CTL Harvester
1WJ1470G002002-

OPERATOR'S INSTRUCTIONS

John Deere 1470G

Final Tier 4

F690030 (09/2016) ENGLISH

Worldwide Construction
And Forestry Division

Published in Finland

Original Instructions

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- Non-performance of maintenance requirements listed in the Operator's Manual
- The use of the engine/equipment in a manner for which it was not designed
- Abuse, neglect, improper maintenance or unapproved modifications or alterations
- Accidents for which it does not have responsibility or by acts of God

The off-road diesel engine is designed to operate on diesel fuel as specified in the Fuels, Lubricants and Coolants section in the Operators Manual. Use of any other fuel can harm the emissions control system of the engine/equipment and is not approved for use.

To the extent permitted by law John Deere is not liable for damage to other engine components caused by a failure of an emission-related part, unless otherwise covered by standard warranty.

THIS WARRANTY IS EXPRESSLY IN LIEU OF ANY OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. REMEDIES UNDER THIS WARRANTY ARE LIMITED TO THE PROVISIONS OF MATERIAL AND SERVICES AS SPECIFIED HEREIN. WHERE PERMITTED BY LAW, NEITHER JOHN DEERE NOR ANY AUTHORIZED JOHN DEERE ENGINE DISTRIBUTOR, DEALER, OR REPAIR FACILITY OR ANY COMPANY AFFILIATED WITH JOHN DEERE WILL BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES.

JOHN DEERE HARVESTER

John Deere harvester is intended for felling, delimbing and crosscutting trees. The machine must not be used for any other purposes.

We designed the John Deere harvester to operate under difficult off-road circumstances. Still it is important that you always adapt your driving speed to the surroundings.

Final Tier 4 (FT4)/EU Stage IV Harvesters have been improved for increased tractive force, engine power and fuel economy, enhanced ergonomics, and better machine and boom controls.

Experience shows that a thorough check of the machine at regular intervals is a guarantee for favourable cost efficiency.

BROCHURES

Click the PDF icon to open the brochure. The brochure includes technical data.

CARRY NO PASSENGERS

Carrying passengers on the machine is prohibited. The machine is provided and approved with seating for the operator only.

Riders on machine can be thrown off the machine or injured by foreign objects. Riders also obstruct the operator's view resulting in the machine being operated in an unsafe manner.

USE SEAT BELT

Operate the machine only from a seated position in the operator's seat. Always wear your seat belt.

The complete seat belt assembly should be replaced after three years of usage, regardless of appearance.

Between replacement intervals:

- Carefully examine buckle, webbing, and attaching hardware.
- Be sure that attaching hardware is in place. Tighten, if necessary.
- Replace the seat belt if it does not operate properly, or if it is damaged, worn or deteriorated.

the operating environment.

When the temperature drops below 5°C (41°F) we strongly recommend that you use the pre-heating (if equipped) of the engine coolant 1/2 — 1 hour before starting the engine.

NOTE: *Follow cold weather starting sequence in this manual.*

ENSURE SAFETY BEFORE DRIVING ON FROZEN WATERS

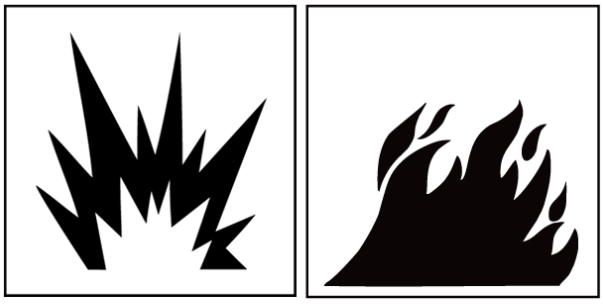
Secure, that ice cover is strong enough before driving machine over frozen waters.

- Be ready for quick evacuation from the cabin before driving on a frozen lake.
- Release your safety belt.
- Disarm the security exit.
- Ensure that there is nothing to obstruct quick evacuation.
- Restore the above precautions on reaching firm ground.
- Never park the machine on a frozen lake.

AVOID FIRES AND EXPLOSIONS

When working in a forest environment, it is impossible to prevent combustible debris from collecting in tight corners of the machine. This debris, in itself, may cause a fire; however, when mixed with fuel, oil, or grease in a hot or confined place, the danger of fire is very much increased.

To reduce the chance of a fire starting, observe the following instructions:



safely to the ground, apply parking brake and shut off the engine. Relieve all hydraulic pressure and discharge accumulators before disconnecting any hoses or performing work on components. Tighten all connections before applying pressure.

Do not change any pressure setting unless authorized instruction has been obtained.

AVOID HEATING NEAR PRESSURIZED FLUID LINES

Flammable spray can be generated by heating near pressurized fluid lines, resulting in severe burns to yourself and bystanders.

Do not heat by welding, soldering, or using a torch near pressurized fluid lines or other flammable materials.

MAKE WELDING REPAIRS SAFELY

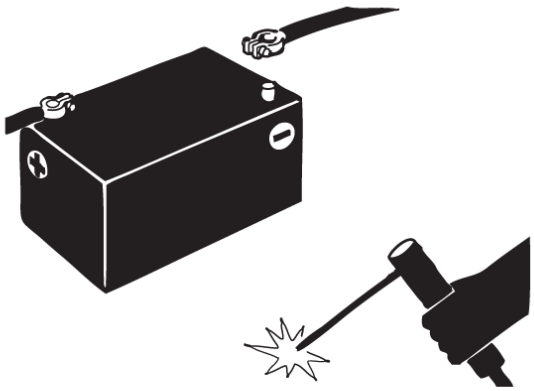
Before starting welding work:

1. Switch off the power with the main switch
2. Disconnect the ground wire from the batteries.
3. Check the model specific welding instructions.

Ensure that the area to be repaired is cleaned of debris and combustible material. Have a charged fire extinguisher available and know how to use it.

Do all work outside or in a well ventilated area. Dispose of paint and solvent properly. Avoid breathing hazardous fumes. Remove paint before welding or heating:

- If you sand or grind paint, avoid breathing the dust. Wear respirator.
- If you use solvent or paint stripper, remove stripper with soap and water before welding. Remove solvent or paint stripper containers and other flammable material from area. Allow fumes to disperse at least 15 minutes before welding or heating.



POWER OUTLETS

Inside cabin there are power outlets for 12V and 24V voltages and also a cigarette lighter.

Front frame trailer socket is located on the front bulkhead of hydraulic compartment.

Rear frame filling pump panel is equipped with trailer socket and 24V socket.

1. Front frame trailer socket, 1270G
2. Front frame trailer socket, 1470G
3. Trailer socket, under rear hood
4. 24V socket, under rear hood
5. 12V socket, dashboard
6. 24V socket, dashboard
7. Cigarette lighter, dashboard

DEF TANK AND HEADER

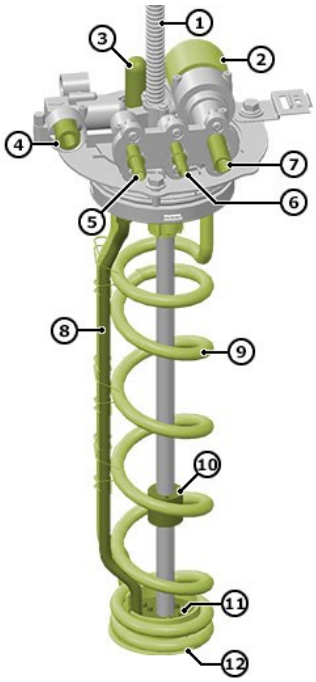
The tank header routes DEF into and out of the DEF tank. The header is equipped with a level sensor (10), internal temperature sensor (11), electrical connector (1), and coolant control valve (2). The tank header is also equipped with coolant tubes (9), DEF pickup and return tubes (8), a tank vent (3), coolant and DEF fittings, and a screen (12) on the DEF pickup tube.

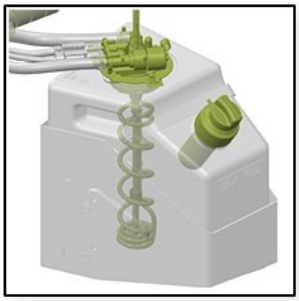
1. Electrical connector
2. Coolant control valve
3. Tank vent
4. Coolant inlet
5. DEF supply fitting
6. DEF return fitting
7. Coolant outlet
8. DEF pickup tube
9. Coolant tube
10. Level sensor
11. Temperature sensor
12. Pickup screen

When the ECU determines the need for DEF injection, DEF is drawn from the tank through the DEF pickup tube to the dosing unit.

During a key-off event, DEF is pumped back into the tank from the injector pressure line and the dosing unit.

The DEF level sensor and temperature sensor send data to the ECU to allow the conditions inside the tank to be monitored. When the temperature of the DEF is below a predetermined threshold, the ECU commands the coolant control valve to open. Coolant then flows through the coolant tubes until the DEF temperature rises above the predetermined threshold and the ECU commands the coolant control valve to close.





SERVICE REGENERATION

Service regeneration or DPF Recovery is needed when soot level 5 is detected in the DPF.

The soot level can rise to level 5 if auto cleaning is disabled after an extended period of time. Engine performance will be derated by 50%.

DPF Recovery and Service Regeneration must be performed by a service technician using a Service ADVISOR™'s Service Regeneration test.

DPF Recovery cleaning takes approximately 3.5 hours.

Prior to starting the process:

- Check more detailed instructions from the Engine CTM.
- Make sure that there is enough fuel in the machine.
- Ensure that exhaust system components are free of debris.
- Locate the machine so that the exhaust outlet is away from people and anything that may melt, burn, or explode.
- Closely monitor the machine and surrounding area while DPF service recovery is being performed.

EXTRA KEYPAD

- (R36) Indicator left
- (R37) Indicator right
- (R38) Front wiper
- (R39) Thinning lights
- (R40) Rear and front camera (short press changes camera and long press activates rear camera)
- (R41) Open or close quick setting (Alt-Tab)
- (R42) Enter admin or work mode (Alt-Shift-Tab)
- (R43) OK button
- (R44) Driving / parking lights (short press connects lower beams, long press turns the lights off)
- (R45) High beam lights
- (R46) Right window wiper
- (R47) Boom lights
- (R48) Front wheel drive engagement (high gear on)
- (R49) Fan reverse
- (R50) Save stem file (data for last completed stem)
- (R51) Frame brake release
- (R52) Hazard
- (R53) Horn
- (R54) Left window wiper
- (R55) Cabin lights (TimberMatic™)
- (R56) Vacuum pump (long press when engine off, ignition switch at position 1, parking brake on)
- (R57) Automatic boom levelling
- (R58) Automatic cabin rotation
- (R59) Automatic cabin levelling

Automatic fan speed control

The fan speed is determined by the system as required. The fan speed is based on the difference between the set point temperature and the actual cab temperature. The greater the difference, greater the fan speed.

If the cab temperature is “too hot” and heating is occurring, or if the cab temperature is “too cold” and cooling is occurring, the fan speed will be held at minimum. This condition can occur when the cab is heating or cooling quickly, and the temperature “overshoots” the set point temperature. In auto fan speed mode, all fan speed changes are done gradually.

When the fan speed setting is on auto mode, A/C system regulates the temperature using the water valve, the A/C unit and fan speed.

Manual fan speed control

Fan speed will directly correspond to fan speed control setting. In automatic or manual mode, the initial fan speed on startup will gradually increase from “off” to the desired fan speed. Manual fan speed control allows lower fan speeds than can be achieved in AUTO fan speed mode.

When the fan speed is selected manually, A/C system regulates the temperature using only the water valve and the A/C unit.

Automatic fan speed control

The fan speed is determined by the system as required. The fan speed is based on the difference between the set point temperature and the actual cab temperature. The greater the difference, the greater the fan speed.

A/C compressor clutch control

The A/C clutch will be active when the system A/C mode is enabled. In defrost mode, the clutch is also forced on to provide cab air dehumidification. In the event of a cab temperature sensor error, the system will operate in a "manual" temperature control mode with a set point of 16°C (60°F) corresponding to full air conditioning, 24°C (75°F) corresponding to neutral (no cooling or heating), and 32°C (90°F) corresponding to full heat. Set point settings in-between will generate the proportional amount cooling or heating.

In any mode, the clutch activation can be disabled by the evaporator temperature sensor, or the high refrigerant pressure transducer.

The evaporator temperature sensor trip points will be determined by the system to maintain the desired cab temperature. As less cooling is required, the evaporator temperature sensor trip points will increase, so as to maintain a fairly constant core temperature. In the case of full A/C or in the case of defrost mode, the evaporator temperature sensor trip points will be 1°C (34°F) clutch off and 4°C (40°F) clutch on.

Pre-heat blower mode

The ATC system will engage the blower on low speed when a 24V input signal is received and the ignition signal is off. The system will open the electronic water valve fully. When the ignition on signal is received, the ATC system will return to normal operation mode regardless of the state of the pre-heat blower signal.

Engine fan reverse mode

When the system receives an engine fan reverse signal, the fresh/recirc door will be forced into the recirculation position to prevent excessive dust from entering the fresh air filter.

CHANGING THE HEATING DURATION

TEMPORARILY

Start heating; press the key (3). To reduce heating duration: press the key (4). To increase heating duration (to max. 120 min): press the key (5).

PERMANENTLY

Do not switch heating on. Press the key (4) and hold it down (approximately 3 s) until the display appears and flashes. Release the key. Then set the heating duration (10 — 120 min) using the key (4) or (5). The new heating duration is set when the display disappears.

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 direct impact on the speed of the diesel engine.

ON-ROAD DRIVING

The high gear can be used for on-road driving. This is when the front-wheel drive is disengaged. However, it is possible to engage front-wheel drive with button R48.

1. Transport equipment is to be adapted to conform to local traffic regulations. Before you embark driving on public roads:
   - Position the boom and harvester head in the transportation mode.
   - Install the rear front and rear lights. Switch off working lights.
   - Adjust the side-view mirrors.
   - Activate the on-road driving switch according to local traffic regulations on road safety. Some regulations state that activation of the on-road switch is required before high gear can be engaged (programmatically controlled feature).
2. Engage high gear (the driving direction switch has to be in neutral).
3. Select the driving direction.
4. Press the pedal, which will automatically disengage the work brake. The machine will start moving.
5. The speed of the machine is regulated by means of the accelerator pedal. This will simultaneously adjust the diesel engine speed and the gear ratio of the hydrostatic system.
6. When driving on roads the machine is steered with the left side mini lever.

NOTE: *E-model forwarder meets the requirements of directive 74/151/EEC, section I.4.1 noise of tractors in motion.*

AFTER USING THE BOOM

Carry out the last movements unloaded.

When you drive the machine make sure that the boom does not make any sudden movements. Move the harvester head close to the machine when driving.

Never leave the boom unsupported by relying on the hydraulic system only. Secure the harvester head by means of a chain for long drives to other working sites. Lock the harvester head tilt if needed. Bring the booms down and position the harvester head on the ground even for short breaks, and always before leaving the cab.

AT THE END OF THE WORK DAY

1. Clean the machine. Inspect all covered compartments, including engine bay, belly plates etc. It is particularly important to clean the machine in the winter because snow and debris easily gets stuck to the machine.
2. Inspect the cabin protective structure including doors, windows, windshield, etc. It is important to replace broken or cracked windows immediately to minimize hazards from whipping or intruding objects.
3. Make sure that there are no defects or leaks. Check the machine in daylight. Repair any defects found or contact the service personnel.
4. Renew oils and grease (if necessary) the machine while it is still warm.
5. Check the tightness and mounting of the possible chains.
6. Lock the cab door.
7. Turn off the main switch. If the machine is equipped with an automatic fire extinguishing system, the system will be engaged when the main switch is turned off.
8. If the machine is intended to leave for extended period of time (e.g. longer transportation or service interval) read instructions Preparing machine for storage.

the area in which the engine operates.

IMPORTANT: *Use only ultra-low sulphur diesel (ULSD) fuel with a maximum sulphur content of 0.0015% (15 mg/kg).*

DIESEL ENGINE OIL AND FILTER SERVICE INTERVALS

The oil and filter service intervals in the following chart should be used as guidelines. Actual service intervals depend on operation and maintenance practices. Use oil analysis to determine the actual useful life of the oil and to aid in selection of the proper oil and filter service interval.

Oil and filter service intervals are based on a combination of type of engine oil and filter used.

NOTE: *DO NOT use engine oil with sulfur content greater than 0.40% (4000 ppm), sulfated ash content greater than 1.0% (10 000 ppm) or phosphorous content greater than 0.12% (1200 ppm).*

Diesel fuel sulfur level will affect engine oil and filter service intervals.

IMPORTANT: *Use ONLY diesel fuel with sulfur content less than 0.0015% (15 ppm).*

NOTE: *When using biodiesel blends greater than B20, reduce the oil and filter service interval by 50% or monitor engine oil based on test results.*

Oil types (premium or standard) in the tables include:

- "Premium Oils" include John Deere PLUS-50™ II
- "Standard Oils" include John Deere API CJ-4, ACEA E6, or ACEA E9 oils.

  IMPORTANT: *Use of lower specification oils in U.S. (EU) Interim Tier 4 (Stage III B) and Final Tier 4 (Stage IV) engines may result in premature engine failure.*

NOTE: *The 500 hour extended oil and filter change interval is allowed only if ALL the following conditions are met:*

- Use of premium oil John Deere PLUS-50 II
- Use of the approved John Deere oil filter
- Use of diesel fuel with sulfur content less than 0.0015% (15 ppm)

Refer to the charts on the following pages to find the proper oil and filter service interval for your engine.

Oil	Fuel	Interval
Premium Oils (JD PLUS-50 II)	Sulfur < 0.0015 %	500h
	Biofuel blends above B20	250h
Standard Oils	Sulfur < 0.0015 %	250h
	Biofuel blends above B20	125h
Lower Specification Oils	NOT ALLOWED	

REAR CARRIAGE FUSES

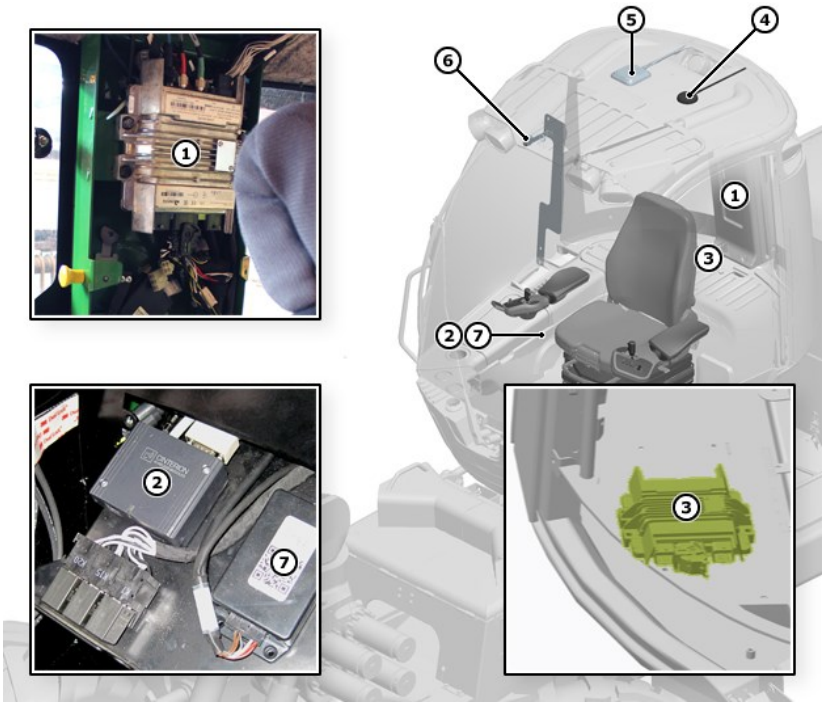
Fuses are located at the rear of the machine in a fuse box. The fuses from F51 to F56 are on a direct battery power circuit and under fuse F40.

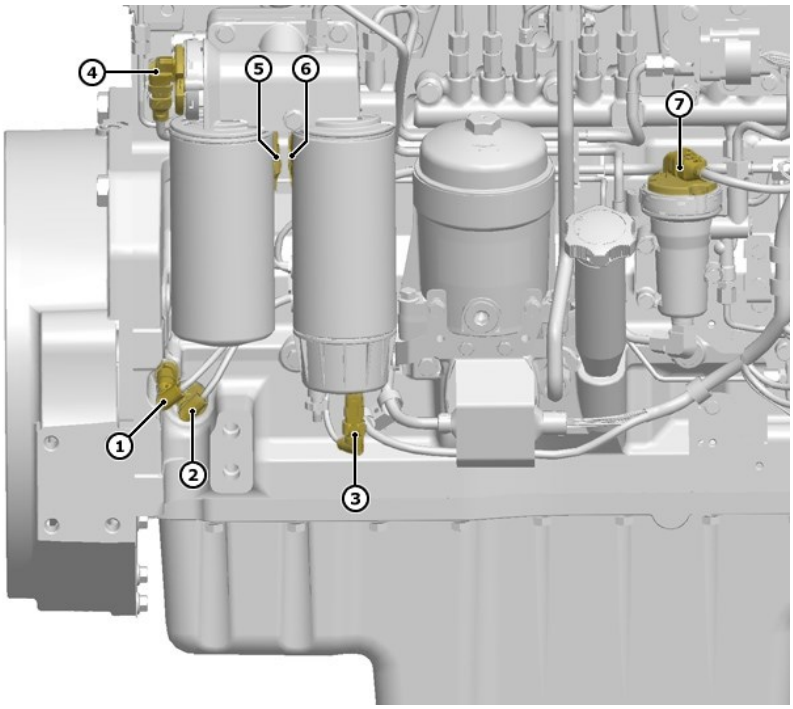
Position	Fuse number	Object	Capacity (A)
1.	F51	Engine preheater	20
2.	F52	Fire extinguishing system	10
3.	F53	Engine control unit (ECU)	25
4.	F54	Cabin battery power switch	15
5.	F55	Air conditioner	20
6.	F56	Approach lights	15
7.	F61	Engine control unit (ECU)	25
8.	F62	Engine control unit (ECU)	25
9.	F63	Fire extinguishing system	10
10.	F64	Hydraulic oil filling pump	20
11.	F65	Power outlet	20
12.	F71	Secondary steering	3
13.	F72	FHC (VBAT)	5
14.	F73	RHC (VBAT)	5
15.	F74	Fuel transfer pump	15
16.	F75	Service lights	10
17.	F81	Fuel heater	10
18.	F82	FHC (VP3)	10
19.	F83	RHC (VP3)	10
20.	F84	Stump treatment filling pump	20
21.	F85	Tier 3/Tier 2 engine power supply	20

TELEMATICS COMPONENTS

The telematics system hardware consists of a processing unit and a communications unit.

1. Modular Telematics Gateway (MTG) controller
   - Collects machine data from the CAN bus
   - Processes and stores data
2. GPRS mode for control system
   - Includes SIM card for the cellular network
3. Satellite module (optional)
   - Provides platform for satellite data transmission
4. Satellite antenna (optional)
   - Transfers data via satellite
5. Low-profile MTG antenna
   - Cellular antenna/GPS locator
   - Transfers data via a cellular network
6. GPS antenna
   - GPS receiver for pinpointing the actual machine location
7. GPRS mode for preheater (optional)
   - Includes SIM card for the cellular network

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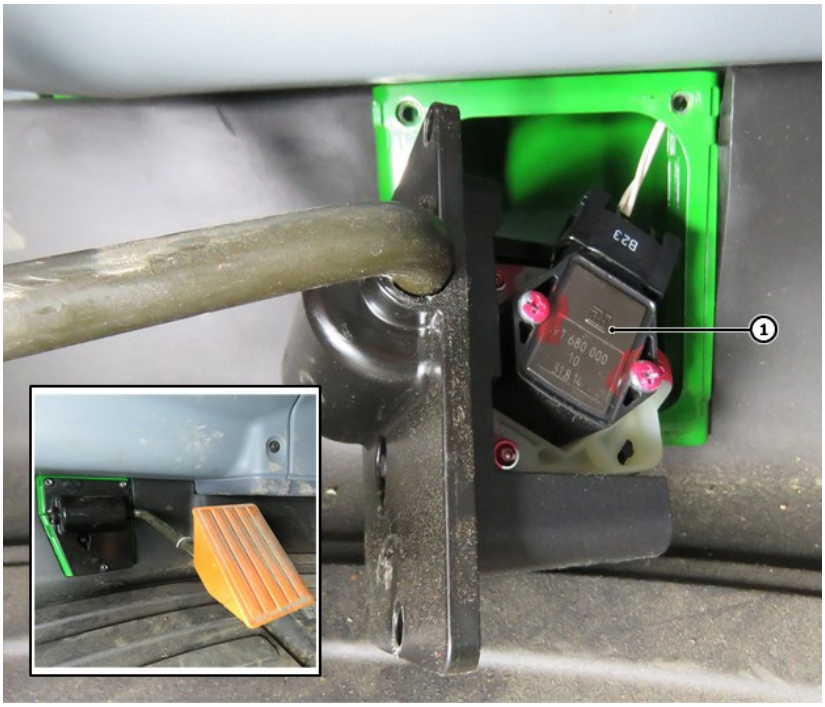
SENSORS, DRIVE PEDAL

1. Position sensor (B23)
    - Measures the position of the drive pedal.

NOTE: *In fixed forwarder cabins, there is an identical sensor in the front drive pedal (B23) and rear drive pedal (B24).*



A11 MAIN PRESSURE RELIEF VALVE

The purpose of the main pressure relief valve (286) is to eliminate pressure peaks from the system.

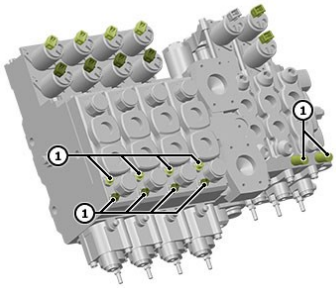
Check the correct pressure setting from the table below:

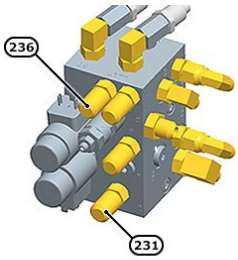
1270G 6W	35 MPa ± 1 MPa (5076 ± 145 psi)
1270G 8W	37 MPa ± 1 MPa (5336 ± 145 psi)
1470G	35 MPa ± 1 MPa (5076 ± 145 psi)

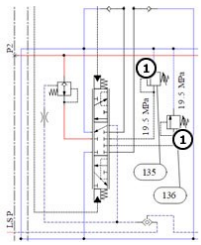
IMPORTANT: *The drive pressure relief valves in the drive valve block are factory-adjusted to 38 MPa. The pressure setting is stamped to the drive pressure relief valve. Do not to adjust these valves.*

1. Open rear and front engine hoods and remove the cover plate with 13 mm ring spanner.
2. Connect a 40 MPa (5801 psi) gauge to the measuring point (344/MP) on the LS valve block.
3. Turn the adjustment screw 349 (1) of the A11 pump LS-pressure relief valve clockwise about ½ turns.
4. Start the diesel engine.
5. Go to page TimberMatic™ page 4.5.C.2.
6. Select A11 pump.
7. Set the current to proportional valve to maximum.
8. Start the test and then increase work pressure by turning the adjustment screw 348 (2) of the harvester head LS-pressure relief valve clockwise, until the diesel engine sound changes because of the load. Check that the pressure is correct according to the table above.
9. Close the test.
10. If the pressure relief valve 286 setting is not correct:
    - Open the locknut of the pressure relief valve adjustment screw (286) located in the main valve block and tighten the screw one full turn.
    - Start the test again and adjust the work pressure to the value on the table above by using the adjustment screw (2) of the harvester head LS-pressure relief valve 348.
    - Continue the test and loosen the main pressure relief adjustment screw (286), until hissing sound can be heard from the valve.
    - Tighten the adjustment screw (286) until the hissing sound stops. The valve is now set to the same value as harvester head LS-pressure relief valve 348. Tighten the locknut and close the test.
11. Harvester head LS-pressure relief valve 348 (2) must now be adjusted in order to return the adjustment screw (2) to correct position. See separate instructions for setting the harvester head LS-pressure relief valve (A11 maximum work pressure setting)
12. Maximum drive pressures must now be adjusted in order to return the adjustment screw 349 (1) to correct position. See separate instructions for setting maximum drive pressure.

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) on the LS valve block of A10 pump.

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

3. Active 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.*

4. Operate each boom function separately to extreme and read the gauge.

   IMPORTANT: *All boom functions have to be checked separately.*

   IMPORTANT: *Some boom functions have separate LS pressures for A and B movements.*

5. If the pressure differs more than ± 0.5 MPa (72 psi) from the allowed maximum LS-pressure, adjust from the screw (1) on the boom valve block of the specific boom function.

   NOTE: *In K170 sections inner adjustment screws are for A movements and in L90 sections right adjustment screws are for A movements.*

LIFTING THE HOODS

To lift the hood, proceed as follows:

1. Open the locking latches (front hood).
2. Turn on the main switch.
3. Hood lifting switches are located on the main switch panel.

A. Front hood locking latches
B. Main switch
C. Rear hood lifting
D. Front hood lifting
E. Service lights

Service code descriptions

Code	Description
061	Temperature sensor short circuit
064	Flame sensor interruption
065	Flame sensor short circuit
071	Overheating sensor interruption
072	Overheating sensor short circuit
074	Overheating detection hardware is defective, operating lock-out
090	External reset
091	Internal reset
092	ROM error
093	RAM error, at least one RAM cell is not working
094	EEPROM error, checksum error within the area of the operating data, diagnostic parameters or calibration values
095	FInvalid data record, checksum error
096	Internal temperature sensor is defective / ECU too hot
097	Internal device error
098	Main relay is faulty
099	Too many resets, operating lock-out

CENTRAL GREASING SYSTEM MAINTENANCE

The Lincoln Industrial Quicklub automated lube system components are designed, engineered, manufactured, and assembled to the highest of quality standards. This lube system requires little or no maintenance, however, to ensure maximum reliability and to realize maximum service life of all components, it’s highly recommended that a weekly walk-around inspection be performed.

Weekly walk-around inspection

The weekly walk-around inspection should include the following:

- Observe lubricant level in reservoir. Fill reservoir if it is low.
- Inspect high pressure relief at pump element, noting any lubricant build-up. If buildup is observed, correct this problem by determining cause of blockage.
- Inspect all valve and lube point connections to verify that no leaks are occurring. Inspect supply/feed lines to insure that no punctures or breaks have occurred since last inspection.
- Inspect lube points to insure that all lube points have a "fresh grease appearance".
- Check pump operation by depressing push-button located in base of pump for 2 seconds to initiate a manual lube event. This will verify that pump is working (Ignition switch must be on).
- Report or repair any problems found in this walk-around inspection immediately.

NOTE: *Operator to confirm operation of electric pump while machine is in service.*

CHECK MACHINE VISUALLY

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 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.

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

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

Check high/low gear, differentials, bogie casings and hub gears for potential leakages from the outside. If oil leak is detected, check oil levels according to further instructions given under this topic. All oil leaks must be repaired immediately.

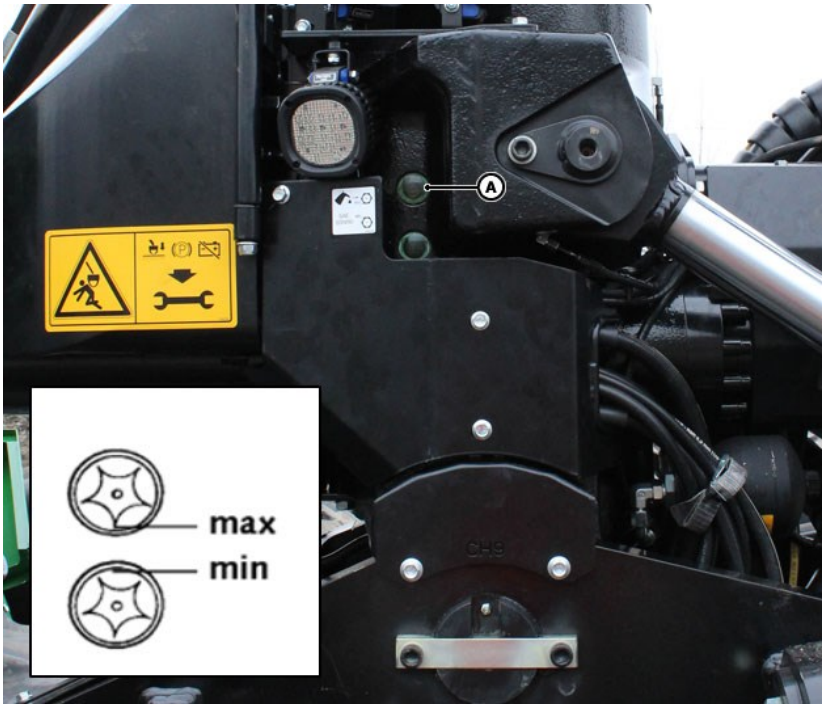
CHECK BOOM SLEW HOUSING OIL LEVEL

The boom slew system and the lower bearing of the boom pillar are immersed in oil. The oil level is checked through the measuring glasses. Add oil when needed through filling plug (A).

If the boom stands still for a long period of time, the oil level must exceed the upper mark on the measuring glass. This is to ensure that the slewing cylinder pipes will not corrode.

A. Filling plug

Usage	Tool	Size
Filling plug	Ring spanner	30 mm



CHECK THE DRIVE BELT WEAR

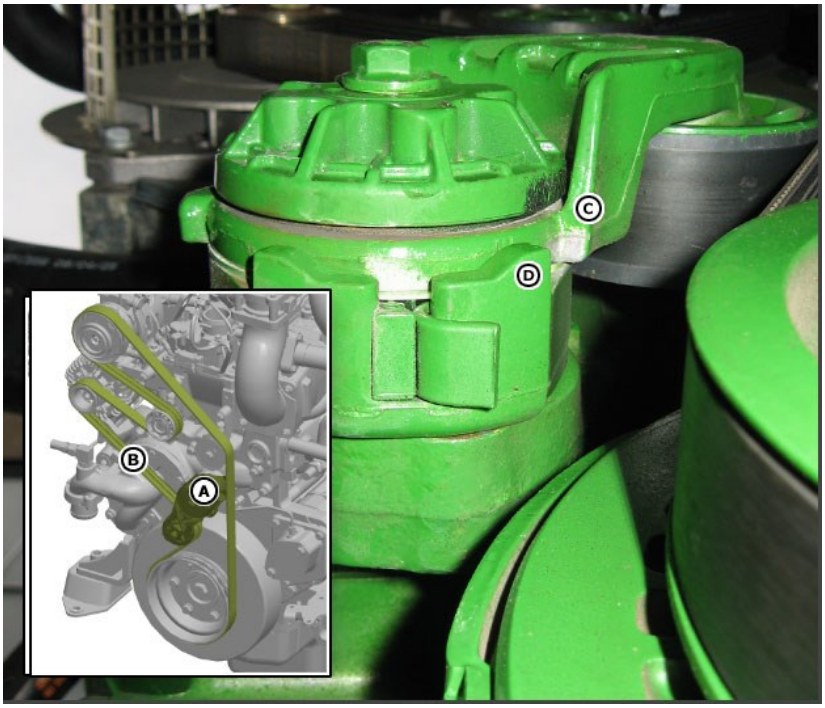
NOTE: *While belt is loosened, inspect pulleys and bearings. Rotate and feel for hard turning or any unusual sounds. If pulleys or bearings need replacement, see your John Deere dealer.*

Visually inspect cast stops on belt tensioner assembly.

If the tensioner stop on swing arm is hitting the fixed stop, check mounting brackets (alternator, belt tensioner, idler pulley, etc.) and the belt length.

Replace belt as needed based on wear and belt condition.

A. Belt tensioner
B. Drive belt
C. Tensioner swing arm stop
D. Fixed stop



STEP 3

Remove the nuts (12) from the exhaust pipe mounting bracket and lift the exhaust pipe out of the engine compartment.

Application	Tool	Size
exhaust pipe mounting bracket	Socket wrench	15 mm

STEP 13

CAUTION: *To prevent accidental starting of engine while performing valve adjustments, always disconnect fuel pump connector Y5002 or negative (-) battery terminal.*

IMPORTANT: *Valve clearances should be checked on a cold engine.*

1. Visually inspect the valve end contact surfaces and rocker arm pressure plates. Check all parts for excessive wear, breakage, or cracks. Rocker arms with large valve clearances should be inspected more carefully for any damage.
2. Remove plastic plug from cylinder block bores and install JDG820 flywheel turning tool (A) and JDE81-4 timing pin (B). Rotate engine with the flywheel turning tool until timing pin engages timing hole in flywheel.

   NOTE: *If required, remove the final fuel filter.*

3. If the rocker arms for No. 1 (front) cylinder are loose, the engine is at No. 1 “TDC-Compression.” If the rocker arms for No. 1 cylinder are not loose, rotate the engine one full revolution.
4. With engine lock-pinned at “TDC” of No. 1 piston’s compression stroke, use a bent feeler gauge to check valve clearance on Nos. 1, 3 and 5 exhaust valves and Nos. 1, 2 and 4 intake valves. Check valve clearance between rocker arm (C) and valve bridge (D).
   A. Intake valve clearance with engine cold should be 0.13 - 0.23 mm (0.005 - 0.009 in.)
   B. Exhaust valve clearance with engine cold should be 0.58 - 0.68 mm (0.023 - 0.026 in.)
5. Rotate the engine one full revolution until No. 6 piston is at “TDC” of its compression stroke. Check valve clearance to the same specifications on Nos. 2, 4 and 6 exhaust and Nos. 3, 5 and 6 intake valves.
6. If valve clearance needs to be adjusted, contact authorized service.
7. Remove timing pin and flywheel turning tool. Install plastic plugs in the block.
8. Install rocker arm cover with new gasket. Tighten cap screws to 35 Nm (26 lb-ft) in order marked on rocker arm cover.

A. Flywheel turning tool
B. Timing pin
C. Rocker arm
D. Valve bridge
E. Engine front

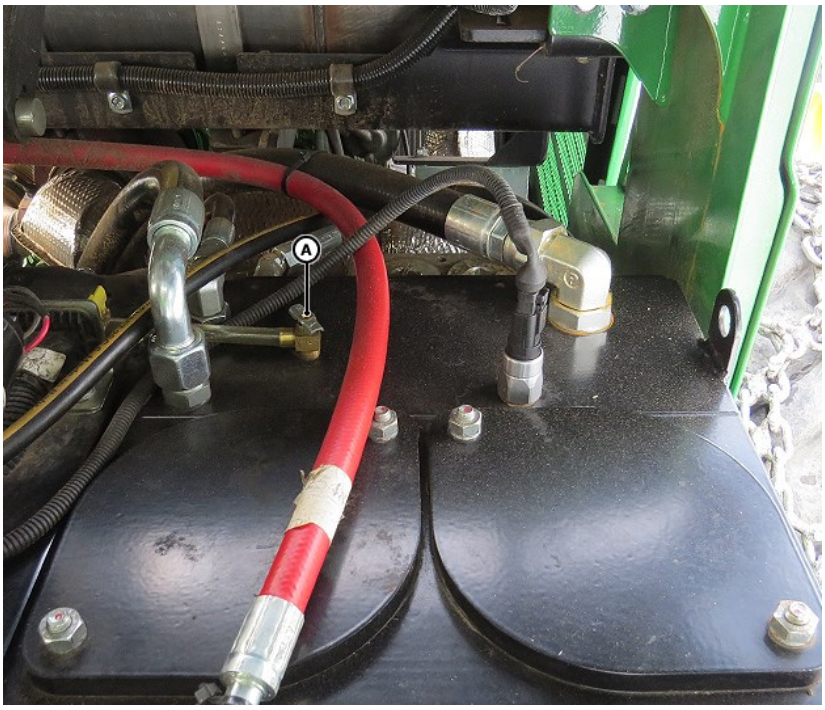
Operation	Tool	Size
Flywheel turning tool	JDG820	JD special tool
Timing pin	JDE81-4	JD special tool
Valve clearance checking	Bent feeler gauge	Suitable size
Rocker arm cover fastening bolt torque checking	Torque wrench	Suitable size

BLEED HYDRAULIC TANK

Air must be eliminated from the return casing of the hydraulic system if the hydraulic tank has been drained or the return filters have been replaced.

Having filled up the tank and having fitted the filter elements do the following.

1. Start the engine and let the machine idle.
2. Loosen the vent plug (A).
3. Operate one of the boom functions and until pure oil, free from air, comes from the hose.
4. Re-tighten the plug (A).



EVERY 2000 HOURS

- Change coolant
- Replace DEF filter
- Change high/low gear oil
- Change differential oil
- Drain brake cylinders
- Change bogie casing oil
- Change hub gear oil
- Change boom slew housing oil

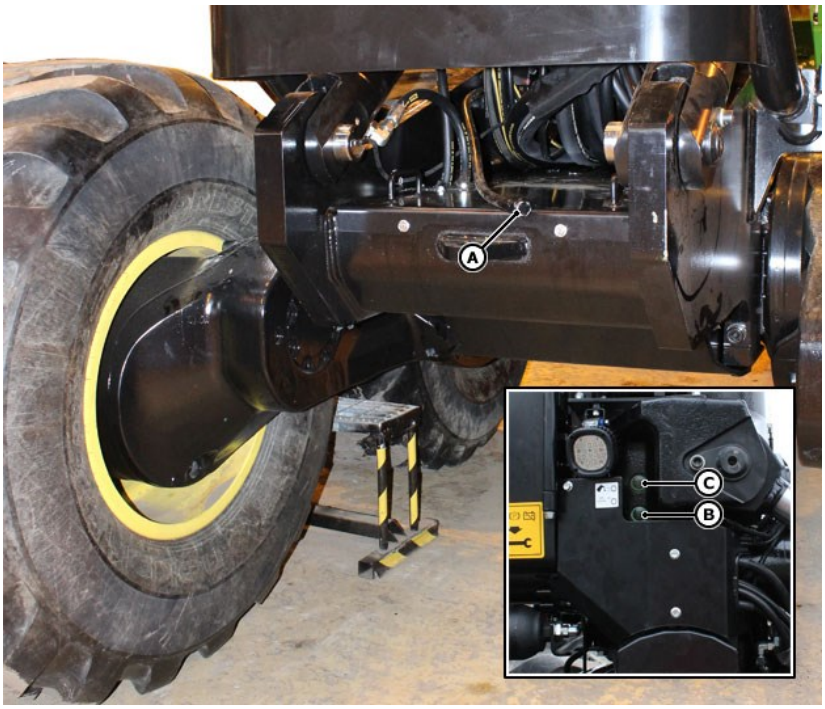
CHANGE THE BOOM SLEW HOUSING OIL

NOTE: *The slew housing oil must be changed after every 2000 running hours or once a year.*

1. Tilt the boom a little bit backward.
2. Pull the drain hose from the holder and open the plug at the end of the hose (A).
3. Drain oil completely into a container.
4. Clean, close and tighten the drain plug.
5. Tilt the boom back to upright position.
6. Add new oil through the filling plug (B) until it reaches sufficient level.
7. Finally check the oil level in the measuring glass (C). The oil level must exceed the upper mark on the measuring glass.

A. Drain plug
B. Filling plug
C. Measuring glass

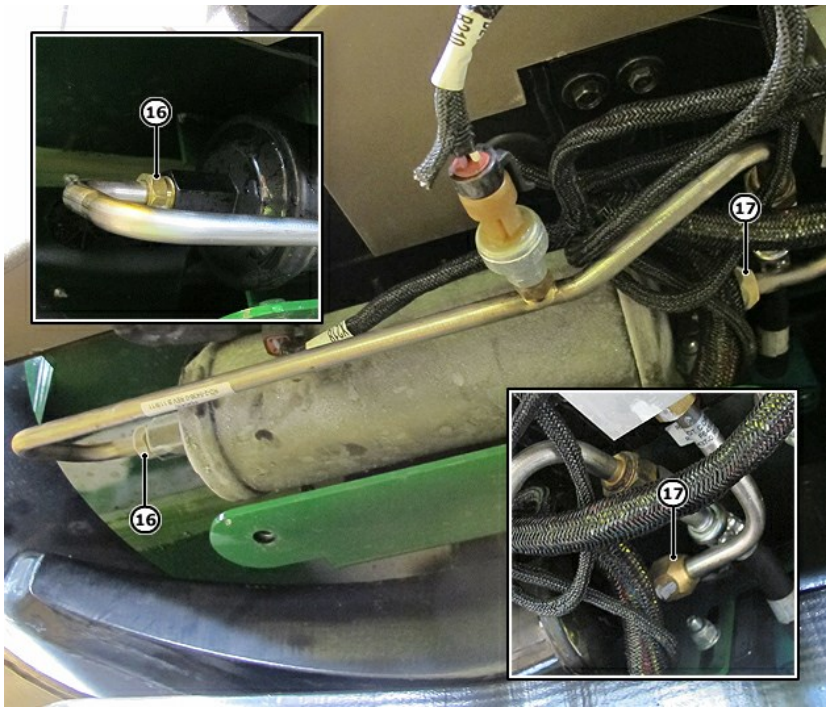
Usage	Tool	Size
Boom base oil drain hose plug	Ring spanner	27 and 30 mm
Boom base oil filling plug	Ring spanner/socket wrench	30 mm



Step 7

Remove the pipes (16) and (17) from the dryer.

Operation	Tool	Size
Left-hand side pipe	Ring spanner	16 mm
Right-hand side pipe	Ring spanner	19 mm



INSPECT CHAIN SHOT GUARD

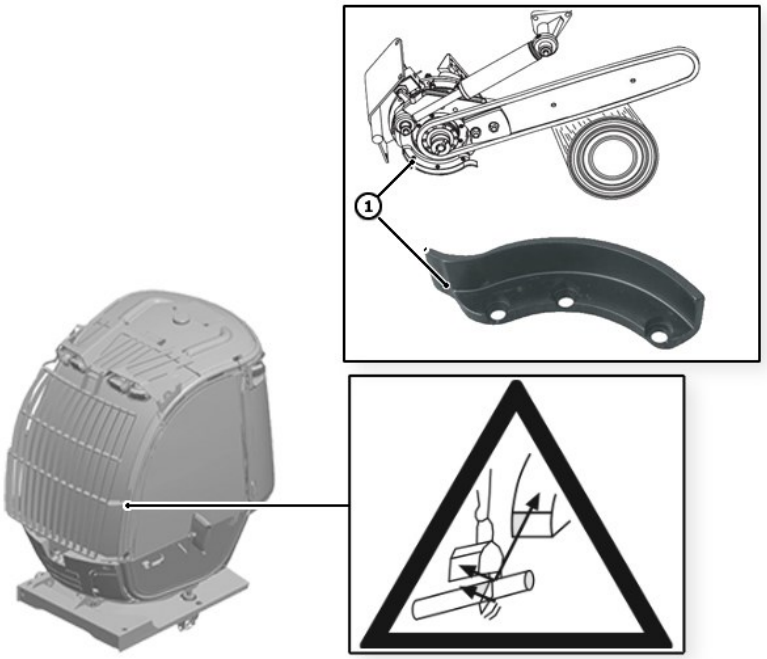
CAUTION: *Serious injury or death can occur. Harvester head can move unpredictably during service procedures. Frame lock pin must always be used during maintenance or adjustment procedures.*

CAUTION: *Avoid serious injury from unexpected carrier or harvester head movement. Operator must deactivate or disable the hydraulic systems before any maintenance or service is performed. See carrier machine operator's manual and attachment manual.*

Inspect chain shot guard daily or when saw chain maintenance is performed. The chain shot guard, cap screws and hardware should be replaced yearly or when excessively worn or damaged.

The chain shot safety labels should be periodically inspected and cleaned as necessary to maintain their legibility for safe viewing. They should be replaced when they no longer meet legibility requirements.

NOTE: *Use only original replacement parts that are tested according to ISO 11837:2010 standard.*

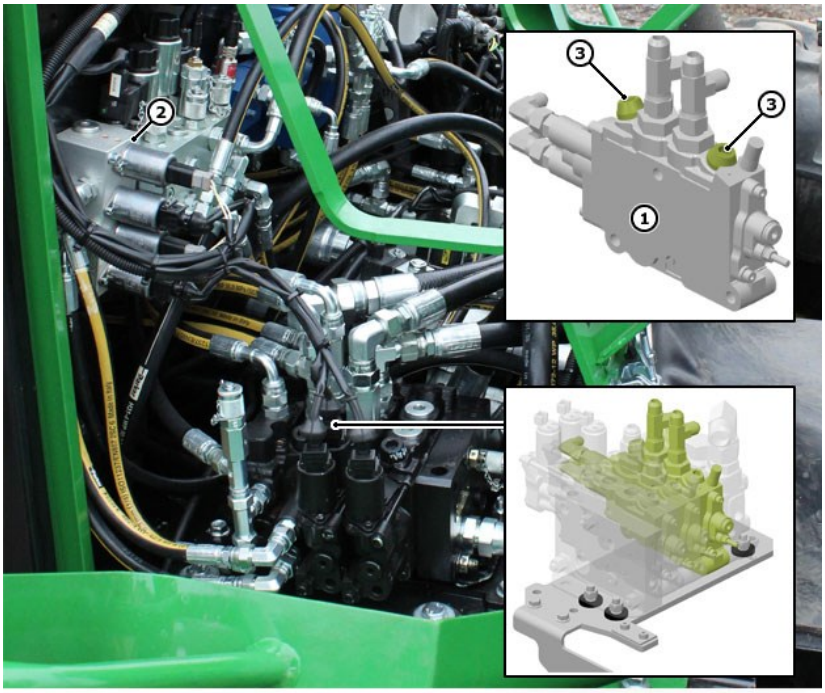


RELEASING THE STEERING

The steering section (1) is the one controlled by separate pilot valve block Y66 (2).

1. Remove the pressure relief valves (3).
2. Replace the valves by plugs (F030959) with seals.
3. After towing, insert the pressure relief valves again with their seals.

NOTE: *Secure all loose parts and the valve housing against dirt.*



STOWING A DISABLED BOOM

If the engine is stopped with the boom in an extended position it may be necessary to manually retract and stow the boom before the machine can be towed.

The boom hydraulics is released by by-passing the port relief in the boom valve and the boom is maneuvered using a suitable lifting device.

NOTE: *If the boom is stopped in a raised position it must be completely supported in that position before the hydraulics is released. If the boom load is not completely disabled oil might be pressurized and the oil flow is heavy at the beginning. Failure to follow proper safety precautions may lead to personal injury or damage to the machine.*

Securely block the wheels. Support the boom using blocks or a suitable lifting device.

Each boom function is controlled by one valve section. Each valve section must be by-passed in order to move the boom in that direction.

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Attachment

File name: Bucher_Saw_Motor_Warmup

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