ORIGINAL INSTRUCTIONS *- according to Directive 2006/42/EC, Annex I, 1.7.4.1*

836C
836C AWD
856C
856C AWD
Stage V
Motor Grader

OPERATOR'S MANUAL

Part number 51518446
1st edition English
September 2020

CASE CONSTRUCTION

Intended use

Intended use

⚠ WARNING

Avoid injury!
Using the machine for purposes other than or beyond the intended use is not allowed; for example:
- for the transportation of persons,
- as a working platform,
- for pulling attached loads,
- for pulling or transporting loads without the intended working equipment.
Failure to comply could result in death or serious injury.

W1142B

The machine has been built with state of the art technology and in accordance with accepted safety regulations. Nevertheless, its use could lead to a risk to life and limb for the operator or third parties, or cause damage to the machine and other property.

The machine may only be used in technically excellent condition and in accordance with its intended use and in observance of the operating instructions. Important notices are to be found at the beginning of the chapters. Especially those malfunctions which affect safety must be rectified immediately.

The grader is primarily intended for:

- Creating fine-graded surfaces
- Clearing away top soil
- Tearing up old road surfaces
- Cutting slopes
- Clearing away ice and snow
- Gathering, spreading, mixing, and compacting materials.

The grader can also be used with other working equipment for special purposes. The technical data offer clear instructions in this respect.

Only equipment that has been approved by CASE CONSTRUCTION may be used.

No extensions or conversions may be made to units supplied.

Intended use includes following the operating instructions and fulfilling the inspection and maintenance conditions.

The manufacturer/supplier is not liable for any damage arising out of improper use. The risk is borne entirely by the user.

General description

The grader, also called leveller, is a construction machine that is used to create large even areas. Graders are typically used in roadworks, where an even roadbed is required for the asphalt.

Major components of the grader

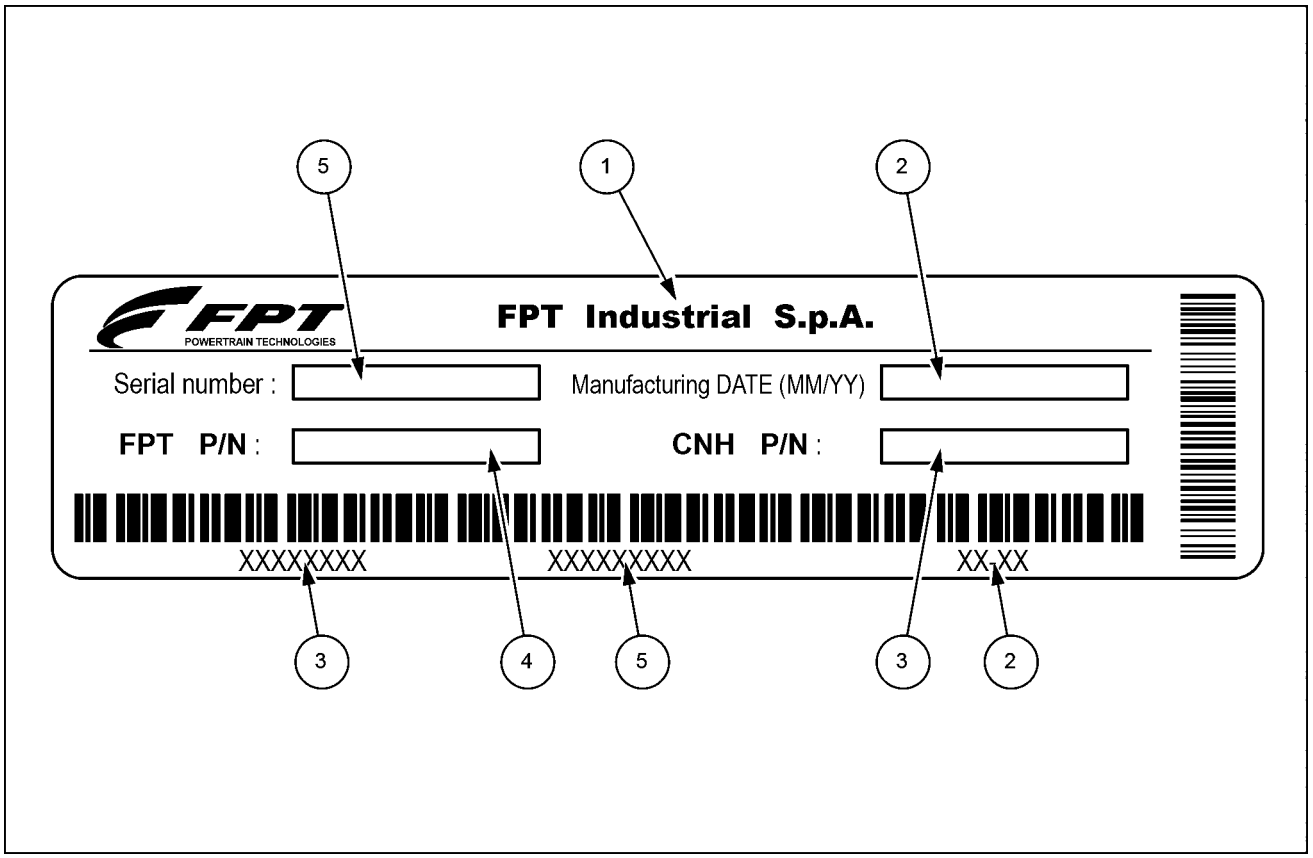
The basic machine comprises the following major components:

- Frame
- Drive train
- Driver’s Cab
- Equipment

Model plate of the engine

Manufacturer
Engine type number
Engine serial number

The plates are affixed to the cylinder head cover at the top next to the oil filler hole.



SS14J033 3

Pos.	Designation	Pos.	Designation
1	Name of the manufacturer	4	FPT part number
2	Month and year of production	5	Serial number
3	CNH part number		

Hydraulic and compressed air lines must be laid and fitted properly. Ensure that no connections are interchanged. The fittings, lengths, and quality of the hoses must comply with the technical requirements.

Keep clear of moving parts. Loose clothing, jewelry, watches, long hair, and other loose or hanging items can become entangled in moving parts.

Wear protective equipment when appropriate.

DO NOT attempt to remove material from any part of the machine while it is being operated or while components are in motion.

Make sure that all guards and shields are in good condition and properly installed before you operate the machine. Never operate the machine with shields removed. Always close access doors or panels before you operate the machine.

Dirty or slippery steps, ladders, walkways, and platforms can cause falls. Make sure these surfaces remain clean and clear of debris.

A person or pet within the operating area of a machine can be struck or crushed by the machine or its equipment. DO NOT allow anyone to enter the work area.

Raised equipment and/or loads can fall unexpectedly and crush persons underneath. Never allow anyone to enter the area underneath raised equipment during operation.

Never operate the engine in enclosed spaces as harmful exhaust gases may build up. Diesel exhaust contains dangerous compounds. Proper ventilation is required under all circumstances.

Before you start the machine, be sure that all controls are in neutral or park lock position.

Start the engine only from the operator's seat. If you bypass the safety start switch, the engine can start with the transmission in gear. Do not connect or short across terminals on the starter solenoid. Attach jumper cables as described in the manual. Starting in gear may cause death or serious injury.

Always keep windows, mirrors, all lighting, and Slow Moving Vehicle (SMV) emblem clean to provide the best possible visibility while you operate the machine.

Operate controls only when seated in the operator's seat, except for those controls expressly intended for use from other locations.

Before you leave the machine:

1. Park the machine on a firm, level surface.
2. Lower all hydraulic equipment — Moldboard, dozer blade, ripper, etc.
3. Engage the parking brake.
4. Turn off the engine and remove the key.
5. Move controls to release residual pressure.
6. Put all controls in neutral or park lock position.
7. Lock blade control levers with knobs on side of steering column (see also **4-17** and following).
8. Push the right-hand side console to the rear.
9. Use wheel chocks if required.

When, due to exceptional circumstances, you would decide to keep the engine running after you leave the operator's station, then you must follow these precautions:

1. Bring the engine to low idle speed.
2. Disengage all drive systems. Lower the blades and ripper and lock the controls of blades and ripper (see also **4-17** and following).
3. **⚠ WARNING**

   Some components may continue to run down after you disengage drive systems.
   Make sure all drive systems are fully disengaged.
   Failure to comply could result in death or serious injury.

   W0113A

   Shift the transmission into neutral.
4. Apply the parking brake.

Any work on or with the machine may be performed only by reliable personnel. Observe all legislated minimum age limits.

Define the machine operator's responsibilities:

- with regard to observing traffic regulations
- giving the operator the authority to refuse instructions given by third parties that are contrary to known safe practices.

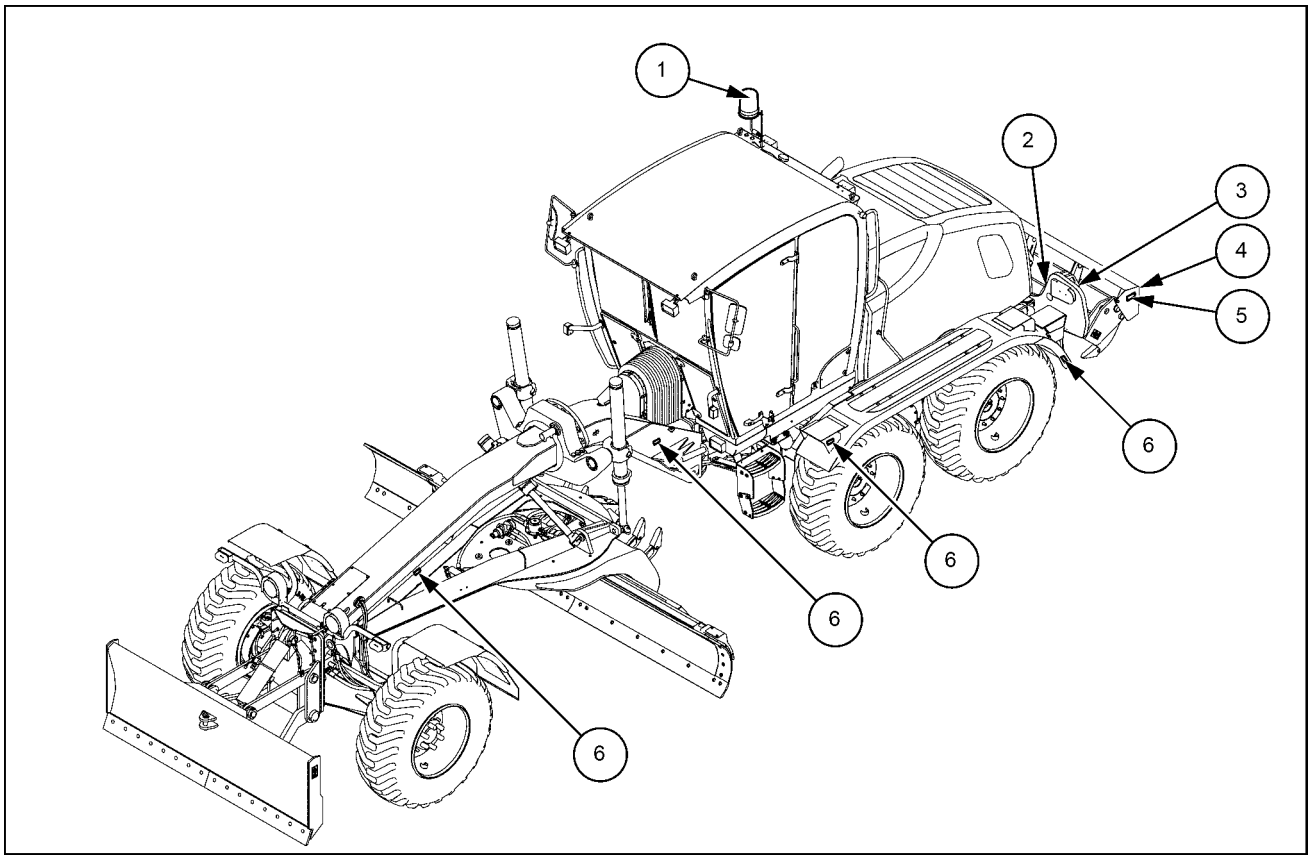
Observe all fire warnings and fire-fighting procedures.

Emergency exit

NOTICE: *the right-hand cab door is marked as Emergency exit. Before leaving the cab, the right-hand side console is to be pushed to the rear.*

⚠ Reflectors and warning lights ⚠

Flashing amber warning lights must be used when operating on public roads (depending on local rules and regulations).



SS14C120 2

Pos.	Designation
1	Rotary beacon (Option)
2	Rear reflector
3	Rear reflector (included into the lamp)
4	Reflector on the back side of the rear ripper (Option)
5	Reflector on the side of the rear ripper (Option)
6	Side reflector

⚠ Electrical system general maintenance ⚠

Switch off the machine immediately if trouble occurs in the electrical system.

Repair work on the electrical system may only be carried out by a qualified electrician.

Observe also the safety instructions in chapter “General battery safety”.

Wear goggles, working gloves, and sturdy working clothing.
Risk of injury from battery acid and gases.

Before working on electrical equipment:

- Shut off the engine.
- Prior to any work on the electrical system where tools, spare parts etc. might come into contact with electric cables or contacts, switch the key switch of the electrical system to 0, withdraw the key and disconnect the batteries.
- Disconnect the negative pole terminal first and then the positive pole terminal.

On completion of work:

- Connect the positive pole terminal first and then the negative pole terminal.

Carry out voltage and continuity checks with a measuring instrument only.

Do not use a test lamp.

Do not check by “touching ground” with a bare wire.
The resulting short circuit can damage the alternator or the electronic control units.

For reasons of safety, disconnect the positive terminal of the battery before removing the relay cover. When the cover is removed and the protective cap on the relay has slipped out of position, then a danger exists of the cover plate touching the relay contact and the machine ground at the same time.

Use only original fuses with the specified rating.

When working with the machine, maintain distance from overhead electric lines. If work is to be carried out close to overhead lines, the equipment must be kept well away from the lines. Contact with overhead electrical lines could cause death or serious injury. Check out the prescribed distances.

Should a contact between the machine and an electric power source occur, the following precautions must be taken:

- Attempt to disengage contact from the electrical source.
  If this is not possible try following:
- Stop the machine movement immediately.
- Apply the parking brake, stop the engine, and remove the key.
- Check if you can safely leave the cab or your actual position without contact with electrical wires. If not, stay in your position and call for help. If you can leave your position without touching lines, jump clear of the machine to make sure that you do not make contact with the ground and the machine at the same time.
- Do not permit anyone to touch the machine until power has been shut off to the power lines.

The electrical equipment of a machine should be inspected and checked at regular intervals. Defects, such as loose connections or cables, must be corrected immediately.

Vibration levels

Preventing risks caused by vibrations

The machine's vibration negatively affects the comfort and in some cases the health and safety of the operator.

To reduce vibration risks to a minimum:

- Make sure that the machine, the equipment, and the tools are suitable for the work to be carried out.
- Make sure that the machine is in good condition and that the servicing schedule is followed.
- Check the play in the equipment linkages.
- Make sure that the operator seat and its adjustment controls are in good condition. The operator seat is to be adjusted to the operator's size and weight.

The operator seat complies with the **ISO 7096:2008** standard, EM 4 class < 1,1 as shown on **ISO 7096:2008** table 1.

For work:

- Operate the controls through all stages to ensure smooth operation of the machine.
- Modify the machine's operation to suit the working conditions.
- During travel, adjust the machine's speed, reducing it if necessary.
- Make sure that the machine's operating radius is in good condition and free of obstacles and holes.

Vibration level inside the cab

The vibration level to which the operator's hand arm system is exposed is less than **2.5 m/s²** (**8.20 ft/s²**).
The vibration level to which the operator's body is exposed is less than **0.5 m/s²** (**1.64 ft/s²**).

These results are obtained using an acceleration gauge with the machine in final processing with the blade.

NOTE: *The vibration levels vary according to working conditions and the type of terrain. They are not therefore representative for the different conditions of use, but rather correspond to the normal operating conditions defined in this manual.*
Consequently, these values cannot be used to determine the operator's exposure to vibrations as per the European Directive ***2002/44/EC****.*
For this reason, it is recommended that you measure the vibration levels in actual working conditions. If this is not possible, use the table below. This table is an extract from information sheet ***ISO/TR 25398:2006****. (ISO/TR/25398; Earthmoving machinery – Guidelines for assessment of exposure to whole-body vibration of ride-on machines – Use of harmonized data measured by international institutes, organizations, and manufacturers).*

Typical operating condition	Average			Standard deviation(s)		
	$1.4*a_{w,eqx}$ [m/s^2 (ft/s^2)]	$1.4*a_{w,eqy}$ [m/s^2 (ft/s^2)]	$a_{w,eqz}$ [m/s^2 (ft/s^2)]	$1.4*S_x$ [m/s^2 (ft/s^2)]	$1.4*S_y$ [m/s^2 (ft/s^2)]	S_z [m/s^2 (ft/s^2)]
Finish grading	0.41 (1.35)	0.48 (1.57)	0.38 (1.25)	0.22 (0.72)	0.26 (0.85)	0.14 (0.46)
Hard grading	0.61 (2.00)	0.64 (2.10)	0.78 (2.56)	0.21 (0.69)	0.21 (0.69)	0.30 (0.98)
Transfer movement	0.39 (1.28)	0.36 (1.18)	0.58 (1.90)	0.25 (0.82)	0.25 (0.82)	0.34 (1.12)

3 - CONTROLS AND INSTRUMENTS

Access to operator's platform

Access doors

⚠ WARNING

Fall hazard!
Close the cab doors before driving on public roads.
Failure to comply could result in death or serious injury.

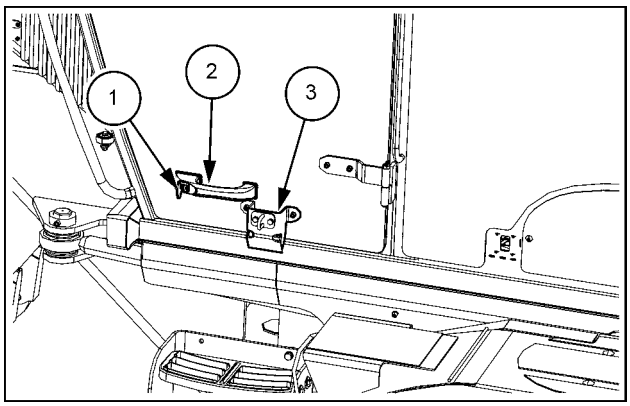
W1037A

Opening the door

Unlock the door with the key **(1)**.

Pull the door open with the handle **(2)** and swing it open into the stop position until the engagement hook **(3)** engages the latch.

NOTICE: *The cab door key is identical to the ignition key **(1)**.*

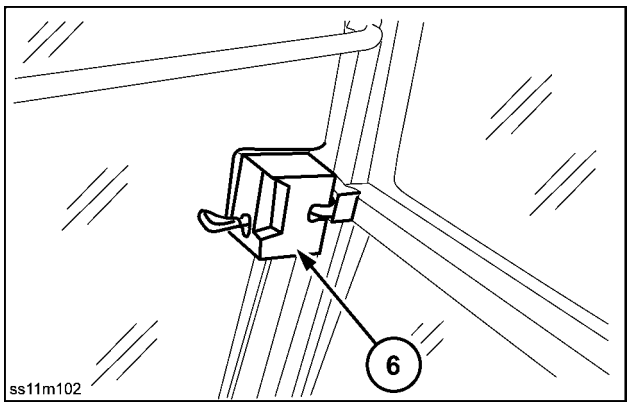


SS14H043 1

⚠ WARNING

Fall hazard!
The door must be completely open and latched in order to enter the cab or operate the machine with the door open. When the door is unlatched, it is free to move.
Failure to comply could result in death or serious injury.

W1027A



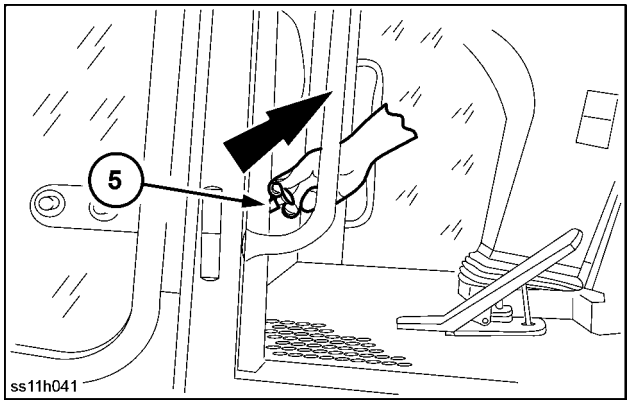
SS11M102 2

Closing the door

Unlock the latched open door with the pull handle **(5)** and swing it until it is closed and interlocked in the lock.

Lock the door with the key **(1)** (see figure **1**).

After unlocking or locking the door latch **(6)** (see figure **2**), each facing door can be opened or closed from inside even when the door is locked.



SS11H041 3

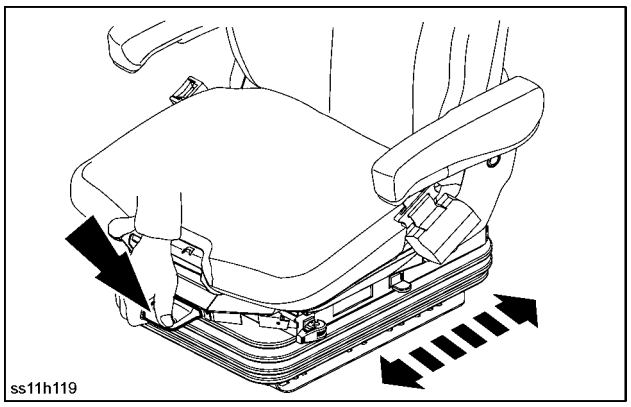
Emergency exit

NOTICE: *The right cab door is marked as Emergency exit. Before leaving the cab, the right side console is to be pushed to the rear.*

Fore-and-aft adjustment

The fore-and-aft adjustment is enabled with the locking lever.

Lift locking lever upwards, move seat to desired position and release lever. The locking lever must engage in the required position. Once locked, the driver's seat must no longer be movable into another position.

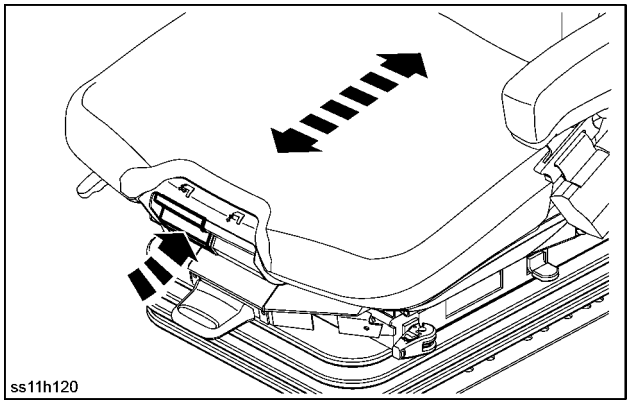


SS11H119 3

Seat depth adjustment

The seat depth can be adjusted to individual requirements.

To adjust the seat depth, raise the handle on the right. Adjust the desired position by pushing the seat forwards and backwards.



SS11H120 4

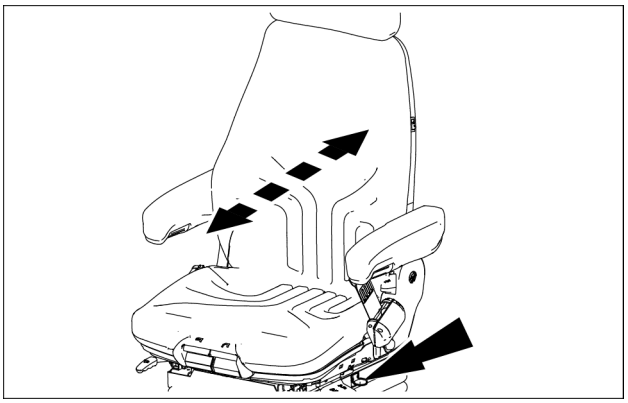
Backrest adjustment

The backrest adjustment can be made with the locking lever.

Sit on seat and lean back lightly against backrest.

Pull locking lever upwards.

Adjust backrest by leaning back or forward, and release lever when backrest is in required position.

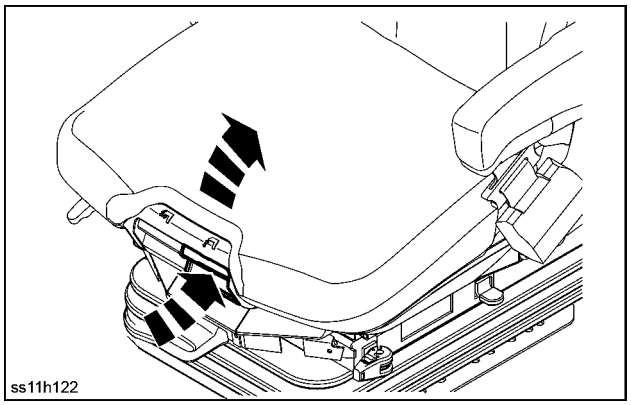


LEIL18GRD0004AB 5

Seat inclination adjustment

The fore-and-aft inclination of the seat can be adjusted to individual requirements.

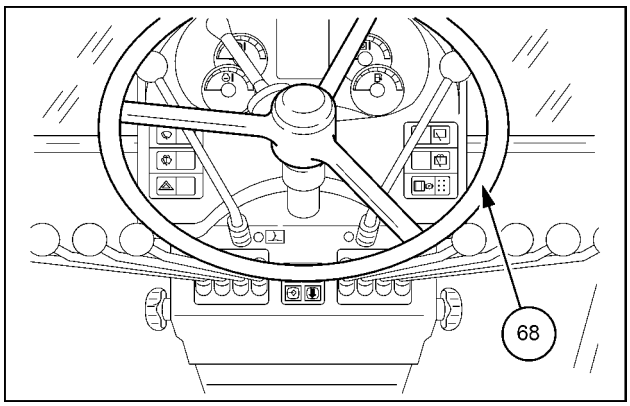
To adjust the seat inclination, raise the handle on the left. Adjust the desired seat inclination by position by loading and unloading the seat accordingly.



SS11H122 6

Steering

The machine is equipped with a hydrostatic front-wheel steering which is operated by steering wheel **(68)**.



SS14D045 1

Emergency steering

In the event of steering pump or engine failure, the machine can still be steered as long as it is in motion. Steering under these circumstances requires, however, greater effort to turn the steering wheel.

The emergency steering can be used:

- For driving the machine out of the hazard area.
- For towing the machine on a low-bed trailer.

The emergency steering cannot be used for working operations.

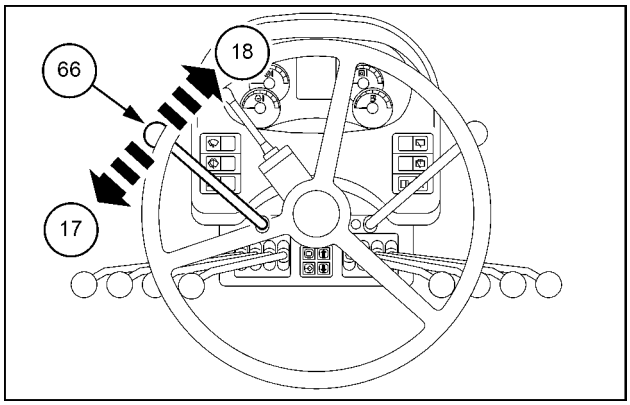
Articulated-frame steering

The articulated-frame steering permits substantial reduction of the machine´s turning circle.

The articulated-frame steering is operated by control lever **(66)**:

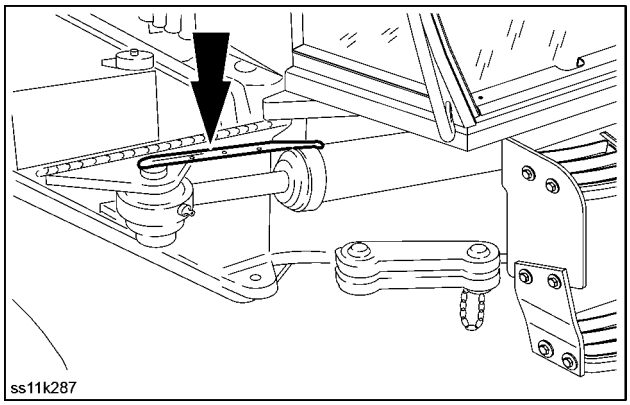
Position **(17)** = articulated-frame steering to the left

Position **(18)** = articulated joint steering to the right



SS14D046 2

The position of the articulated frame is indicated by markings on the articulated-frame steering cylinders.



SS11K287 3

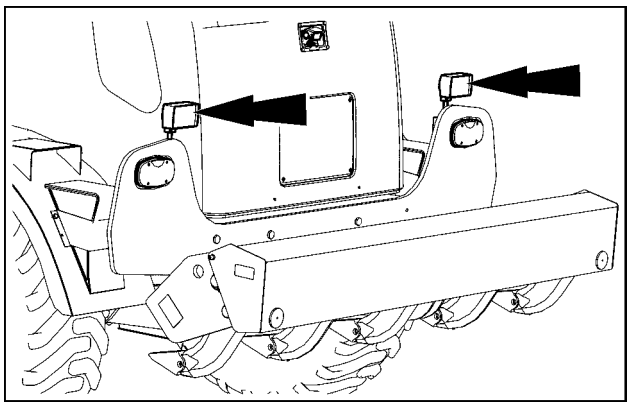
Floodlight (see figure 5) – rear (option) – switch on

(End cover/additional weight)

- Press the pushbutton **(43)** (see figure **2**) with the symbol, the symbol lights up.

Floodlight – rear (option) – switch off

- Press the pushbutton **(43)** (see figure **2**) without the symbol, the symbol goes off.



SS14D048 5

Forwards–reverse shifting

⚠ WARNING

Driving hazard!
Reduce the engine speed before reversing the travel direction.
Failure to comply could result in death or serious injury.

W1054A

Shifting from forward gears into reverse gears (reversing) is also possible while moving.

The machine is braked smoothly and, after stopping, sets off again in opposite direction.

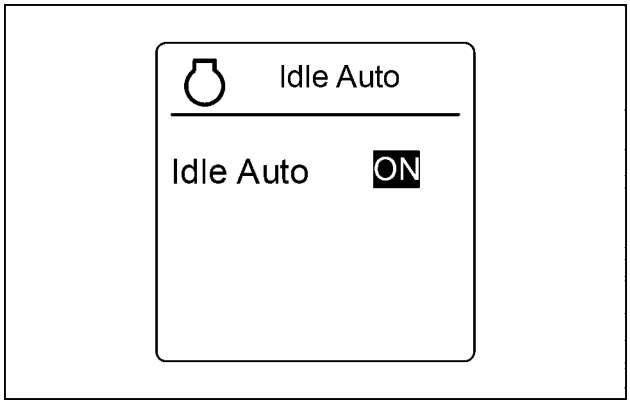
- Reduce the engine speed before reversing the travel direction.
- Shift into the opposite travel direction.

Reversing signal

NOTE: *Comply with local laws and regulations.*

- The reverse signal is optional.
- The switch in the cabin activates and deactivates the reverse signal.
- When activated, the reverse signal sounds with selected reverse gear.
- When deactivated, the reverse signal doesn’t sound with selected reverse gear.

Idle Auto screen



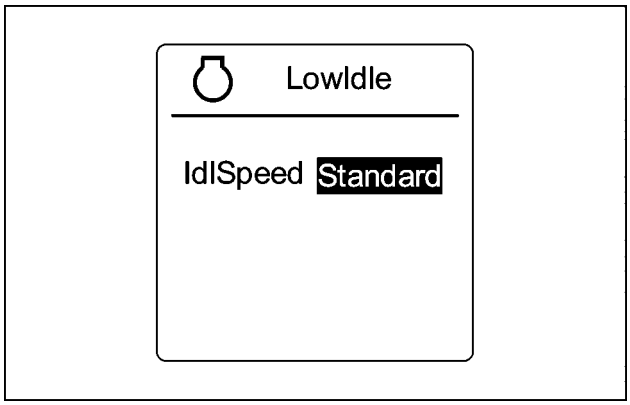
SS14C059 4

- Off (Auto idle not selected)
  Idle is constant at normal idle or customized idle.
- On (Auto idle selected)
  – If engine is not running, set fixed speed of Normal idle (i.e. start up condition).
  – If engine is running, operation use normal idle **800 RPM**, AEB idle **900 RPM** or accelerate idle **1200 RPM**.

  NOTE: *Accelerated idle is used when weather is cold and machine is not warm enough, to accelerate warming up of hydraulics and wet stake of the exhaust by condensation.*

  NOTE: *The AEB Idle Speed will be used during transmission clutch calibration mode. Activation of AEB speed is independent of Auto Idle selection. That means, AEB_Idle Speed can be set when "Auto Idle" is enabled or disabled.*

Low Idle screen

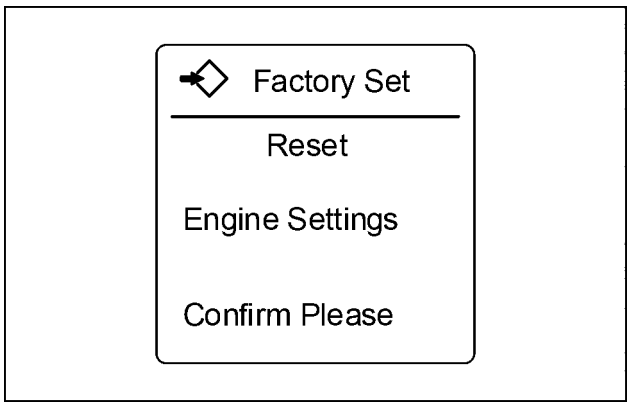


SS14D080 5

The number of revolutions at idling can be changed from the standard value to another fixed value. The fixed standard idling speed is set to **800 RPM**. This value can be changed with the arrow keys **(C)** and **(D)** and saved with the ENTER key **(B)** (see figure **1**).

Displayed in the AIC	Actual engine speed (rpm)
+50	850
+100	900
+150	950
+200	1000
+250	1050
+300	1100

Factory Set screen



SS14C060 6

You can set the machine parameter back to the factory set parameter.

Be aware the following information to execute the calibration:

1. Follow the instructions on the display screens.
2. Error code 9170 not active.
3. Warm-up the machine to reach the necessary minimum transmission sump temperature of **65.0 °C** (**149.0 °F**).
4. The engine speed is set automatically to **900 RPM**.
5. During the calibration process the fan speed is lowered and set automatically to “minimum”.
6. The calibration process will stop automatically if:

- Park brake disengaged
- Transmission sump temperature too high
- Gearshift lever not in neutral
- Vehicle moving

7. To interrupt the calibration process manually:

- Press the ESCAPE key
- Switch the ignition key to position OFF (only in emergency)

Transmission calibration screen

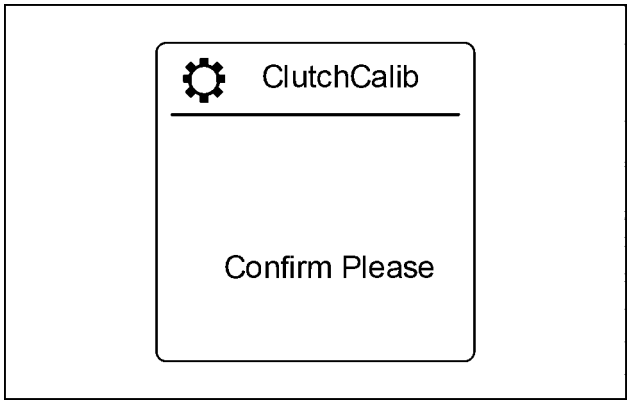
The transmission calibration screen **(1)** (see figure **4**) is selected and called up with the ENTER key **(B)** (see figure **1**).

The prompt “Confirm Please” will be displayed and the following options given:

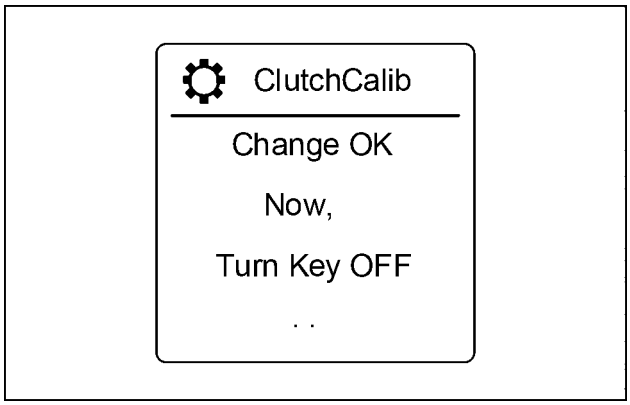
- Continue
- Cancel

After the calibration, the prompt “Change OK Now, Turn Key OFF” will be displayed.

If the process could not be successfully carried out, leave the menu with the ESCAPE key **(A)** (see figure **1**).



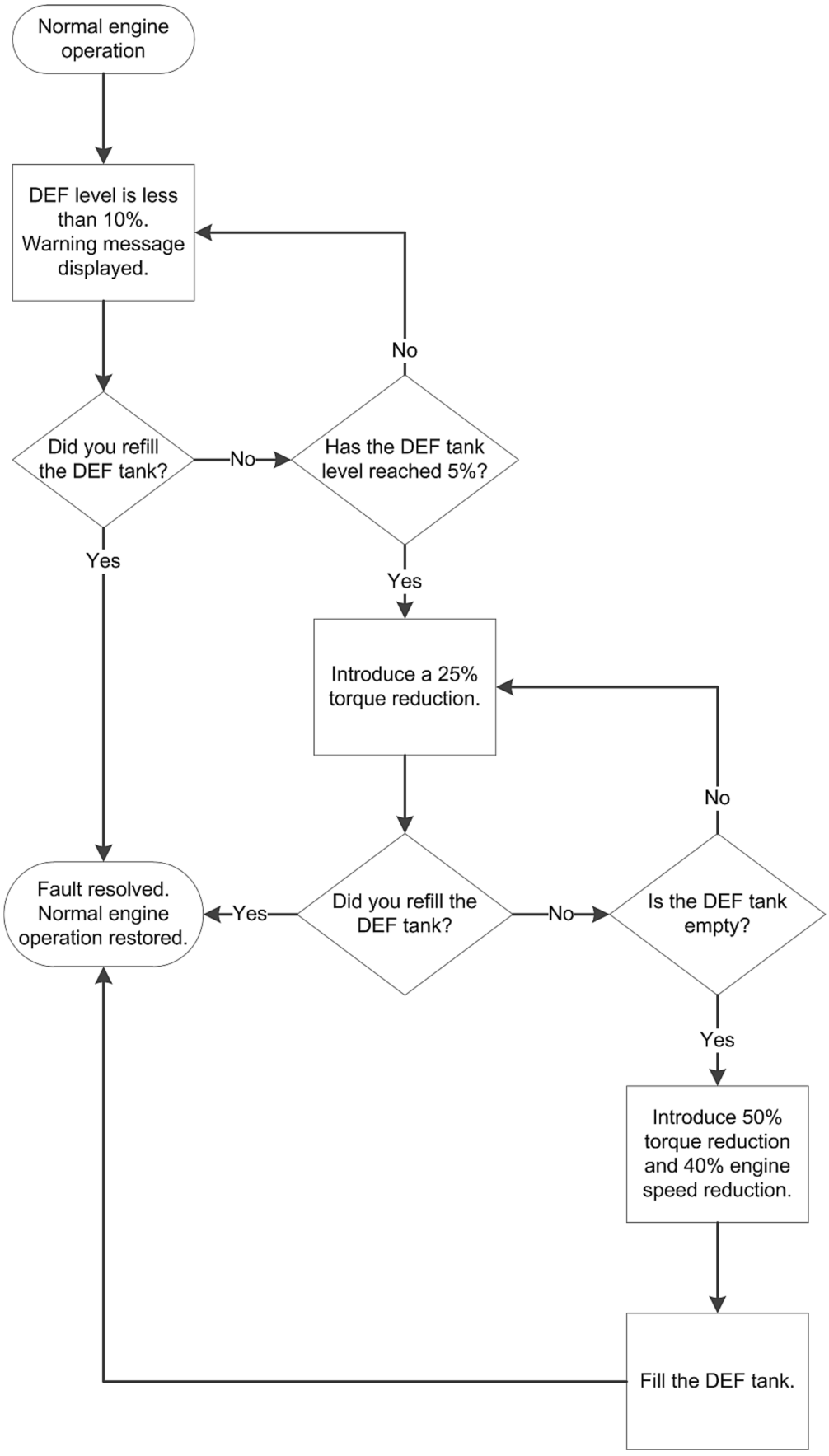
SS14C106 5



SS14C107 6

Display message	Description	Remedy
Transmission oil filter	Transmission oil filter clogged up	1. Replace the transmission oil filter. 2. If this message continues to remain active, contact your authorized dealer.
Hydraulic filter	Hydraulic oil filter restriction	1. Replace hydraulic oil filter. 2. If condition persists, contact your authorized dealer.
System voltage	Alternator malfunction Battery voltage too low	1. Check the electrical system. 2. Voltage levels are beyond the specified limits (min/max) 3. If this message continues to remain active, contact your authorized dealer.
DEF/AdBlue® Level LOW	**DEF/AdBlue®** level is too low	1. Refill **DEF/AdBlue®** immediately.
Poor **DEF/AdBlue®** Quality Detected	**DEF/AdBlue®** quality is questionable	1. Drain the tank and discard the **DEF/AdBlue®**. 2. Fill with new **DEF/AdBlue®**.
DEF/AdBlue® Injection Failed Power Limited	Injection failure detected	1. Check the **DEF/AdBlue®** tank level. 2. Drain the tank and discard the **DEF/AdBlue®**. Fill with new **DEF/AdBlue®**. 3. Contact your authorized dealer.

DEF/AdBlue® level faults, failures, and engine power loss levels



NHPH14ENG0028HA 11

Prior to start the engine

⚠ WARNING

Avoid injury!
Do not operate the machine while under the influence of alcohol or drugs.
Failure to comply could result in death or serious injury.

W0160A

Check the machine visually every day. Pay special attention to conditions that might affect the normal and safe operation of the machine: loose connections, defective hoses, oil leaks, accumulated dust and dirt, loose screws, and damaged or missing parts. Take the required corrective action before putting the machine back in operation.

Starting the engine

⚠ WARNING

Run-over hazard!
When attempting to start the engine, always sit in the operator's seat with the parking brake engaged and all control elements in neutral. Never attempt to start the engine from outside the cab.
Failure to comply could result in death or serious injury.

W1301A

⚠ WARNING

Toxic gas and asphyxiation hazard!
Diesel exhaust contains dangerous compounds. Never operate the engine in a closed building or area. Proper ventilation is required under all circumstances.
Failure to comply could result in death or serious injury.

W1302A

Before starting the machine, the following points must be checked:

1. Open and latch the engine hood in the fully open position (see also **7-6**).
2. Check the oil levels in the engine crankcase and in the transmission.
3. Check the Organic Acid Technology (OAT) coolant level.
4. Check the electrolyte level in the batteries (if they are not maintenance-free).
5. Check the fuel system, the cooling system, and the machine surroundings for engine oil leaks.
6. Check the serpentine of the alternator.
7. Check the tires for proper inflation. See also **8-16**.

Run-in period

Your machine will give you a longer service life and better economic performance if you pay special attention to the engine during the first **100 h** of operation.

During this period

- Allow the engine to warm up before operating it under load.
- Do not run the engine for prolonged periods at full throttle.
- Do not run the engine in idle for prolonged period of time.
- Check the displays on the instrument panel regularly.
- Check the oil level and the coolant level frequently.

Driving on public roads

⚠ WARNING

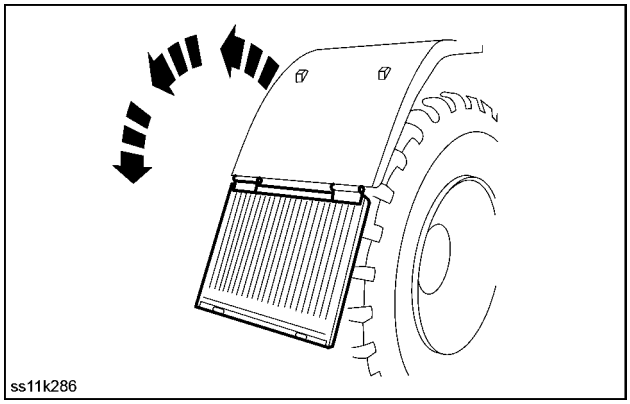
Transport hazard!
Observe the local government regulations when driving on public roads.
Failure to comply could result in death or serious injury.

W1019A

NOTE: *read and observe* ***2-2*** *and following.*

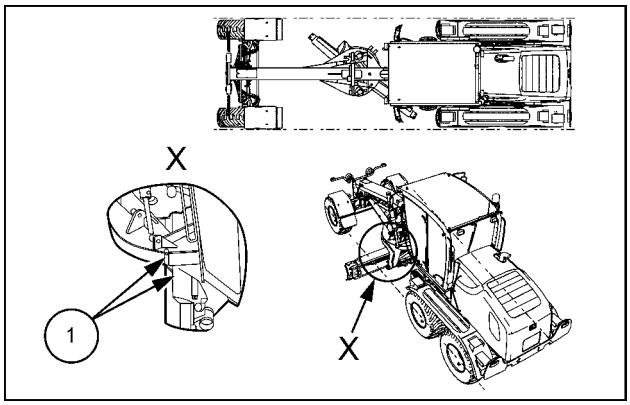
Take the following steps before driving on public roads:

1. Clean the machine to remove dirt.
2. Make sure both axles are equipped with tires of the same size and degree of wear.
3. Lock the articulation joint.
4. Check the brakes, steering, tires, and the lighting system.
5. Switch off the floodlights.
6. Lower the splash-guards on the front wheels.



SS11K286 1

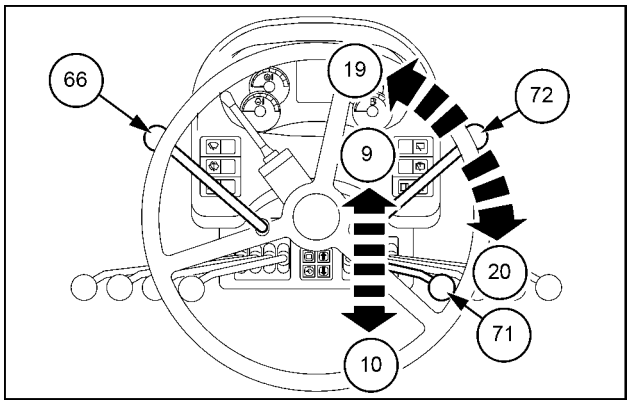
6. Bring the blade into driving position such that the blade does not protrude over the dotted line. For the purpose of easier adjustment, marking lines **(1)** have been put on the slewing ring and on the blade.
7. For driving on public roads, the brake-pressure-dependent gearbox cutout function must be off (see also **3-42**).



SS14D052 2

8. Check the wheel lean hydraulic cylinder for proper operation. For checking, move the control lever **(72)** several times from limit stop to limit stop.

•



SS14D053 3

6 - WORKING OPERATIONS

General information

Grader use

NOTE: *read and observe* ***2-2*** *and following.*

The flexibility of the grader and the diversity of materials that can be handled open up many possible applications and working methods for the machine.

We therefore recommend that the driver attend an instruction course given by an authorized dealer.

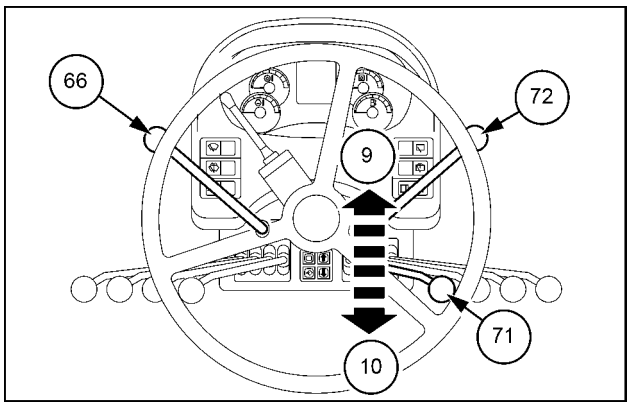
NOTICE: *do not exceed the admissible inclination limits of the machine in longitudinal and transverse direction. That reduces or interrupts the lubrication of the engine.*
The admissible engine inclination angles are:
Transverse inclination: left = ***35°****, right =* ***35°***
Longitudinal inclination: downwards = ***35°****, upwards =* ***35°***

Dozer blade (option)

The front grading blade is raised and lowered with the control lever **(71)**.

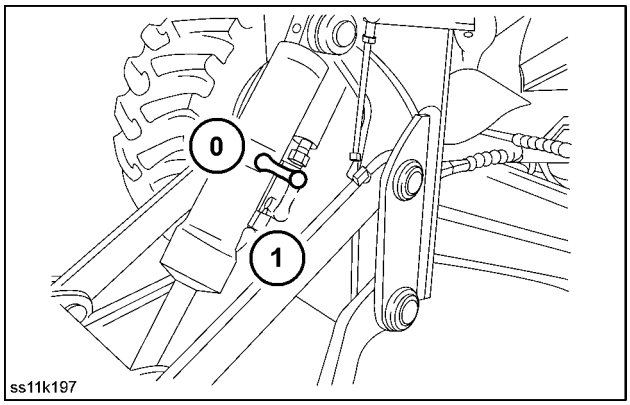
Position **(9)** = lower the front grading blade

Position **(10)** = raise the front grading blade



SS14D064 1

The shut-off valve must be open, i.e., the lever must be in position **(1)**.



SS11K197 2

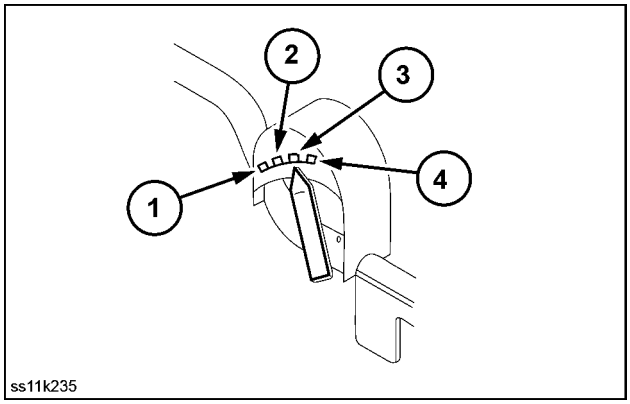
The position of the front grading blade is indicated visually.

Position **(1)** = blade completely raised

Position **(2)** = for road travel (yellow)

Position **(3)** = blade resting on the ground

Position **(4)** = maximum scraping depth



SS11K235 3

Engine oil changing

The intervals for engine oil change are valid for fuels with a sulphur content of <= **0,5%** and a permanent ambient temperature down to **-10 °C** (**14.0 °F**).

Shorter intervals must be observed for higher sulphur contents and/or permanent ambient temperatures below **-10 °C** (**14.0 °F**) (see engine operating manual).

If the engine oil change intervals are not reached within one year, the oil must be changed at least once a year.

Organic Acid Technology (OAT) coolant change

If the coolant change intervals are not reached within four years, the coolant must be changed at least every four years.

Oils/Greases

The specification of the oils and greases to be used are set out under **7-16**.

Regular oil analyses

Oil change intervals can be prolonged and wear of components detected at an early stage if regular oil analyses is performed.

Servicing material

The servicing material required for regular servicing tasks is summarized in the spare parts list.

Further servicing tasks

Optional equipment may require the supplementary inspections and servicing tasks prescribed by the manufacturer of the respective equipment. They can then be found under the corresponding keyword in the table of contents or in an appended brochure.

Do not operate tag

Before you start servicing the machine, attach a “Do Not Operate” warning tag to the machine in an area that will be visible.

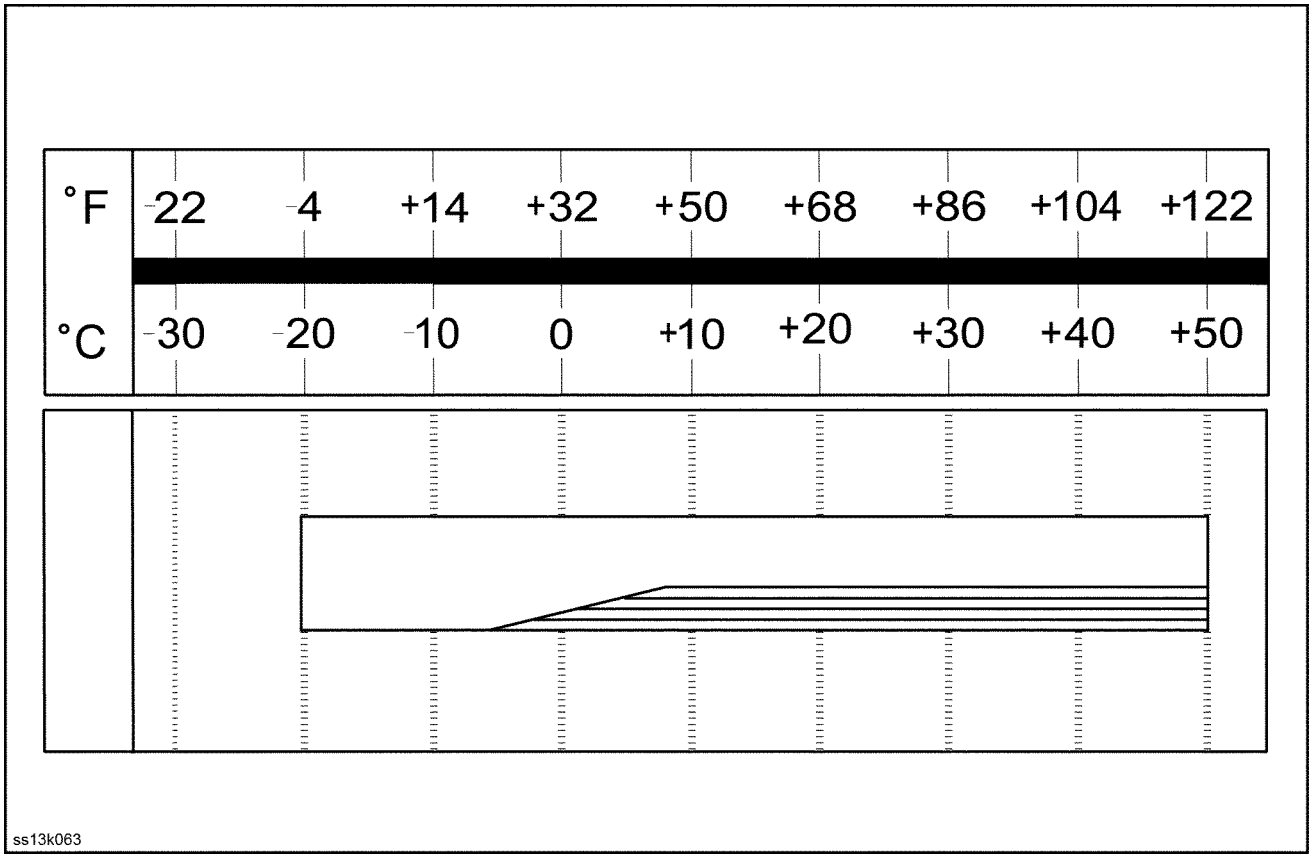
NOTE: *– Read and observe* ***2-2*** *and following.*
– Secure the machine as described under ***7-5****.*

NOTE: *if the machine is equipped with a lubrication system (option), then all lubricating nipples are connected by lubrication lines to the lubrication system. The illustration and the table only provide an overview about which bearing points are lubricated.*

Pos.	Lubricating points	Quantity
9	Articulation frame steering cylinders	2x2
10	Saddle lock pin	1
11	Moldboard swing arm bearing	2 (836C/ 836C AWD) 3 (856C/ 856C AWD)
12	Moldboard swing cylinder bearing	4
13	Articulation joint	2 x 1
14	Blade-lifting cylinder bearing	2 x 3
15	Blade-lifting cylinder mount	2 x 1
16	Pitch adjustment cylinder bearing	2
17	Blade-slewing ring	3
18	Pitch adjuster bearing	2 x 1
19	Rotary oil feed rotor	1

For correct oils see also **7-16**.

V. Greases



SS13K063 7

Specification:

- **NLGI 2**

Greases for bearing points

MAT3550 Grade A
e.g.: **CASE AKCELA 251H EP MULTI-PURPOSE GREASE**

For central lubricating systems and tensioning systems.

Greases for blade slewing ring and differential gear/tandem box

MAT3550 Grade C
e.g.: **CASE AKCELA MOLY GREASE**

(1) Grease lubrication pump
(11) Distributor combination 4/8
(18.1) Distributor combination 7/13
(18.2) Distributor combination 4/5
(19.1) Distributor combination 5/8
(19.2) Distributor combination 3/4
(20.1) Distributor combination 5/8
(20.2) Distributor combination 5/9
(20.16) Manifold

Case Construction		
Country	**Toll Number**	**Spoken Language**
Luxembourg (00352)	0044 2030245588	English
Denmark (0045)	0044 2030245588	English
Netherlands (0031)	0044 2030245588	English
Portugal (00351)	0044 2030245588	English
Poland (0048)	0044 2030245588	English
Norway (0047)	0044 2030245588	English
Sweden (0046)	0044 2030245588	English
Finland (00358)	0044 2030245588	English
Iceland (00354)	0044 2030245588	English
Estonia (00372)	0044 2030245588	English
Latvia (00371)	0044 2030245588	English
Lithuania (00370)	0044 2030245588	English
Czech Republic (00420)	0044 2030245588	Czech
Slovakia (00421)	0044 2030245588	English
Slovenia (00386)	0044 2030245588	English
Croatia (00385)	0044 2030245588	English
Republic of Serbia (00381)	0044 2030245588	English
Bosnia & Herzegovina (00387)	0044 2030245588	English
Albania (00355)	0044 2030245588	English
Macedonia (00389)	0044 2030245588	English
Greece (0030)	0044 2030245588	English
Bulgaria (00359)	0044 2030245588	English
Romania (0040)	0044 2030245588	English
Hungary (0036)	0044 2030245588	English
Cyprus (00357)	0044 2030245588	English
Malta (00356)	0044 2030245588	English
Switzerland (0041)	00800 2273 7373	German French Italian

Every 10 hours or daily service

Check machine and units visually for defects, leaks and loss of consumables

⚠ WARNING

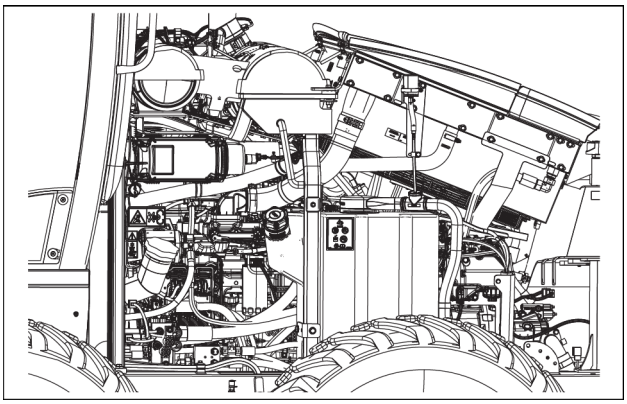
Falling object hazard!
Risk of injury from FALLING ENGINE HOOD. Latch the hood in the fully open position prior to working within the engine compartment.
Failure to comply could result in death or serious injury.

W1090B

NOTE: *– Read and observe* ***2-2*** *and following.*
– Secure the machine as described under ***7-5*** *.*

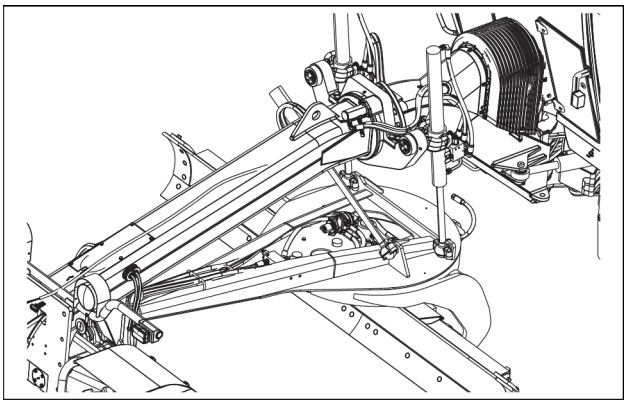
NOTE: *do not start the engine before performing the checks.*

1. Open the engine hood and check visually all easy accessible tubes and fittings. Check for any defects, leaks or loss of consumable. Use a torch light if necessary.



LEIL20GRD0316A 1

2. Go around the machine and check visually all easy accessible tubes and fittings. Check for any defects, leaks or loss of consumable.



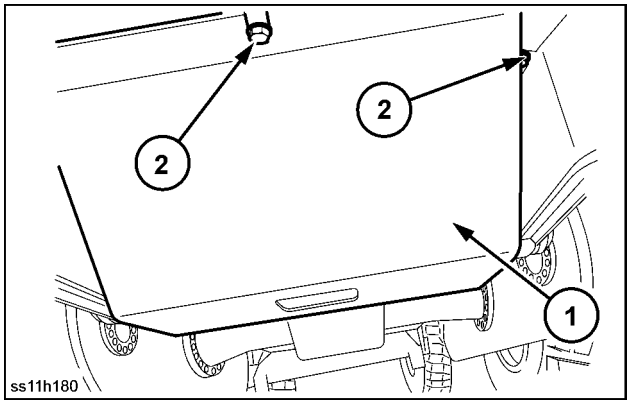
LEIL20GRD0317A 2

Check the parking brake function

The brake lining pads are basically maintenance-free and should only be checked for damage and for free movement of the brake disc. The lining thickness must be visually inspected.
The lining must be replaced when the minimum remaining thickness of **1.00 – 1.50 mm** (**0.04 – 0.06 in**) per brake lining pad is reached.

The readjustment of the brakes is necessary after the installation of new brake lining pads or of a new brake disc and also during all other repair stages and in the case of insufficient braking performance.

1. For checking the parking brake, unscrew the screws **(2)** and remove the protective hood **(1)**.



SS11H180 1

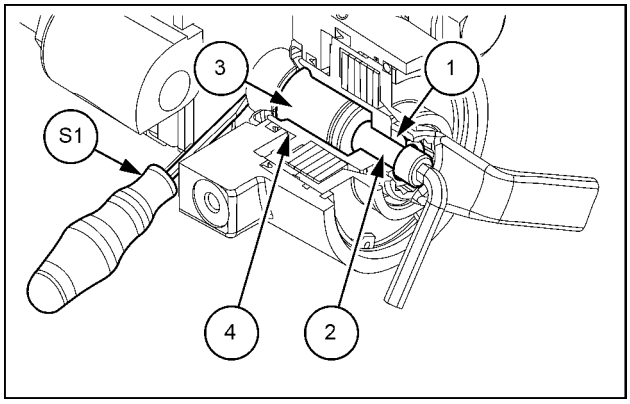
Replacement of the brake lining pads

⚠ WARNING

Unexpected machine movement!
Make sure that you secure the machine with wheel chocks before you perform this procedure.
Failure to comply could result in death or serious injury.

W1221A

1. Park the machine on level ground and secure it against inadvertent movement.
2. Release the parking brake by applying the required release pressure (min. **130.0 bar** (**1885.0 psi**)).
3. Loosen the screw cap by turning anti-clockwise, and remove it.
4. Loosen the locknut **(1)** of the adjusting screw **(2)**.
5. Turn the adjusting screw **(2)** anti-clockwise until the thrust pin **(3)** can be pressed fully into the piston.
6. Using a suitable screwdriver **(S1)**, turn (or lever) the thrust pin **(3)** back up to the position at the piston **(4)**.



SS14H044 2

Every 50 hours or weekly

Hydraulic oil level - Check

⚠ WARNING

Hot surface possible!
Wait for all components to cool before performing any operation.
Failure to comply could result in death or serious injury.

W0251A

⚠ WARNING

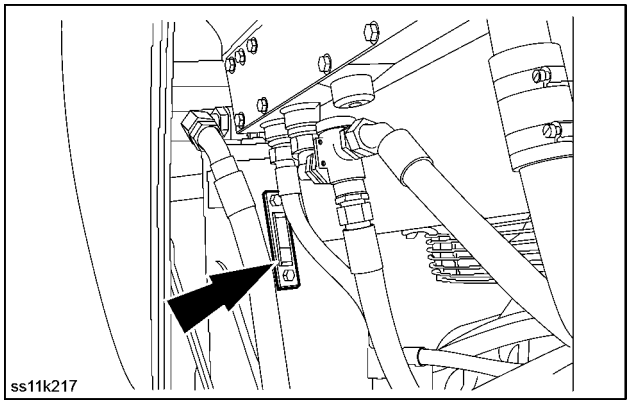
Chemical hazard!
When handling fuel, lubricants, and other service chemicals, follow the manufacturer's instructions. Wear Personal Protective Equipment (PPE) as instructed. Do not smoke or use open flame. Collect fluids in proper containers. Obey all local and environmental regulations when disposing of chemicals.
Failure to comply could result in death or serious injury.

W0371A

NOTE: *– Read and observe* ***2-2*** *and following.*
– Secure the machine as described under ***7-5*** *.*

The oil level must be visible around the mark in the middle of the inspection glass.
Top up with hydraulic oil if necessary.
If the loss of oil is excessive search for the defect and repair it.
When checking the hydraulic oil:

1. The working attachments must be lowered to the ground.
2. The engine must be off.
3. The hydraulic oil must be cold.



SS11K217 1

Every 250 hours

Check the rear axle oil levels/topping up oil

⚠ WARNING

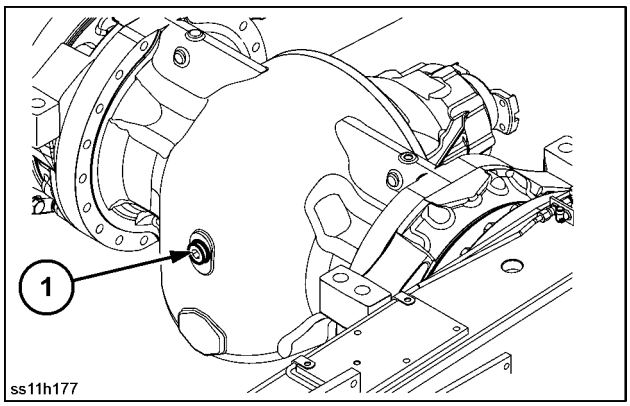
Chemical hazard!
When handling fuel, lubricants, and other service chemicals, follow the manufacturer's instructions. Wear Personal Protective Equipment (PPE) as instructed. Do not smoke or use open flame. Collect fluids in proper containers. Obey all local and environmental regulations when disposing of chemicals.
Failure to comply could result in death or serious injury.

W0371A

NOTE: *– Read and observe **2-2** and following.*
*– Secure the machine as described under **7-5**.*

Differential/side reducer gears

1. Check the oil level. Screw out the check plug **(1)** for this. The oil level must reach the lower edge of the hole.
2. If necessary, top up with gearbox oil through the hole. (For oil quality see **7-16** and for oil quantity see **7-26**).
3. If the loss of oil is excessive search for the defect and repair it.
4. Screw the check plug **(1)** back in place with a new sealing ring.

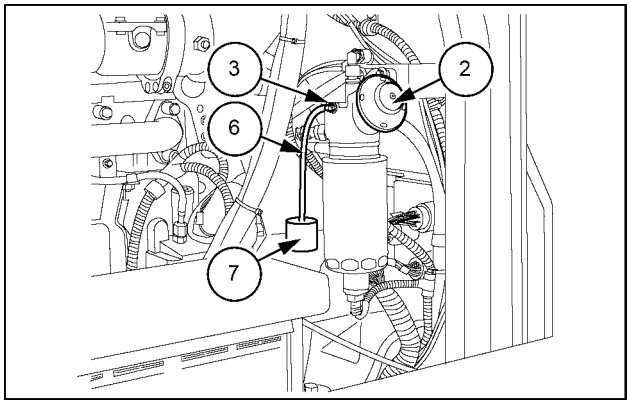


SS11H177 1

Bleeding the fuel system

NOTICE: *the fuel hose **(6)** must be resistant to fuels and transparent.*

After repairs on the fuel system or after cleaning of the fuel tank, the system must be bled.



SS14H048 1

1. Slide the hose **(6)** over the bleeding valve **(3)**.
2. Insert the bleeding hose **(6)** into a collecting receptacle **(7)**.
3. Open the bleeding valve **(3)** with an open-end spanner (turning counterclockwise).
4. Press the button **(2)** of the hand pump repeatedly until there are no more air bubbles to be seen in the hose **(6)**.
5. Close the bleeding valve **(3)** with an open-end spanner (turning clockwise).
6. Withdraw the hose **(6)** with the collecting recipient **(7)** from the bleeding valve **(3)** and dispose of the collected fuel in compliance with state-of-the-art techniques in closed containers.
7. Check all lines and connections and the fuel filter assembly for leaks.

Engine oil - Change

⚠ WARNING

Chemical hazard!
When handling fuel, lubricants, and other service chemicals, follow the manufacturer's instructions. Wear Personal Protective Equipment (PPE) as instructed. Do not smoke or use open flame. Collect fluids in proper containers. Obey all local and environmental regulations when disposing of chemicals.
Failure to comply could result in death or serious injury.

W0371A

⚠ WARNING

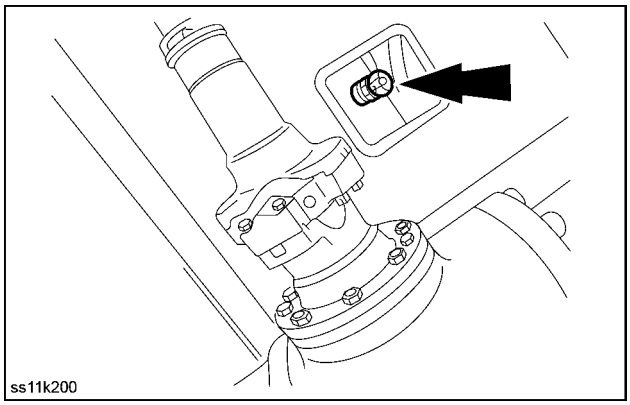
Burn hazard!
Do not handle any service fluid (engine coolant, engine oil, hydraulic oil, etc.) at temperatures that exceed 49 °C (120 °F). Allow fluids to cool before proceeding.
Failure to comply could result in death or serious injury.

W0330B

NOTE: *– Read and observe **2-2** and following.*
*– Secure the machine as described under **7-5**.*

NOTE: *collect escaping oil and dispose of it without polluting the environment.*

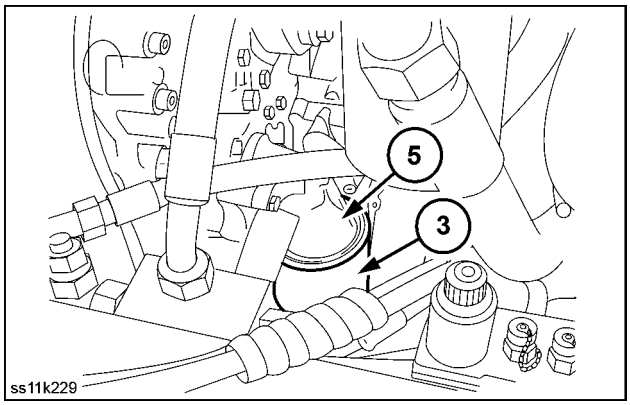
1. Bring the engine oil to operating temperature.
2. Park the machine on a horizontal surface and secure it against inadvertent movement.
3. Shut off the engine.
4. Drain off the engine oil at the drain plug. Use the oil-drainage hose for this. See also **7-27**.



SS11K200 1

After draining off the gearbox oil:

1. Unscrew the oil-drainage hose, screw the protective cap back onto the oil drain plug.
2. Replace the gearbox oil filter as detailed under **7-114**.
3. Pour fresh gearbox oil into the filling pipe **(2)** (see figure **1**) up to the lower mark “cold min.”. (For oil quality see **7-16** and for oil quantity see **7-26**).
4. Check that the powershift transmission has been set to neutral.
5. Start the engine and let it run at idling speed.
6. After running the engine for some minutes, top up with gearbox oil to the lower dipstick “cold min.” mark.
7. Warm up the powershift transmission until the oil temperature is approx. **80 °C** (**176.0 °F**), see also **4-10**.
8. Move the gearshift back to neutral, bring the engine to idling speed.
9. Check the oil level. If necessary, top up again with gearbox oil to the top “hot max.” mark of the dipstick.

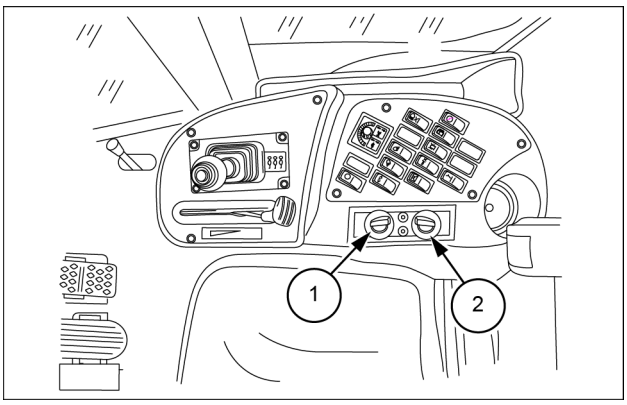


SS11K229 3

Check the heating/air conditioning

Heating

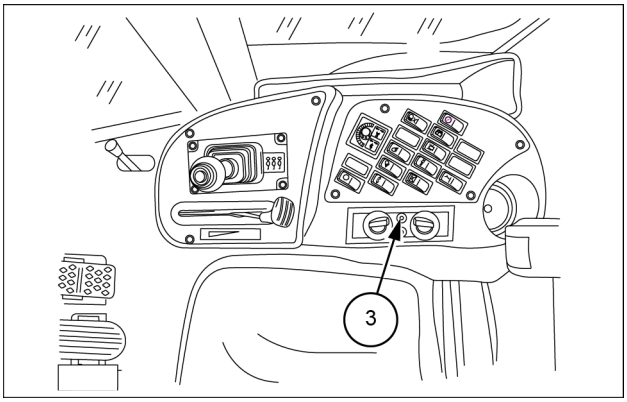
1. To turn on the heating, turn the fan knob **(1)**, in position 1.
2. The heating rotary knob **(2)** serves to adjust the heating, performance steplessly between cold and warm.
3. Turn the knob **(2)** counterclockwise to increase the air temperature.
4. Turn the knob **(2)** clockwise to decrease the air temperature.



LEIL15GRD0109AB 1

Air Conditioning

5. Start the engine.
6. To switch on the air conditioner, the pushbutton **(3)** must be on and the rotary knob **(1)** must be in position 1, 2 or 3.
7. Switch on the air conditioner by pressing the pushbutton **(3)**. The indicator lamp under the symbol lights up.
8. If a greater amount of air is desired, turn the rotary switch to level 2 or 3.



LEIL15GRD0110AB 2

7. Move the control levers several times from limit to limit stop for the following functions:
   - Blade rotation
   - Blade shift
   - Articulated-joint steering
   - Front grading blade (option)
   - Rear ripper (option)
8. Depressurize the hydraulic reservoir (see also **7-134**).

   This depressurizes the aforementioned systems (cylinders and lines).
   The lines between the control block and the lowering brake valves flange-mounted on the cylinders are then depressurized.

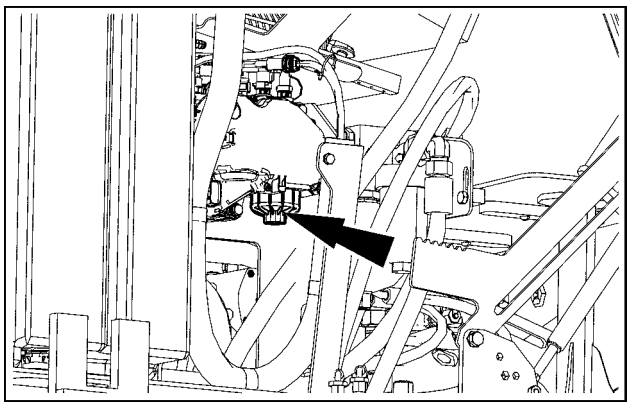
NOTICE: *however, pressure remains in the blade lifting cylinders and the lowering brake valves flange-mounted on these.*
Depressurize the blade lifting cylinder as described under ***6-15****.*
Pressure also remains in the system sections wheel camber, blade rotation gear, and blade pitch adjustment. This pressure is released by careful loosening of the threaded line connections.

Every 4000 hours or 2-yearly

Selective Catalytic Reduction System (SCR) Supply Module filter - Replace

NOTE: *– Read and observe* ***2-2*** *and following.*
– Secure the machine as described under ***7-5*** *.*

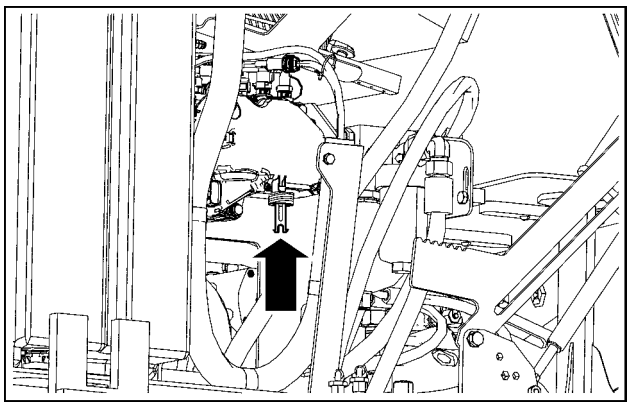
1. Open the hood, see page **7-6**. The supply module main filter is located on the left-hand side of the machine directly below the supply module.
2. Use a suitable container to catch any fluid that is discharged during hose and filter disassembly. Thoroughly clean the underside of the supply module using compressed air. Remove the filter cover by turning counterclockwise.
3. Remove the equalizing element from the center of the filter. Discard the equalizing element following local environmental and waste regulations.



SS14F050 1

NOTICE: *contamination or damage of the sealing surface on the housing must be prevented.*

4. Observe the color of the filter (gray or black). Insert the corresponding marked end of the filter removal tool, until a click is felt or heard, indicating that the tool is completely inserted.



SS14G145 2

5. Pull the filter and the filter removal tool out by hand. If necessary, insert a tool in the filter removal tool's slot for additional leverage. Discard the filter, following local environmental and waste regulations.

NOTICE: *protect the filter chamber from contamination and particles.*

6. Clean the supply module's thread surfaces and the internal filter housing surface with water.
7. Oil the O-rings of the new filter and insert them into the supply module housing.
8. Insert the new equalizing element.
9. Clean the filter cover with water and reinstall.
10. Start the engine and run at idle speed. Check for leaks.

NOTICE: *never use a filter wrench to install a new filter.*

Assisted starting (Jump-starting)

Prior to assisted starting

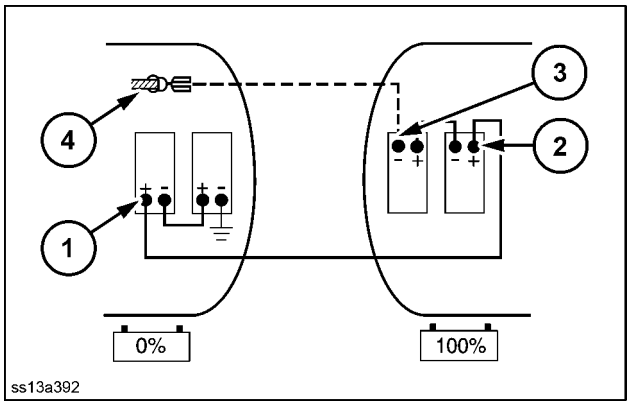
NOTE: *read and observe* ***2-2*** *and following.*

- Secure the supplying and receiving machines if necessary (warning triangle, accident prevention, traffic safety).
- Note the maximum capacity of the jumper cables.
- The engine output of the receiving machine must not be greater than that of the supplying machine.
- Switch off all consumers at the receiving machine (empty batteries) and switch the keyswitch to 0.
- Switch off all consumers at the supplying machine (charged batteries) and switch off the engine.
- The capacity of the supplying batteries must not be smaller than that of the discharged batteries.

NOTICE: *a discharged battery can freeze at a temperature of* ***-10 °C*** *(****14.0 °F****). Before connecting the jumper cable, it is absolutely necessary to thaw the battery or it might explode.*

Connecting the jumper cables

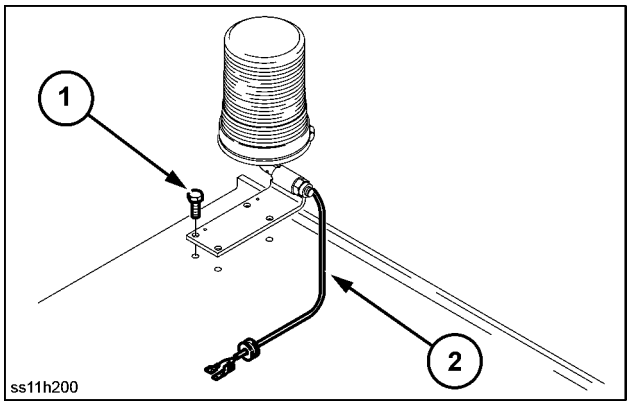
1. Connect the red jumper cable first to the positive pole of the empty battery **(1)**, then to the positive pole of the charged battery **(2)**.
2. Connect the black jumper cable first to the negative pole of the charged battery **(3)**, then to a bare-metal part of the machine to be charged **(4)**.



SS13A392 1

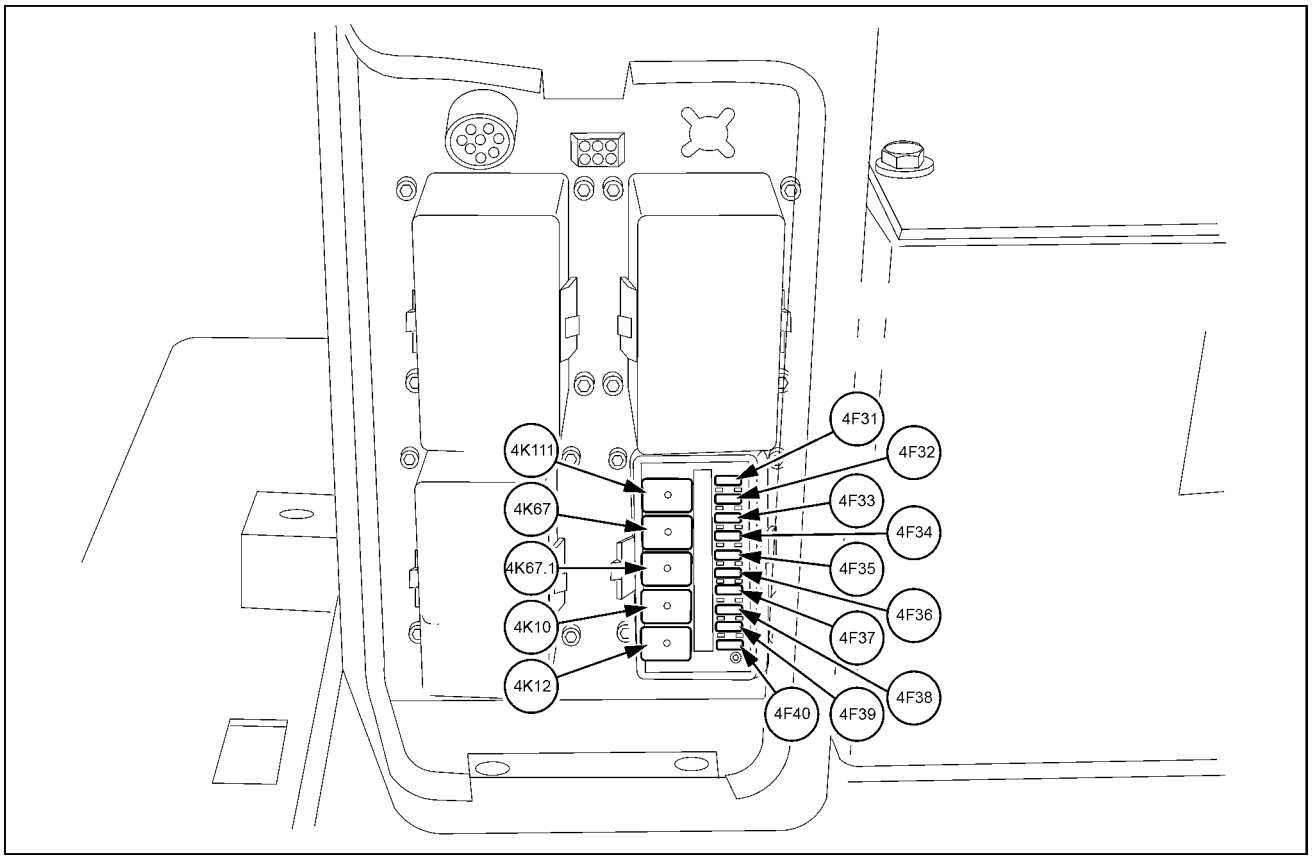
Retrofitting a rotary beacon

1. The rotary beacon is fixed with 4 screws **(1)** at the rear of the cab roof on the right.
2. The beacon is connected to the power supply by means of the prefabricated cable with connector **(2)**.



SS11H200 18

Fuse/relay box 4F/4K



SS14E082 7

Fuse/relay designation	Amperes	Color code	Consumer
4F31	**15 A**	Blue	Blower for heating air conditioner
4F32	**7.5 A**	Brown	Gearbox control system EST37A
4F33	**7.5 A**	Brown	Driving switch, speed sensor/gearbox, EST37A, Power supply
4F34	**5 A**	Beige	Telematic modul & guidance control — switched power
4F35	**5 A**	Beige	Arrestor bolts fast gear working hydraulics
4F36	**20 A**	Yellow	Refueling system
4F37	**15 A**		Heater pre-fuel filter
4F38	**15 A**		Defrost rear windowscreen
4F39	**5 A**		License plate light, tail lamp left, parking light left
4F40	**5 A**		Side-marker front, tail lamp right, parking light right
4K111			Relay gear control neutral
4K67			Relay refueling
4K67.1			Relay refueling
4K10			Relay floodlight driver’s cab
4K12			Relay floodlight driver’s cab floor

Weights

NOTE: *weights including operator* ***80.0 kg*** *(****176.4 lb****) and full fuel tank* ***236.0 kg*** *(****520.3 lb****).*

Types	836C	836C AWD	856C	856C AWD
Basic machine without equipment and additional weights	**10919.0 kg** (**24072.3 lb**)	**11219.0 kg** (**24733.7 lb**)	**13973.0 kg** (**30805.2 lb**)	**14373.0 kg** (**31687.0 lb**)
Front axle weight	**2336 kg** (**5150 lb**)	**2436.0 kg** (**5370.5 lb**)	**3488.0 kg** (**7689.7 lb**)	**3588.0 kg** (**7910.2 lb**)
Rear axle weight	**8583.0 kg** (**18922.3 lb**)	**8783.0 kg** (**19363.2 lb**)	**10486.0 kg** (**23117.7 lb**)	**10786.0 kg** (**23779.1 lb**)
Basic machine with dozer and rear weight	**11683.0 kg** (**25756.6 lb**)	**11983.0 kg** (**26418.0 lb**)	**15153.0 kg** (**33406.6 lb**)	**15553.0 kg** (**34288.5 lb**)
Front axle weight	**3043.0 kg** (**6708.7 lb**)	**3143.0 kg** (**6929.1 lb**)	**4506.0 kg** (**9934.0 lb**)	**4606.0 kg** (**10154.5 lb**)
Rear axle weight	**8640.0 kg** (**19047.9 lb**)	**8840.0 kg** (**19488.9 lb**)	**10647.0 kg** (**23472.6 lb**)	**10947.0 kg** (**24134.0 lb**)
Basic machine with dozer and rear ripper, 5 teeth with protector	**12122.0 kg** (**26724.4 lb**)	**12422.0 kg** (**27385.8 lb**)	**15584.0 kg** (**34356.8 lb**)	**15984.0 kg** (**35238.7 lb**)
Front axle weight	**2948.0 kg** (**6499.2 lb**)	**3048.0 kg** (**6719.7 lb**)	**4360.0 kg** (**9612.2 lb**)	**4460.0 kg** (**9832.6 lb**)
Rear axle weight	**9174.0 kg** (**20225.2 lb**)	**9374.0 kg** (**20666.1 lb**)	**11224.0 kg** (**24744.7 lb**)	**11524.0 kg** (**25406.1 lb**)
Basic machine with front weight and rear weight	**11579.0 kg** (**25527.3 lb**)	**11879.0 kg** (**26188.7 lb**)	**14989.0 kg** (**33045.1 lb**)	**15389.0 kg** (**33926.9 lb**)
Front axle weight	**2919.0 kg** (**6435.3 lb**)	**3019.0 kg** (**6655.8 lb**)	**4313.0 kg** (**9508.5 lb**)	**4413.0 kg** (**9729.0 lb**)
Rear axle weight	**8660.0 kg** (**19092.0 lb**)	**8860.0 kg** (**19533.0 lb**)	**10676.0 kg** (**23536.6 lb**)	**10976.0 kg** (**24197.9 lb**)
Basic machine with front weight and rear ripper, 5 teeth with fender	**12018.0 kg** (**26495.2 lb**)	**12318.0 kg** (**27156.5 lb**)	**15420.0 kg** (**33995.3 lb**)	**15820.0 kg** (**34877.1 lb**)
Front axle weight	**2824.0 kg** (**6225.9 lb**)	**2924.0 kg** (**6446.3 lb**)	**4167.0 kg** (**9186.7 lb**)	**4267.0 kg** (**9407.1 lb**)
Rear axle weight	**9194.0 kg** (**20269.3 lb**)	**9394.0 kg** (**20710.2 lb**)	**11253.0 kg** (**24808.6 lb**)	**11553.0 kg** (**25470.0 lb**)
Max. operating weight total	**12513.0 kg** (**27586.4 lb**)	**12813.0 kg** (**28247.8 lb**)	**16263.0 kg** (**35853.8 lb**)	**16663.0 kg** (**36735.6 lb**)
Max. operating weight front axle	**3200.0 kg** (**7054.8 lb**)	**3400.0 kg** (**7495.7 lb**)	**5100.0 kg** (**11243.6 lb**)	**5200.0 kg** (**11464.0 lb**)
Max. operating weight rear axle	**9313.0 kg** (**20531.7 lb**)	**9513.0 kg** (**20972.6 lb**)	**11613.0 kg** (**25602.3 lb**)	**11913.0 kg** (**26263.7 lb**)

Steering

Types	836C	836C AWD	856C	856C AWD
Servo stat	LAGC 100	LAGC 100	LAGC 160	LAGC 160
Supplier	Rexroth	Rexroth	Rexroth	Rexroth
Steering pressure	**150 bar** (**2175 psi**)	**150 bar** (**2175 psi**)	**150 bar** (**2175 psi**)	**150 bar** (**2175 psi**)
Steering turning left/right	**32°** / **40°**	**32°** / **40°**	**35.30°** / **42.30°**	**35.30°** / **42.30°**
Turns from left to right	7	7	10	10
Steering wheel diameter	**407.0 mm** (**16.0 in**)	**407.0 mm** (**16.0 in**)	**407.0 mm** (**16.0 in**)	**407.0 mm** (**16.0 in**)