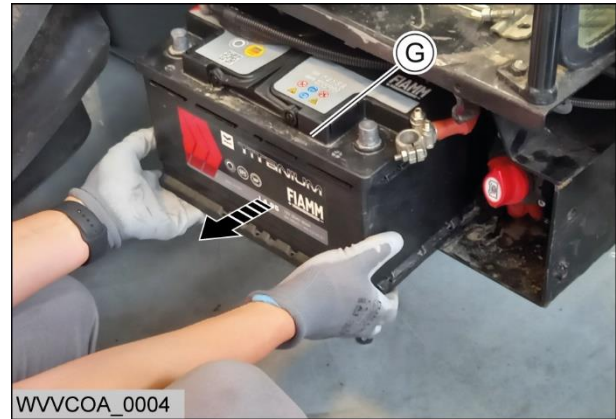
Disconnect the battery positive pole (F).



Extract the battery (G).

Use a torch to check the electrolyte level. Clean and grease the battery terminals.

If necessary, change the battery and place it in its location.



Refitting

1. Carry out the removal steps in reverse order.

Connect the battery (see Connection/disconnection of the battery cut-off switch).

Ensure that the ground and positive cables are properly connected and that the battery operated correctly

Blockage switch from the air filter

WARNING: The machine can move without warning. The machine is heavy and can cause death or injury. Park the machine on a clean, hard and level area. Set the parking brake to ON and install the wheel chocks.

WARNING: The machine has parts that move without operator input. The parts that move can hit persons. Stop the engine on the machine and remove the ignition key.

Removal

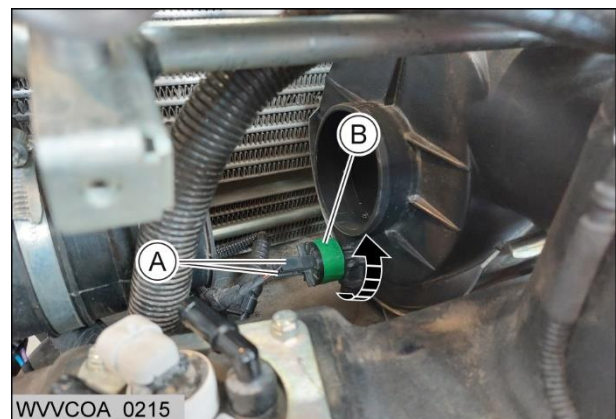
Only for models under 75Hp

1. Disconnect the battery (see Connection/disconnection of the battery cut-off switch).

Open the engine cover.

Disconnect the electrical connectors (A) from the airflow switch (B).

Remove the airflow switch (B).



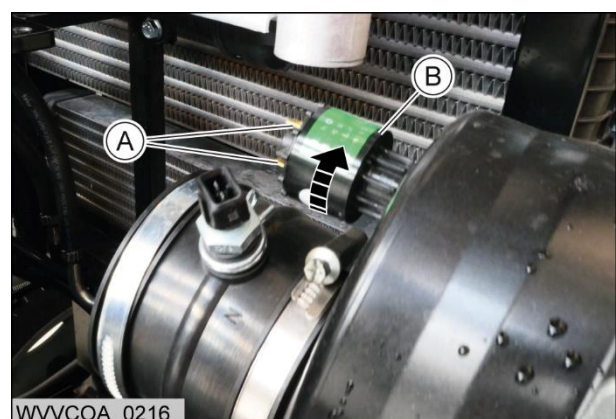
Only for models over 75Hp

1. Disconnect the battery (see Connection/disconnection of the battery cut-off switch).

Open the engine cover.

Disconnect the electrical connectors (A) from the airflow switch (B).

Remove the airflow switch (B).



Refitting

1. Install all the parts performing the procedure in reverse order.

Connect the battery (see Connection/disconnection of the battery cut-off switch).

Start the engine.

Make sure that the airflow switch operates correctly.

Brake cylinders and pedals (Platform version)

WARNING: The machine can move without warning. The machine is heavy and can cause death or injury. Park the machine on a clean, hard and level area. Set the parking brake to ON and install the wheel chocks.

WARNING: The machine has parts that move without operator input. The parts that move can hit persons. Stop the engine on the machine and remove the ignition key.

WARNING: Risk of injury. Make sure that you bleed the brakes correctly after you do maintenance on the brake system hydraulics.

IMPORTANT: Damage to the machine. Do not try to repair the brake cylinders. When it is necessary to replace the brake cylinders only use original spare parts.

Before starting the procedure

1. Disconnect the battery (see chapter [Connection/disconnection of the battery cut-off switch \(under 75Hp\)](#) - or - see chapter [Connection/disconnection of the battery cut-off switch \(over 75Hp\)](#)).

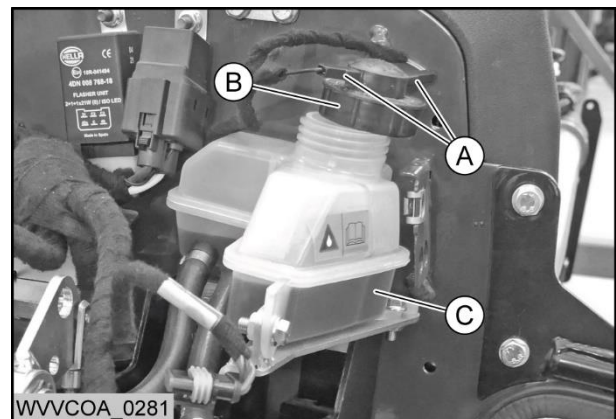
Remove the steering wheel (see chapter [Removal/refitting of the steering wheel](#)).

Remove the instrument cluster (see chapter [Removal/refitting of the instrument panel](#)).

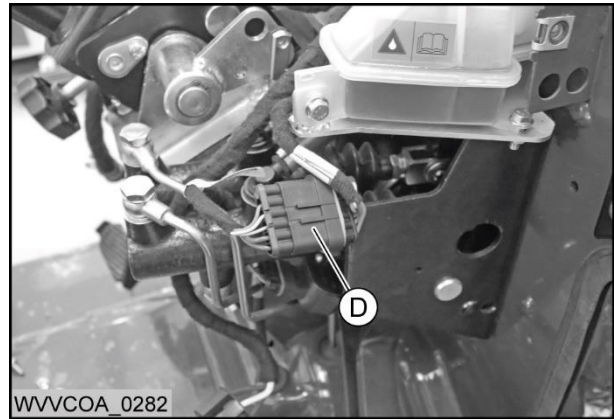
Remove the dashboard covers (see chapter [Removal/refitting of the dashboard panels](#)).

Removal

1. Disconnect the two electrical connectors (A) and remove the level sensor cap (B) from the brake fluid reservoir (C).

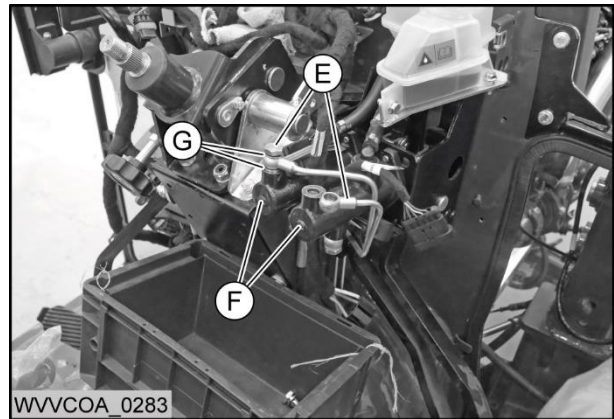


Disconnect the wiring connector (D).



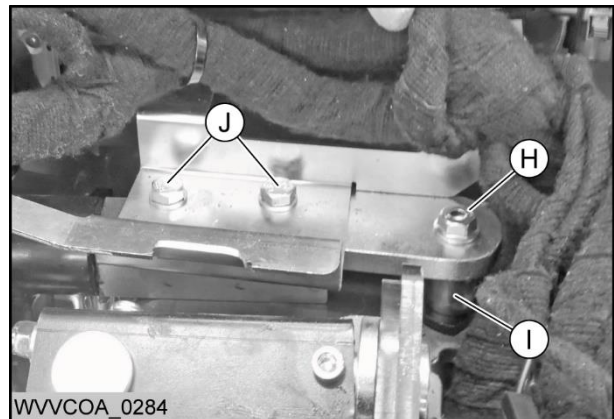
Unscrew the brake pipe fittings (E) from the brake cylinders (F) and collect the respective sealing washers (G).

NOTE: Put a container in an applicable position to collect all fluids that come out during the procedure.

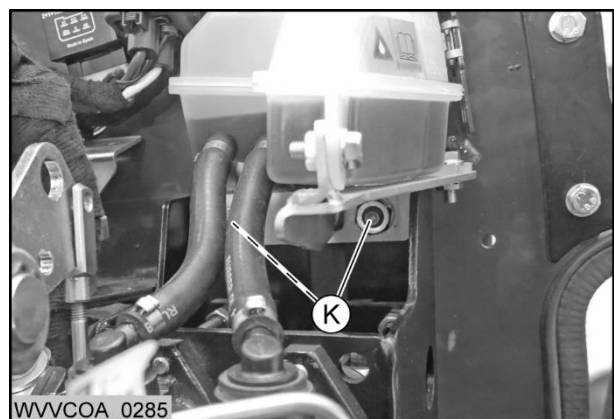


Remove the bolt (H) and collect the respective spacer bushing (I).

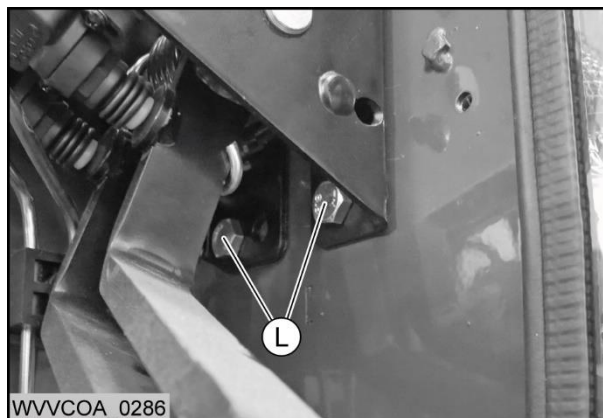
NOTE: To collect the spacer bushing (I) the two screws (J) must only be loosen, not removed.



Remove the upper locking nuts (K).



Remove the lower fixing screws (L) and their respective counter nuts (inside the engine compartment).



Remove the brake cylinders and pedals assembly (M) from the vehicle.



Refitting

1. Install the brake cylinders and pedals assembly (M) and all the remaining components by performing the procedure in reverse order.

Ensure that both brake pedal switches (N) are properly positioned and matched with the brake pedals (O) (see chapter [Install the brake pedal switches](#)).

NOTE: Also ensure that the locking pin is safely locked in place and that both brake pedals (O) are properly coupled.

Fill the brake fluid reservoir (C) to the maximum level indicator with the specified brake fluid (see chapter [Recommended lubricants and additives](#)).

Bleed the brake system (see chapter [Brake system - bleed](#)).

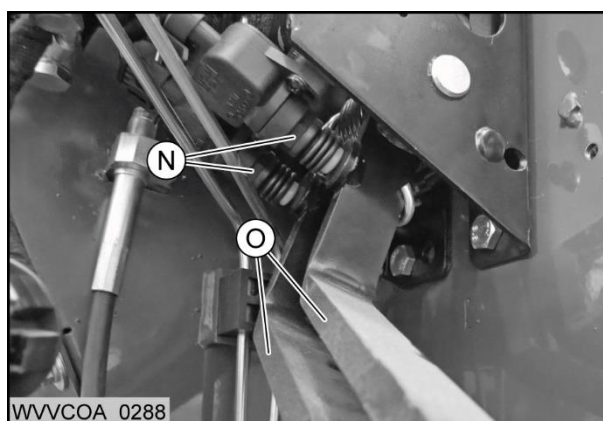
NOTE: Clean carefully any residual of brake fluid from the surrounding area.

Connect the battery (see chapter [Connection/disconnection of the battery cut-off switch \(under 75Hp\)](#) - or - see chapter [Connection/disconnection of the battery cut-off switch \(over 75Hp\)](#)).

Check that the brake cylinders and pedals assembly (M) operates correctly: press the brake pedals (O) and ensure that the rear stoplights switch on immediately.

Refit the dashboard covers (see chapter [Removal/refitting of the dashboard panels](#)).

Refit the instrument cluster (see chapter [Removal/refitting of the instrument panel](#)).



Refit the steering wheel (see chapter [Removal/refitting of the steering wheel](#)).

Brake fluid reservoir

WARNING: The machine can move without warning. The machine is heavy and can cause death or injury. Park the machine on a clean, hard and level area. Set the parking brake to ON and install the wheel chocks.

WARNING: The machine has parts that move without operator input. The parts that move can hit persons. Stop the engine on the machine and remove the ignition key.

WARNING: Risk of injury. Make sure that you bleed the brakes correctly after you do maintenance on the brake system hydraulics.

IMPORTANT: Damage to the machine and the environment. Clean all spills immediately.

Cab version

Before starting procedure

1. Disconnect the battery (see chapter [Connection/disconnection of the battery cut-off switch \(under 75Hp\)](#) - or - see chapter [Connection/disconnection of the battery cut-off switch \(over 75Hp\)](#)).

Remove the instrument cluster (see chapter [Removal/refitting of the instrument panel](#)).

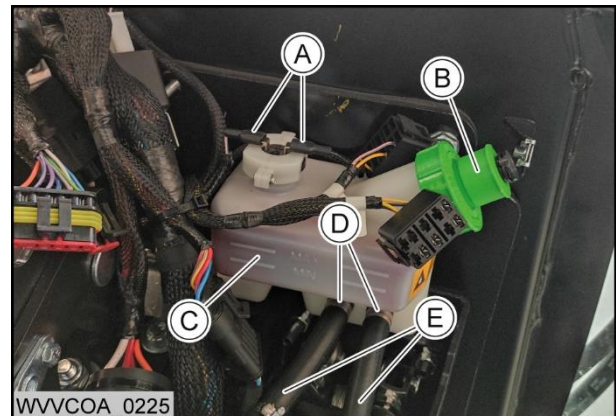
Remove the right dashboard cover (see chapter [Removal/refitting of the dashboard panels](#)).

Removal

1. Disconnect the two electrical connectors (A) and remove the level sensor cap (B) from the brake fluid reservoir (C).

Loosen the two clamps (D) and detach the two brake hoses (E) from the brake fluid reservoir (C).

NOTE: Put a container in an applicable position to collect all fluids that come out during the procedure.

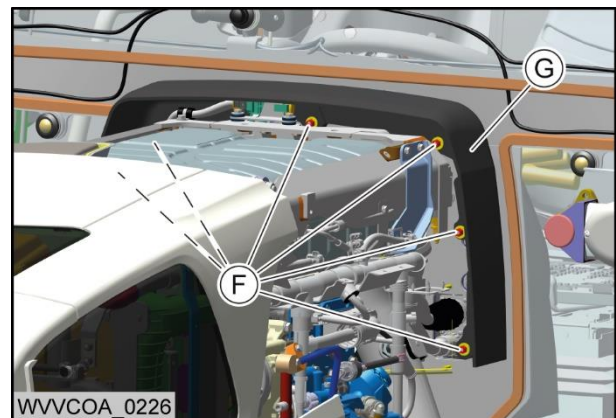


Open the engine cover.

Remove both engine side covers (see chapter [Removal/refitting the engine side covers](#)).

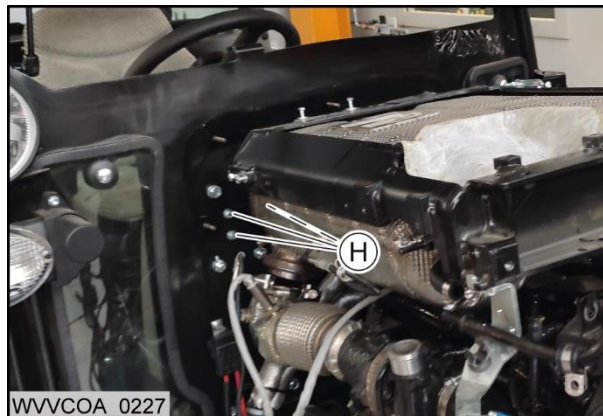
Remove the six nuts and their relative washers (F).

Remove the rubber protection (G).



Remove the three fixing bolts (H) and remove the brake fluid reservoir (C).

Check the brake fluid reservoir (C) for wear or damages. Replace if necessary.



Refitting

1. Carry out the removal procedure in reverse order.

NOTE: Make sure that the brake hoses (E) are securely fitted in place and the level sensor cap connectors (A) are properly connected.

Fill the brake fluid reservoir (C) to the maximum level indicator with the specified brake fluid (see chapter [Recommended lubricants and additives](#)).

Bleed the brake system (see chapter [Brake system - bleed](#)).

NOTE: Clean carefully any residual of brake fluid from the surrounding area.

Make sure that there are no leaks.

Refit the engine side covers (see chapter [Removal/refitting the engine side covers](#)).

Refit the right dashboard cover (see chapter [Removal/refitting of the dashboard panels](#)).

Refit the instrument cluster (see chapter [Removal/refitting of the instrument panel](#)).

Connect the battery (see chapter [Connection/disconnection of the battery cut-off switch \(under 75Hp\)](#) - or - see chapter [Connection/disconnection of the battery cut-off switch \(over 75Hp\)](#)).

Perform a road test to check the efficiency of the brakes.

Platform version

Before starting the procedure

1. Disconnect the battery (see chapter [Connection/disconnection of the battery cut-off switch \(under 75Hp\)](#) - or - see chapter [Connection/disconnection of the battery cut-off switch \(over 75Hp\)](#)).

Remove the steering wheel (see chapter [Removal/refitting of the steering wheel](#)).

Remove the instrument cluster (see chapter [Removal/refitting of the instrument panel](#)).

Remove all the upper dashboard covers (see chapter [Removal/refitting of the dashboard panels](#)).

Removal

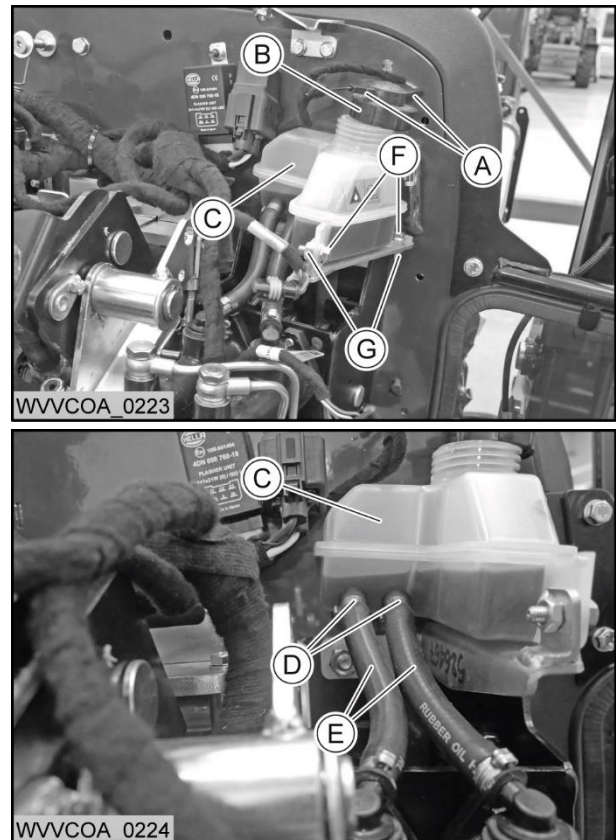
1. Disconnect the two electrical connectors (A) and remove the level sensor cap (B) from the brake fluid reservoir (C).

Loosen the two clamps (D) and detach the two brake hoses (E) from the brake fluid reservoir (C).

NOTE: Put a container in an applicable position to collect all fluids that come out during the procedure.

Remove the two fixing bolts (F) and their relative counter nuts (G) and remove the brake fluid reservoir (C).

Check the brake fluid reservoir (C) for wear or damages. Replace if necessary.



Refitting

1. Carry out the removal procedure in reverse order.

NOTE: Make sure that the brake hoses (E) are securely fitted in place and the level sensor cap connectors (A) are properly connected.

Fill the brake fluid reservoir (C) to the maximum level indicator with the specified brake fluid (see chapter [Recommended lubricants and additives](#)).

Bleed the brake system (see chapter [Brake system - bleed](#)).

NOTE: Clean carefully any residual of brake fluid from the surrounding area.

Make sure that there are no leaks.

Refit all the upper dashboard covers (see chapter [Removal/refitting of the dashboard panels](#)).

Refit the instrument cluster (see chapter [Removal/refitting of the instrument panel](#)).

Refit the steering wheel (see chapter [Removal/refitting of the steering wheel](#)).

Connect the battery (see chapter [Connection/disconnection of the battery cut-off switch \(under 75Hp\)](#) - or - see chapter [Connection/disconnection of the battery cut-off switch \(over 75Hp\)](#)).

Perform a road test to check the efficiency of the brakes.

Brake fluid

WARNING: The machine can move without warning. The machine is heavy and can cause death or injury. Park the machine on a clean, hard and level area. Set the parking brake to ON and install the wheel chocks.

WARNING: The machine has parts that move without operator input. The parts that move can hit persons. Stop the engine on the machine and remove the ignition key.

CAUTION: Risk of injury. Make sure that you do the procedure that follows to make sure that the brake system operates correctly.

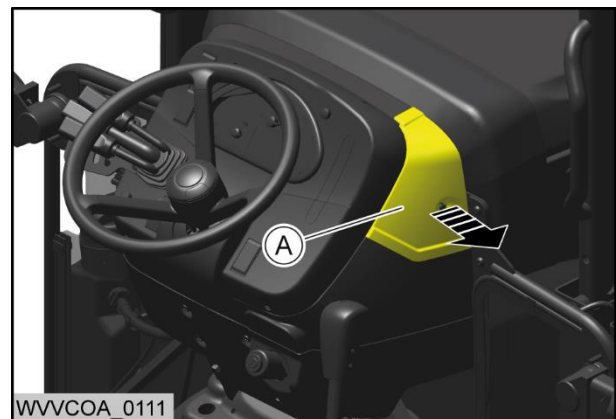
NOTE: It is necessary to have two approved technicians to bleed the brake system, one to operate the brake pedals (E) and (F) and the other to open and close the bleed screws (H) and (I).

Preliminary operations

1. Disconnect the battery (see chapter [Connection/disconnection of the battery cut-off switch \(under 75Hp\)](#) - or - see chapter [Connection/disconnection of the battery cut-off switch \(over 75Hp\)](#)).

Procedure

1. Remove the cover (A) (see chapter [Removal/refitting of the dashboard panels](#)).



Platform models



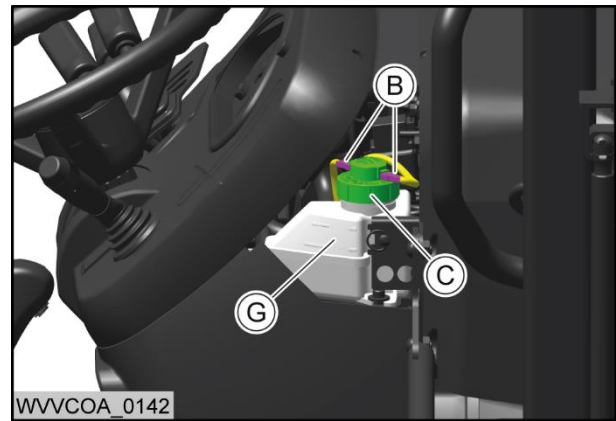
Cab models

Disconnect the electrical connectors (B) and remove the level sensor cap (C) from the brake fluid reservoir (G).

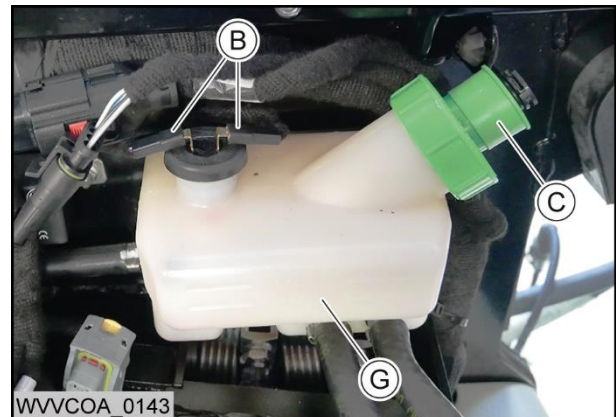
Remove all the brake fluid from the brake fluid reservoir (G).

NOTE: Put a container in an applicable position to collect all fluids that come out during the procedure.

NOTE: Use an applicable container to collect the brake fluid.



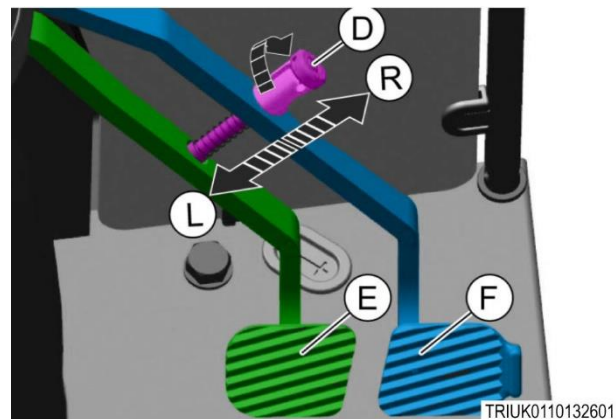
Platform models



Cab models

Pull the lock device (D) in the direction (R) to disconnect the left (E) and the right (F) brake pedals.

Turn the pin (D) clockwise and release it to lock it in position. The brake pedals (E) and (F) can now operate independently.



Install a transparent flexible hose on the bleed screw (H).

Install a transparent flexible hose on the bleed screw (I).

Open the bleed screws (H) and (I).

NOTE: Put a container in an applicable position to collect all fluids that come out during the procedure.

NOTE: Use an applicable container to collect the brake fluid.

Operate the brake pedals (E) and (F) independently many times to push the remaining brake fluid out of the bleed screws (H) and (I).

Fill the brake fluid reservoir (G) with clean specified brake fluid (see chapter [Recommended lubricants and additives](#)).

Bleed the brake system (see chapter [Brake system - bleed](#)).

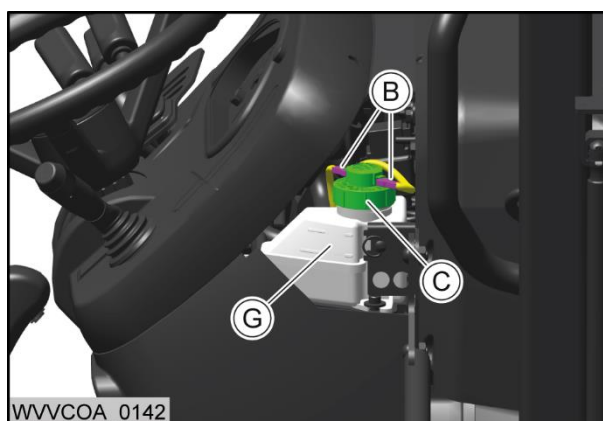
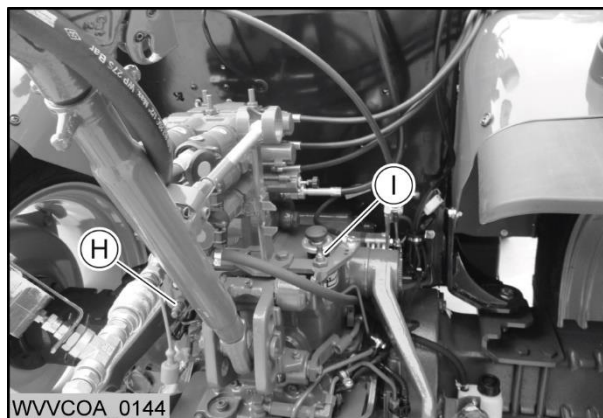
Tighten the bleed screws (H) and (I) to the standard torque.

Remove the transparent flexible hose from the bleed screws (H) and (I).

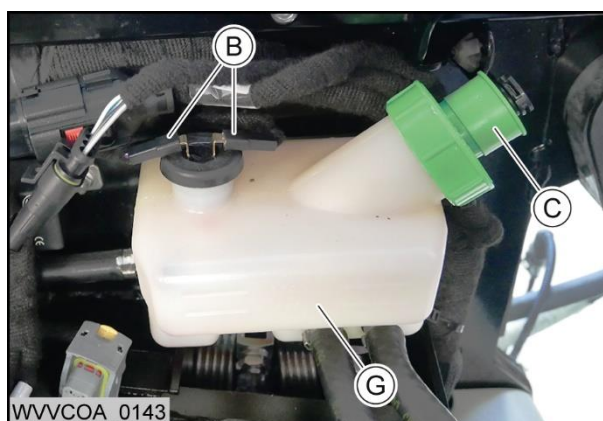
Fill the brake fluid reservoir (G) to the maximum level indicator with the specified brake fluid (see chapter [Recommended lubricants and additives](#)).

NOTE: Make sure that you remove and clean away spilt brake fluid.

Refit the level sensor cap (C) to the brake fluid reservoir (G) and connect the electrical connectors (B).



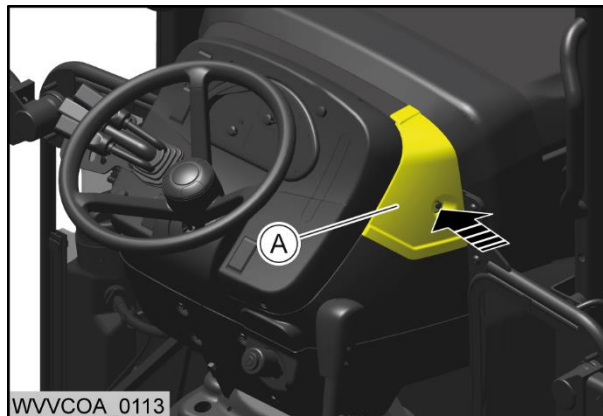
Platform models



Cab models

Refit the cover (A) (see chapter [Removal/refitting of the dashboard panels](#)).

Connect the battery (see chapter [Connection/disconnection of the battery cut-off switch \(under 75Hp\)](#) - or - see chapter [Connection/disconnection of the battery cut-off switch \(over 75Hp\)](#)).



Platform models



Cab models

Brake fluid – with optional trailer brake valve

WARNING: The machine can move without warning. The machine is heavy and can cause death or injury. Park the machine on a clean, hard and level area. Set the parking brake to ON and install the wheel chocks.

WARNING: The machine has parts that move without operator input. The parts that move can hit persons. Stop the engine on the machine and remove the ignition key.

CAUTION: Risk of injury. Make sure that you do the procedure that follows to make sure that the brake system operates correctly.

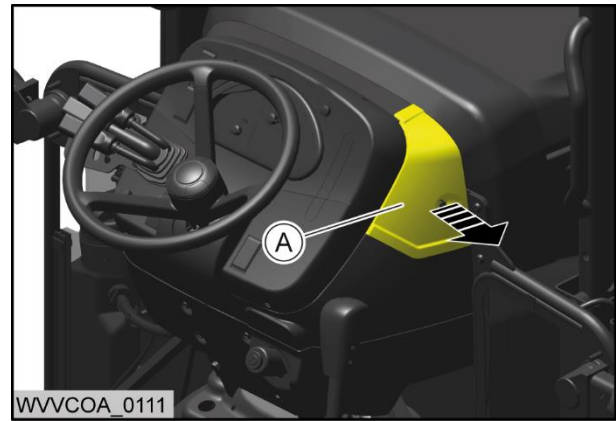
NOTE: It is necessary to have two approved technicians to bleed the brake system, one to operate the brake pedals (E) and (F) and the other to open and close the bleed screw (H).

Preliminary operations

1. Disconnect the battery (see chapter [Connection/disconnection of the battery cut-off switch \(under 75Hp\)](#) - or - see chapter [Connection/disconnection of the battery cut-off switch \(over 75Hp\)](#)).

Procedure

1. Remove the cover (A) (see chapter [Removal/refitting of the dashboard panels](#)).



Platform models



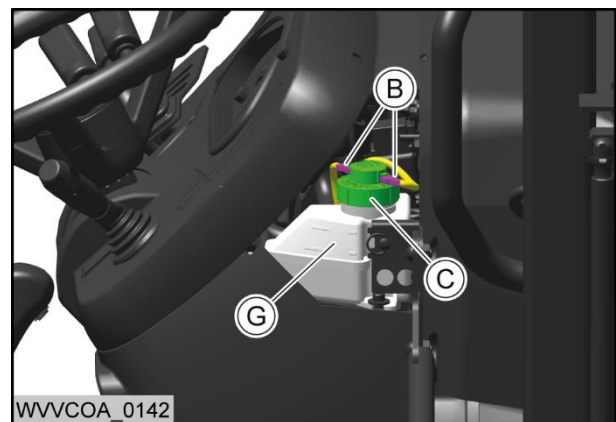
Cab models

Disconnect the electrical connectors (B) and remove the level sensor cap (C) from the brake fluid reservoir (G).

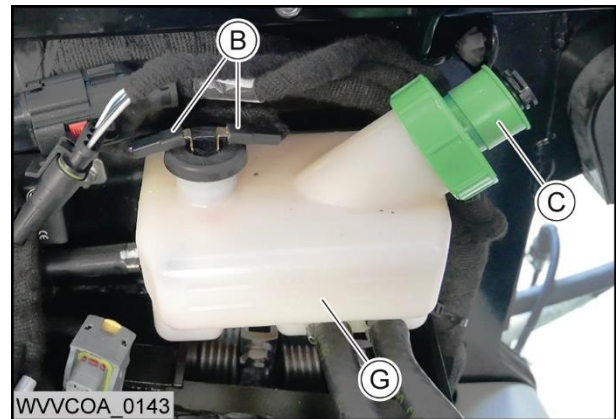
Remove all the brake fluid from the brake fluid reservoir (G).

NOTE: Put a container in an applicable position to collect all fluids that come out during the procedure.

NOTE: Use an applicable container to collect the brake fluid.



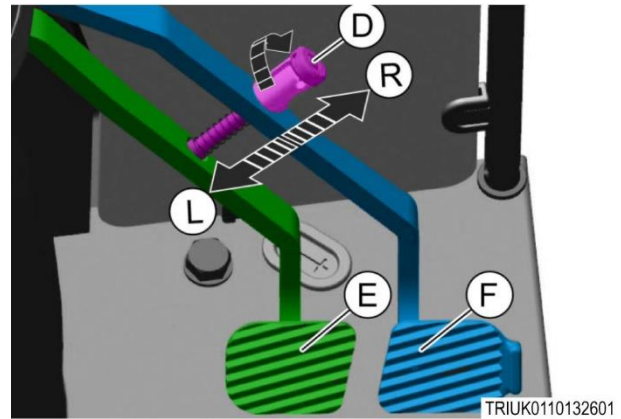
Platform models



Cab models

Pull the lock device (D) in the direction (R) to disconnect the left (E) and the right (F) brake pedals.

Turn the pin (D) clockwise and release it to lock it in position. The brake pedals (E) and (F) can now operate independently.



Install a transparent flexible hose on the bleed screw (H).

Open the bleed screw (H).

NOTE: Put a container in an applicable position to collect all fluids that come out during the procedure.

NOTE: Use an applicable container to collect the brake fluid.

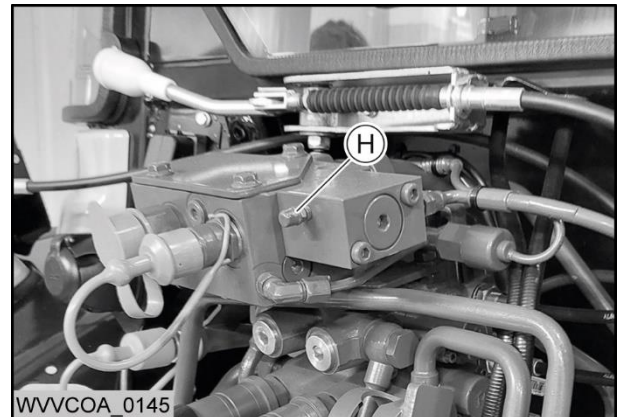
Operate the brake pedals (E) and (F) independently many times to push the remaining brake fluid out of the bleed screw (H).

Fill the brake fluid reservoir (G) with clean specified brake fluid (see chapter [Recommended lubricants and additives](#)).

Bleed the brake system (see chapter [Brake system - with Trailer brake valve \(optional\) - bleed](#)).

Tighten the bleed screw (H) to the standard torque.

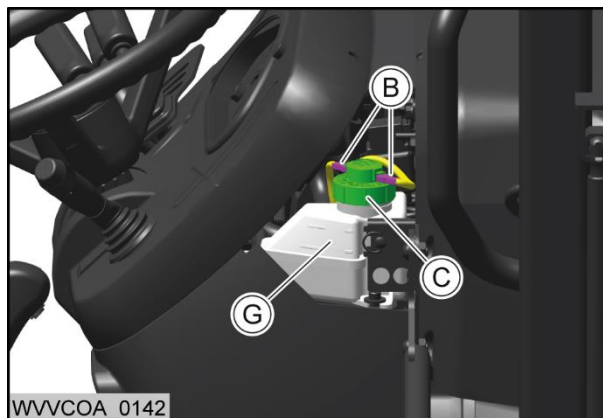
Remove the transparent flexible hose from the bleed screw (H).



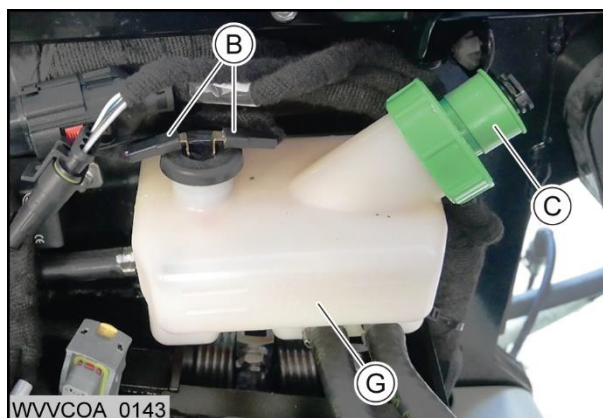
Fill the brake fluid reservoir (G) to the maximum level indicator with the specified brake fluid (see chapter [Recommended lubricants and additives](#)).

NOTE: Make sure that you remove and clean away spilt brake fluid.

Refit the level sensor cap (C) to the brake fluid reservoir (G) and connect the electrical connectors (B).



Platform models



Cab models

Refit the cover (A) (see chapter [Removal/refitting of the dashboard panels](#)).

Connect the battery (see chapter [Connection/disconnection of the battery cut-off switch \(under 75Hp\)](#) - or - see chapter [Connection/disconnection of the battery cut-off switch \(over 75Hp\)](#)).



Platform models



Cab models

Dashboard panels

Preliminary operations

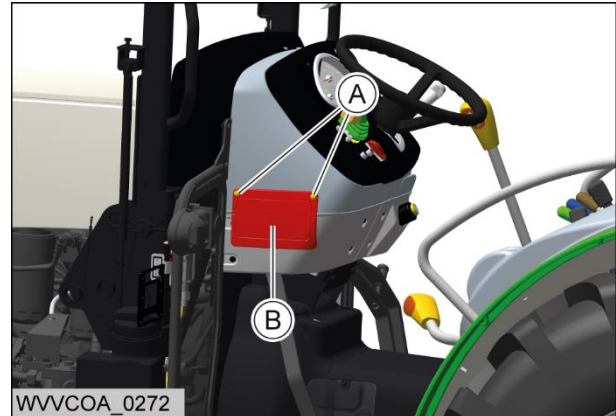
1. Disconnect the battery (see Connection/disconnection of the battery cut-off switch).

Remove the Ignition key switch.

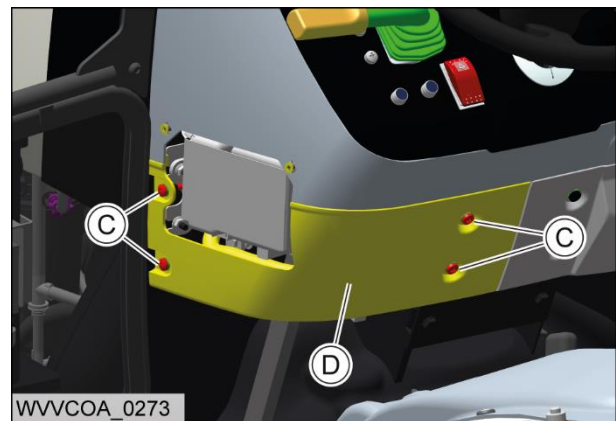
Remove the instrument panel switches - Only for Platform models.

Removal (Platform version)

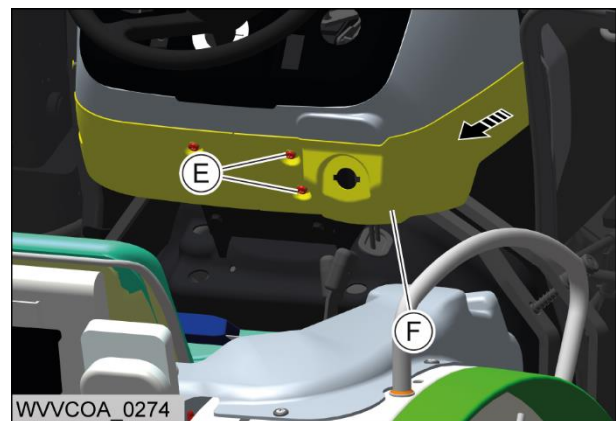
1. Remove the screws (A) and remove the cover (B).



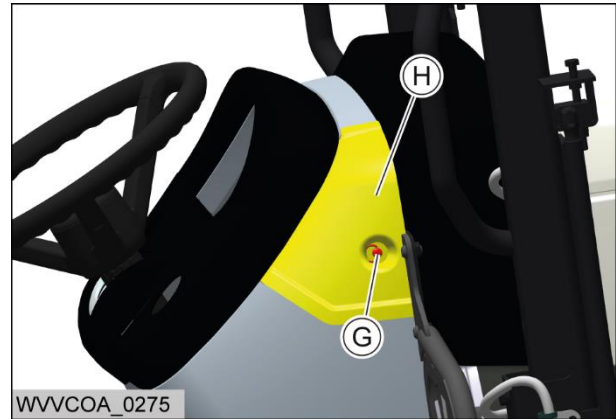
Remove the screws (C) and remove the left panel (D).



Remove the screws (E) and remove the right panel (F).



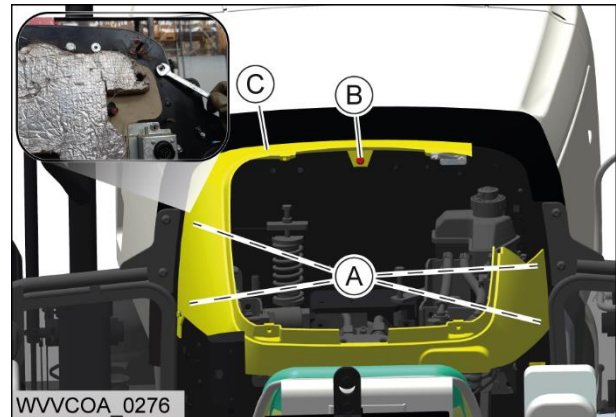
Remove the fastener (G) and remove the cover (H).



Remove the screw (B).

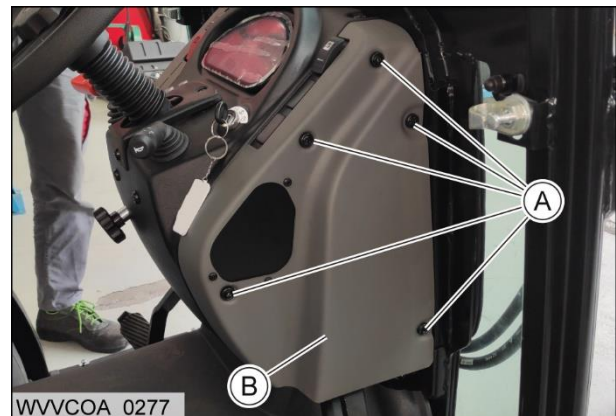
Remove the four nuts (A) inside engine compartment.

Remove the panel (C).

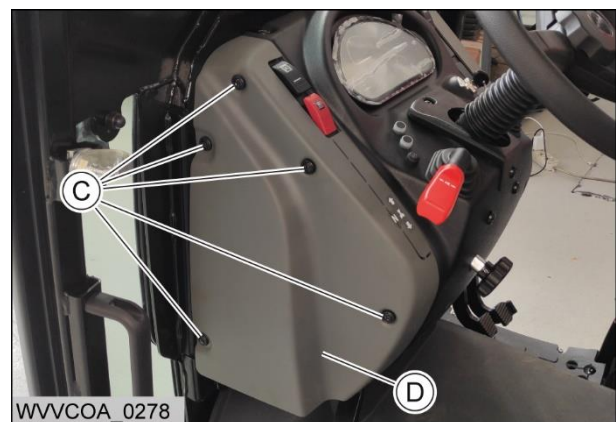


Removal (Cab version)

1. Remove the screws (A) and remove the right panel (B).



Remove the screws (C) and remove the right panel (D).



Refitting

1. Install all the parts performing the procedure in reverse order.

Install the instrument panel switches - Only for Platform models.

Install the Ignition key switch.

Connect the battery (see Connection/disconnection of the battery cut-off switch).

Direction indicator unit

WARNING: The machine can move without warning. The machine is heavy and can cause death or injury. Park the machine on a clean, hard and level area. Set the parking brake to ON and install the wheel chocks.

WARNING: The machine has parts that move without operator input. The parts that move can hit persons. Stop the engine on the machine and remove the ignition key.

Removal

1. Disconnect the battery (see chapter [Connection/disconnection of the battery cut-off switch \(under 75Hp\)](#) - or - see chapter [Connection/disconnection of the battery cut-off switch \(over 75Hp\)](#)).

Remove the steering wheel (see chapter [Removal/refitting of the steering wheel](#)).

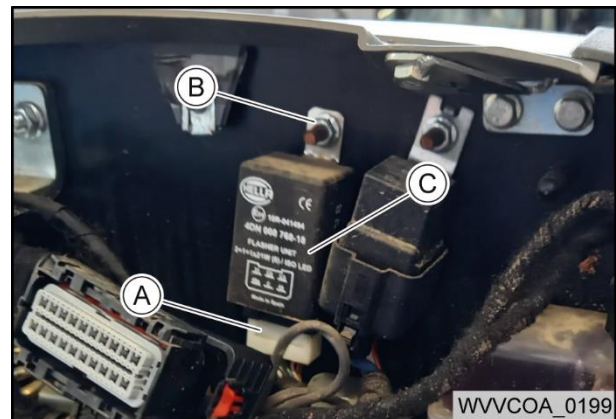
Remove the instrument cluster (see chapter [Removal/refitting of the instrument panel](#)).

Remove the upper dashboard cover (see chapter [Removal/refitting of the dashboard panels](#)).

Disconnect the electrical connector (A).

Remove the locking nut (B) and the direction indicator unit (C).

NOTE: The location of the direction indicator unit (C) can be different to the figure shown.



Refitting

1. Carry out the removal procedure in reverse order.

Refit the upper dashboard cover (see chapter [Removal/refitting of the dashboard panels](#)).

Refit the instrument cluster (see chapter [Removal/refitting of the instrument panel](#)).

Refit the steering wheel (see chapter [Removal/refitting of the steering wheel](#)).

Connect the battery (see chapter [Connection/disconnection of the battery cut-off switch \(under 75Hp\)](#) - or - see chapter [Connection/disconnection of the battery cut-off switch \(over 75Hp\)](#)).

2. Check that the direction indicator unit (C) operates correctly.

Diesel particulate filter exhaust pipe (under 75Hp)

WARNING: The machine can move without warning. The machine is heavy and can cause death or injury. Park the machine on a clean, hard and level area. Set the parking brake to ON and install the wheel chocks.

WARNING: The machine has parts that move without operator input. The parts that move can hit persons. Stop the engine on the machine and remove the ignition key.

CAUTION: Risk of injury. Make sure that the exhaust is cold to prevent burn injury.

Removal

1. Disconnect the battery (see Connection/disconnection of the battery cut-off switch).

Open the engine cover.

Release the clamp (A) and remove it.



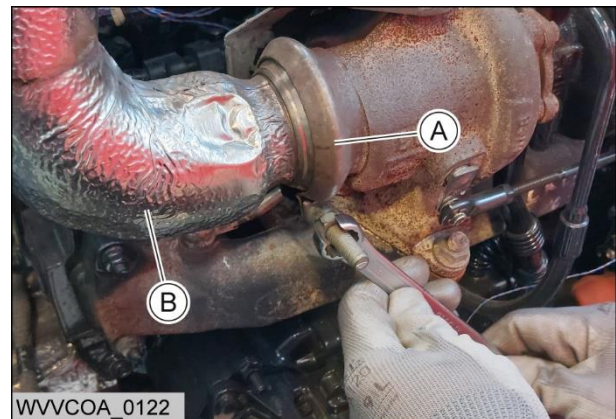
Remove the lambda sensor (B).



Release the clamp (A) and remove it.

Remove the diesel particulate filter exhaust pipe (B).

NOTE: Do not try to repair or adjust the DPF exhaust pipe. Replace if necessary.



Refitting

1. Install all the parts performing the procedure in reverse order.

Close the engine cover.

Connect the battery (see Connection/disconnection of the battery cut-off switch).

Diesel particulate filter module (under 75Hp)

WARNING: The machine can move without warning. The machine is heavy and can cause death or injury. Park the machine on a clean, hard and level area. Set the parking brake to ON and install the wheel chocks.

WARNING: The machine has parts that move without operator input. The parts that move can hit persons. Stop the engine on the machine and remove the ignition key.

CAUTION: Risk of injury. Make sure that the exhaust is cold to prevent burn injury.

Preliminary operations

1. Disconnect the battery (see Connection/disconnection of the battery cut-off switch).

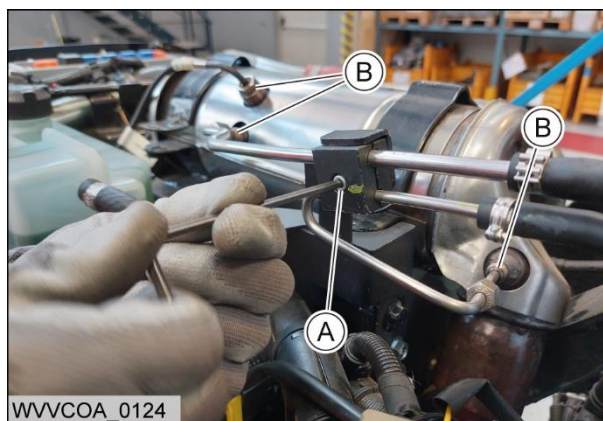
Open the engine cover.

Remove the diesel particulate filter exhaust pipe (See Removal/refitting the diesel particulate filter exhaust pipe (under 75Hp)).

Removal

1. Remove the screw (A) and release the pipes (B).

Detach the pipes (B) from the diesel particulate filter module.



Remove the screws (C).



Remove the diesel particulate filter module (A).

IMPORTANT: Do not try to repair or adjust the DPF module.

Examine the DPF module and replace if necessary.



Refitting

1. Install all the parts performing the procedure in reverse order.

Install the diesel particulate filter exhaust pipe (See Removal/refitting the diesel particulate filter exhaust pipe (under 75Hp)).

Close the engine cover.

Connect the battery (see Connection/disconnection of the battery cut-off switch).

Engine cover

WARNING: The machine can move without warning. The machine is heavy and can cause death or injury. Park the machine on a clean, hard and level area. Set the parking brake to ON and install the wheel chocks. The machine has parts that move without operator input. The parts that move can hit persons. Stop the engine on the machine and remove the ignition key.

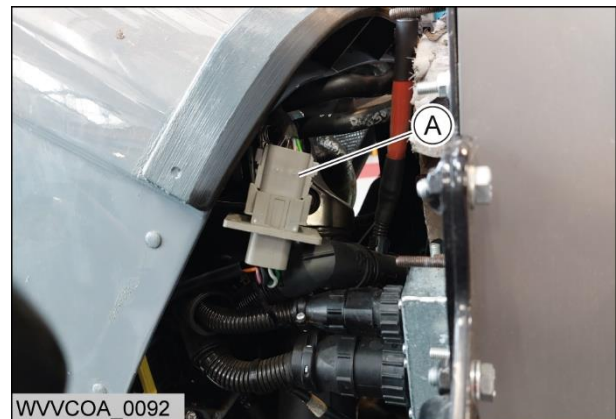
Under 75Hp

Removal

1. Disconnect the battery (see Connection/disconnection of the battery cut-off switch).

Open the engine cover.

Disconnect the connection (A) from the engine cover.



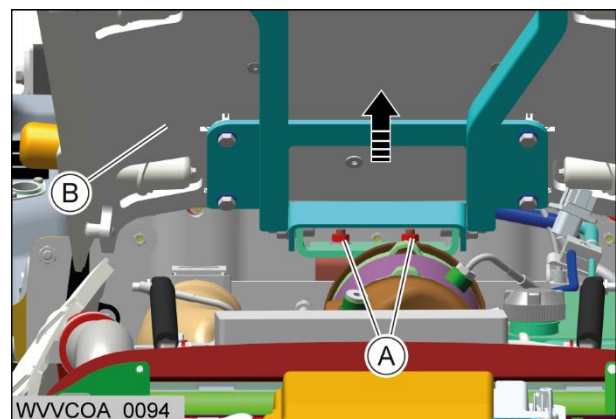
Detach the gas springs (B) on both side.



Remove the screws (A).

Lift the engine (B) cover to remove it from the machine.

Put the engine cover on an applicable support.



Refitting

1. Install all the parts performing the procedure in reverse order.

Connect the battery (see Connection/disconnection of the battery cut-off switch).

Over 75Hp

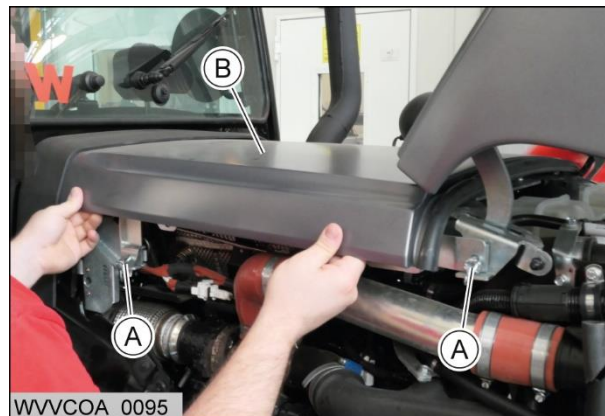
Removal

1. Disconnect the battery (see Connection/disconnection of the battery cut-off switch).

Remove the engine side covers (see Remove the engine side covers).

Remove four the fastening pins (A) on both side.

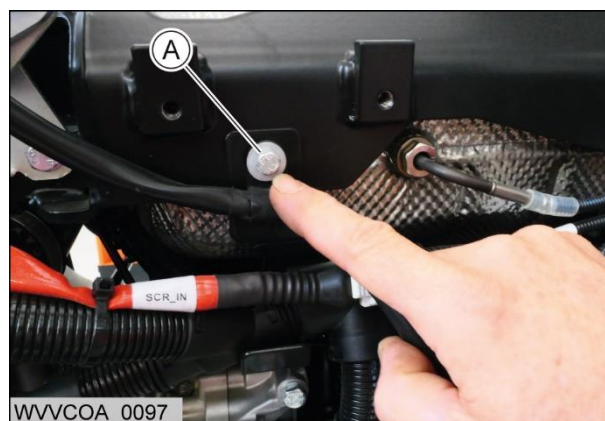
Remove the engine cover (B).



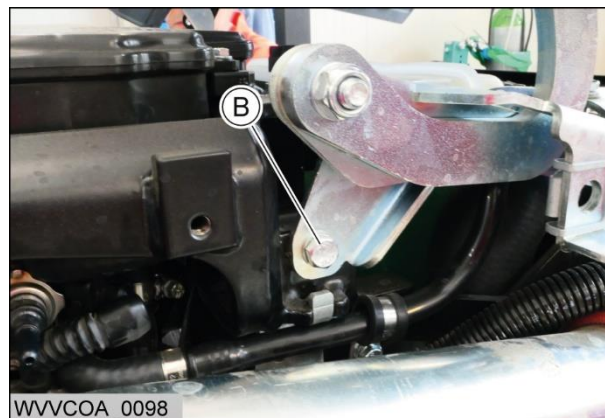
Disconnect the connection (C).



Remove the screw (A).



Remove the screws (B) on both side.

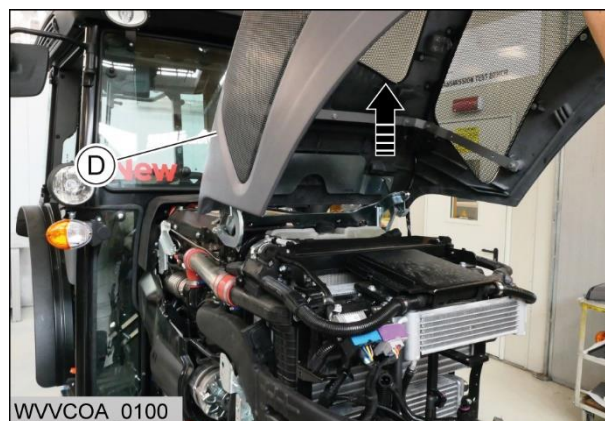


Remove the screws (C) on both side.



Remove the front engine cover (D).

Put the engine cover on an applicable support.



Refitting

1. Install all the parts performing the procedure in reverse order.

Install the engine side covers (see Remove the engine side covers)

Connect the battery (see Connection/disconnection of the battery cut-off switch).

Engine side covers

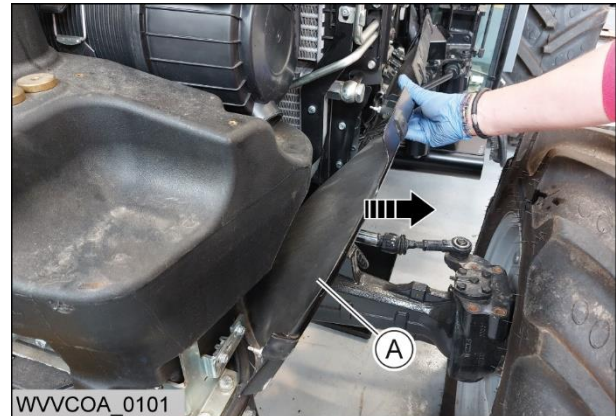
WARNING: The machine can move without warning. The machine is heavy and can cause death or injury. Park the machine on a clean, hard and level area. Set the parking brake to ON and install the wheel chocks.

WARNING: The machine has parts that move without operator input. The parts that move can hit persons. Stop the engine on the machine and remove the ignition key.

Under 75Hp

Removal

1. Pull the engine side panel (A) outside to remove. Repeat the operation on right side.



Pull the engine side panel (B) outside and forward to remove. Repeat the operation on right side.



Refitting

Install all the parts performing the procedure in reverse order.

Over 75Hp

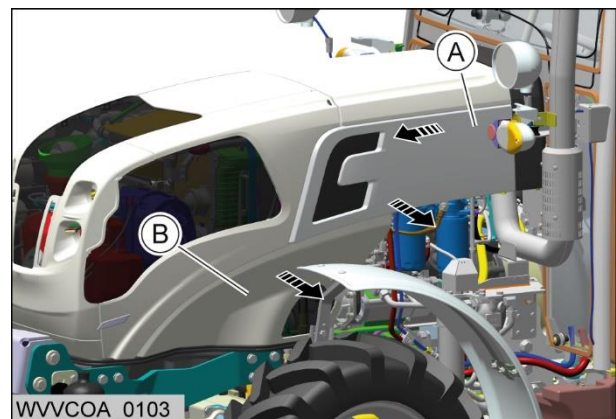
Removal

1. Pull the engine side panel (A) outside and detach first on downside.

Move the engine side panel (A) forward and outside to remove.

Pull the engine side panel (B) outside to remove.

Repeat the operation on right side.



Refitting

Install all the parts performing the procedure in reverse order.

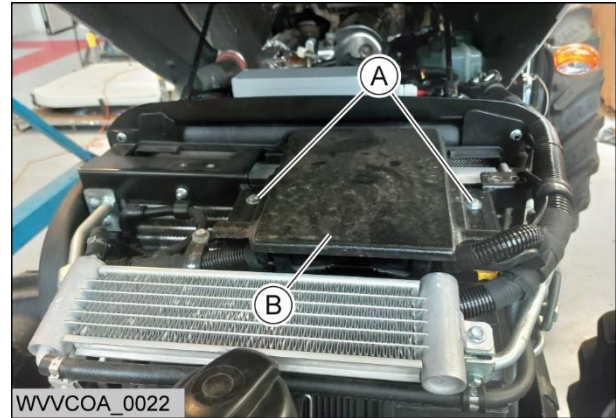
Engine ECU

Removal

1. Disconnect the battery (see Connection/disconnection of the battery cut-off switch).

Open the engine cover.

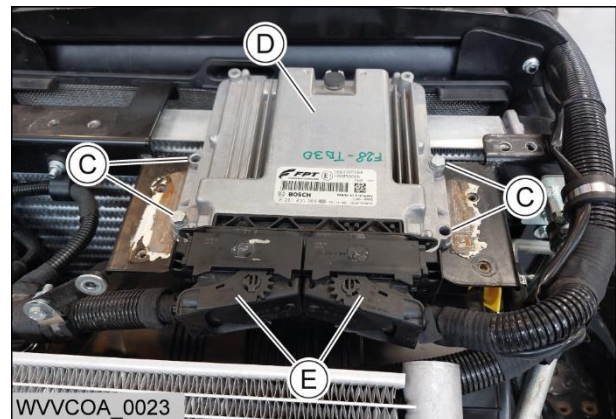
Unscrew the mounting bolts (A) and remove the ECU guard (B).



Remove the four mounting bolts (C) to release the engine control unit.

Disconnect the electrical connectors (E) of the engine cable from the engine control unit (D).

Remove the engine control unit (D).



Refitting

1. Carry out the removal steps in reverse order.

IMPORTANT: Make sure that the electrical connections are securely fitted.

Connect the battery (see Connection/disconnection of the battery cut-off switch).

Start the engine, carry out the necessary software revision upgrades and functional tests to check that no error code comes on.

Close the engine cover.

Engine

WARNING: The machine can move without warning. The machine is heavy and can cause death or injury. Park the machine on a clean, hard and level area. Set the parking brake to ON and install the wheel chocks. The machine has parts that move without operator input. The parts that move can hit persons. Stop the engine on the machine and remove the ignition key.

WARNING: Heavy components. Incorrect movement of heavy items can cause death or injury. Use the applicable lift equipment and lift points to lift, or hold the machine and heavy items during procedures.

CAUTION: Risk of injury. Make sure that the engine is cold to prevent burn injury.

Preliminary operations

1. Disconnect the battery (see Connection/disconnection of the battery cut-off switch).

Remove the engine cover.

Remove the engine side panels.

Remove the front implement and power lift, if installed.

Remove the air filter housing.

Remove the fuel tank - Only for models under 75Hp.

Remove the Def tank - Only for models over 75Hp.

Remove the battery - Only for models over 75Hp.

Remove the engine ECU.

Remove the fuel cooler.

Remove the air cooler.

Remove the oil cooler.

Remove the radiator.

Remove the front wheels.

Remove the front axle.

Remove the front PTO, if installed.

Remove the front support.

Remove the operator cab or platform.

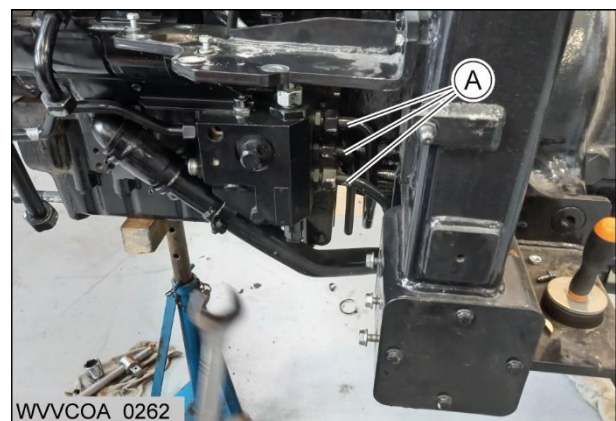
Remove the diesel particulate filter - Only for models under 75Hp.

Remove the SCR-T module - Only for models over 75Hp.

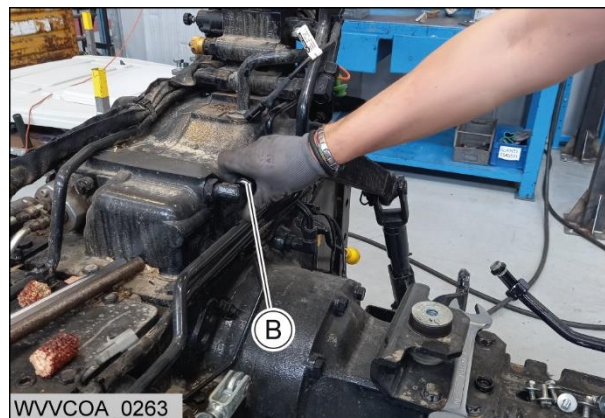
Remove the air conditioning refrigerant pipes - Only for Cab models.

Removal

1. Detach the pipes (A) from the multifunction valve on left side of the vehicle.

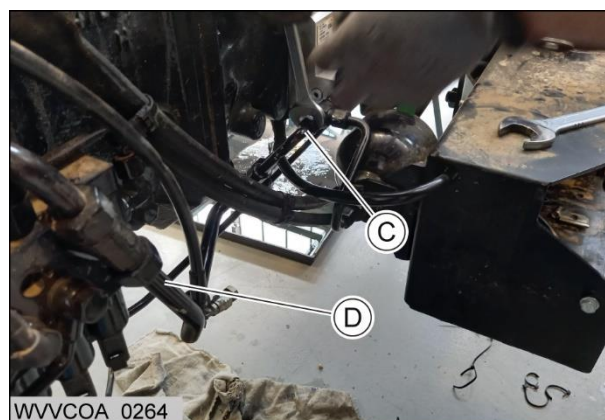


Detach the pipe (B).



Detach the pipe (C).

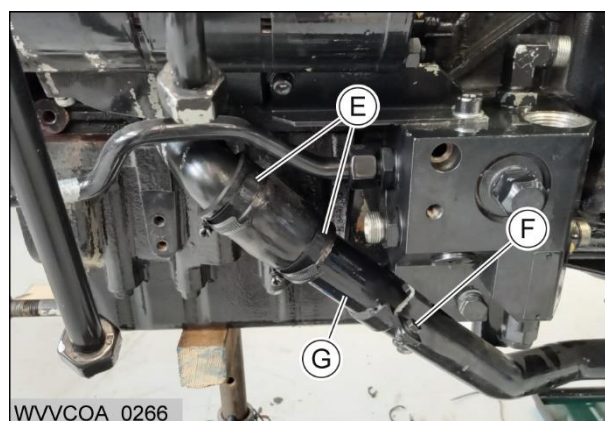
Detach the pipe (D).



Remove the clamps (E).

Remove the screw (F).

Detach the pipe (G).

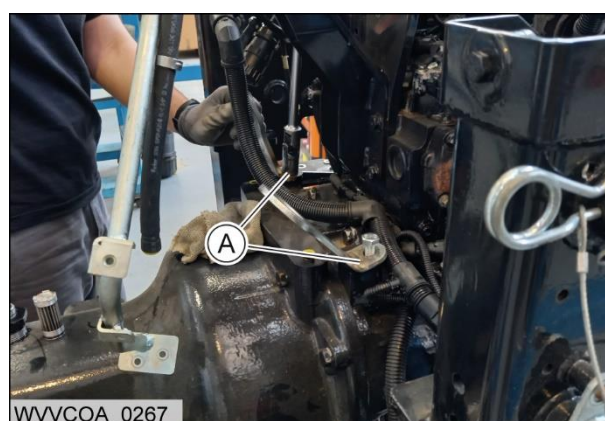


Install the applicable lift equipment (A) to the engine.

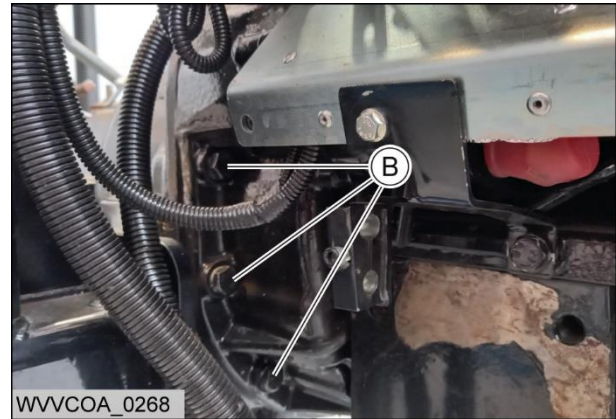
Make sure that all the electrical, mechanical and hydraulic connections between the engine and the clutch housing are free.

NOTE:

Install the applicable lift equipment below the machine.



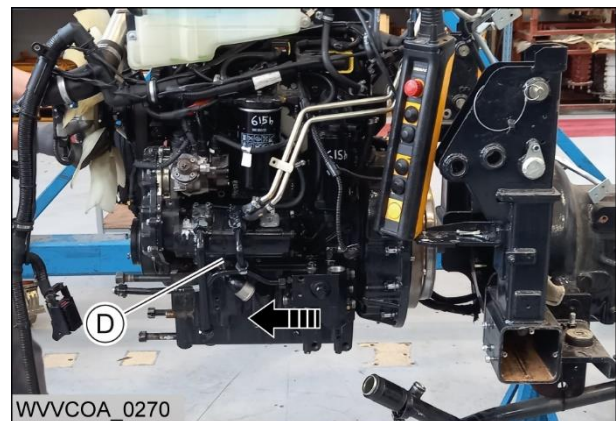
Remove the eight screws (B) on left, right and lower sides on the engine.



Remove the four screws (C).



Remove the engine (D) from the clutch housing.

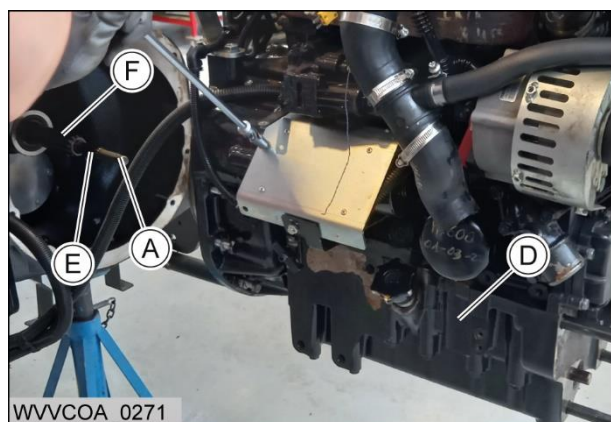


Refitting

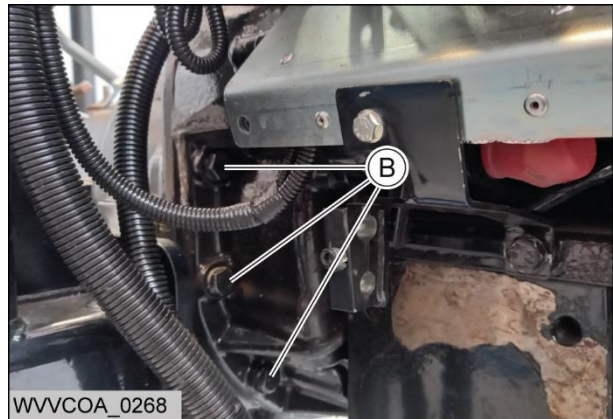
1. Lubricate the splined ends of the seat pilot bearing (A), the PTO input shaft (E), the traction clutch shaft on the clutch housing (F).

To help install the engine (D), install 2 pins in the clutch housing.

Install the engine (D) on to the clutch housing and remove the 2 pins.



Install the eight screws (B) and tighten to a torque of 114 Nm.



Install the four screws (C) and tighten to a torque of 114 Nm.



Install all the parts performing the procedure in reverse order.

Install the air conditioning refrigerant pipes - Only for Cab models..

Install the SCR-T module - Only for models over 75Hp.

Install the diesel particulate filter - Only for models under 75Hp.

Install the operator cab or platform.

Install the front support.

Install the front PTO, if installed.

Install the front axle.

Install the front wheels.

Install the radiator.

Install the oil cooler.

Install the air cooler.

Install the fuel cooler.

Install the engine ECU.

Install the battery - Only for models over 75Hp.

Install the Def tank - Only for models over 75Hp.

Install the fuel tank - Only for models under 75Hp.

Install the air filter housing.

Install the front implement and power lift, if installed.

Install the engine side panels.

Install the engine cover.

Connect the battery (see Connection/disconnection of the battery cut-off switch).

Start the engine.

Do these checks:

Make sure that there are no leaks.

Make sure that the air intake system operates correctly.

Make sure that the exhaust system operates correctly.

Make sure that the steering operates correctly.

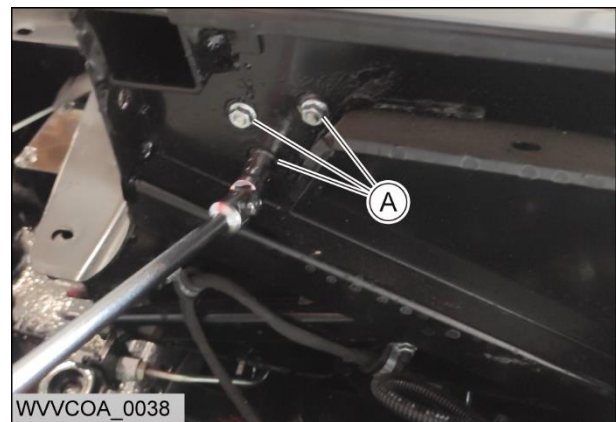
Make sure that the clutch operates correctly.

Foot throttle pedal assembly

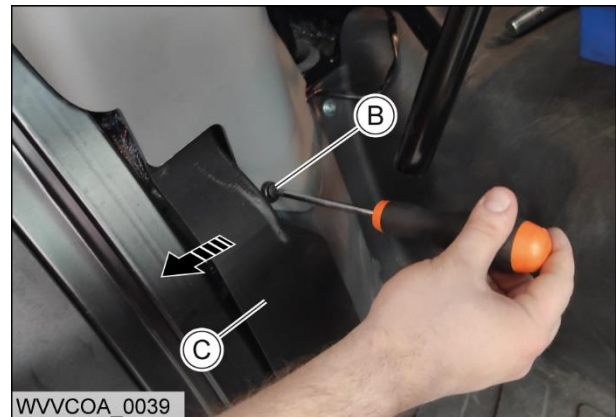
Removal

1. Disconnect the battery (see Connection/disconnection of the battery cut-off switch).

Remove the nuts (A) on lower side of Cab or lower side of operator platform.



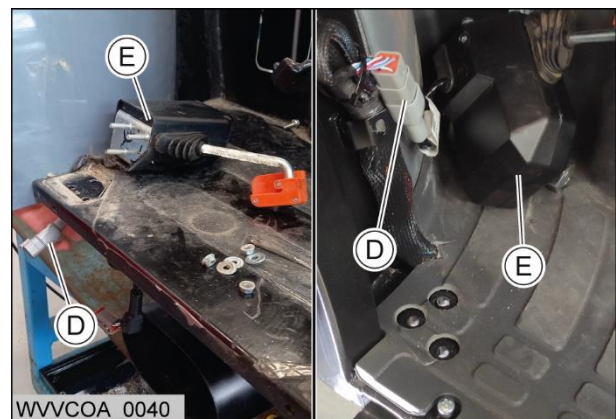
Only for Cab models - unscrew the screw (B) and remove the cover (C).



Only for Platform models - disconnect the connector (D) on the lower side of Operator platforms and remove the foot throttle pedal (E).

Only for Cab models - disconnect the connector (D) and remove the foot throttle pedal (E).

CAUTION: No attempts to repair and/or mechanically adjust the throttle components are to be made - If removing the throttle due to a malfunction, replace it with a new one - When replacing mount only original spare parts.



Refitting

1. Install all the parts in reverse order, ensuring that the electrical connection is properly connected and securely fitted in place.

Connect the battery (see Connection/disconnection of the battery cut-off switch)

Perform the Foot Throttle Calibration (refer to the relevant chapter).

Check the proper functioning of the foot throttle pedal.

Fuel cooler

Preliminary operations

1. Disconnect the battery (see Connection/disconnection of the battery cut-off switch).

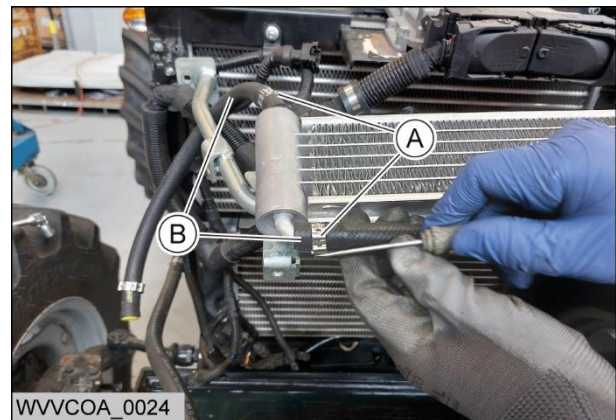
Open the engine cover.

Remove the engine ECU (see Removal/refitting of the engine ECU).

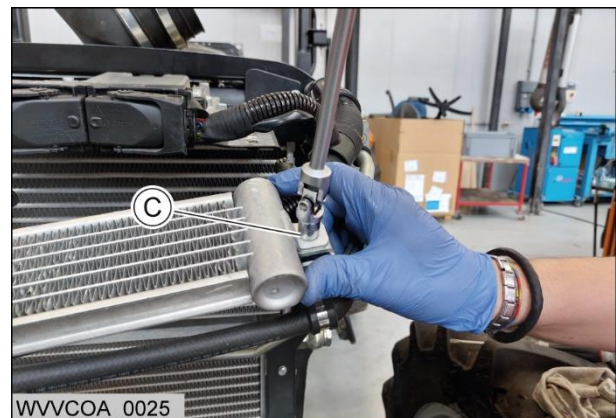
Removal

1. Remove the clamps (A).

Release the fuel hoses (B).



Remove the screw (C).



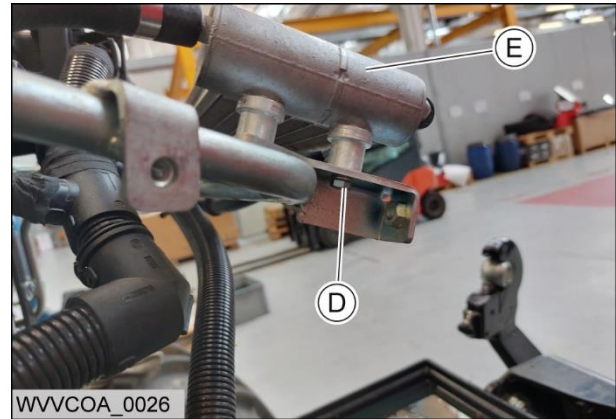
Remove the screw (D).

Remove the fuel cooler (E).

Clean the fuel cooler radiator (E) with compressed air or water. Straighten any bent fins.

CAUTION: Reduce compressed air pressure to less than 210 kPa when using for cleaning purposes. Clear area of bystanders and wear personal protection equipment including eye protection.

Check that the fuel cooler (E) is intact



Refitting

1. Carry out the removal steps in reverse order.

Check that the fuel cooler hose clamps (A) are properly connected to the fuel cooler (E).

Connect the battery (see Connection/disconnection of the battery cut-off switch).

Start the engine.

Check that no fuel leaks are present and that the fuel cooling system works correctly.

Close the engine cover.

Fuel filters

WARNING: The machine can move without warning. The machine is heavy and can cause death or injury. Park the machine on a clean, hard and level area. Set the parking brake to ON and install the wheel chocks.

WARNING: The machine has parts that move without operator input. The parts that move can hit persons. Stop the engine on the machine and remove the ignition key.

WARNING: Risk of death or injury. Move fuel carefully, it is very flammable. Do not do work on the fuel system while smoking, or near to open flames or sparks.

CAUTION: Risk of injury Make sure that the engine is cold to prevent burn injury.

IMPORTANT: Risk of contamination. Do not let the fuel come into contact with the drive belt or the environment.

Removal

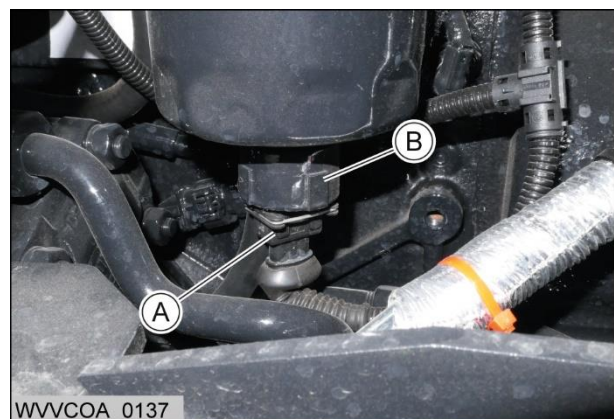
1. Disconnect the battery (see Connection/disconnection of the battery cut-off switch).

Open the engine cover and remove the left side panel (see [Removal/refitting the engine side covers](#)).

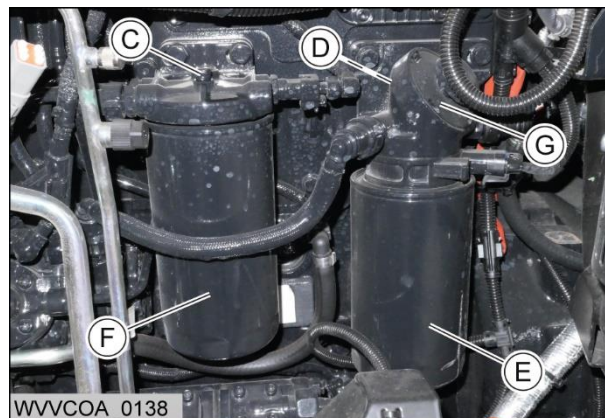
Disconnect the electrical connector (A).

Remove the fuel water sensor (B)

NOTE: Put a container in an applicable position to collect all fluids that come out during the procedure.



2. Remove the bleed screw (C).
3. Remove the bleed screw (D) – if present.
4. Remove the fuel pre-filter (E) and the fuel filter (F).
5. filter (F).



Refitting

1. Clean the seal faces on the filter housing and lubricate the seals on the new fuel filters with clean fuel.

Install the new fuel filters (E, F). Tighten to a torque of 20 Nm.

Install the fuel water sensor (B).

Connect the electrical connector (A).

Operate the hand primer (G) on the fuel pump until fuel shows at the bleed screws (C, D).

When only diesel fuel comes out of the bleed screws with no air bubbles tighten the bleed screws (C, D).

Connect the battery (see Connection/disconnection of the battery cut-off switch).

Start the engine and let it idle for a five minutes to remove the remaining air. Make sure that there are no fuel leaks.

15. Install the left side panel (see [Removal/refitting the engine side covers](#)).

Fuel filters

WARNING: The machine can move without warning. The machine is heavy and can cause death or injury. Park the machine on a clean, hard and level area. Set the parking brake to ON and install the wheel chocks.

WARNING: The machine has parts that move without operator input. The parts that move can hit persons. Stop the engine on the machine and remove the ignition key.

WARNING: Risk of death or injury. Move fuel carefully, it is very flammable. Do not do work on the fuel system while smoking, or near to open flames or sparks.

CAUTION: Risk of injury Make sure that the engine is cold to prevent burn injury.

IMPORTANT: Risk of contamination. Do not let the fuel come into contact with the drive belt or the environment.

Removal

1. Disconnect the battery (see Connection/disconnection of the battery cut-off switch).

Open the engine cover and remove the left side panel (see [Removal/refitting the engine side covers](#)).

Disconnect the electrical connector (A).

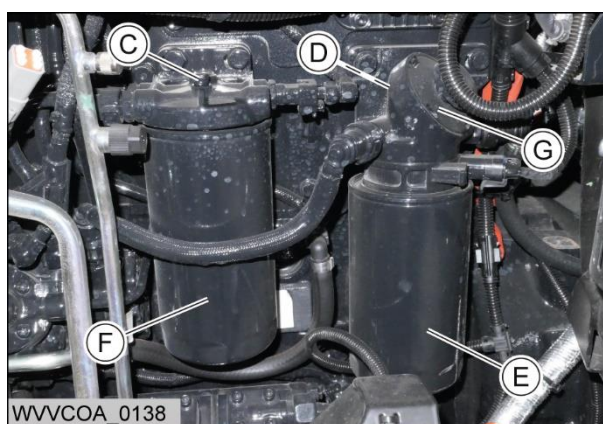
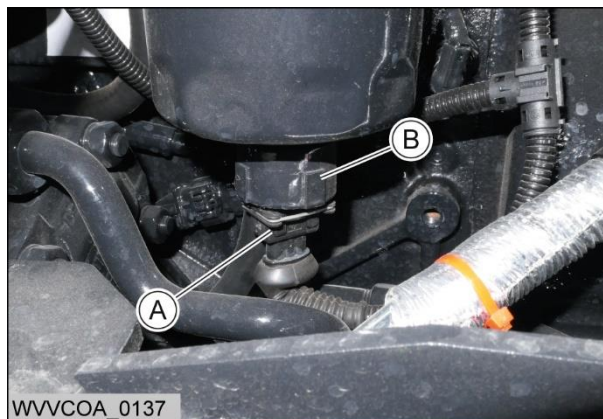
Remove the fuel water sensor (B)

NOTE: Put a container in an applicable position to collect all fluids that come out during the procedure.

Remove the bleed screw (C).

Remove the bleed screw (D) – if present.

Remove the fuel pre-filter (E) and the fuel filter (F).



Refitting

1. Clean the seal faces on the filter housing and lubricate the seals on the new fuel filters with clean fuel.

Install the new fuel filters (E, F). Tighten to a torque of 20 Nm.

Install the fuel water sensor (B).

Connect the electrical connector (A).

Operate the hand primer (G) on the fuel pump until fuel shows at the bleed screws (C, D).

When only diesel fuel comes out of the bleed screws with no air bubbles tighten the bleed screws (C, D).

Connect the battery (see Connection/disconnection of the battery cut-off switch).

Start the engine and let it idle for a five minutes to remove the remaining air. Make sure that there are no fuel leaks.

15. Install the left side panel (see [Removal/refitting the engine side covers](#)).

Heater plug ECU

WARNING: The machine can move without warning. The machine is heavy and can cause death or injury. Park the machine on a clean, hard and level area. Set the parking brake to ON and install the wheel chocks.

WARNING: The machine has parts that move without operator input. The parts that move can hit persons. Stop the engine on the machine and remove the ignition key.

Over 75Hp

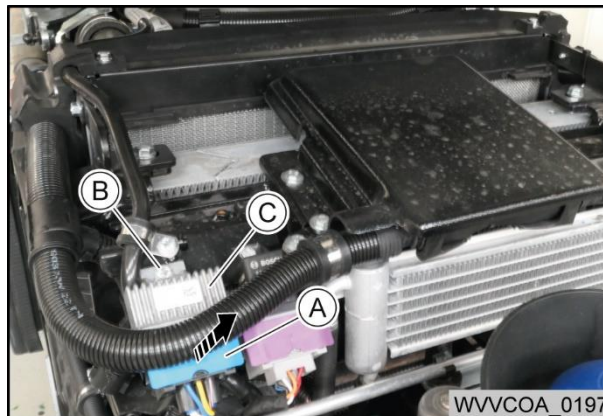
Removal

1. Disconnect the battery (see chapter [Connection/disconnection of the battery cut-off switch \(over 75Hp\)](#)).

Open the engine cover.

Unlock and disconnect the electrical connector (A).

Remove the fixing screw (B) and the heater plug ECU (C).



Refitting

1. Carry out the removal procedure in reverse order.

Connect the battery (see chapter [Connection/disconnection of the battery cut-off switch \(over 75Hp\)](#)).

Start the engine.

Check that the heater plug ECU (C) operates correctly.

Under 75Hp

Removal

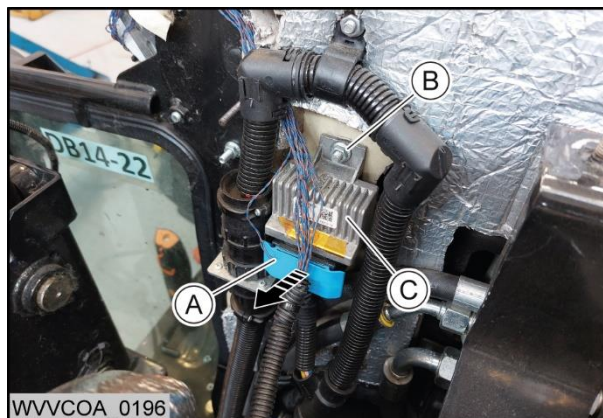
1. Disconnect the battery (see chapter [Connection/disconnection of the battery cut-off switch \(under 75Hp\)](#)).

Open the engine cover.

Remove the right-side engine cover (see chapter [Removal/refitting the engine side covers](#)).

Unlock and disconnect the electrical connector (A).

Remove the locking nut (B) and the heater plug ECU (C).



Refitting

1. Carry out the removal procedure in reverse order.

Refit the right-side engine cover (see chapter [Removal/refitting the engine side covers](#)).

Connect the battery (see chapter [Connection/disconnection of the battery cut-off switch \(under 75Hp\)](#)).

Start the engine.

Check that the heater plug ECU (C) operates correctly.

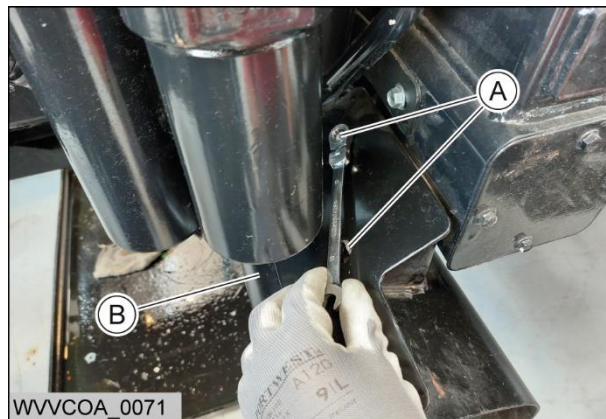
Horizontal exhaust pipe

Before starting the procedure

CAUTION: Before starting work, make sure that the exhaust pipe is completely cool.

Removal

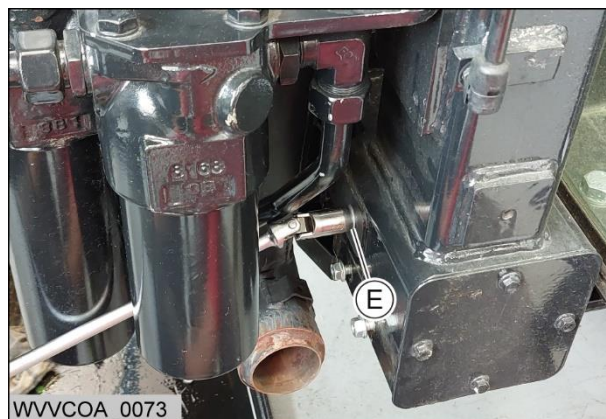
1. Unscrew two screws (A) and remove the exhaust pipe diffuser guard (B).



Unscrew two screws (C) and remove the exhaust pipe diffuser (D) from the vehicle



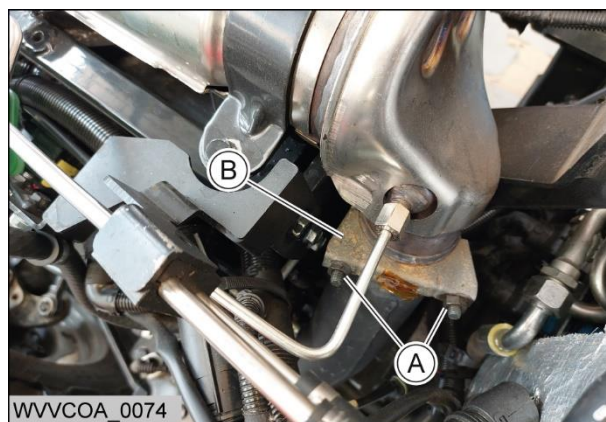
Remove the screw (E).



Remove the nuts (A) and remove the clamp (B).

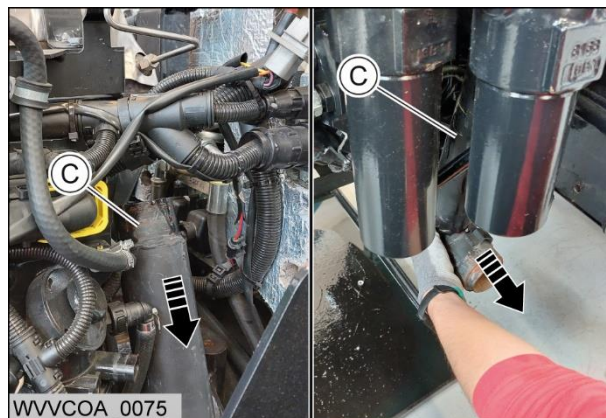
Only for models over 75Hp - Unscrew and detach NOx output sensor.

Only for models over 75Hp - Unscrew and detach SCR outlet temperature.



Move the horizontal exhaust pipe (C) down and remove it.

CAUTION: Do not attempt to repair and/or mechanically adjust the exhaust pipe components. If removing the exhaust pipe due to a break, replace it with a new one. When replacing mount only original spare parts.



Refitting

1. Carry out the removal procedure in reverse order.

Tighten all fixings to the respective tightening torques.

NOTE: Ensure that the clamp and all the fixings are securely connected and properly fitted in place.

Start the engine.

Check the tightness of the exhaust system

Hydraulic oil filter cartridges

WARNING: Hot components.

Risk of death or injury caused by burns.

Before you do work on the machine, stop the engine and remove the ignition key.

Let the temperature of the component decrease until it is the same as the ambient temperature.

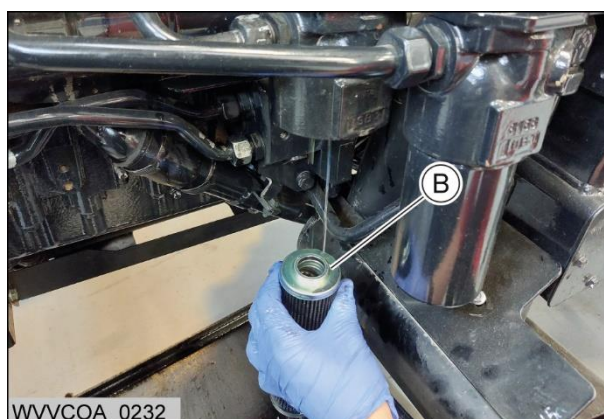
Removal

1. Disconnect the battery (see Connection/disconnection of the battery cut-off switch).

Remove the hydraulic oil filter container (A).



Remove the oil filter cartridge (B).



Remove the hydraulic oil filter container (C).



Remove the hydraulic oil filter container (D).



Refitting

1. Install all the parts performing the procedure in reverse order.

Examine hydraulic oil quantity and fill if necessary.

Connect the battery (see Connection/disconnection of the battery cut-off switch).

Start the machine and let it get to applicable temperature.

Examine system for leaks.

Stop the engine on the machine and remove the ignition key.

Examine hydraulic oil quantity again and fill if necessary.

Hydraulic oil filters

WARNING: The machine can move without warning. The machine is heavy and can cause death or injury. Park the machine on a clean, hard and level area. Set the parking brake to ON and install the wheel chocks.

WARNING: The machine has parts that move without operator input. The parts that move can hit persons. Stop the engine on the machine and remove the ignition key.

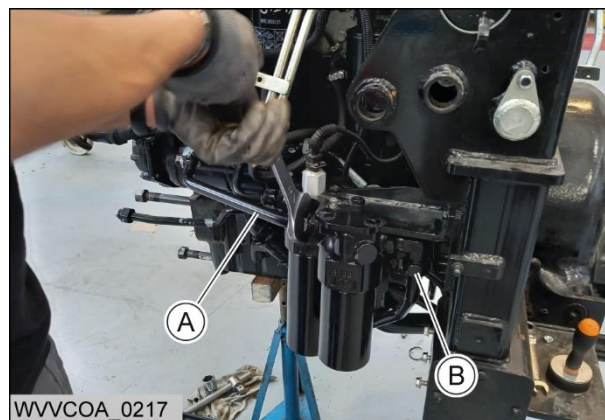
WARNING: Hot components. Risk of death or injury caused by burns. Before you do work on the machine, stop the engine and remove the ignition key. Let the temperature of the component decrease until it is the same as the ambient temperature.

Removal

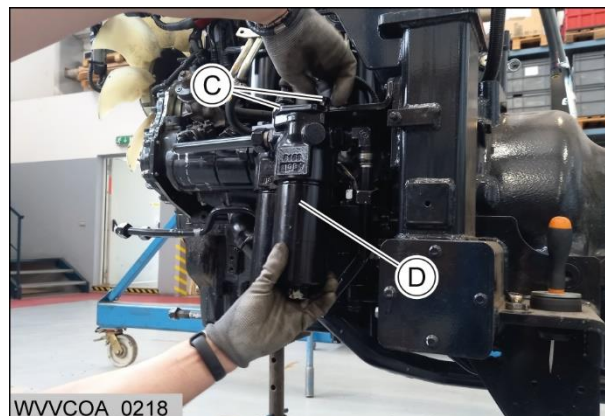
1. Disconnect the battery (see Connection/disconnection of the battery cut-off switch).

Remove the pipe (A) from the oil filter to oil pump.

Detach the pipe (B) from oil filter to trailer brake valve.

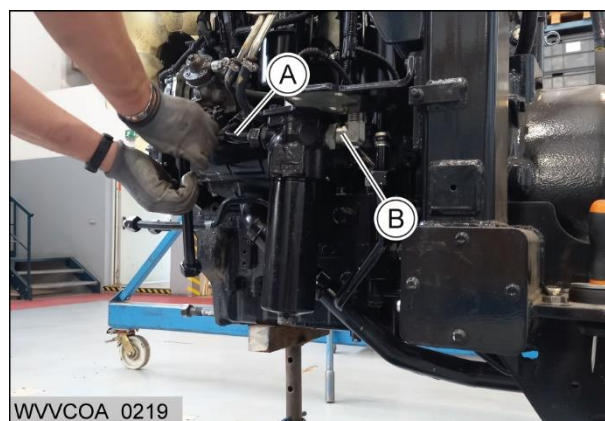


Remove the three screws (C) and remove the oil filter (D).



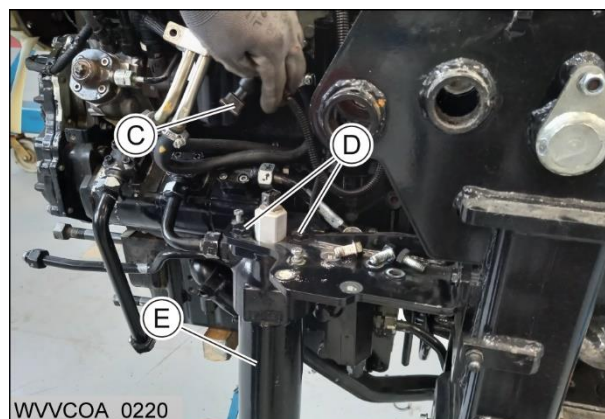
Remove the pipe (A) from the oil filter to oil pump.

Detach the pipe (B).



Disconnect the connector (C).

Remove the three screws (D) and remove the oil filter (E).



Refitting

NOTE: Clean applicable areas and components before installation.

1. Install all the parts performing the procedure in reverse order.

Examine hydraulic oil quantity and fill if necessary.

Connect the battery (see Connection/disconnection of the battery cut-off switch).

Start the machine and let it get to applicable temperature.

Examine system for leaks.

Stop the engine on the machine.

Examine oil quantity again and fill if necessary.

Ignition key switch

WARNING: The machine can move without warning. The machine is heavy and can cause death or injury. Park the machine on a clean, hard and level area. Set the parking brake to ON and install the wheel chocks.

WARNING: The machine has parts that move without operator input. The parts that move can hit persons. Stop the engine on the machine and remove the ignition key.

Cab version

Removal

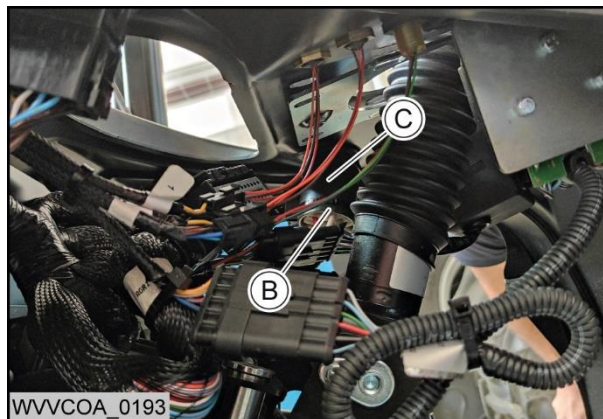
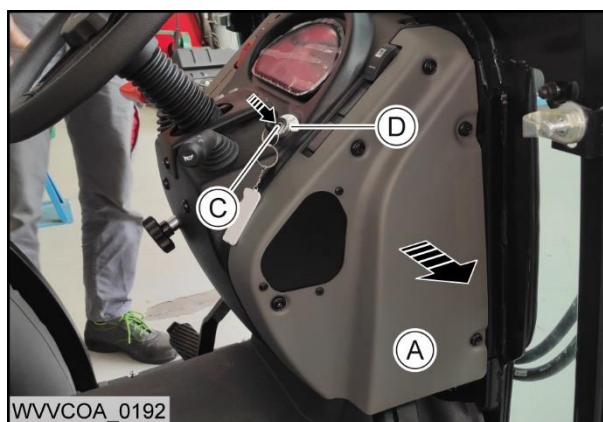
1. Disconnect the battery (see chapter [Connection/disconnection of the battery cut-off switch \(under 75Hp\)](#) - or - see chapter [Connection/disconnection of the battery cut-off switch \(over 75Hp\)](#)).

Remove the cover (A) (see chapter [Removal/refitting of the dashboard panels](#)).

Disconnect the electrical connector (B) from the ignition key switch (C).

Unscrew the locking ring (D) of the ignition key switch (C).

Remove the ignition key switch (C) by pushing it down.



Refitting

1. Carry out the removal procedure in reverse order.

Refit the cover (A) (see chapter [Removal/refitting of the dashboard panels](#)).

Connect the battery (see chapter [Connection/disconnection of the battery cut-off switch \(under 75Hp\)](#) - or - see chapter [Connection/disconnection of the battery cut-off switch \(over 75Hp\)](#)).

Platform version

Removal

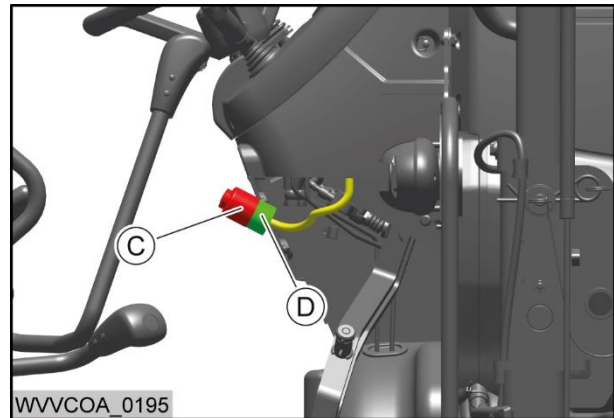
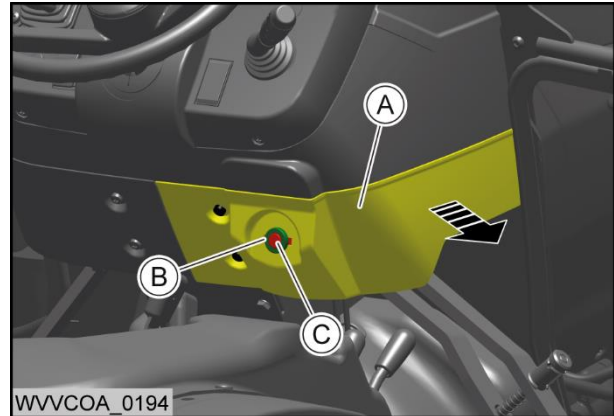
1. Disconnect the battery (see chapter [Connection/disconnection of the battery cut-off switch \(under 75Hp\)](#) - or - see chapter [Connection/disconnection of the battery cut-off switch \(over 75Hp\)](#)).

Remove the cover (A) (see chapter [Removal/refitting of the dashboard panels](#)).

Unscrew the locking ring (B) of the ignition key switch (C) still fixed to the cover (A).

Remove the ignition key switch (C) from the cover (A).

Disconnect the electrical connector (D) from the ignition key switch (C).



Refitting

1. Carry out the removal procedure in reverse order.

Refit the cover (A) (see chapter [Removal/refitting of the dashboard panels](#)).

Connect the battery (see chapter [Connection/disconnection of the battery cut-off switch \(under 75Hp\)](#) - or - see chapter [Connection/disconnection of the battery cut-off switch \(over 75Hp\)](#)).

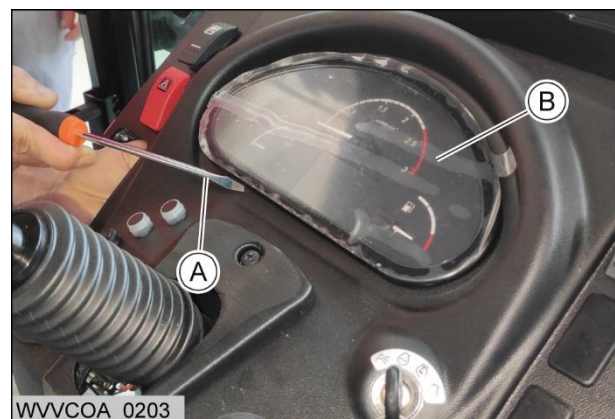
Instrument panel

WARNING: The machine can move without warning. The machine is heavy and can cause death or injury. Park the machine on a clean, hard and level area. Set the parking brake to ON and install the wheel chocks. The machine has parts that move without operator input. The parts that move can hit persons. Stop the engine on the machine and remove the ignition key.

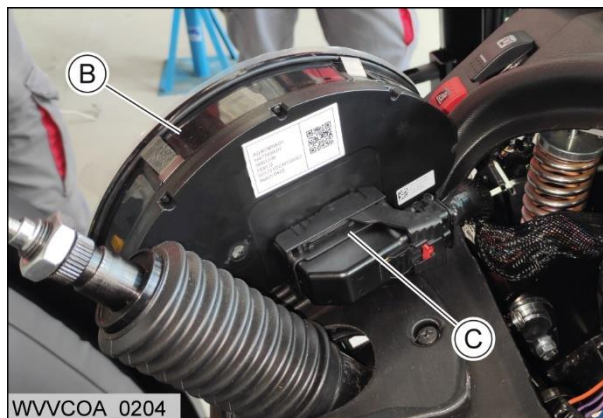
Removal

1. Disconnect the battery (see [Connection/disconnection of the battery cut-off switch](#)).

Use a suitable tool (A) to disengage the instrument panel (B) from the dashboard.



Disconnect the connector (C) and remove the instrument panel (B).



Refitting

1. Install all the parts performing the procedure in reverse order.

Connect the battery (see Connection/disconnection of the battery cut-off switch).

Do a software upgrade to the last available version.

Set the necessary instrument panel settings from the initial setting menu.

Make sure that the instrument panel operates correctly.

Left fuel tank (over 75Hp)

WARNING: The machine can move without warning. The machine is heavy and can cause death or injury. Park the machine on a clean, hard and level area. Set the parking brake to ON and install the wheel chocks.

WARNING: The machine has parts that move without operator input. The parts that move can hit persons. Stop the engine on the machine and remove the ignition key.

WARNING: Risk of death or injury Move fuel carefully, it is very flammable. Do not do work on the fuel system while smoking, or near to open flames or sparks.

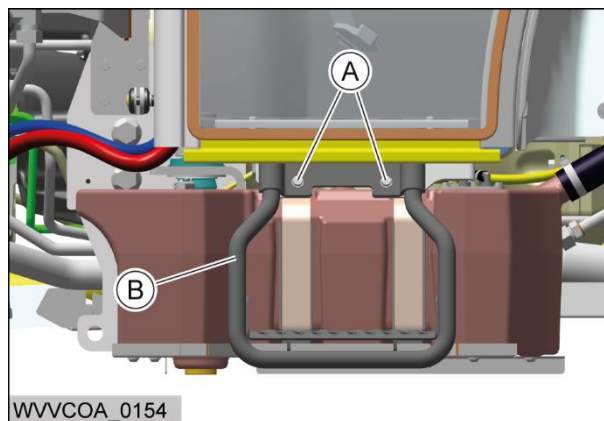
WARNING: Risk of death or injury When you are near fuel, do not smoke, do work near heaters or other fire sources. Keep flammable fluids away from fire sources. Do not burn or make a hole in pressurised containers. Make sure that the machine is clean of grease, and unwanted material. Do not keep dirty cloths as they can ignite and burn freely.

CAUTION: Risk of injury. Make sure that the engine is cold to prevent burn injury.

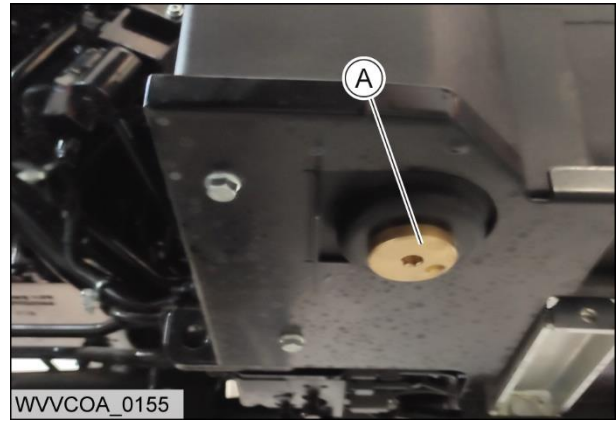
Removal

1. Disconnect the battery (see Connection/disconnection of the battery cut-off switch).

Remove the screws (A) and remove the step (B).



Remove the plug (A) and drain the fuel.

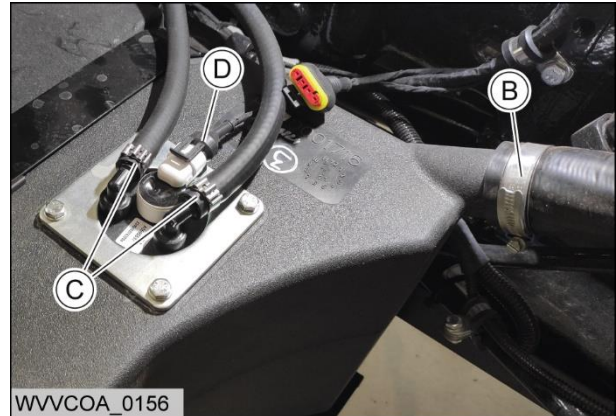


Only for models with rear fuel tank

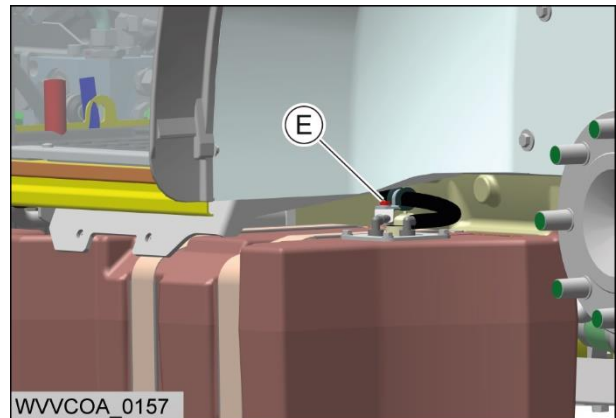
1. Remove the clamp (B) and detach the hose of rear fuel tank.

Detach the hoses (C).

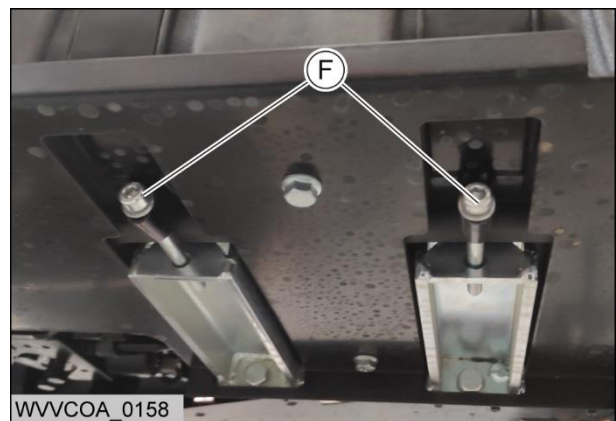
Disconnect the connector (D).



Remove the screw (E).

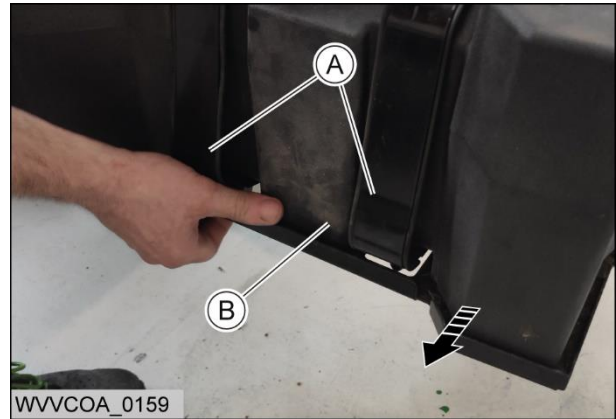


Remove the screws (F).



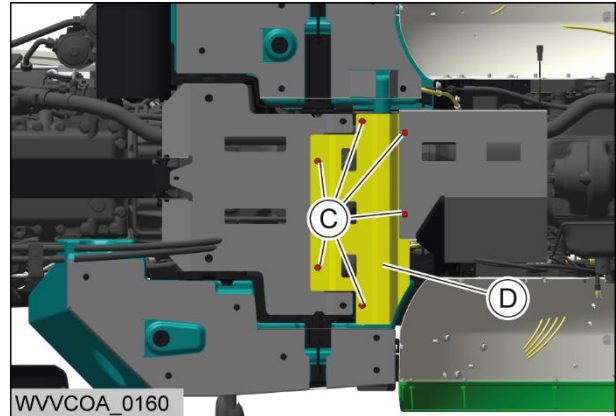
Release the fixing bars (A) and remove the left fuel tank (B).

Clean and examine the tank for damage. Replace the tank if necessary.



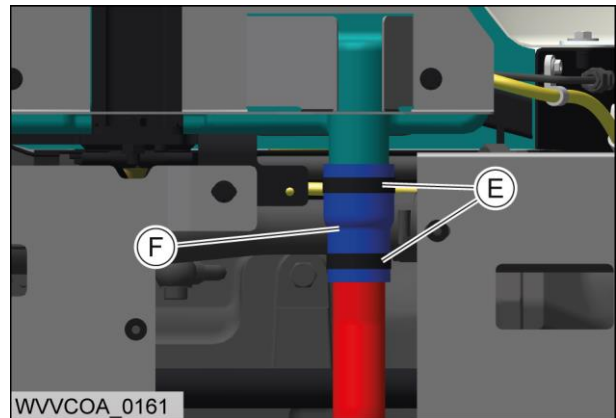
Only for models with right fuel tank

1. Remove the screws (C) and remove the protection (D).

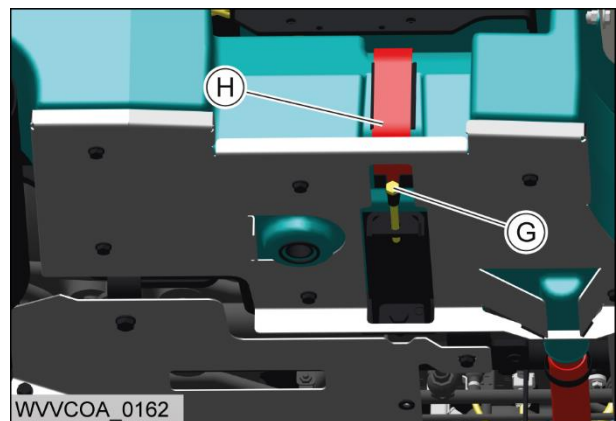


Remove the clamps (E).

Detach the hose (F) from the left fuel tank.



Remove the screw (G) and release the fixing bar (H).

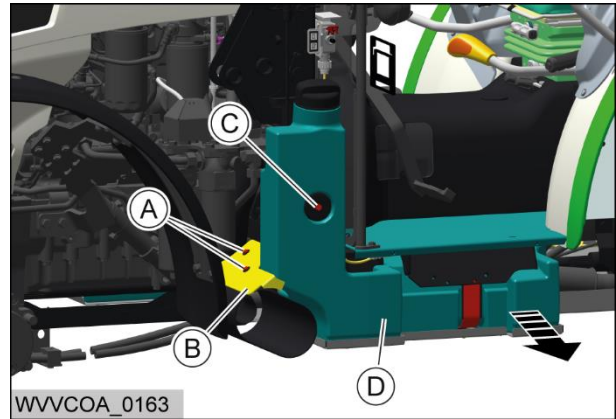


Remove the screws (A) and remove the protection (B).

Remove the screw (C).

Remove the left fuel tank (D).

Clean and examine the tank for damage. Replace the tank if necessary



Refitting

1. Install all the parts performing the procedure in reverse order.

Connect the battery (see Connection/disconnection of the battery cut-off switch).

Make sure that there are no leaks.

Start the engine and make sure that the engine and fuel level sensor operate correctly.

Left side control lever panel

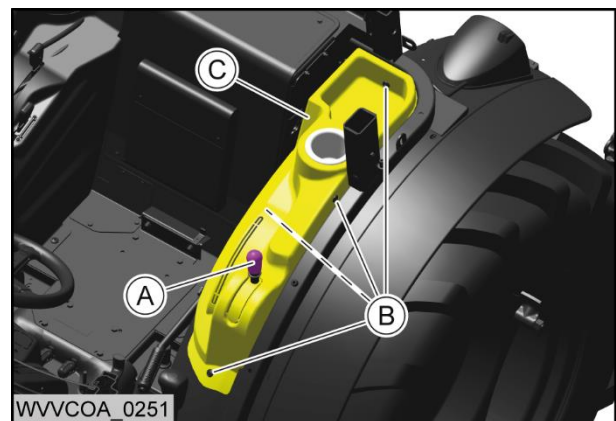
WARNING: The machine can move without warning. The machine is heavy and can cause death or injury. Park the machine on a clean, hard and level area. Set the parking brake to ON and install the wheel chocks.

WARNING: The machine has parts that move without operator input. The parts that move can hit persons. Stop the engine on the machine and remove the ignition key.

Cab version

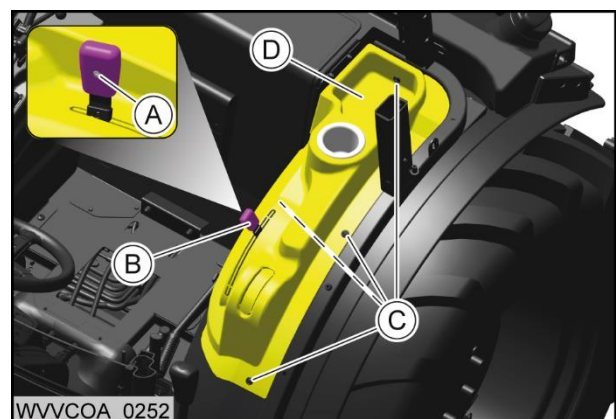
Mechanical PTO version

1. Pull out the knob (A) and remove it.
- Remove the four screws (B).
- Remove the left side control lever panel (C).



Electrohydraulic PTO version

1. Remove the screw (A) and remove the knob (B).
- Remove the four screws (C).
- Remove the left side control lever panel (D).



Refitting

1. Carry out the removal procedure in reverse order.

Check that the lever is operating properly.

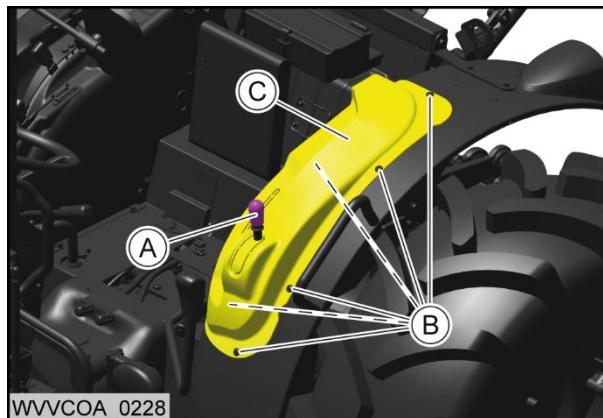
Platform version

Mechanical PTO version

1. Pull out the knob (A) and remove it.

Remove the six screws (B).

Remove the left side control lever panel (C).

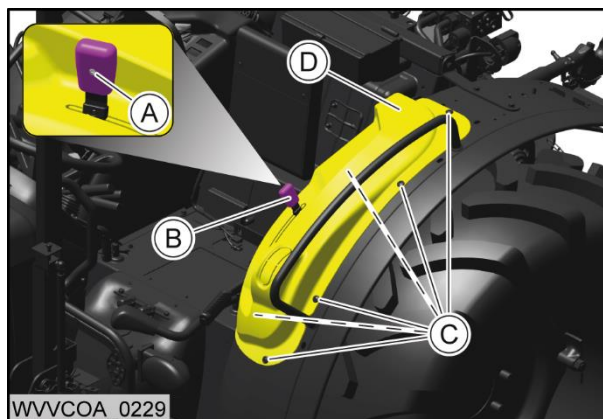


Removal (electrohydraulic PTO version)

1. Remove the screw (A) and remove the knob (B).

Remove the six screws (C).

Remove the left side control lever panel (D).



Refitting

1. Carry out the removal procedure in reverse order.

Check that the lever is operating properly.

Level sensor for the brake fluid

WARNING: The machine can move without warning. The machine is heavy and can cause death or injury. Park the machine on a clean, hard and level area. Set the parking brake to ON and install the wheel chocks.

WARNING: The machine has parts that move without operator input. The parts that move can hit persons. Stop the engine on the machine and remove the ignition key.

Cab version

Removal

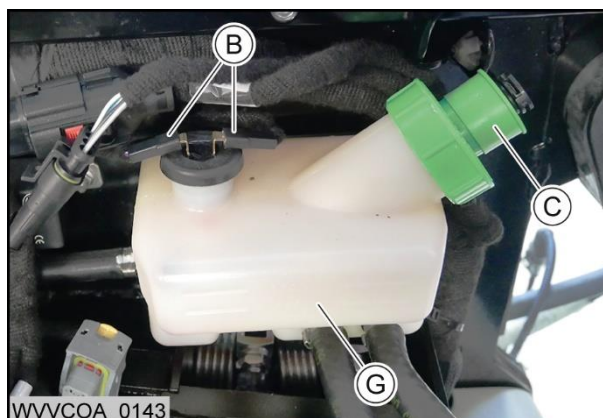
1. Disconnect the battery (see chapter [Connection/disconnection of the battery cut-off switch \(under 75Hp\)](#) - or - see chapter [Connection/disconnection of the battery cut-off switch \(over 75Hp\)](#)).

Remove the right dashboard cover (A) (see chapter [Removal/refitting of the dashboard panels](#)).

Disconnect the electrical connectors (B) and remove the level sensor cap (C) from the brake fluid reservoir (G).

Check the level sensor cap (C) for wear or damages. Replace if necessary.

NOTE: The level sensor is part of the reservoir cap.



Refitting

1. Carry out the removal procedure in reverse order.

Connect the battery (see chapter [Connection/disconnection of the battery cut-off switch \(under 75Hp\)](#) - or - see chapter [Connection/disconnection of the battery cut-off switch \(over 75Hp\)](#)).

To do a test of the system, turn the ignition key to the ON position.

Push the top of the level sensor cap (C), the brake fluid level indicator light on the instrument panel must come on.

Turn the ignition key to the OFF position.

Refit the right dashboard cover (A) (see chapter [Removal/refitting of the dashboard panels](#)).

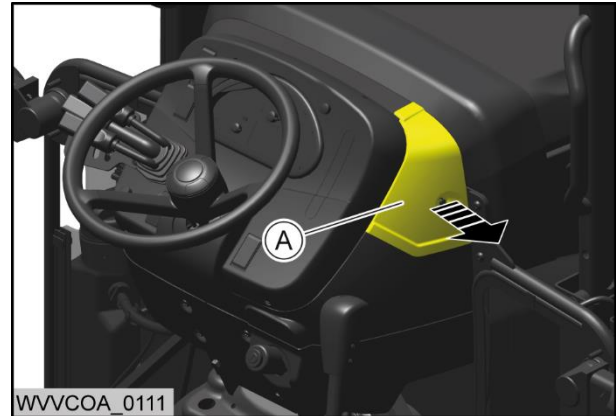


Platform version

Removal

1. Disconnect the battery (see chapter [Connection/disconnection of the battery cut-off switch \(under 75Hp\)](#) - or - see chapter [Connection/disconnection of the battery cut-off switch \(over 75Hp\)](#)).

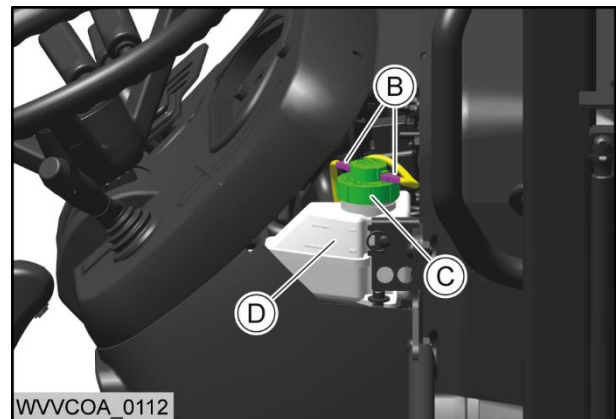
Remove the right dashboard cover (A) (see chapter [Removal/refitting of the dashboard panels](#)).



Disconnect the electrical connectors (B) and remove the level sensor cap (C) from the brake fluid reservoir (D).

Check the level sensor cap (C) for wear or damages. Replace if necessary.

NOTE: The level sensor is part of the reservoir cap.



Refitting

1. Carry out the removal procedure in reverse order.

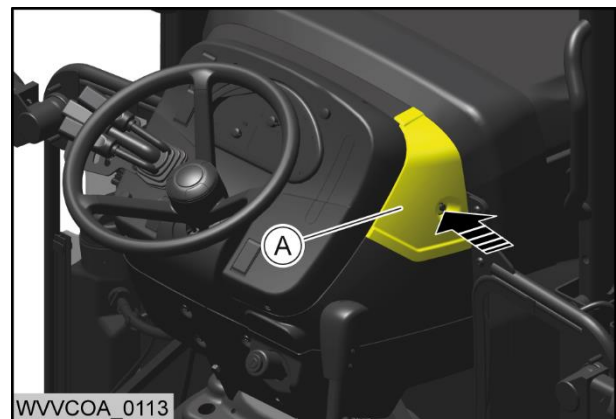
Connect the battery (see chapter [Connection/disconnection of the battery cut-off switch \(under 75Hp\)](#) - or - see chapter [Connection/disconnection of the battery cut-off switch \(over 75Hp\)](#)).

To do a test of the system, turn the ignition key to the ON position.

Push the top of the level sensor cap (C), the brake fluid level indicator light on the instrument panel must come on.

Turn the ignition key to the OFF position.

Refit the right dashboard cover (A) (see chapter [Removal/refitting of the dashboard panels](#)).



Oil cooler

Preliminary operations

1. Disconnect the battery (see [Connection/disconnection of the battery cut-off switch](#)).

Remove the engine side panels (see [Removal/refitting of the engine side panels](#)).

Removal

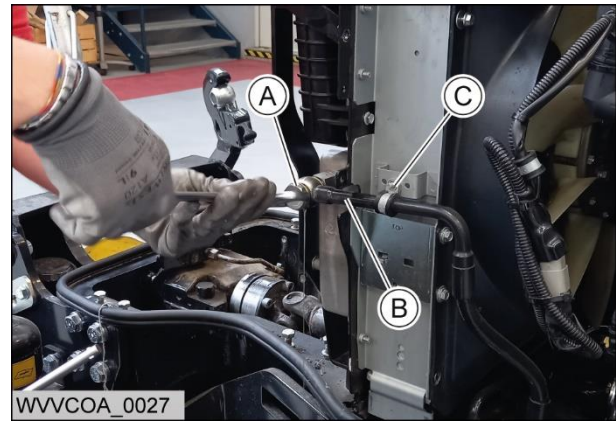
1. Arrange a suitable container to collect the draining oil from the hydraulic circuit.

Remove the screw (A) to disconnect the pipe (B) from the oil cooler.

Remove the nut (C).

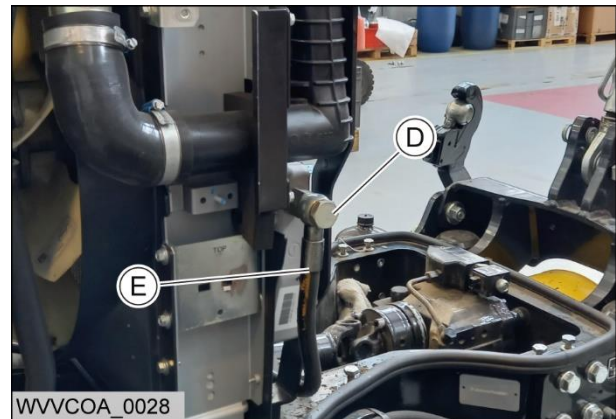
NOTE:

Close all openings using caps and plugs.



Remove the screw (D) to disconnect the pipe (E) from the oil cooler.

NOTE: Close all openings using caps and plugs.



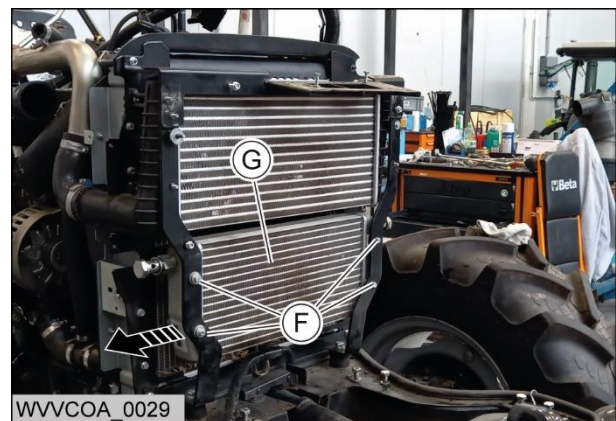
Remove the screws (F).

Remove the oil cooler (G) from the right side of the vehicle.

Clean the oil cooler (G) with compressed air or water. Straighten any bent fins.

CAUTION: Reduce compressed air pressure to less than 210 kPa (2 bar; 30 psi) when using for cleaning purposes. Clear area of bystanders, guard against flying chips, and wear personal protection equipment including eye protection.

Verify the integrity of the oil cooler (G).



Refitting

1. Carry out the removal steps in reverse order.

Always fit new gaskets (A) on the screws (B).

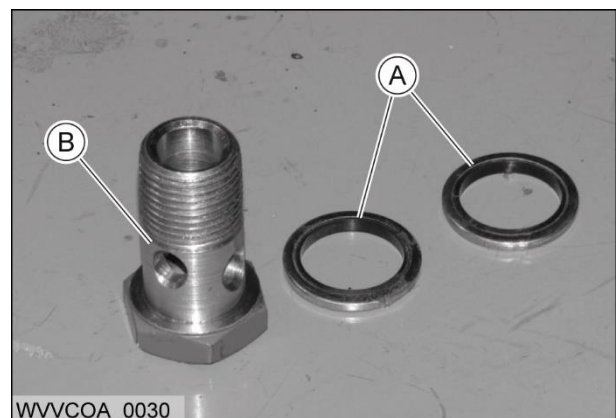
Tighten the screws (B) to the prescribed torque value (80 Nm).

Restore the transmission and the hydraulic oil level with proper oil (see chapter [Capacities](#) and see chapter [Recommended lubricants and additives](#)).

Start the engine - check the correct efficiency.

Install the engine side panels (see Removal/refitting of the engine side panels).

Connect the battery (see Connection/disconnection of the battery cut-off switch).



Oil supply pipes

WARNING: The machine can move without warning. The machine is heavy and can cause death or injury. Park the machine on a clean, hard and level area. Set the parking brake to ON and install the wheel chocks.

WARNING: The machine has parts that move without operator input. The parts that move can hit persons. Stop the engine on the machine and remove the ignition key.

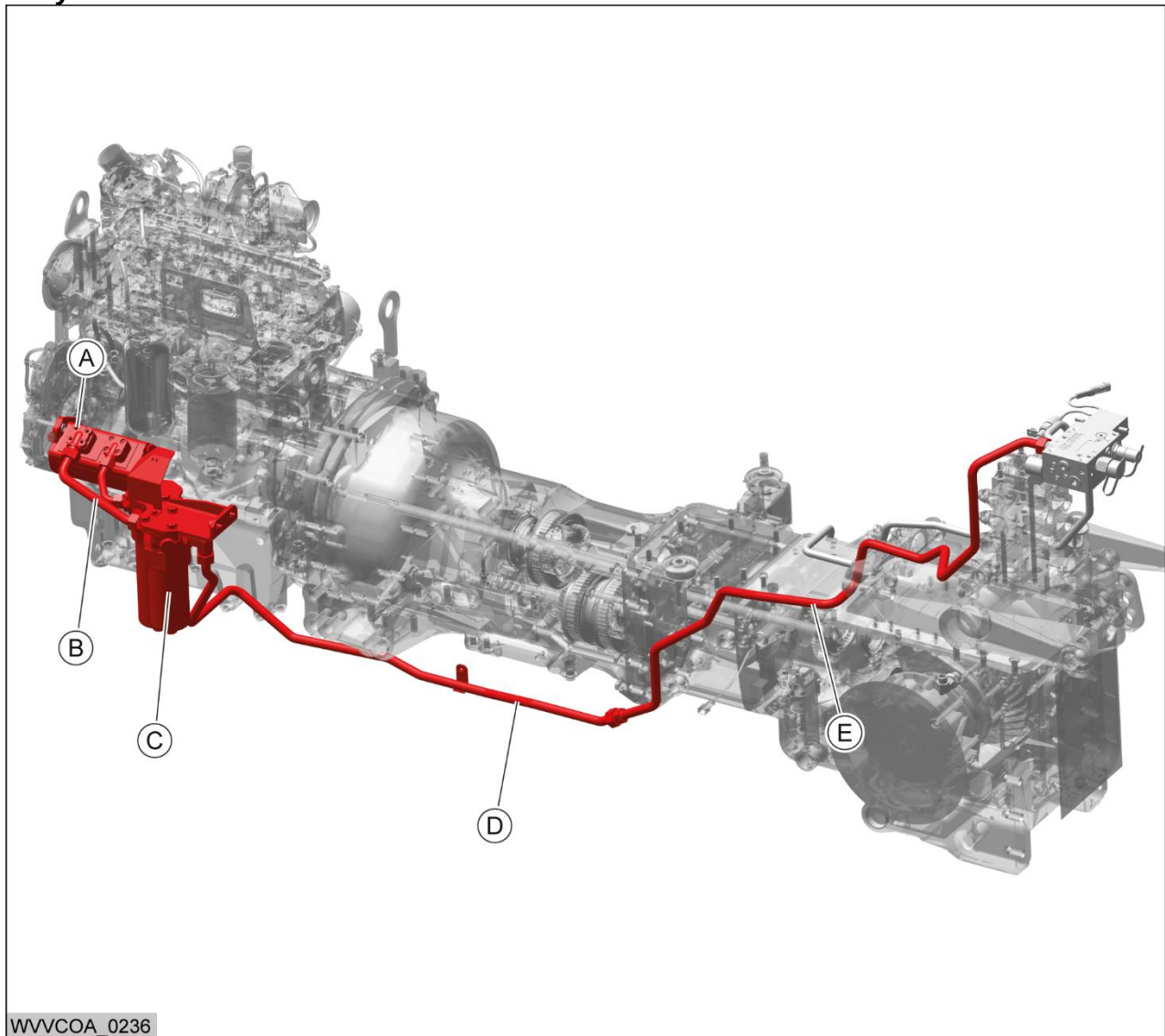
WARNING: Hot components. Risk of death or injury caused by burns. Before you do work on the machine, stop the engine and remove the ignition key. Let the temperature of the component decrease until it is the same as the ambient temperature.

WARNING: Heavy components. Incorrect movement of heavy items can cause death or injury. Use the applicable lift equipment and lift points to lift, or hold the machine and heavy items during procedures.

Only for models without trailer brake valve



Only for models with trailer brake valve



Removal

NOTE: Use the applicable equipment to hold the component.

Remove the left rear wheel and applicable panels.

NOTE: Put a container in an applicable position to collect all fluids that come out during the procedure.

NOTE: Seal all openings to stop leaks from hose and pipe connectors, or contamination in components

Remove the oil supply pipe (B) from the hydraulic oil pump (A) and the hydraulic oil filter (C).

NOTE: The configuration of the oil supply pipe system can be different because of optional equipment.

1. Remove the oil supply pipe (E) and the oil supply pipe (D) from the hydraulic oil filter (C).

Refitting

1. Install all the parts performing the procedure in reverse order.
2. Install all panels and the rear wheel.
3. Examine the hydraulic oil quantity and fill if necessary.

PTO mode switches

WARNING: The machine can move without warning. The machine is heavy and can cause death or injury. Park the machine on a clean, hard and level area. Set the parking brake to ON and install the wheel chocks.

WARNING: The machine has parts that move without operator input. The parts that move can hit persons. Stop the engine on the machine and remove the ignition key.

Removal

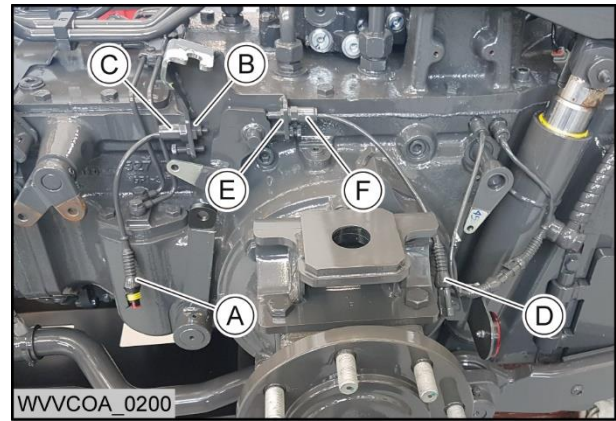
1. Disconnect the battery (see chapter [Connection/disconnection of the battery cut-off switch \(under 75Hp\)](#) - or - see chapter [Connection/disconnection of the battery cut-off switch \(over 75Hp\)](#)).

Disconnect the electrical connector (A).

Remove the nut (B) and the Direct PTO selector switch (C).

Disconnect the electrical connector (D).

Remove the nut (E) and the Ground PTO selector switch (F).



Refitting

1. Carry out the removal procedure in reverse order.

Connect the battery (see chapter [Connection/disconnection of the battery cut-off switch \(under 75Hp\)](#) - or - see chapter [Connection/disconnection of the battery cut-off switch \(over 75Hp\)](#)).

Check that the PTO mode switches (C) and (F) operate correctly.

Rear fuel tank (over 75Hp)

WARNING: The machine can move without warning. The machine is heavy and can cause death or injury. Park the machine on a clean, hard and level area. Set the parking brake to ON and install the wheel chocks.

WARNING: The machine has parts that move without operator input. The parts that move can hit persons. Stop the engine on the machine and remove the ignition key.

WARNING: Risk of death or injury Move fuel carefully, it is very flammable. Do not do work on the fuel system while smoking, or near to open flames or sparks.

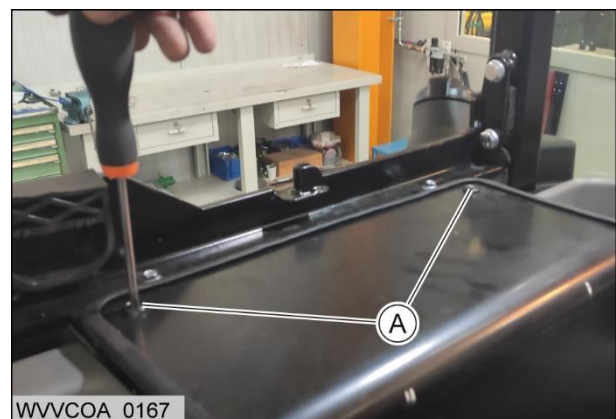
WARNING: Risk of death or injury When you are near fuel, do not smoke, do work near heaters or other fire sources. Keep flammable fluids away from fire sources. Do not burn or make a hole in pressurised containers. Make sure that the machine is clean of grease, and unwanted material. Do not keep dirty cloths as they can ignite and burn freely.

CAUTION: Risk of injury Make sure that the engine is cold to prevent burn injury.

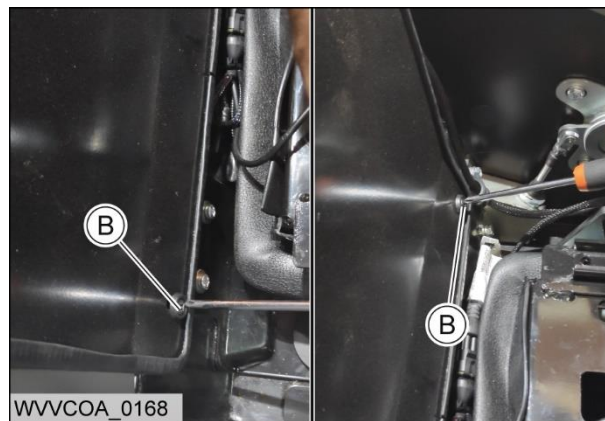
Removal

1. Disconnect the battery (see [Connection/disconnection of the battery cut-off switch](#)).

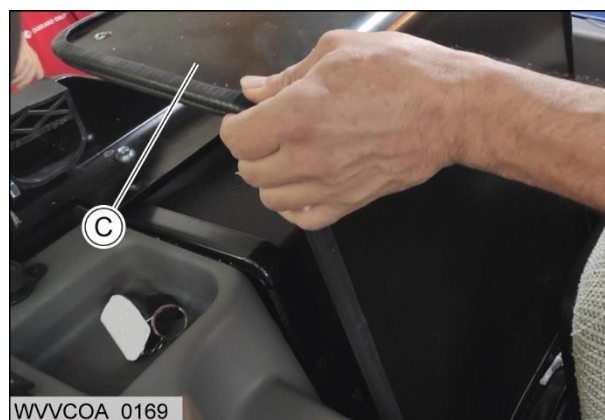
Remove the screws (A).



Remove the screws (B).

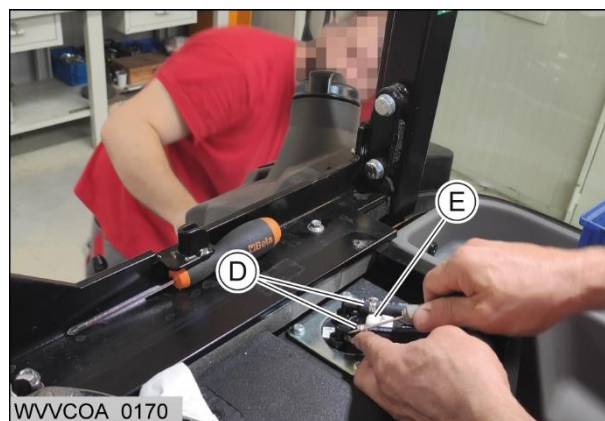


Remove the cover (C).



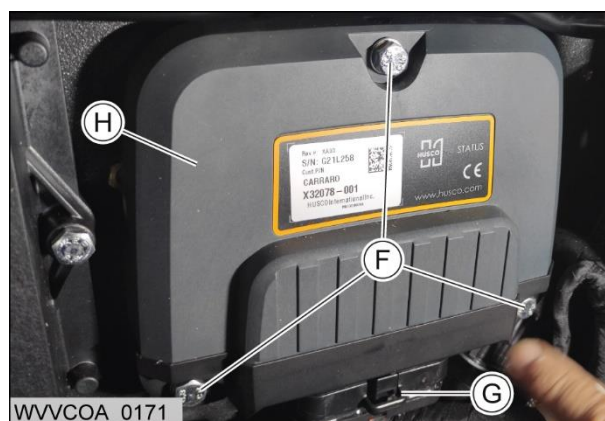
Detach the hoses (D).

Disconnect the connector (E).



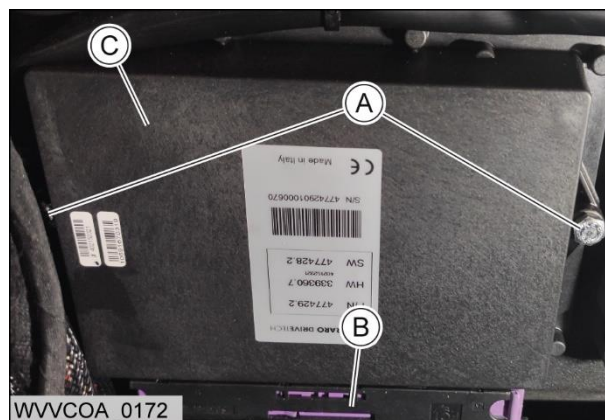
Disconnect the connector (G).

Remove the screws (F) and remove the control unit (H).



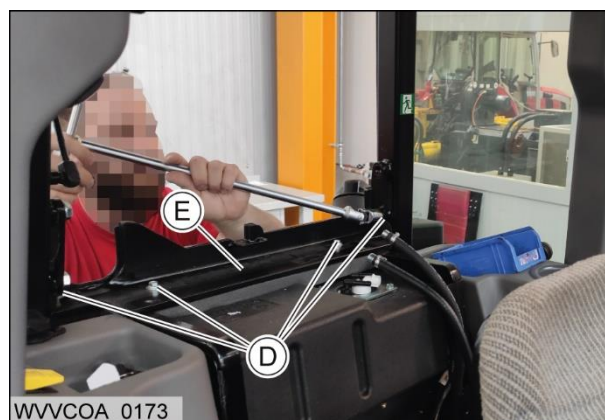
Disconnect the connector (B).

Remove the screws (A) and remove the control unit (C).

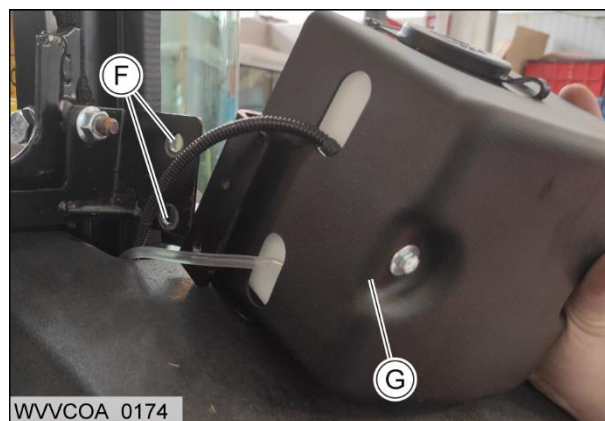


Remove the screws (D).

Remove the bracket (E).



Remove the screws (F) and move to the side the window washer tank (G).

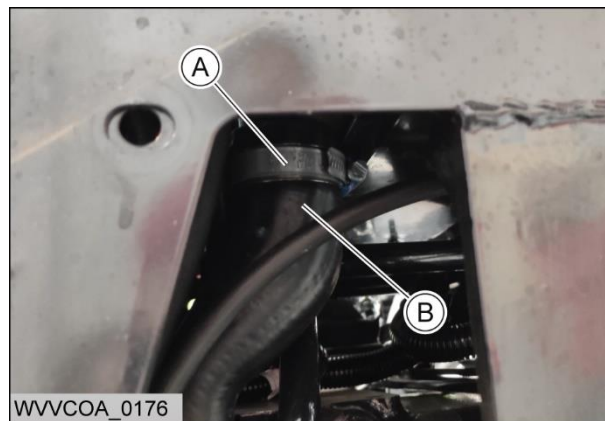


Remove the screws (H).

Disconnect the connector (I).



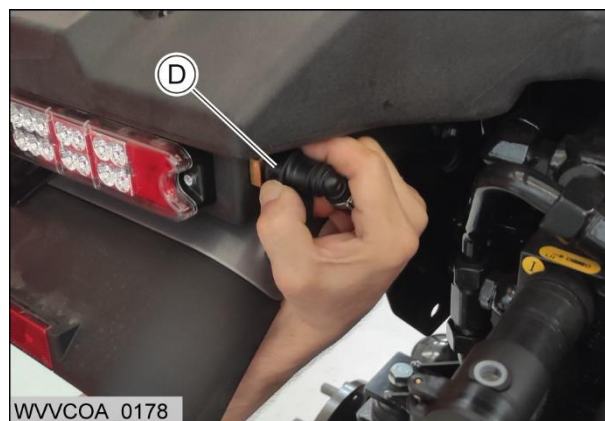
Remove the clamp (A) and detach the hose (B).



Remove the screws (C) on left and right side.



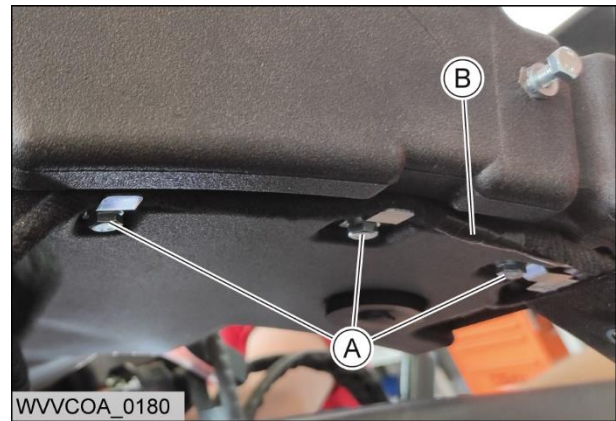
Detach the hoses (D) on left and right side.



Remove the screw (E) on left and right side.



Remove the screws (A) and separate the wiring harness (B) from rear fuel tank on left and right side.



Remove the rear fuel tank (C).

Clean and examine the tank for damage. Replace the tank if necessary.



Refitting

1. Install all the parts performing the procedure in reverse order.

Connect the battery (see Connection/disconnection of the battery cut-off switch).

Make sure that there are no leaks.

Start the engine and make sure that the engine and fuel level sensor operate correctly.

Right side control lever panel - mechanical

WARNING: The machine can move without warning. The machine is heavy and can cause death or injury. Park the machine on a clean, hard and level area. Set the parking brake to ON and install the wheel chocks.

WARNING: The machine has parts that move without operator input. The parts that move can hit persons. Stop the engine on the machine and remove the ignition key.

Removal

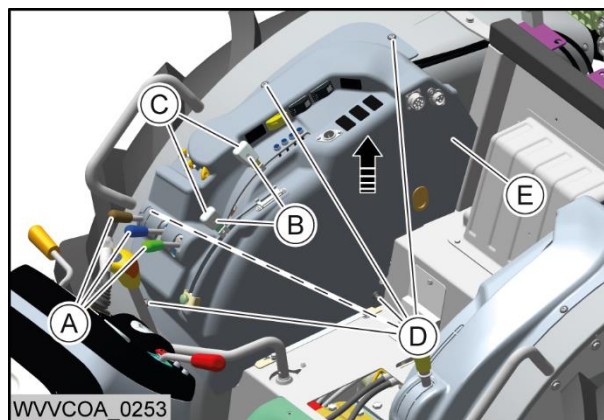
1. Disconnect the battery (see chapter [Connection/disconnection of the battery cut-off switch \(under 75Hp\)](#) - or - see chapter [Connection/disconnection of the battery cut-off switch \(over 75Hp\)](#)).

Pull out the knobs (A) and remove them.

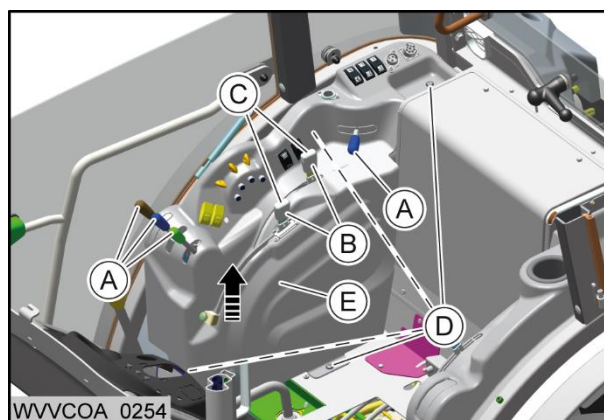
Remove the screws (B) and remove the knobs (C).

Remove the screws (D).

Lift up slightly and carefully the right side control lever panel (E).



Platform version



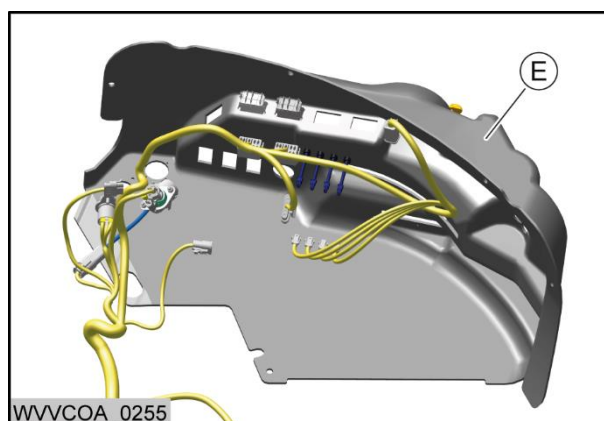
Cab version

Disconnect all the electrical connectors from the right side control lever panel (E).

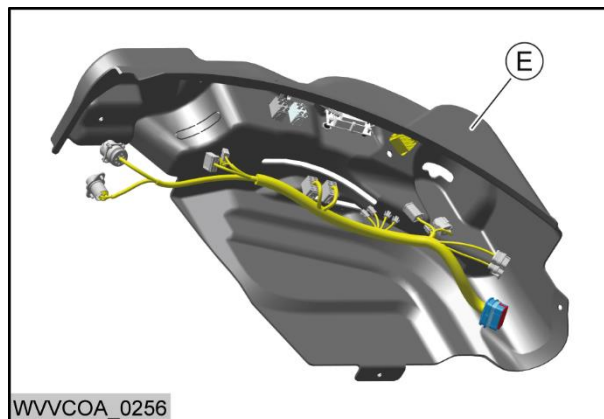
NOTE: Before disconnecting the connectors, mark each individual connection. This will facilitate the reassembly.

Remove the right side control lever panel (E).

If replacing the right side control lever panel (E), remove all the components from the old panel that have not been supplied and fit them onto the new one.



Platform version



Cab version

Refitting

1. Carry out the removal procedure in reverse order.

NOTE: Make sure that all the electrical connectors and switches are properly connected and securely fitted in place.

Connect the battery (see chapter [Connection/disconnection of the battery cut-off switch \(under 75Hp\)](#) - or - see chapter [Connection/disconnection of the battery cut-off switch \(over 75Hp\)](#)).

Check that all the controls on right side control lever panel (E) operate properly.

Right fuel tank (over 75Hp)

WARNING: The machine can move without warning. The machine is heavy and can cause death or injury. Park the machine on a clean, hard and level area. Set the parking brake to ON and install the wheel chocks.

WARNING: The machine has parts that move without operator input. The parts that move can hit persons. Stop the engine on the machine and remove the ignition key.

WARNING: Risk of death or injury Move fuel carefully, it is very flammable. Do not do work on the fuel system while smoking, or near to open flames or sparks.

WARNING: Risk of death or injury When you are near fuel, do not smoke, do work near heaters or other fire sources. Keep flammable fluids away from fire sources. Do not burn or make a hole in pressurised containers. Make sure that the machine is clean of grease, and unwanted material. Do not keep dirty cloths as they can ignite and burn freely.

CAUTION: Risk of injury Make sure that the engine is cold to prevent burn injury.

Removal

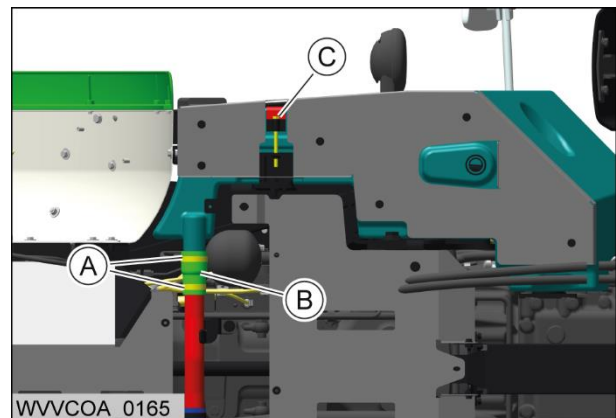
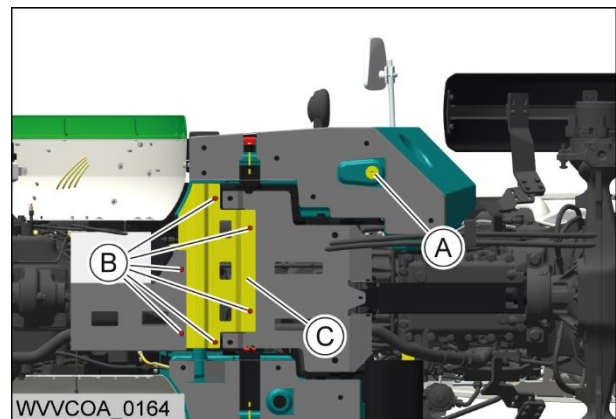
1. Disconnect the battery (see [Connection/disconnection of the battery cut-off switch](#)).

Remove the plug (A) and drain the fuel.

Remove the screws (B) and remove the protection (C).

Remove the clamps (A) and detach the hose (B) of right fuel tank.

Remove the screw (C).



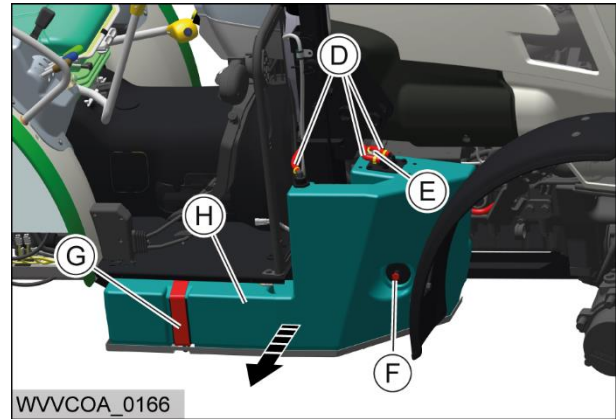
Detach the hoses (D).

Disconnect the connector (E).

Remove the screw (F).

Release the fixing bar (G) and remove the right fuel tank (H).

Clean and examine the tank for damage. Replace the tank if necessary.



Refitting

1. Install all the parts performing the procedure in reverse order.

Connect the battery (see Connection/disconnection of the battery cut-off switch).

Make sure that there are no leaks.

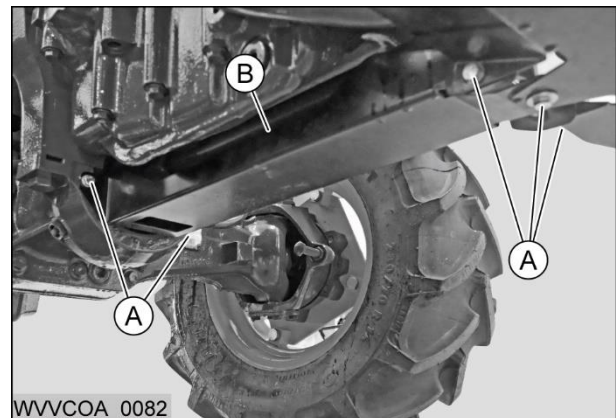
Start the engine and make sure that the engine and fuel level sensor operate correctly

Rigid front axle drive shaft

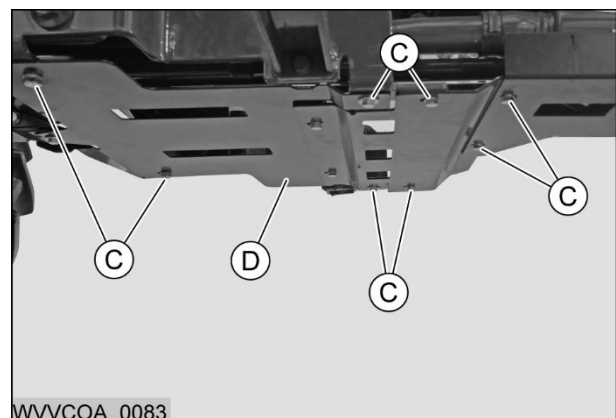
Removal

1. Disconnect the battery (see Connection/disconnection of the battery cut-off switch).

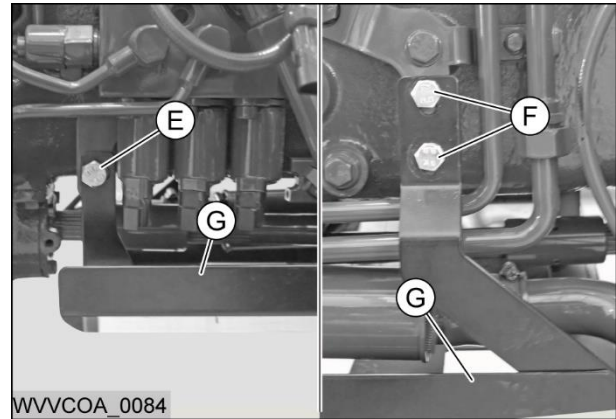
Unscrew fixing bolts (A) and remove transmission shaft front guard (B).



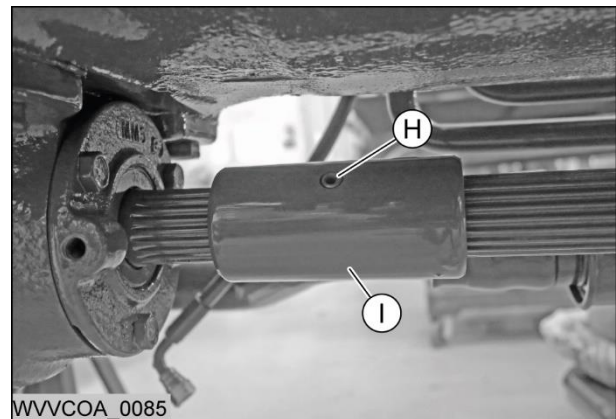
Unscrew fixing bolts (C) and remove transmission shaft central guard (D).



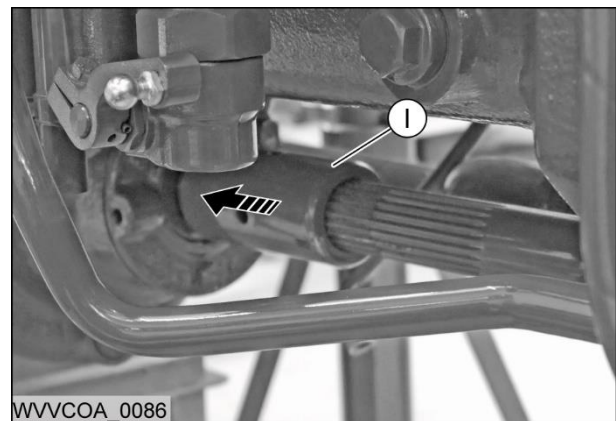
Unscrew fixing bolts (E) and (F) and remove transmission shaft rear guard (G).



Remove elastic pin (H) from transmission shaft joint (I). Repeat the operation on the other shaft end.



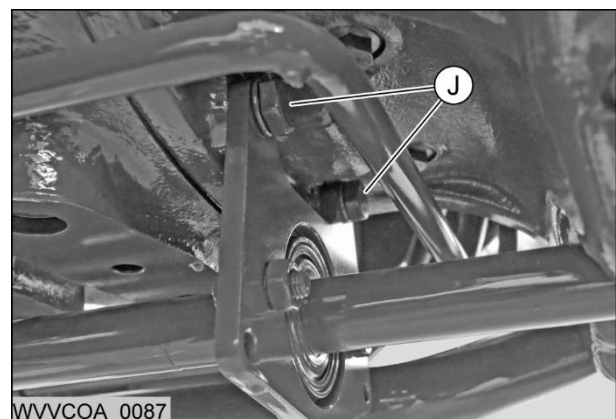
Move joint (I) backward in order to free the transmission shaft from the differential. Repeat the operation on the other shaft end.



Unscrew shaft bearing fixing bolts (J) and remove transmission shaft from the vehicle.

Check if joints are damaged and/or cracked. Check if shaft is bended and/or damaged.

Replace components if needed.



Refitting

1. Install all the parts performing the procedure in reverse order.

Make sure that the pins are properly fitted into the end manifolds of the front axle drive shaft.

Check the proper functioning of the front axle drive shaft.

Connect the battery (see Connection/disconnection of the battery cut-off switch).

Radiator

WARNING: The machine can move without warning. The machine is heavy and can cause death or injury. Park the machine on a clean, hard and level area. Set the parking brake to ON and install the wheel chocks.

WARNING: The machine has parts that move without operator input. The parts that move can hit persons. Stop the engine on the machine and remove the ignition key.

CAUTION: Risk of injury Make sure that the engine is cold to prevent burn injury.

Preliminary operations

1. Disconnect the battery (see Connection/disconnection of the battery cut-off switch).

Open the engine cover.

Remove the engine side panels (see Removal/refitting of the engine side panels).

Remove the engine ECU (See Removal/refitting of the engine ECU).

Remove the fuel cooler (See Removal/refitting of the fuel cooler).

Remove the air filter housing (See Removal/refitting of the air filter housing).

Remove the air intake pipes (See Removal/refitting of the air intake pipes).

Remove the oil cooler (See Removal/refitting of the oil cooler).

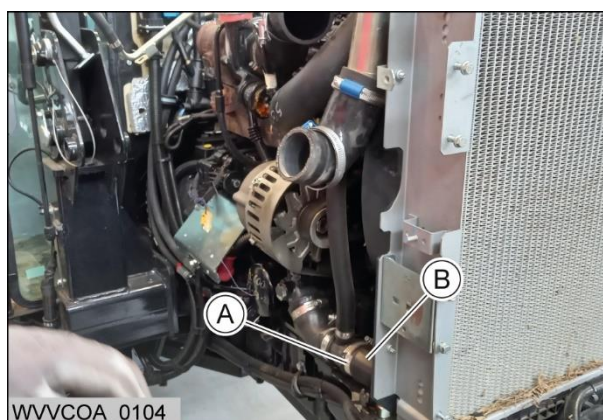
Only for 75Hp models - Remove the fuel tank (see Removal/refitting of the fuel tank).

Only for over 75Hp models - Remove the DEF tank (see Removal/refitting of the DEF (Diesel Exhaust Fluid) tank).

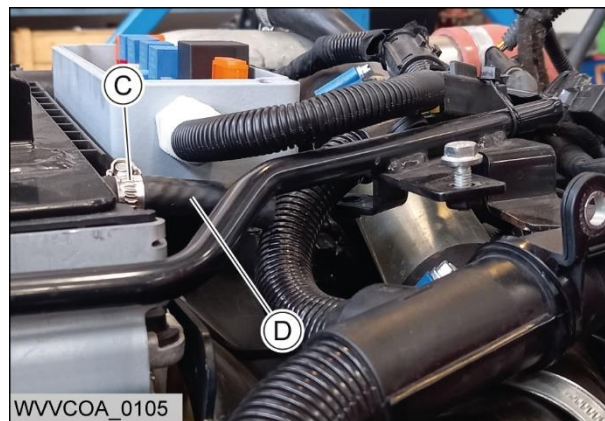
Remove the air cooler (See Removal/refitting of the air cooler).

Removal

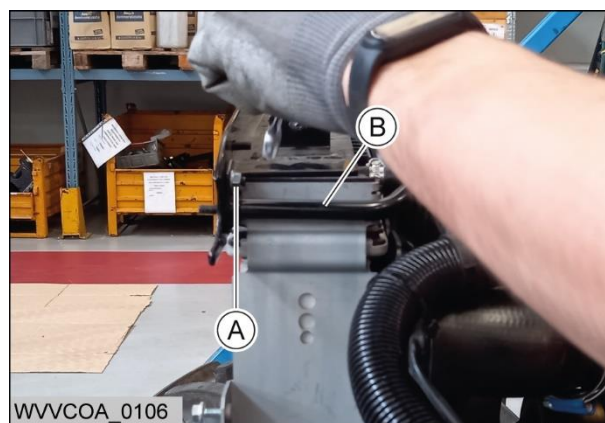
1. Release the clamp (A) and detach the hose (B) to drain the coolant fluid.



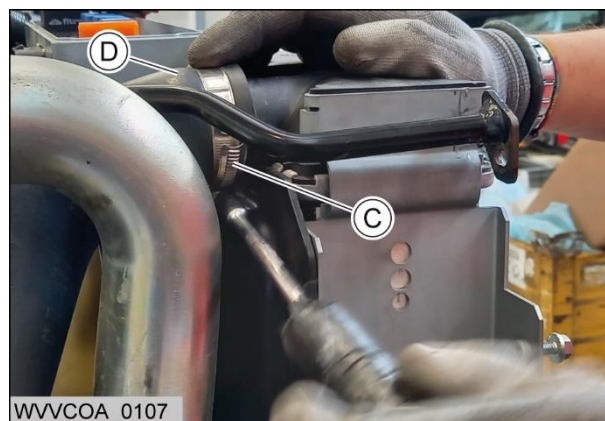
Release the clamp (C) and detach the hose (D).



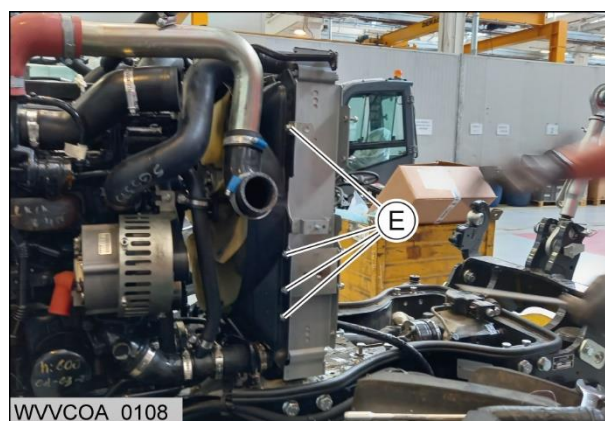
Remove the nuts (A) on both side and detach the bracket (B).



Release the clamp (C) and detach the hose (D).



Remove the screws (E) on both side.



Remove the radiator (F).



Refitting

IMPORTANT: Make sure that all electrical and hydraulic connectors do not catch during installation.

1. Install all the parts performing the procedure in reverse order.

Install the air cooler (See Removal/refitting of the air cooler).

Only for over 75Hp models - Install the DEF tank (see Removal/refitting of the DEF (Diesel Exhaust Fluid) tank).

Only for 75Hp models - Install the fuel tank (see Removal/refitting of the fuel tank).

Install the oil cooler (See Removal/refitting of the oil cooler).

Install the air intake pipes (See Removal/refitting of the air intake pipes).

Install the air filter housing (See Removal/refitting of the air filter housing).

Install the fuel cooler (See Removal/refitting of the fuel cooler).

Install the engine ECU (See Removal/refitting of the engine ECU).

Install the engine side panels (see Removal/refitting of the engine side panels).

Close the engine cover.

Connect the battery (see Connection/disconnection of the battery cut-off switch).

Start the engine and do these last checks:

Make sure that the cooling system works correctly and has no leaks.

Make sure that the air intake system is fitted correctly.

Set the engine to off.

Install the engine side panels and close the engine cover.

Roll bar for the open operator station

WARNING: Heavy components.

Incorrect movement of heavy items can cause death or injury.

Use the applicable lift equipment and lift points to lift, or hold the machine and heavy

items during procedures.

WARNING: Risk of death

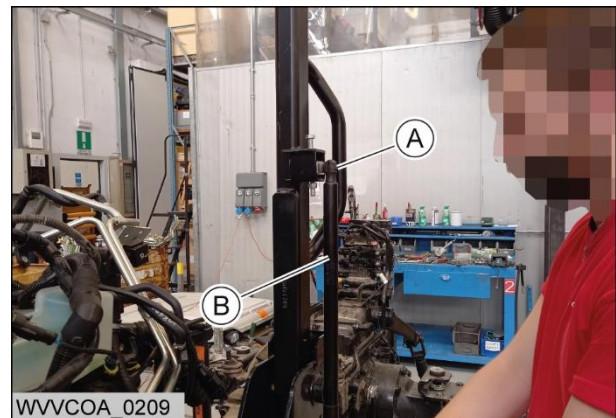
Do not try to repair or mechanically adjust the ROPS components. Remove and replace the ROPS if the component has damage. You must only install the correct spare parts.

Removal

1. Disconnect the battery (see Connection/disconnection of the battery cut-off switch).

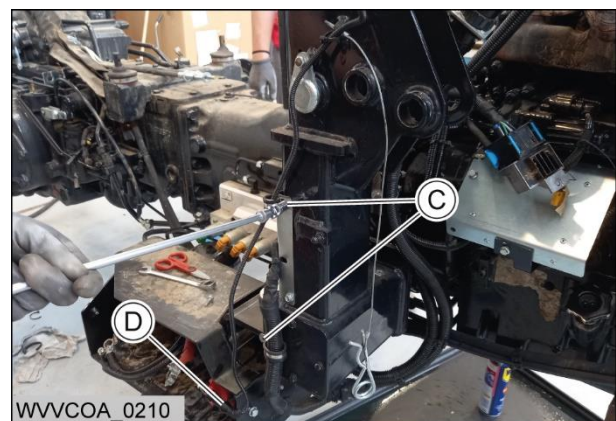
Remove the exhaust pipe (see Remove the horizontal exhaust pipe).

Remove the fastener (A) and the gas strut (B) from the roll bar on both side.

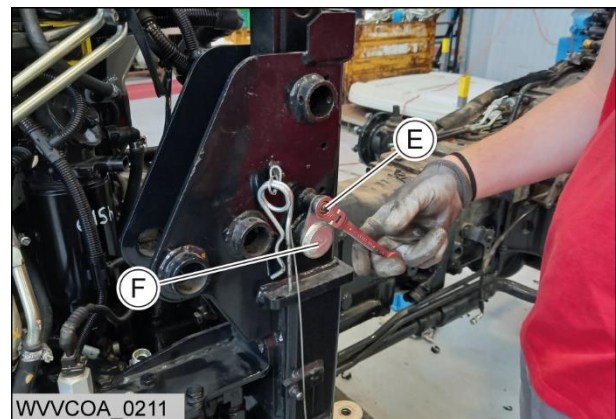


Remove the screws (C).

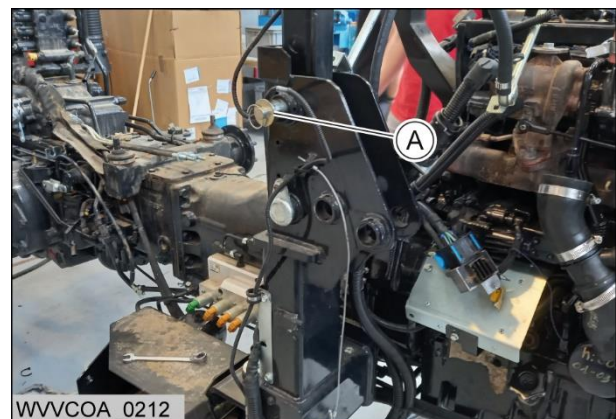
Disconnect the electrical connector (D) from the beacon light (if installed).



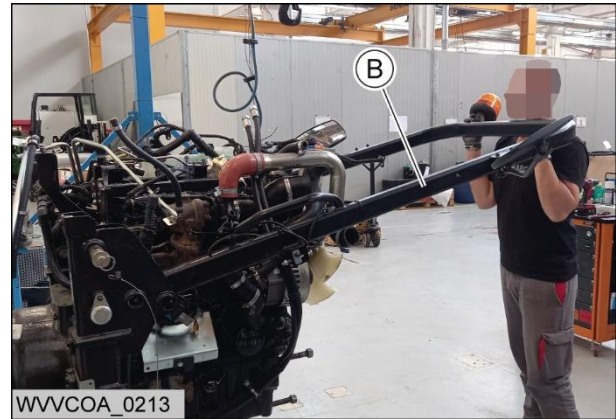
Remove the fastener (E) and the pin (F) on both side.



Remove the pin (A) on both side.



Remove the roll-bar (B).



Refitting

1. Install all the parts performing the procedure in reverse order.

Install the exhaust pipe (see Remove the horizontal exhaust pipe).

Connect the battery (see Connection/disconnection of the battery cut-off switch).

SCR-T exhaust pipe (over 75Hp)

WARNING: The machine can move without warning. The machine is heavy and can cause death or injury. Park the machine on a clean, hard and level area. Set the parking brake to ON and install the wheel chocks.

WARNING: The machine has parts that move without operator input. The parts that move can hit persons. Stop the engine on the machine and remove the ignition key.

CAUTION: Risk of injury. Make sure that the exhaust is cold to prevent burn injury.

Removal

1. Disconnect the battery (see Connection/disconnection of the battery cut-off switch).

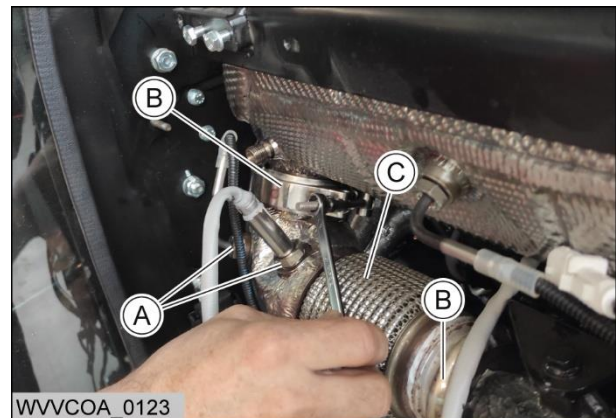
Open the engine cover.

Remove the sensors (A)

Release the clamps (B) and remove.

Remove the SCR-T exhaust pipe (C).

NOTE: Do not try to repair or adjust the DPF exhaust pipe. Replace if necessary.



Refitting

1. Install all the parts performing the procedure in reverse order.

Close the engine cover.

Connect the battery (see Connection/disconnection of the battery cut-off switch).

SCR-T module (over 75Hp)

WARNING: The machine can move without warning. The machine is heavy and can cause death or injury. Park the machine on a clean, hard and level area. Set the parking brake to ON and install the wheel chocks.

WARNING: The machine has parts that move without operator input. The parts that move can hit persons. Stop the engine on the machine and remove the ignition key.

CAUTION: Risk of injury. Make sure that the exhaust is cold to prevent burn injury.

Preliminary operations

1. Disconnect the battery (see Connection/disconnection of the battery cut-off switch).

Remove the engine cover (See Removal/refitting the engine cover).

Remove the SCR-T exhaust pipe (See Removal/refitting the SCR-T exhaust pipe (over 75Hp)).

Removal

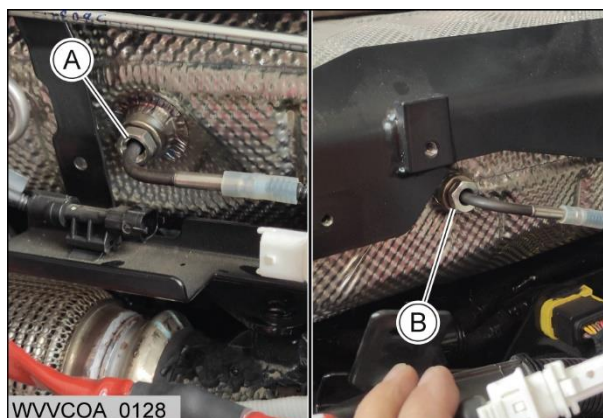
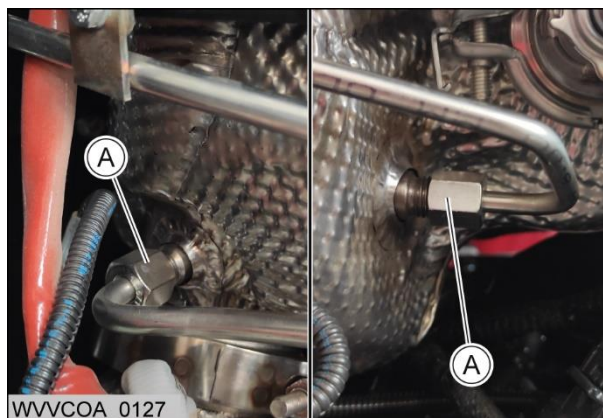
1. Detach the pipes (B) of the differential pressure sensors positioned on the rear-right side and front-right side of the SCR-T module.

Detach the temperature sensor (A) positioned on the right side of the SCR-T module.

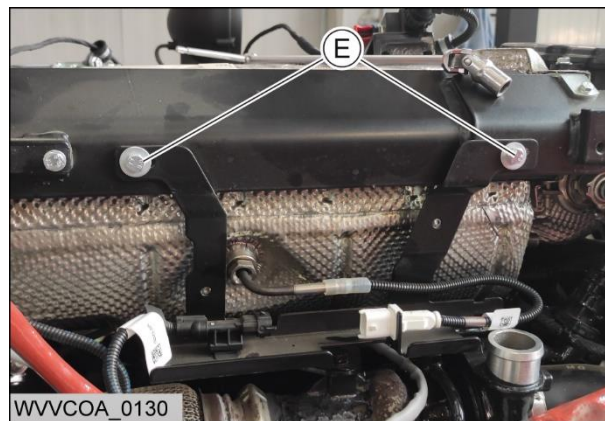
Detach the temperature sensor (B) positioned on the left side of the SCR-T module

Remove the nuts (C) and relative washers.

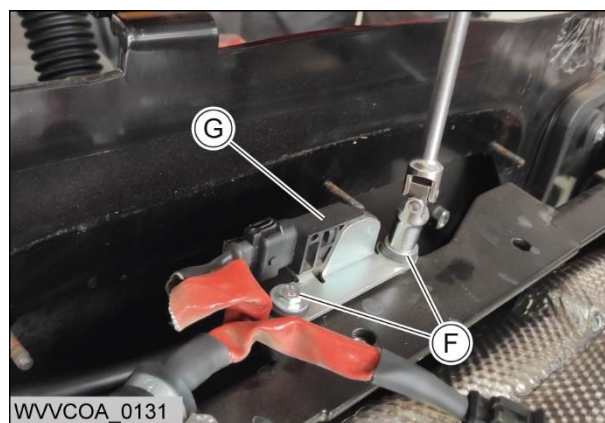
Remove the rubber protection (D).



Remove the screws (E).

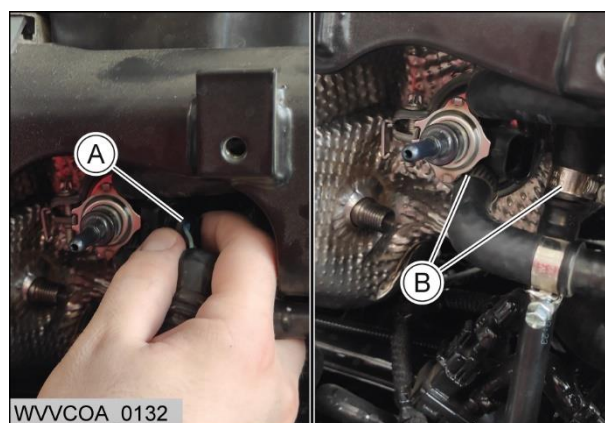


Remove the screws (F) and detach the pressure differential sensor (G) and relative bracket of the SCR-T module.

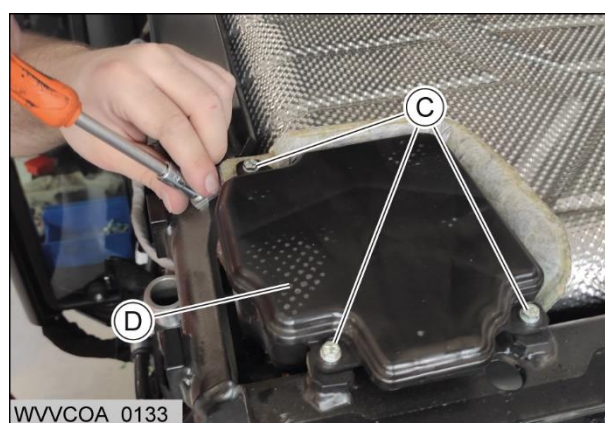


Disconnect the connector (A).

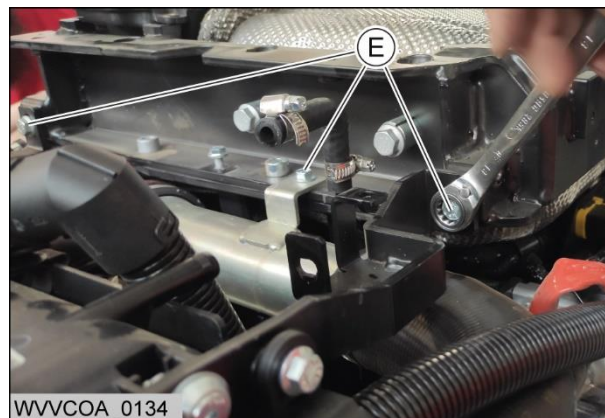
Detach the hoses (B).



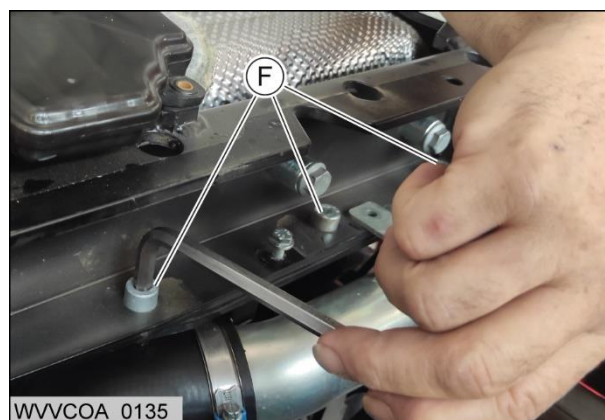
Remove the screws (C) and remove the tank (D).



Remove the screws (E) on the front side of the SCR-T module.



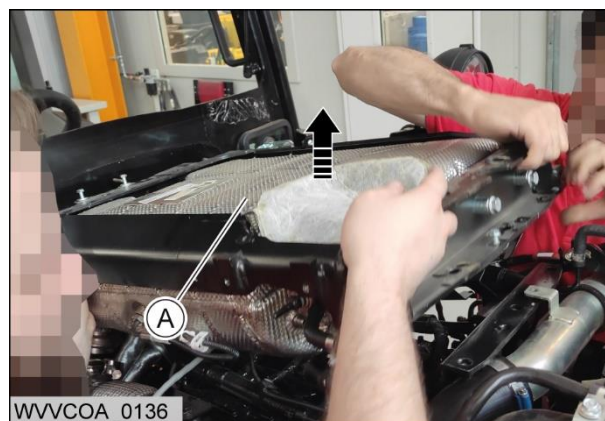
Remove the three screws (F) on front side and in a similar way on the rear side of the SCR-T module.



Remove the SCR-T module (A).

IMPORTANT: Do not try to repair or adjust the SCR-T module.

Examine the SCR-T module and replace if necessary.



Refitting

1. Install all the parts performing the procedure in reverse order.

Install the the SCR-T exhaust pipe (See Removal/refitting the SCR-T exhaust pipe (over 75Hp)).

Install the engine cover (See Removal/refitting the engine cover)

Connect the battery (see Connection/disconnection of the battery cut-off switch).

Starter relay

WARNING: The machine can move without warning. The machine is heavy and can cause death or injury. Park the machine on a clean, hard and level area. Set the parking brake to ON and install the wheel chocks.

WARNING: The machine has parts that move without operator input. The parts that move can hit persons. Stop the engine on the machine and remove the ignition key.

Removal

1. Disconnect the battery (see chapter [Connection/disconnection of the battery cut-off switch \(under 75Hp\)](#) - or - see chapter [Connection/disconnection of the battery cut-off switch \(over 75Hp\)](#)).

Remove the steering wheel (see chapter [Removal/refitting of the steering wheel](#)).

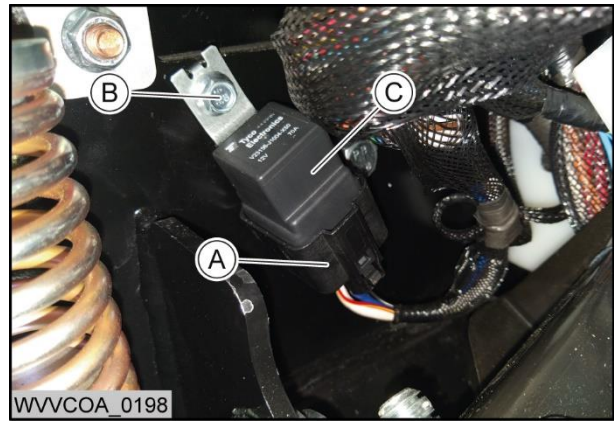
Remove the instrument cluster (see chapter [Removal/refitting of the instrument panel](#)).

Remove the upper dashboard cover (see chapter [Removal/refitting of the dashboard panels](#)).

Disconnect the electrical connector (A).

Remove the fixing screw (B) and the starter relay (C).

NOTE: The location of the starter relay (C) can be different to the figure shown.



Refitting

1. Carry out the removal procedure in reverse order.

Refit the upper dashboard cover (see chapter [Removal/refitting of the dashboard panels](#)).

Refit the instrument cluster (see chapter [Removal/refitting of the instrument panel](#)).

Refit the steering wheel (see chapter [Removal/refitting of the steering wheel](#)).

Connect the battery (see chapter [Connection/disconnection of the battery cut-off switch \(under 75Hp\)](#) - or - see chapter [Connection/disconnection of the battery cut-off switch \(over 75Hp\)](#)).

Check that the starter relay (C) operates correctly.

Steering column (Fixed version)

WARNING: The machine can move without warning. The machine is heavy and can cause death or injury. Park the machine on a clean, hard and level area. Set the parking brake to ON and install the wheel chocks.

WARNING: The machine has parts that move without operator input. The parts that move can hit persons. Stop the engine on the machine and remove the ignition key.

Preliminary operations

1. Disconnect the battery (see [Connection/disconnection of the battery cut-off switch](#)).

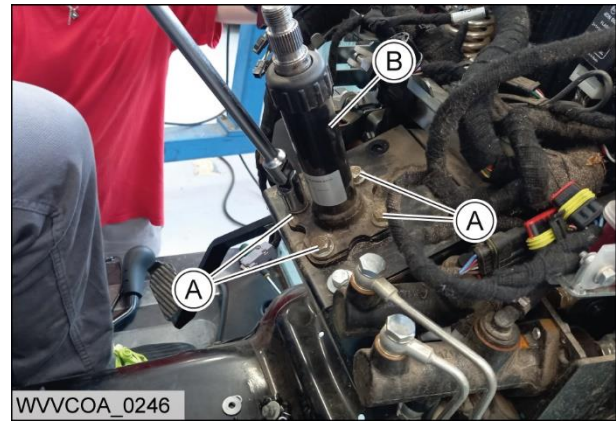
Open the engine cover.

Remove the dashboard panels and the instrument panel.

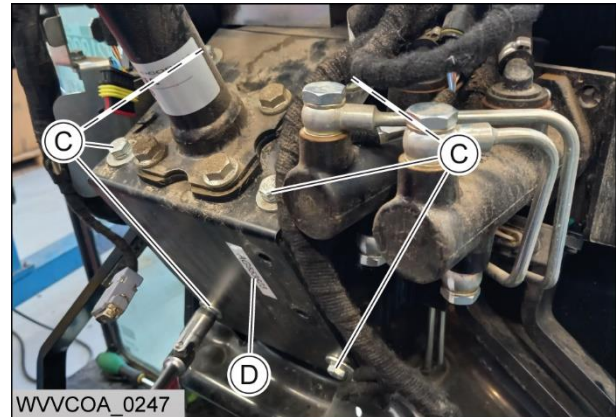
Remove the steering wheel.

Removal

1. Remove the screws (A) and remove the steering column (B).



Remove the screws (C) and remove the bracket (D).



Refitting

1. Install all the parts performing the procedure in reverse order.

Install the steering wheel.

Install the dashboard panels and the instrument panel.

Connect the battery (see Connection/disconnection of the battery cut-off switch).

Steering valve

WARNING: The machine can move without warning. The machine is heavy and can cause death or injury. Park the machine on a clean, hard and level area. Set the parking brake to ON and install the wheel chocks.

WARNING: The machine has parts that move without operator input. The parts that move can hit persons. Stop the engine on the machine and remove the ignition key.

IMPORTANT: Damage to the machine. Do not try to repair and or mechanically adjust the steering valve components. If the steering valve does not operate correctly, replace it with a new one.

Preliminary operations

1. Disconnect the battery (see Connection/disconnection of the battery cut-off switch).

Open the engine cover.

Remove the dashboard panels.

Remove the steering wheel.

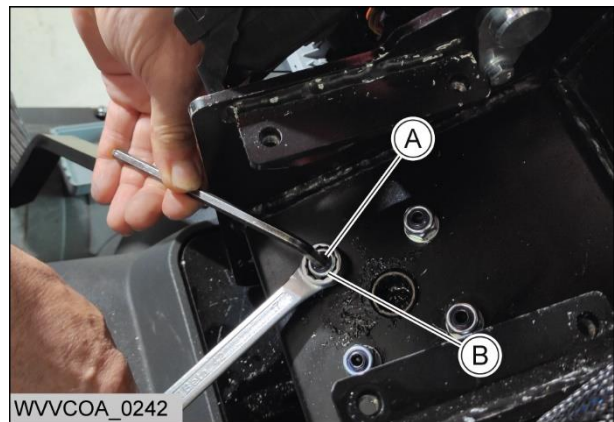
Remove the steering column.

Remove the exhaust pipe.

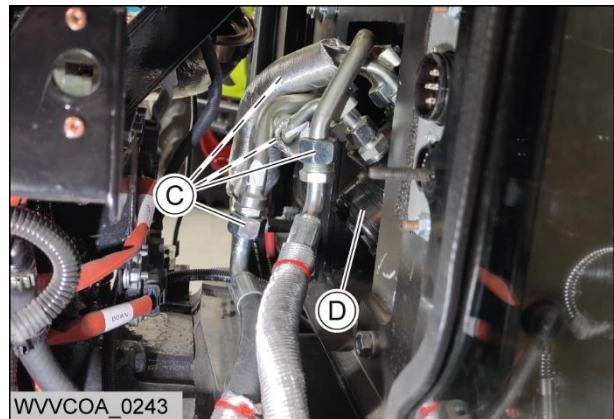
NOTE: Put a container in an applicable position to collect all fluids that come out during the procedure.

Removal (Tiltable version)

1. Keep the stud bolts (A) fixed and unscrew the nuts (B).

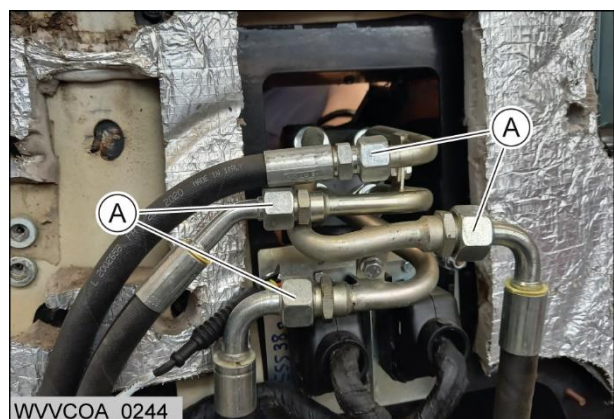


Detach the pipes (C) and remove the steering valve (D).

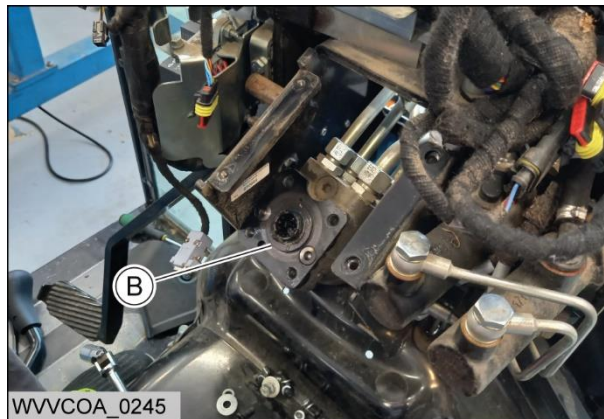


Removal (Fixed version)

1. Detach the pipes (A).



Remove the steering valve (B).



Refitting (All version)

1. Install all the parts performing the procedure in reverse order.

Install the exhaust pipe.

Install the steering column.

Install the steering wheel.

Install the dashboard panels.

Close the engine cover.

Connect the battery (see Connection/disconnection of the battery cut-off switch).

Start the engine.

Examine for leaks.

Steering wheel

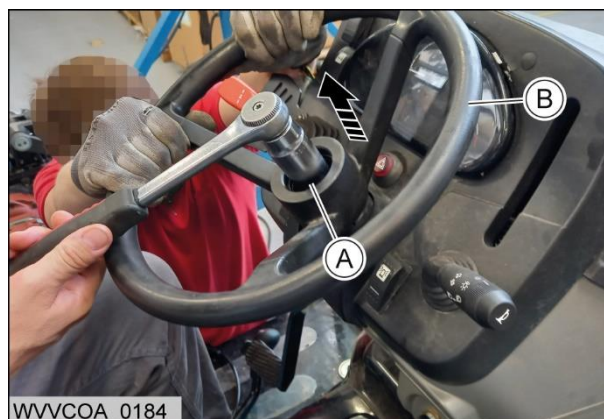
WARNING: The machine can move without warning. The machine is heavy and can cause death or injury. Park the machine on a clean, hard and level area. Set the parking brake to ON and install the wheel chocks.

WARNING: The machine has parts that move without operator input. The parts that move can hit persons. Stop the engine on the machine and remove the ignition key.

Removal

Only for Platform versions

1. Remove the nut (A).
- Remove the steering wheel (B).

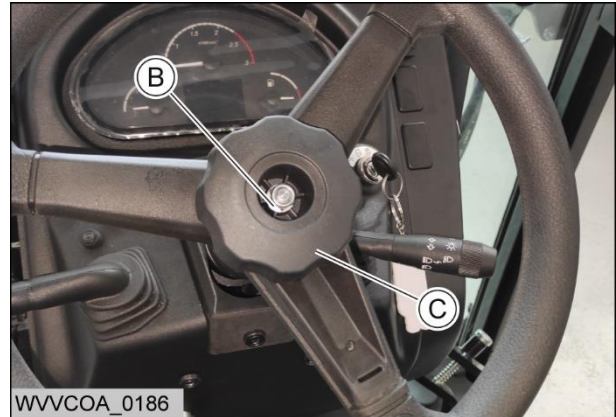


Only for Cab versions

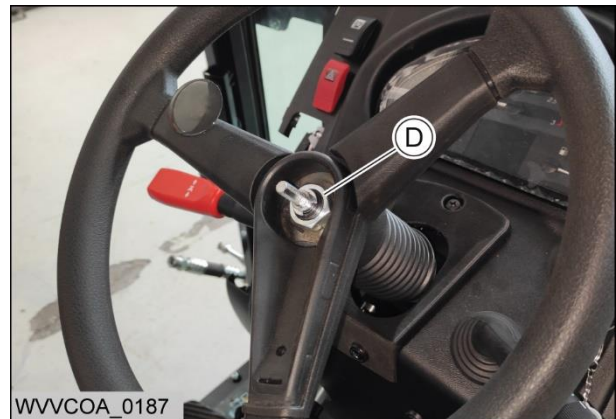
1. Remove the cover (A).



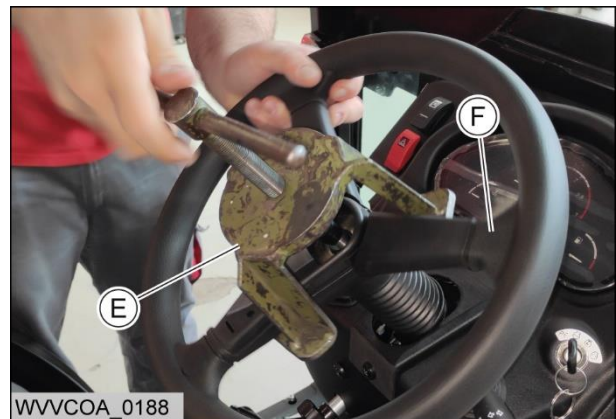
Remove the nut (B) and remove the knob (C).



Remove the nut (D).



Use a suitable tool (E) to remove the steering wheel (F).

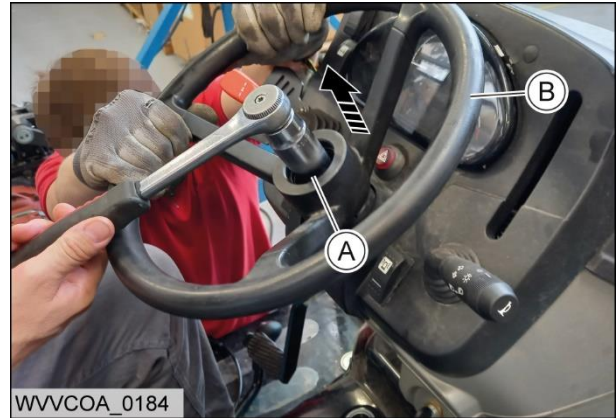


Refitting

Only for Platform versions

1. Install all the parts performing the procedure in reverse order.

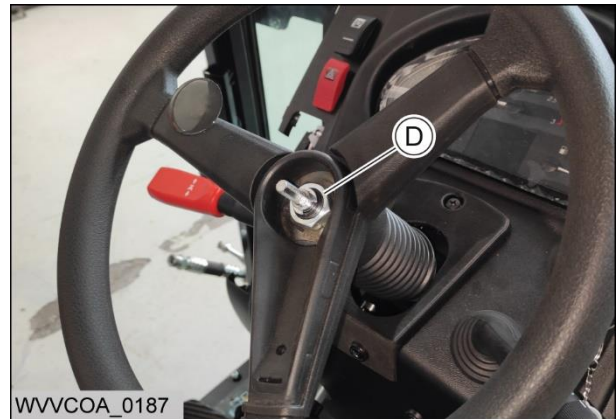
Tighten the screw (A) to a torque of 40 Nm.



Only for Cab versions

1. Install all the parts performing the procedure in reverse order.

Tighten the screw (D) to a torque of 40 Nm.



Secondary filters

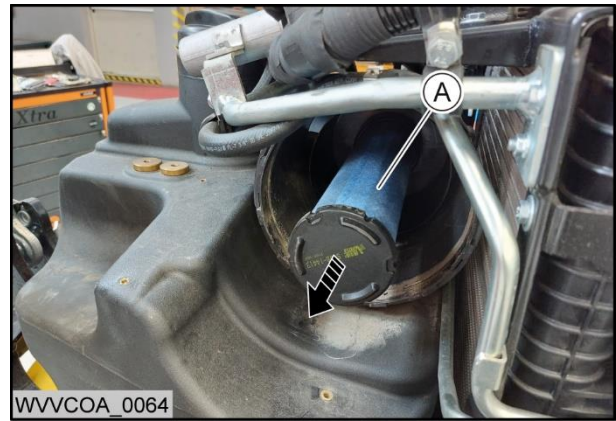
WARNING: The machine can move without warning. The machine is heavy and can cause death or injury. Park the machine on a clean, hard and level area. Set the parking brake to ON and install the wheel chocks.

WARNING: The machine has parts that move without operator input. The parts that move can hit persons. Stop the engine on the machine and remove the ignition key.

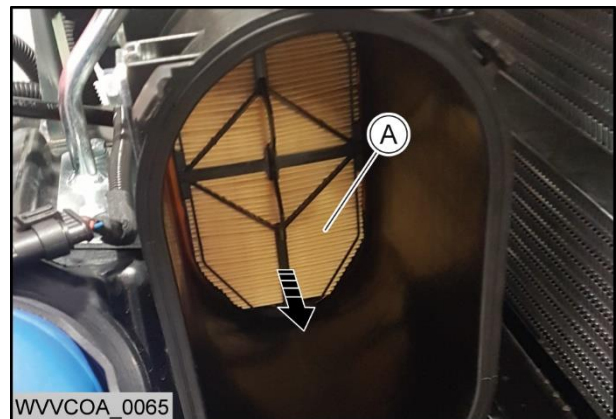
Procedure

1. Change the secondary filter (A) after you change 5 of the primary filters. Or if you get to 1500 hours of operation first, replace it then.

NOTE: If the **secondary filter (A)** has damage, replace the filter.



Under 75hp models



Over 75hp models

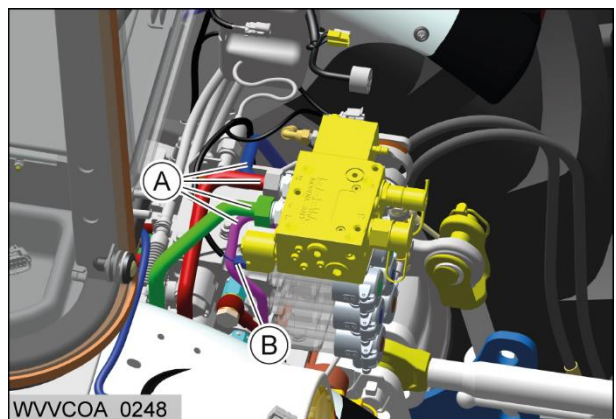
Trailer brake valve

WARNING: The machine can move without warning. The machine is heavy and can cause death or injury. Park the machine on a clean, hard and level area. Set the parking brake to ON and install the wheel chocks.

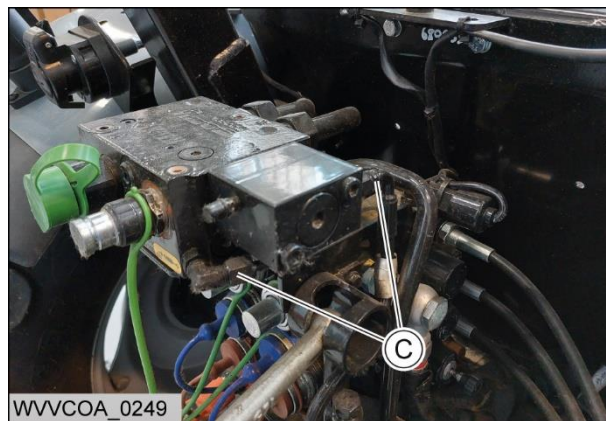
WARNING: The machine has parts that move without operator input. The parts that move can hit persons. Stop the engine on the machine and remove the ignition key.

Removal

1. Detach the pipes (A).
- Disconnect the connector (B).

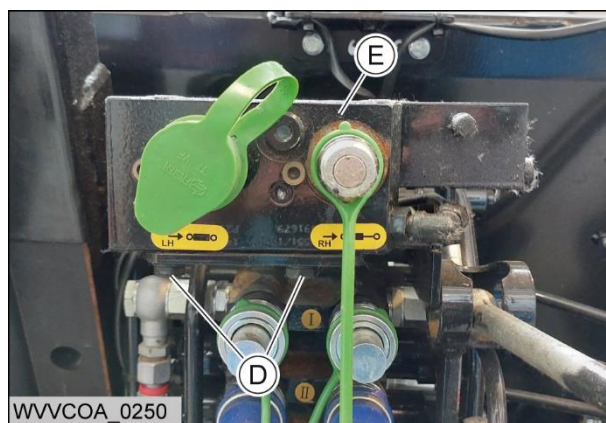


Detach the pipes (C).



Remove the three screws (D).

Remove the trailer brake valve (E).



Refitting

1. Install all the parts performing the procedure in reverse order.

Bleed the trailer hydraulic brake valve circuit.

Make sure that the hydraulic brake valve operates correctly.

Suspended Front-Wheel Drive Axle

CAUTION: Handling heavy components or heavy objects. Death or serious injuries. To lift heavy components (wheels, weights, etc.), use suitable lifting tools. Use suitable protection devices.

Removal

1. Prior to access the service facility, raise the suspended front axle to the maximum height:
 - a. Turn the ignition key ON;
 - b. Move the vehicle with speed threshold major than 2 Km/h;
 - c. Press the activation switch (A) to activate the Manual mode of the suspension system;
 - d. Adjust the height of the suspension system by rotating the potentiometer knob (B) to the maximum height "MAX";
 - e. Switch the ignition key OFF.

NOTE: As alternative, attach a suitable hoist on the front lifting points respecting the safety measures provided and slightly raise the front part of the tractor.

Disconnect the Battery.

Position a suitable lifting device under the tractor front lifting points. Follow the instructions provided in the Operator's Manual.

Remove the front wheels and mudguards (if fitted).

Insert a suitable bench (80 x 120 mm) arranged with two appropriate wedges under the front axle beam.

Position a suitable lifting device under the ball joint of the lower front axle support and the rear bearing.

Use a suitable hoist-lifting tool to support the front axle assembly. Attach appropriate slings of the lifting device to the suspended front axle and the lower front axle support assembly, respecting the safety measures provided.

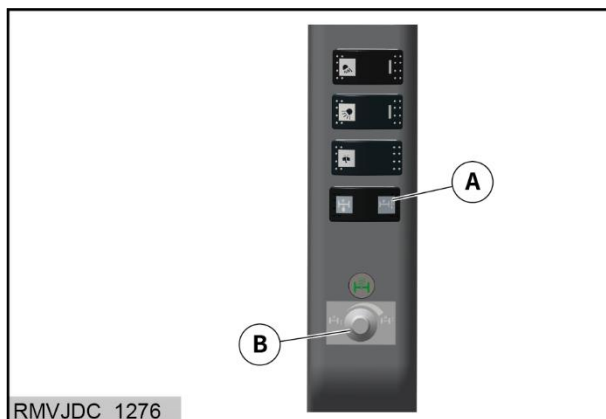
Remove the protective cover (if present) located underneath the hydraulic suspension control unit.

CAUTION: Trapping hazard. Loosen the decompression screws slowly.

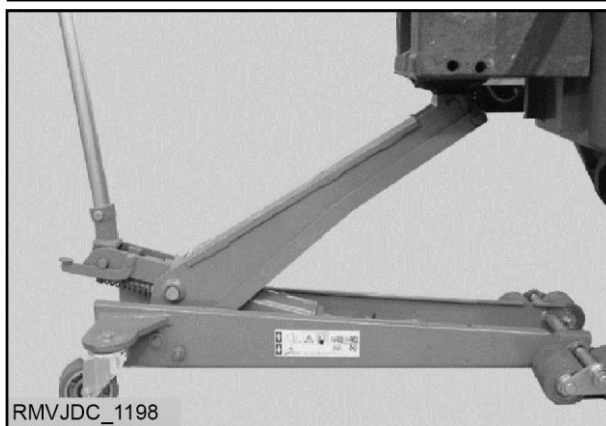
Steadily loosen (by two turns) the decompression screws (C), to release the pressure from the suspension system.

Specification

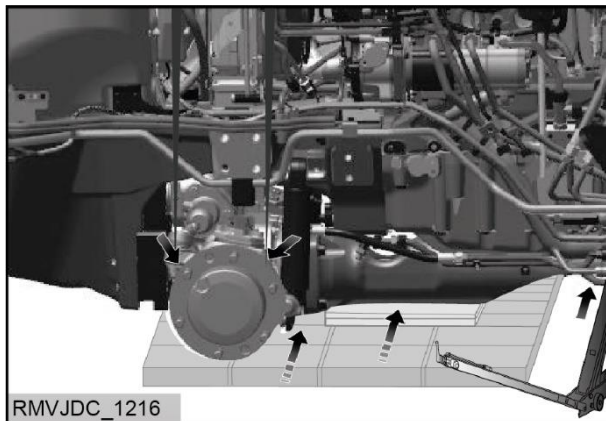
screws (C) -Torque 9,5 N·m



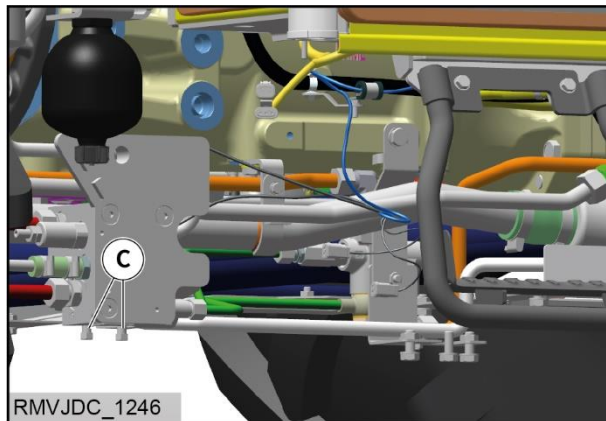
RMVJDC_1276



RMVJDC_1198



RMVJDC_1216

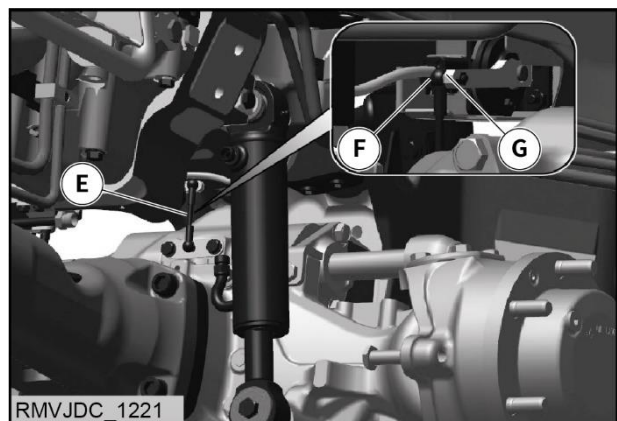
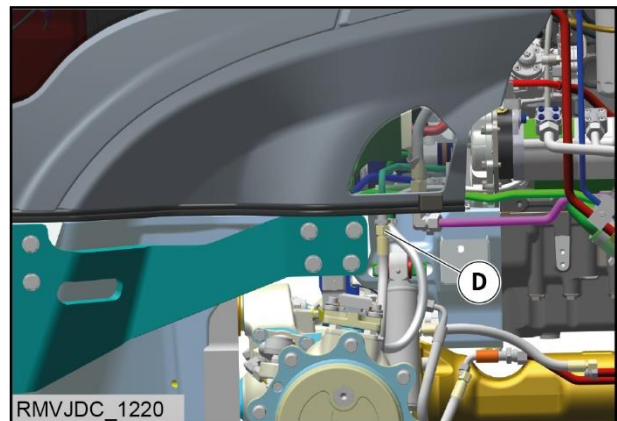
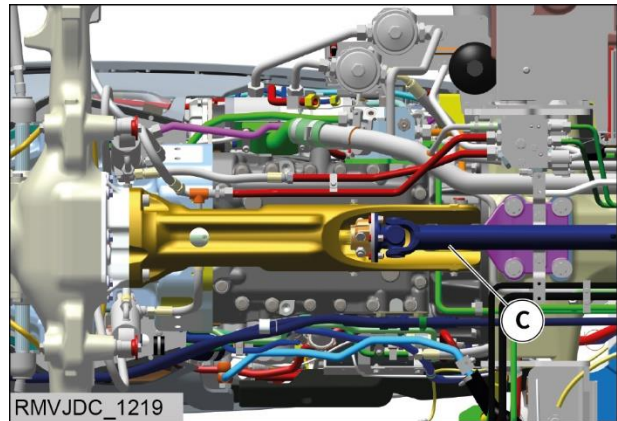
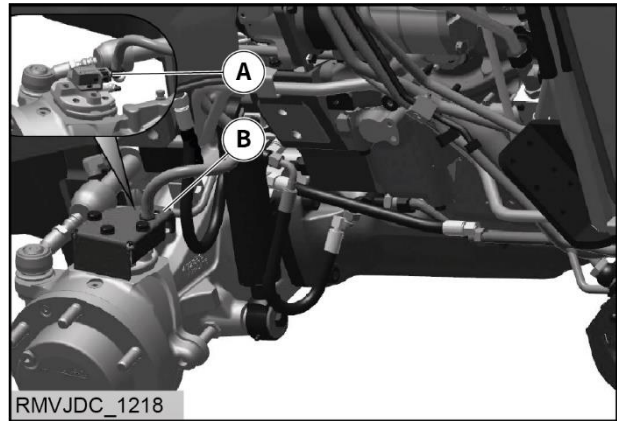


RMVJDC_1246

2. Remove the Steering angle sensor cover (B) and disconnect the electrical connector (A) - if present.

NOTE: In case of replacement of the suspended front axle, remove the entire steering angle sensor assembly - if present.

3. Remove the Front axle transmission shaft (C).
4. Remove the nuts (D) and disconnect the steering system hoses - at both sides.
5. Remove the retaining ring (F) from the upper ball joint (G) to release the connecting tie rod (E) from the front support.



6. Remove the lower fixing screw (B) and related spacer (C) to disconnect the suspension ram (A) from the front axle (D) - at both sides.

Specification

screws (B)-torque.....110 N·m

Apply Superbond® 321 on screw (B).

NOTE: Make sure that the suspended front axle assembly is securely harnessed and according to the safety measures provided.

7. Remove the two fixing bolts (E) and remove the retaining bracket (F) from the suspended front axle guides.

Specification

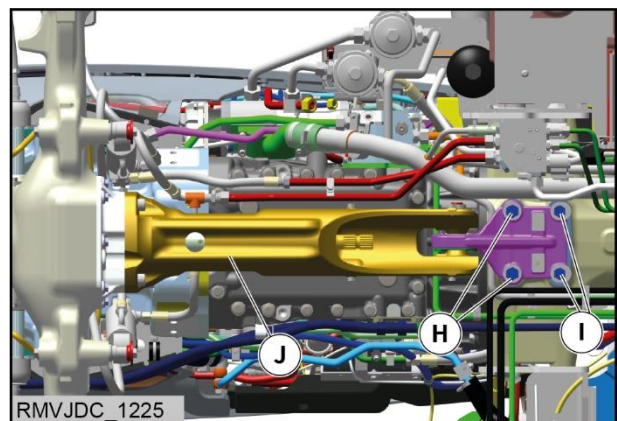
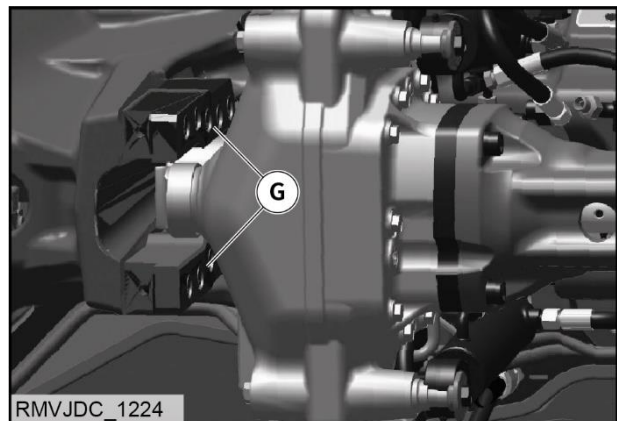
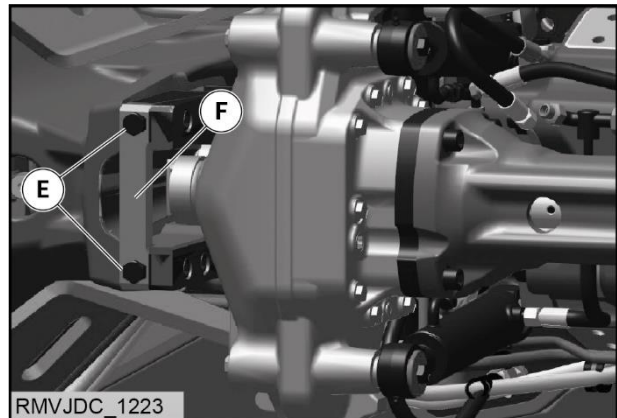
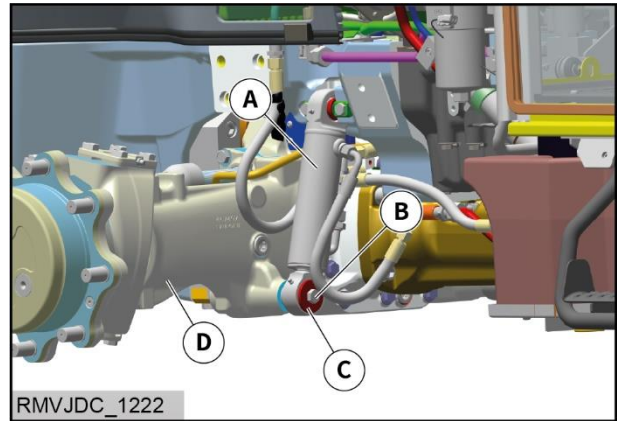
bolts (E)-Torque.....180 N·m

8. To facilitate the suspended front axle disassembly, it is recommended to remove also the suspended front axle guides (G).
9. Using a suitable hoist, carefully detach the suspended front axle (D), slightly letting the hoist slings downwards and lay the assembly on a suitable bench arranged with two wedges.
10. Remove carefully the four fixing bolts (H) and (I) to release the rear bearing of the lower support (J).

Specification

bolts (H)-Torque.....280 N·m

bolts (I)-Torque.....180 N·m



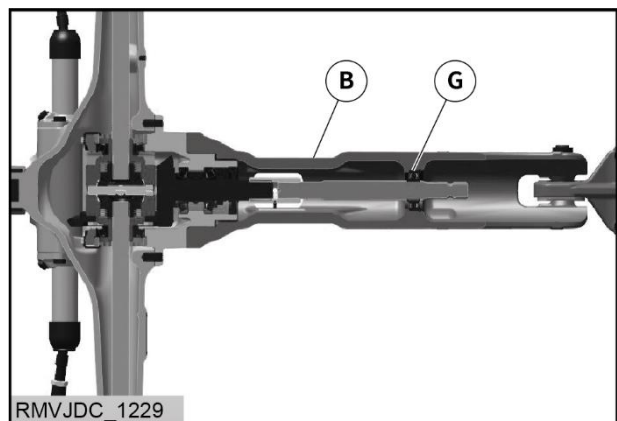
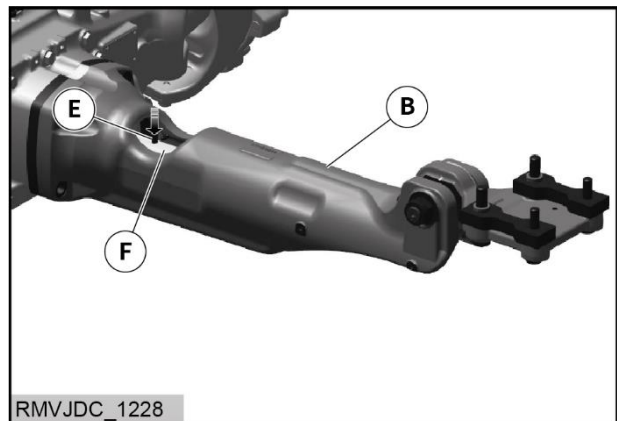
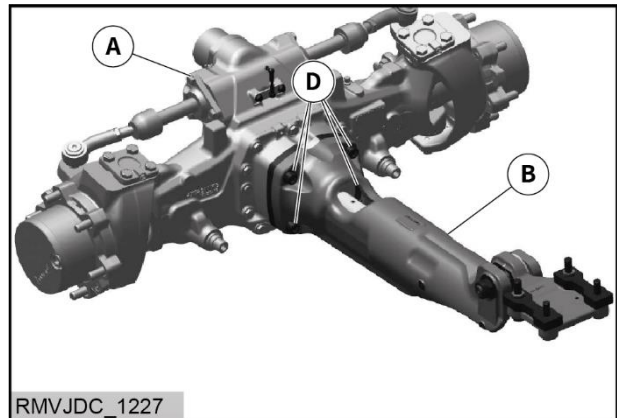
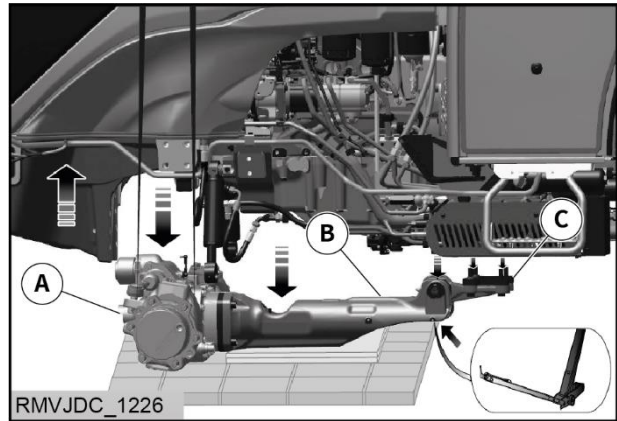
11. Make sure that the lifting device is properly positioned under the ball joint of the lower front axle support (B) and the rear bearing (C).
12. Carefully and slightly let down the lower front axle support (A) and rear bearing (C).
13. Remove the suspended front axle assembly and place it on a workbench.
14. Remove the four bolts (D) to release the lower support (B) from the suspended front axle (A).

Specification

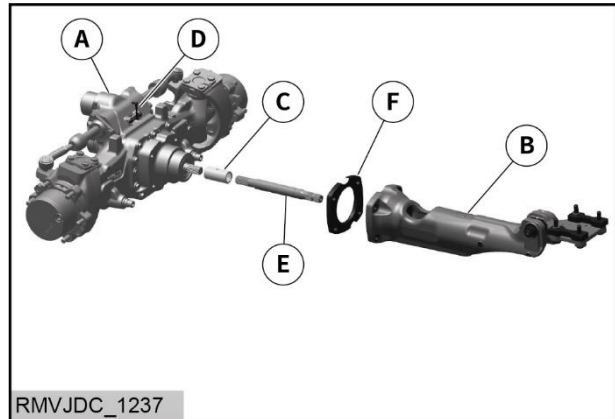
bolts (D)-Torque.....280 N·m

NOTE: Make sure that the end-of-stroke pin (E) is properly positioned into the shaft manifold (F) of the lower support (B).

15. Disassemble the ball bearing (G) together with the related spacers and elastic rings from the lower support (B).



16. Separate carefully the lower support (B) from the suspended front axle (A).
17. Disassemble the manifold (C), the shaft (E) and the spacer beam (F) from the suspended front axle (A).
18. Inspect the suspended front axle (A). In case of replacement, disassemble the connecting tie rod (D) and all the parts not provided. If necessary, refer to the suspended front axle disassembly procedures.



Refitting

1. Prior to perform the refitting procedure, check the proper distance of the connecting tie rod.
2. Carry out the removal steps in reverse order.
3. Connect the Battery.
4. Perform an automatic calibration procedure of the suspension assembly.

NOTE: Make sure that the electrical and hydraulic connections are securely connected and properly fitted in place.

NOTE: Tighten to the recommended torque values using a torque wrench.

5. Perform operation test and make sure that there are no leaks from the hydraulic connections and that the suspended front axle assembly is functioning properly.
6. Make sure that no error codes are triggered.

Suspended Front-Wheel Drive Axle and Lower Support Assembly

CAUTION: Handling heavy components or heavy objects. Death or serious injuries. To lift heavy components (wheels, weights, etc.), use suitable lifting tools. Use suitable protection devices.

Removal

1. Prior to access the service facility, raise the suspended front axle to the maximum height:
 - a. Turn the ignition key ON;
 - b. Move the vehicle with speed threshold major than 2 Km/h;
 - c. Press the activation switch (A) to activate the Manual mode of the suspension system;
 - d. Adjust the height of the suspension system by rotating the potentiometer knob (B) to the maximum height "MAX";
 - e. Switch the ignition key OFF.

NOTE: As alternative, attach a suitable hoist on the front lifting points respecting the safety measures provided and slightly raise the front part of the tractor.

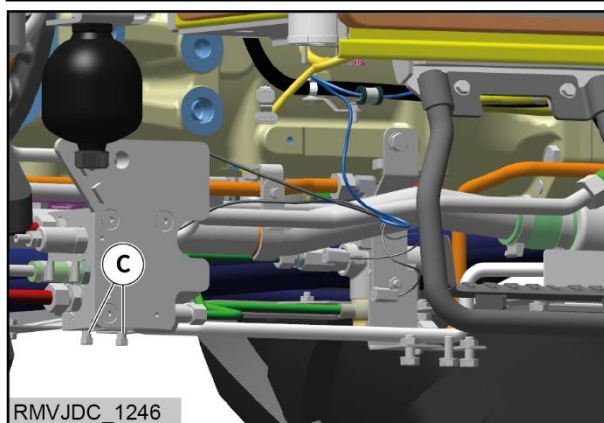
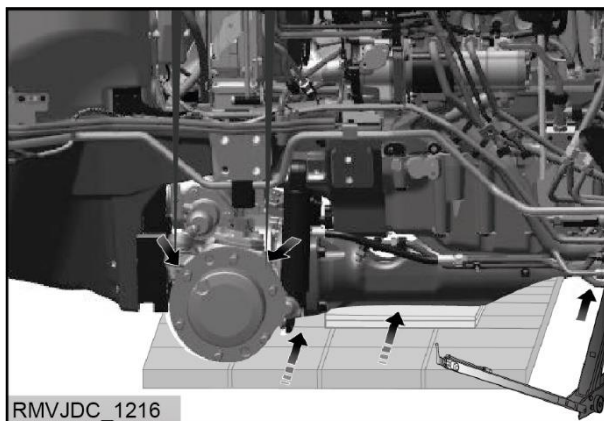
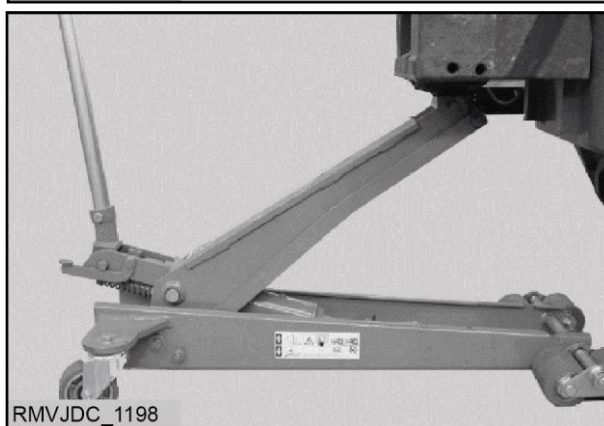
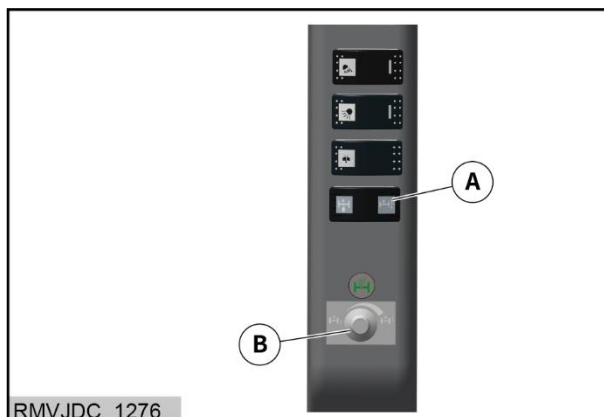
2. Disconnect the Battery.
3. Position a suitable lifting device under the tractor front lifting points. Follow the instructions provided in the Operator's Manual.
4. Remove the front wheels and mudguards (if fitted).
5. Insert a suitable bench (80 x 120 mm) arranged with two appropriate wedges under the front axle beam.
6. Position a suitable lifting device under the ball joint of the lower front axle support and the rear bearing.
7. Use a suitable hoist-lifting tool to support the front axle assembly. Attach appropriate slings of the lifting device to the suspended front axle and the lower front axle support assembly, respecting the safety measures provided.
8. Remove the protective cover (if present) located underneath the hydraulic suspension control unit.

CAUTION: Trapping hazard. Loosen the decompression screws slowly.

9. Steadily loosen (by two turns) the decompression screws (C), to release the pressure from the suspension system.

Specification

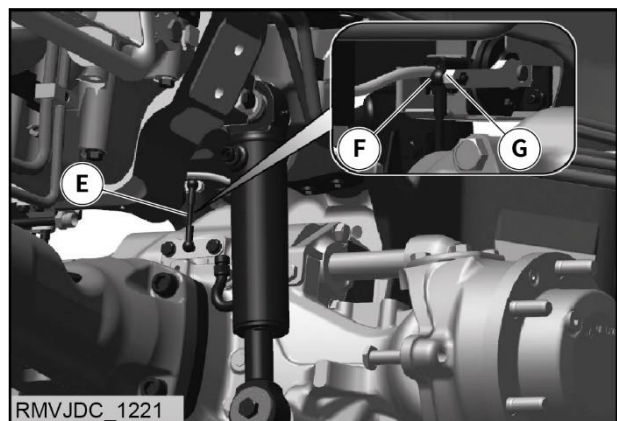
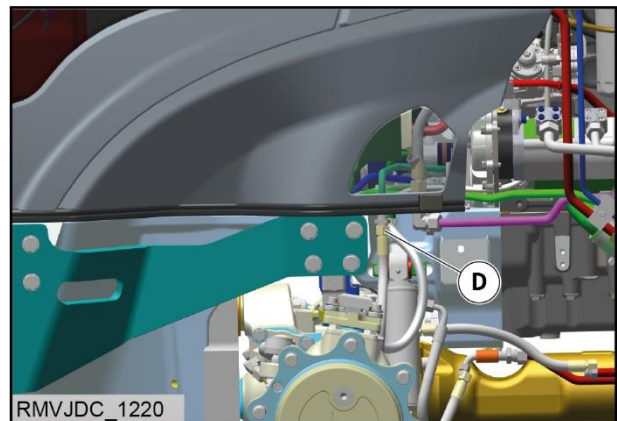
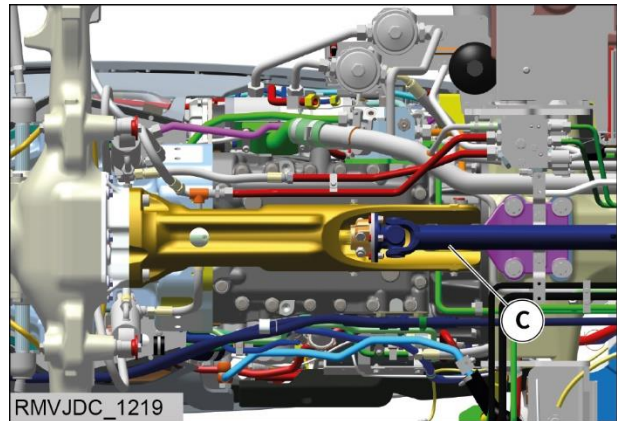
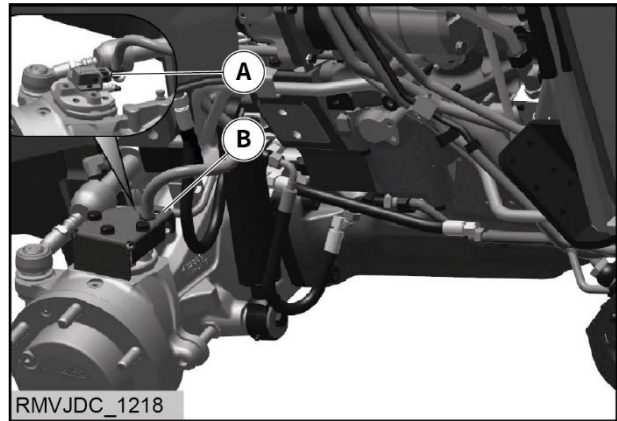
screws (C)-Torque.....9,5 N·m



10. Remove the Steering angle sensor cover (B) and disconnect the electrical connector (A) - if present.

NOTE: In case of replacement of the suspended front axle, remove the entire steering angle sensor assembly - if present.

11. Remove the Front axle transmission shaft (C).
12. Remove the nuts (D) and disconnect the steering system hoses - at both sides.
13. Remove the retaining ring (F) from the upper ball joint (G) to release the connecting tie rod (E) from the front support.



14. Remove the lower fixing screw (B) and related spacer (C) to disconnect the suspension ram (A) from the front axle (D) - at both sides.

Specification

screws (B)-torque.....110 N·m

Apply Superbond® 321 on screw (B).

NOTE: Make sure that the suspended front axle assembly is securely harnessed and according to the safety measures provided.

15. Remove the two fixing bolts (E) and remove the retaining bracket (F) from the suspended front axle guides.

Specification

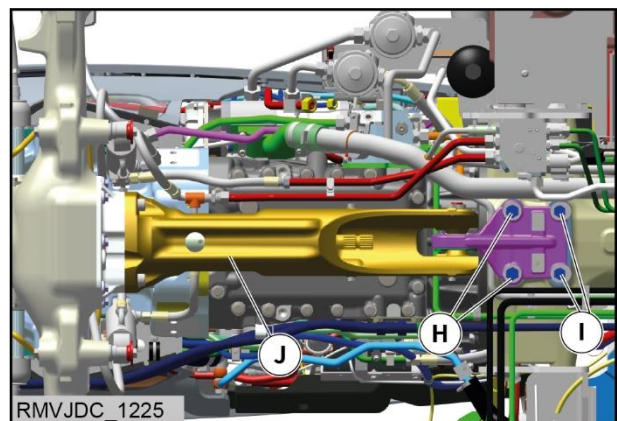
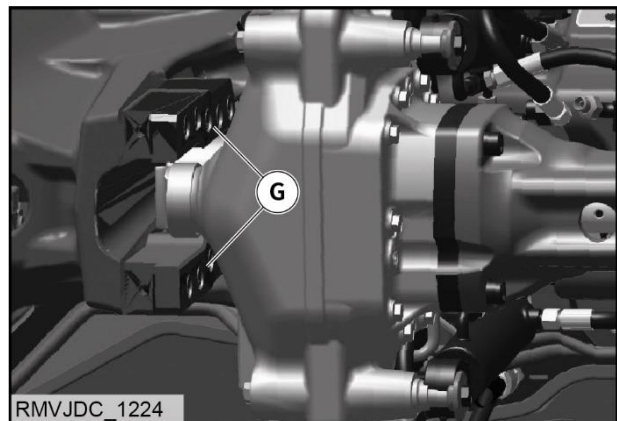
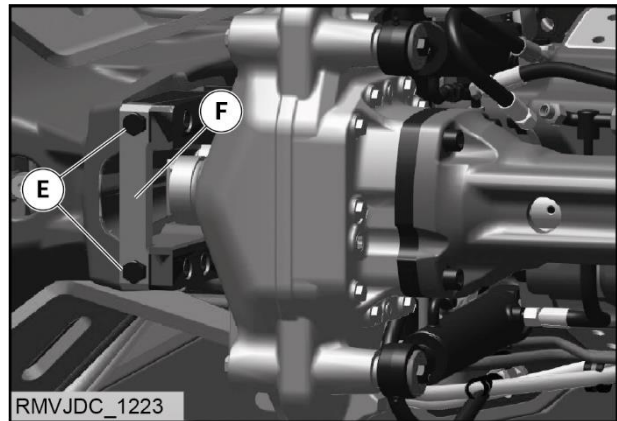
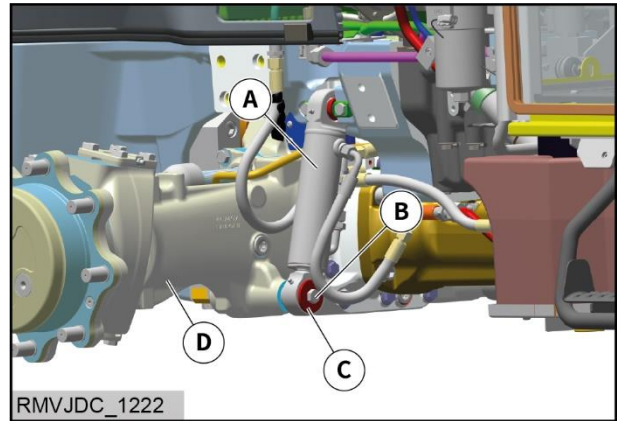
bolts (E)-Torque.....180 N·m

16. To facilitate the suspended front axle disassembly, it is recommended to remove also the suspended front axle guides (G) - See Remove and Install Suspended Front-Wheel Drive Axle Guides.
17. Using a suitable hoist, carefully detach the suspended front axle (D), slightly letting the hoist slings downwards and lay the assembly on a suitable bench arranged with two wedges
18. Remove carefully the four fixing bolts (H) and (I) to release the rear bearing of the lower support (J).

Specification

bolts (H)-Torque.....280 N·m

bolts (I)-Torque.....180 N·m



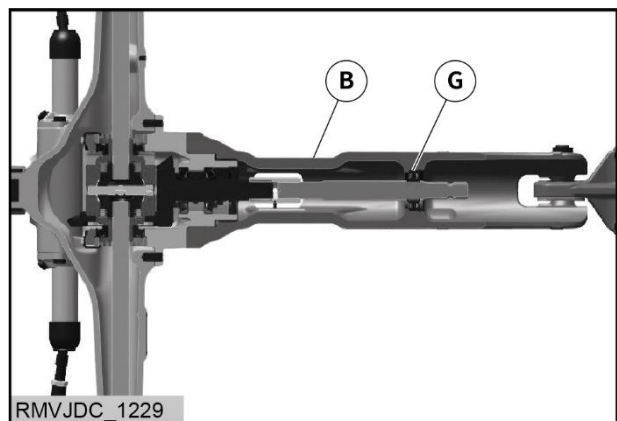
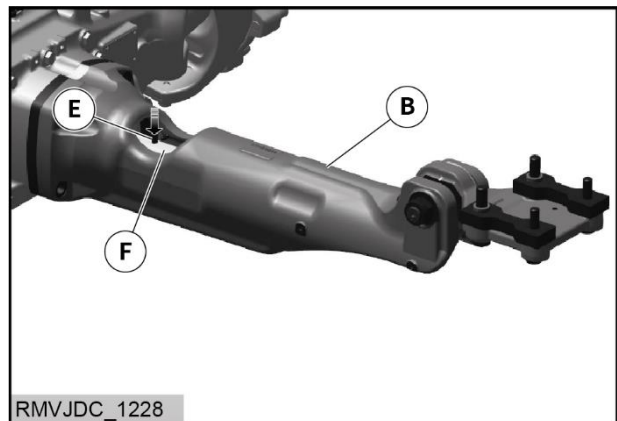
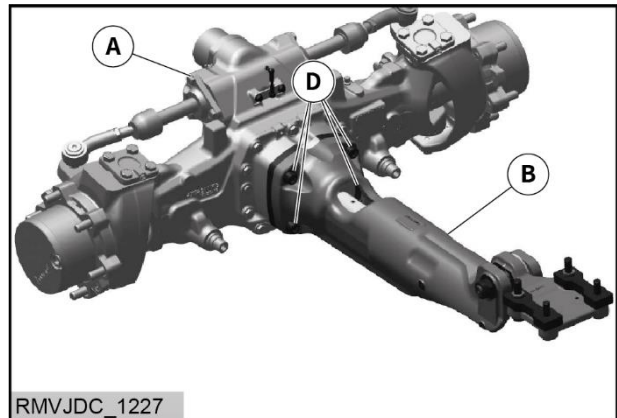
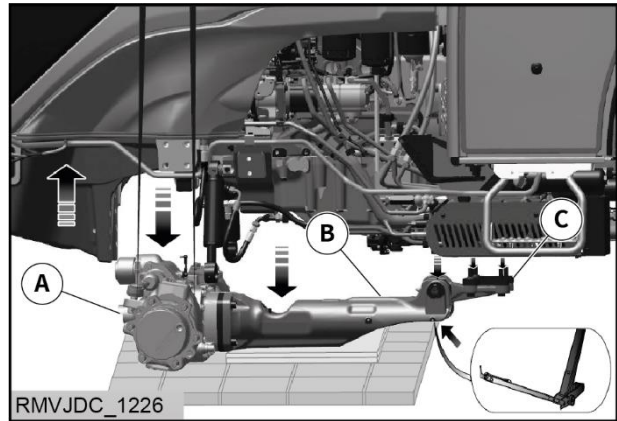
19. Make sure that the lifting device is properly positioned under the ball joint of the lower front axle support (B) and the rear bearing (C).
20. Carefully and slightly let down the lower front axle support (A) and rear bearing (C).
21. Remove the suspended front axle assembly and place it on a workbench.
22. Remove the four bolts (D) to release the lower support (B) from the suspended front axle (A).

Specification

bolts (D)-Torque.....280 N·m

NOTE: Make sure that the end-of-stroke pin (E) is properly positioned into the shaft manifold (F) of the lower support (B).

23. Disassemble the ball bearing (G) together with the related spacers and elastic rings from the lower support (B).



Refitting

1. Prior to perform the refitting procedure, check the proper distance of the connecting tie rod.
2. Carry out the removal steps in reverse order.
3. Connect the Battery.
4. Perform an automatic calibration procedure of the suspension assembly.

NOTE: Make sure that the electrical and hydraulic connections are securely connected and properly fitted in place.

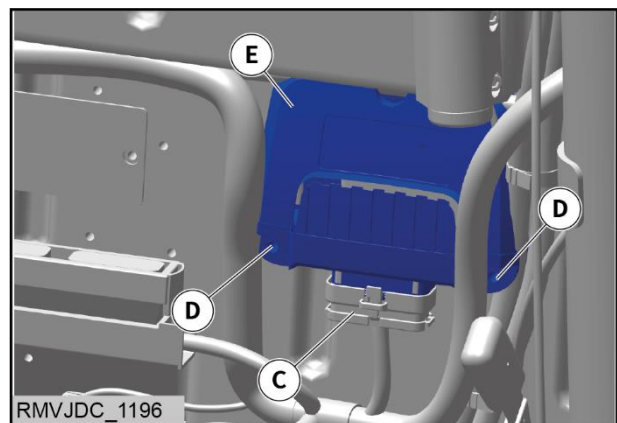
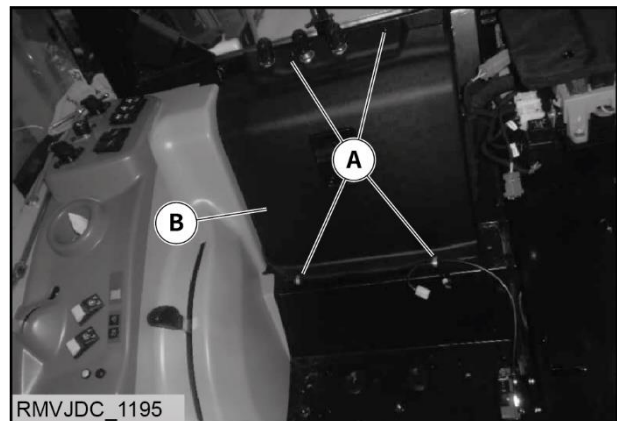
NOTE: Tighten to the recommended torque values using a torque wrench.

5. Perform operation test and make sure that there are no leaks from the hydraulic connections and that the suspended front axle assembly is functioning properly.
6. Make sure that no error codes are triggered.

Suspended Front-Wheel Drive Axle Control Unit

Removal

1. Disconnect the Battery.
2. Remove the screws (A) and remove the trim panel (B).
3. Disconnect the connection (C).
4. Remove the screws (D).
5. Remove the suspension system ECU (E).



Refitting

1. Perform removal steps in reverse order.

NOTE: Make sure that the electrical connections are securely connected and properly fitted in place.

2. Connect the Battery.
3. Perform an automatic calibration procedure of the suspension assembly.
4. Perform operation test and make sure that the suspended front axle assembly is working properly.
5. Make sure that no error codes are triggered.

Suspended Front-Wheel Drive Axle Cylinder

Removal

1. Prior to access the service facility, raise the suspended front axle to the maximum height:
 - a. Turn the ignition key ON;
 - b. Move the vehicle with speed threshold major than 2 Km/h;
 - c. Press the activation switch (A) to activate the Manual mode of the suspension system;
 - d. Adjust the height of the suspension system by rotating the potentiometer knob (B) to the maximum height "MAX";
 - e. Switch the ignition key OFF.

NOTE: As alternative, attach a suitable hoist on the front lifting points respecting the safety measures provided and slightly raise the front part of the tractor.

2. Position a suitable lifting device and an axle stand under the front lifting points to immobilize the tractor, respecting the safety measures provided.
3. Remove the front wheels and mudguards - if fitted.

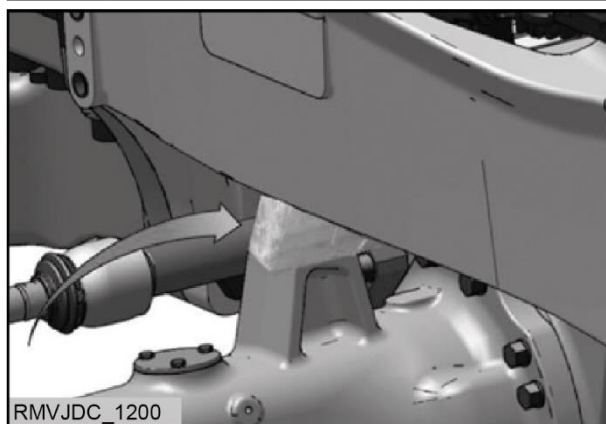
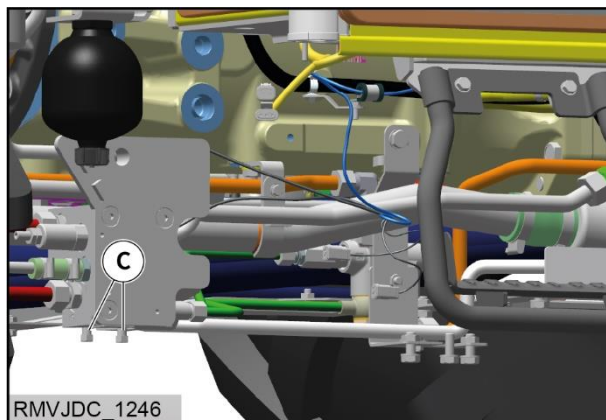
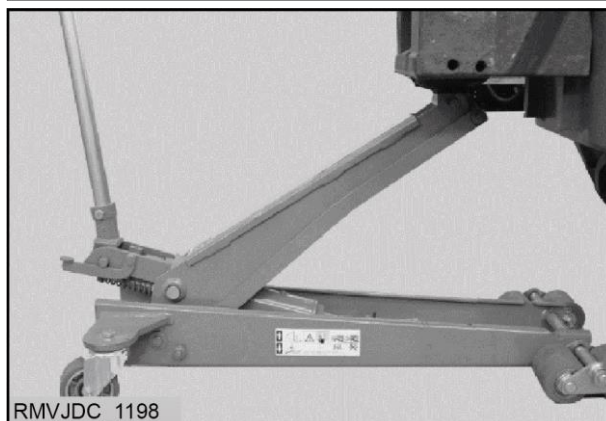
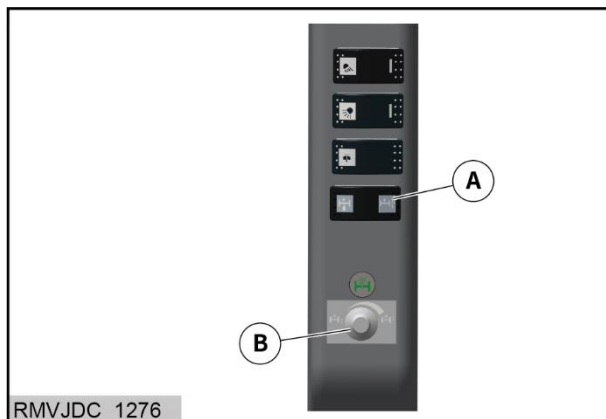
CAUTION: Trapping hazard. Loosen the decompression screws slowly.

4. Steadily loosen (by two turns) the decompression screws (C), to release the pressure from the suspension system.

Specification

Screws (C) - Torque..... 9,5 N·m

5. Place suitable chocks at both sides to immobilize the front axle preventing any swinging.



6. Undo the hydraulic connection (B) of the hose for the LH large displacement cylinder - upper chamber from the suspension cylinder (A).
7. Undo the hydraulic connection (C) of the pipe for the LH small displacement cylinder - lower chamber from the suspension cylinder (A).
8. Undo the two fixing screws (D) from the upper bracket of the suspension cylinder (A).
9. Undo the lower fixing bolt (E) from the lower attachment to release the suspension cylinder (A).

Specification

Bolt (E) - Torque..... 110 N·m

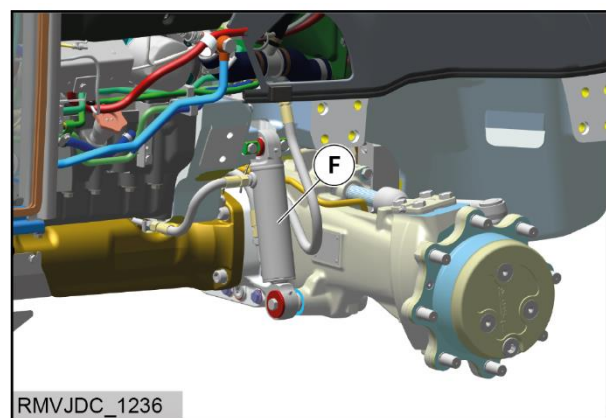
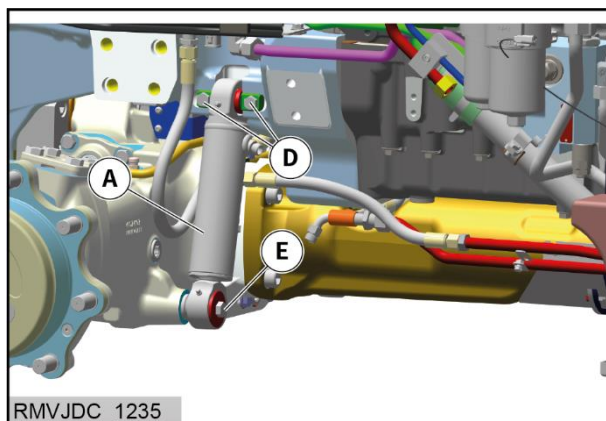
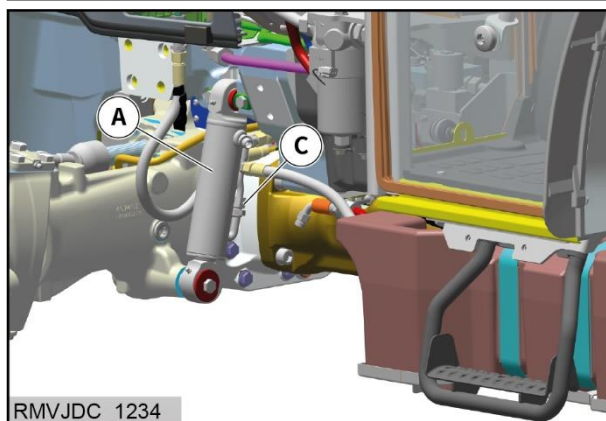
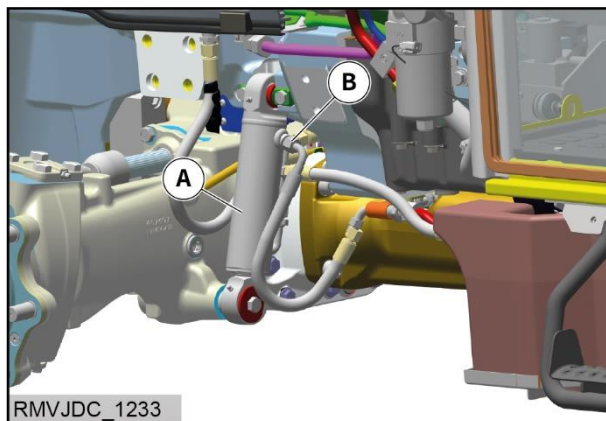
Apply Superbond® 321 on Bolt (E)

10. Remove the suspension cylinder (A) by firmly extracting it from the front axle (if necessary, use carefully a jackhammer).

NOTE: Recover and inspect the upper cylinders bracket, retaining rings and the lower attachment spacer. If wear out, replace them with the new original parts.

11. Perform the same procedure to remove the right-hand suspension cylinder (F).

NOTE: The steps are similar for removal of the right-hand suspension cylinder.



Refitting

1. Carry out the removal steps in reverse order.

NOTE: Prior the assembly of the fixing screws (D) smear with LOCTITE 270.

NOTE: Make sure that the hydraulic connections are securely connected.

NOTE: Tighten to the recommended torque values using a torque wrench.

2. Perform an automatic calibration procedure of the suspension assembly.
3. Perform operation test and make sure that there are no leaks and that the suspension cylinders function properly.

Suspended Front-Wheel Drive Axle Guides

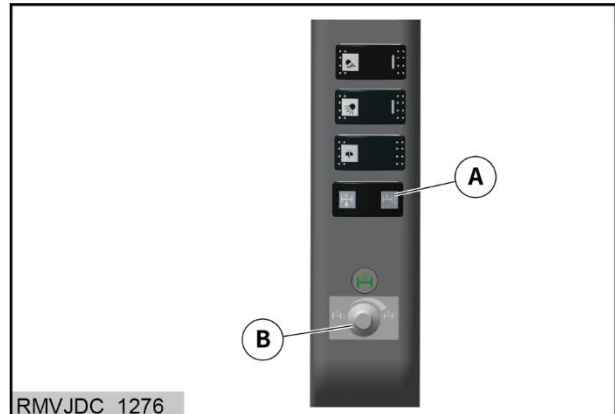
CAUTION: Handling heavy components or heavy objects. Death or serious injuries. To lift heavy components (wheels, weights, etc.), use suitable lifting tools. Use suitable protection devices

Removal

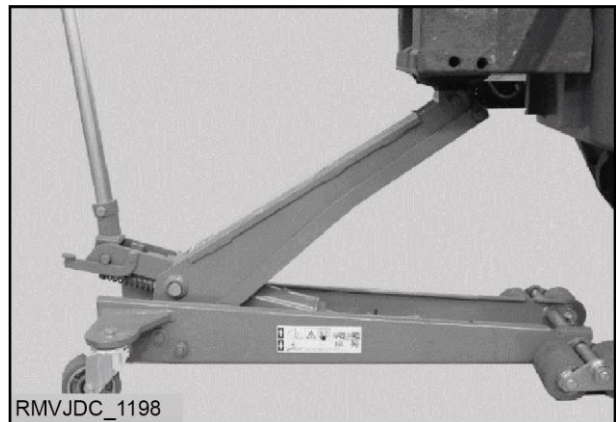
1. Prior to access the service facility, raise the suspended front axle to the maximum height.
 - a. Turn the ignition key ON;
 - b. Move the vehicle with speed threshold major than 2 Km/h;
 - c. Press the activation switch (A) to activate the Manual mode of the suspension system.
 - d. Adjust the height of the suspension system by rotating the potentiometer knob (B) to the maximum height "MAX".
 - e. Switch the ignition key OFF.

NOTE: As alternative, attach a suitable hoist on the front lifting points respecting the safety measures provided and slightly raise the front part of the tractor.

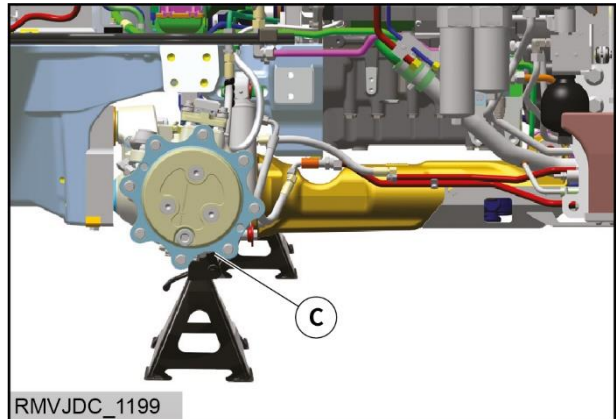
2. Place a suitable lifting device under the front lifting points and raise the front side of the tractor. For the specific lifting points, follow the instructions provided in the Operator's Manual.
3. Remove the right front wheel and mudguard - if fitted.
4. Using the lifting device, regulate the front support to allow sufficient space to access the suspended front axle guides.
5. Position suitable axle stands under the lifting points of the suspended front axle (C) to immobilize it securely (one on each side).
6. Place suitable chocks at both sides to immobilize the front axle preventing any swinging.



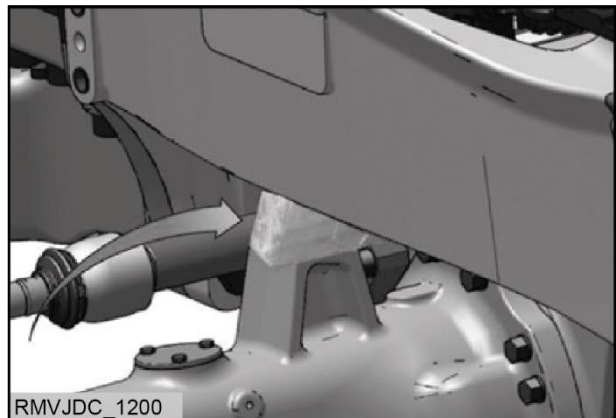
RMVJDC_1276



RMVJDC_1198



RMVJDC_1199



RMVJDC_1200

7. Remove the two fixing bolts (B) and remove the retaining bracket (A) from the suspended front axle guides.

Specification

bolts (B)-Torque.....180 N·m

8. Using a suitable tool, remove the five fixing bolts (D) from the left-hand guide (C), together with the two centering bushings.

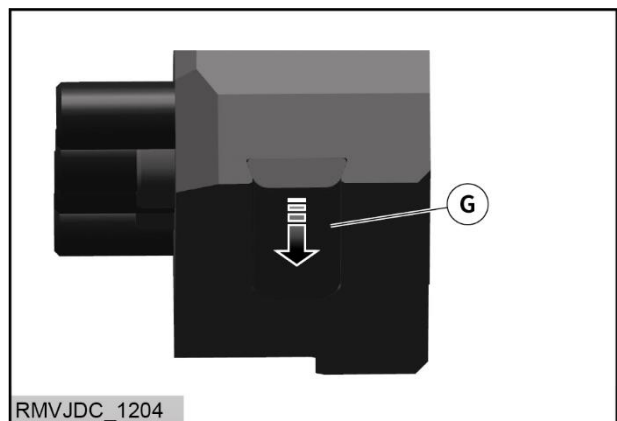
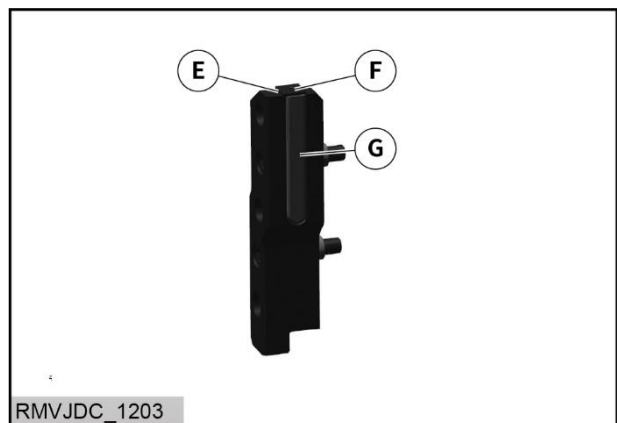
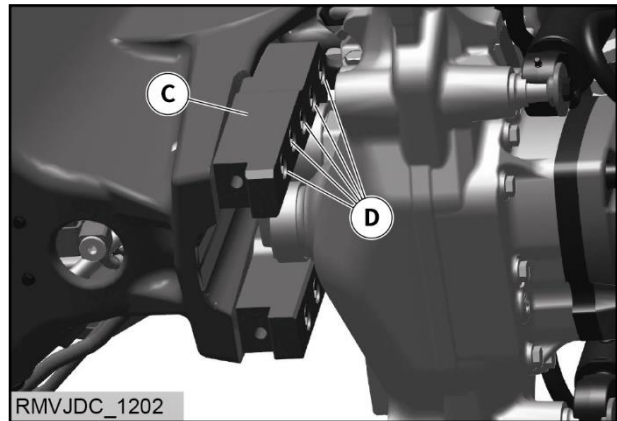
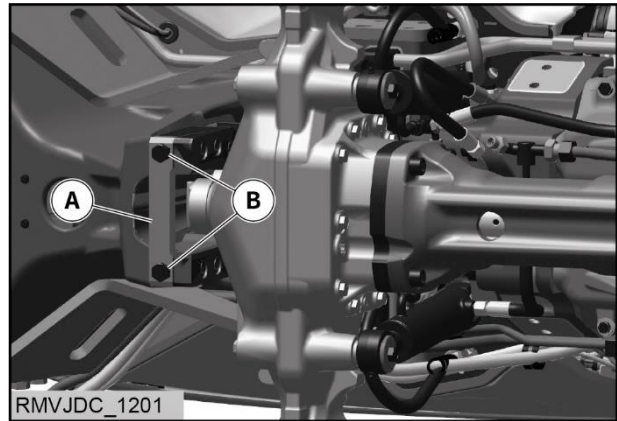
Specification

bolts (D)-Torque.....280 N·m

9. Disassemble the left-hand guide (C) by slipping off the center pins from the front support.
10. On a working bench, undo the upper fixing screw (F) to release the retaining bracket (E).
11. Disassemble the shock absorber (G) by slipping it upwards from the left-hand guide (C).
12. Perform the same procedure to remove the right-hand suspended front axle guide.
13. Carry out the removal steps in reverse order.

NOTE: Make sure that the shock absorber (10) is properly fitted and in line with the related inlet of the suspended front axle guide.

14. Perform operation test to make sure that the suspended front axle assembly is functioning properly.
15. Make sure that no error codes are triggered.



Refitting

1. Carry out the removal steps in reverse order.

NOTE: Make sure that the shock absorber (10) is properly fitted and in line with the related inlet of the suspended front axle guide.

2. Perform operation test to make sure that the suspended front axle assembly is functioning properly.
3. Make sure that no error codes are triggered.

Suspended Front-Wheel Drive Axle Leveling Valve (Hydraulic Control Unit)

Removal

1. Disconnect the Battery.
2. Remove the left fuel tank.
3. Remove the lower support bracket (A).

CAUTION: Trapping hazard. Loosen the decompression screws slowly.

4. Steadily loosen (by two turns) the decompression screws (B), to release the pressure from the suspension system.

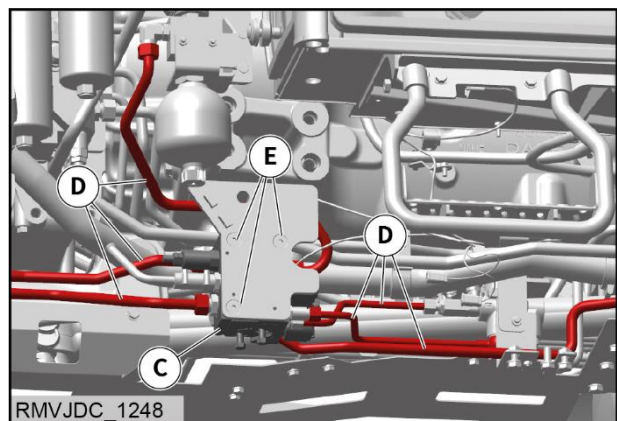
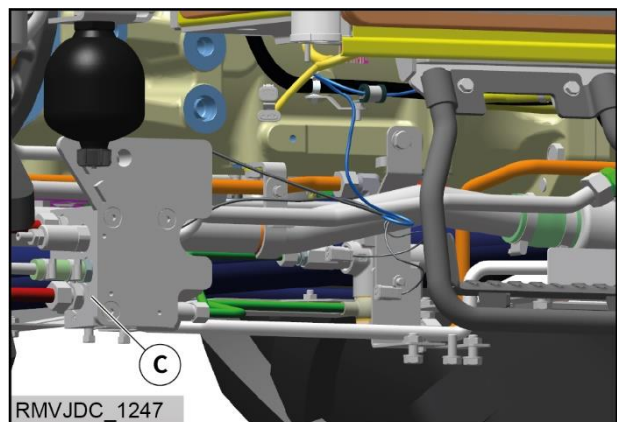
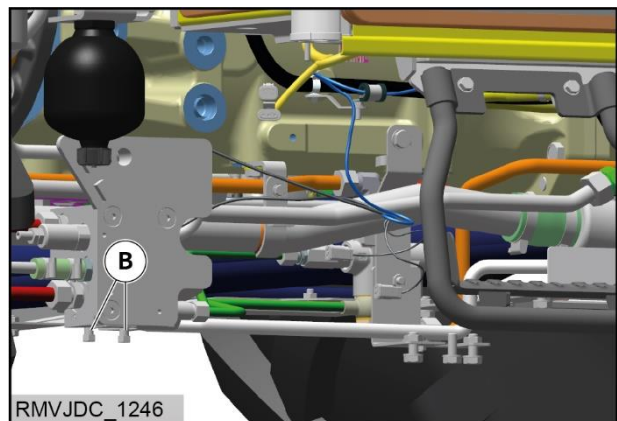
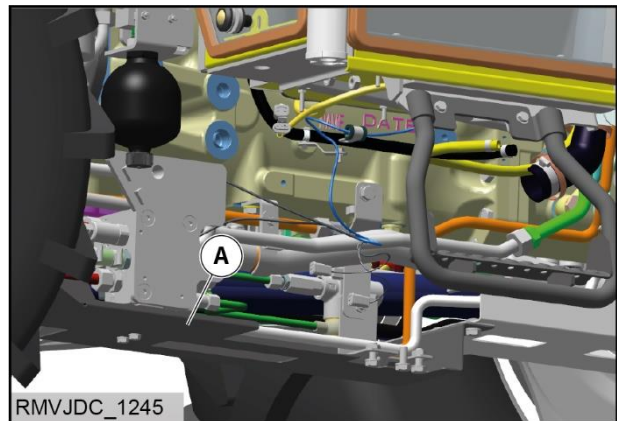
Specification

Screws - Torque.....9.5 N·m

5. Disconnect the raise and lower coils electrical connectors from the hydraulic suspension control unit (C).

NOTE: Mark each individual electrical connection.

6. Disconnect the hydraulic pipes (D) from the hydraulic suspension control unit (C).
7. Remove the bolts (E) and remove from the vehicle the hydraulic suspension control unit (C).



Refitting

1. Carry out the removal steps in reverse order.

NOTE: Make sure that the electrical and hydraulic connections are securely connected and properly fitted in place.

NOTE: Tighten to the recommended torque values using a torque wrench.

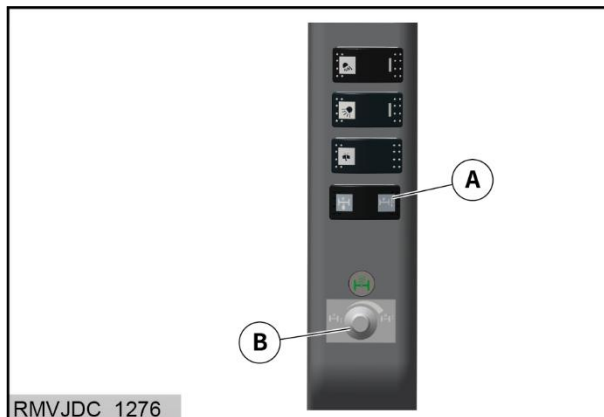
2. Install the left fuel tank.
3. Connect the battery.
4. Perform an automatic calibration procedure of the suspension assembly.
5. Perform leakage test to make sure that there are no leaks from the hydraulic connections.
6. Perform operation test to make sure that the suspended front axle assembly is functioning properly.
7. Make sure that no error codes are triggered.

Suspended Front-Wheel Drive Axle Lower Support Removal

Removal

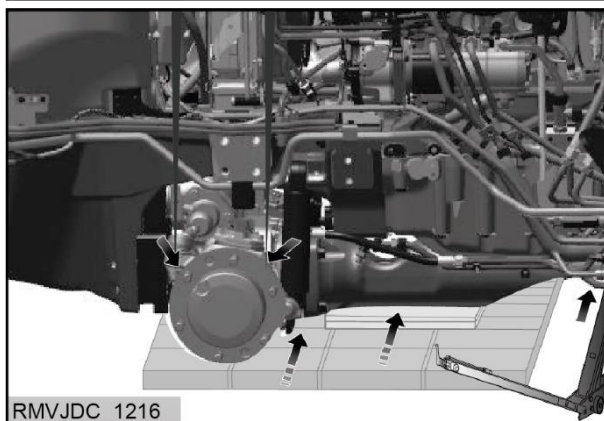
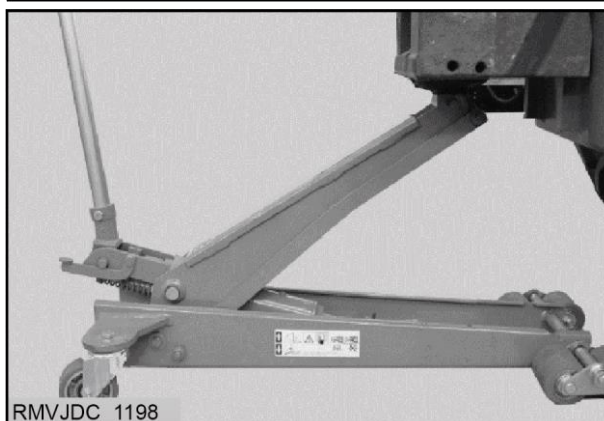
CAUTION: Handling heavy components or heavy objects. Death or serious injuries. To lift heavy components (wheels, weights, etc.), use suitable lifting tools. Use suitable protection devices.

1. Prior to access the service facility, raise the suspended front axle to the maximum height:
 - a. Turn the ignition key ON;
 - b. Move the vehicle with speed threshold major than 2 Km/h;
 - c. Press the activation switch (A) to activate the Manual mode of the suspension system;
 - d. Adjust the height of the suspension system by rotating the potentiometer knob (B) to the maximum height "MAX";
 - e. Switch the ignition key OFF.



NOTE: As alternative, attach a suitable hoist on the front lifting points respecting the safety measures provided and slightly raise the front part of the tractor.

2. Disconnect the Battery.
3. Position a suitable lifting device under the tractor front lifting points. Follow the instructions provided in the Operator's Manual.
4. Remove the front wheels and mudguards (if fitted).
5. Insert a suitable bench (80 x 120 mm) arranged with two appropriate wedges under the front axle beam.
6. Position a suitable lifting device under the ball joint of the lower front axle support and the rear bearing.
7. Use a suitable hoist-lifting tool to support the front axle assembly. Attach appropriate slings of the lifting device to the suspended front axle and the lower front axle support assembly, respecting the safety measures provided.
8. Remove the protective cover (if present) located underneath the hydraulic suspension control unit.

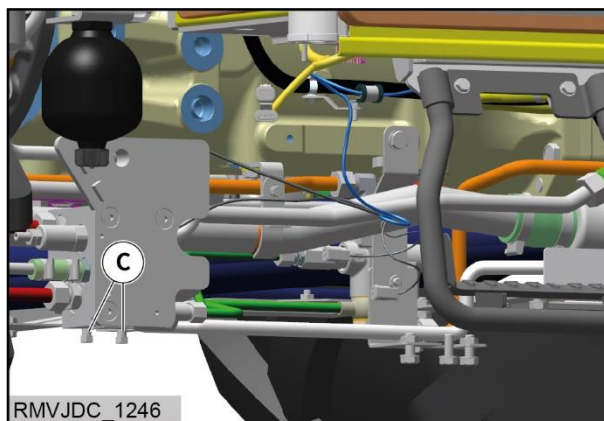


CAUTION: Trapping hazard. Loosen the decompression screws slowly.

9. Steadily loosen (by two turns) the decompression screws (C), to release the pressure from the suspension system.

Specification

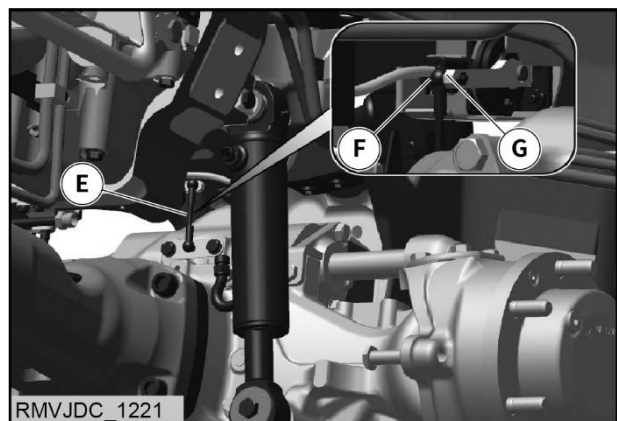
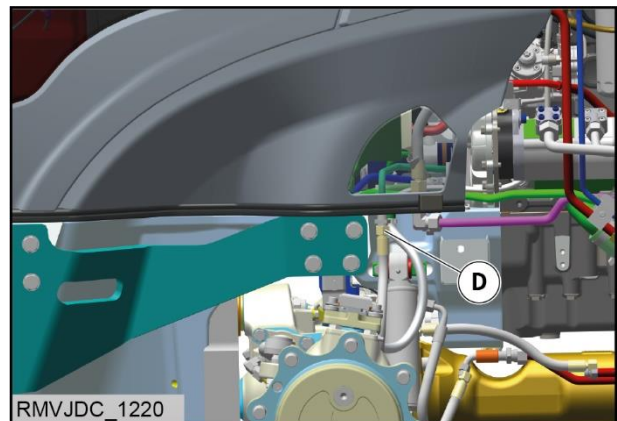
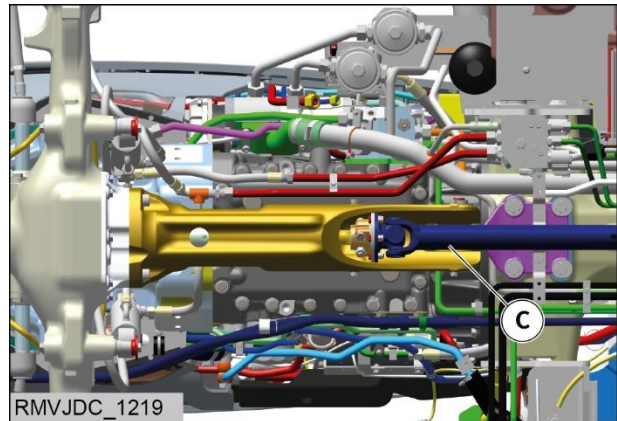
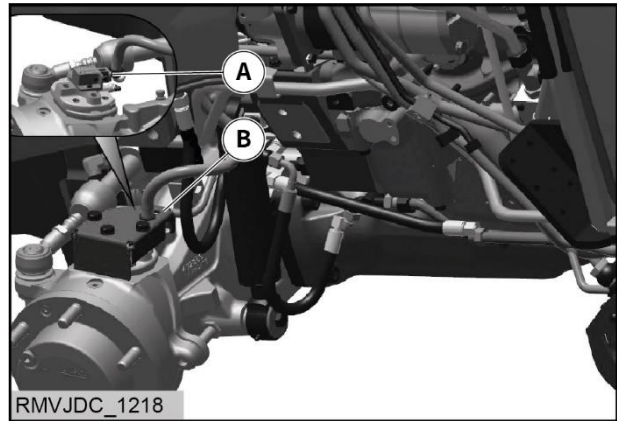
screws (C)-Torque.....9,5 N·m



10. Remove the Steering angle sensor cover (B) and disconnect the electrical connector (A) - if present.

NOTE: In case of replacement of the suspended front axle, remove the entire steering angle sensor assembly - if present.

11. Remove the Front axle transmission shaft (C).
12. Remove the nuts (D) and disconnect the steering system hoses - at both sides.
13. Remove the retaining ring (F) from the upper ball joint (G) to release the connecting tie rod (E) from the front support.



14. Remove the lower fixing screw (B) and related spacer (C) to disconnect the suspension ram (A) from the front axle (D) - at both sides.

Specification

screws (B)-torque.....110 N·m

Apply Superbond® 321 on screw (B).

NOTE: Make sure that the suspended front axle assembly is securely harnessed and according to the safety measures provided.

15. Remove the two fixing bolts (E) and remove the retaining bracket (F) from the suspended front axle guides.

Specification

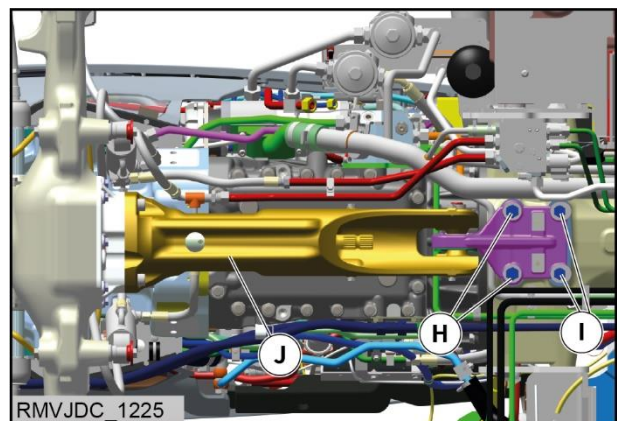
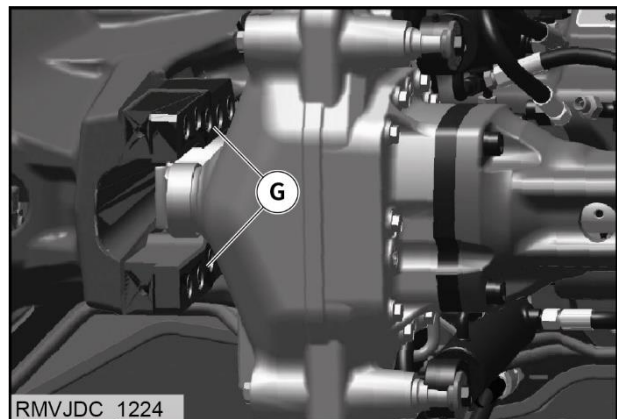
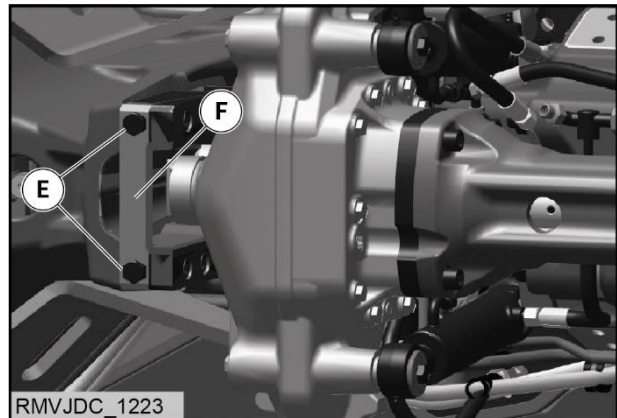
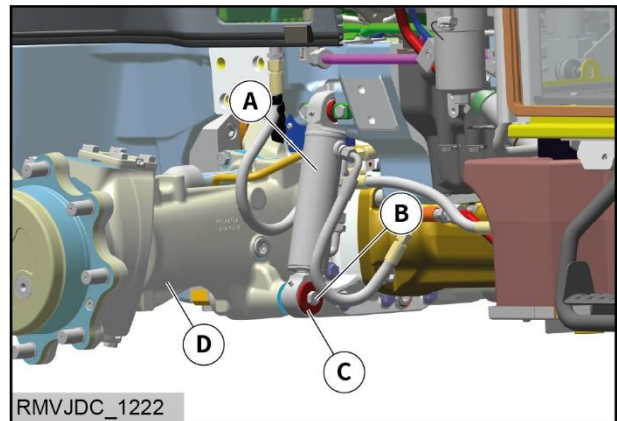
bolts (E)-Torque.....180 N·m

16. To facilitate the suspended front axle disassembly, it is recommended to remove also the suspended front axle guides (G).
17. Using a suitable hoist, carefully detach the suspended front axle (D), slightly letting the hoist slings downwards and lay the assembly on a suitable bench arranged with two wedges.
18. Remove carefully the four fixing bolts (H) and (I) to release the rear bearing of the lower support (J).

Specification

bolts (H)-Torque.....280 N·m

bolts (I)-Torque.....180 N·m



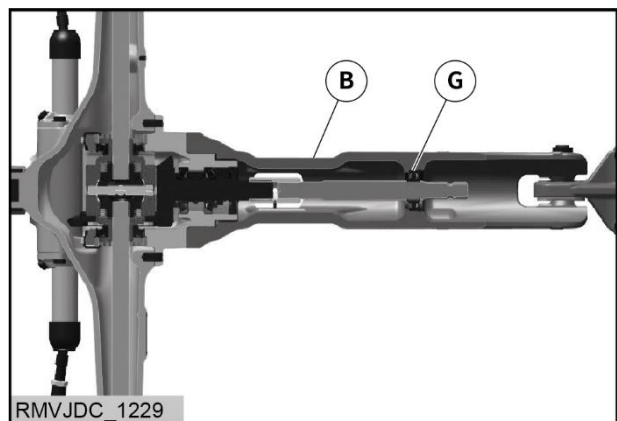
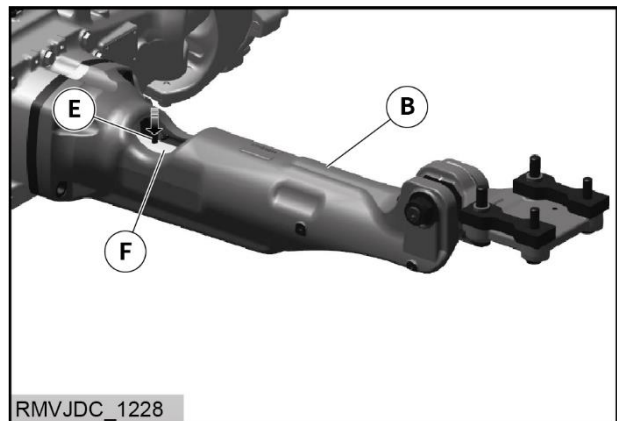
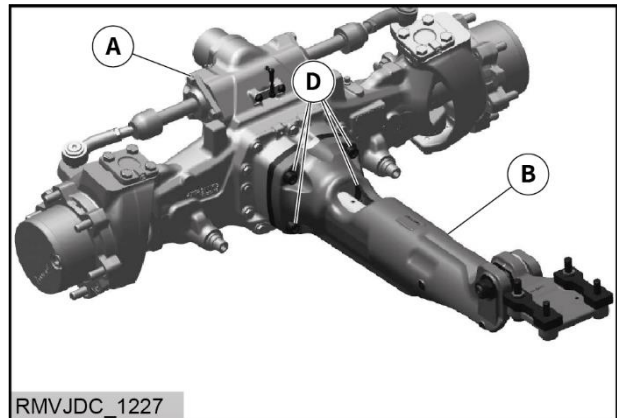
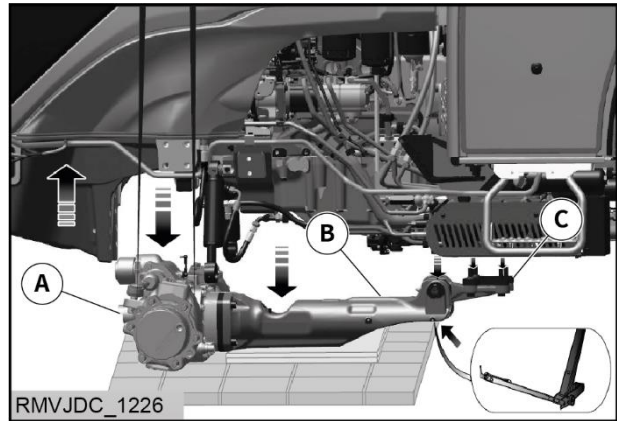
19. Make sure that the lifting device is properly positioned under the ball joint of the lower front axle support (B) and the rear bearing (C).
20. Carefully and slightly let down the lower front axle support (A) and rear bearing (C).
21. Remove the suspended front axle assembly and place it on a workbench.
22. Remove the four bolts (D) to release the lower support (B) from the suspended front axle (A).

Specification

bolts (D)-Torque.....280 N·m

NOTE: Make sure that the end-of-stroke pin (E) is properly positioned into the shaft manifold (F) of the lower support (B).

23. Disassemble the ball bearing (G) together with the related spacers and elastic rings from the lower support (B).

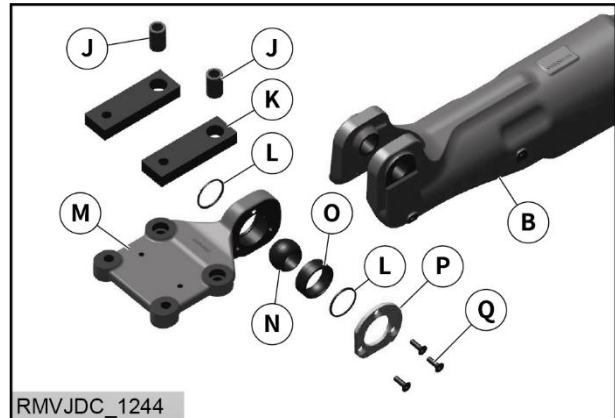
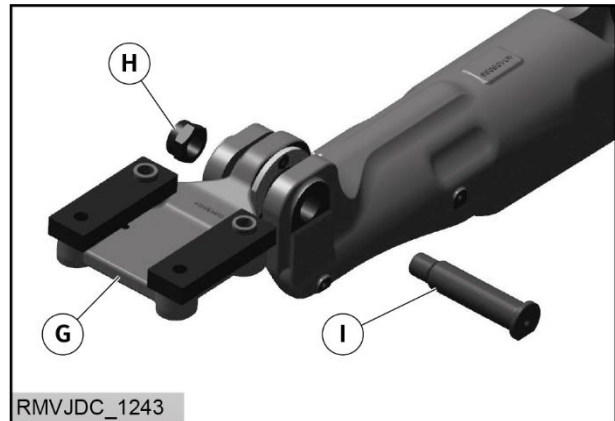
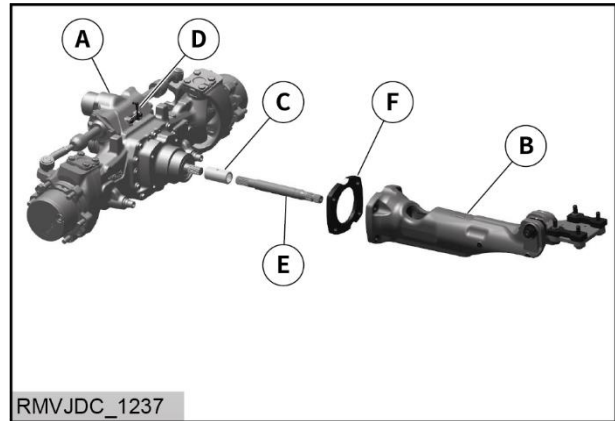


24. Separate carefully the lower support (B) from the suspended front axle (A).
25. Disassemble the manifold (C), the shaft (E) and the spacer beam (F) from the suspended front axle (A).
26. Remove the locknut (H) and remove the blocking pin (I) from the radial ball joint of the lower support bearing (G).

Specification

Locknut (H)-Torque.....650 N·m

27. Separate the rear bearing assembly (G) from the lower support (B).
28. Disassemble the centering bushings (J) from the two spacers (K) and the rear bearing (M).
29. Remove the three screws (Q) and disassemble the blocking bracket (P) from the rear bearing (M).
30. Disassemble the two retainer rings (L), the bearing (O) and the radial ball joint (N).



Refitting

IMPORTANT: Prior to perform the refitting procedure, check the proper distance of the connecting tie rod.

1. Carry out the removal steps in reverse order.
2. Connect the Battery.
3. Perform an automatic calibration procedure of the suspension assembly.

NOTE: Make sure that the electrical and hydraulic connections are securely connected and properly fitted in place.

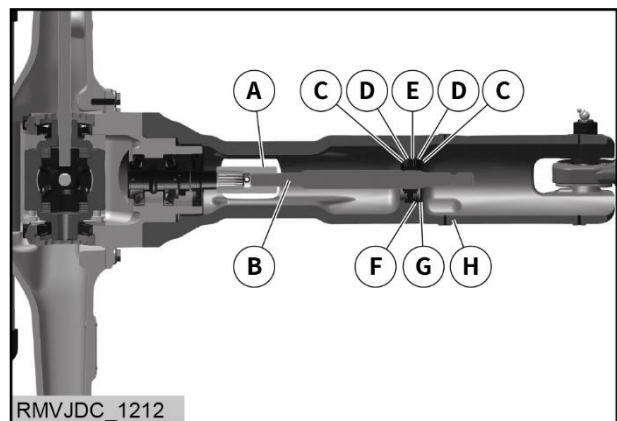
NOTE: Tighten to the recommended torque values using a torque wrench.

4. Perform operation test and make sure that there are no leaks from the hydraulic connections and that the suspended front axle assembly is functioning properly.
5. Make sure that no error codes are triggered.

Suspended Front-Wheel Drive Axle Lower Support Bearing

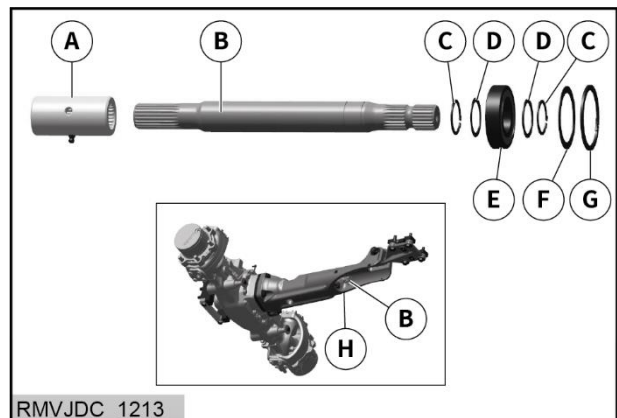
Components

- | | | |
|---|-------------------------------------|---|
| A | Shaft manifold with elastic pin. | 1 |
| B | Lower support shaft (4WD extension) | 1 |
| C | Elastic retaining ring (35x1.5) | 2 |
| D | Spacer washer (35x45x1) | 2 |
| E | Radial sphere bearing | 1 |
| F | Spacer washer (65x72x1) | 1 |
| G | Elastic retaining ring (72x2.5) | 1 |
| H | Suspension system lower support | 1 |



Removal

1. Remove the suspended front axle transmission shaft.
2. Remove the lower support bearing by disassembling the parts (C-G) from the lower support shaft (B).



Refitting

1. Carry out the removal and disassembling procedure in reverse order.
2. Perform an automatic calibration procedure of the suspension assembly.
3. Perform operational test and make sure that the suspended front axle assembly is functioning properly.
4. Make sure that no error codes are triggered.

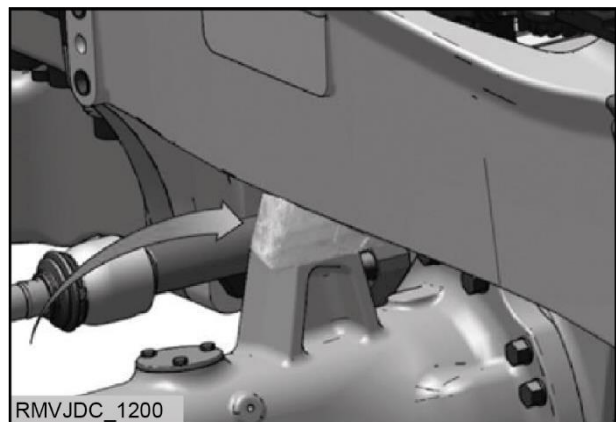
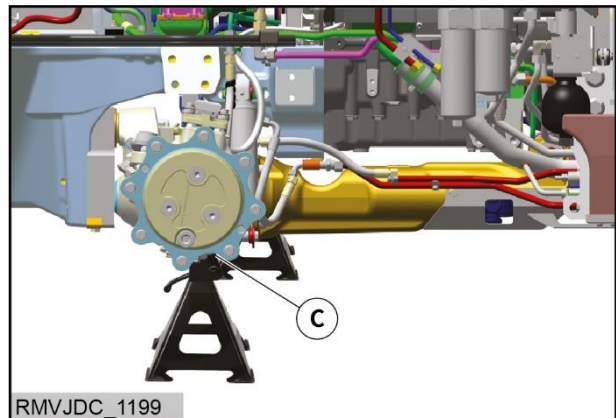
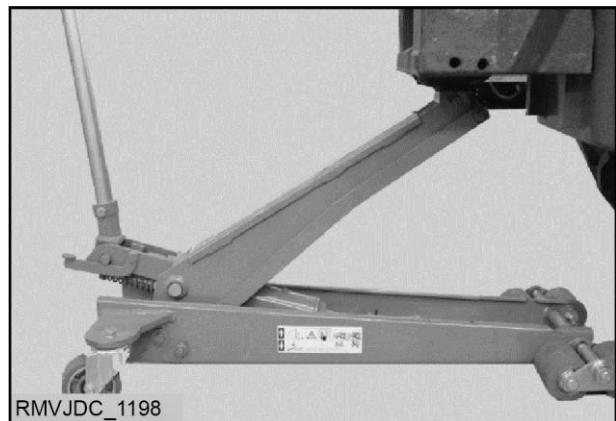
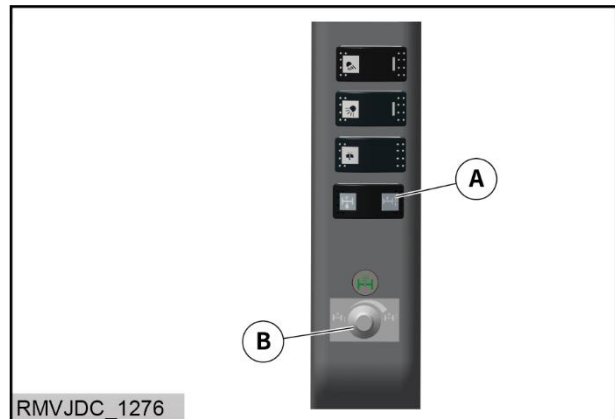
Suspended Front-Wheel Drive Axle Position Sensor

Removal

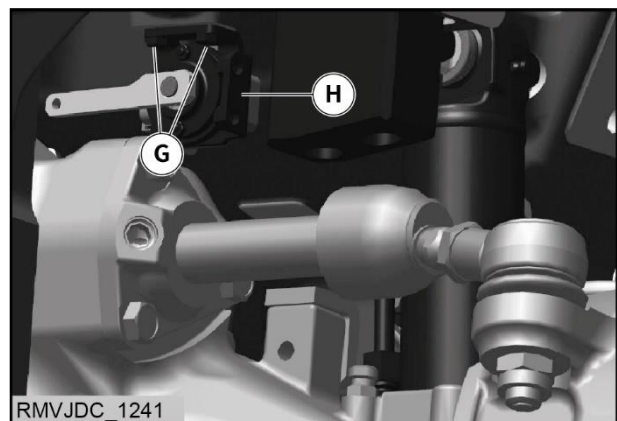
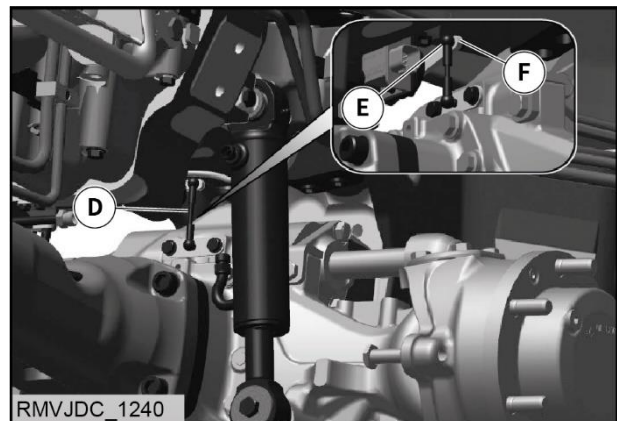
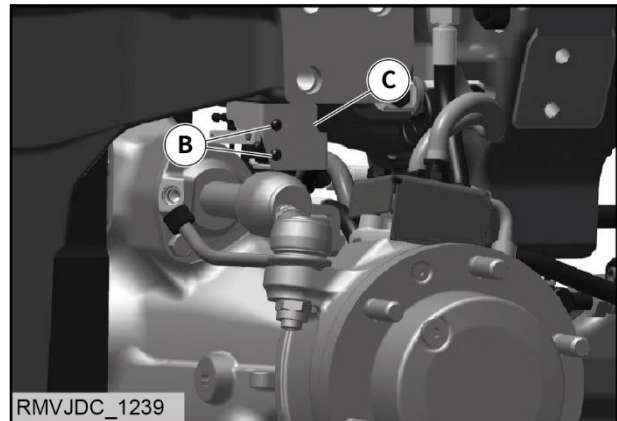
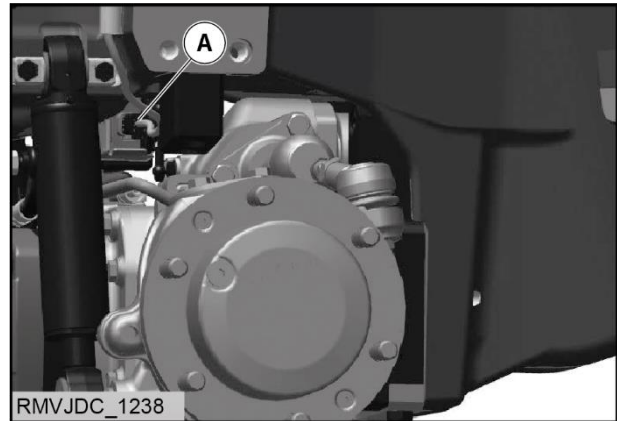
1. Prior to access the service facility, raise the suspended front axle to the maximum height:
 - a. Turn the ignition key ON;
 - b. Move the vehicle with speed threshold major than 2 Km/h;
 - c. Press the activation switch (A) to activate the Manual mode of the suspension system;
 - d. Adjust the height of the suspension system by rotating the potentiometer knob (B) to the maximum height "MAX";
 - e. Switch the ignition key OFF.

NOTE: As alternative, attach a suitable hoist on the front lifting points respecting the safety measures provided and slightly raise the front part of the tractor.

2. Disconnect the negative battery terminal.
3. Place a suitable lifting device under the front lifting points and raise the front side of the tractor. For the specific lifting points, follow the instructions provided in the Operator's Manual.
4. Remove the front wheels and mudguards - if fitted.
5. Using the lifting device, regulate the front support to allow sufficient space to access the suspension position sensor assembly; then position an additional suitable axle stand under the front lifting points to immobilize securely the tractor.
6. Position suitable axle stands under the lifting points of the suspended front axle (C) to immobilize it securely (one on each side).
7. Place suitable chocks at both sides to immobilize the front axle preventing any swinging.

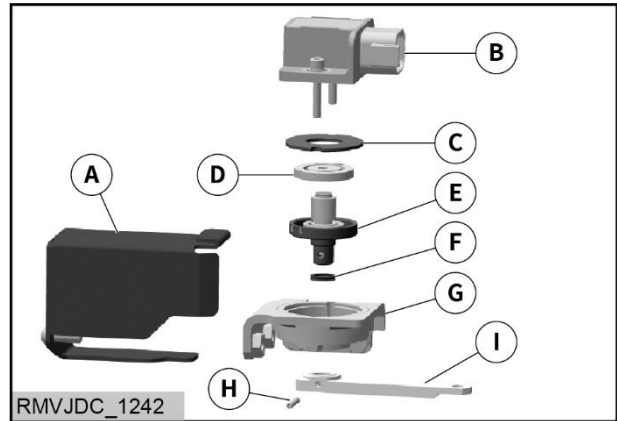


8. Disconnect the electrical connection (A) from the suspension position sensor.
9. Remove the two bolts (B) and remove the bracket (C) to access the suspension position sensor.
10. Remove the retaining ring (E) from the upper ball joint (F) to disassemble the connecting tie rod (D) from the lever of the suspension position sensor.
11. Remove the fixing screws (G) to release the bracket from the front support.
12. Remove the B998' suspension position sensor assembly (H).



13. For the dual hall sensor disassembling, refer to the exploded view of the suspension position sensor.

NOTE: During the assembly, make sure that the shape of the mating surface of the sensor shaft (B) is in line and properly matched with the grommet with metal centering insert (D).



- A. Sensor Protection Bracket
- B. Suspension Position Sensor (Dual Redundant Rotary Hall Sensor)
- C. Centering Bushing
- D. Grommet with Metal Centering Insert
- E. Sensor Shaft
- F. Sphere Bearing
- G. Support Bracket with Grommet
- H. Fixing Pin Suspension Position Sensor Lever

Refitting

1. Check the proper length distance of the connecting tie rod.
2. Carry out the removal steps in reverse order.

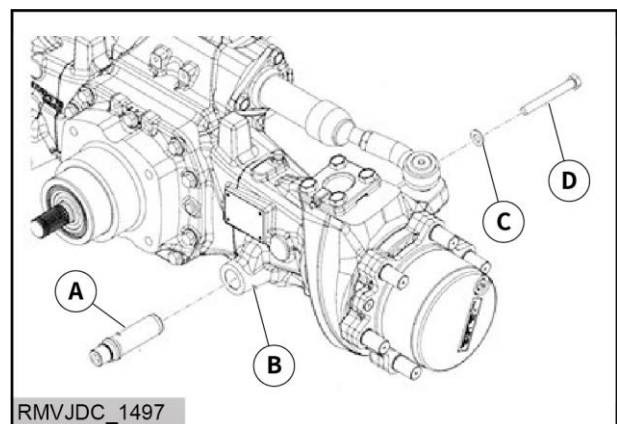
NOTE: Make sure that the electrical connector is securely connected and properly fitted in place.

3. Connect the Battery.
4. Perform an automatic calibration procedure of the suspension assembly.
5. Perform operation test to make sure that the suspended front axle assembly is functioning properly.

Suspended Front-Wheel Drive Axle Steering Cylinder Pin

Removal

1. Remove the bolt (D) with relative washer (C).
2. Extract the pin (A) from the axle (B).



Refitting

1. Assemble the pin (A) to the axle (B) and settle it by means of a plastic mallet.
2. Assemble the bolt (D) with relative washer (C) and tighten the bolt to the prescribed torque.

Specification

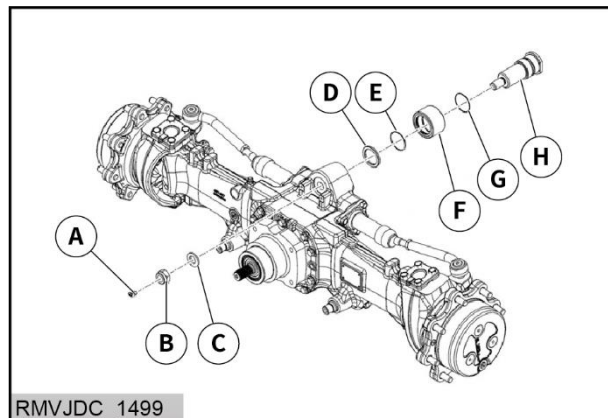
Bolt (D) - Torque.....70 N·m

Suspended Front-Wheel Drive Axle Suspension System

Removal

1. Remove the greaser (A).
2. Remove the nut (B) and collect the washer (C).
3. Extract the support pin (H) from the axle.
4. Remove the thrust washer (D) and sleeve (F) from the support pin.
5. Remove the O-rings (E) and (G) from the sleeve (F).

NOTE: Destructive operation for the O-Rings, the O-Rings must be replaced.



- RMVJDC_1499
- A. Greaser
 - B. Nut
 - C. Washer
 - D. Washer
 - E. O-Ring
 - F. Sleeve
 - G. O-Ring
 - H. Support Pin

Refitting

1. Lubricate and assembly the new O-rings (E) and (G) to the sleeve (F).
2. Assemble the sleeve (F) and thrust washer (D) on the support pin (H).

NOTE: Before matching surfaces, make sure that they are perfectly clean, then degrease and clean them with appropriate detergents.

3. Assemble the support pin (D) to the axle.
4. Assemble the washer (C) and nut (B) to the support pin and tighten the nut to the prescribed torque.

Specification

Nut (B) - Torque.....600 N·m

5. Assemble the greaser (A) to the support pin (H) and tighten to the prescribed torque.

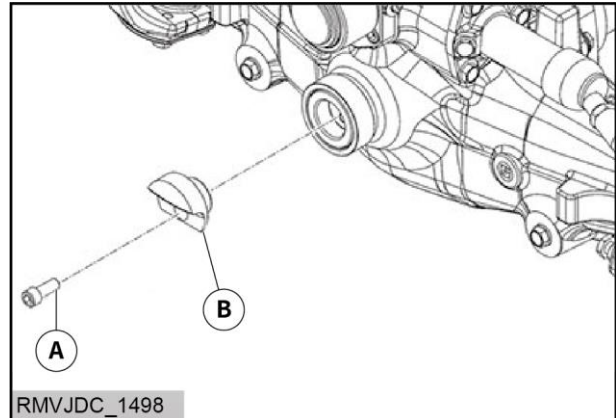
Specification

Greaser (A) - Torque.....10 N·m

Suspended Front-Wheel Drive Axle Vertical Lever Stop

Removal

1. Remove the bolt (A) then extract the lever stop (B) from the axle.



Refitting

6. Assemble the lever stop (B) to the axle and settle it by means of a plastic mallet.

NOTE: Make sure that the lever stop is inserted to the end of relative seat.

7. Assemble the bolt (A) and tighten to the prescribed torque.

Specification

Bolt (A) - Torque.....120 N·m

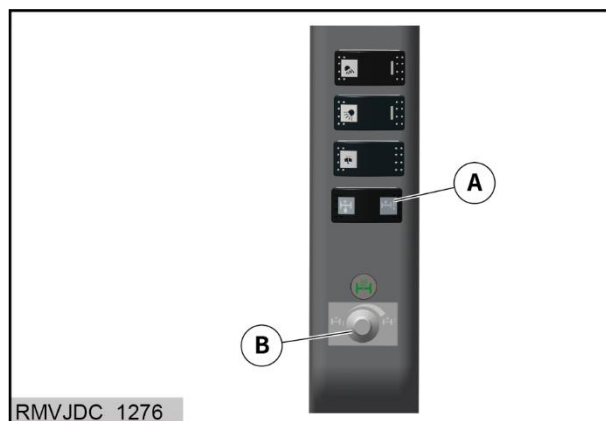
Suspended Front-Wheel Drive Axle Position Sensor - Connecting Tie Rod Adjustment

CAUTION: Handling heavy components or heavy objects. Death or serious injuries. To lift heavy components (wheels, weights, etc.), use suitable lifting tools. Use suitable protection devices.

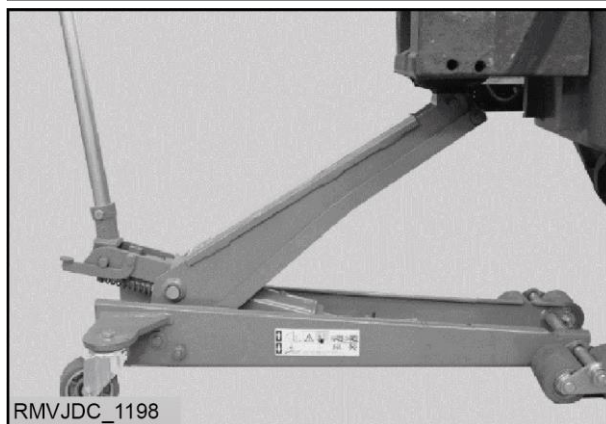
1. Prior to access the service facility, raise the suspended front axle to the maximum height.
 - Turn the ignition key ON;
 - Move the vehicle with speed threshold major than 2 Km/h;
 - Press the activation switch (A) to activate the Manual mode of the suspension system.
 - Adjust the height of the suspension system by rotating the potentiometer knob (B) to the maximum height "MAX".
 - Switch the ignition key OFF.

NOTE: As alternative, attach a suitable hoist on the front lifting points respecting the safety measures provided and slightly raise the front part of the tractor.

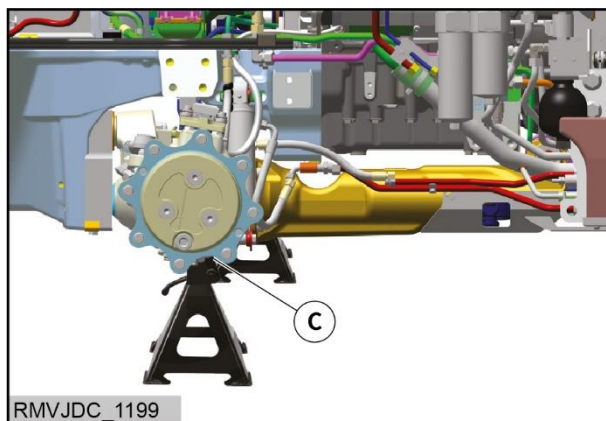
2. Place a suitable lifting device under the front lifting points and raise the front side of the tractor. For the specific lifting points, follow the instructions provided in the Operator's Manual.
3. Remove the right front wheel and mudguard - if fitted.
4. Using the lifting device, regulate the front support to allow sufficient space to access the suspended front axle guides.
5. Position suitable axle stands under the lifting points of the suspended front axle (C) to immobilize it securely (one on each side).
6. Place suitable chocks at both sides to immobilize the front axle preventing any swinging.



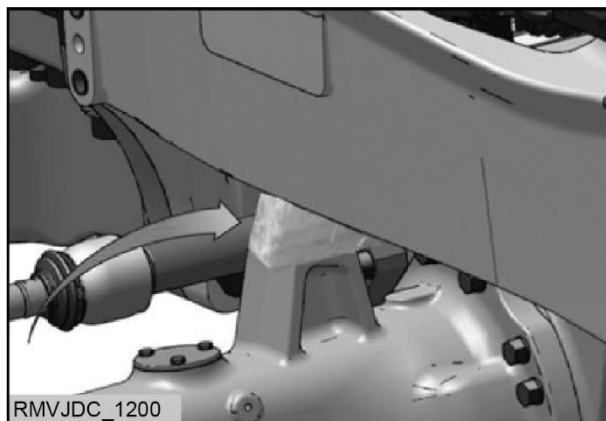
RMVJDC_1276



RMVJDC_1198



RMVJDC_1199



RMVJDC_1200

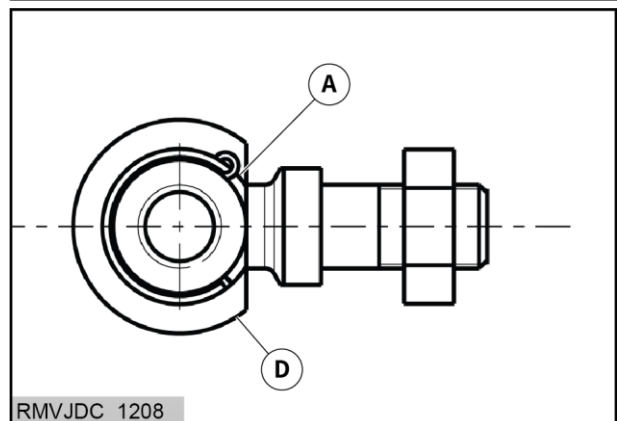
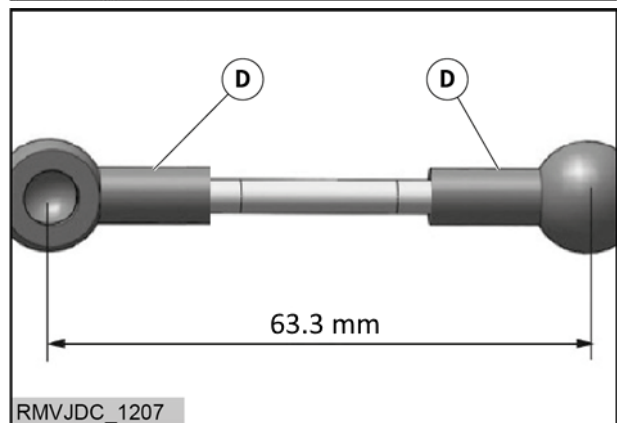
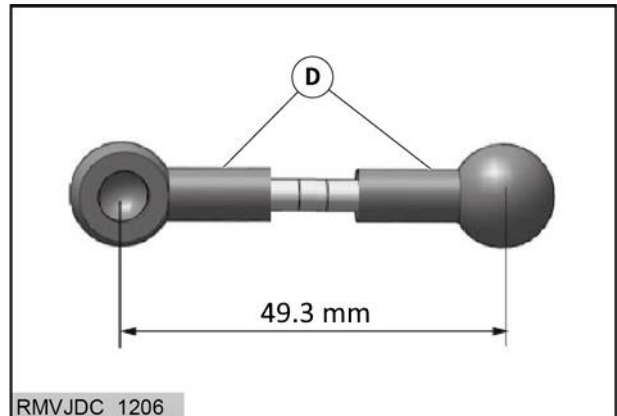
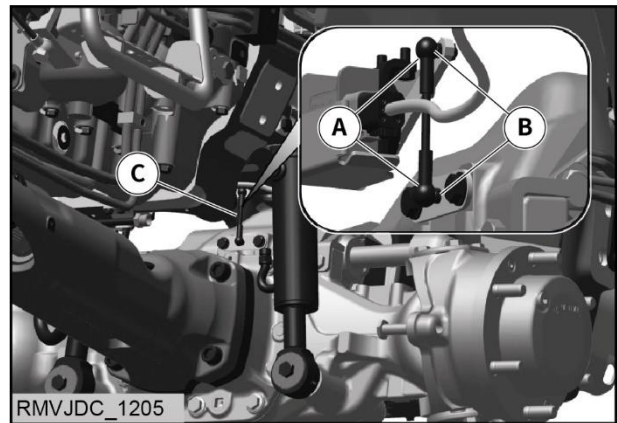
7. Remove the retaining rings (A) from the upper and lower ball joints (B) to release the connecting tie rod (C) from the front support and suspension axle.
8. Check or adjust the length value of the connection tie rod by screwing or unscrewing the ball joints on the threaded rod. The value measured between the central axes of the two ball-joints has to be:
 - 49.3 mm (F model).
 - 63.3 mm (V and VL model).

NOTE: Make sure that the ball joints are in line and properly oriented in order to be correctly assembled with the counter-nuts on the lever of the position sensor and the fixing bracket.

9. Refit the tie rod assembly by carrying out the removal steps in reverse order.

NOTE: Inspect the retaining rings to make sure that are intact, if necessary replace them with new ones using original parts. Make sure that the retaining rings (A) are properly and securely assembled to the respective ball joints (D).

10. Perform an automatic calibration procedure of the suspension assembly.
11. Perform operation test and make sure the suspended front axle assembly is functioning properly.
12. Make sure that no error codes are triggered.



Refitting

Suspended Front-Wheel Drive Axle Calibration

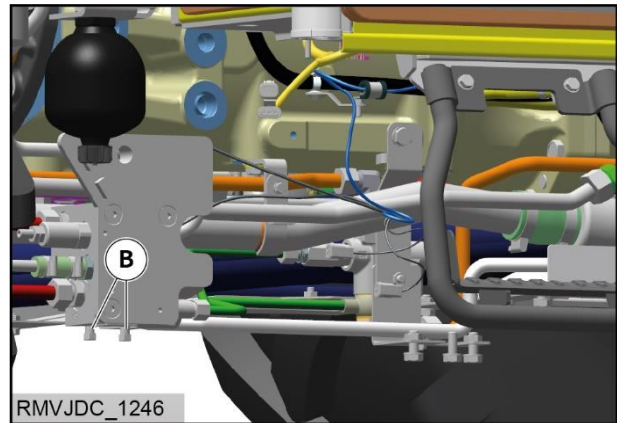
WARNING: Before operating on the suspension system, make sure the surrounding area is clear of all bystanders.

The calibration of the front axle suspension system is required after each replacement of a hydraulic component of the suspension system or after replacement of the suspended axle position sensor.

IMPORTANT: The calibration procedure has to be performed only by a specialized service technician and authorized service center.

IMPORTANT: The calibration has to be performed every time the hydraulic circuit is discharged through the decompression screws (B) on the hydraulic suspension control unit.

NOTE: The layout and the position of some suspension system components can differ according to the specific model configuration.

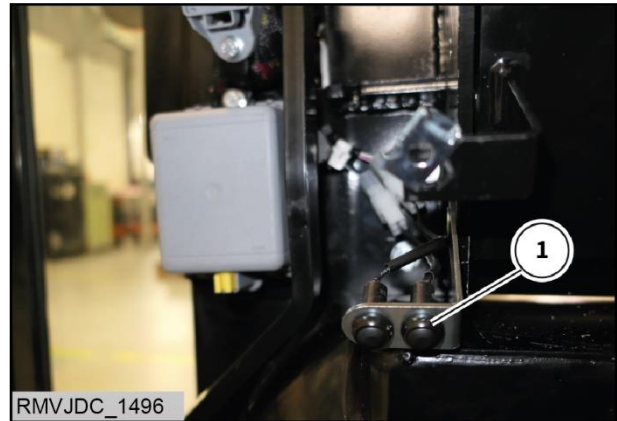


Prior to carry out the calibration procedure:

- Place the tractor on a flat, horizontal and sufficiently firm surface, apply the park brake;
- Make sure that the area surrounding the suspension system is clear of all bystanders;
- Make sure that the front axle is free to move along the entire route of the suspension system until the highest and the lowest end of stroke of the suspension ram pistons.

Suspension system calibration button

The calibration button (1) is located under the instrument panel on the right side of the console near the brake pedals.



Suspension system calibration procedure

NOTE: If the tractor moves during the procedure, the calibration operation is interrupted.

With the tractor parked, start the engine and within the first 30 seconds, press the calibration button (1) and hold it down for at least 3 seconds.

At this point starts the automatic calibration procedure of the suspended system: the suspended front axle performs a series of movements along the entire useful route up to the highest and the lowest end of stroke of the suspension rams.

At the end of calibration, the suspended front axle moves to the central position.

Vertical exhaust pipe

Before starting the procedure

CAUTION: Before starting work, make sure that the exhaust pipe is completely cool.

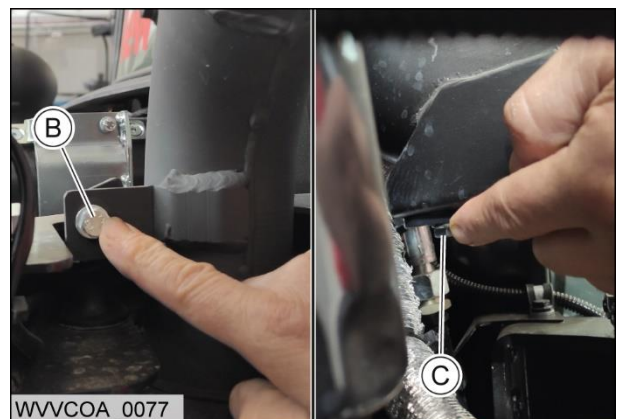
Removal

1. Remove screw (A).

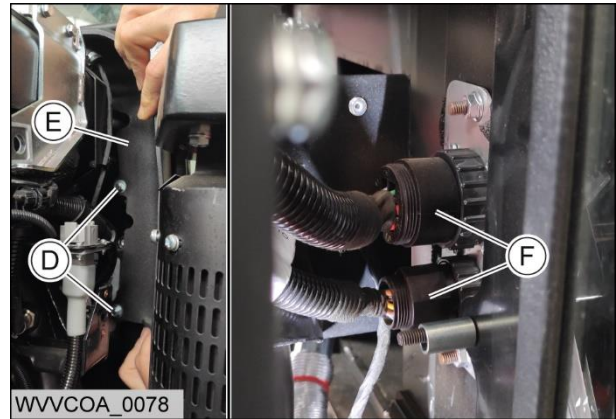


2. Remove screw (B).

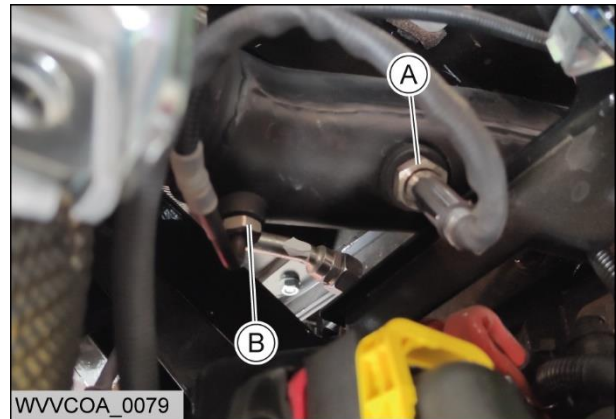
3. Remove screw (C).



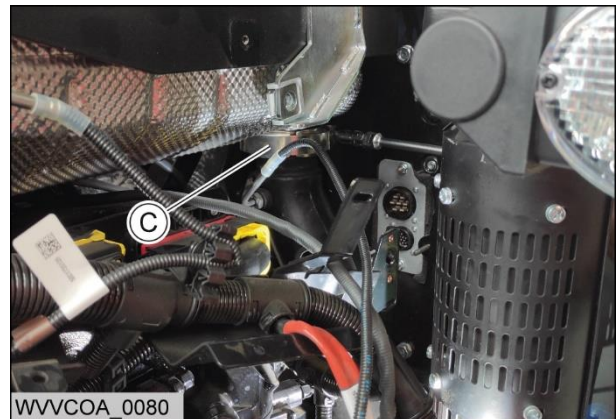
4. Remove the screws (D) and remove the rubber protection (E).
5. Disconnect the connectors (F).



6. Unscrew and detach:
 - a. NOx output sensor (A) Only for models over 75Hp
 - b. SCR outlet temperature (B) Only for models over 75Hp



7. Release the clamp (C).



8. Move the vertical exhaust pipe (D) down and remove it.

CAUTION: Do not attempt to repair and/or mechanically adjust the exhaust pipe components. If removing the exhaust pipe due to a break, replace it with a new one. When replacing mount only original spare parts.



Refitting

1. Carry out the removal procedure in reverse order.
2. Tighten all fixings to the respective tightening torques.

NOTE: Ensure that the clamp and all the fixings are securely connected and properly fitted in place.

3. Start the engine.
4. Check the tightness of the exhaust system.

Recommended lubricants and additives

The below chart shows the features of lubricants and fluids recommended for the various tractor components.

IMPORTANT: When topping up, do not change the category of oil or fluid.

Cab models

No.	DESCRIPTION	MODEL	CAPACITY	FLUID FEATURES
1	ENGINE OIL	8.5 (<55kW)	8.0L (7.20 kg) + 0.5L (0.45 kg)	SAE 10W-40 API CJ-4* (recommended) SAE 5W-30 API CJ-4* (allowed) SAE 0W-20 API CK-4 (cold climates).
		9.5 - 10.5 (>55kW)		SAE 5W-30 API CJ-4* (recommended) SAE 0W-20 API CK-4 (cold climates).
2	TRANSMISSION OIL / LIFTER	24+24 24+12	41L ÷ 45L	POWER LIFE LUB UNIVERSAL 80W ***
3	COOLING CIRCUIT		11L	SAE J1034 ETHYLENE GLYCOL TYPE 50% MIXTURE WITH WATER (IF CONCENTRATE)
4	FUEL TANKS	See tank capacities table	See tank capacities table	Use STANDARD fuel compliant to standards ASTM D975 or EN 590. The use of additive is not recommended. The fuel known as BIODIESEL is permitted only if compliant to standards EN 14214 - ASTM D6751, mixed with standard fuel in a maximum percentage of 7% (EN 14214) or 5% (standard ASTM D6751). The fuel can be accepted with the following restrictions: sulphur in fuel < 15 ppm.
5	ADBLUE® TANK	9.5 / 10.5 models only	10L	Only top up with permitted urea solutions in accordance with ISO 22241 / DIN 70 070. Top up only with pure urea solution. Mixtures are not permitted
6	FRONT AXLE FINAL DRIVES	VL	0.4 +/-0.1L **	POWER LIFE LUB UNIVERSAL 80W ***
		V - F - FL	0.6L +/-15% **	
	FRONT AXLE DIFFERENTIAL HOUSING	V	4L +/-10%	
		VL	3 +/-0.3L	
		F	3.5 +/-0.3L	
		FL	4.4L +/-10%	
7	BRAKE CIRCUIT	All versions	0,5L	ATF DEXRON II-D
8	FRONT PTO	for all versions with front PTO	0.75L	POWER LIFE LUB UNIVERSAL 80W ***
9	CAB REFRIGERANT CIRCUIT	All versions	800 g	R 134 A
10	AIR CONDITIONING COMPRESSOR	All versions	135 cc	SP-20

NOTE: Choose viscosity based on expected ambient temperature.

NOTE: Select oil viscosity grade according to foreseen ambient temperature.

* or ACEA E9 or API CK-4

** for each final drive

*** specifications to be satisfied: SAE 10W-30 / API GL-4

Roll bar models

No.	DESCRIPTION	MODEL	CAPACITY	FLUID FEATURES
1	ENGINE OIL	8.5 (<55kW)	8.0L (7.20 kg) + 0.5L (0.45 kg)	SAE 10W-40 API CJ-4* (recommended) SAE 5W-30 API CJ-4* (allowed) SAE 0W-20 API CK-4 (cold climates).
		9.5 - 10.5 (>55kW)		SAE 5W-30 API CJ-4* (recommended) SAE 0W-20 API CK-4 (cold climates).
2	TRANSMISSION OIL / LIFTER	24+24 24+12	41L ÷ 45L	POWER LIFE LUB UNIVERSAL 80W ***

3	COOLING CIRCUIT		10L	SAE J1034 ETHYLENE GLYCOL TYPE 50% MIXTURE WITH WATER (IF CONCENTRATE)
4	FUEL TANK	See tank capacities table	See tank capacities table	Use STANDARD fuel compliant to standards ASTM D975 or EN 590. The use of additive is not recommended. The fuel known as BIODIESEL is permitted only if compliant to standards EN 14214 - ASTM D6751, mixed with standard fuel in a maximum percentage of 7% (EN 14214) or 5% (standard ASTM D6751). The fuel can be accepted with the following restrictions: sulphur in fuel < 15 ppm.
5	ADBLUE® TANK	9.5 / 10.5 models only	10L	Only top up with permitted urea solutions in accordance with ISO 22241 / DIN 70 070. Top up only with pure urea solution. Mixtures are not permitted
NOTE: Choose viscosity based on expected ambient temperature. NOTE: Select oil viscosity grade according to foreseen ambient temperature. * or ACEA E9 or API CK-4 ** for each final drive *** specifications to be satisfied: SAE 10W-30 / API GL-4				