

CTL Forwarder

PIN: 1WJ1110G__L004668-

PIN: 1WJ1210G__L002767-

PIN: 1WJ1510G__L004721-

OPERATOR'S INSTRUCTIONS

John Deere 1110G / 1210G / 1510G

Final Tier 4

Fixed Cabin, Gen II

F723212 (05/2023) ENGLISH

**Worldwide Construction
And Forestry Division**

Published in Finland

Original Instructions

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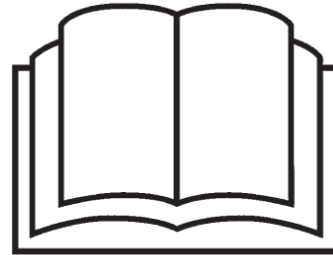
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FOREWORD

These instructions describes the operation of your machine and provides you with information about the machine's design and function, which is necessary in order to use and look after the machine in the proper manner.

The information contained in these instructions will assist the operator to operate the machine in a safe and efficient manner. Make sure these instructions are always close at hand and available to all who work on the machine.

Should these instructions be lost or should those deteriorate to an unintelligible state, contact John Deere or your nearest John Deere dealer for a replacement. If you sell the machine, be sure to give these instructions to the new owners.

Continuing product improvement made by John Deere may result in changes to the machines which are not covered in these instructions. Should you need up-to-date information about your machine or should you have questions in regards to these instructions, please contact John Deere or your John Deere dealer.

Only persons whose training has been approved by John Deere are permitted to operate John Deere machinery. Furthermore, the operator must have studied and understood the instructions.

Improper operation and maintenance of this machine can be hazardous and could result in serious injury or death. Therefore, it is of paramount importance that all the instructions given in these instructions and during training be followed when the machine is operated or serviced.

CALIFORNIA PROPOSITION 65 WARNING

Diesel engine exhaust, some of its constituents, along with certain machine components contain or emit chemicals known to the State of California to cause cancer and birth defects or other reproductive harm. In addition, certain fluids contained in the machine and certain products of component wear contain or emit chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

UNDERSTAND SIGNAL WORDS

DANGER; The signal word DANGER indicates a hazardous situation which, if not avoided, will result in death or serious injury.

WARNING; The signal word WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION: The signal word CAUTION indicates a hazardous situation which, if not avoided, could result in minor or moderate injury. CAUTION may also be used to alert against unsafe practices associated with events which could lead to personal injury.

A signal word—DANGER, WARNING, or CAUTION—is used with the safety-alert symbol. DANGER identifies the most serious hazards.

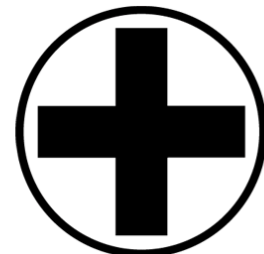
DANGER or WARNING safety signs are located near specific hazards. General precautions are listed on CAUTION safety signs. CAUTION also calls attention to safety messages in this manual.



PREPARE FOR EMERGENCIES

Keep a first aid kit in an easily accessible location on the machine at all times. Check the first aid kit regularly and make sure you immediately replace all items you have used.

Learn to use first aid equipment and fire extinguishers. Keep emergency numbers always available or save those to your portable phone.



SECONDARY EXIT

There is a secondary exit through the right hand side front window. The secondary exit must always be closed during normal operation.

IMPORTANT: Release the locking pin (1) always when operating the machine and put the locking pin back at the end of the work day.

In case of emergency the secondary exit can be opened from outside and inside.

Opening from inside:

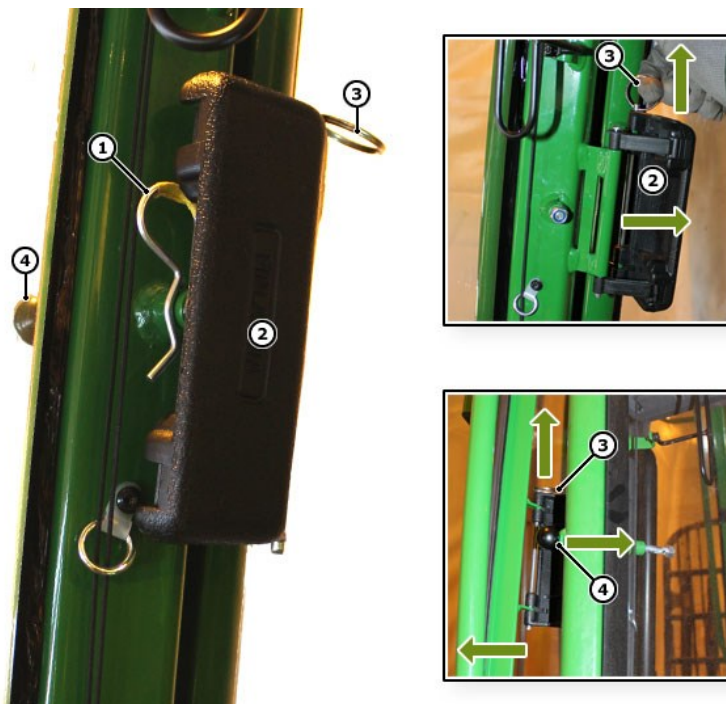
Pull the opening handle (2), pull up the release pin (3) and open the secondary exit by pushing the window. If needed, remove the window by lifting it from the hinges.

Opening from outside:

Push in the outside releasing button (4), pull up the release pin (3) and open the exit by pulling the window. If needed, remove the window by lifting it from the hinges.

Close the secondary exit by replacing the release pin (3) and by pushing the handle (2).

NOTE: The optional central locking system does not affect to the secondary exit. Always at the end of the work day lock the secondary exit by replacing the locking pin (1).



FORWARDER CABIN NOISE

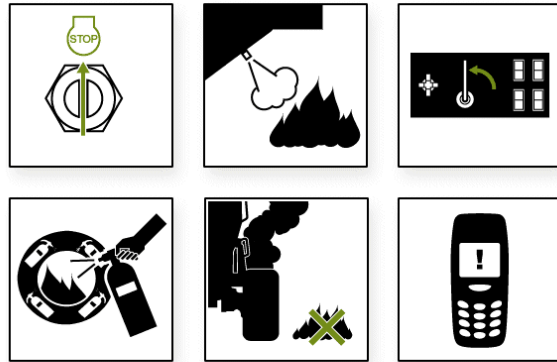
Measured in accordance with Annex D to the ISO 5131 standard:

- Dry asphalt
- No chains or tracks installed
- Empty load space
- Accessories switched off (wipers, AC)
- Ambient temperature -5°C to $+30^{\circ}\text{C}$
- Wind speed < 5 m/s

WHAT TO DO IF THE MACHINE CATCHES FIRE?

- Turn the engine off.
- Turn the master disconnect switch off.
- If possible, fight the fire using the portable fire extinguisher or other fire suppression equipment.
- Ensure that the fire does not spread to the surrounding area.
- Call for help if necessary.

Hand-held fire extinguishers can be used through the apertures that are bordered with the extinguisher decals.



HAND-HELD FIRE EXTINGUISHER

The machine is equipped with a hand-held fire extinguisher located inside the cabin next to the cabin door (1). An optional extra extinguisher is located in a compartment in front of the cabin (2) or on the rear frame on the left side of the boom base (4).

The hand-held extinguishers are intended for minor fires and for final extinguishing after the sprinkler system has been triggered.

The fire extinguishers must be checked, serviced and stamped by an authorized dealer. The latest checking and servicing date is marked on the fire extinguisher.

NOTE: *On certain markets, fire insurance policies stipulate that fire extinguishers must be checked every six months. Contact your insurance company for the full details.*

NOTE: *Depending on the market, the permitted service life of a hand-held fire extinguisher can vary.*

Hand-held fire extinguishers can be used through the holes marked with extinguisher decals (3).



SERVICE AIR CONDITIONER SAFELY

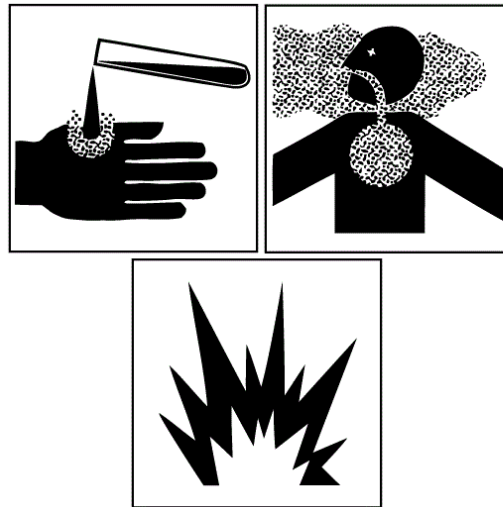
The air conditioner must be serviced and repaired by authorized personnel only.

Air conditioner fluid (R134a) contains fluorinated greenhouse gases. 2.3 kg air conditioner fluid contains 3.0 equivalent tonnes of carbon dioxide.

Heating of the refrigerant cylinder implies increase of pressure and the danger of explosion. The refrigerant dryer must not be heated above 50°C (122°F), as this may otherwise cause it to explode due to excessive pressure of the refrigerant. In the event of fire spray the dryer liberally with water to keep it cool.

The gas is asphyxiating without forewarning. The gas is colourless, it is heavier than air and spreads close to the ground.

Splashes of the fluid cause frost injuries to the skin and serious eye damage. Spilled refrigerant fluid has extremely low temperature and it vaporizes quickly. Dissipates in contact with fire, giving off toxic fumes.

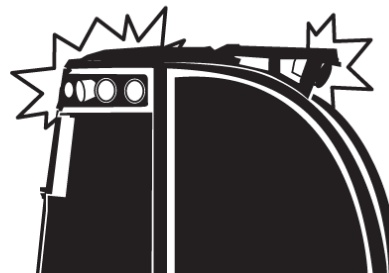


REPLACE XENON WORKLAMPS SAFELY

⚠ CAUTION

The glass body of the Xenon bulb is filled with various gasses and metal gasses under pressure. Danger of splintering. Wear safety goggles and gloves when exchanging bulb.

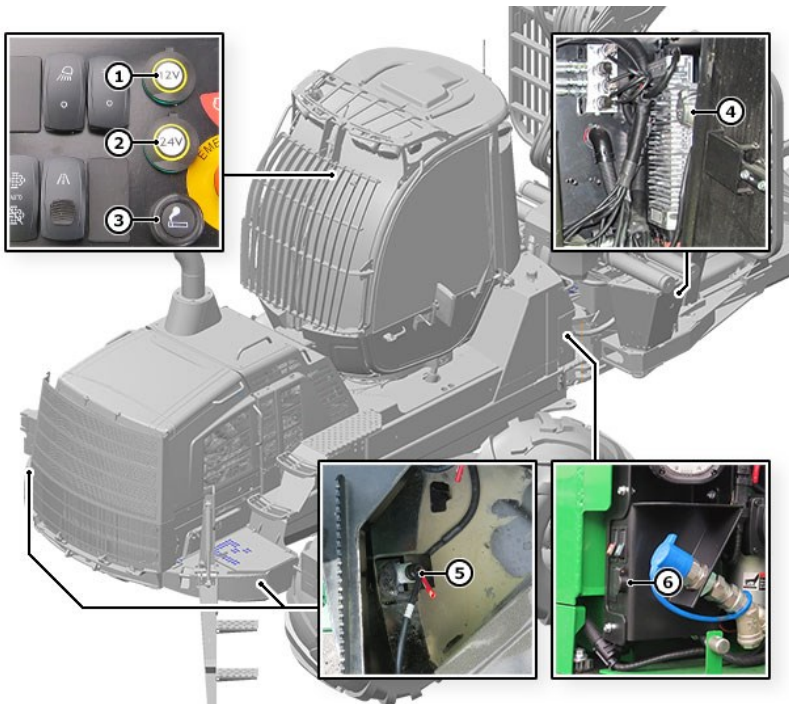
Safety instructions for replacing the Xenon bulb:



POWER OUTLETS

Inside cabin there are two power outlets for 12V and 24V voltages and also a cigarette lighter. Outside there is one 24V outlet, a trailer socket and two sockets inside the bumper boxes for additional driving lights.

1. 12V socket
2. 24V socket
3. Cigarette lighter
4. Trailer connector
5. Additional driving light connector
6. 24V socket

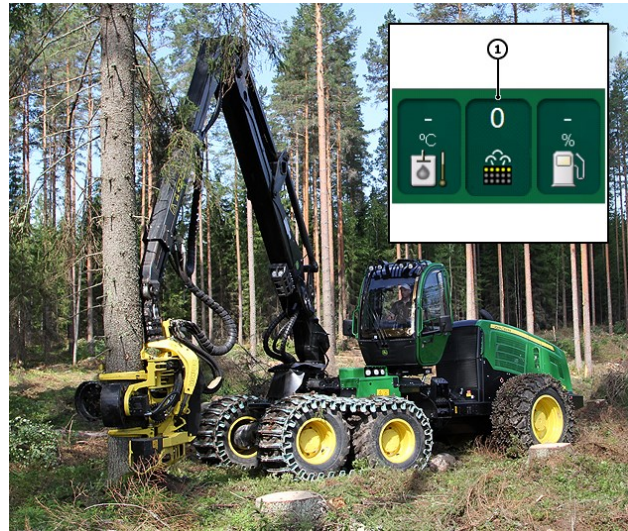


- A. Air inlet
- B. Fixed turbocharger
- C. VGT turbocharger
- D. Compressed air from VGT
- E. EGR cooler
- F. Charge air cooler
- G. Air throttle actuator
- H. EGR valve
- I. Fuel dosing injector
- J. Diesel oxidation catalyst (DOC)
- K. Diesel particulate filter (DPF)
- L. DOC/ DPF temperature sensor module
- M. DPF differential pressure module
- N. Aftertreatment Nox sensors
- O. Diesel exhaust fluid (DEF) injector
- P. Decomposition tube
- Q. Selective catalyst reduction (SCR)
- R. Ammonia oxidation catalyst (AOC)
- S. Exhaust gas outlet
- T. DEF injector and DEF tank coolant lines
- U. DEF injector pressure line
- V. DEF dosing unit
- W. DEF tank header
- X. DEF tank
- Y. Radiator
- Z. SCR temperature sensor module

PASSIVE REGENERATION

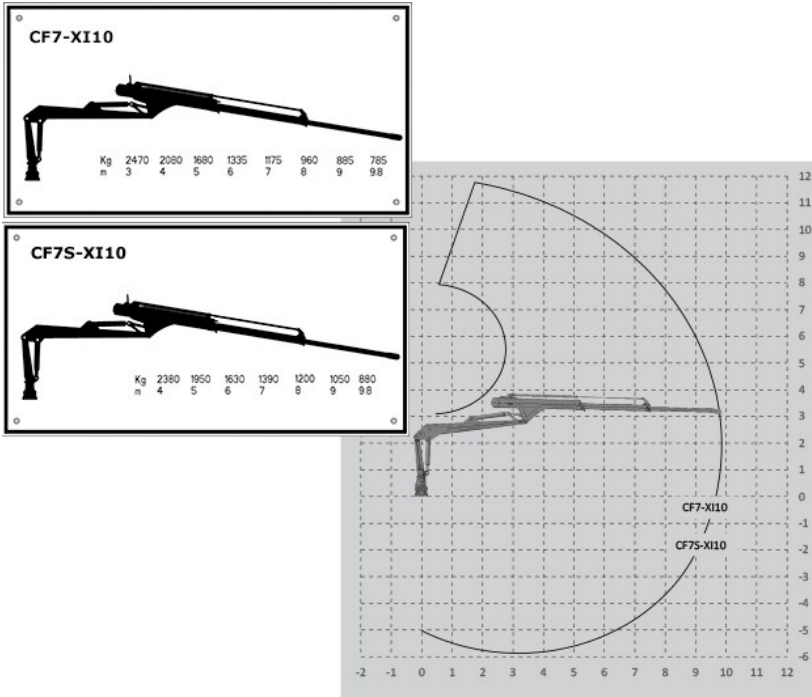
Passive regeneration occurs at filter level 0 and when the exhaust temperatures are above 300°C.

Soot in the DPF is oxidised during normal engine operation under moderate to heavy load when the exhaust temperatures are high. No fuel dosing occurs during these ideal conditions, and no operator input is required.



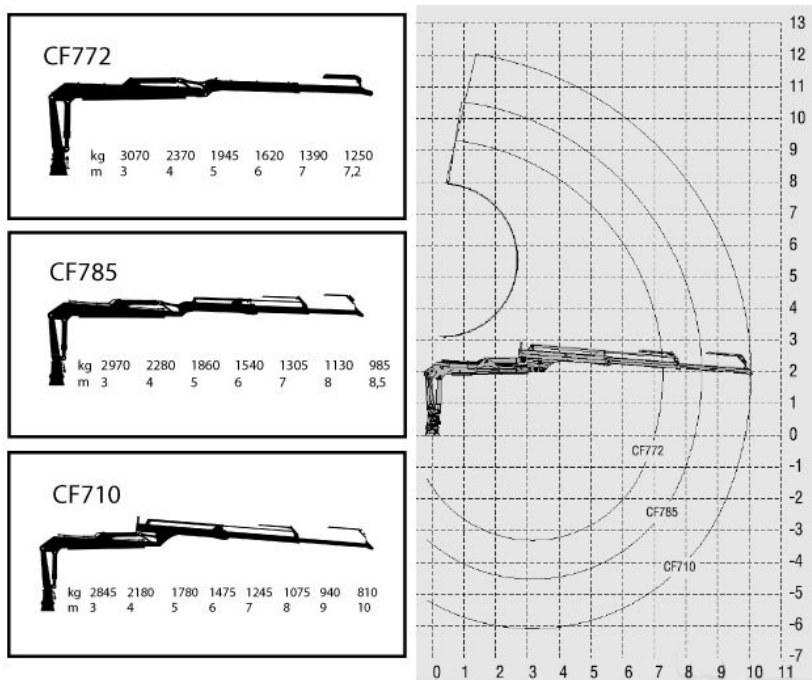
CF7-XI AND CF7S-XI REACH AND LIFTING DIAGRAMS

XI booms reach in metric and lifting capability in kilograms per meter without link, rotator and grapple.



CF7 REACH AND LIFTING DIAGRAMS

CF7 boom reach in metric with different extensions and lifting capability with different extensions in kilograms per meter without link, rotator and grapple.



FIRE PROTECTION SYSTEM

Optional fire protection system is combined with a fire alarm. A fire is signalled by heat detectors closing an electrical circuit to the control unit, which activates an electrical valve on the extinguishing fluid container (3). The container is pressurised with nitrogen from the nitrogen cartridge (2), forcing the extinguishing fluid through pipes and nozzles to protected areas. Audible alarm signals are activated by the fire and also a flashing light on an alarm panel (1) in the cabin.

The nitrogen cartridge (2) is located in the right of the bumper box and the extinguishing fluid container (3) is located in the front frame. Access to the fluid container is through the gear box access cover.

In the event of a fire, the extinguishing fluid is ejected from all the nozzles in the system.



CENTRAL LOCKING SYSTEM

The fixed forwarder cabin can be equipped with optional central locking system. The system operates remotely using a small transmitter. The transmitter allows the operator to lock or unlock the door of the machine. There are two different central locking systems in the machines. System type depends on machine serial number. There are minor differences between the remote control designs of the different systems (see A and B in the picture).

NOTE: The signal range is approximately 20 meters.

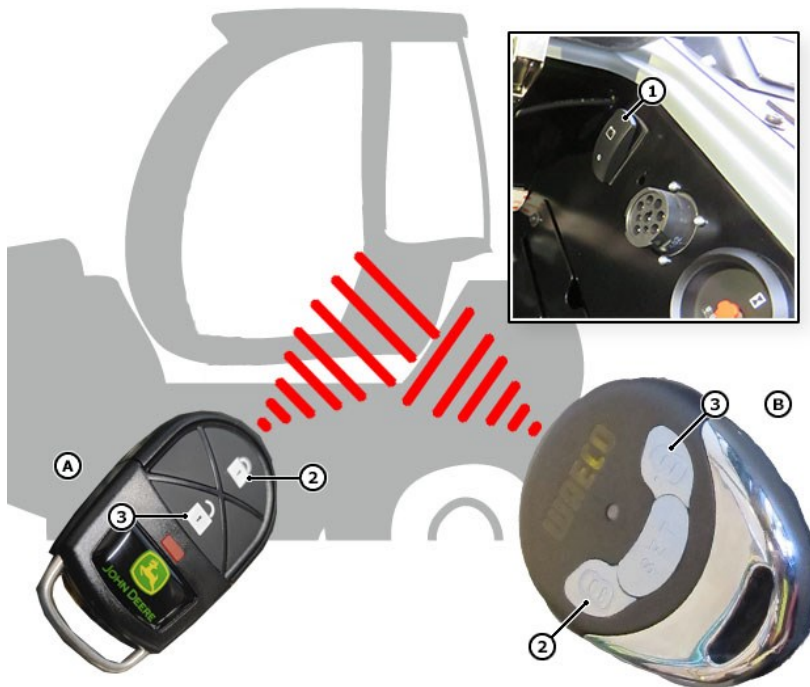
NOTE: The secondary exit must be always locked manually.

IMPORTANT: The central locking is disabled, if the battery switch (1) on the dashboard is activated or batteries are disconnected. In this case the door must be locked manually. Check the instructions for preparing machine for storage.

Remote control functions:

- Locking: press the left-hand button (2) on the remote control to lock the door and secondary exit.
- Unlocking: press the unlocking button (3) on the remote control to unlock the door and the secondary exit.
- Automatic relocking: if the remote control is pressed to unlock the doors and the door remains closed for one minute, the doors are re-locked automatically.

If the hand-held transmitter is used too frequently without the control unit receiving the transmission signal, the control unit might not recognize the transmitter. If this is the case, press the hand-held transmitter another one to three times. The control unit should detect the hand-held transmitter again.



FORWARDER IBC BOOM CONTROLS

IBC mode is toggled on or off using button combination R60 (F1) + L18 (boom icon).

IMPORTANT: *Rotator and grapple functions are controlled traditionally. When controlling the boom in IBC mode, if the operator wants to limit the use of the extension boom, they should press the -Z button on the left-hand control lever for manual intervention.*

Left boom control lever

- +Y Boom tip forwards
- -Y Boom tip inwards
- -X Slew boom counterclockwise
- +X Slew boom clockwise
- +Z Extension out (manual control)
- -Z Extension in (manual control)

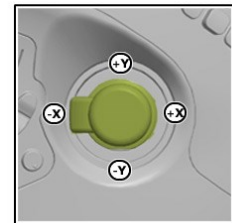
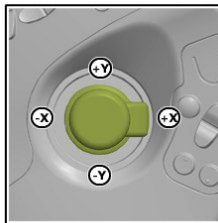
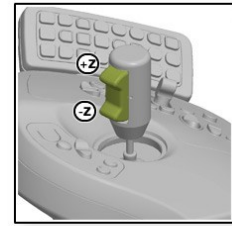
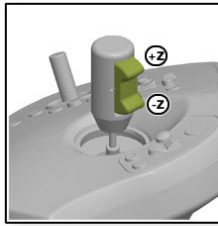
Right boom control lever

- +Y Boom tip down
- -Y Boom tip up
- -X Rotator counterclockwise
- +X Rotator clockwise
- +Z Grapple open
- -Z Grapple close

NOTE: *In case the control system parameter for alternative boom control patterns is enabled, user may change the joystick pattern with separate selection during the boom activation.*

Special buttons in IBC mode

- R57 = IBC unloading mode ON/OFF



ACCESSORY SWITCHES AND CONNECTORS

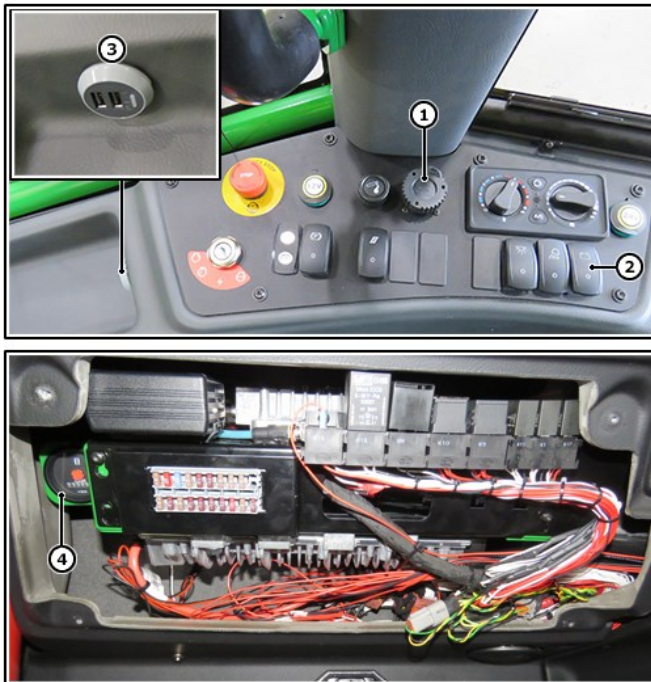
Following accessory items can be found in the cabin:

1. Diagnostic connector is on the dashboard.
2. Battery switch is on the dashboard.

NOTE: Use the switch, if the machine is not used for a longer period of time. Use for example during longer transportations and if the machine is stored for longer time. See more information on the page preparation machine for storage.

NOTE: Supply to all electrical equipment connected directly to the batteries (for example radio, clock of pre-heater, central locking) except the optional fire extinguisher system is switched off.

3. USB connector hub is located next to the dashboard.
4. Hour meter is located under the service access cover in front of the cabin.



AIR CONDITIONER

The air conditioner unit controls are:

1. Temperature
The position of the temperature setting determines the water valve control.
2. Recirculation
Pressing the recirculation push button change the status of the recirculation actuator. The recirculation LED indicates recirculation actuator status.

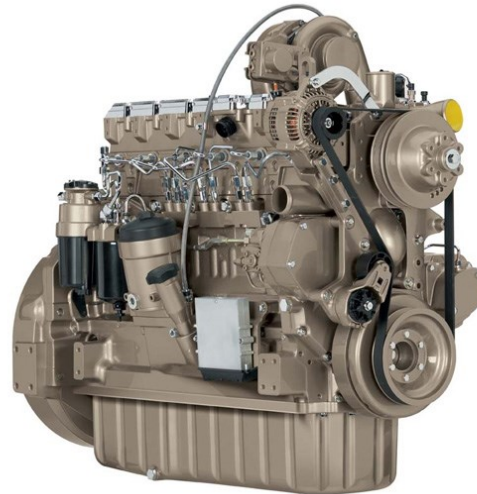
NOTE: After an action on this button, the actuator is powered during 10 seconds.

3. Air conditioner compressor



ENGINE

Follow the instructions for proper starting, running and turning off of the engine.



STARTING THE ENGINE

Before starting the engine take an overall look at the machine (joints, hoses, etc). Make sure that the daily maintenance has been carried out as instructed (fluid levels etc).

CAUTION

Make sure that there are no people within the danger zone around the machine.

1. Turn on the main switch and check following.
 - A. Check the fire extinguishing system indications (if equipped).
 - B. Check the emergency exit.
 - C. Parking brake is on.
 - D. Emergency stop is in the upper position.
 - E. Door is closed.
 - F. Driving direction switch is in neutral
 - G. Pre-heater is disengaged.
2. Activate easy start turning the ignition key to RUN2 position. Wait until the CAN-bus network is initialized and running. This is indicated by buzzer's short peep sound.

IMPORTANT: *Easy start means that the load on engine is reduced. Hydraulic fan, work hydraulic and brake unloading valves are activated. Harvester models 1270 and 1470 only have one unloading valve.*

NOTE: *Avoid starting the diesel engine during the computer's start-up. The computer must be kept closed when cold-starting the engine if the sufficiency of the starting power is in doubt and the system's voltage could drop considerably (to below 20 V) as a result.*

3. Hold the accelerator pedal in the idle position. Start the engine with ignition key and release the key immediately when the engine starts.

IMPORTANT: *Do not operate the starter for more than 15 seconds at a time. To do so may overheat the starter. If the engine does not start the first time, wait at least 2 minutes before trying again.*

IMPORTANT: *If the key switch is released before the engine starts, turn key to stop position, wait until the starter and the engine stop turning before trying again. This will prevent possible damage to the starter and/or flywheel.*

NOTE: *New XL4 and XM2 PC starts automatically after the engine is running.*

DIFFERENTIAL LOCKS

Differential locks can be operated in two modes:

- Normal
- Permanent

Difference between permanent and normal differential locks is that permanent differential locks stay engaged even while the machine stops or changes direction. Normal differential locks will stay on until the machine is brought to a halt again.

Normal differential locks are activated/deactivated by pressing buttons (1) "R32" (front) and "R33" (rear) on the right keypad. Permanent differential locks are activated by pressing "L14" F2 + "R32" (front) or "R33" (rear) and deactivation of permanent differential locks is done with a long press of "R32" (front) or "R33" (rear). After activation the differential lock symbols (2) are shown on the machine display.

IMPORTANT: Exercise great caution when using the locks, and keep them engaged for short periods only. When the differential is locked, avoid turning the machine sharply.

⚠ CAUTION

The locks can only be engaged when the machine stands still.

If the differential lock buttons are pressed during driving, the machine will stop automatically and locks will be engaged or disengaged. The differential lock button(s) has to be held down until the machine stops. After this, the driving speed can be regained. Speed is limited to max 5 km/h when differential locks are engaged.

Differential lock symbols (2):

- When the locks are engaged, a lock symbol is either shown (NORMAL locks) or blinking (PERMANENT locks) on the display for the duration of 3 seconds. In PC machines also a note is given to indicate the activation of differential locks.
- The letter F in the upper left corner of the symbol indicates that the front differential lock is engaged.
- The letter R in the upper right corner of the symbol indicates that the rear differential lock is engaged.

In case permanent differential locks are being used, lock symbol is blinking for 3 seconds and buzzer beep is given every minute to indicate that differential locks are still engaged. When differential locks are disabled a short beep is given.



BOOM WEIGHT SCALE - OPERATION

This chapter is for the general information about usage of boom weight scale.

IMPORTANT: *Weight scale must be set into use from the machine profile and from the TimberMatic™ menu 4.1.1, otherwise the system does not provide the weighing information.*

General

Weighing with the boom weight scale:

- The weight inside the grapple will be added to the total load space load when the grapple has moved into the load space from outside and is opened.
- The weight inside the grapple will be extracted from the total load space load when the grapple has moved outside from the load space and is opened.

The selected registration point defines the appearance of the work mode and the sign of the weight. When registering is selected to be done after loading, the positive direction is into the load space from outside. When registering is selected to be done after unloading ("Weighing while unloading") the positive direction is outside from the load space.

Starting new load

An active site and active load are necessary for production registration. If the operator has forgotten to start the site or load and has loaded timber into the load space, the notice will appear on the screen. The new load can be started either directly from the work mode window by clicking the "Start new load" option or from the registration window (button R21). It is also possible to start a new load automatically after registration.

Load space sector

A position sensor is fitted to the upright pillar of the boom. When the boom is inside the sector, the machine "knows" that the grapple is in the load space. This can be seen also from the grapple symbol position in the work mode window. The weight scale always automatically adds or subtracts the weight of the load in the grapple to or from the total weight whenever the border of the sector is crossed. The system adjusts the sector size automatically if the machine is equipped with VLS and the load space width has changed.

In order to obtain an accurate result, it is important that no logs are lifted into the load space from inside the sector when weighing in loading mode. Similarly, when measuring in unloading mode, care must be taken that the logs from the load space are unloaded outside the sector.

If, for example, there is a need to lift logs from inside the sector into the load space when thinning, official weighing should only be done in the unloading mode.

Load registration

The weight inside the grapple will be registered in the prevailing load and assortment when the grapple is opened inside the load space sector. The weight of logs taken out of the load space before registration will be extracted from the total load

The load can be started and registered by pressing the registration button (R21). New loads should be



or stainless steel are recommended.

Keep anything used to store or dispense DEF clean of dirt and dust. Wash and rinse containers or funnels thoroughly with distilled water to remove contaminants. If an unapproved fluid, such as diesel fuel or coolant, is added to the DEF tank, contact your John Deere dealer immediately to determine how to clean and purge the system.

If water has been added to the DEF tank, a tank cleaning is necessary. After refilling the tank, check the DEF concentration. See "Testing diesel exhaust fluid (DEF)".

FLUIDS AND LUBRICANTS

General instructions for checking oil levels and fill-ups:

1. The machine must stand on level ground when you check any of the oil levels.
2. Check the oil level in the morning for that is when the oil is cold and it has seeped down into the lower parts of the component.
3. Renew the oil while the engine is warm. Thus it is easier to remove the old oil.
4. To even the pressure at the oil space, open a plug located above the oil level (e.g. filling plug) before opening the drain plug.
5. Avoid direct contact with oil, particularly heated oil.
6. Oil on the skin should be washed off immediately. Basic rules when changing oil and filters, checking hydraulic pressures, repairing etc:
 1. Clean thoroughly the area around the components to be opened to ensure that no dirt enters the system.
 2. Keep the hydraulic hoses plugged as well as the filters in their packs until they are installed to the machine.
 3. Plug removed components.
 4. Ensure that all parts are clean before assembly.



DIESEL FUEL (ULSD)

Consult your local fuel distributor for information regarding the properties of the diesel fuel available in your area. In general, diesel fuels are blended to satisfy the low temperature requirements of the geographical area in which they are marketed.

Diesel fuels specified to EN 590 or ASTM D975 are recommended. Renewable diesel fuel produced by hydrotreating animal fats and vegetable oils is basically identical to petroleum diesel fuel. Renewable diesel that meets EN 590, ASTM D975 or EN 15940 is acceptable for use at all percentage mixture levels.

In all cases, the fuel shall meet the following properties:

All water used in the cooling system should meet the following minimum specifications for quality:

Chlorides	<40 mg/L
Sulfates	<100 mg/L
Total solids	<340 mg/L
Total dissolved I hardness	<170 mg/L
pH	5.5—9.0

IMPORTANT: Do not use cooling system sealing additives or antifreeze that contain sealing additives. Do not mix ethylene glycol and propylene glycol-based coolants. Do not use coolants that contain nitrites.

ENGINE COMPARTMENT FUSE BOX

Fuses are located in a fuse box near the main switch panel. The fuses from F51 to F56 are on a direct battery power circuit and under fuse F39.

Position	Fuse number	Object	Capacity (A)
1.	F51	Approach lights	15
2.	F52	Air conditioner	20
3.	F53	Cabin battery power switch	15
4.	F54	Engine preheater	20
5.	F55	Fire extinguishing system	10
6.	F56	Engine control unit (ECU) #3	15
7.	F61	Engine control unit (ECU) #1	15
8.	F62	Engine control unit (ECU) #2	15
9.	F63	Fire extinguishing system	10
10.	F64	Hydraulic oil filling pump	15
11.	F65	Vacuum pump	15
12.	F66	Secondary steering	3
13.	F71	FFC (VBAT)	5
14.	F72	RFC (VBAT)	5
15.	F74	Fuel filter heater and service lights.	10
16.	F75	Starter motor	25
17.	F76	FFC (VP3)	10
18.	F81	Tier3/Stage2, optional	20

three connectors. Each connector is marked with terminal numbering.

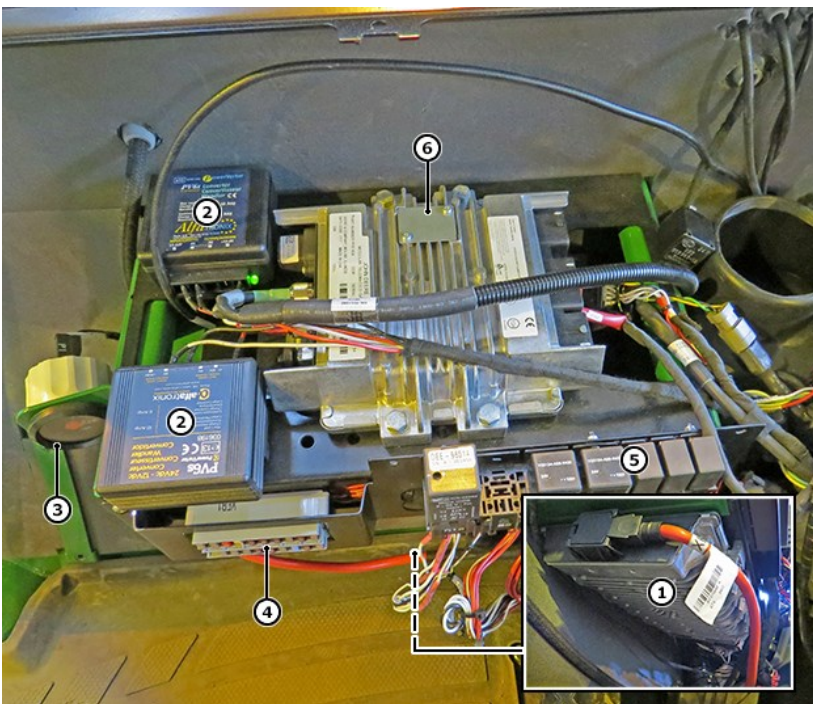
NOTE: *The ECU controls the Integrated Emissions Control system and regenerations. Integrating the electronic engine controls with the application reduces emissions while improving performance and economy. Engines use following ECU levels; Tier 3 (level 14), Interim Tier 4 (level 21), Final Tier 4 (level 33).*

CABIN CONTROLLER (CAB) AREA

The cabin controller (CAB) is located under the cover at the front of the cabin. The new MECA controller has more processing power and better fault tolerance. Due to simplified controller design, the cabin requires fewer fuses and relays.

The following electrical components are located at the front of the cabin.

1. Cabin controller (MECA)
2. 12/24V converters
3. Hour meter
4. Cabin fuses
5. Cabin relays
6. Modular Telematics Gateway (MTG) controller



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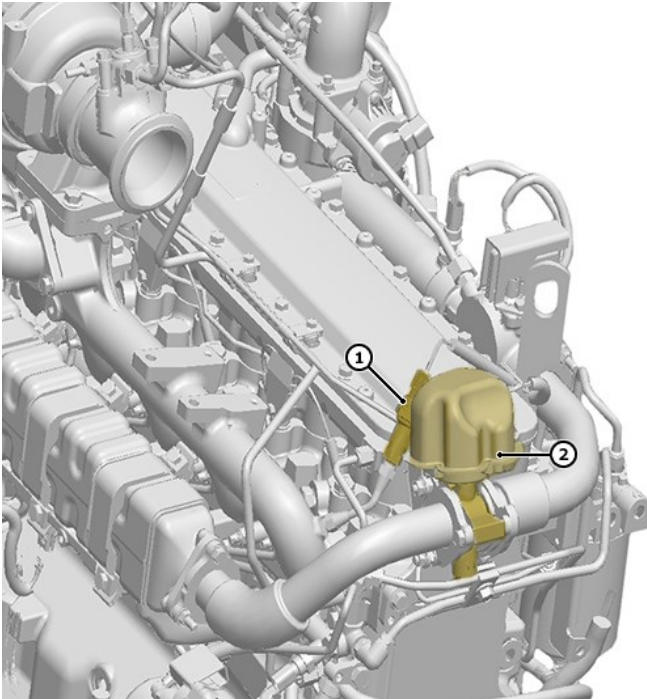
ELECTRICAL ENGINE COMPONENTS 3/6

1. Exhaust manifold pressure sensor (B5102)

The exhaust manifold pressure sensor provides feedback information that is used by the air throttle actuator, VGT turbocharger and EGR valve to maximise engine performance while meeting the applicable emissions regulations. The ECU uses this data for the volumetric efficiency calculation.

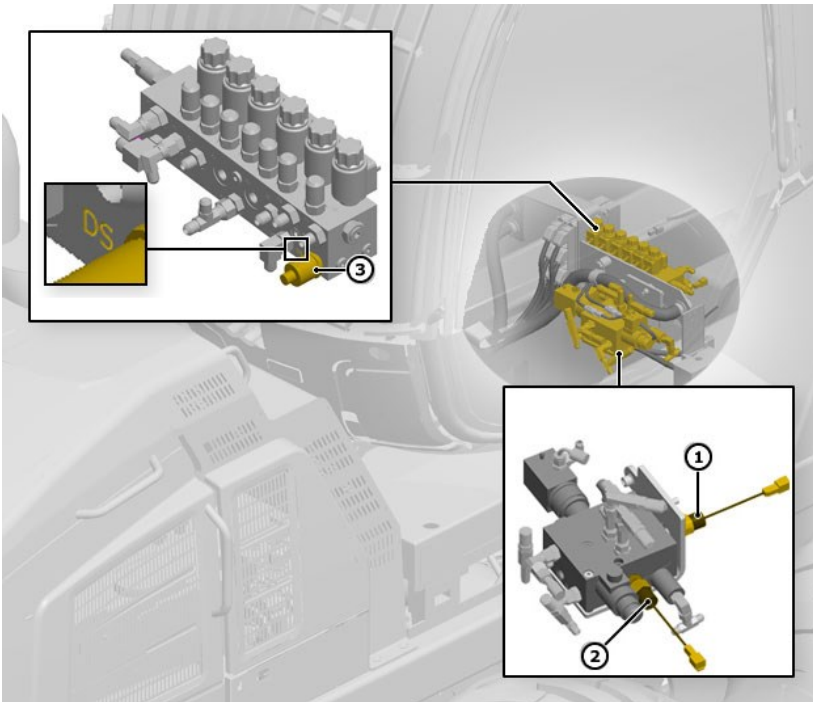
2. EGR valve actuator (Y5400)

The EGR valve opens as necessary so that exhaust gas can recirculate back into the intake manifold. This lowers combustion temperatures and, therefore, lowers emissions. The ECU calculates the appropriate position for the EGR valve according to the operating temperature and load.



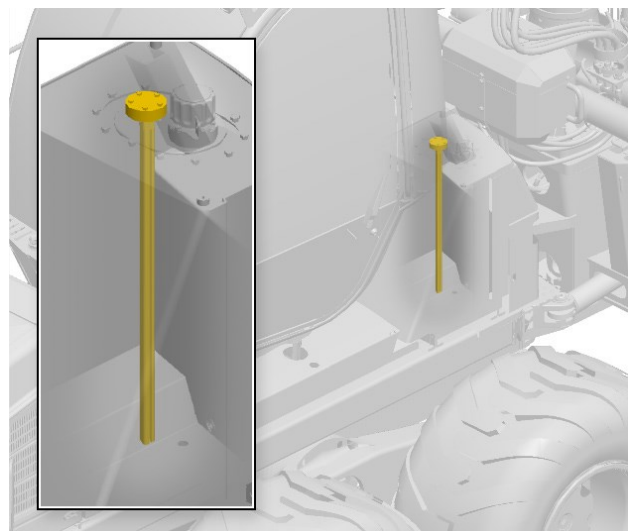
SENSORS, BRAKE SYSTEM

1. Brake charge pressure switch (B3)
 - The sensor triggers an alarm if pressure in brake accumulators drop below 10 MPa. The sensor is in the brake valve. The brake valve is located under the cabin next to the auxiliary valve block.
2. Brake light limit switch (B15)
 - Switches the brake light on when pilot pressure of the driving brake reaches 0.5 Mpa.
3. Parking brake pressure switch (B70)
 - Detects the parking brake position by measuring the pressure in the parking brake circuit. The sensor triggers when pressure is above 3.5 MPa (507 psi).



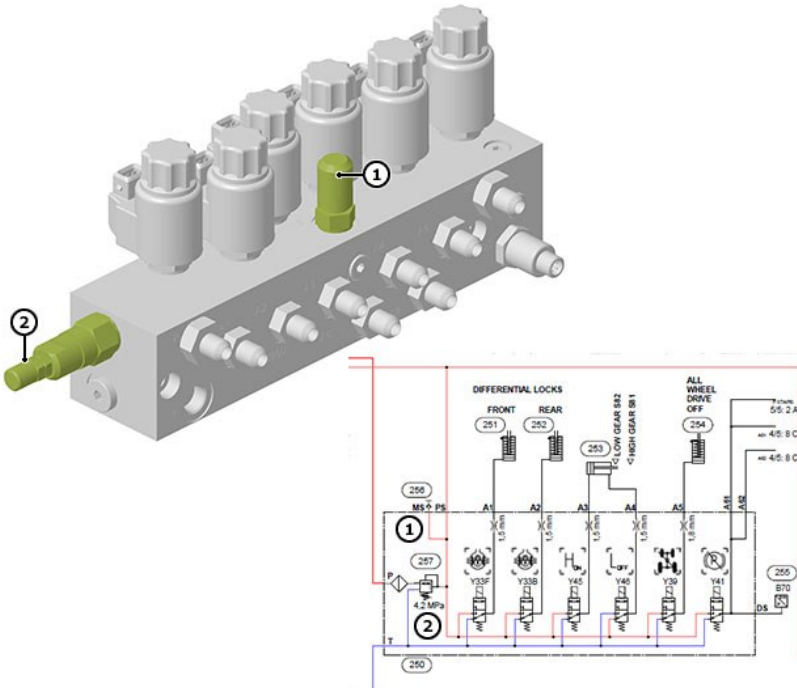
SENSORS, FUEL TANK

A fully electrically operated fuel level sensor (B9) is mounted on top of the fuel tank.



AUXILIARY VALVE PRESSURE

1. Connect a 10 MPa gauge (1450 psi) to the measuring point MS (1), on the auxiliary valve.
2. Start the machine.
3. Activate the boom on by pressing L18 button.
4. Use the extension in function and take a pressure reading from the gauge. The pressure must be 4.2 ± 0.3 MPa (609 ± 43 psi).
5. If necessary, adjust from the screw (2).



BOOM VALVE LS RELIEF PRESSURES

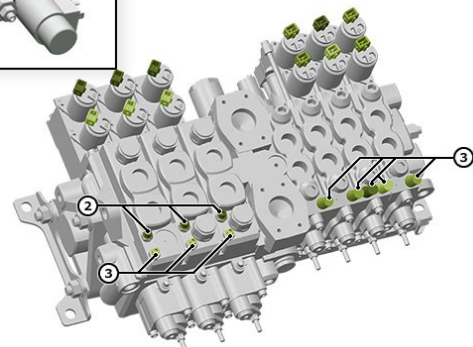
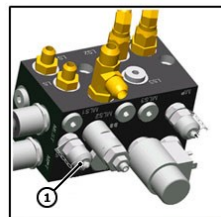
IMPORTANT: Do not use the values shown in the hydraulic schematics. Use the values in the attached PDF appendix.

1. Ensure that the machine is in normal operating temperature.
2. Connect a 40 MPa (5800 psi) gauge to the measuring point 236/MLS (1) on the LS valve block.

NOTE: Boom movement requests, work pump and LS pressures can also be seen in the TimberMatic™ page 2.2.C.1.

3. Engage the working rpm and boom.

NOTE: Be careful when operating function to extreme to avoid collision or hose failures. Grapple a tree or otherwise prevent rotating when the rotator pressures are measured.



ENGINE HOODS

The front hood (A) can be tilted forward and the front grill (B) can be lifted up for service.

The rear hood (C) has a service hatch (D) on the both sides of the hood.

- A. Front hood
- B. Front door and protective mesh
- C. Rear hood
- D. Service hatch
- E. Hatch for oil level stick (only in 1910G)
- F. Front grille (optional)



CHANGING WHEELS

⚠ CAUTION

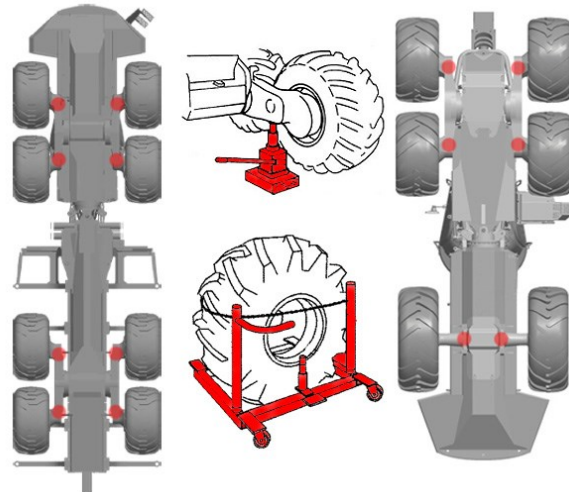
Always apply the parking brake before leaving the cab.

⚠ CAUTION

Prevent crushing injury from heavy component. Use appropriate lifting device when lifting component.

Change wheel as follows:

1. Park the machine on firm and level ground.
2. Position the jack underneath the flat part of the axle or bogie casing. Make sure neither the machine nor the jack can move during the lift.
3. Raise machine and place 20-ton shop stand under axle.
4. Place wheel lift under wheel. Fasten safety chain around upper part of tire.
5. Remove nuts and washers to remove wheel.
6. Clean mounting surface on wheel and axle flange. Install washers and nuts. Center wheel by gradually tightening nuts in a cross-bolt pattern.
7. Tighten the wheel nuts to 550 Nm (405 lb-ft). It is especially important to retighten the wheel nuts if the rims or wheel axle flanges have been painted recently, or the machine is new.



ANTI-SLIP CHAIN FITTING

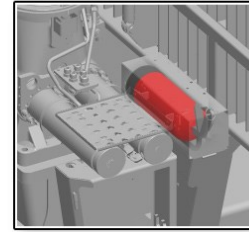
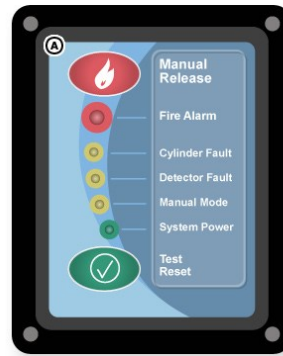
1. Choose fairly smooth ground when fitting the anti-slip.
2. Ensure that the anti-slips are in good condition.
3. Turn them the right way.
4. Lay the anti-slip out in front of the wheel, (fig 1 or 2)
5. Tie a 1.5 meter (5 ft) long piece of rope, or something similar, to the anti-slip and place it over the tire as illustrated.
6. Carefully move the machine. If needed stop the machine and adjust the anti-slip. Continue until the ends of the anti-slip lie near each other, and connect the ends together with the coupling links.



IMPORTANT: When using chains and tracks ensure that they do not collide machine structures under any driving circumstances. Original equipment delivered from John Deere suits the machine.

50 HOURS OR WEEKLY

1. Check that LEDs on alarm panel (A), alarm signals and signal horn work according to the description in chapter "Alarm panel".
2. Ensure that the hand-held extinguishers are in place and that the indicators (B) show that they are full.



EVERY 12 MONTHS

The system must be inspected once a year by service personnel authorized by Dafo Brand Ab. This inspection is a condition of the insurance companies.



1. Switch pre-heater off and then on again (but not more than twice)
2. Check the main fuse
3. Ensure that the flow of air is unrestricted
4. Contact an authorized service agent.

Service code descriptions

Code	Description
000	No faults
005	Warning short circuit in "Burglar Alarm" output
009	ADR / ADR99 shutdown
010	Overvoltage cutoff
011	Undervoltage cutoff
012	Overheating
014	Difference between the overheating and temperature sensor is too large
017	Overheating, Hardware threshold exceeded Control box is locked
019	Glow plug 1, Ignition energy too low
020	Glow plug 1, interruption
021	Glow plug 1, overload / short circuit downstream of earth
022	Glow plug 1, short circuit downstream of +Ub
023	Glow plug 2, interruption
024	Glow plug 2, overload / short circuit downstream of earth
025	JE-K line fault - Heater remains ready for operation
026	Glow plug 2, short circuit downstream of +Ub
029	Glow plug 2, Ignition energy too low
031	Burner motor, interruption
032	Burner motor, overload
033	Burner motor, speed error / blocked
034	Burner motor short circuit downstream of +Ub or earth
037	Water pump not working
041	Water pump, interruption
042	Water pump, Overload short circuit
043	Water pump, Overload downstream of +Ub
047	Metering pump, Overload short circuit
048	Metering pump interruption
049	Metering pump, Overload downstream of +Ub
052	Exceeding of safety time
053	Flame cutout in "POWER" control stage
054	Flame cutout in "HIGH" control stage
055	Flame cutout in "Medium 1" control stage
056	Flame cutout in "Medium 2" control stage
057	Flame cutout in "Medium 3" control stage
058	Flame cutout in "LOW" control stage

EVERY 50 HOURS OR WEEKLY

- Check machine visually

NOTE: *If oil leak is detected, check oil levels according to further instructions given under this topic.*

IMPORTANT: *All oil leaks must be repaired immediately.*

- Check the cooler cleanness
- Grease middle joint
- Check boom slew housing oil level
- Grease the boom
- Grease link and grapple

CHECK MACHINE VISUALLY

⚠ DANGER

Never attempt to locate or plug an oil leak with your hand because it only takes fluid injected at a pressure of 30 bar to penetrate your skin and possibly cause serious personal injury or even death.

Check hoses, joints, bunks and cylinders for cracks and leaks. Should you locate a defective component or a malfunctioning operation, repair it immediately.

Check the tightness of all conical sleeve pins and tighten them as necessary. For the locations and tightening torques, refer to the relevant pages of this manual.

Check the hydraulic system for potential damage visible from the outside in order to make sure that such damage will not result in a sudden leakage. All oil leaks must be repaired immediately.

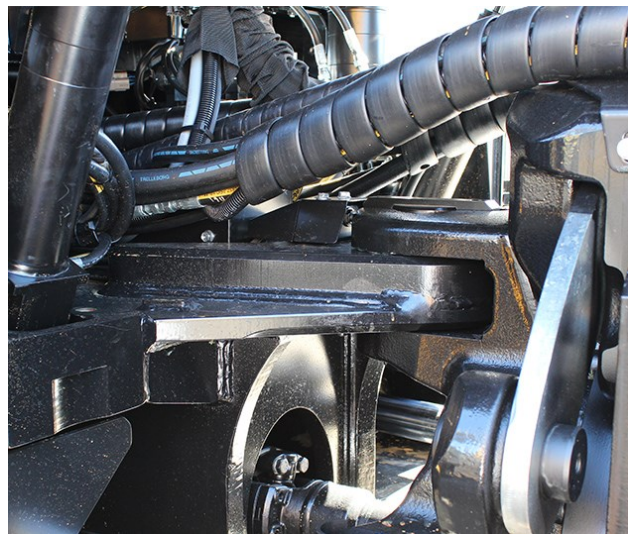
Check visually tire pressures and overall shape. If in doubt, use a pressure gauge to check the pressures.

Check visually the grapple or head, rotator and boom screws and pins. If in doubt, follow further instructions under this topic.

Check high/low gear, differentials, bogie casings and hub gears for potential leakages from the outside.

NOTE: *If oil leak is detected, check oil levels according to further instructions given under this topic.*

IMPORTANT: *All oil leaks must be repaired immediately.*



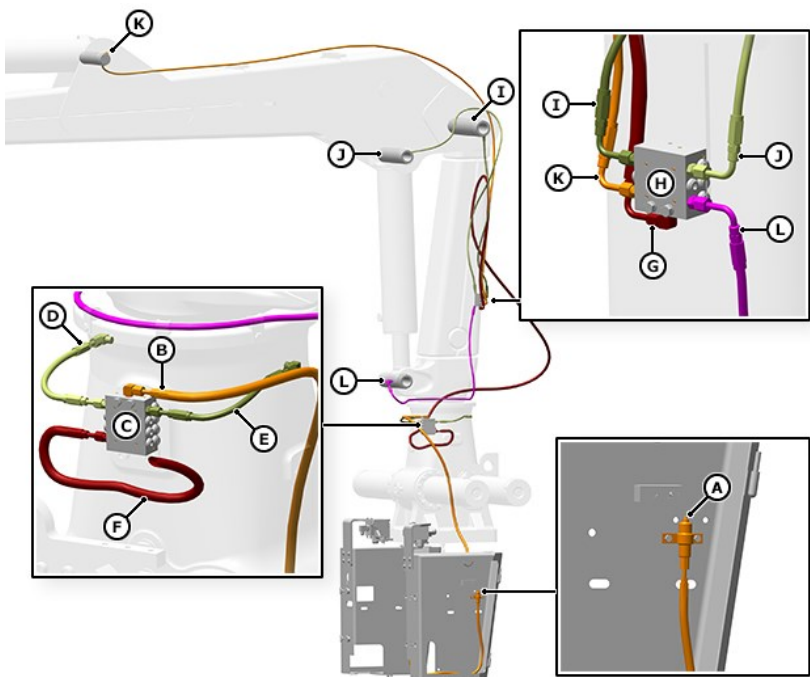
GREASE THE BOOM 1/2

Grease lines from the grease fitting to boom slew bearing go through SSV8 dispenser on the left side of the boom base. Grease lines for the lifting boom, lift cylinder and jib cylinder go through SSV6 dispenser on boom pillar. The dispensers evens the amount of grease to all greasing points.

1. Lower the boom to the ground in order to eliminate pressure from the cylinders. This will also help the grease to spread better on bearing surfaces. The slider part of the first extension is greased when the extensions are inside the boom.
2. Grease the bearings of the slewing system, boom pillar, lift cylinder and lower bearing of the jib cylinder via one centralized grease fitting (A) in the right equipment box on the rear frame. On some models, the centralized grease fitting is in the left equipment box.

IMPORTANT: Use adequate amount of grease. Continue greasing until pure grease seeps from the sealing faces of the bearings.

- A. Centralized grease fitting
- B. Supply from the grease fitting
- C. SSV8 dispenser
- D. SSV8 Port 7, boom slew bearing left
- E. SSV8 Port 8, boom slew bearing right
- F. SSV8 Port 2, supply to SSV6 dispenser on boom pillar
- G. Supply from the SSV8 dispenser on boom base
- H. SSV6 dispenser
- I. SSV6 Port 1, fastening pin of the lifting boom
- J. SSV6 Port 2, upper end of the lift cylinder
- K. SSV6 Port 5, lower end of the jib cylinder
- L. SSV6 Port 6, lower end of the lift cylinder



CHECK DOOR SWITCH

Check that the door switch (A) functions correctly. When the door is open, the following functions should be disabled:

1. Grapple functions
2. Boom functions
3. Steering
4. Transmission

NOTE: *When the door is opened the machine's functions cease. If the door is opened when the machine is moving, the machine keeps moving normally. Once the acceleration pedal is lifted up, a new pedal press will have no effect.*



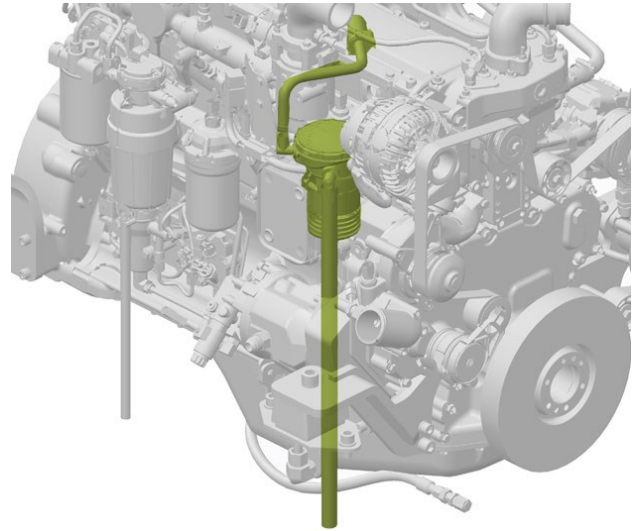
CHECK OCV FILTER TUBE

Visually check the OCV filter housing, open crankcase vent, hoses and clamp tensions.

Check that crankcase vent tube lower end is free of dirt. Remove and clean the tube if necessary.

While installing the tube be sure the O-ring fits correctly in the rocker arm cover adapter. Tighten the clamp securely.

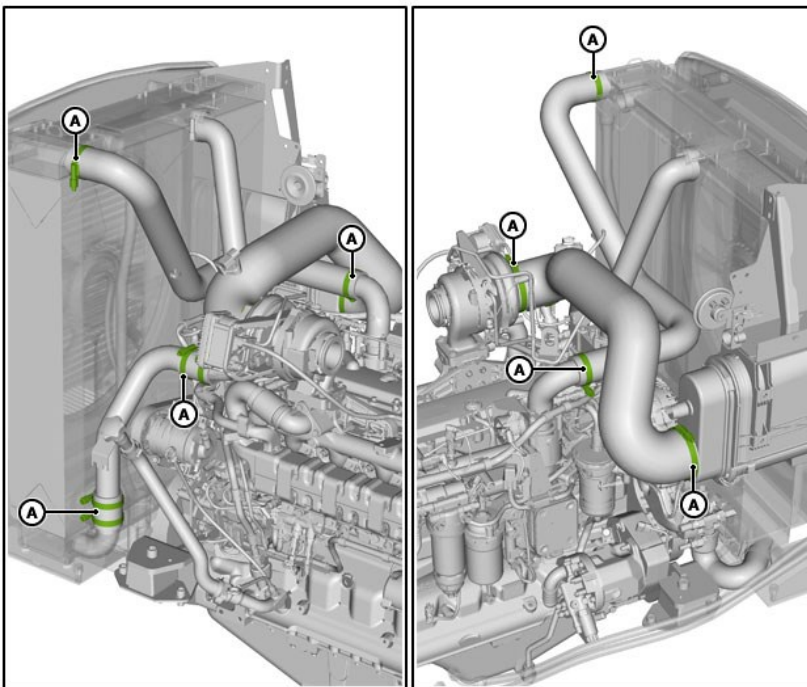
NOTE: *If required, replace worn, cracked, leaking, or bulging hoses and tighten clamp tension on all hose ends.*



CHECK AIR INTAKE SYSTEM

IMPORTANT: *The air intake system must not leak. Any leak, no matter how small, may result in internal engine damage.*

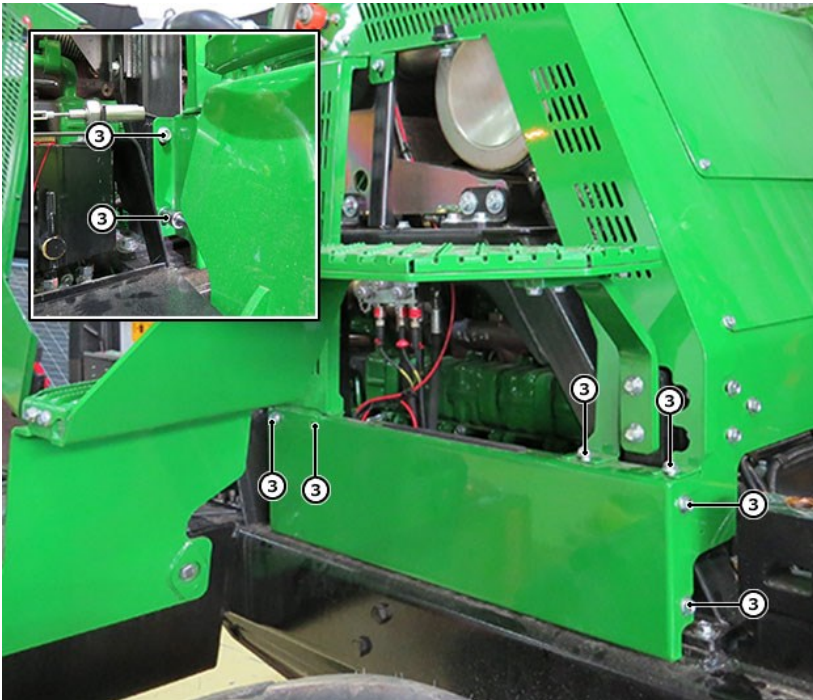
1. Inspect intake piping and after cooler for cracked hoses. Replace as necessary.
 2. Check clamps on intake piping. Tighten clamps as necessary.
- A. Intake piping clamps



STEP 2

Remove the eight fastening screws (3) of the left side panel.

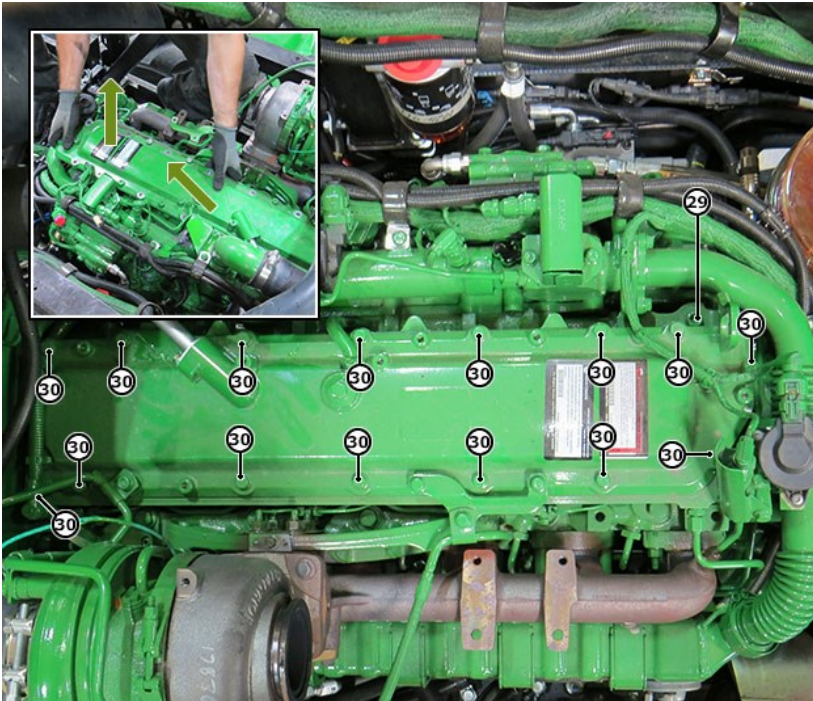
Operation	Tool	Size
Left side panel	Socket wrench	15 mm



STEP 14

Undo the screw (29) and remove the lifting bracket.

Undo the mounting screws (30) of the rocker cover. Lift the rocker cover off the engine.



Step 6

Install DEF filter O-rings. Carefully insert DEF dosing unit filter (15) into DEF dosing unit.

NOTE: Clean DEF dosing unit threads and mating surfaces with distilled water.

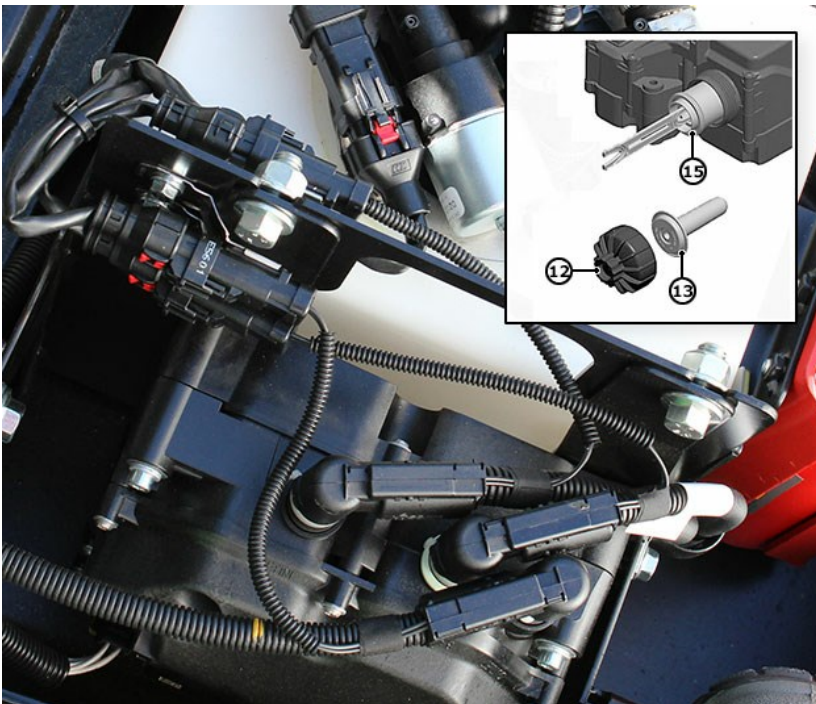
NOTE: There is no need for lubrication of new DEF filter O-rings.

Install DEF dosing unit filter equalizing element (13) into DEF dosing unit filter (15).

Install and hand tighten the filter cap (12) to 20 Nm (204 lb.-in.).

Install the DEF dosing unit in reverse order to the bumper.

IMPORTANT: Install the hose and electric connector to correct order.

**REPLACE OCV FILTER**

Open the OCV filter housing cap (A) and replace the OCV filter element.



CHECK AIR CONDITIONER

Do the following inspections for the air conditioning system components:

1. Check the condenser element (A). The condenser element must be cleaned carefully using a weak jet of compressed air in the opposite direction to the normal flow of air through the element. Condenser air intake and exhaust must be unobstructed. Check the fastening of the condenser to prevent damage by vibration.

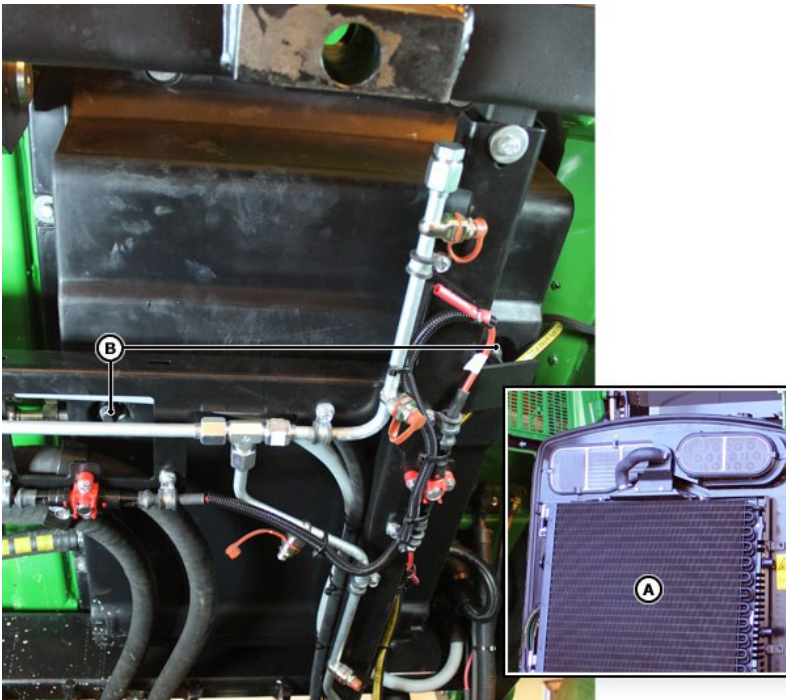
NOTE: *Blowing with compressed air at high pressure will damage the condenser.*

2. The outlet tubes for condensation water (B) from the air conditioning unit must be unobstructed to prevent water from staying inside the unit.
3. Check hoses, wires and connections. Refrigerant hoses and connections from AC-unit under the cabin, condenser and compressor in the engine room must be inspected. The presence of oil on connections may indicate leakage. Check all hoses of the system and make sure they are protected against chafing and against overheating by engine components.

⚠ CAUTION

Do not open hose connections. There is pressure in the cooling system. Incorrect procedures may result in personal injury.

- A. Condenser element
- B. Outlet tubes for condensation water



CHANGE HYDRAULIC OIL

⚠ CAUTION

Air must be removed from the return casing of the hydraulic oil after changing the oil and filters.

IMPORTANT: Replace the return filters, off-line filter and breather while the hydraulic tank is empty. When replacing the filters make sure that no dirt enters the hydraulic system.

IMPORTANT: Use John Deere HYDRAUGARD™. Do not mix different types of oils.

NOTE: Always refill the hydraulic oil tank through the quick coupler. This ensures that the new oil enters the system through the filter.



Draining the hydraulic oil

1. Open the plug at the end of the drain hose and drain the oil into a container. The drain hose is located on the front frame underneath the hydraulic tank.
2. After draining, clean the hydraulic tank and change the breather and hydraulic filters. Fit the plug back into the drain hose.

Hydraulic oil filling

1. Remove the protective plug of the quick coupler. Clean the filler hose and connect it to a vessel containing fresh hydraulic oil.
2. Start the filler pump with the operating switch. Do not exceed the 'MAX' level. There should always be enough air space in the hydraulic oil tank, as the oil level rises and falls during operation. The machine must stand level to ensure a correct level reading.
3. Detach the filler hose from the quick coupler before starting the engine. Over-pressure generated in the return casing can eject the hydraulic oil through the filler pump and filler hose.

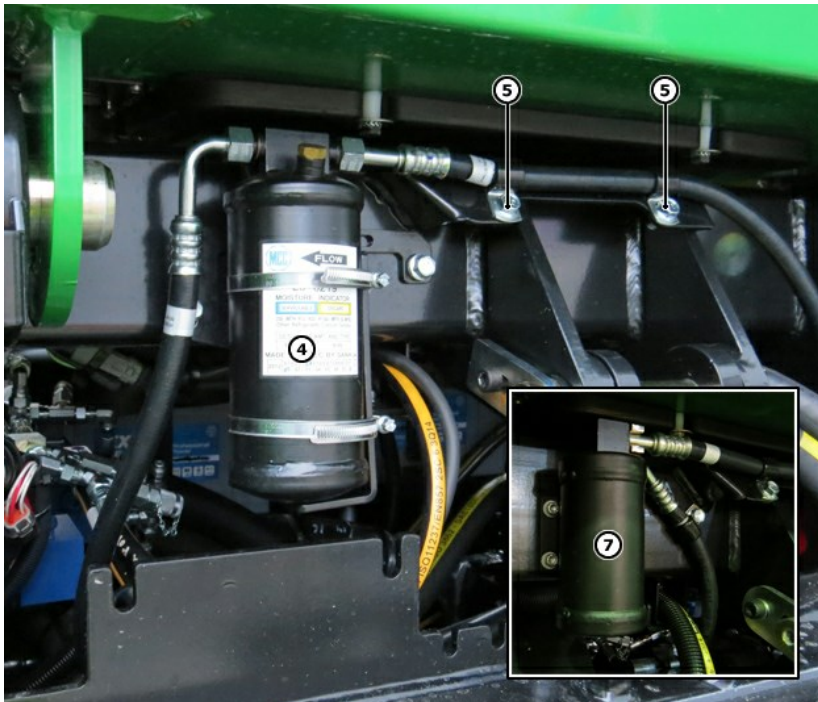
- A. Sight glass
- B. Quick coupler
- C. Filler pump operating switch
- D. Drain hose

Step 3

Open the receiver-dryer (4) hose connectors (5).

NOTE: *The mountings of the previous model of receiver-dryer (7) are different, and the receiver-dryer must be removed from the cabin base together with the backing plate.*

Use	Tool	Size
Hose connectors	Socket wrench	13 mm
Receiver-dryer (old)	Hex key	5 mm



DRAIN WATER DEPOSITED IN BOOM BASE

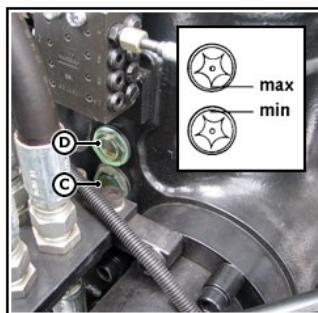
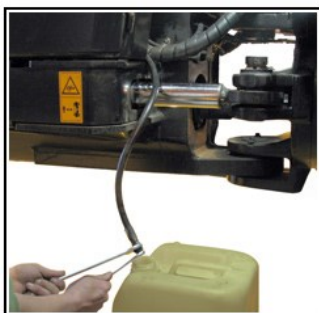
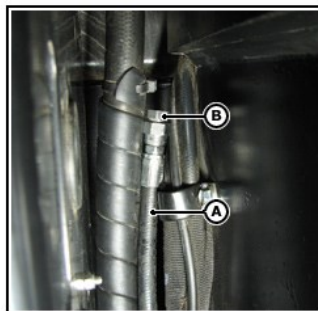
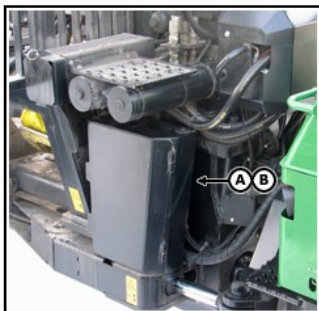
The boom slew system and the lower bearing of the boom pillar are immersed in oil. Depending on the operating conditions, a lot of water may condense in the boom base. Water must be drained before the lower pillar bearing gets damaged.

Drain the water as follows:

- Allow the machine to stand still for at least 10 min.
- Remove the drain hose (A) from the holder behind the equipment box on the right-hand side of the rear frame.
- Open the plug (B) at the end of the hose and check if the flow contains water. Drain the water into a container.
- Close the plug once pure oil comes out of the drain hose.
- Finally check the oil level through the measuring glass (C) to make sure the oil level is correct. In winter conditions, check this at the end of the shift when the machine is still warm. The oil level must exceed the upper mark on the measuring glass. Add oil through the filler plug (D) if needed.

- A. Drain hose
- B. Drain plug
- C. Measuring glass
- D. Filler plug

Purpose	Tool	Size
Drain hose plug	Ring spanner	19 and 22 mm
Oil filler plug	Ring spanner/socket wrench	30 mm



1. Clear area around the machine to make room for machine movements.
2. Charge and install batteries.
3. Turn battery switch to the ON position.
4. Remove rust inhibitor from cylinder rods with cleaning solvent.
5. Check condition of tires and tire pressures.
6. Inspect engine compartment and remove any foreign material.
7. Check drive belts.
8. Check all fluid levels. If fluid level is low, check for leaks and add oil as required.

IMPORTANT: *Prevent possible engine damage. During cold temperatures, check fluidity of engine oil on dipstick. If the oil appears waxy and/or jelly-like rather than liquid, do not attempt to start the engine. Use external heat source to warm the crankcase until oil appears fluid.*

9. Check the condition of all hoses and connections.
10. Start the engine and run the engine until the machine reaches normal operating temperature.

⚠ CAUTION

Prevent possible injury from unexpected machine movement. Clear the area of all persons before operating the machine.

NOTE: *If the batteries are kept disconnected for more than 1 month, resetting of the monitor may be required. Contact an authorized John Deere dealer.*

If the engine does not start or runs poorly after starting, change the fuel filters and bleed the fuel system.

11. Operate all controls, levers, seat adjustments, etc.
12. Run the machine back and forth several times.
13. Park the machine with cylinder rods retracted, if possible. Shut off engine.
14. Close the sun blinds. Put a DO NOT OPERATE tag on the steering wheel. Close all vent louvers in the cabin.

NOTE: *The central locking is disabled, if the batteries are removed or the battery switch on the right-hand side storage box is activated. To lock the door and secondary exit follow carefully the next steps; First, before removing the batteries or activating the battery switch, stay inside the cabin and use the remote locking device to lock the door and secondary exit. Secondly, activate the battery switch, if you intend to leave the batteries on the machine. Thirdly, leave the cabin and lock the door manually using key. Now the door and secondary exit are both locked even when the batteries are removed.*

15. Drain water and sediment from the fuel tank.
16. Apply rust inhibitor on exposed cylinder rod areas.

IMPORTANT: *Do not apply rust inhibitor on painted areas.*

17. Cover exhaust pipe outlet to prevent water getting in the engine.
18. Lock all covers and doors.
19. Check the batteries for shape and cleanliness. Check the electrolyte level of batteries. If machine is expected to be stored more than one month, remove the batteries from the machine.

NOTE: *Follow the battery manufacturer's instructions for correct storage and service.*

NOTE: *The fire extinguisher system does not work once the batteries are disconnected. If batteries are left on the machine during storage, press the battery switch on the right-hand side storage box. It switches off power supply to all electrical equipment connected directly to the batteries except the optional fire extinguisher system.*

NOTE: *Check that the fire extinguisher system is in working condition.*

NOTE: *It is recommended to use trickle charge, if the batteries are left to the machine equipped with the fire extinguisher system.*

Attachment

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Attachment

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