CTL Forwarder
PIN: 1WJ1510G_ _D004721-

OPERATOR'S INSTRUCTIONS
John Deere 1510G
Tier 3
Fixed Cabin, Gen II

F723312 (11/2023) ENGLISH

Worldwide Construction
And Forestry Division

Published in Finland

Original Instructions

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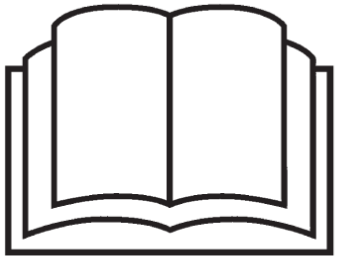


FOREWORD

These instructions describe the operation of your machine and provide you with information about the machine’s design and function, which is necessary in order to use and look after the machine in 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.

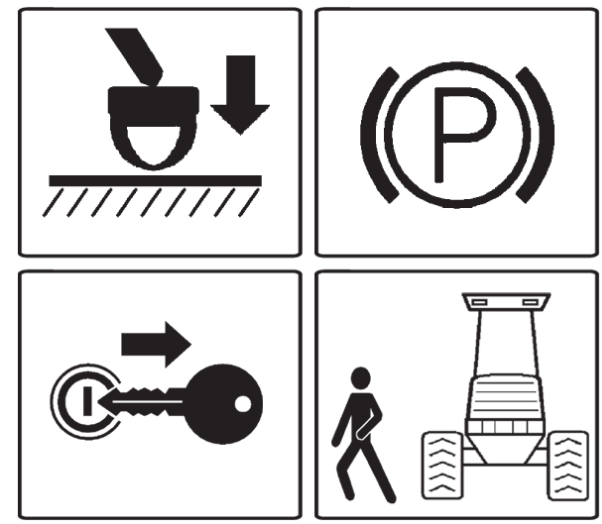
Only persons whose training has been approved by John Deere are permitted to operate John Deere machinery. Furthermore, the operator must have studied and understood the instructions.

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.

PREVENT MACHINE RUNAWAY



⚠ CAUTION

The hydrostatic transmission must not be used as a parking brake. ALWAYS put the direction selector in neutral and apply the parking brake before leaving the cab.

When you stop working, even temporarily (for example while using the phone), lower the boom safely to the ground and engage the parking brake.

Never leave the machine unattended while the engine is running.

When parking the machine:

1. Lower all equipment to the ground
2. Apply the parking brake
3. Stop the engine and remove the key
4. Turn the main switch off if the machine is to stand still for a prolonged period of time (overnight, for example)

USE HANDHOLDS AND STEPS

Falling is one of the major causes of personal injury.

When you get on and off the machine, always maintain a three point contact with the steps and handrails, and face the machine. Do not use any controls as handholds.

Keep floors, steps, and running boards clean and free of oil, ice, mud, and loose objects.

Be careful of slippery conditions on platforms, steps, and handrails when leaving the machine. Never jump on or off the machine.

Repair or replace damaged steps, handrails and running boards.

STOP WORKING IF MACHINE GIVES AN ALARM

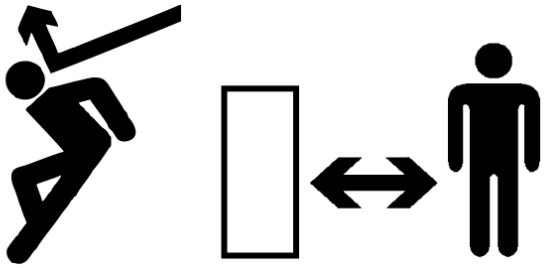
A warning alarm and warning lamp will be activated in the event of machine faults.

Never continue running a machine when the alarm has been given, unless you have checked the cause and taken necessary action.

KEEP DANGER ZONE CLEAR

⚠ CAUTION

Danger zone applies when the machine is in operation. The operator is personally responsible for maintaining this safety rule in the absence of the foreman.



Danger zone for harvesters is 90 meters (300 ft) and for forwarders and bundlers 20 meters (70 ft).

When the engine is running, allow no one in the danger zone of the machine.

Maintain a safe operating distance between the equipment and other personnel. Never swing the boom, attachment, or trees over the heads of bystanders.

Check that no-one is in the line of the blade during sawing. Should the saw chain break, fragments may fly off, causing a risk of accidents.

When you stop working, even temporarily, lower the boom and set the harvester head or grapple safely down so that it cannot move.

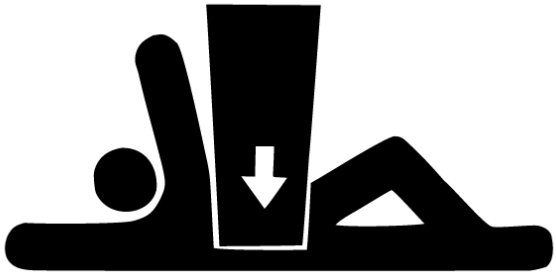
SUPPORT MACHINE PROPERLY

Use proper lifting equipment. Lifting heavy components incorrectly can cause severe injury or machine damage.

Follow recommended procedure for removal and installation of components. Make sure that jack stands and lifting equipment are in good condition and of adequate capacity.

Do not work under a machine that is supported solely by a jack. If left in a raised position, hydraulically supported devices can settle or leak down.

Do not work under a structure that is supported solely by the hydraulic system of the machine. If left in a raised position, hydraulically supported devices can settle or leak down.



SERVICE COOLING SYSTEM SAFELY

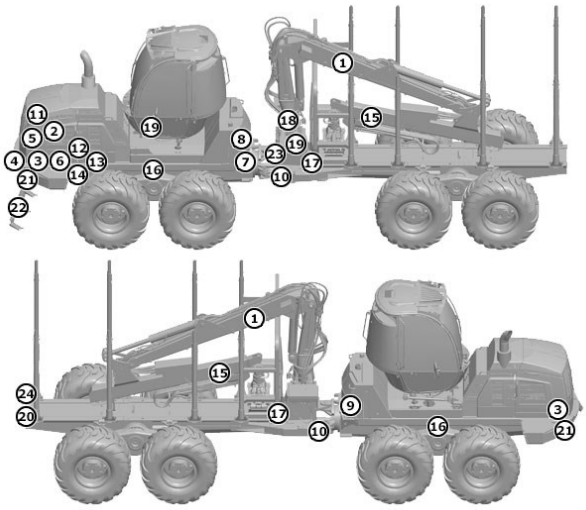
Explosive release of fluids from pressurized cooling system can cause serious burns.

Shut off engine. Only remove filler cap when cool enough to touch with bare hands. Slowly loosen cap to first stop to relieve pressure before removing completely.

MACHINE TEXT SAFETY DECALS

1. Danger above, ground the boom
2. Pressurized coolant
3. Exposed fan and belts, keep clear
4. Danger area for hydraulic fan
5. Air conditioner refrigerant (contains flourinated greenhouse gases), no maintenance
6. Pressurized hydraulic fluid
7. Diesel fuel
8. Fuel inlet, ultra low sulfur (IT4 / FT4)
9. Hydraulic oil filling
10. Articulation area, keep clear
11. Coolant
12. Main switch
13. Crushing of upper body, attach support
14. Disconnect battery
15. Keep back 20M (70 FT)
16. Crushing of upper body, stay safe distance
17. Movable headboard, stay clear
18. Boom pillar oil
19. Fire extinguisher
20. Trailer
21. Ground decking blade
22. Hydraulic stairs, stay clear
23. Weight table
24. Reverse alarm

IMPORTANT: *Keep safety decals clear and visible on the machine and replace missing or damaged safety decals. See Parts Catalogue for correct safety decals placement on your machine.*



OPERATOR'S SEAT - COMFORT

Seat features and adjustments:

1. Adjustable armrests
2. Backrest angle
3. Seat belt
4. Air-controller side supports
5. Upper lumbar support
6. Lower lumbar support
7. Seat heating
8. Adjustable shock absorber
9. Variable seat length adjustment
10. Seat height adjustment
11. Adjustable seat angle

OPTIONAL EQUIPMENT

The machine can be equipped with various different optional equipment.

CENTRAL GREASING SYSTEM

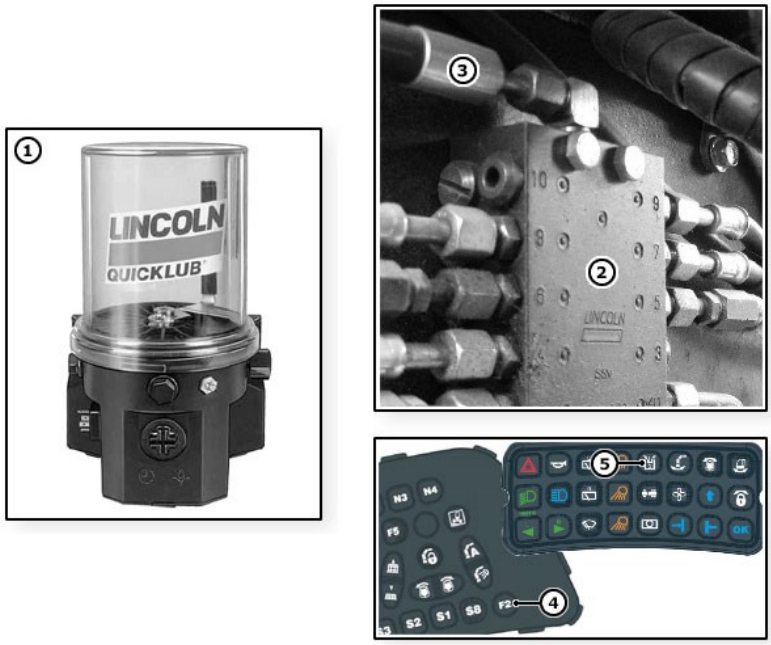
The machine can be equipped with an automatic lubrication system. The system consists of a grease pump with an integrated grease reservoir (1), grease dispenser blocks (2) for distributing the grease to the right locations and grease lines (3) between the pump, dispensers and greasing points.

Direct supply lines from the pump go to the main dispenser and the boom dispenser. Grease supply to secondary dispensers for frame bearing, middle joint, cabin leveling and rotating unit and rear frame go via the main dispenser.

Operation

The greasing pump works only when the machine's diesel engine is running. Once the needed greasing interval is set from the pump unit the system operates fully automatically. When the grease level in the reservoir gets low the TimberMatic™ gives an alarm.

The grease pump can be forced to run for four minutes by pressing the F2 function (L14) and vacuum pump (R56) buttons (4, 5) simultaneously.



SAFETY INSTRUCTIONS

Appropriate use

- Use the lubrication pump and progressive divider valves only for dispensing lubricants in centralized lubrication systems. The system is designed for intermittent operation.

FORWARDER IBC

IBC system can be mounted to CF5, CF7, CF7S and CF8 booms as an optional feature. This option allows operators to focus on grabbing the stems, since the operator controls the boom tip directly instead of controlling independent boom joint movements.

A few proven advantages of IBC:

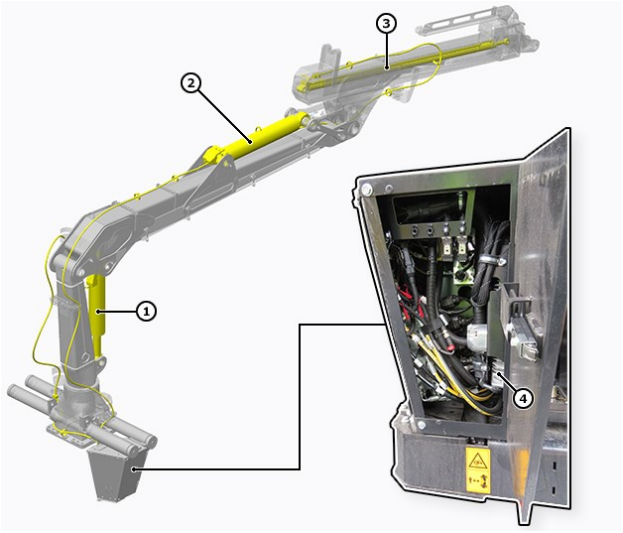
- The boom is easy and smooth to control. The system is easy to understand.
- Productivity is improved with faster cycle times.
- Boom durability is better due to soft movements and electrical end damping.

IBC SENSOR BUS

IBC system components:

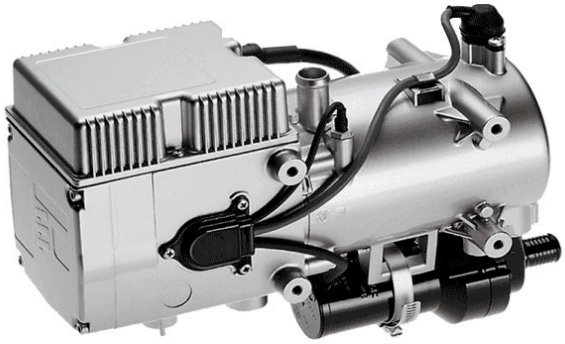
1. Main boom cylinder
2. Jib boom cylinder
3. Extension boom cylinder
4. Rear MECA controller (RFC)

When operating the IBC system in G-model machines, cylinders with embedded sensoring (1,2,3) provide displacement data via CAN bus to the rear MECA controller (4). The IBC sensors are defined under CAN 3 "sensor bus" in the machine's control system. Rear MECA controller (RFC) processes sensor inputs from cylinders and compares this data through actuator algorithms along with inputs provided by the operator via joystick commands. As a result IBC system provides independent valve control commands to the boom valve. Control commands for the rotator and grapple are not affected by the IBC system.



PRE-HEATER

The purpose of the pre-heater system is to warm up the engine, hydraulic oil and the cabin prior to starting the engine and machine operation. The pre-heater is recommended for use when the ambient temperature is below 5° Celsius (41 °Fahrenheit). Pre-heating eliminates excessive fuel consumption, pollution and engine wear during a cold start.



The pre-heater is started with the timer, either directly or at a preset time. Or by using remote control if equipped via an optional pre-heater modem.

Operation with biodiesel (FAME for diesel engines according to DIN EN 14 214)

The pre-heater model (M8) must be biodiesel compatible. When the pre-heater model is approved for operation with biodiesel up to a temperature of minus 8° Celsius (17.5 F°) the flowability reduces at temperatures below 0 °C (32 °F).

Other pre-heater models (M10) can use biodiesel blends up to 10 %.

Heating mode at high altitudes – up to 3500 m

The combustion behaviour of the pre-heater changes with increasing altitude, due to the lower air density. The pre-heater has an automatic altitude detection device. The combustion ratio between fuel and air is adapted to the ambient conditions by reducing the fuel quantity.

RIGHT KEYPAD IN FORWARDER

- (R02) Right side stake extension down / Valve Y211 (for single and dual clambunk)
- (R03) Right side stake extension up / Valve Y212 (for single and dual clambunk)
- (R04) Cabin rotation (R&L cabin) or electrical seat locking (Fixed cabin)
- (R05) Load space bending to left side (ALS) / Timbergate backward (VLS)
- (R06) Load space bending to right side (ALS) / Timbergate forward (VLS)
- (R07…R14) Assortment buttons
- (R15…R16) Decrease – increase
- (R17…R20 and R23…R28) Numeric buttons
- (R20) Diesel speed boost (*E-IT4*) / ADC boost (*G-model*)
- (R21) Registration
- (R22) Cruise control
- (R26) ADC mode 1 - ECO (*G-model*)
- (R27) ADC mode 2 - Normal (*G-model*)
- (R28) ADC mode 3 - Power (*G-model*)
- (R29) Regulable control for driving percentage (Regulable ECO)
- (R30) Decking blade up/down
- (R31) Drive direction
- (R32) Differential lock rear
- (R33) Differential lock front
- (R34) Decking blade floating
- (R35) High gear – low gear / Limited % driving (ECO drive) – normal drive
- (R60) Additional function button

NOTE: *Cabin manual rotation and levelling = R60 + Left joystick*

All these buttons do not exist in CommandCenter machines.

TEMPERATURE

Temperature setting affects to the water valve position, if the fan speed is set to AUTO or manual position When the fan position is set to OFF, the water valve is closed.

AUTO

The water valve position is automatically controlled in according to the temperature setting, internal and external temperatures.

LO

The water valve is fully closed independently of the internal and external temperatures and the AC compressor is enabled.

HI

The water valve is fully open independently of the internal and external temperatures and the AC compressor is disabled.

RECIRC MODE

When the RECIRC mode is enabled, outside air is prevented from entering into the vehicle. When the RECIRC mode is disabled, then the fresh/recirc door will be set to allow fresh air enter to the cabin. A panel indicator light indicates when the RECIRC mode is active.

In recirculation mode, only recirculated air is pulled in through the unit. Use this mode for short periods of time to prevent fumes from entering the cab or to obtain maximum cooling or heating.

The unit draws in a mix of outside and recirculated air when in fresh air mode. This allows the cab to maintain a positive cab air pressure to prevent excessive dust from entering the cab. In addition, the fresh air mode prevents the air from becoming stale and humid.

NOTE: *Constant use of full recirculation also increases the carbon dioxide level of the cabin thus resulting in poor air quality.*

NOTE: *Inspect and replace both the fresh air and recirculated air filters regularly to obtain proper cab pressurization, optimized unit performance, and correct temperature regulation.*

DEFROST

In certain cold or humid conditions, more heat and airflow is required to clear the windows. The set point temperature and the blower speed should be adjusted as necessary to maintain a clear windshield at all times. For maximum defrost, set the temperature control to “HI” on the control panel, and turn the blower fan speed to maximum fan.

Enable the air conditioner to faster defrost. The A/C is used to dehumidify the air entering the cab to remove the fog from the windshield.

TURNING OFF THE TIER2/TIER3 ENGINE

1. Ensure that the switch for driving direction is in the middle position.
2. Ensure that the boom and harvester head are safely parked (harvester).
3. Ensure that the boom and grapple are safely parked (forwarder).
4. Ensure that the parking brake is engaged.
5. Turn off the PC using the "Shut down" command on the Windows™ "Start" menu or using PC's power switch.

   NOTE: *The TimberMatic™ program must be closed before turning off the computer and switching off the power. Wait for the shut down procedure to be complete before restarting.*

6. Before stopping an engine that has been operating at working load, idle engine at least 2 minutes at 1000—1200 rpm to cool engine main components.
7. Turn the ignition key to the stop position.

DRIVING

⚠ CAUTION

Before driving, inspect the machine according to the instructions given in chapter Safety on page Inspect machine.

Follow the instructions to select right driving settings for each situation.

- Off-road driving
- On-road driving
- Cabin rotating and leveling (If equipped)
- High/low and rear wheel drive
- ECO mode
- Diesel speed boost
- Differential locks
- Cruise control (If equipped)
- Decking blade (If equipped)

OFF-ROAD DRIVING

During off-road operation, low gear is engaged (all-wheel-drive mode is on). The machine is steered by means of the joystick on the left control keypad.

IMPORTANT: *Deactivated on-road driving switch is a precondition when trying to operate following features: boom movements, cabin rotation, cabin leveling and cabin work lights.*

1. Turn off the parking brake. The work brake will engage automatically. Raise the stairs, if not raised automatically by parking brake switch.
2. Turn on the boom and the working rpm when the TimberMatic is turned on (now you can use the boom and harvester head functions).
3. Engage low gear (the driving direction switch has to be in neutral).
4. Select the driving direction.
5. Press the accelerator pedal. This will automatically disengage the work brake and the machine will start moving.
6. The speed of the machine is controlled with the drive pedal. As soon as the pedal is pressed past the constant speed position, the speed of the diesel engine also starts picking up in relation to the position of the pedal.

Off-road driving with the working rpm engaged is suggested especially when boom and harvester head are operated at the same time. If you do not want to use the working rpm in off-road driving, the operation is similar to what has been described above, but regulating the machine speed with the drive pedal has a

IBC MODE

NOTE: *IBC is an optional feature requiring special boom components and separate activation.*

In order to use the boom in IBC mode, press the following button combination – R60 (F1) + L18 (boom icon). If the button combination is pressed again operator is able to return to the normal boom mode.

IBC mode can also be actived in "Activate Functions" pop-up menu while enabling other boom functions. Separate IBC activation checkbox is available when activating the boom (button L18).

When entering IBC mode, the boom symbol with IBC text appears on the bottom right field of TimberMatic™ display.

When using the boom in IBC mode, boom controls are IBC specific and the operator controls the boom tip movements directly (three main cylinders) instead of individual cylinders. Also since IBC activities are heavily controlled by the onboard automation system, all IBC related control, adjustment and calibration procedures are performed with TimberMatic™. Notice that TimberMatic™ has a separate menu for the IBC functions in relation to the traditional boom control menu.

SPECIAL FUNCTIONS

Unloading mode

This function is controlled by the operator with on/off switching. The unloading mode is activated by pressing boom autotilt button R57 (IBC mode needs to be on). When the mode is active, this is indicated with a separate symbol in the work mode. Unloading mode minimises the use of the extension boom when handling exceptionally heavy loads.

NOTE: *Unloading mode can also be utilized when operating in slope conditions if extension boom feels too active.*

Load space functionality

This function is automatically controlled by the IBC system. Functionality minimises the usage of the extension boom while operating in the load space.

Switching to travel position

The IBC system switches to normal boom operating mode when bringing the grapple near the transportation position. The grapple needs to be near the headboard and low enough in the load space in order to accurately control the folding of the boom into travel position. Operator is unable to activate unloading mode until boom is moved from transportation position.

CABIN WINDOWS CLEANING AND INSPECTION

⚠ CAUTION

Windows are made of polycarbonate with hard surface coating. Use of other than recommended detergents may damage the windows. Do not use abrasive or highly alkaline cleaners as these may crack polycarbonate materials. Do not use aromatic/halogenated solvents including toluene, benzene, acetone, tetrachloride, petroleum or gasoline products for the windows.

NOTE: *Read the safety chapter regarding cabin protective structure and windows.*

NOTE: *If the cleaning products mentioned here are not available, use corresponding products.*

Clean and inspect the cabin windows regularly. Cleaning should not be performed in direct sunlight or at highest temperatures.

General cleaning

Wash outside with lukewarm water and clean with John Deere Polycarbonate Window Cleaner. Use John Deere Polycarbonate Window Cleaner also for the inside surfaces. Dry thoroughly to avoid water marks, using a soft and clean cloth.

Using window washers

Do not wipe windows dry. Fill tank with John Deere Polycarbonate Window Wash.

Removing stains

Remove stains of resin, paint, grease, oil, etc, before the stain has time to dry. Use a soft cloth moistened with John Deere Polycarbonate Window Cleaner or Polycarbonate Window Wash.

- Your equipment can operate at top efficiency only when clean lubricants are used.
- Use clean containers to handle all lubricants.
- Whenever possible, store lubricants and containers in an area protected from dust, moisture, and other contamination. Store containers on their side to avoid water and dirt accumulation.
- Make certain that all containers are properly marked to identify their contents.
- Properly dispose of all old containers and any residual lubricant they may contain.

MIXING OF LUBRICANTS

- In general, avoid mixing different brands or types of oil.
- Oil manufacturers blend additives in their oils to meet certain specifications and performance requirements.
- Mixing different oils can interfere with the proper functioning of these additives and degrade lubricant performance.
- Consult your John Deere dealer to obtain specific information and recommendations.

ENGINE COOLANT

Failure to follow applicable coolant standards and drain intervals can result in severe engine damage that may not be covered under warranty.

The engine cooling system is filled to provide year round protection against corrosion and cylinder liner pitting, and winter freeze protection to -37°C (-34°F). If protection at lower temperatures is required, consult your John Deere dealer for recommendations.

The following engine coolants are preferred:

- John Deere COOL-GARD™ II Premix
- John Deere COOL-GARD™ II PG Premix

Use John Deere COOL-GARD™ II PG Premix when a non-toxic coolant formulation is required.

The following engine coolant is also recommended:

- John Deere COOL-GARD™ II Concentrate in a 40–60% mixture of concentrate with good quality water.

John Deere COOL-GARD™ II Premix, COOL-GARD™ II PG Premix, and COOL-GARD™ II Concentrate coolants do not require the use of supplementary coolant additives.

IMPORTANT: *When mixing coolant concentrate with water, do not use less than 40% or greater than 60% concentration of coolant. Less than 40% gives inadequate additives for corrosion protection. Greater than 60% can result in coolant gelation and cooling system problems.*

Other coolants

John Deere COOL-GARD™ II and COOL-GARD™ II PG coolants may not be available in the geographical area where servicing is performed. Other ethylene glycol or propylene glycol base coolants may be used if they meet the following specification:

- Pre-mix coolant meeting ASTM D6210 requirements
- Are nitrite-free
- Coolant concentrate meeting ASTM D6210 requirements in a 40—60% mixture of concentrate with quality water

If these coolants are unavailable, use a coolant concentrate or pre-diluted coolant intended for use with heavy-duty diesel engines and with a minimum of the following chemical and physical properties:

- Formulated with a quality nitrite-free additive package.
- Provides cylinder liner cavitation protection according to either the John Deere Cavitation Test Method or a fleet study run at or above 60% load capacity
- Protects the cooling system metals (cast iron, aluminium alloys, and copper alloys such as brass) from corrosion

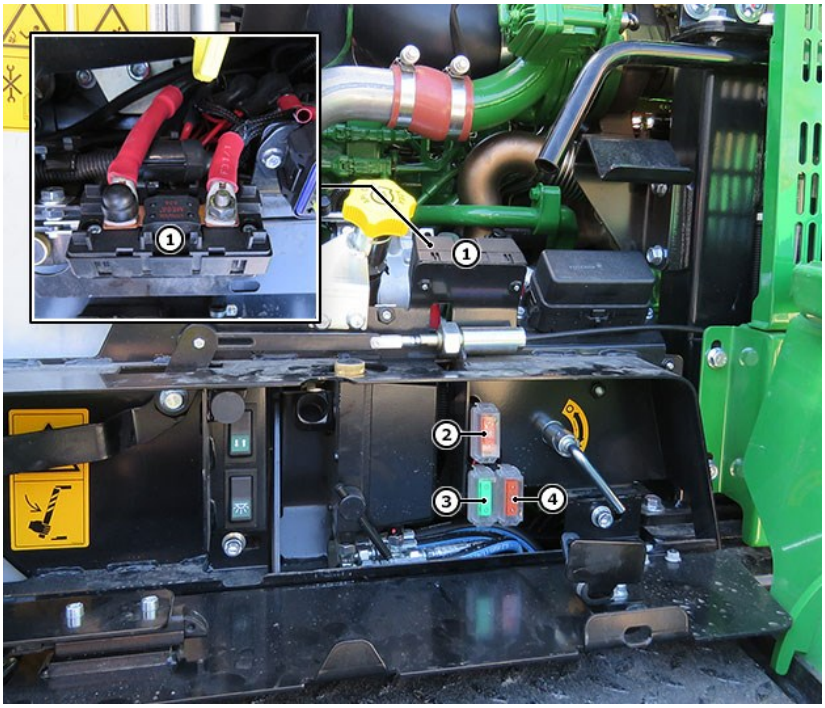
Freeze Protection

The relative concentrations of glycol and water in the engine coolant determine its freeze protection limit.

MAIN FUSES

The current from the battery to all equipment on the front and rear carriages is divided between three main fuses of 30 A, 30 A and 40 A located on the main switch panel. The current to the cabin is supplied through the 80 A main fuse on the main switch panel. The current for the cabin lift is supplied through the 40 A fuse and the direct battery circuit has its own 30 A fuse.

Position	Fuse number	Object	Capacity (A)
1.	F31	Main fuse, cabin controller	80
2.	F32	Main fuse, FFC (VP1)	40
3.	F33	Main fuse, RFC (VP1)	30
4.	F35	Cabin lift	40



CONTROLLER LOCATIONS

In 1910G the engine controller (1) is located to the rear of the engine compartment on the right-hand side of the machine. In 1110G, 1210G and 1510G the engine controller is located on the right-hand side of the cooler package.

G-series machines equipped with fixed cabin has three control modules; Cabin controller (3), Front Forwarder Controller (4) and Rear Forwarder Controller (5). Cabin controller (CAB) is located to the front of the cabin, Front Forwarder Controller (FFC) is located under the cabin on the right side and Rear Forwarder Controller (FRC) is located to the left saddle box.

The machine is also equipped with MTG module (2), which is data transfer module for JD Link. The MTG can be equipped with satellite connection that requires an additional module and antenna that are installed also to the cabin.

ENGINE SENSORS 3/3

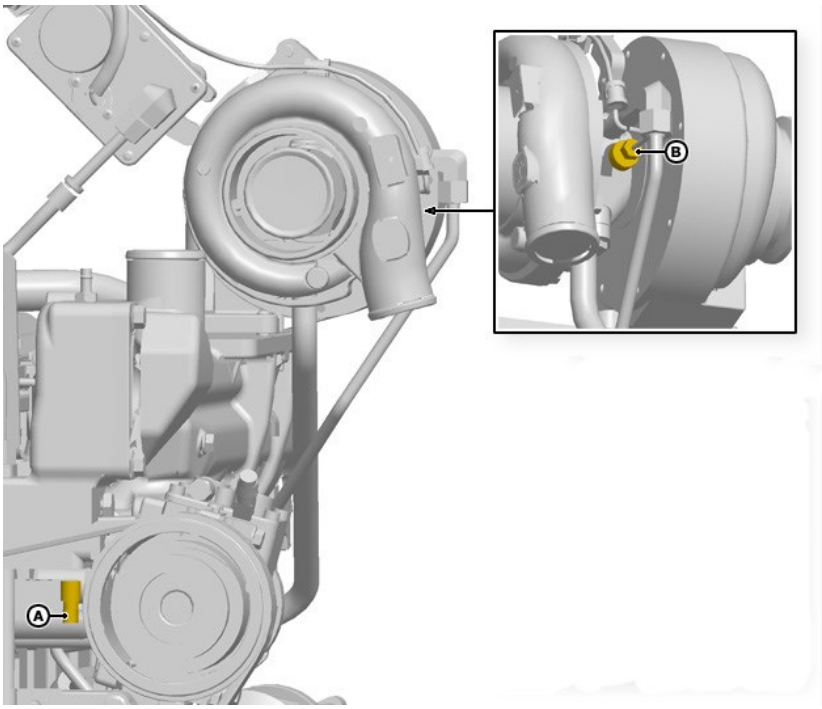
A. Coolant temperature sensor (B09)

ECT sensor is located in the thermostat housing and monitors engine coolant temperature.

The ECU adjusts the amount of fuel delivered during start-up based on the initial ECT readings. The ECT also sends a signal to the ECU to increase idle speed after engine start-up.

B. Turbo speed sensor (B07)

Pulse sensor which measures speed of the VGT turbocharger. Sensor information is used by the ECU for engine protection purposes. High-speed readings will result a fuel derate.



This section includes instructions for measuring and adjusting of hydraulics pressures using a separate pressure gauge or by utilizing on-board pressure sensors connected to TimberMatic™. Further information over TimberMatic™ measurements can be obtained from TimberMatic ™ manuals.

⚠ DANGER

Carry out pressure checks on a flat surface and ensure there is sufficient space around the machine in case it moved. No-one should be allowed near the machine.

⚠ CAUTION

Due to safety reasons, only authorized and trained professionals are allowed to adjust hydraulic pressures of the machine.

⚠ CAUTION

Always switch off the diesel engine before connecting a gauge to the machine, when adjusting pressure settings and before disconnecting the gauge from the machine.

⚠ CAUTION

Inspect pressure gauges regularly and do not use damaged fittings or hoses.

IMPORTANT: *Use calibrated pressures gauges only. If you are unsure about adjusting pressures, contact an authorized service workshop.*

DRIVE HYDRAULICS

- Charge pressure
- Charge pressure valve setting

  NOTE: *TimberMatic™ service lock must be opened.*

  NOTE: *The charge pressure valve is not on G-series Tier 3 and Tier 2 models.*

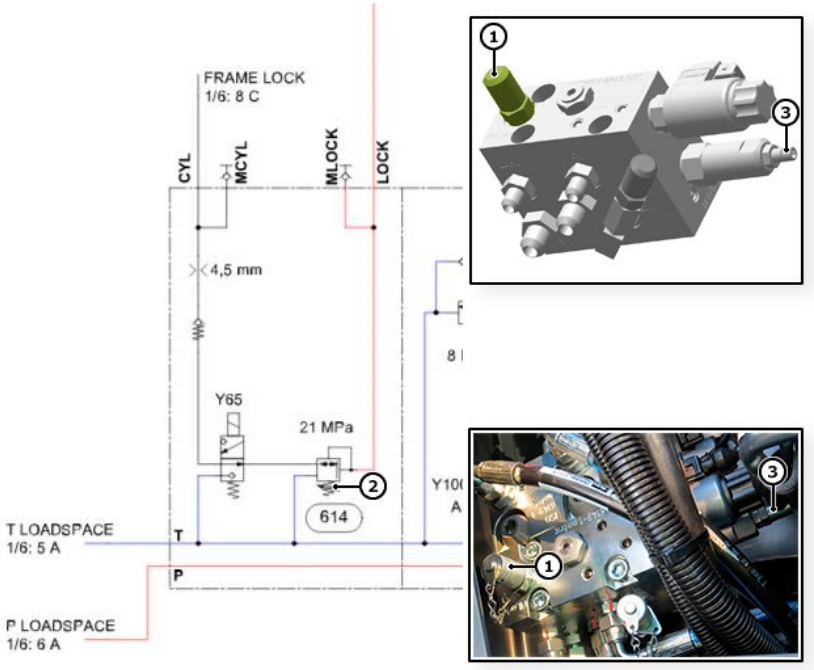
- Maximum drive pressure / Drive pump cut-off

FRAME BRAKE PRESSURE

NOTE: *If the machine is equipped with IBC, measure the maximum pressure with the IBC mode not activated.*

1. Connect a 40 MPa (5800 psi) pressure gauge to the measuring point MLOCK (1) on the frame brake valve.
2. Start the machine and operate the lift boom completely up.
3. Read the pressure.
4. The pressure must be 21 MPa ± 0.5 MPa (3046 ± 72 psi).
5. If necessary, adjust using the adjusting screw (3) on the frame brake valve.

NOTE: *The frame lock pressure is reduced from the boom lift pressure. If required, check also the pressure settings of boom valve LS relief pressures.*



BRAKE HYDRAULICS

- Drive and work brake pressures
- Loading range pressures
- Loading pressure

⚠ DANGER

Do not ever disconnect any brake system hose joints before all pressure has been eliminated from pressure accumulators.

NOTE: *When the engine is stopped brake system pressure can be eliminated through pressing the brake pedal repeatedly.*

LOWERING THE CABIN

⚠ DANGER

Before lowering the cabin make sure there is nobody near the machine.

⚠ WARNING

Keep all limbs, tools and any other obstructions away from the moving parts of the tilt mechanism.

⚠ WARNING

Support the cabin to the leveling platform, if the hydraulic system of the cabin leveling has air for example because of component replacement.

1. Turn the lever (A) on the direction valve clockwise as far as it will go.
2. Pull the release handle (B) so that the locking pin (C) moves out of its slot in the locking bar (D).
3. Still pulling the release handle, press the operating switch (E) and let the cabin all the way down.
4. Tighten the cabin platform fastening screws (F).

   NOTE: *If equipped with fixed forwarder cabin, install the left side panel (H) with four fastening screws.*

In the event that there is no power supply to the machine the cabin can be lowered manually by operating the manual hydraulic pump with a lever (G).

A. Direction lever
B. Release handle
C. Locking pin
D. Locking bar
E. Operating switch
F. Fastening screws
G. Manual lowering lever
H. Left side panel

Purpose	Tool	Size
Cabin platform screws	Allen key	19 mm

RESERVOIR FILLING

Always fill through the filling nipple. The best practice is to use standard refinery drums or pails. Impurities in grease can create operational problem.

Requirements for grease classification to be used with central lubrication system in different temperatures:

Above 0°C (32°F): NLGI 2

Below 0°C (32°F): NLGI 1

Below -20°C (-4°F): NLGI 0

It is not necessary to change the grease from NLGI 2 to NLGI 1 unless the period when temperature is below 0°C is expected to last several days. If the temperature drops significantly below zero it is recommended to change the grease immediately.

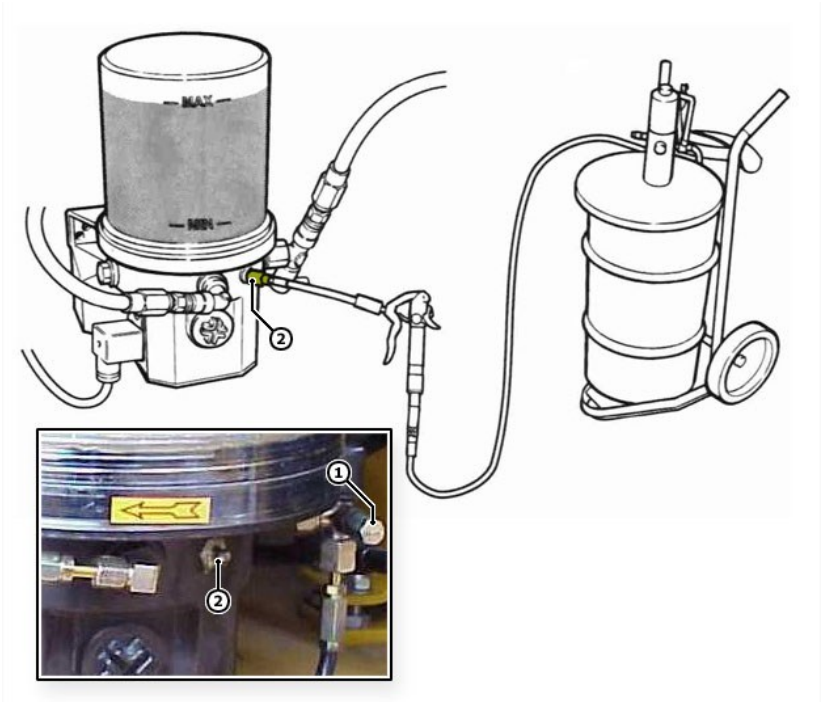
Do not mix two greases - consult your grease supplier first.

IMPORTANT: *Use only HD lithium complex grease. Do not use calcium grease!*

Emergency lubrication

The pump can be by-passed by feeding grease manually through the manual grease fitting attached on the pressure relive valve. In case of system failure this fitting can be used for trouble shooting and manual greasing (all points are lubricated from this one fitting).

1. Pressure relief valve with a by-pass fitting
2. Filling nipple



BLUETOOTH PAIRING AND BATTERY CHARGER CONNECTION

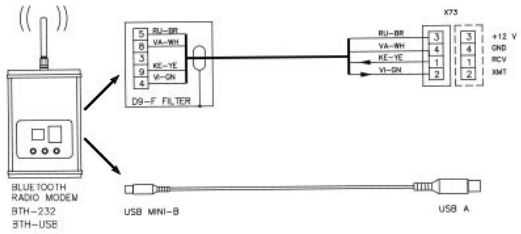
IMPORTANT: *Complete the weight scale wiring according to the picture and machine specific electric schematics.*

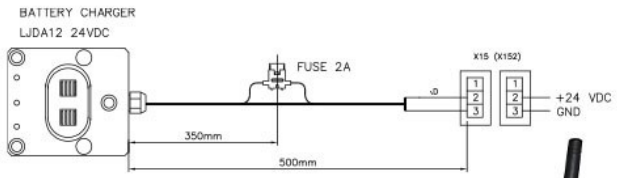
Symbols on the Bluetooth modem screen:

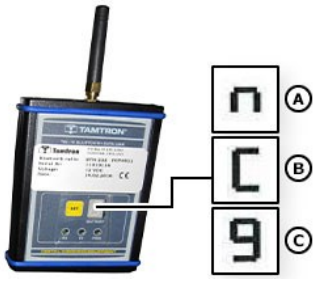
A. No Bluetooth connection
B. Bluetooth connection working
C. Scale working, battery charge level 0-9 is displayed

Troubleshooting if no connection exists between the scale and the Bluetooth modem:

1. Disconnect the scale (sensor) battery.
2. Connect the scale (sensor) battery.
3. Wait about 20 seconds until the blue led is lit continuously.
4. Disconnect the scale (sensor) battery.
5. Connect the scale (sensor) battery.
6. Wait about 20 seconds until the blue led flashes.
7. Push the cabin modem SET-button until a red line “-“ appears on the modem screen.
8. Wait until the connection between the cabin modem and the scale is active.







CHECK VERTICAL CLEARANCE OF THE EXTENSION BOOMS

NOTE: *Check separate instructions for double extension booms equipped with internal hosing (10m XI).*

If necessary, make the adjustment by inserting additional adjustment plates (A) under the slide pieces (B).

IMPORTANT: *The clearance can be 1-1.5 mm maximum on measurement from one side.*

IMPORTANT: *The slider parts must not press against the side of the extension.*

The aggregate thickness of the fitting plates under the slider parts must not exceed 3 mm (0.12 in). This is to make sure that the slider parts will stay in place.

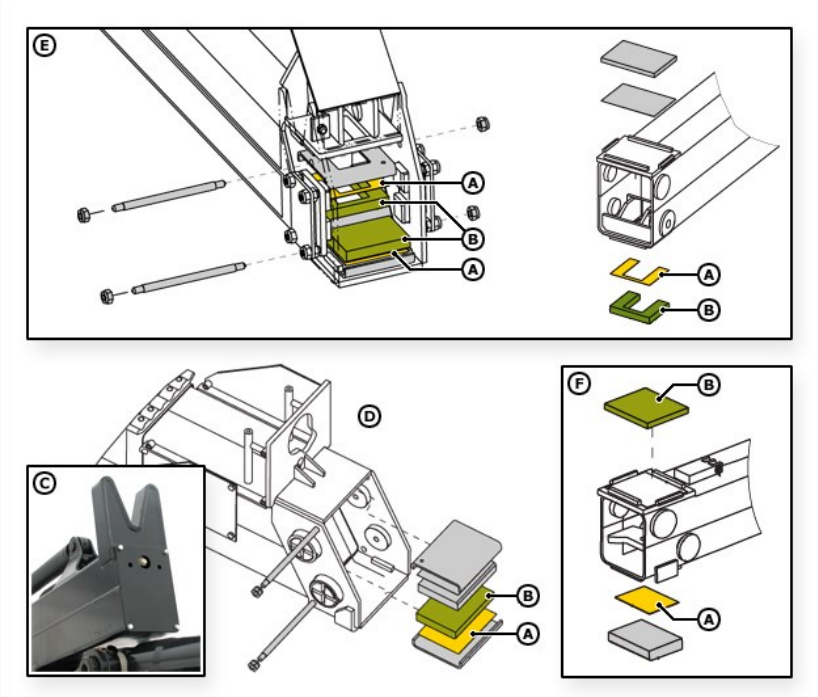
The top of the slider part must exceed the edges of the bearing housing by at least 2 mm (0.08 in).

IMPORTANT: *Check that the set clearance works well by ensuring the extensions move smoothly through the whole movement range and that the clearance does not vary.*

The condition of the rearmost slider parts can be checked by opening the plate at the rear end of the extension boom (C).

NOTE: *It is recommended this check be performed every time the jib boom is dismantled for maintenance.*

Purpose	Tool	Size
Slide piece mounting pin	Ring spanner	19 mm



CHECK JOINT PINS OF THE BOOM

The joint pins must be well lubricated. Check that there is grease seeping from the sealing faces of the bearings.

CHECK THE GRAPPLE AND ROTATOR

Check six mounting screws (A) of the grapple visually. If the screw connection seem to be loose and the grapple seems to have moved in relation to the rotator, tighten the nuts to 290 Nm (214 lb-ft).

If equipped with Indexator, check the two clamping screws (B) of the rotator bottom. Tighten the screws to 600 Nm (442.5 lb-ft).

NOTE: *If the grapple has not rotated smoothly, rotate it continuously in one direction a minimum of 10 rotations. This is to ensure that all the fluid in the rotator and hoses is circulated back to the tank. If the grapple still does not rotate smoothly when rotated back in the other direction there is still air in the hydraulic line.*

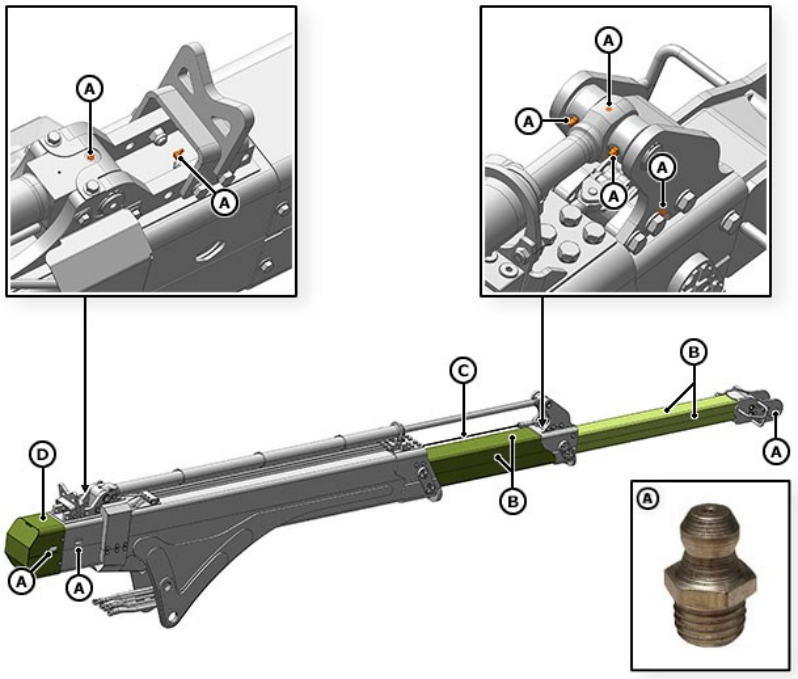
Purpose	Tool	Size
Grapple mounting screws	Allen key	14 mm
Grapple mounting nuts	Fork spanner	24 mm
Grapple mounting nuts	Torque wrench	290 Nm

GREASE THE JIB BOOM EQUIPPED WITH XI EXTENSION

NOTE: *When operating in extremely dusty or sandy conditions, greasing of the boom surfaces (B) is not required. The mix of grease and sand may damage the slide surfaces.*

1. Grease the upper bearing of the jib cylinder, the jib boom rocker bearings, the sliding surfaces of the extension booms, the bearings of the hidden hoses sheave and chain pulleys via the grease fittings (A). To grease the sliding bearings of the 1st extension boom, the extensions must be in their innermost position.
2. Apply a layer of grease on the sliding surfaces of the extension booms (B).
3. Lubricate the extension boom chains (C) with oil. When lubricating, use an oil can and engine oil, for instance. Operate the extension booms to their outermost positions to lubricate the upper chain. Open the protection cover (D) to lubricate the lower chain.
4. Lubricate the inner surfaces of the jib boom and first extension boom. The easiest way is to remove the protection cover (D) of the jib boom. Spread lubricant in front of the slide pieces so that it can flow through the jib boom when it is folded or extended. The lower surfaces are lubricated while the jib boom is in its outermost position (extended straight) and the upper surfaces while folded in its innermost position.

Purpose	Tool	Size
Protection shield	Socket wrench	18 mm
Jib boom protection cage	Socket wrench	12 mm



CHANGE ENGINE OIL AND OIL FILTER

IMPORTANT: *The 500 hour oil change interval can be achieved by fulfilling the following requirements:*

- John Deere PLUS-50™ II or ACEA E9 or ACEA E6 engine oil is used.
- Oil filter approved by John Deere is used.
- Diesel fuel with a maximum of 0.0015% (15 mg/kg) sulfur content is used.

The oil and filter change interval is reduced if any of the above listed requirements are not fulfilled.

IMPORTANT: *Filtration of oils is critical to proper lubrication. Always change the oil filter whenever the engine is renewed. Use a filter meeting John Deere performance specifications.*

Change the engine oil and oil filter as follows:

1. Run the engine approximately 5 minutes to warm up the oil. Shut the engine down. Open the front frame belly plate (A).
2. Open the engine oil drain hose plug (B) and drain the oil into a container.
3. Replace the oil filter (C):
   a. Clean the area around the filter head.
   b. Turn the filter element using a suitable filter wrench to remove it.
   c. Apply clean engine oil to the new filter at the inner (D) and outer seals (E) and to the filter threads.
   d. Wipe both sealing surfaces of the header (F, G) with a clean rag. Ensure the notches in the dust seal (H) are properly seated in the slots in the housing. Replace the dust seal if damaged.
   e. Install and tighten the oil filter by hand until it is firmly against the dust seal. Do not apply an extra 3/4 to 1-1/4 turn after gasket contact as done with standard filters.

      NOTE: *When installing filter element, hand tighten only. A filter wrench may be used for removal only. Be sure notches in dust seal (H) are properly installed in the slots in the housing.*

4. Check the sealing surface and threads of the drain hose plug. Tighten the plug to 50 Nm (37 lb-ft).
5. Fill the engine crankcase with engine oil through the oil filler hole (I).
6. Disconnect the fuses F56, F61, and F62 of the engine control unit on engine compartment fuse box (J). Machines equipped with Tier 3/Tier 2 engines, remove the fuse F81.

   CAUTION *Make sure that you remove the correct fuses. The engine will start if the correct fuses are not removed.*

7. Operate the engine by means of the starter motor for about 30 seconds.
8. Reconnect the fuses. Start the engine and run it to check for possible leaks.

   IMPORTANT: *Ensure adequate lubrication to engine components before the engine starts.*

9. Stop the engine and check the oil level after 10 minutes. The oil level reading should be within the crosshatch marks on the dipstick.

A. Front frame belly plate
B. Oil drain hose plug
C. Oil filter element
D. Inner seal
E. Outer seal
F. Sealing surface on header
G. Sealing surface on header
H. Dust seal
I. Engine oil filling plug
J. ECU power supply fuses F56, F61, F62 (F81 Tier 2/Tier 3)

STEP 1

Operate the boom to following position:

- Turn the boom to side of the machine.
- Take the extension boom inwards, but leave about 50 cm out (1).

  IMPORTANT: *The clearance is smallest when the extension is extended 50-100 cm. When the extension is completely in or out, the extension can seem loose, which is normal.*

- Left the grapple (2) hang about 10 cm over the ground.

Shut down the engine.

⚠ WARNING

Do not work under the unsupported boom.

CHANGE HIGH/LOW GEAR OIL

IMPORTANT: *Before changing the oil, allow the machine to stand still for at least 30 minutes to make sure that all impurities in the oil sink to the bottom. Change the oil while it is still warm.*

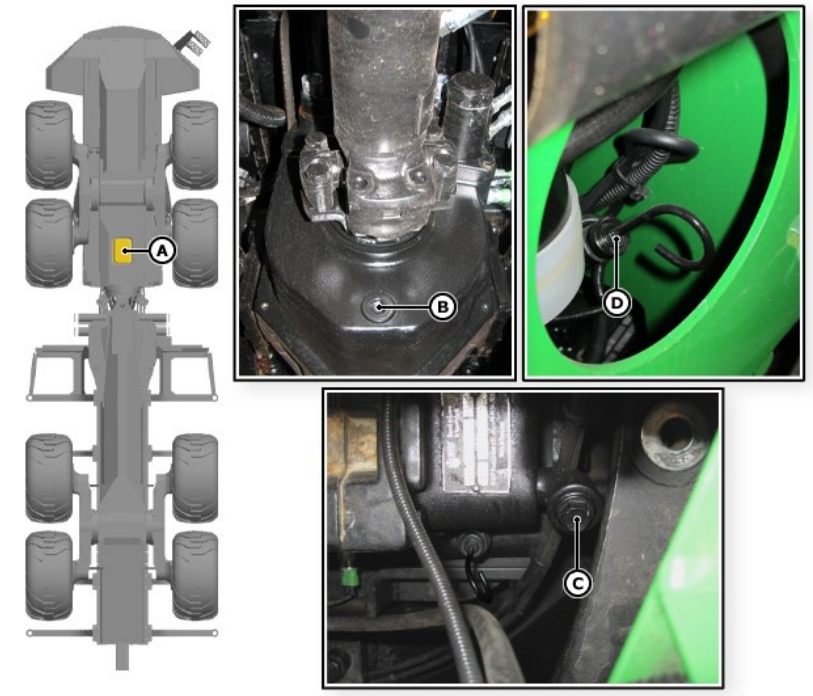
NOTE: *To even the pressure in the oil compartment, open the filler plug before opening the drain plug.*

Change high/low gear oil as follows:

1. Open the access cover located under the high/low gear.
2. Clean the exterior of the drain plug and surrounding area.
3. Open the drain plug. Drain the oil off completely into a suitable container. Clean the drain plug. Close and tighten the plug.
4. Refill the high/low gear with oil through the filler plug, until there is oil up to the mark on the dipstick. Oil level should be within ± 5mm from the dipstick mark. Close the filler plug.
5. Check that the drain plug is not leaking and close the access cover.

A. High/low gear access cover
B. Drain plug
C. Filler plug
D. Dipstick

Purpose	Tool	Size
Access cover fastening screws	Allen key	10 mm
High/low gear drain plug	Allen key	12 mm
High/low gear filler pipe plug	Socket wrench	17 mm



REPLACE ENGINE OIL BYPASS FILTER

Every 1000 hours:

⚠ CAUTION

The unit is hot.

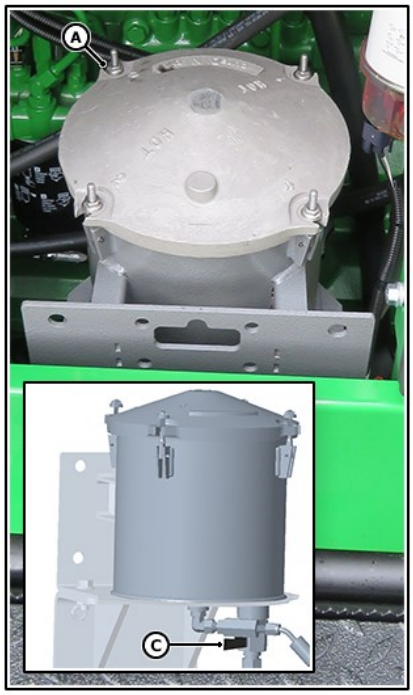
IMPORTANT: *Engine oil bypass filter does not prolong the normal engine oil service intervals.*

NOTE: *Engine oil bypass filter increases the engine oil volume about 4 Liters.*

1. Remove the lid.
   A. MTS-model: loosen the four nuts.
   B. PFT-model: using 24” –long flex handle with ½” drive, turn lid (B) counterclockwise.
2. Reuse the packing plastic bag of the new filter as disposable bag. Remove the used filter gently by pulling up on the wire handle and drop into the plastic bag for disposal.
3. Install the new filter by pushing it gently down into the filter housing; make sure that the rubber grommet fits securely over the nipple.
4. Thoroughly clean lid and gasket surface.
5. Lightly lubricate gasket with clean oil.
6. Install the lid.
   A. MTS-model: tighten the four nuts.
   B. PFT-model: Install the lid by turning the lid clockwise until contact with gasket (hand tight). Tighten the lid to 80 Nm torque or approximately additional half turn using the 24”-long flex handle.

As required:

Take oil sample. Turn the valve (C), or (D) and spill oil to a clean container.



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

Purpose	Tool	Size
Hydraulic oil drain hose cover fastening screws	Ring spanner/socket wrench	13 mm
Hydraulic oil drain hose cover plug	Ring spanner	27 / 32 mm

REPLACE FILTER-DRYER-RECEIVER

IMPORTANT: *Read the safety instructions carefully. See the section on safety at the beginning of the guide.*

24-month service:

Filter-receiver-dryer needs to be changed every two years.

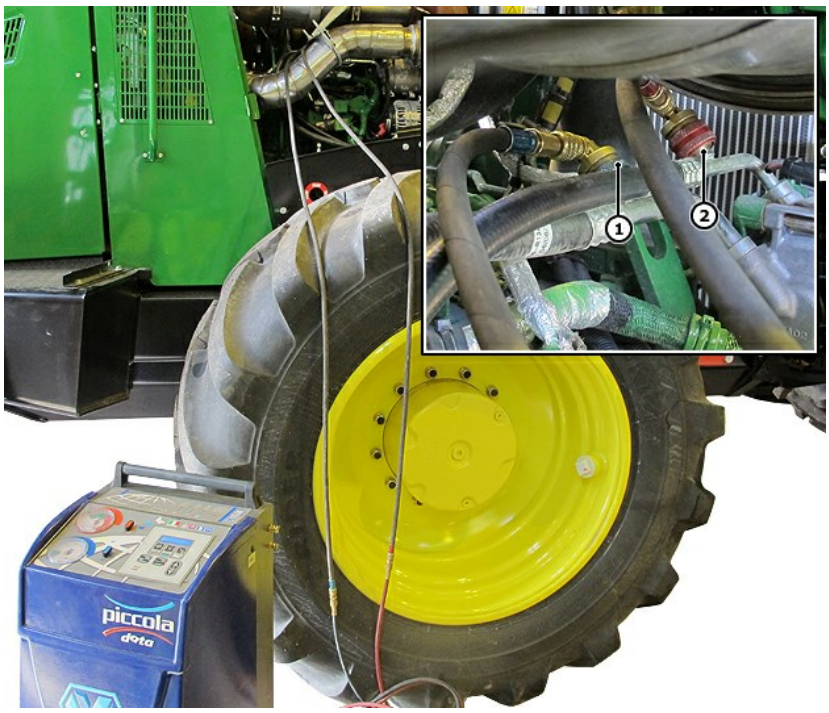
NOTE: *It should be changed when a system component is replaced, or if the system has been open for longer than 10 minutes.*

Step 1

Open the engine hood and switch off the main current.

Empty the refrigerant from the air conditioning unit. Connect the service unit hoses into the service fittings (1 and 2).

NOTE: *You can facilitate the removal of refrigerant by running the air conditioning unit at full power for 15 minutes (weather permitting) before switching off the machine current.*



INSTALLING Y-LINK HOSES

IMPORTANT: *When installing the boom hoses, make sure that the hoses are not twisted.*

NOTE: *When replacing the hoses (1), (2), make sure that the length of the new hose is the same as the old one. Each of the hoses (2) has a sleeve, to make the hose slide better when operating the boom.*

You can replace the hoses (1) one by one. When replacing a hose in the middle, loosen the outer fitting (3) before removing the middle hoses. You do not need to drain oil out of unbroken hoses. Disconnect the hose without removing the fitting (3) from the upper hose connector (4). When installing, remember to install the lock washers (5) in the hose connection.

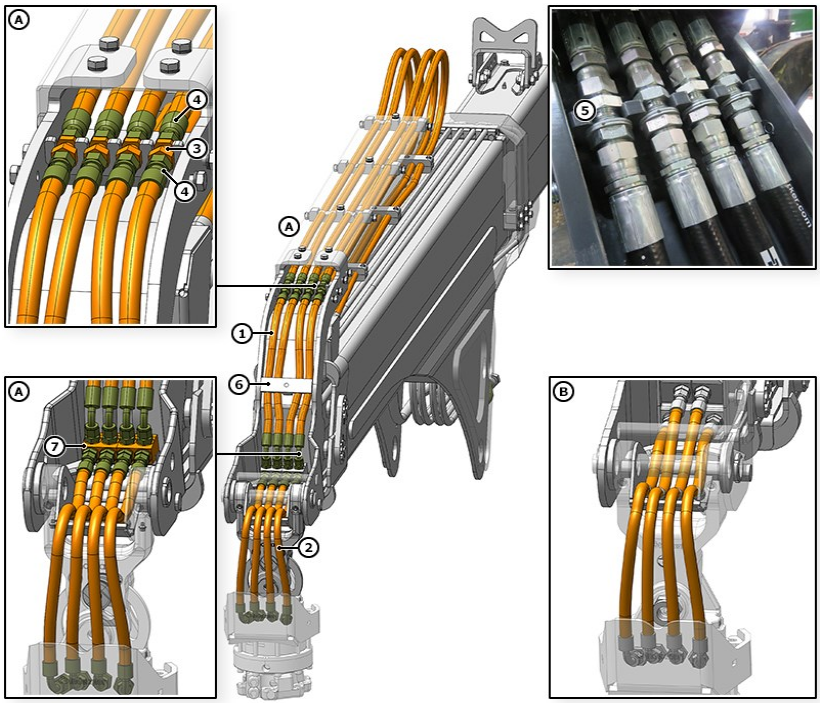
The hoses are attached with a band (6). The band is attached to the boom with a screw.

The bottom part of the hoses (1) and the top part of the hoses (2) are attached to the inlet block (7). The inlet block consists of two pieces and it is attached with two screws from below. To replace a hose in the middle, remove one of the pieces.

NOTE: *There is a connecting piece below the inlet block. If you remove both attachment screws, the connecting piece may fall.*

A. XE Y-link
B. XI Y-link

Usage	Tool	Size
Fitting	Fork spanner	24 mm
Hose connector	Fork spanner	22 mm
Band	Fork spanner	16 mm
Inlet block	Socket wrench	16 mm



PREPARING MACHINE FOR STORAGE

NOTE: *These instructions apply for short-term storing, i.e. for a week or even long weekends. See "Preparing engine for long-term storage" for instructions on longer storage.*

1. Fill up the fuel tank.

   IMPORTANT: *Do not use biodiesel during machine storage.*

   Before storage, operate the engine on at least one complete tank of petroleum diesel fuel to purge the fuel system.
2. Make sure that there are no defects or leaks. Repair any defects found or contact the service personnel.
3. Clean the machine. Remove dirt and debris from covered compartments, including engine bay and belly plates.

   NOTE: *High-pressure washing with pressure higher than 1379 kPa (200 psi) can damage freshly painted finishes. Let the paint dry at least 30 days before using a high-pressure washer.*

4. Paint areas to prevent rust.
5. Replace decals where needed.
6. Ensure tires are properly inflated.
7. Park the machine in a dry place, on a level surface, away from direct sunlight and, if possible, under a shelter.

   NOTE: *Rust protection is recommended earlier in moist conditions (sea-air, etc.). Weather conditions such as direct sunlight can cause damage to the windshield, windows, or other surfaces of the machine.*

8. Lower the boom and place harvester head or grapple to the ground. If necessary, lock the harvester head tilt.
9. Fit the steering interlock (A) to secure the center hinge. If equipped with an RL cabin, lock the cabin leveling cylinders by using locking devices (B).
10. Engage park brake and stop the engine.
11. Make sure there are updated backups of all the files required, and that they are saved elsewhere, and not just on the machine. See the TimberMatic™ operator instructions.
12. Turn the main switch off.
13. Apply grease on all lubrication fittings.
14. Coat exposed cylinder rods with rust inhibitor.

    NOTE: *Rust inhibitor can damage painted finish. Do not apply rust inhibitor on painted surfaces.*

15. Clean the air cleaner primary element (C). Blow out the dust with compressed air by inserting nozzle inside the element and blowing against the normal flowing direction of the intake air.
16. Cover exhaust pipe outlet to prevent water getting in the engine.
17. Close the sun blinds. Put a DO NOT OPERATE tag on the steering lever. 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.*

18. Lock the 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 maintenance instructions in the As required maintenace chapter for correct storage and service.*

P

R

S

T

U

Attachment

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