Zetor

PROXIMA CL

OPERATOR´S MANUAL

08/2018

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Tractor is Zetor. Since 1946.

ZETOR

This Operator's Manual for the Zetor tractors, which we are presenting to you will help you to become familiar with the operation and maintenance of your new tractor.
Although many of you have rich experience with the operation of other tractors, please, read the information contained in this Operator's Manual very carefully.
In the Manual you will find a lot of new information and get a perfect overview of how to use the tractor with maximum efficiency during various kinds of work.
If you observe the rules of tractor operation and maintenance and driving safety, your new tractor will become your reliable and long-term friend.
The manufacturer of the tractor wishes you thousands of hours of satisfactory work.

ZETOR
Brno

The technical specifications and information about the design, equipment, material and appearance are valid at the time of print. The manufacturer reserves the right to implement changes.

The instructions for use are a part of the machine.

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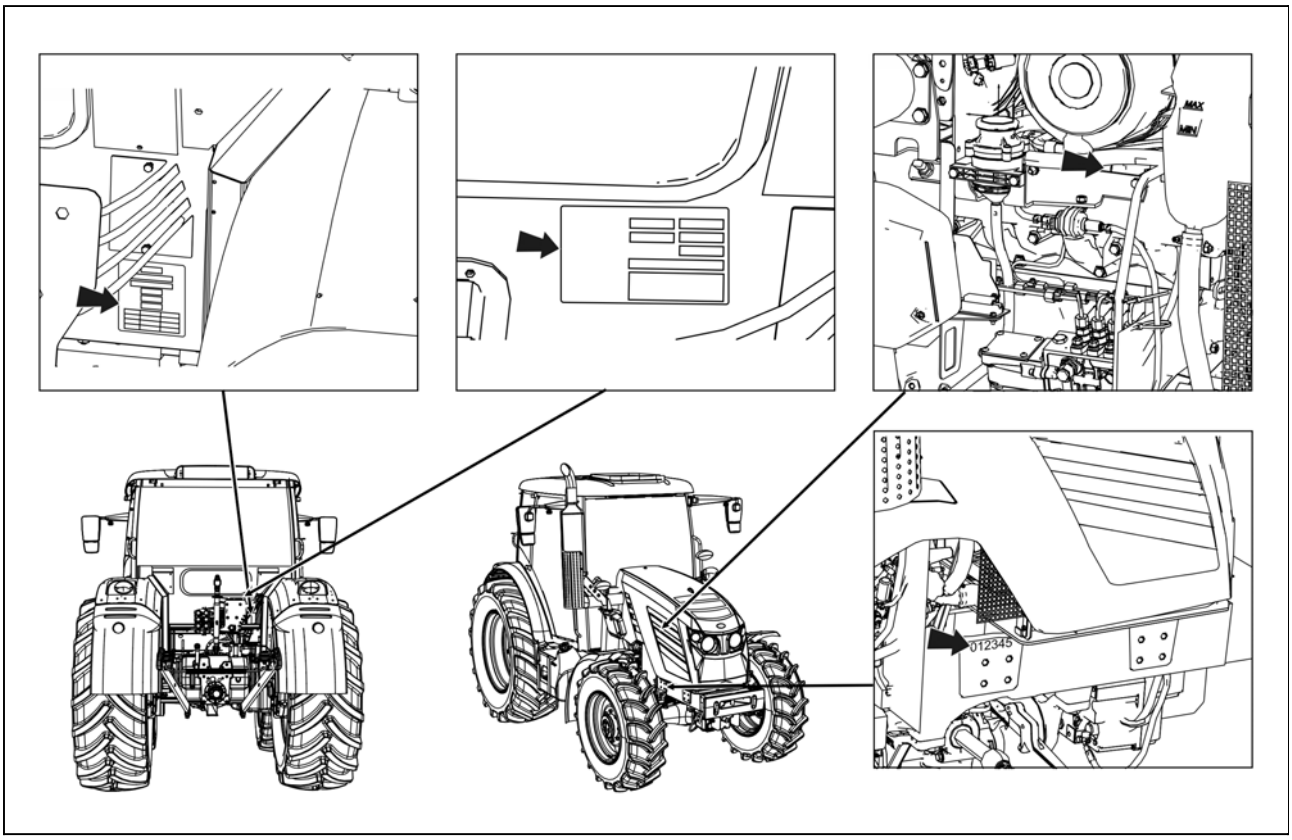
LOCATION OF SERIAL NUMBERS



P18N034

1. Tractor data plate
2. Cab serial number
3. Engine serial number
4. Tractor serial number

When ordering spare parts and within all written and oral communication always specify the data of your tractor that should be written in the frames below.

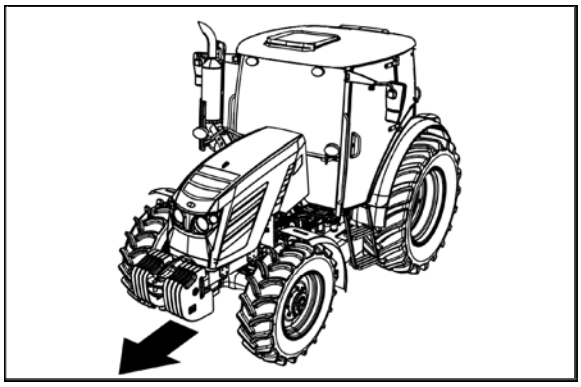
Tractor type

Tractor serial number

Engine serial number

LOCATION OF SERIAL NUMBERS

The 'right', 'left', 'front' and 'back' indications refer to the driving direction of the tractor.



P18N105

SAFETY INSTRUCTIONS FOR USERS

Pay increased attention to the parts in the instructions for use and maintenance indicated with this symbol.

 The symbol can be found next to all important warnings related to the operational safety. Follow these warnings and be particularly careful in these situations! Inform your colleagues and other users about these warnings.

 The chapters indicated with this symbol should be carefully studied prior to operation, maintenance and tractor adjustment.

 One of these symbols can be found next to all important warnings related to the operation, adjustment and repairs of the starter. Follow these warnings and be particularly careful in these situations!

 This symbol is used to indicate the parts of the instructions for use related to the environmental protection. Or the parts describing handling of hazardous wastes.

* This symbol is used to indicate accessories for the tractor mounted in the production site on the customer's request.

 This symbol is used to indicate the parts of the instructions for use related only to the models equipped with the diesel particulate filter DPF.

 This symbol is used to indicate hot surfaces. Increased care should be taken when working in their vicinity; risk of injury.

 ***Accessories which are not mounted as a standard or * on the customer's request in the production site (from the manufacturer) cannot be subject to a complaint!***

General safety regulations

- The tractor may only be operated by a trained person that has a valid driving licence and has been thoroughly acquainted with the operation and safety rules.
- Besides the safety instructions mentioned in the Operator´s Manual you are obliged to respect generally valid safety and traffic rules of the country where the tractor is used.

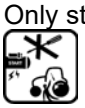
Proper clothing

- Do not wear loose clothing and free flying long hair.
- During all work use suitable (prescribed) means of personal protection (working boots, gloves, goggles, etc.)

SAFETY INSTRUCTIONS FOR USERS

Starting the engine

- Only start the engine from the driver´s seat with the clutch pedal fully depressed.



Life hazard when starting by means of short-circuiting the starter terminals!

- The key in the switch box must be in the 'I' position.
- When heating the engine with the * electric heater first plug the power supply cord to the heater and only then to the electric mains. After the end of heating first disconnect the heater from the electric mains.

Caution! Electric shock hazard!

- Starting the engine when driving tractor downhill is forbidden.
- Starting tractor by means of towing with another tractor or vehicle is allowed only when the pull bar is used.

Driving operation

- Hoses of the hydrostatic steering, brakes and fuel system must be checked and replaced immediately if any signs of damage are found. These are some examples of hose damage signs: - cracks on the hose surface, releasing of pretensioning of hose connection (which can be verified by easy removal of the hose from the connection) and mechanical damage of the hose. Hoses with indicated service life must be replaced immediately after the expiration of the service period.
- The brakes and steering must be in the perfect condition all the time.
- During driving on roads with trailers and tools the brake pedals must be connected with a latch.
- Driving downhill without an engaged gear is forbidden.
- Pay special attention when driving on a slope and muddy, sandy, icy or uneven ground.
- Observe the maximum set angle of slope availability 12° with tractors with front drive axle.
- Respect the total permissible weight of the tractor and trailer specified on the data plate of the tractor or on the rear wheel mudguard.
- Do not use the differential lock when driving into a bend.
- It is forbidden to get into and out of a moving tractor.
- When driving with machines attached to the rear hitches the load of the steered axle must not drop below 18 % of the current weight of the set.
- When driving the tractor with agricultural machines attached to the front three-point hitch, reduce the driving speed to 20 km/h.
- During aggregations of the tractor with machines pay attention to possible worsening of stability of the aggregated unit which may be influenced by the connected machine.
- During aggregation of Zetor tractors with machines and implements with high tensile resistance when the engine speed drops and the engine tends to stall, the 1R, 2R, 3R reduced gears must not be used for the work with these machines (risk of shaft twist-off).

SAFETY INSTRUCTIONS FOR USERS

Risk of the tractor overturning

The risk of the tractor overturning is increased especially when the following is used:

- a narrow wheel gauge
- inappropriate tractor travelling speed
- travel on the slope along a contour line or turning on the slope
- driving through ditches, depressions, near edges of ditches, chuckholes, steep slopes or when driving on edges of water courses and water areas
- driving up the steep slope, risk of overturning the tractor back
- driving with the trailer, semi-trailer or machine with the three-point hitch connection that lifts the centre of gravity of the tractor or combination of vehicles
- tilting of trailers and semi-trailers

 ***Not all the cases that can cause overturning of the tractor are listed. Pay attention to driving of the tractor and be prepared to resolve situations which can threaten stability of the machine.***

Transportation of persons, operation

- The number of persons transported by the tractor must not exceed the number specified in the technical certificate of the tractor.
- Persons that are not authorized to work with the attached implement must not stand between the tractor and the hitched machine (implement).
- Before putting the tractor in motion make sure there is no person or obstacle in the driving direction.

Recovery, pushing

- To recover a tractor that has sunk in mud use a tow bar or rope attached to the front hook

   ***Never use chains! Rupture of the chain represents a danger of death!***
- During recovery it is dangerous to stand near the towing rope.
- It is prohibited to use the tractor axles (individual wheels) as a winch for releasing a sunken tractor.
- The front hook should be only use to recover the entire tractor, i.e. without any trailer or another attached implement.
- Never recover the tractor with reduced gears engaged.
- When pushing other vehicles (trailers, implements, etc.) with the tractor never insert free wooden blocks or bars between the tractor and the pushed vehicle.

- In case of use of the tractor for wrecking or towing purposes, use only the rear hitch.
- When towing the tractor, the reduction gear shift lever must be in the neutral position.

SAFETY INSTRUCTIONS FOR USERS

Leaving the tractor

- Park the tractor only on an even land and where not possible, support with a shim assy.
- Do not park the tractor with an attached implement in the lifted position.
- Usually use the left-hand side tractor door when leaving the tractor. Look round whether any vehicle is coming, that could jeopardize your safety when leaving the tractor.
- Use steps and handles when leaving the tractor. When leaving the tractor by the right-hand side door pay attention being in space of shifting lever and hand throttle control.
- Brake the tractor with parking brake before leaving tractor with running engine.

- When leaving the tractor with tools connected in the front or rear three-point hitch, the three-point hitch with these tools must be lowered to the lower position.

   ***The tractor must not be leaved with the tools in the upper position in three-point hitches.***

- Do not forget to brake the tractor with parking brake (shift the gear), remove the key from key switch and lock the cab before leaving the tractor.
- At tractor equipped with reversor gear, shift the reversor lever into forward drive position.

With stopped engine only

- All work connected with refuelling, cleaning, lubricating and adjusting the tractor or attached implements may only be performed with the engine and moving parts of the tractor stopped except functional checks of the brakes, hydraulic system and charging.
- Before removing the side plates of the hood it is always necessary to stop the engine. The tractor engine can only run in a closed building or room if sufficient ventilation is ensured. Exhaust gases are harmful for health.

Fire prevention principles

- Refuel the tractor best after the end of work and with the engine stopped.
- Do not refill fuel up to the top of the fuel tank in summer. Wipe spilt fuel immediately.
- Do not refuel the tractor near open flame and do not smoke.
- Do not smoke and do not use open flame when inspecting the battery electrolyte level.
- Make sure that fire safety instructions are strictly observed in environments with an increased danger of fire (hay-lofts, straw-stacks, etc.).
- The tractors are not equipped with a fire extinguisher from the production plant.

SAFETY INSTRUCTIONS FOR USERS

Health and environment protection

- The tractors are not equipped with special filters of air aspirated to the cab. Therefore, they are not designed for work with aerosols and other harmful substances.
- Coolant, brake liquid, kerosene, diesel fuel, mineral oil and other oil products that are used for the operation and maintenance of the tractor may cause various skin disorders in case of direct contact with your skin and can irritate mucous membranes, eyes, the digestive system and upper respiratory ways. Some of them may even cause systemic poisoning when swallowed.
- Persons that handle oil products are obliged to strictly observe safety and hygienic regulations, use suitable means of protection and work in well ventilated rooms.

Working with oil products

- After the end of work or before a meal you should wash yourself with a mild agent and treat your hands with a suitable ointment or cream.
- When connecting and disconnection quick-couplers of the hydraulic circuits use any piece of cloth to remove residual oil remaining in the socket or on the plug of the quick-coupler.

Waste disposal

- When disposing of the tractor or its parts (incl. operation liquids) after the end of their service life you must observe relevant provisions of valid acts and implementation directives of these acts of the country where the tractor is used. The last seller of the tractor is obliged in accordance with the Waste Act to inform the consumer - during the sale of the tractor - about the way of collection of some used parts of the tractor. This is the case of oil and other operation liquids, batteries and tyres. These used products must be received from the consumer without any obligation of the consumer to pay for this service.

Preventive daily maintenance

- Perform this maintenance daily or after every 8 - 10 hours of operation at the latest.

Safety cab

- If the protective frame of the safety cab is damaged by corrosion, an accident or otherwise, the safety cab must be replaced.

Air-conditioning

- Disassembling, turning or otherwise handling the screw union of the air-conditioning system is not allowed in any case. Sudden leak of the coolant may occur, causing quick local cooling. Contact or freezing of components in hands may cause serious damage of some tissues.
- The air-conditioning system is equipped with quick-couplers that make it possible to separate the cab from the tractor body if necessary without any coolant leak. Entrust interventions into the air-conditioning system to a specialized repair shop.

SAFETY INSTRUCTIONS FOR USERS

Electric installation

No additional interventions into the electric installation (connection of other electric appliances) are permissible due to its possible overloading!

- The values of the electric installation are:
  Nominal voltage 12 V =
  Grounded minus pole (-) pole
- Using starting trucks or auxiliary power supplies with a different voltage or polarity may cause serious failures of the tractor.
- When handling the battery you must pay increased attention and avoid short-circuits. In tractors equipped with a battery disconnector switch the disconnector off when handling the battery.
- Zetor tractors must not be operated with a disconnected battery as this may lead to a serious failure of the tractor.

Work in a chemically aggressive environment

- If the tractor is operating in a chemically aggressive environment (e.g. working with chemical sprays, fertilizers, in environments with high concentrations of salt, etc.), it is always necessary to clean the tractor thoroughly from chemically aggressive substances and neutralize them after the termination of the work according to the manufacturer's instructions.

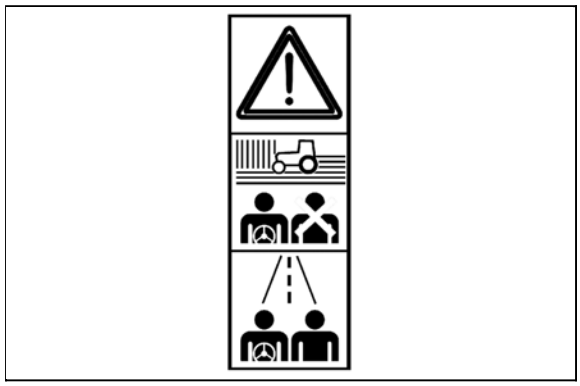
Driver's seat

If the driver's seat is equipped with a safety belt, this retaining system must be used during operation of the tractor.

Front passenger´s seat notification

ATTENTION:
Transportation of personnel on front passenger´s seat is allowed only with road transportation.

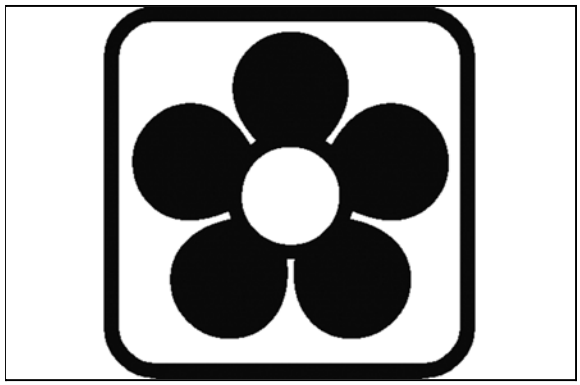
- Transportation of front passenger outside the seat designed for this purpose is forbidden.
- Using the seat for front passenger during the work with a tractor (e.g. during the work on the fields) is explicitly forbidden.
- The use of safety belt on front passenger´s seat is governed by valid regulations. In this respect, keep the regulations valid in the country, where the tractor is operated.



FH13N002

Protection of cab against aerosols

The cab of Zetor tractors in standard design is not designed for work with aerosols and other health hazardous substances.
The level of cab protection in standard design complies with **EN 15695-1:2009 standard - level 2** (only dust proof cab).



FH13N003

Level of external and internal noise.

Exposure to higher levels of noise for longer time may cause hearing problems or even deafness. Protect your hearing with protective hearing devices, e.g. headphones, earplugs, etc.

The resulting noise levels when measuring the noise for the hearing of a person near the tractor according to **the Commission Delegated Regulation (EU) 2015/96, Annex III**.
The resulting noise levels when measuring the noise for the hearing of a driver according to **the Commission Delegated Regulation (EU) 1322/2014, Annex XIII**.

Proxima tractor	External noise		Noise in the operators position (internal)			
			4x2		4x4	
	In motion	Standing	Closed windows	Open windows	Closed windows	Open windows
CL 100 30 km/h	**85.0**	**78.2**	**78.8**	**82.0**	**78.5**	**82.0**
CL 100 40 km/h	**84.7**	**77.6**	**80.7**	**83.0**	**80.8**	**83.8**

The level of vibrations on driver´s seat

ZETOR tractors are classified in the category A and the class I/II/III. The category A includes all tractors with specified levels of vibration due to similar specifications of the construction.
The following table presents the results of the measurement on the test bench according to the Commission Delegated Regulation (EU) No. 1322/2014, Annex XIV. The value a*wS is a modified value of the effective acceleration balanced according to vibration movement.
The following table is valid for all type series of Zetor tractors.

Seat brand	Suspension	Class I/II/III	
		a^*_{wS}(1) (m/s²)	a^*_{wS}(2) (m/s²)
SEARS	mechanical	1.24	1.06
SEARS	pneumatic	1.13	1.03

(1) Values corresponding to the weight of a driver 50 kg.
(2) Values corresponding to the weight of a driver 50 kg.

Aggregation tractor - machine/trailer

 ***While working with machines, trailers or semi-trailers, all instructions from the manufacturers of these aggregations must be adhered to!***

Tractors equipped with front end loader

Zetor Tractors in standard design are designed for utilization in agriculture and are not designed for special purposes.
Tractors designed for operation within the European Union must be equipped, in case of using front end loader, with a protective structure (FOPS - Falling Object Protective Structure) protecting drivers from potential falling objects.
It is necessary to observe applicable local valid regulations in countries which are not part of the European Union.
Two types of cab roofs are mounted to Zetor tractors.
1. Standard cab roof
2. Cab roof designed for tractors equipped with front end loader meeting the OECD code 10 (FOPS) conditions.
Tractors ZETOR supplied already from production with front end loader are equipped with cab roof according to point 2.
From safety reasons, series ZETOR tractors supplied without front end loader with standard roof pursuant to point 1 must not be equipped or used with front end loader.
In case of additional front end loader assembly, it is necessary to equip tractor with cab roof pursuant to point 2.

 ***Only front end loaders approved by ZETOR TRACTORS may be mounted to ZETOR tractor. Additional assembly of front end loader approved by ZETOR TRACTORS can be done only by authorized ZETOR service.***
It is forbidden to use front end loaders unapproved of by ZETOR TRACTORS.
Not observing this instruction may cause serious accidents.
Carefully observe instructions for use supplied by the manufacturer of front end loader.

 ***Attachment points for assembly of the front loader to the tractor are specified in the manual of the loader manufacturer. The manual must be approved by the company ZETOR TRACTORS.***

SAFETY INSTRUCTIONS FOR USERS

Principles for operating tractors equipped with front end loader

 ***Carefully study operation manual supplied by the manufacturer of front end loader. In case of discord of Principles for operating tractors equipped with front end loader and operation manual for front end loader, which was supplied by the manufacturer of front end loader, the wording listed in operation manual supplied by the manufacturer of front end loader shall apply.***

- The use of front end loader for transporting material at places accessible to the public is forbidden.
- The use of front end loader for transporting material in places inaccessible to the public is possible only in a limited way. In such case, instructions in user's manual supplied by the loader manufacturer must be observed.
- Observe local valid regulations at all times.
- A strict ban on transportation and lifting of people by means of loader is in effect.
- No matter whether the front end loader is loaded or empty, no-one may stand in front of the loader if it is in lifted position. When driving with a lifted loader, there is a risk of load transported by front end loader falling (there is a risk of disrupting the balance of the tractor).
- Never leave the tractor standing with the loader in lifted position.
- If it is necessary to open the bonnet of the engine at intervention, disconnect the front end loader first or secure hydraulic rollers of front end loader by metallic props designed for this purpose.
- Hydraulic circuit of the front end loader is designed in such a way to endure the maximum operation pressure of 20 MPa (200 bar). Do not do any changes on couplers of hydraulic circuit hoses.
- Any front end loader ZETOR mounting without observing the recommendation of ZETOR TRACTORS valid to the day of pur-chase revokes the validity of guarantee for the whole of supply.
- The loader may be used, maintained and repaired only by people who perfectly know the machine and who are informed about potential risks.
- When driving on roads do not transport any material on the front end loader.
- It is necessary to observe special instructions related to accidents prevention and general rules related to technical safety, la-bour medicine, labour hygiene and regulation defining operation on roads.
- The manufacturer does not bear any responsibility for any potential damage incurred as a result of changes conducted on the loader without their consent.
- Do not ever adjust the front end loader by yourselves and do not use the adjusted front end loader without prior ZETOR´s ap-proval. The loader may become dangerous as a result of not observing these instructions. ZETOR TRACTORS shall not be held responsible in case of any damage or injury.
- Use front end loader without additional weights on the tractor (danger of mutual contact). The load of front and rear drive axle must not exceed the maximum permitted load listed in the manual. The use of front end loader requires mounting of counter weight in the rear part of the tractor.
- Each working tool was reconstructed for the purpose of specific usage and has its own tolerance of resistance and tightness.
- It is forbidden to use front end loader for cultivating soil and stubbing. Such work needs to be done with a special tool, front end loader is not designed for doing this.
- Using controls which would set the loader into motion without driver holding the gear shifting lever is strictly forbidden and re-sults in installation not meeting the prescribed standard.
- To penetrate the loaded material, better use the kinetic energy of the tractor rather than pressing force which causes higher strain of both the loader and the tractor.
- Do not overload hydraulic parts if the load is too heavy or pistons are in end positions.
- Control the loader exclusively from driver's seat, if you are sitting on driver's seat.
- Do not leave the seat if you have not blocked any movement of controls.
- No people can be present in the working zone of the loader.
- When working with a lifted loader, mind electric and external cables etc.
- Loader/tractor set needs to be parked on a horizontal and solid base, the arms of the lifting device must be set in the lower position

You will find more information in user's manual to front end loader.

 ***Important notification: Work always safely and with consideration.***

SAFETY INSTRUCTIONS FOR USERS

Zetor tractors used for work in the woods

Standard tractors Zetor do not provide sufficient protection for operation in forest terrain as, for example, protection against a fal-ling tree or branch on a cab or penetration of objects to a cab.
If Zetor tractor is utilized for forest work, a tractor operated within the European Union must be protected against these risks.
It is necessary to observe applicable local valid regulations in countries which are not part of the European Union.
To ensure this protection, it is advisable to conduct assembly of a specific protective structure, like for example FOPS / OPS (Fal-ling Object Protective Structure / Operator Protective Structure), tested according to standards for forest machines.

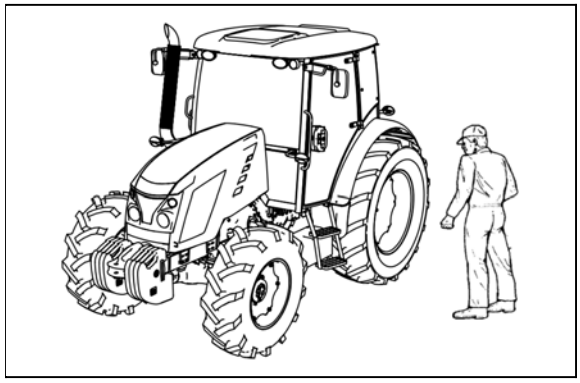
 ***Only forest superstructures approved by ZETOR TRACTORS can be mounted to ZETOR tractors.***

In case of additional assembly of further tractor equipment for working in the woods, full responsibility is borne by the supplier and manufacturer of the protective structure that all the safety regulations (e.g: OPS / FOPS), all the conditions of homologation (e.g. the area of driver's view, lighting, parameters, permissible weight etc.) are met, same as for the provision of due assembly of pro-tective equipment. The supplier/manufacturer of protective construction is also obliged to conduct all the necessary validation (approval) steps required by the legislature of the country in which the tractor is operated.

Safety labels

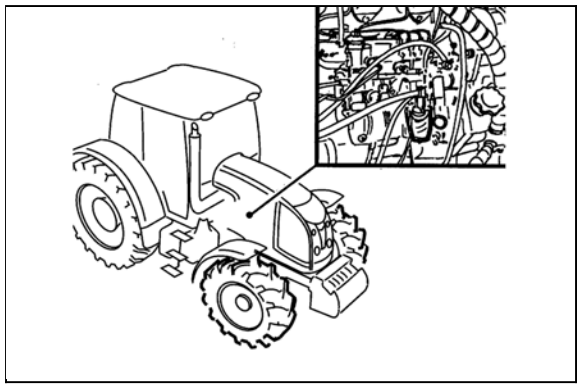
- Important parts of the machine are equipped with safety labels warning against possible danger. Restore damaged or illegible labels and replenish missing ones.
- New components installed during the repair should be provided with up-to-date safety symbols. The safety symbols must be clearly visible!

Preventive daily maintenance
Perform this maintenance daily or after every 8 - 10 hours of operation at the latest.



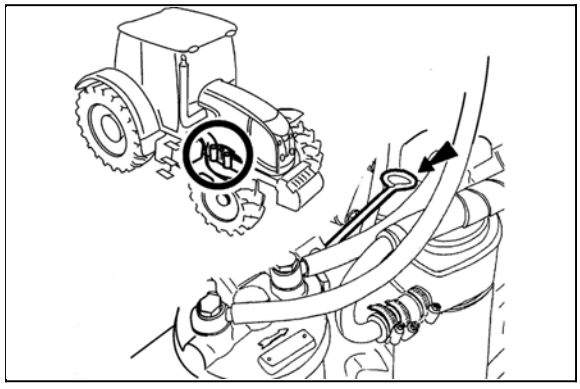
G4

Fuel system leaks
Check the fuel system for leaks, including the fuel tank. Repair any leaks immediately. The hole for draining dirt from the fuel tank is found in its bottom.



P11NC103

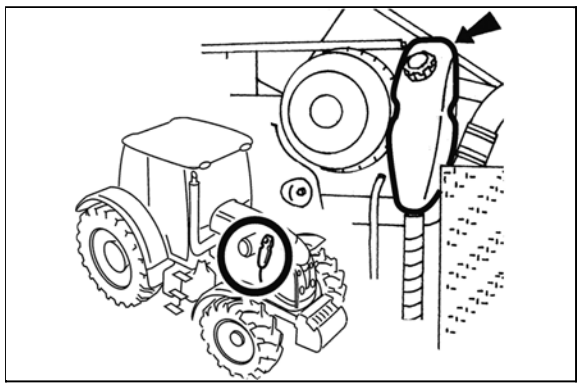
Engine oil level
After unscrewing and removing the oil dip-stick check the oil quantity in the engine and then check the connection of the engine lubrication system for leaks. Maintain the oil level between the dipstick marks.



E6g

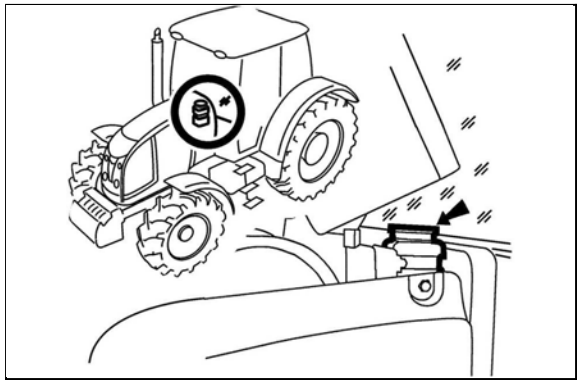
Cooling system
Check the connections of the engine cooling system for leaks and the coolant quantity in the expansion tank. Replenish the missing quantity up to the upper mark indicated MAX. The minimum acceptable cooling liquid level is indicated by the MIN mark.

Only release the overpressure plug when the coolant has cooled down! There is a danger of scalding!



G751a

The liquid reservoir for control of the clutch
Check tightness of the liquid control of the clutch and amount of the liquid in the equalizing vessel.
The liquid reservoir for control of the clutch is located on the left in front of the tractor cabin and is accessible when the front engine bonnet is open.
Maintain the liquid level within the range from 3/4 of the reservoir content (max. height) to 1/2 of the reservoir content (minimum level height).

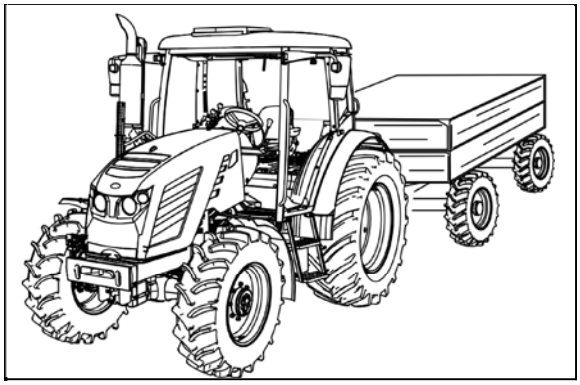


P18N101

Trailer brakes

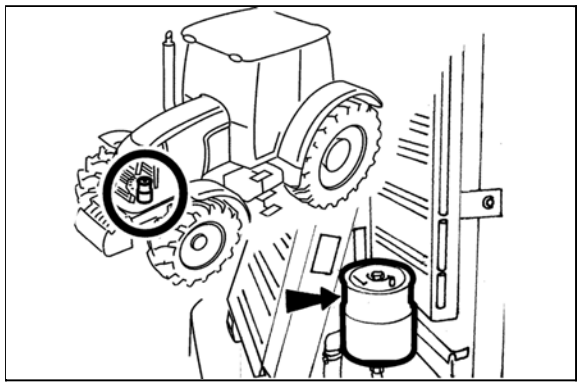
Trailer air brakes
Check tightness of the air system of the brakes and effectiveness of brakes of the tractor with a trailer.

Trailer hydraulic brakes
Check tightness of hydraulic brakes of the trailer and effectiveness of brakes of the tractor with a trailer.



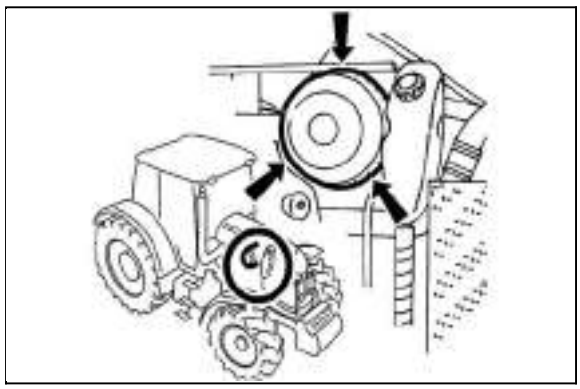
P18N001

Hydrostatic steering
- Check the oil level in the hydrostatic steering tank.
- Check the tightening of screws and nuts of the steering rods and levers.
- Check the condition of all the hoses of the hydraulic steering circuit for damage and for oil leaks.



G751b

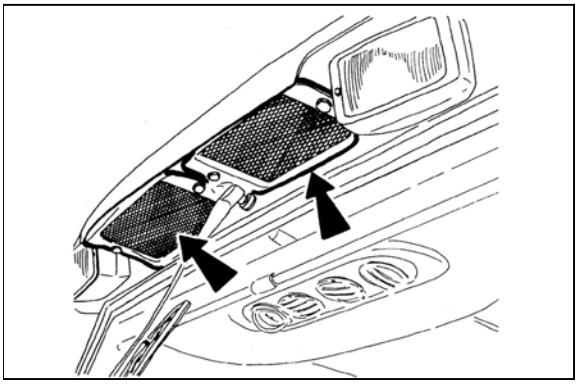
Air cleaner
If the air cleaner is heavily clogged with dirt, this condition is indicated by a sensor that lights up an indicator on the dashboard.



PHS18N053

Cab filtration

Check and if necessary clean the cab ventilation air filters installed in the front overhang of the roof.
The filter exchange interval depends on the dustiness of the working environment.
Partial regeneration can be performed by beating out or blowing with compressed air.
Do the cleaning or replacement of the filter elements after removing the covering grills in the roof overhang.
At the customer's request we supply filters with active carbon.



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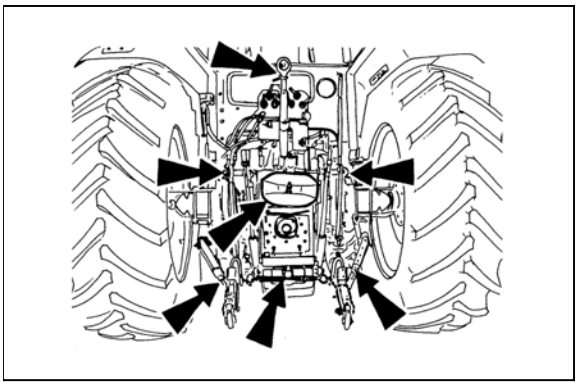
Don't clean the filter; don't flush it with compressed air.

Hitches

Check the condition of the hitching and attachment systems of the tractor and trailer.



F18

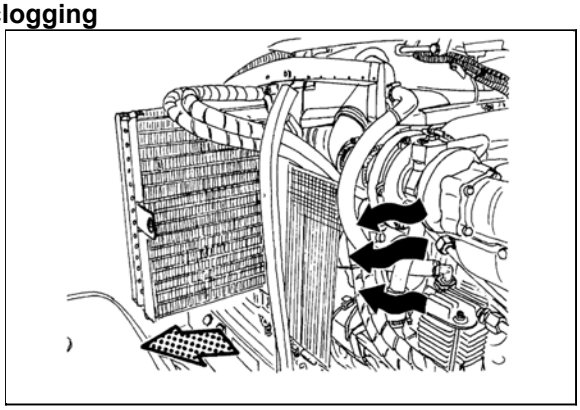
Inspection of fouling of coolers

Open the front cowl and check the plates of the engine radiator of engine cooling liquid and air conditioning condenser, the cooler of oil of the front PTO shaft and the cooler of the gear oil (if the tractor is equipped with them) for fouling.
In case of fouling clean the cooler plates with pressure air.

After work with front implements and in case of cooler clogging

After work with front implements:
- Check the connections of the external hydraulic circuit of the control of the front three-point hitch for leaks

Clogging of the coolers:
- Release and slide the cooler to the left side of the tractor.
- Clean the front walls of the engine (gearbox, air-conditioning condenser) cooler with compressed air (blow air in the direction from the engine).
- Remove residual dirt from the space under the hood so that it should not be suctioned again.

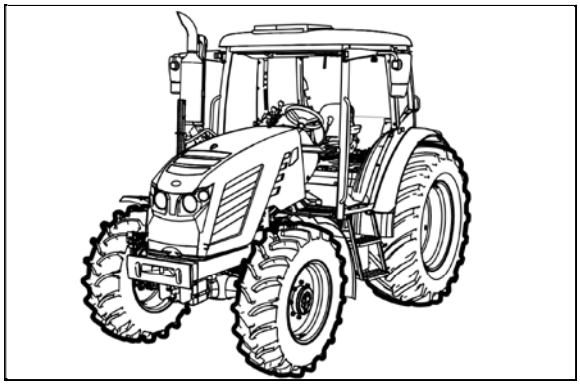


C113

Tyres and wheels

Check the air pressure in the front and rear tyres. Depending on the character of work adjust the pressure to the recommended value. Check and if necessary retighten the bolts of the front and rear wheels.

Never drive with loose wheel bolts!

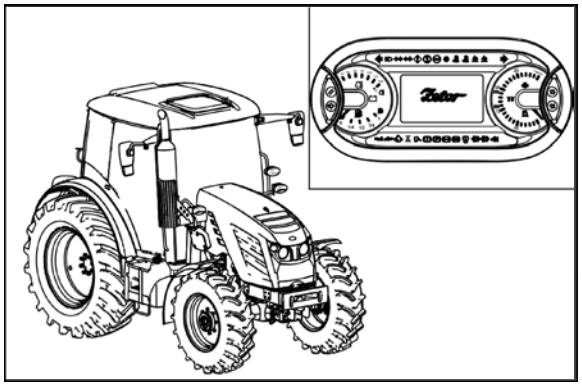


P18N002

Short functional test

After starting the engine check whether the hydrostatic steering failure, engine lubrication and charging indicators have gone off.

Verify the function of the hydraulic steering circuits and check them for leaks.

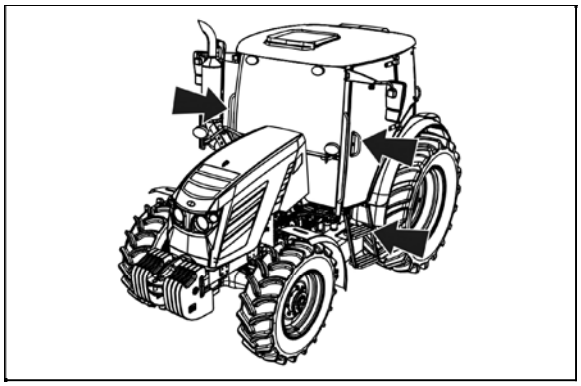


P18N003

Tractor user must be properly acquainted with recommended operating and safety rules for safe tractor operation in advance. It is too late to do it within operation!

Safety cab

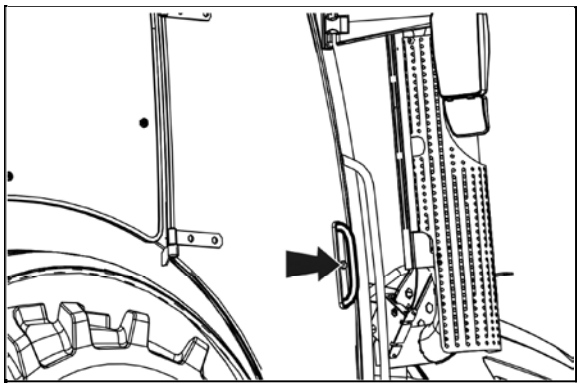
Use the left side of the tractor for getting in and off the cab.
Use climbing spurs for getting on and off the cab and hold onto a handle.
Take greater care in the area of gears lever and manual fuel control lever.



P18N106

Opening doors from the outside

Left cabin door is lockable from the outside. Right door of the cabin are equipped only with a button from the outside. After unlocking and pressing the button of the lock the door opens by pulling the handle.



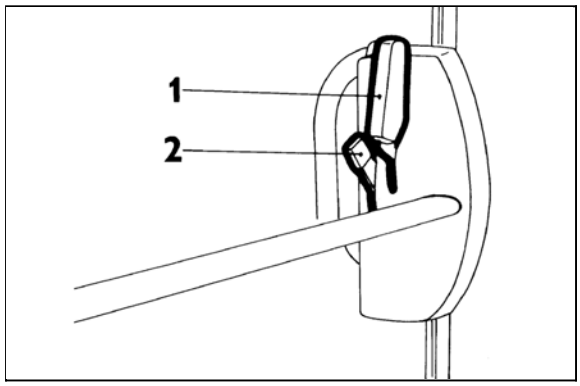
P18N107

Opening the door from the inside

1. Lever for opening the door from the inside
2. Lever for opening the door from the inside

The door is held by a gas strut with a full opening. Driving with open door is not recommended for their possible damage.

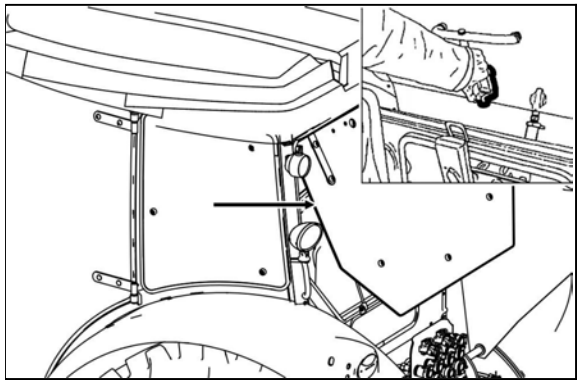
It is forbidden driving with open door due to its possible damage.



F23

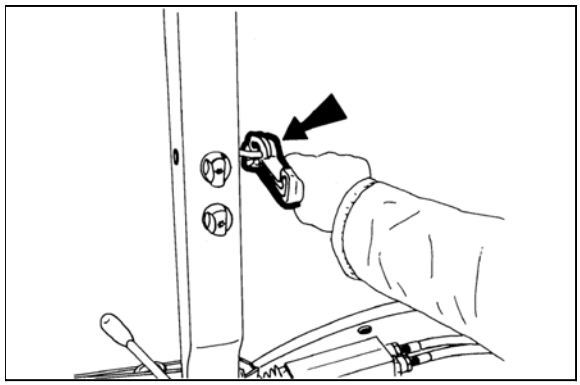
Rear window
Is equipped with a handle and in an open position is locked by gas spruts. Rear window is heated.

When driving on an uneven surface we recommend to secure the window in a closed position - danger of window cracking. Before starting the work with the machinery Before starting the work with mounted in three-point hitch of the tractor, make sure that there is not a danger of collision between the mounted tools with maximum lifting of rear three-point hitch and open rear window. In case of collision we recommend to work with a closed window.



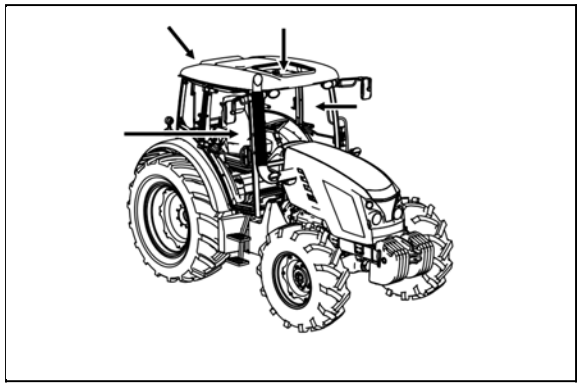
C15N025

Side window
The window is secured in the partly open position with a plastic latch. You can open the door by lifting the latch towards yourself upwards and pushing it into the groove. Then, the window will be secured in the fixed position.



C123

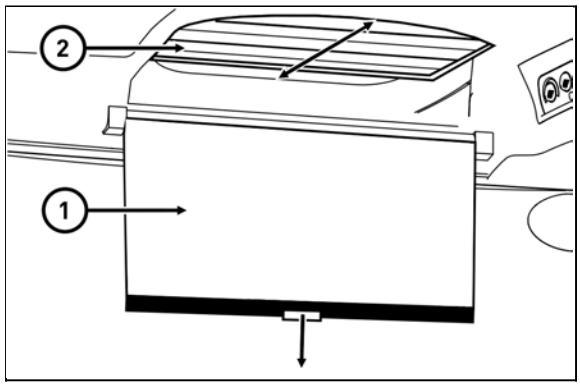
Emergency exits
In case of overturning of the tractor or blocking the exit from the tractor use the left or the right door, the rear opening window or the roof opening window as emergency exits.



P15N085

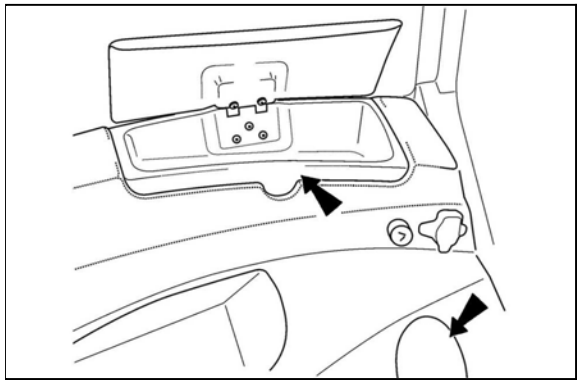
Sun screen
Pull out the adjustable screen of the front window (1) by pulling the hand rail in the arrow direction.
To return to the original position, shortly pull the hand rail in the direction of the arrow and release the hand rail.

The sliding cover of the swing lid (2) is closed and opened with pressure or by pulling the slots in the arrow direction.



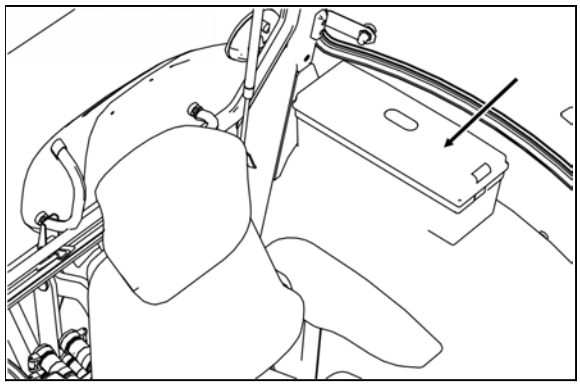
C15N146

Shelf
Storage spaces are located on the right mudguard.



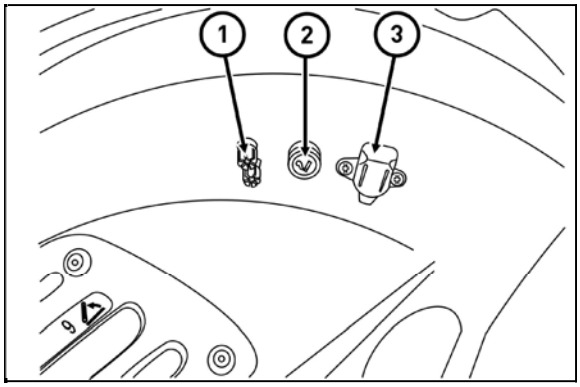
FH12N025

Tools box
The tools box is located on the right side of the driver's seat.



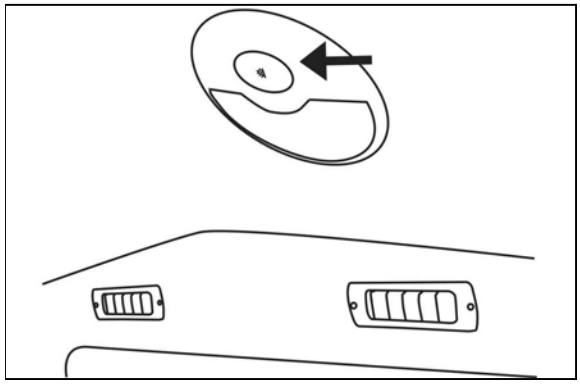
P15n019

Right rear panel
The following parts are placed on the right rear panel:
1 - two-pin socket 12V, (+) pole is marked in red
2 - firer
3 - three-pin socket 12 V



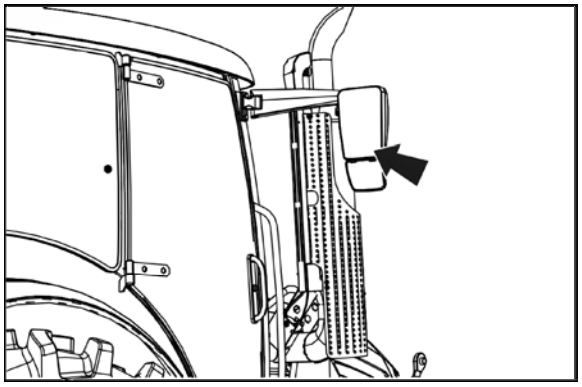
P18N065

Internal lighting
To be turned on and off by means of a button marked with the arrow.



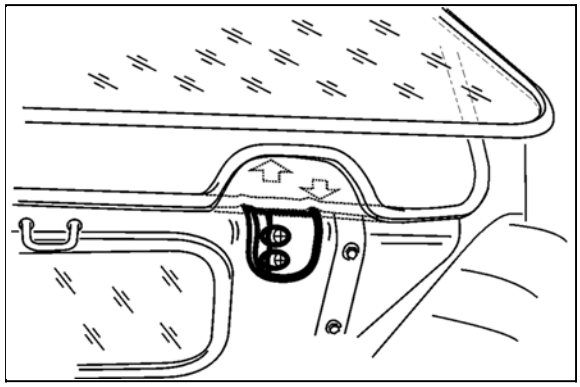
F13BN014

Rear view mirrors
Before the drive or starting the work, adjust rear view mirrors so that they enable to monitor the whole drive way or working field.



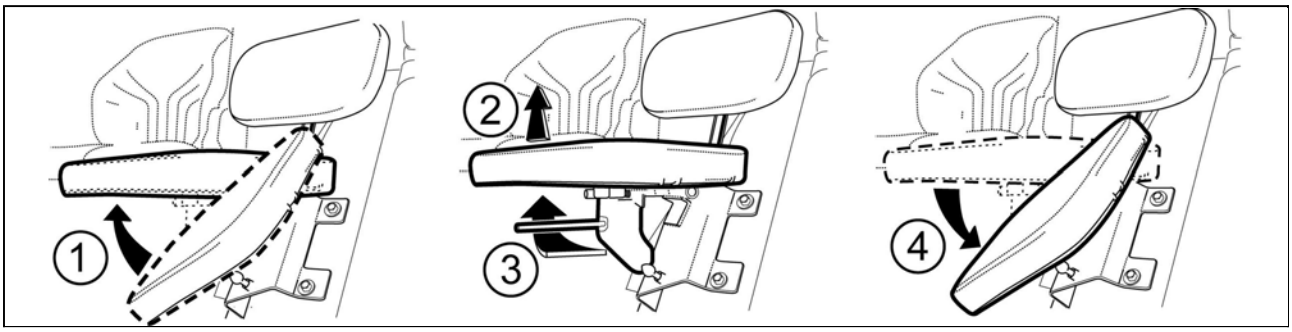
P18N108

Aggregation opening
Aggregation opening serves for cabelling or Bowden control of aggregated tools placement.
Pull to protrude the part of sealing of rear window in upward direction. Put the aggregated tool control through the originated hole.
Insert cabelling or Bowden controls to the holes of passage of aggregation opening. Return the sealing of the rear window to its original position by exercising pressure.



F11N091

Passenger´s seat
Passenger´s seat is tiltable and placed on the left mudguard of the cabin.

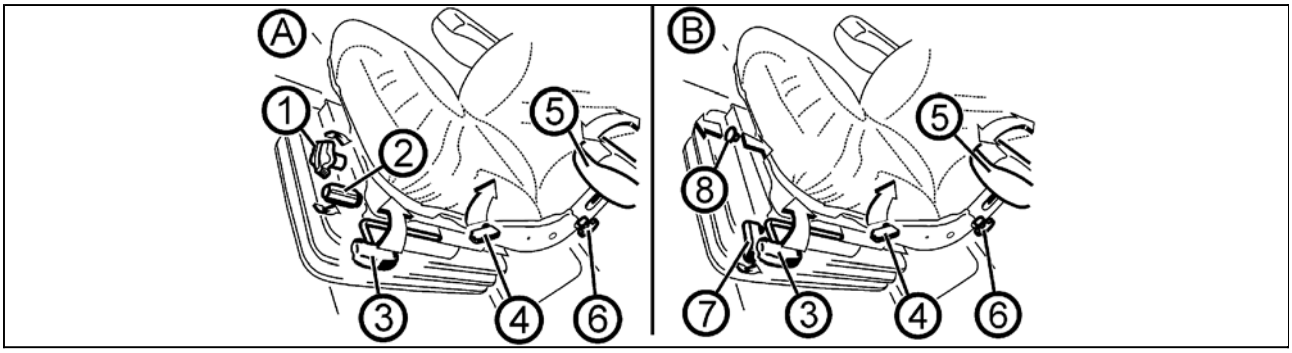


P15N028

Seat tilting out
Passenger´s seat to be tilted out in the direction of an arrow (1) upward. Locking of the seat is done automatically.

Seat tilting
Lift the passenger´s seat in the direction of an arrow (2), pull the lever (3) to the direction of the driver´s seat, tilt the seat in the direction of an arrow (4).

Driver's seat Sears

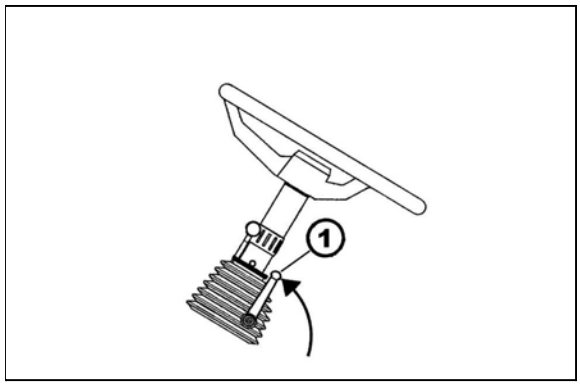


P13N003

The driver's seat Sears can be made with a mechanical (A) or pneumatic (B) suspension.
1 - The seat suspension adjustment controller according to the driver's weight (turn it in the direction based on icons shown on the seat bellows)
2 - The seat height adjustment controller (release the controller to increase the seat height, tighten the controller to decrease the seat height)
3 - The longitudinal seat adjustment lever (pull the lever to adjust the seat lengthwise, return the lever back to its original position to lock the longitudinal adjustment)
4 - The seat backrest inclination adjustment controller (pull the lever to adjust the seat backrest inclination, return the lever back to its original position to lock the backrest position)
5 - Foldable armrest
6 - The armrest height locking adjustment (release the controller to adjust the height of the armrest, tighten the controller to lock the armrest position)
7 - The seat vibration absorption setting (move the controller up to get the float seat position, move the controller to the lower position to lock it)
8 - The seat height adjustment and seat suspension adjustment according to the weight of the driver (push the controller to increase the air pressure in the pneumatic suspension of the seat - when the driver´s weight is bigger, pull the controller to decrease the air pressure in the pneumatic suspension of the seat - at the lower weight of the driver

Tilt steering wheel

Adjusting the angle of the wheel
The angle can be adjusted by tilting the wheel after it is unlocked by moving the lever (1) in the direction shown by the arrow.
After adjusting, lock the wheel by pressing the lever (1) in the opposite direction than shown by the arrow.

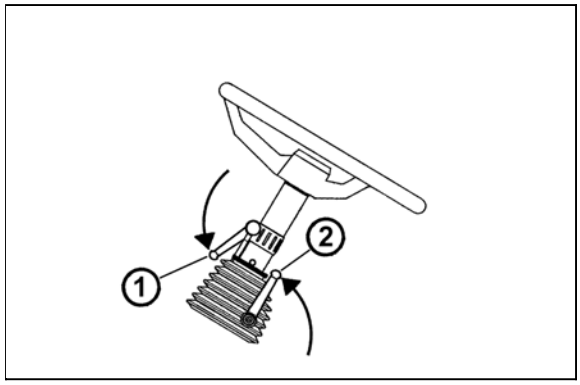


W1

Tilting and protrusion of steering wheel
Tilting column of steering wheel enables variable setting of position of the steering wheel both in terms of angle and height.

Height setting of steering wheel
The setting is done by protrusion or retracting the steering wheel after unlocking arrestment by turning a lever (1) in the direction of an arrow. After setting the steering wheel, lock the lever (1) by tightening in the direction of an arrow.

Angle setting of steering wheel
Setting is done by tilting the steering wheel after unlocking the lock by turning the lever (2) in the direction of the arrow. After setting the steering wheel, secure the lever (2) by retightening against the direction of the arrow.



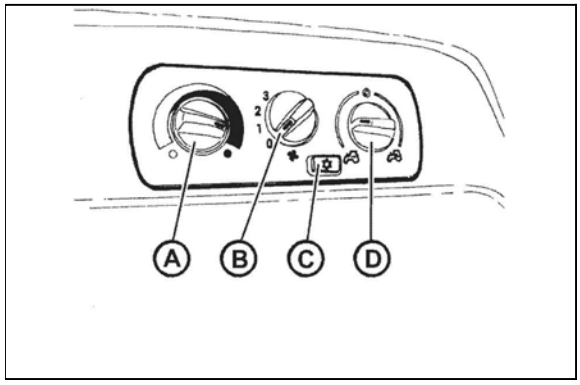
F205

After adjusting, tilt the lever (2) towards the dashboard and the lever (1) in such a way so that it is parallel to the steering wheel column axis.
Pushing the levers in the direction farther from the steering wheel column changes the position of the levers as desired.

Heating control panel, * air-condition

The control panel of the heating and of the air conditioning is located on the right side of the lower view of the cabin roof.

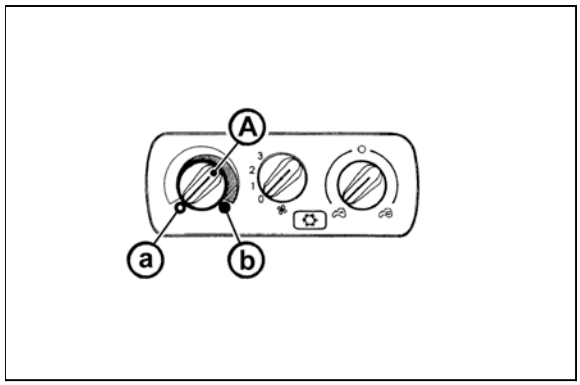
A - valve heating controller
B - fan controller
C - air conditioner switch
D - controller of air circulation in the cabin



F13BN009

Heating valve control (A)

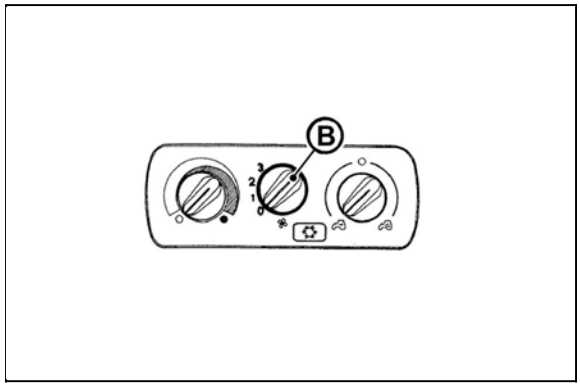
a - heating valve closed
b - heating valve opened



F_02_16_a

Ventilator control (B)

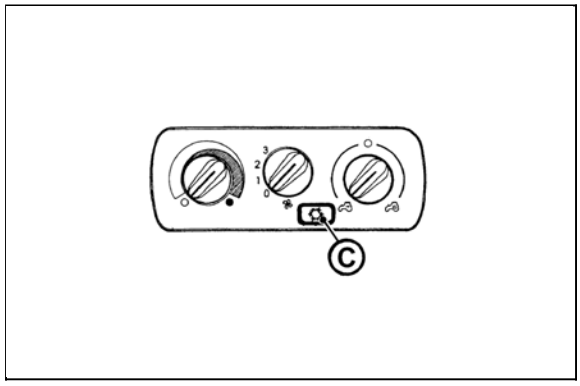
0 - ventilator off
1 - slowly run of ventilator
2 - medium run of ventilator
3 - maximum run of ventilator



F_02_16_b

Switch air-condition (C)

Do engagement and disengagement of air-condition system function by switching the switch with a symbol of snow flake (C).
You will set the air-condition system going by pressing the switch (the symbol of snow flake lights up).
You will disengage the air-condition system by repeated press of switch (snow flake symbol switches off).

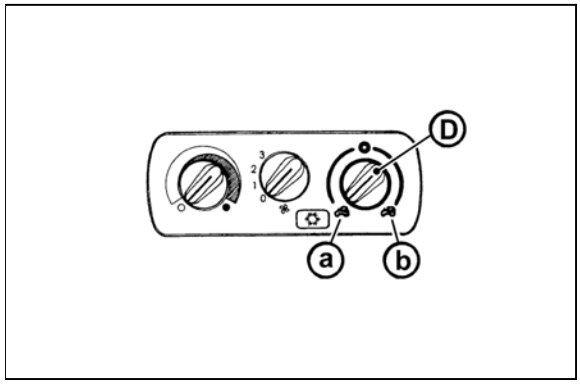


F_02_17a

Air circulation in cabin control (D)

a - Surrounding (outside) air is sucked in through filters to cabin - sucking the air from cabin is closed.
b - Air is sucked in from the space of the cabin and again blown off to the cabin (inner air recirculation for fast adjustment of temperature in the cabin).

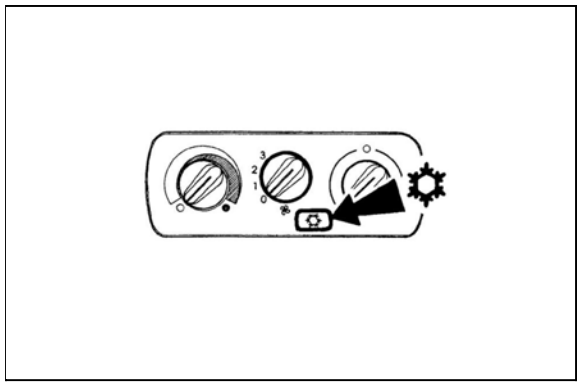
The intake of air from the outside of the cabin is completely locked and there is no surplus pressure in the cabin which would prevent pervasion of unfiltered air to the cabin! Do not use this position of the control with work of the tractor!



F_02_17b

Proper function of the heating and air-condition system

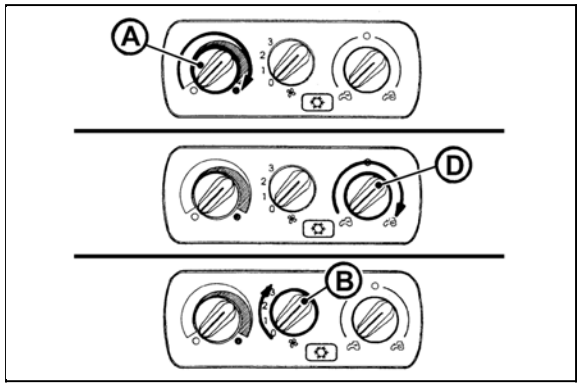
It is necessary to create surplus pressure in the cabin for proper function of the heating or air-condition. We therefore recommend you to close all the windows and doors and tilting cover of the cabin.



F11N009

Fast heating of the cabin area

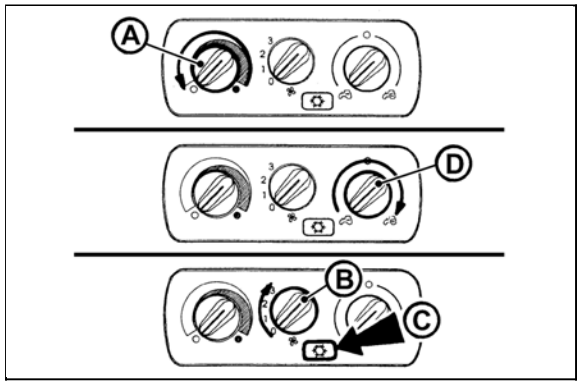
Proceed accordingly:
1 - Turn the heating valve control (A) to the position on the right (fully opened heating valve).
2 - Set air circulation in cabin control (D) to the position of inner circulation.
3 - Select applicable gear of the ventilator run (position 1, 2, 3) by ventilator control (B).
4 - Set the expiration under the requested angle to avoid direct fanning of the people in the cabin.
5 - After heating the space of the cabin, set the air circulation in the cabin control (D) to the position of sucking the outer air - see fig. F_02_17b position (a)



F_02_18a

Fast cooling of the space of the cabin

Proceed accordingly:
1 - Switch the heating valve control lever (A) to the position to the left
2 - Set the air circulation in the cabin lever (D) to the position of outer air sucking
3 - Select an applicable gear of the ventilator run (position 1, 2, 3) by ventilator control (B)
4 - Switch the air-condition system by a switch (C)
5 - Set expiration under the requested angle so that direct fanning of people in the cabin does not occur (the possibility of illness due tointensive cooling of parts of body).

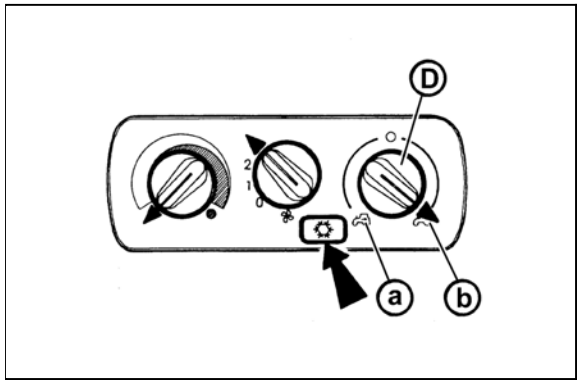


F_02_18

Operation of heating or air-condition with tractor´s work

With engaged inner recirculation of air is the inflow of fresh air closed and there is foul air in the space of the cabin by operator. This state can cause the feeling of fatigue and there can also be penetration of dust to the cabin because of the loss of surplus pressure.

Note: Set the control (D) according to individual requirements on temperature to the position between (a) and (b) so that the ventilator sucks the air from the outside of the cabin through filters, when working.



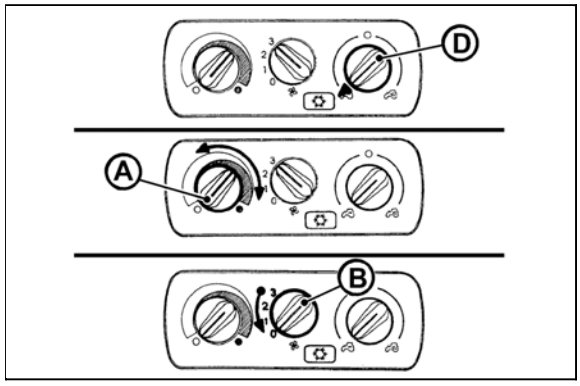
F_02_19

When spraying pesticides and using the heating filter with active carbon, the recirculation controller should be in position 'air is drawn into from the outside' and the fan controller should be in the position 'fan maximum work' to create overpressure in the cabin.

Immediately after cooling the cabin

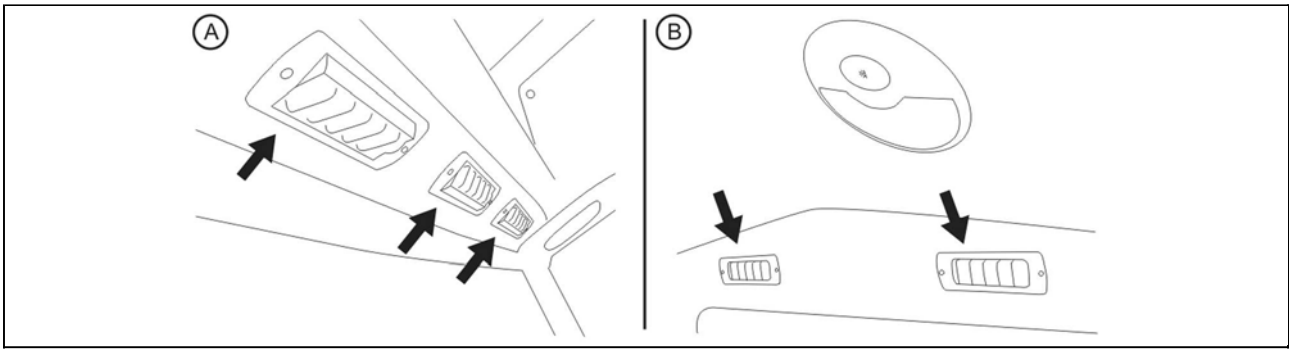
Immediately after cooling the cabin and lowering the inner temperature on the required values, we recommend the following:

- Switch over the control of air circulation (D) from position (b - air re-circulation) to position (a - outer air suction)
- Do the continuous regulation of the air temperature with air condition on by opening the heating valve (A). The air entering the cabin from expiration is not so intensively dried with this setting.
- Continuous temperature control with air-condition on can be also done by lowering the output of ventilator by switching the control (B) to position 1 or 2.



F_02_20

Air-condition and heating registers (A)

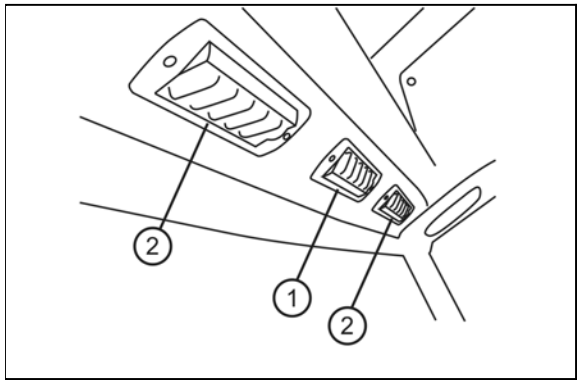


F13BN010

Positionable heating and * air-condition registers, front (A), rear (B).

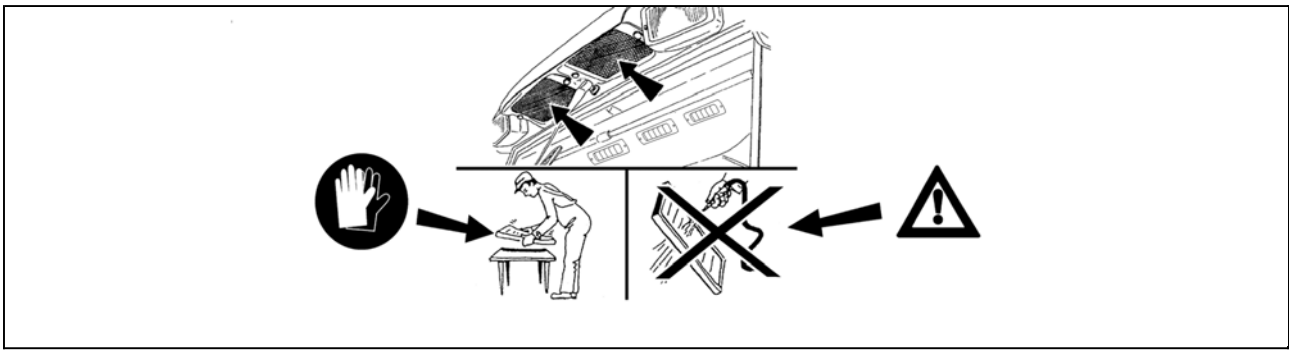
Front windshield (B) defrosting

To ensure quick defrosting of the front windshield direct the central heating outlets (1) under the angle of approx. 45° towards the windshield. Direct the side outlets (2) under the angle of approx. 45° to the cab corners. After defrosting of the front windshield direct the side outlets to the side glasses of the doors as necessary and gradually defrost them. After defrosting direct the outlets in such a way that the air should not be blown directly to the driver, but down to the driver's legs.



F13BN011

***Air filter with active carbon**



F13BN015

Active carbon filters are installed in the placed of standard dust filter and the replacement is done in the same way as with standard filters. Filter must be inserted with the white side to the grid. Assembly instructions are found in the chapter 'Maintenance instructions'.
Filter is used only when spraying pesticides, then it must be replaced back by a paper filter because the flying dust would clog the carbon filter very fast.
The recirculation control must be in the position 'air is sucked from the outside'.
Ventilator control must be in the position 'maximum ventilator run'.

WARNING: filter does not provide full protection against toxic substances
- Wear protective gloves when manipulating with the filter.
- Do not clean the filter and do not blow through with compressed air.

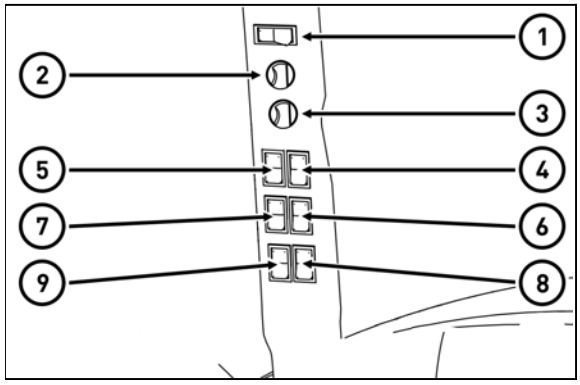
DANGER: Replace the active carbon filter every 200 hours or 36 months (date of production is given on the filter). If you happen to smell pesticides in the cabin, replace the filter immediately and have the sealing of the cabin checked. Used filters must be damaged in specialized collection centres.

When spraying pesticides and using heating filters with active carbon, the recirculation control must be in the position of 'air sucked from the outside' and the ventilator control 'maximum ventilator run' for creating surplus pressure in the cabin.

When spraying pesticides, increased care should be taken when entering or exiting the tractor because of possible contamination of the working area. Follow the safety instructions for handling pesticides according to the valid legislation of the country where the tractor is used, type of the hazardous substance, instructions of the manufacturer of the hazardous substance and manufacturer of the carried or towed sprinkler.

Control panel on right cab pillar

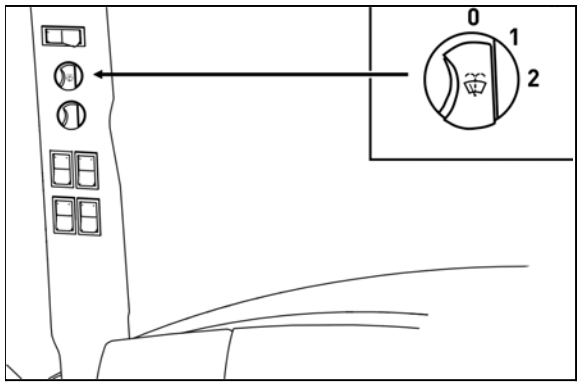
1 - switch of the cycler of the front wiper
2 - two-position switch of the front wiper and of the control of the front washer
3 - switch of the rear wiper
4 - switch of heating of the rear wiper
5 - switch of heating of the rear mirrors
6 - switch of the rear work lights on the cabin roof
7 - switch of the front work lights on the cabin roof
8 - button of the rear PTO shaft
9 - button of the front PTO shaft



P18N050

Wiper and washer of the front window

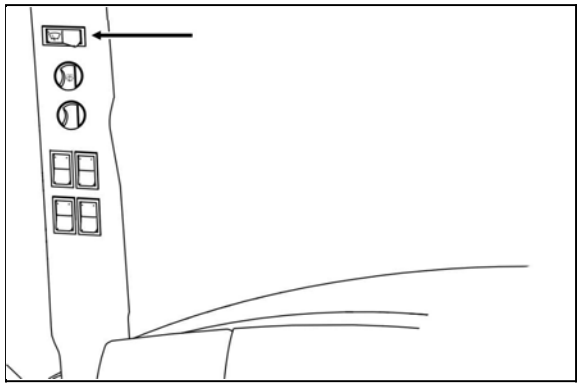
The switch of the front wiper and control of the front washer are located on the right column of the cabin.
The double-speed engine of the front wiper is controlled by the two-position switch of the front wiper.
The windshield washer is activated after pressing the switch of the front double-speed wiper located on the right column of the cabin. The maximum time of continuous operation of the washer pump is 20 s.
When the washer is used, the windshield is automatically wiped by the wiper. The number of wipings depends on the operation time of the washer.



P15N022

Front wiper speed switch

The front wiper speed switch is turned on using the switch located on the right column of the cabin.
Setting the wiper cycle period:
Turn on the speed switch, after the front window has been wiped, turn off the speed switch, wait the required period between wipes and turn on the speed switch.
The required gap between wipes is automatically set.

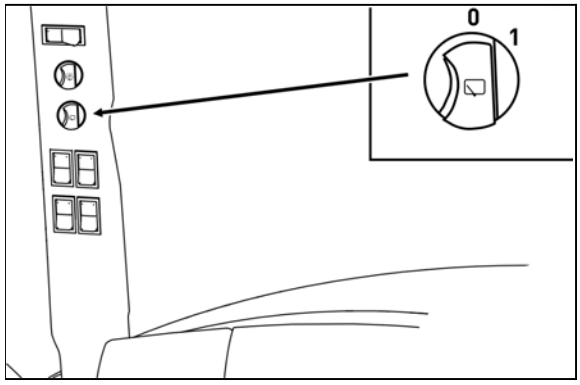


P15N023

Rear window wiper

The switch of the rear wiper is located on the right column of the cabin.

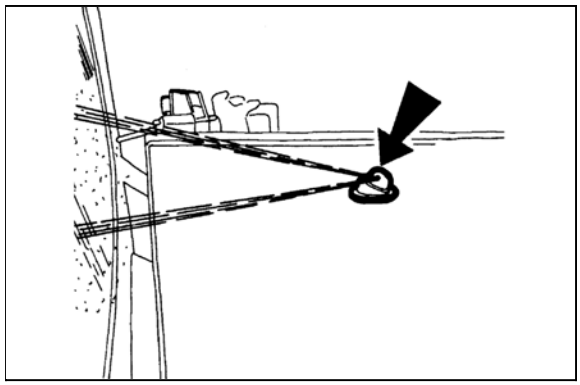
The single-speed engine of the rear wiper is controlled by the single-position switch of the rear wiper.



P15N024

Washer nozzle

The washer nozzle is situated in the upper part of the hood and is adjustable by needle or steel wire of maximum diameter 0,8 mm.



C128

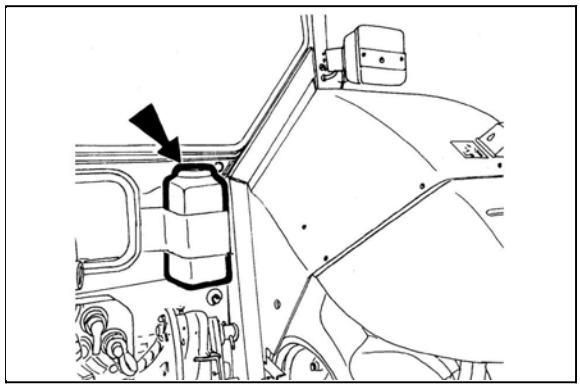
Windshield washer tank

Windshield washer tank is placed on the rear wall of the cabin from the outside side.

The washer tank capacity is 2 litres.

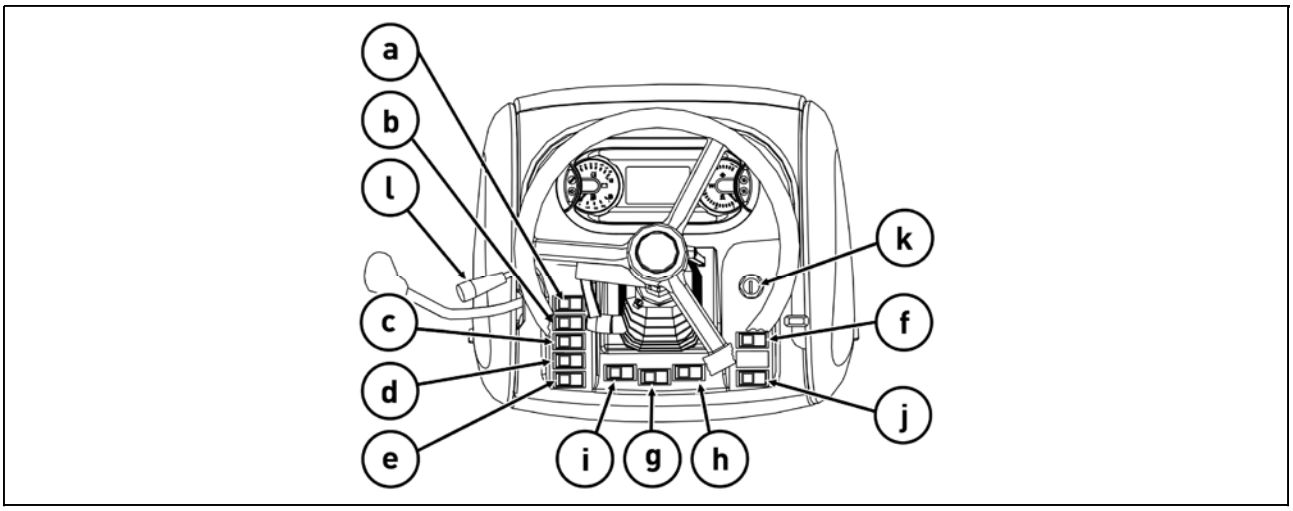
In summer the reservoir should be filled with distilled water or mixture for washers.

Antifreeze mixture for washers must be used in winter season for filling the washer tank.



F_02_152a

Panel of the instrument panel

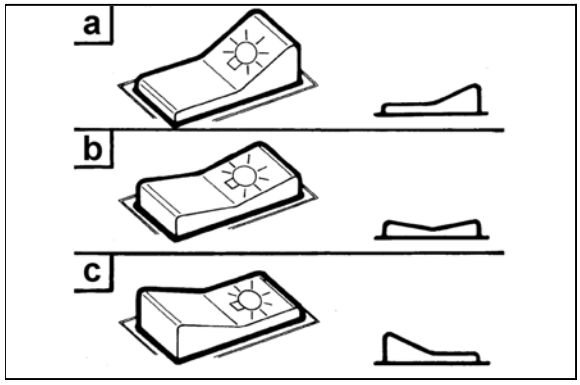


P18N051

a - switch of lights (off, parking, headlights)
b - switch of dim lights in the tractor mask and dim lights on the tractor cabin.
*on request, the lights on the tractor cabin can be controlled independently on the lights in the tractor mask (off - on).
c - switch of the rear fog lamp (off - on) The function of the fog lamp is indicated with the activated symbol on the switch.
c - switch of the rear work headlight on the cabin column (off - on). The function of the work headlight is indicated with the activated symbol on the switch.
e - switch of the warning lights
f - button of the front driving axle. More information in chapter DRIVING.
g - beacon switch (off - on)
h - switch of work lights in the tractor mask (off - on) The function of the work lights is indicated with the activated symbol on the switch.
i - button for temporary deactivation of brakes of the trailer. More information in chapter DRIVING.
j - differential closure button. More information in chapter DRIVING.
k - switch box
l - alteration switch of indicator lights, low and high beams and horn and flash light

Lights switch

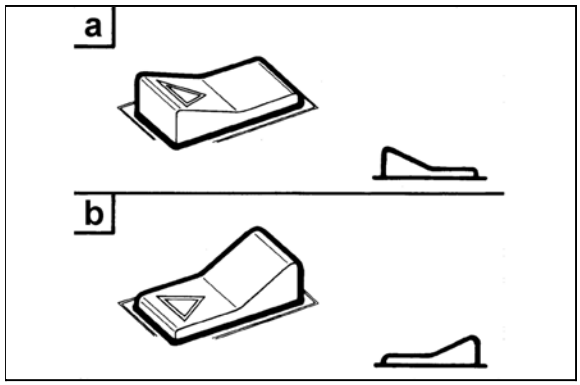
a - illumination off
b - side and end point lights on, illumination of licence label, illuminated
c - all devices on in 'b' position. Lower beam head lights or head beam lights are engaged (according to the position of direction lights, lights and horn switches).



F56

Switch of warning lights

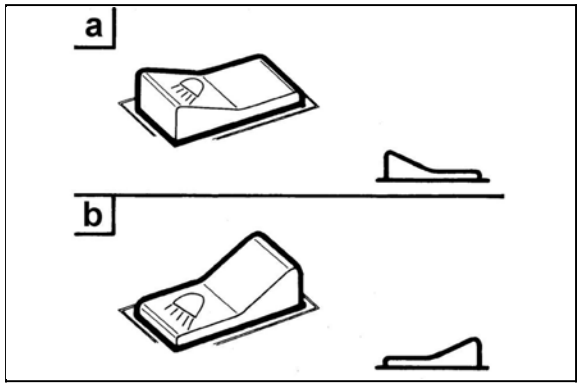
a - warning lights on
b - warning lights off
Function of warning lights is signalized by interrupted blinking control on the dashboard.



F58

Lights switch between the grill and the cabin

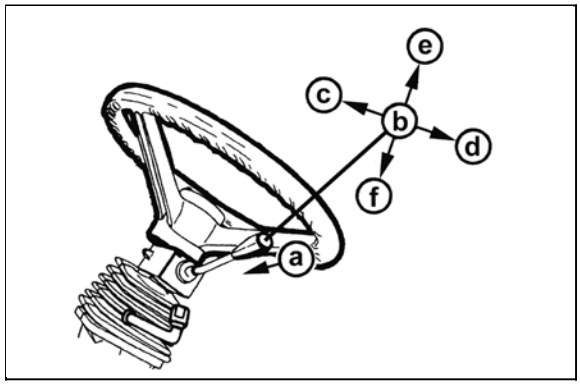
a - roof lights on
b - roof lights off
The switch controls the illumination in the grill or in the roof of the cabin of the tractor. Use the lights in the roof of the cabin only when tools covering headlights in the grill is attached in front three-point hitch. A lit symbol on the switch signalizes light on in the roof.
Headlights can be lit only in the grill of the bonnet.



F59

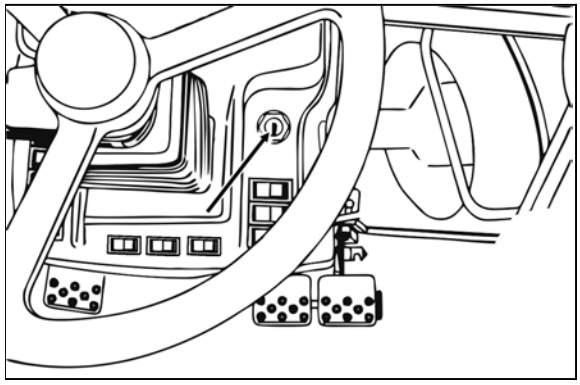
Direction lights, lower beam head lights, head lights and horn switches

a - Acoustic horn - press the switch in the direction of an axis
b - Lower beam head lights
c - Direction lights to the right
d - Direction lights to the left
e - Acoustic horn
f - Lower beam headlights



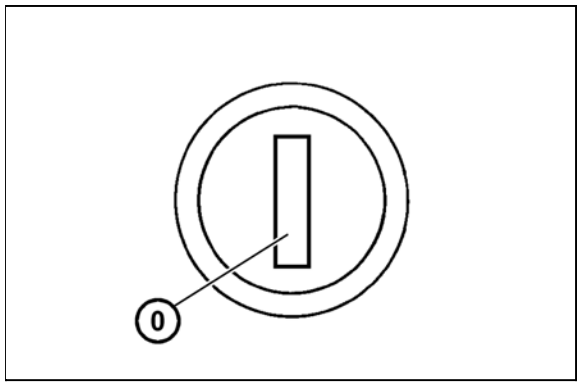
E139a

Switch box
Switchbox is placed on the dashboard, see arrow.



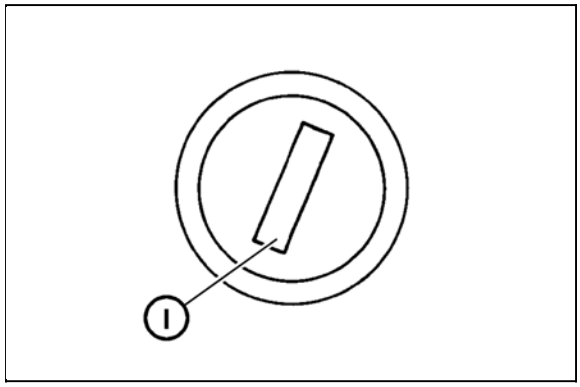
p18N052

Switch box key in the position (0)
The voltage of all the equipment controlled via the key is disconnected. The key can be removed.



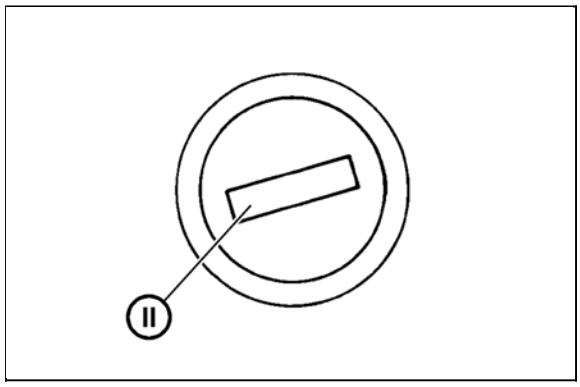
S43

Switch box key in the position (I)
The voltage is connected to all the equipment excluding starter. The key is in this position with the engine running.



S44

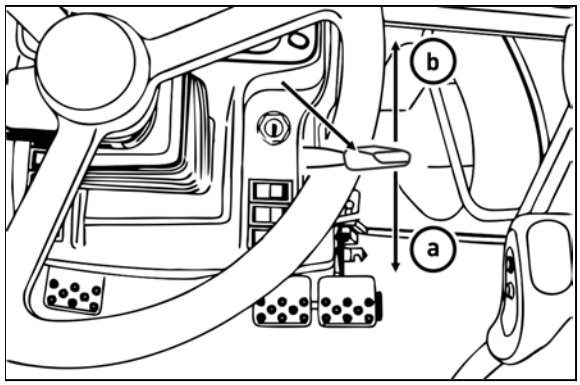
Switch box key in the position (II)
Starter and supply of all equipment is connected in this position apart from wipers, washer, cab ventilator and air condition. After starting, the key automatically returns back to 'I' position.



S45

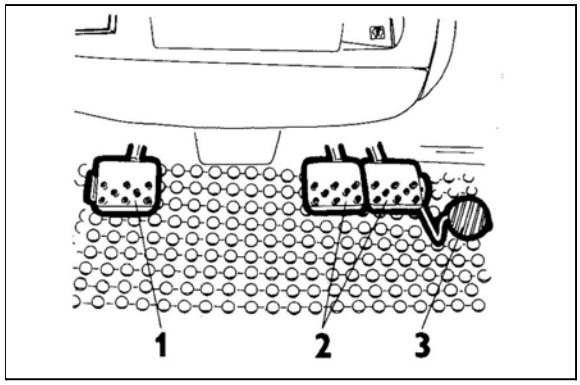
Manual throttle
a - idle run
b - maximum supply

The lever enables to set engine revolutions in the whole range (a) to (b).



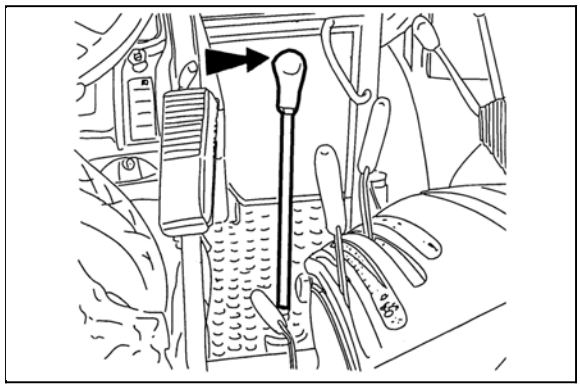
C15N054

Pedals and levers
1. Travel clutch pedal
2. Foot operated service brake pedals connected by latch
3. Foot throttle pedal



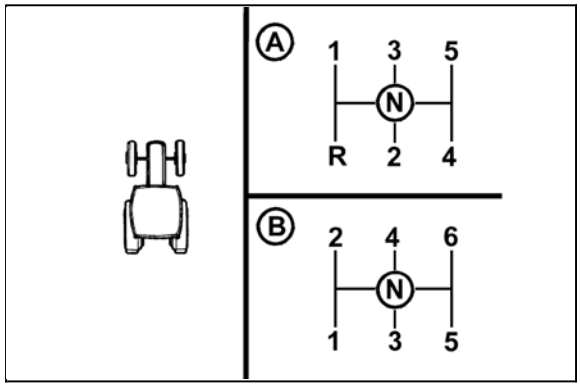
P15N027

Gear shifting lever
Main gear shifting lever
The handle of the gear shifting lever is red.



C168

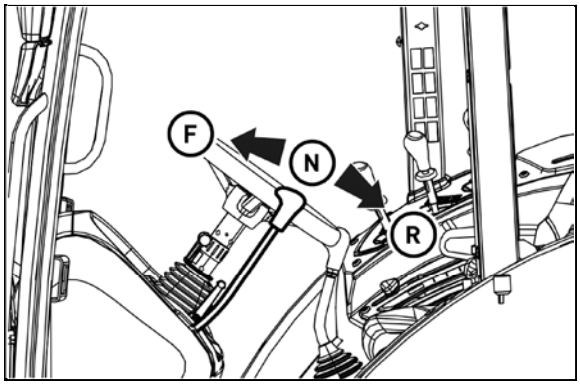
Gear shifting scheme
A - The tractor equipped with the reductor of crawling speeds
B - The tractor equipped with the reversal system



C168a

Reversing lever
F - forward driving; the lever in the front
N - neutral position
R - reverse driving; the lever in the back
Shifting is performed when the tractor is idling.

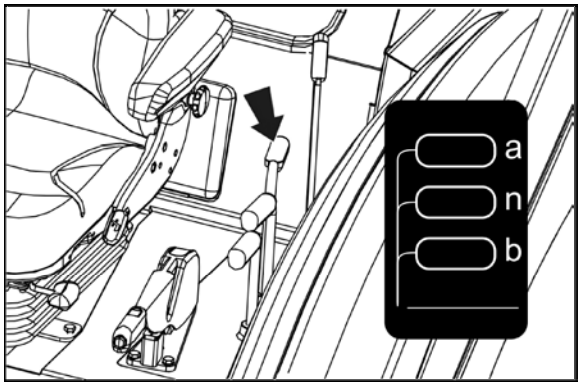
If the tractor is equipped with the reductor of crawling speeds, the reversing lever is not mounted.



P18N053

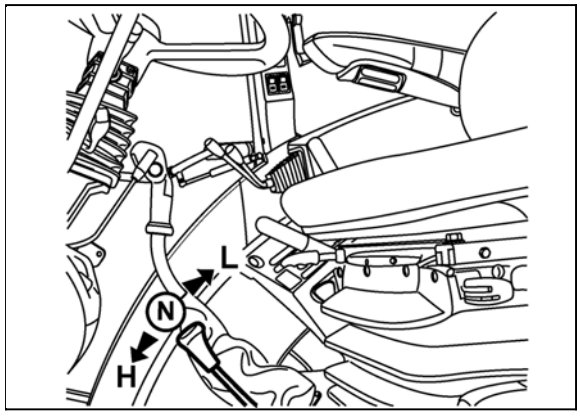
Gear shift lever of the reductor of crawling speeds
a - reductor of crawling speeds
n - neutral position
b - normal speeds
Shifting is performed when the tractor is idling.

If the tractor is equipped with the reversal system, the lever of the reductor of crawling speeds is not mounted.



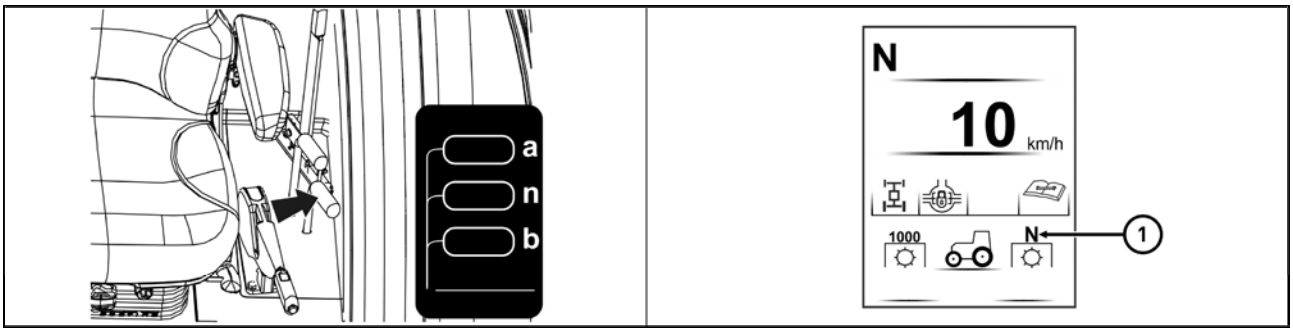
P18N054

Road and reduced speeds shifting lever
H Road gears
N Neutral
L Reduced gears
Shifting is carried out with tractor in standstill.



G150

PTO selection control lever



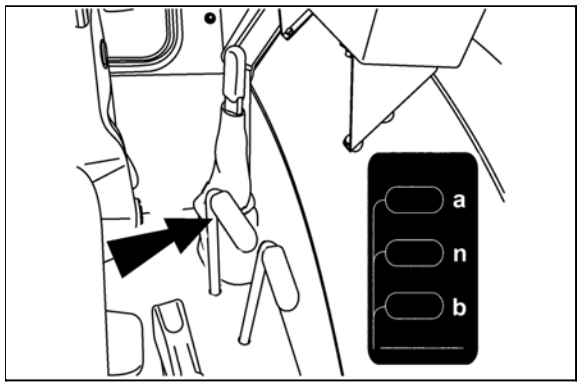
P18N016

a - independent revolutions of the PTO shaft drive - revolutions are dependent on the engine revolutions
n - neutral position
b - dependent revolutions of the PTO shaft drive through the gearbox - revolutions are dependent on the shifted gear
Shifting is performed when the tractor is idling.

The neutral position of the gear shift lever of dependent and independent revolutions is indicated with the symbol **N** (1) on the display of the instrument panel.

When the tractor is operated and the rear PTO shaft is not used, the gear shift lever of dependent and independent revolutions must always be in the neutral position (n).

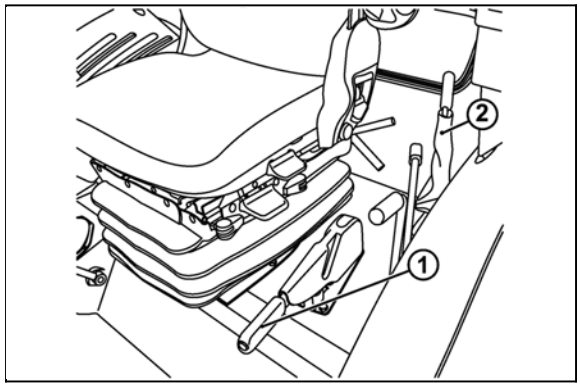
PTO speed control lever
a - 1000 (540E) rpm
n - Neutral
b - 540 rpm
Shifting is made when the tractor stops.



G153a

Lever of hand brake and hitch for single-axle trailer
1. Hand brake lever.
2. Lever of the single-axle trailer hitch control.

When stopping or leaving the tractor you must always secure the tractor with the parking brake.
If the tractor is standing on a slope, its wheel must be additionally secured with wedges!

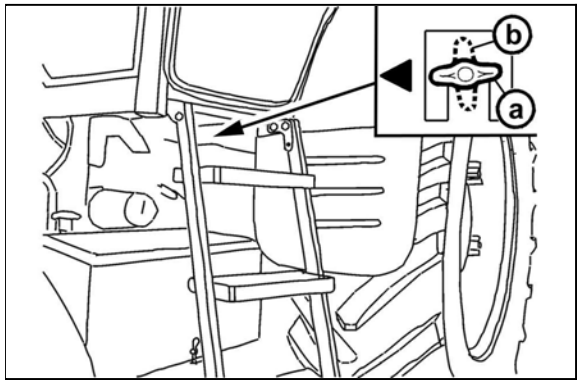


E155

Battery disconnector

Batterydisconnector is placed on the left side of the tractor behind the stairs of the driver.
a - Batteryconnected
b - Batterydisconnected

When the tractor is at dead parking, disconnect the battery by means of the battery disconnector (1). If a tractor is dead parked for a longer period of time, it is necessary to recharge at least once a month from the reasons of self-discharge of battery.



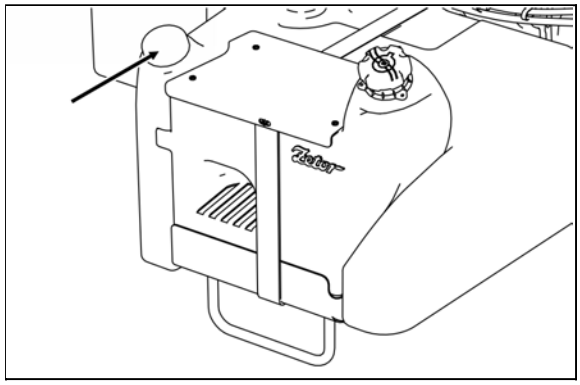
FH12N022

When the engine is switched off, the engine control unit remains active for about 2 minute because of storage of operation data. During this time the supply of current from the accumulator must not be interrupted. Do not disconnect the accumulator before this time expires.

Fuel tank

The fuel tank is fitted at the right-hand tractor side. A plastic tank of 150 litres volume is mounted as a standard for all types of tractors.

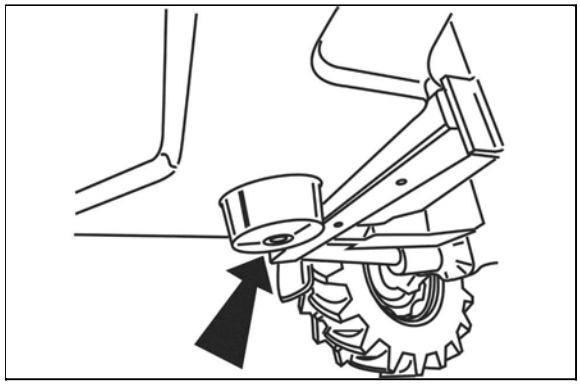
Do not step on the fuel tank!



P15N029

Fuel tank drain plug

Plug for draining dirt and fuel off the fuel tank is in its bottom.



H800

Urea tank

The tank for urea is located in the right side of the tractor and is equipped with the blue plug of the filling hole.

The tank volume is 30 litres.

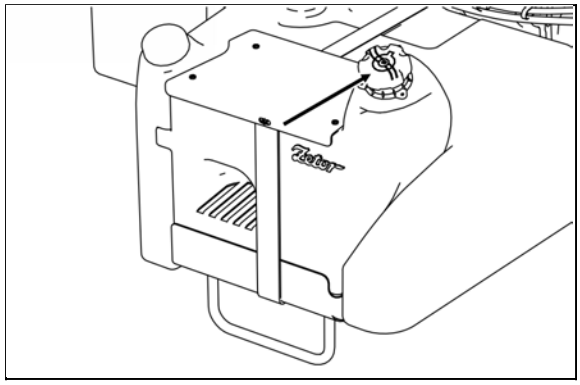
Add only urea!

Other media, even a small amount (e.g. diesel oil), lead to the destruction of the system.

If e.g. diesel oil was loaded and is present in the system, the whole system of urea injection must be replaced!

If the loaded medium (e.g. diesel oil) does not reach the guide or export pump I of the dosing module, all you have to do is to empty and thoroughly clean urea tanks.

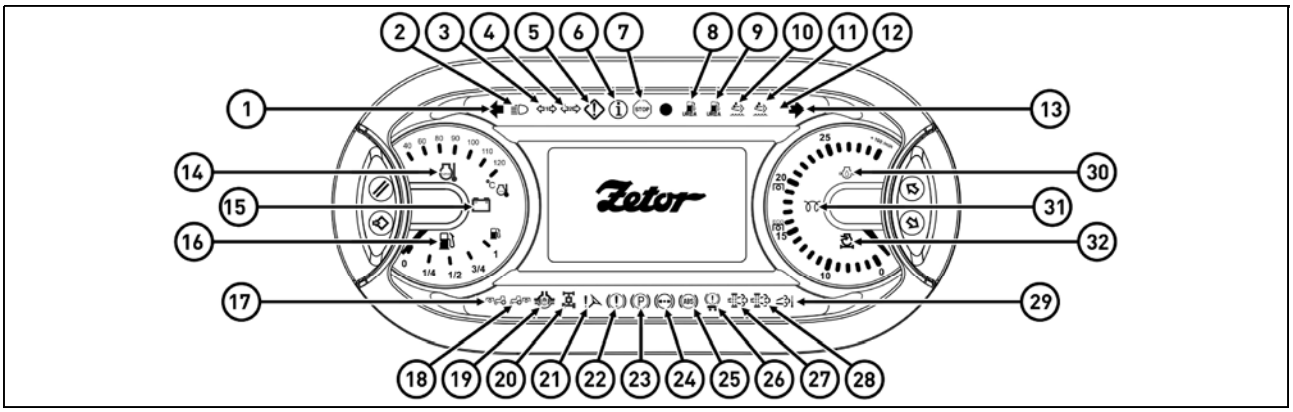
Maintain cleanliness.



P15N030

INSTRUMENT PANEL

Instrument panel - signal lamps

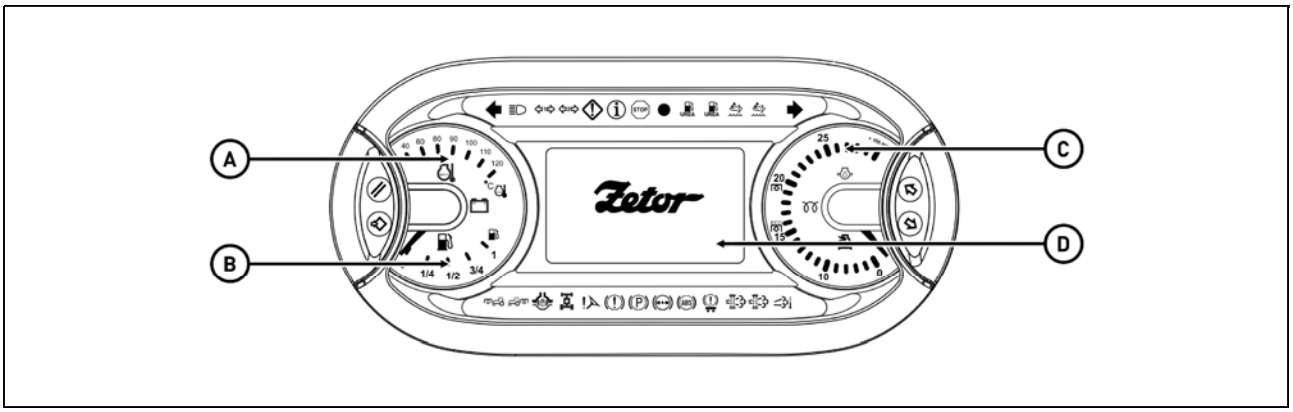


P18N039

1 - green - signal lamp of left direction lamps
2 - blue - distance lights signal lamp Lights up with distance lights on.
3 - green - signal lamp of direction lights of the 1st trailer
4 - green - signal lamp of direction lights of the 2nd trailer
5 - orange - warning signal lamp
6 - blue - operational protection signal lamp. It is lit up when there is disagreement between operational values of tractor groups.
7 - red - STOP signal lamp
8 - orange - urea level signal lamp. More information in chapter SYSTEM OF ADDITIONAL TREATMENT OF EXHAUST GASES.
9 - red - urea level signal lamp. More information in chapter SYSTEM OF ADDITIONAL TREATMENT OF EXHAUST GASES.
10 - orange - SCR failure signal lamp. More information in chapter SYSTEM OF ADDITIONAL TREATMENT OF EXHAUST GASES.
11 - red - SCR failure signal lamp. More information in chapter SYSTEM OF ADDITIONAL TREATMENT OF EXHAUST GASES.
12 - not used
13 - green - signal lamp of right direction lamps
14 - red - signal lamp of the temperature of the cooling liquid. It is activated when the engine is overheated.
15 - red - AC generator signal lamp. When the engine is running, the signal lamp is activated during charging failure.
16 - orange - fuel level signal lamp. It is on with the remaining fuel 0 - 1/4 of the tank volume.
17 - not used
18 - not used
19 - orange - signal lamp of the differential closure. More information in chapter DRIVING.
20 - green - signal lamp for connection of the front axle drive. More information in chapter DRIVING.
21 - red - signal lamp of a failure in the hydrostatic control system
22 - red - signal lamp of a failure of brakes
23 - red - hand brake signal lamp
24 - red - signal lamp of the minimum air pressure in brake system. It is activated with the air pressure drop below the critical limit.
25 - not used
26 - orange - signal lamp of trailer brake failure, it is activated in the case of the brake system failure when the trailer is equipped with ABS.
27 - orange - signal lamp of full DPF filter. More information in chapter SYSTEM OF ADDITIONAL TREATMENT OF EXHAUST GASES.
28 - red - signal lamp of full DPF filter. More information in chapter SYSTEM OF ADDITIONAL TREATMENT OF EXHAUST GASES.
29 - green - signal lamp of sufficient temperature in the exhaust manifold. It is activated when the temperature of exhaust gases is higher than 250°C. It flashes in case that regeneration of the diesel particulate filter (DPF) is being performed. More information in chapter SYSTEM OF ADDITIONAL TREATMENT OF EXHAUST GASES.
30 - red - lubrication signal lamp. While the engine is running, it is activated when the engine oil pressure drops below the critical limit.
31 - orange - glowing signal lamp
32 - orange - signal lamp of full air cleaner. While the engine is running, it is activated when the engine oil cleaner is full and indicates maintenance of the engine oil cleaner must be performed.

INSTRUMENT PANEL

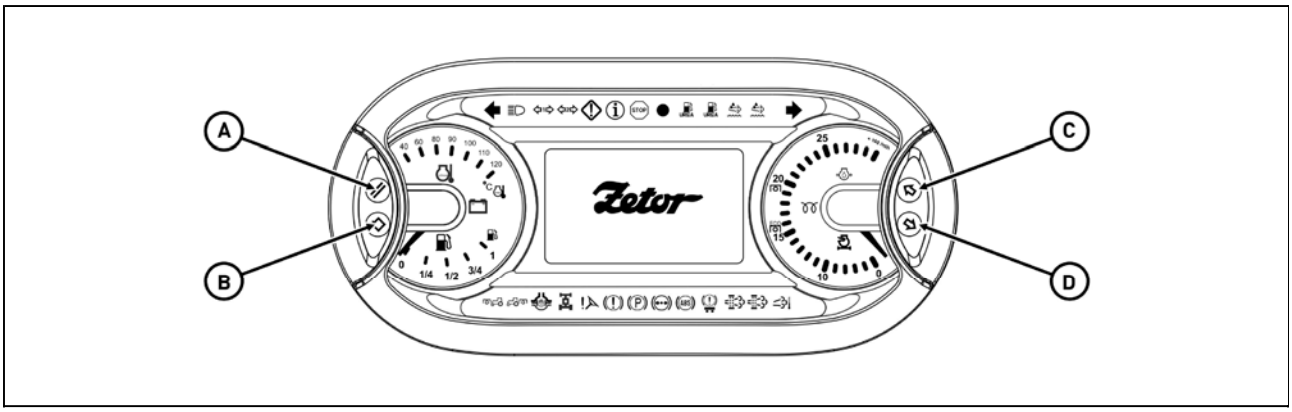
Instrument panel - instruments



P18N040

A - coolant thermometer
B - fuel gauge
C - engine speedometer
D - information display

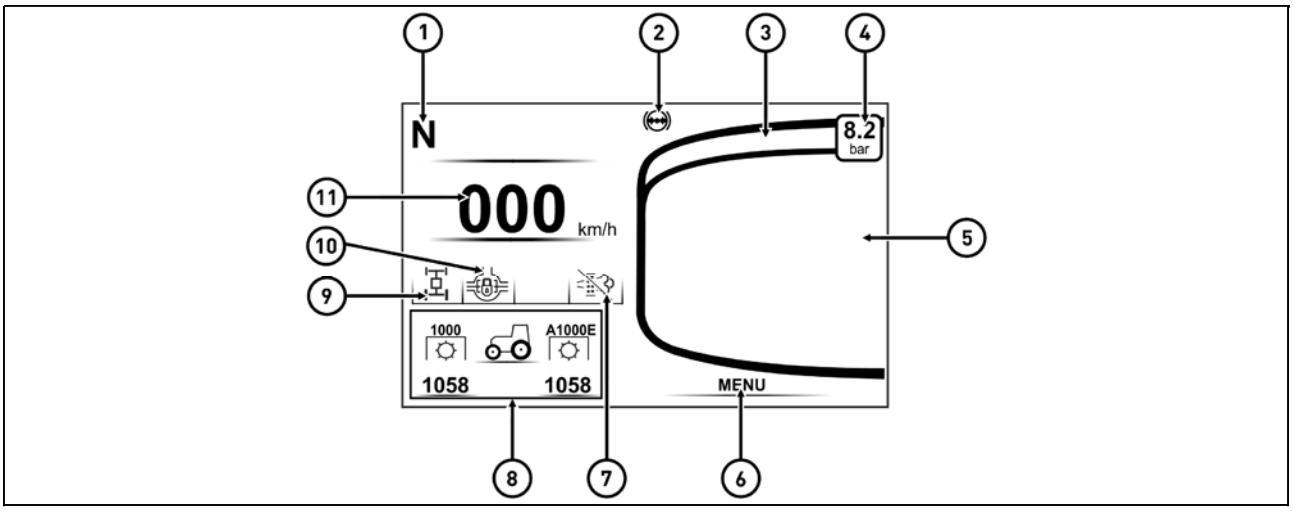
Instrument panel - buttons



P18N041

A - reset button, exit from menu of the instrument panel
B - enter button, entry to menu of the instrument panel, item selection confirmation in the instrument panel menu
C - button for rolling up in the instrument panel menu
D - button for rolling down in the instrument panel menu

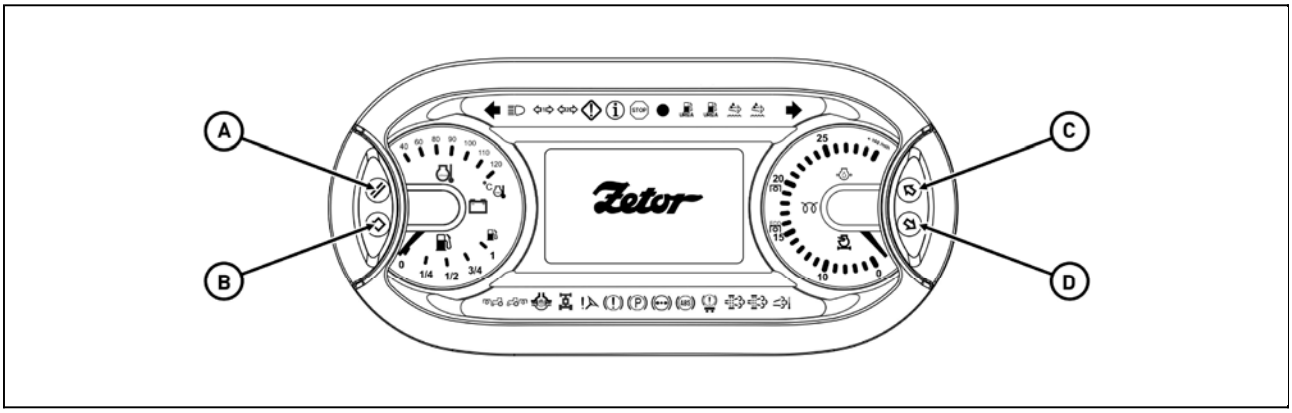
Display description



P18N042

The following values are displayed on the main display:
1 - neutral position of the reversing lever or the lever of the reductor of crawling speeds, according to the tractor equipment
2 - signal lamp of low air pressure in the air-pressure system of the tractor
3 - graphical representation of air pressure in the air-pressure system of the tractor
4 - air pressure in the air-pressure system of the tractor
5 - viewing part of the display
6 - name of the menu displayed on the screen
7 - display of the maintenance interval, display of the prohibited regeneration of the DPF filter
8 - information of modes and revolutions of PTO shafts, more information in chapter POWER OF AGRICULTURAL MACHINES
9 - indication of switching the front axle drive
10 - indication of switching the differential closure
11 - display of the tractor travel speed

Display - change of display



P18N041

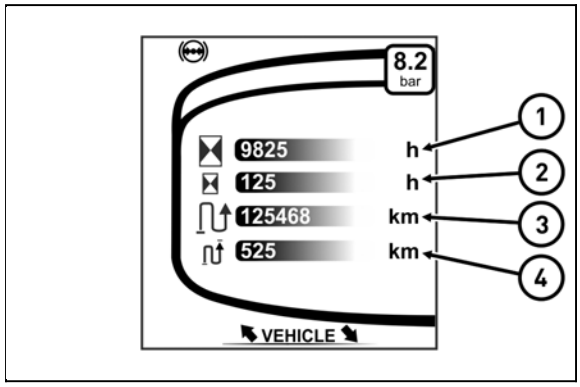
By repeated pressing of buttons (C) and (D) you can click between individual displays of data on the display (so called screens).
Press the button (C) or (D) for longer time to initiate automatic switching between individual screens which is performed while you keep the button pressed.

When the key in the switch box is moved to position I, the home screen is displayed on the display.

C15N030

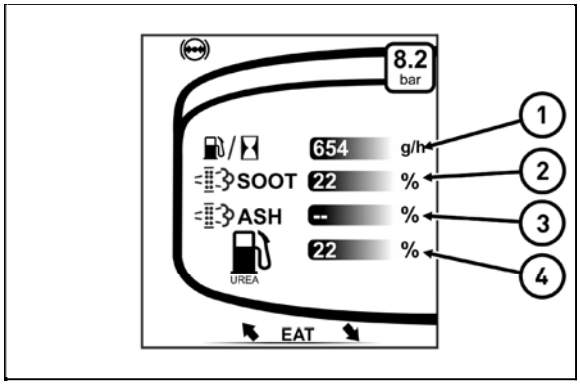
After about three seconds the main screen is displayed on the display.

1 - total operating hours (the value cannot be reset)
2 - operating hours of the tractor since the last reset of the value
3 - total distance covered (the value cannot be reset)
4 - distance covered by the tractor since the last reset of the value



P18N043

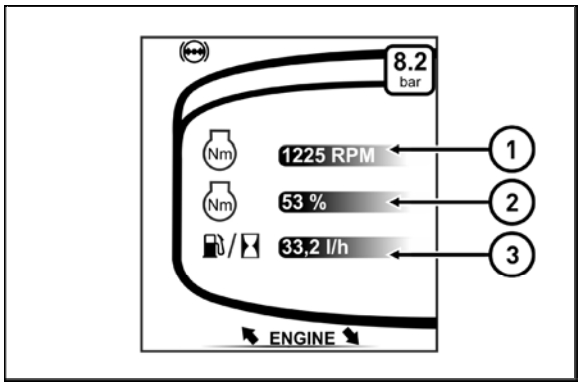
1 - urea consumption
2 - degree of the DPF filter clogging by carbon black
3 - degree of the DPF filter clogging by fly ash (not displayed)
4 - amount of urea in the tank in percentage if the amount of urea in the tank is higher than 50% of the content, OK symbol is displayed



P18N044

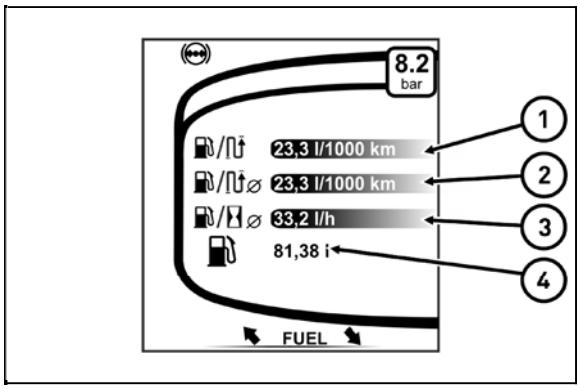
INSTRUMENT PANEL

1 - engine revolutions
2 - engine load
3 - immediate fuel consumption



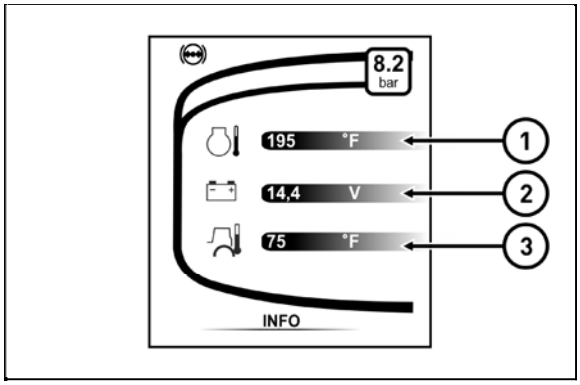
P18N045

1 - immediate fuel consumption in L/100 km
2 - average fuel consumption in L/100 km since the last reset of the value
3 - average fuel consumption in L/hour since the last reset of the value
4 - fuel consumed since the last reset of the value



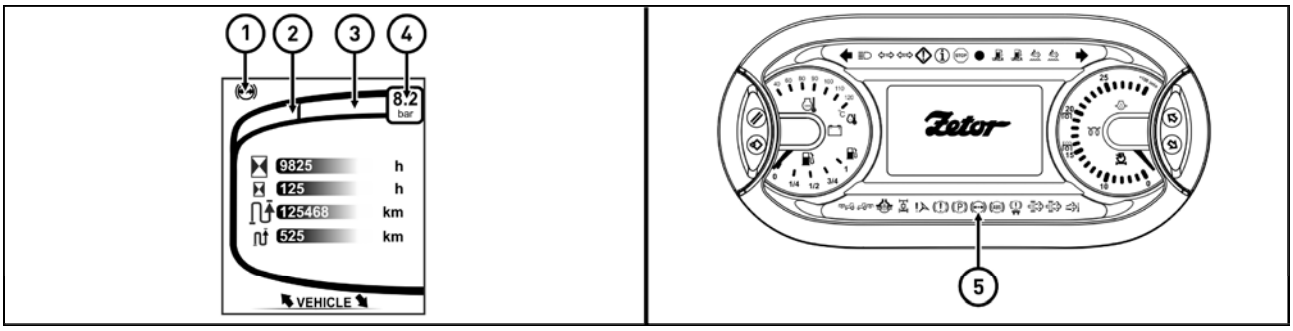
P18N046

1 - temperature of the engine cooling liquid
2 - accumulator battery voltage
3 - outdoor temperature



P18N093

Display - display of air pressure in the air-pressure system of the tractor



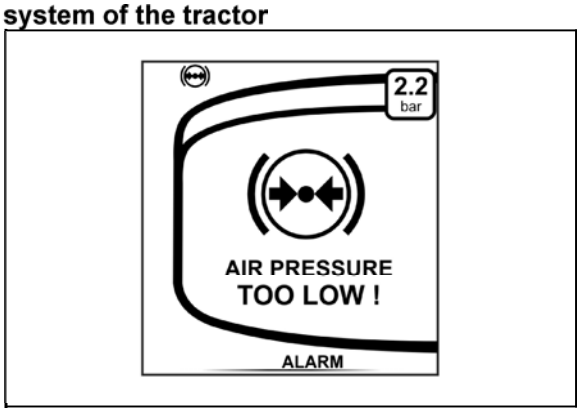
P18N075

The air pressure in the air-pressure system of the tractor shown on the display of the instrument panel.
1 - the air pressure signal lamp; it glows in red when air pressure is lower than 4.5 bar and in green when air pressure is higher than 4.5 bar.
2 - the red display field; it is gradually filled with red colour indicating increase of the air pressure in the air-pressure system of the tractor in the range from 0 bar to 4.5 bar. When the pressure is 0 bar, the field is black.
3 - the green display field; it is gradually filled with green colour indicating increase of the air pressure in the air-pressure system of the tractor in the range from 4.5 bar to the maximum set pressure. When the pressure is lower than 4.5 bar, the field is red.
4 - the field indicating the number value of air pressure in the air-pressure system of the tractor. When the air pressure is lower than 4.5 bar, the background of the field is red; when the air pressure is higher than 4.5 bar, the background of the field is green.
5 - the warning signal lamp of low air pressure is on when the air pressure in the air-pressure system of the tractor is lower than 4.5 bar.

Indication of low air pressure in the air-pressure system of the tractor
the signal lamp (1) glows in red,
the field (2) is filled with red colour according to the current air pressure in the air-pressure system of the tractor,
the field (3) is black,
the background of the field (4) is red,
the signal lamp (5) glows

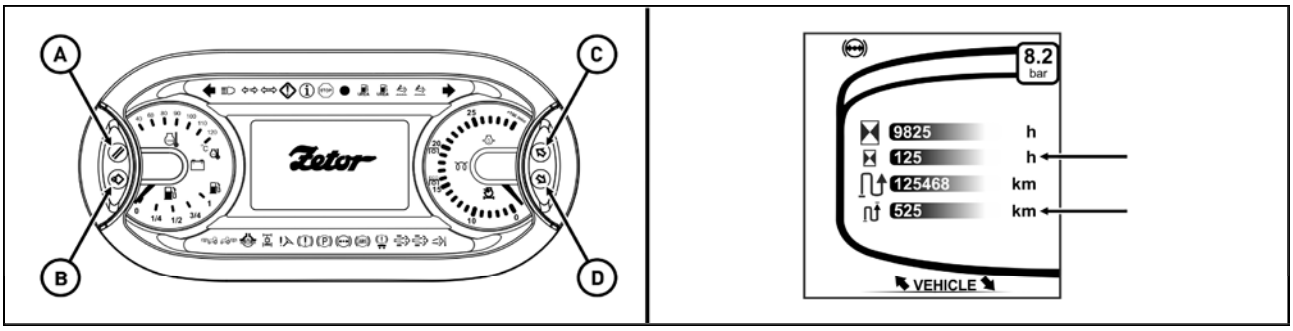
Display - warning of low air pressure in the air-pressure system of the tractor

If the air pressure in the air-pressure system of the tractor drops below 4.5 bar, a warning is shown on the display and an acoustic signal is generated.
Interrupt your work and wait until the air pressure in the air-pressure system of the tractor increases.



P18N100

Display - resetting data



P18N047

The procedure for resetting data on the main screens where the data can be reset is as follows:

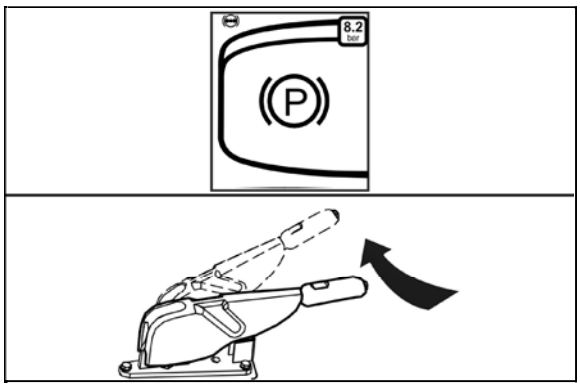
1 - Use the buttons (C) and (D) to select display of the corresponding main screen.
2 - Reset the data by longer pressing of the button (A) (RESET).

If you press the button (A), all data that can be reset on the selected screen would be reset.

Display - manual brake

If the tractor is not braked by a manual brake, a warning is displayed on a display (letter **P** in a circle) and at the same time a sound signal is heard. See the chapter "Driving operation" for more.

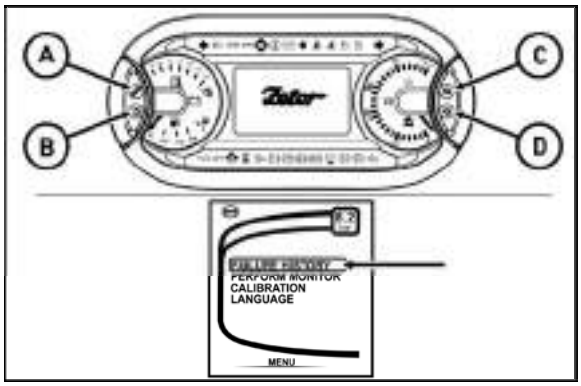
Brake the tractor by a manual brake.



P18N072

Display - service menu

Entering the service menu:
Enter the service menu by longer pressing of the button (B) (ENTER).
Use the buttons (C) and (D) to select the items. The selected item is marked with a frame.
Exiting the service menu:
Press the button (A) to return from the service menu to the main screen.



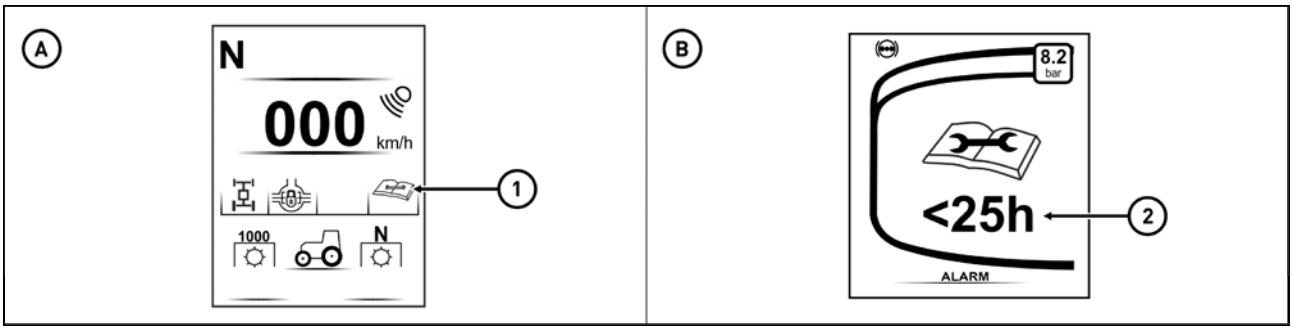
P18N049

Service menu

The service menu contains these items:

Display settings - setting of the display backlight
Failure history - contains listing of errors according to individual tractor nodes
Calibration - enables setting of display of revolutions of the rear PTO shaft, calibration of travel speed, reset of the service interval
Engine setup - enables setting of blocking of DPF filter baking
Language - enables setting of language mutation of the menu

Display - indicator of service inspection intervals

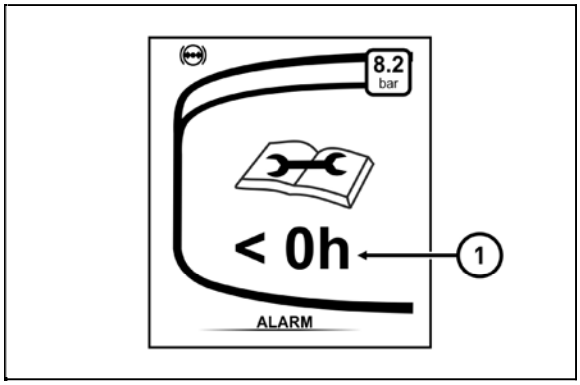


P18N070

The warning regarding an approaching maintenance date (service interval) is displayed if there are less than 25 operating hours remaining to the planned maintenance.
The maintenance symbol (1) is shown on the display of the instrument panel.
When the key in the switch box is moved from the position 0 to the position I, the main screen appears on the display and after several seconds the warning regarding an approaching maintenance (B) with the number of operating hours of the tractor (2) remaining to the maintenance date are displayed on the display.

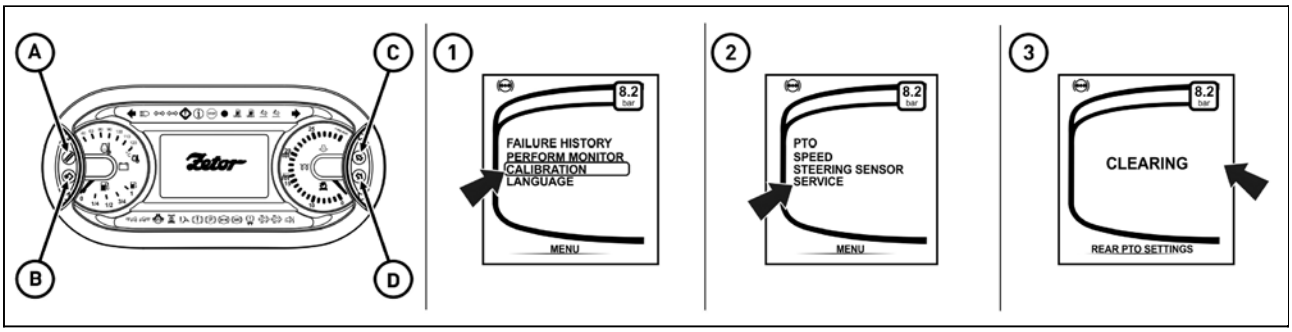
Exceeding the service interval

In case of exceeding the service interval, the maintenance alert (1) with the number of operating hours 0 is displayed on the display when the key in the switch box is moved from the position 0 to the position I.



P18N071

Zeroing (reset) of the indicator of service inspection intervals



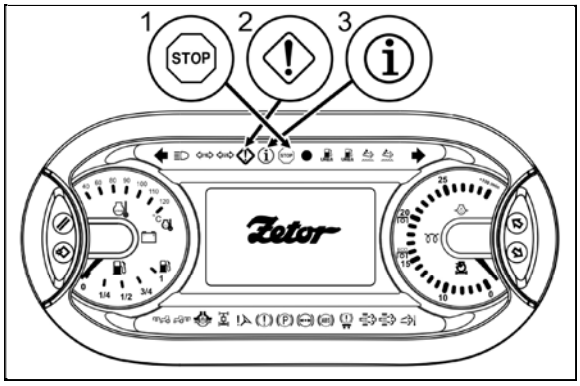
P18N073

When the maintenance was performed, zero (reset) the indicator of service inspection intervals.

Enter the service menu by longer pressing of the button (**B**)
.Use the buttons (**C**) and (**D**) to select the calibration item indicated with the arrow (**1**). Press the button (**B**) to enter the calibration menu.
Use the buttons (**C**) and (**D**) to select the service item indicated with the arrow (**2**). Press the button (**B**) to enter the service menu.
Use the buttons (**C**) and (**D**) to select the item **[clearing]** indicated with the arrow (**3**). Press the button (**A**) to reset the indicator of the service interval.
Repeatedly press the button (**A**) to return to the main screen.

Error signalling
Errors arising during tractor operation are indicated by switching the corresponding signal lamp, acoustic signal and error message in the instrument panel display.
If the error is indicated, the signal lamp still glows, even though the display is switched to the next display.

If the error is not eliminated or the indicated state has not returned to a normal state:
the corresponding signal lamp glows
when the tractor is switched off, the key in the switch box is moved to position I and then the engine is started, the corresponding signal lamp is switched on again and the error message runs through the display.



P18N048

1 - The signal lamp of a serious defect of the system (red).
2 - The signal lamp of a less serious defect of the system (orange).
3 - Operational protection signal lamp (blue).

Display - error messages
During tractor operation, three types of error messages may appear in the display.

A. - Warning of operational protection,
that a small deviation from the set values or error by the operator occurred.
The warning is displayed in the display for about 10 seconds and then the display is switched to the previously set main screen.

The state is indicated by the signal lamp 
The tractor can be used without limitation.

B. - Less serious defects of the system
If a less serious defect of the system occurs, the defect number is displayed in the display for about 10 seconds. Then the display of the defect is minimized into the main field.
All the tractor's functions remain active; it can happen that some of the functions is not undepreciated.

The state is indicated by the signal lamp 

If this situation occurs, finish the work and contact the service centre.

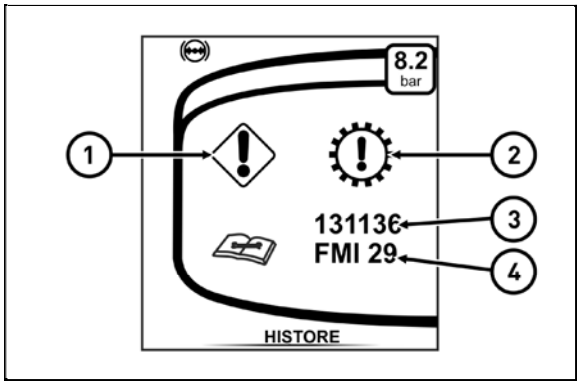
C. - Serious defects of the system
If a serious defect occurs, the display is backlighted in red there is a label **STOP**. The display cannot be switched to another screen.

The state is indicated by the signal lamp 

If this situation occurs, stop the tractor immediately and contact the service centre.

Description of the display of error messages

1 - The symbol of the defect significance.
2 - Node of the tractor where the defect appeared.
3 - Main display field - defect code.
4 - Secondary display field - defect specification.



P18N074

Symbols of tractor nodes

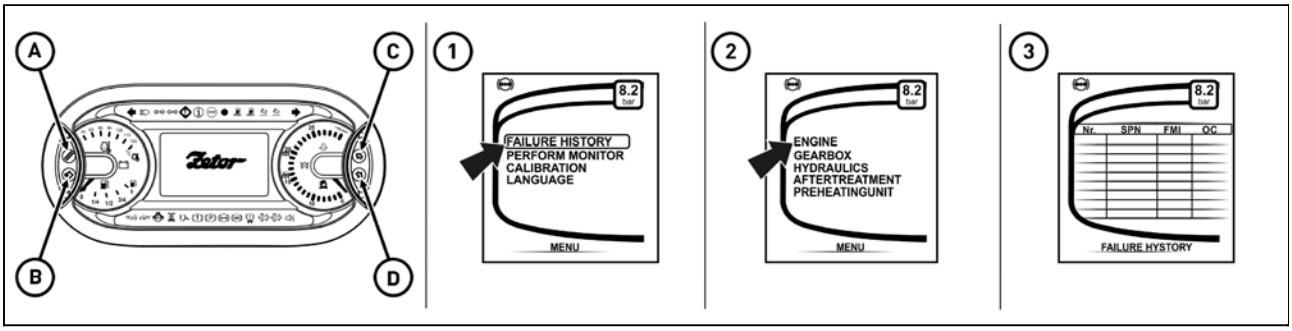
Engine

System of treatment of exhaust gases

Gears and travelling clutches

Systems facilitating start of the engine

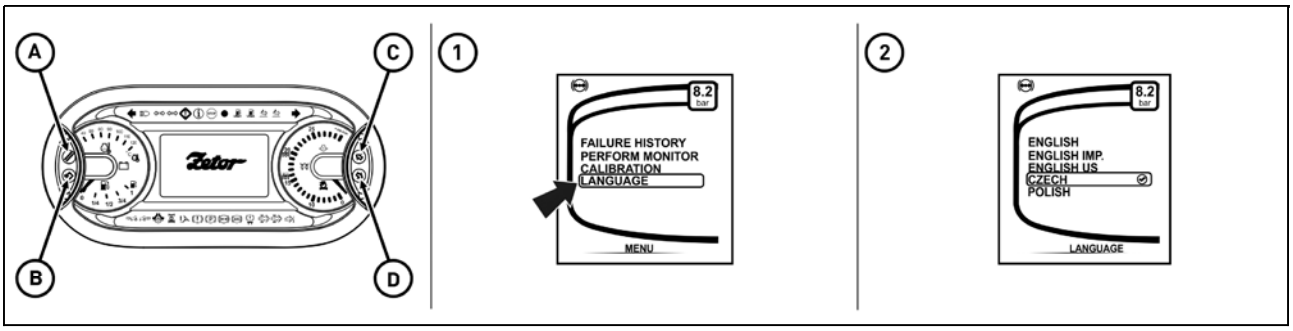
Display - history of defects



P18N076

Press the button (B) to enter the service menu
1 - use the buttons (C) and (D) to select the item listing of defects; press the button (B) to enter the screen selection of tractor nodes from which you want the listing of defects to be displayed.
2 - use the buttons (C) and (D) to select the tractor node from which you want the listing of defects to be displayed; press the button (B) to enter the screen displaying the listing of defects for the selected tractor node.
3 - the listing of defects of the selected tractor node; use the buttons (C) and (D) to scroll between individuals defects
The table of the listing of defects contains the following columns:
Nr. - sequence number of the defect record
SPN - defect code
FMI - code for defect specification
OC - number of defect repetitions
Repeatedly press the button (A) to return to the main screen.

Display - setting language mutation



P18N077

Press the button (B) to enter the service menu
1 - use the buttons (C) and (D) to select the item **Language**; press the button (B) to enter the screen with language mutations.
2 - use the buttons (C) and (D) to select the required language mutation and press the button (B) for confirmation. The instrument panel is switched to the selected language mutation.
Press the button (A) to return to the main screen.

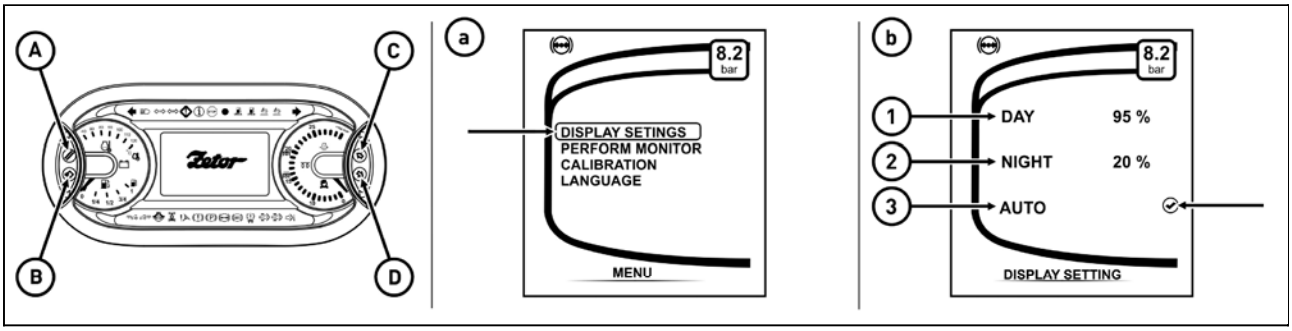
If you want to change metric units to Anglo-Saxon, select the language mutation ENG. IMP.

Display - backlight of display
Press the button (B) to enter the service menu

a - use the buttons (C) and (D) to select the item **Display settings**, press the button (B) to enter the screen with the display settings menu.
b - the display settings menu contains these items:

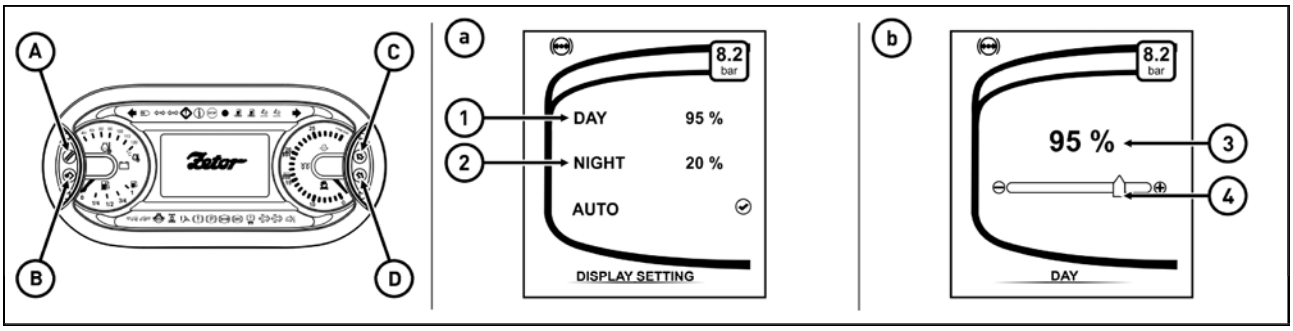
1 - day mode, high intensity of the display backlight
2 - night mode, low intensity of the display backlight
3 - automatic mode; automatically switches between the day and night mode of the display backlight depending on the intensity of lighting around the tractor

The selected mode is marked by the tick. Use the buttons (C) and (D) to select the required item for the mode change; the selected item is marked with a frame and press the button (B) for confirmation.
Press the button (A) to return to the main screen.



P18N097

Display - setting of day and night backlight of the display



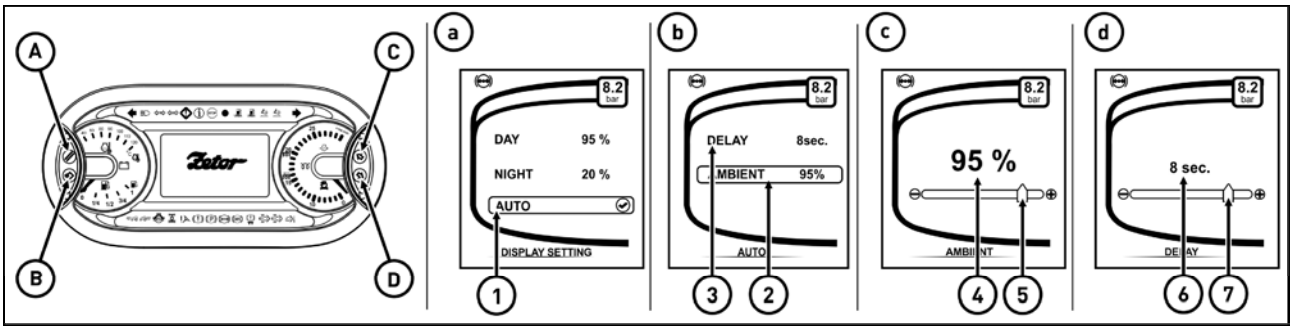
P18N098

Enter the display settings menu.

a - Use the buttons (C) and (D) to select the item for the day display backlight. Long press the button (B) to enter the screen for the display backlight setting (b).
b - Use the buttons (C) and (D) to move the slider for changing the intensity of the display backlight. The change of the backlight in percentage is indicated above the slider (3). 100 percent is maximum backlight and 0 % is minimum backlight.
Press the button (B) to confirm the changed value of the display backlight and return to the display settings menu.
Press the button (A) to return to the display settings menu without changing the original value of the display backlight.

Use the buttons (C) and (D) to select the item (2) and repeat the same procedure as for the item (1).

Display - setting the automatic mode of the display backlight



P18N099

Enter the display settings menu.

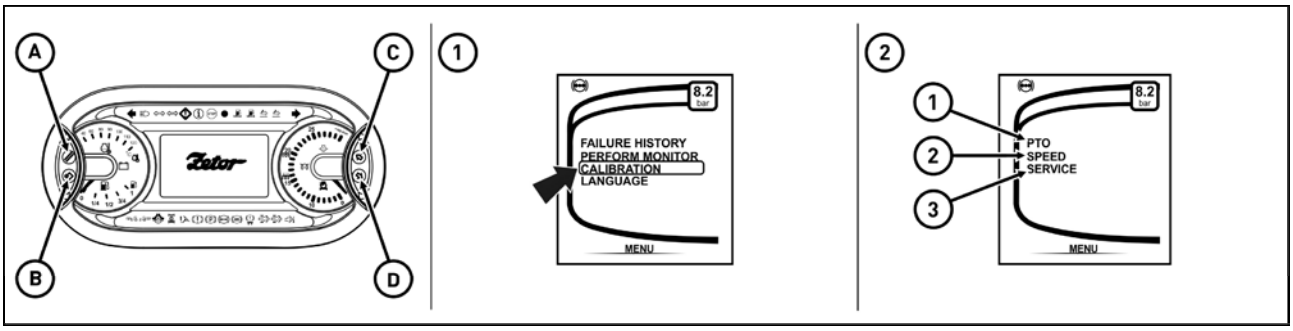
a - Use the buttons (C) and (D) to select the item (1) for the automatic mode of the display backlight. Long press the button (B) to enter the screen for setting the automatic mode of the display backlight (b).
b - The screen for setting the automatic mode of the display backlight contains two items

2 - setting the intensity of the lighting around the tractor when the day and night display backlights are automatically switched
3 - switching delay eliminating repeated switching between the day and night display backlights, e.g. in the case of light flashes, etc.

Use the buttons (C) and (D) to select the item (2) and long press the button (B) to enter the screen (c).
c - Use the buttons (C) and (D) to move the slider (5) changing the intensity of the lighting around the tractor when the day and night display backlights are automatically switched. The change of the backlight in percentage is indicated above the slider (4).
Press the button (B) to confirm the changed value and return to the menu of setting the automatic mode of the display backlight.
Press the button (A) to return to the menu for setting the automatic mode of the display backlight without changing the original value.

Use the buttons (C) and (D) to select the item (3) and long press the button (B) to enter the screen (d).
d - Use the buttons (C) and (D) to move the slider (7) for changing the delay of switching the day and night display backlight. The change of the backlight in seconds is indicated above the slider (6).
Press the button (B) to confirm the changed value and return to the menu of setting the automatic mode of the display backlight.
Press the button (A) to return to the menu for setting the automatic mode of the display backlight without changing the original value.

Display - setting and calibration



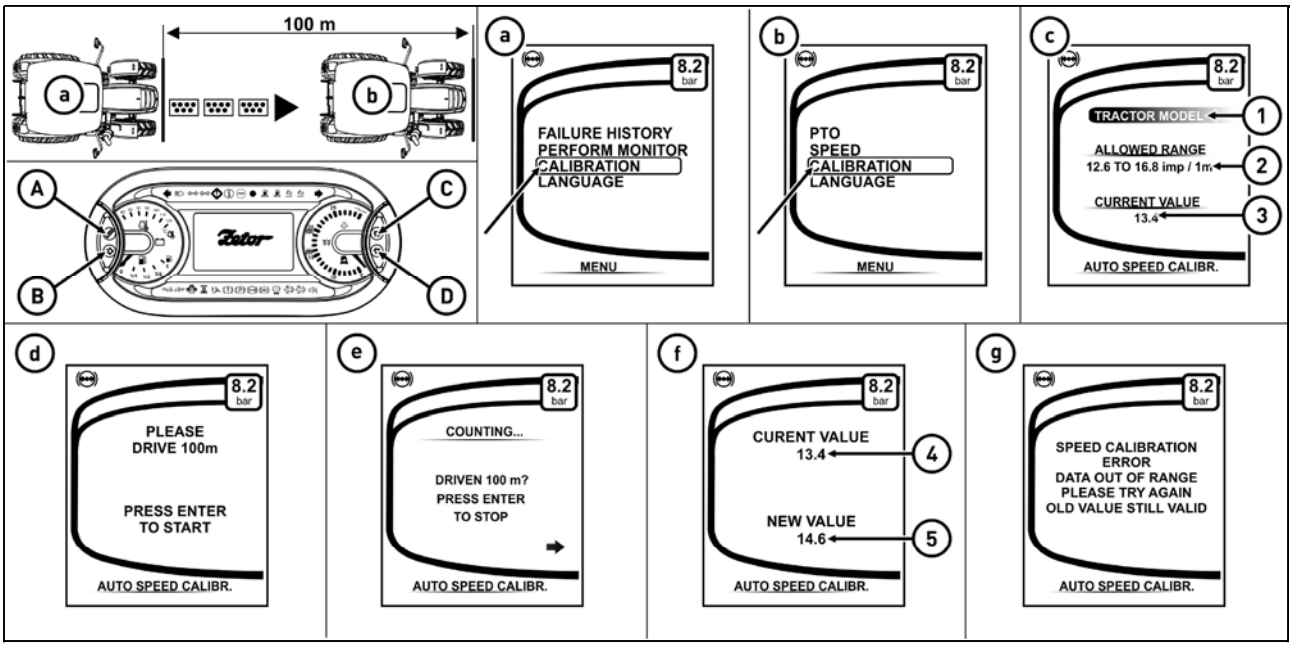
P18N078

Press the button (B) to enter the service menu
1 - use the buttons (C) and (D) to select the item **Calibration**; press the button (B) to enter the screen with the calibration menu.

1 - setting of display of revolutions of the rear PTO shaft - more information in the chapter **POWER OF AGRICULTURAL MACHINES**
2 - calibration of travel speed
3 - reset of the service inspection interval

2 - use the buttons (C) and (D) to select the required function and press the button (B) for confirmation.
Press the button (A) to return to the main screen.

Travel speed calibration



P18N096

The instrument panel after assembly in the factory is calibrated. Perform a new calibration of the travel speed:
- after a considerable tyre wear
- when installing new tyres
- during replacement of the instrument panel

Calibration procedure
- indicate the track of the length of 100 m on a suitable place
- inflate the tractor tyres to the specified pressure; see the tables of these Instructions for Use
- start the engine- park the tractor at the start of the 100m track
- press the button (B) to enter the service menu

a - Use the buttons (C) and (D) to select the item calibration indicated with the arrow and press the button (B) to enter the calibration menu.
b - Use the buttons (C) and (D) to select the item speed indicated with the arrow and press the button (B) to enter the speed menu.
c - The following values are displayed on the screen of the speed menu:
1 - tractor type
2 - range of permissible values valid for a given type and performance of the tractor, the values cannot be changed
3 - the value stored during the last calibration of the travel speed
press the button (B) to enter the next screen
d - The screen with the prompt to travel 100 m is displayed; press the button (B) to start the calibration of the travel speed.
e - The screen is displayed (e)
- The travel speed is lower than 10 km/h
- After covering the whole distance of 100 m stop the tractor on the marked end of the track
- Press the button (B)

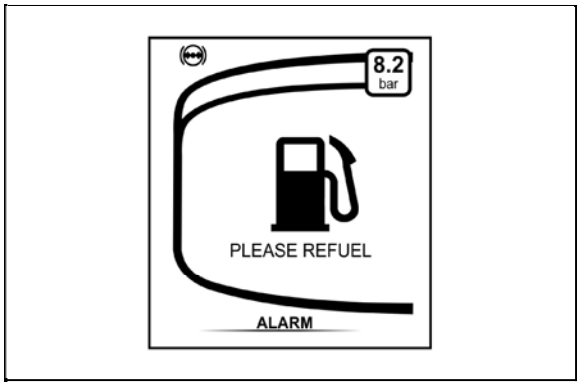
f - The screen where the original value of the calibration (4) and the new value of the calibration (5) are presented is displayed. Save the new value by pressing the button (B). If the calibration was properly performed, the service menu appears on the display after pressing the button (B).
g - If the new value of the calibration (f) of the position (5) is outside the range of the set values (c) of the position (2), the error message (g) is shown on the screen. Press the button (B) to return to service menu without changing the original value of the calibration. Repeat the whole calibration process.

If this situation occurs after replacement of the wheels for wheels of different dimensions than original, it is probable that the new wheel dimensions are not suitable for this type of the tractor.

System of treatment of exhaust gases - setting
The regeneration of the diesel particulate filter in case of increased temperature of exhaust gases is performed at higher engine load. The system of regeneration of the diesel particulate filter DPF can be controlled through the menu of the engine setting on the instrument panel. The regeneration can be controlled in two modes. The mode of automatic regeneration of the diesel particulate filter and inhibition of regeneration of the DPF filter (for safety reasons only).
Note: Setting of individual modes is described in Chapter System of Treatment of Exhaust Gases.

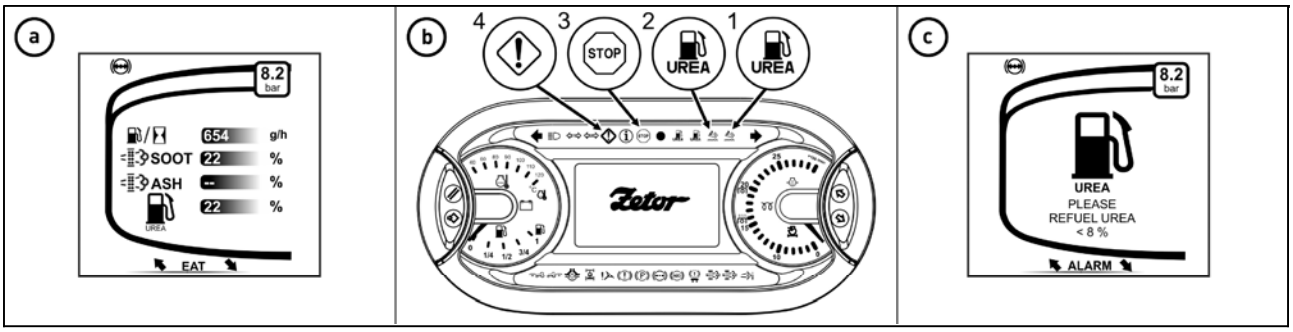
Instrument panel - warning

Replenish fuel
When the fuel signal lamp (orange) is lit up, the prompt to refill the fuel appears in the display for about 3 seconds. If the fuel is not refilled, the prompt always appears in the display when the key is moved from the position ´0´ to the position ´I´ for about 3 seconds. The fuel signal lamp is permanently on.



P18N094

Add urea

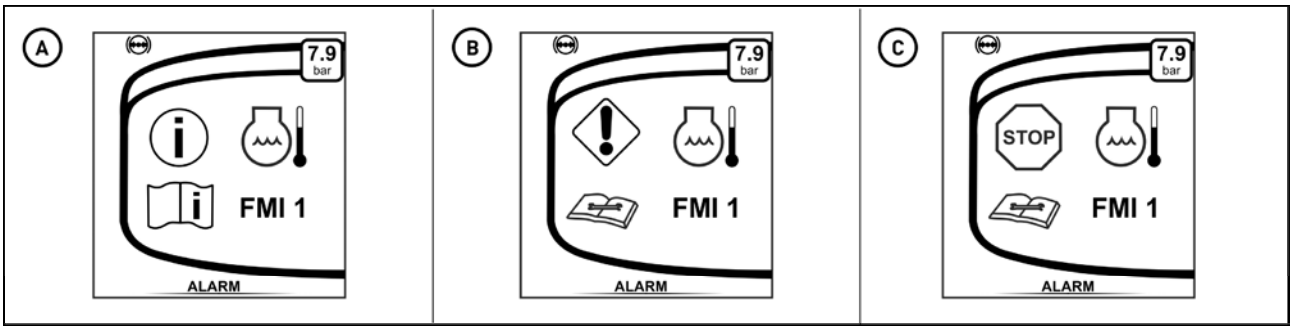


P18N030

The amount of urea in the tank is displayed on the instrument panel on the main screen.
a - If the urea level is higher than 50%, it is displayed as OK on the instrument panel. If the amount is below 50%, the real amount of urea in percentage is displayed.
b - Small amount of urea in the tank is indicated on the instrument panel by the red (1) or orange (2) signal lamp of low urea level. The signal lamp of low urea level is activated simultaneously with the fault signal lamp (4) or the stop signal lamp (3) on the instrument panel.
c - Simultaneously the prompt to add urea to the tank appears together with an acoustic signal.

Always refill the urea tank during refuelling.

High temperature of the cooling liquid



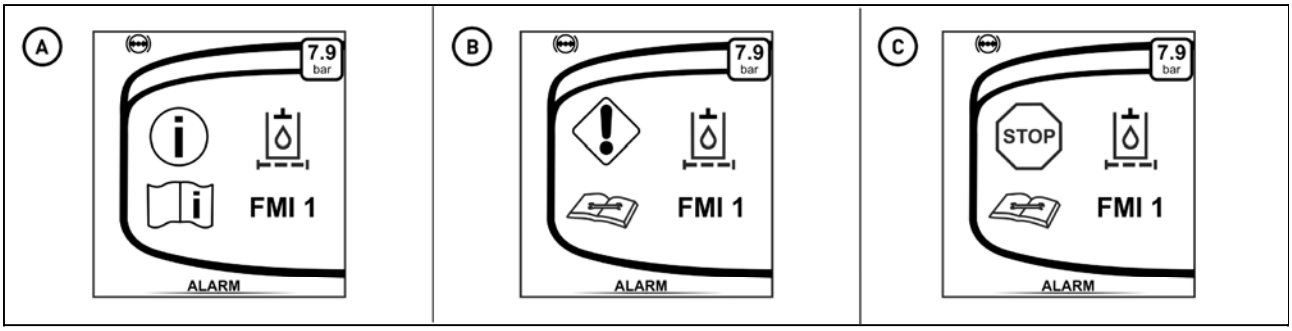
PHS18N041

High temperature of the cooling liguid is indicated in several stages of warning

A - informative - reduce the engine power
B - warning - stop the tractor, set the engine to idling until the temperature of the cooling liquid is reduced
C - caution - stop the engine, wait until the temperature of the cooling liquid is reduced and check the level of the cooling liquid; if the cooling liquid starts to be overheated again when the engine is started, stop the engine and contact the service centre

If high temperature of cooling liquid is indicated (warning), the reaction of the system is reduced engine power by 25%.

Full pushing filter of the hydraulics

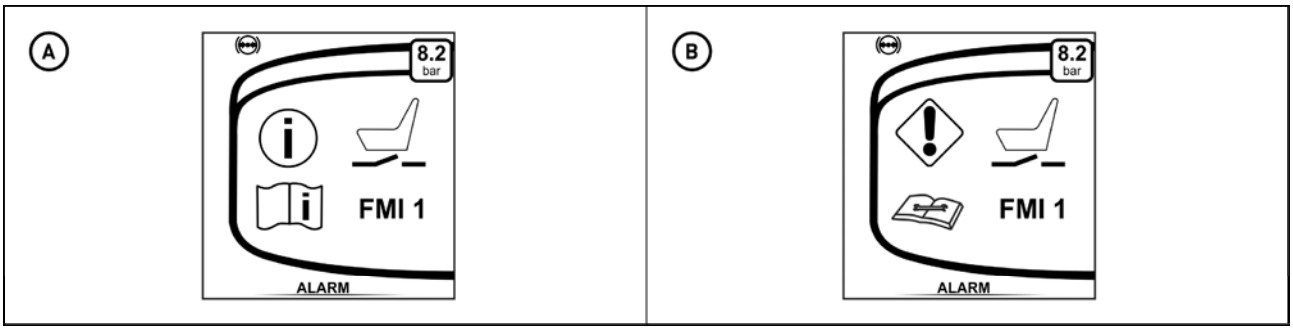


PHS18N045

The full oil filter of the hydraulics is indicated in several stages of warning

A - informative - it will be necessary to perform replacement of the oil filter cartridge of the hydraulics (see chapter Maintenance Guidelines)
B - warning - it is necessary to perform replacement of the oil filter cartridge of the hydraulics (see chapter Maintenance Guidelines)
C - caution - perform immediate replacement of the oil filter cartridge of the hydraulics (see chapter Maintenance Guidelines)

Signalling of driver's seat



PHS18N047

A - signalling - the operator left the driver's seat, sit back on the driver's seat
B - defect - there is a defect in the circuit of the safety switch of the driver's seat, some functions of the tractor may be restricted, contact the service

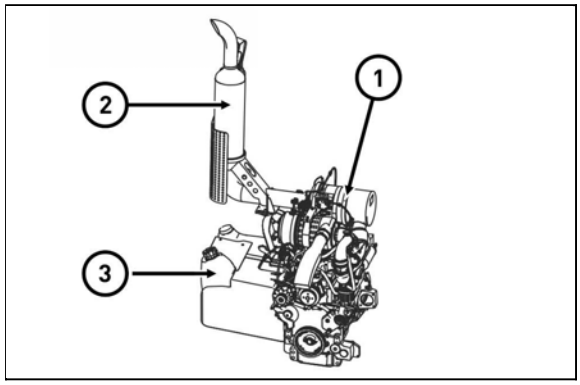
SYSTEM OF ADDITIONAL TREATMENT OF EXHAUST GASES

The tractor is equipped with the engine fulfilling emission limits STAGE IV and TIER 4f. The compliance with the emission limit is achieved, among others, by the combination of two systems of treatment of exhaust gases:

a - Diesel Particulate Filter (DPF) designed for purification of exhaust gases. In the diesel particulate filter, solid particles (carbon black) formed during incomplete combustion of diesel fuel are gathered and then burnt. The oxidation catalyst (DOC) is a part of the DPF unit as well.
b - SCR - the SCR abbreviation stands for system for cleaning of exhaust gases of diesel engines using the selective catalytic reduction decreasing the amount of NOx in the exhaust gases. At the same time, the reduction agent injected into the exhaust system reacts in SCR catalyst with NOx emissions contained in exhaust gases which are reduced to nitrogen (N2) and water (H2O). The control of the injected amount of urea is performed using the control unit itself in connection with the control unit of the engine.

To ensure proper functioning of the system, several its parts are monitored so to meet the required emission limits:
- The level and quality of urea injected in the catalyst SCR.
- The amount of NOx in exhaust gases and temperature in the system.
- Detection of an illegal intervention and any handling to put the system out of order.

1. Filter of solid particles (DPF; diesel particulate filter)
2. Oxidation catalyst (SCR)
3. Urea tank (AUS 32, DEF)



S15N026

SYSTEM OF ADDITIONAL TREATMENT OF EXHAUST GASES

Conditions for DPF operation

 When the tractor is operated, the diesel particulate filter is fouled with solid particles during the fuel combustion while the engine is running. The regeneration of the diesel particulate filter in case of increased temperature of exhaust gases is performed at higher engine load. The regeneration of the DPF filter is supported by evaporation of diesel fuel into the piping of the exhaust system through the oxidation catalyst.

Operation of the full diesel particulate filter is indicated by three signal lamps - green  , orange  and red  on the instrument panel. Activation of the green signal lamp indicates that there are optimum conditions for regeneration of the diesel particulate filter. Flashing of the green signal lamp indicates that regeneration of the diesel particulate filter is being performed. Defects of the system of the diesel particulate filter when the engine is running are indicated by switching the red signal lamp on the instrument panel, corresponding error message on the display together with an acoustic signal.

 ***A short-term activation of the red signal lamp without the subsequent acoustic signal does not mean indication of the defect.***

During operation of the tractor with a low engine load, e.g. during a long-term operation at idling, the risk that the diesel particulate filter becomes full is higher. While the engine is running, this state is indicated by activation of the orange signal lamp of the diesel particulate filter, by the subsequent acoustic signal and by the corresponding error code on the display of the instrument panel. If this situation occurs, increase the engine load and continue in your work until the orange signal lamp of the diesel particulate filter is deactivated and the acoustic signal stops. By increasing the engine load the temperature of exhaust gases is increased and the solid particles blocking the diesel particulate filter are combusted. The conditions suitable for regeneration of the diesel particulate filter DPF while the engine is running are indicated by activation of the green signal lamp on the instrument panel.

 ***The increased engine load means the operation of the tractor at higher revolutions of the engine with attached implements, consumption of the power through the take-off shaft or outer hydraulic circuit; increasing the engine speed of the standing tractor is not sufficient.***

 ***The time necessary to decrease the DPF resistance depends on the engine load and how much the DPF filter is full.***

 ***There are high temperatures achieved during regeneration of the DPF filter. Great care should be taken when the tractor is operated in a flammable environment!***

 ***Do not stop the engine during regeneration of DPF (the green signal lamp flashes) - there is a risk of damage of the system of treatment of exhaust gases. Do not stop the engine immediately after regeneration of DPF filter.Leave the engine idling at low revolutions until sufficient decrease of temperature of the system of treatment of exhaust gases is achieved!***

SYSTEM OF ADDITIONAL TREATMENT OF EXHAUST GASES

Error signalling of DPF system

 Defects of the system of the diesel particulate filter when the engine is running are indicated by glowing or flashing of the orange or red signal lamp on the instrument panel and by the subsequent acoustic signal. If the error is not eliminated, it is indicated every time when the engine is started.

 ***During operation there may be a situation when the pressure exceeds the set value for a short time. This state is indicated by a short-time activation of the orange or red indicator light of the DPF filter on the instrument panel. It is not an error. Errors are always indicated by the red indicator light of the DPF filter, acoustic signal and indication activated on the instrument panel.***

type of indication	DPF signal lamp		defect signal lamp	acoustic signal
	signal lamp	colour		
warning (regeneration necessary)		orange signal lamp activated		
warning (regeneration necessary)		orange signal lamp flashes (0.5 Hz)		
1st degree of limitation		orange signal lamp flashes (0.5 Hz)		
2nd degree of limitation		red signal lamp flashes (0.5 Hz)		2 x 3 s

Conditions for SCR system operation
The amount of urea in the tank is displayed on the instrument panel. If the amount of urea in the tank is exhausted when the engine is running, the injector in the exhaust manifold is in danger of being damaged and the engine power can be reduced. The catalytic reduction is stopped and the amount of harmful emissions in exhaust gases is increased. When urea is added in the tank, the catalytic reduction is restored.

 ***Operation of the tractor without the SCR (selective catalytic reduction) system is prohibited!***

Conditions for proper functioning of the system
- temperature of cooling liquid must be higher than 60°C,
- working temperature of the catalyst must be higher than 250°C
- outdoor temperature must be higher than -20°C,
- engine revolutions must be higher than 1,000 rpm
- requirement for the withdrawn torque must be higher than 20%.

 ***If urea freezes, the tank is electrically heated. If no melting during 70 min occurs, the engine power together with the corresponding error message are activated.***

SYSTEM OF ADDITIONAL TREATMENT OF EXHAUST GASES

Urea (Aqueous Urea Solution AUS 32, DEF)
The used reagent is a mixture of 32.5% solution of synthetic urea and demineralized water. It is used as a reducing agent NOx for additional treatment of exhaust gases by SCR (selective catalytic reduction) of motor vehicles with diesel engines.
The product is labelled as Urea or AUS 32 (AUS: Aqueous Urea Solution) and complies with the standard ISO 22241-1 Reducing agents NOX AUS 32.
The urea solution AUS 32 is known in USA and North America as Diesel Exhaust Fluid (DEF).

The lifetime of urea without the loss of the quality is influenced by storage conditions.
It crystallizes at ambient temperature below -11°C and at ambient temperature over +35°C it initiates hydrolytic reaction which means that a slow decomposition to ammonia and carbon dioxide begins.
It is essential to protect unprotected vessels from direct sunlight.
Barrels must not be stored longer than one year!
Pay attention to the resistance of the used materials and store vessels.
Urea freezes below the temperature of -11°C.

 ***To ensure proper functioning of the SCR system, urea with the concentration of 32.5% must be used!***

Principles for safe handling of urea (AUS 32, DEF)

Contact with skin
- Prolonged or repeated contact may cause skin irritation.

Contact with eyes
- Prolonged or repeated contact may cause eye irritation. Rinse eyes with plenty of water for at least 15 minutes. If irritation persists, visit a physician.

Ingestion
- In case of ingestion of small quantities, toxic effects are not likely. Higher amount may cause intestinal or stomach problems. Do not induce vomiting. Drink half a litre of water or milk. In case of ingestion of a larger than small quantity, visit a physician.

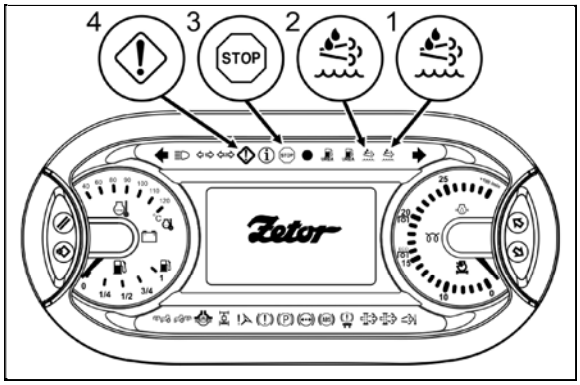
Fire-fighting measures
- The product has fire extinguishing properties.

Extinguishing means
- If the material got in the fire, use large amount of water for extinguishing.

Accidental release measures
- Minimize contact of the spilled material with the soil so that you do not allow product to reach surface or underground water courses.
- Soak up the spilled material with dry soil, sand or other non-flammable material.

Error signalling of SCR system

Defects of the SCR system when the engine is running are indicated by glowing of the red (1) or orange (2) signal lamp on the instrument panel and by the subsequent acoustic signal. If the error is not eliminated, it is indicated every time when the engine is started. The reason for the indication may be in not meeting the required amount of NOx in exhaust gases, defect of the urea injection system or bad urea quality. According to the severity of the error message, the warning signal lamp (4) or the stop signal lamp (3) are activated together with the signal lamps (1, 2).



P18N029

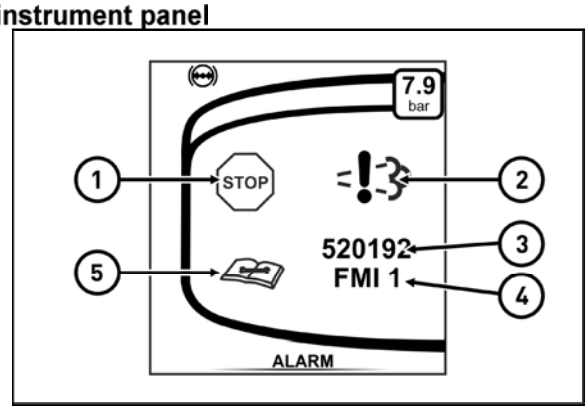
If there is an unprofessional intervention in the system of selective catalytic reduction, an error is indicated and the system is switched into an emergency operation mode of the tractor with a reduced engine power.

type of indication	urea signal lamp		defect signal lamp	acoustic signal	reduction of the engine power and engine revolutions
	signal lamp	colour			
warning		orange		1 x 1 s	
1st degree of limitation		orange		1 x 1 s	reduction of power by 25%
2nd degree of limitation		red	STOP	2 x 3 s	reduction of power by 50%, reduction of max. engine revolutions to 1,250 rpm

Indication of DPF and SCR errors on the display of the instrument panel

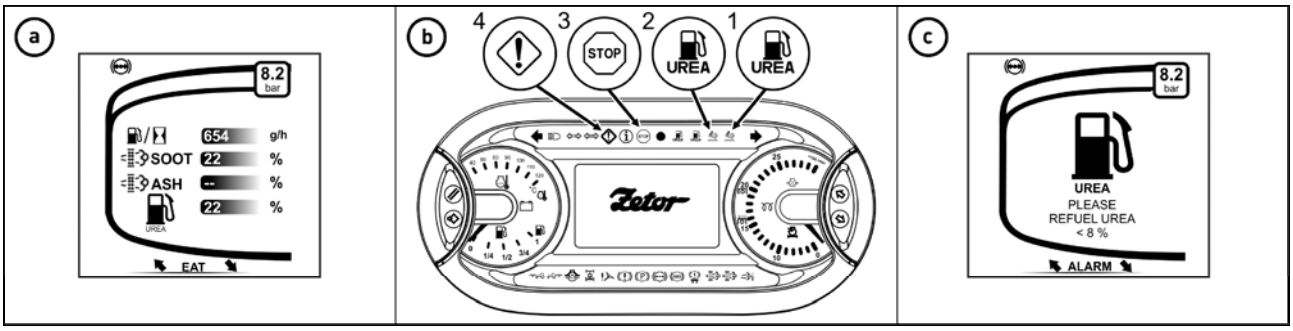
Error messages with the signal lamps and acoustic signal are accompanied by indication on the display of the instrument panel.

1 - The symbol of the defect significance.
2 - Node of the tractor where the defect appeared.
3 - Main display field - defect code.
4 - Secondary display field - defect specification.
5 - Service symbol.
Note: More information in chapter Instrument Panel



P18N031

Indication of amount of urea in the tank



P18N030

The amount of urea in the tank is displayed on the instrument panel on the main screen.
a - If the urea level is higher than 50%, it is displayed as OK on the instrument panel. If the amount is below 50%, the real amount of urea in percentage is displayed.
b - Small amount of urea in the tank is indicated on the instrument panel by the red (1) or orange (2) signal lamp of low urea level. The signal lamp of low urea level is activated simultaneously with the fault signal lamp (4) or the stop signal lamp (3) on the instrument panel.
c - Simultaneously the prompt to add urea to the tank appears together with an acoustic signal.

Always refill the urea tank during refuelling.

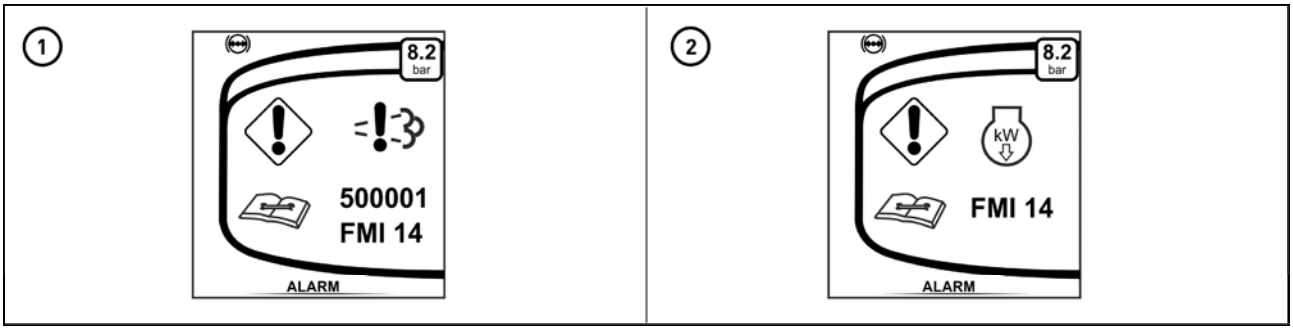
type of indication	amount of urea in the tank	urea signal lamp		display - prompt to refill urea	defect signal lamp	acoustic signal	reduction of power and limitation of engine revolutions
		signal lamp	display type				
1st degree of warning	less than 20%	UREA	orange signal lamp activated	short-time display (3 s)		1 x 1 s	
2nd degree of warning	less than 15%	UREA	orange signal lamp flashes (0.5 Hz)	short-time display (3 s)		1 x 1 s	
3rd degree of warning	less than 10%	UREA	orange signal lamp flashes (0.5 Hz)	Continuous display (The prompt disappears after pressing any button on the instrument panel.)	!	2 x 3 s	
1st degree of limitation	less than 5%	UREA	orange signal lamp flashes (1 Hz)	Continuous display (The prompt disappears after pressing any button on the instrument panel.)	!	2 x 3 s	reduction of power by 25%
2nd degree of limitation	less than 3%	UREA	red signal lamp flashes (2 Hz)	Continuous display	STOP	2 x 3 s	reduction of power by 50%, limitation of max. engine revolutions to ca. 1,250 rpm)

SYSTEM OF ADDITIONAL TREATMENT OF EXHAUST GASES

Reduction of the engine power and engine revolutions
If there is a serious error in the system or if the level of urea in the tank is low, the reaction of the system is reduced engine power output and revolutions. According to the error type, so-called one-stage or two-stage reduction of engine output is performed.

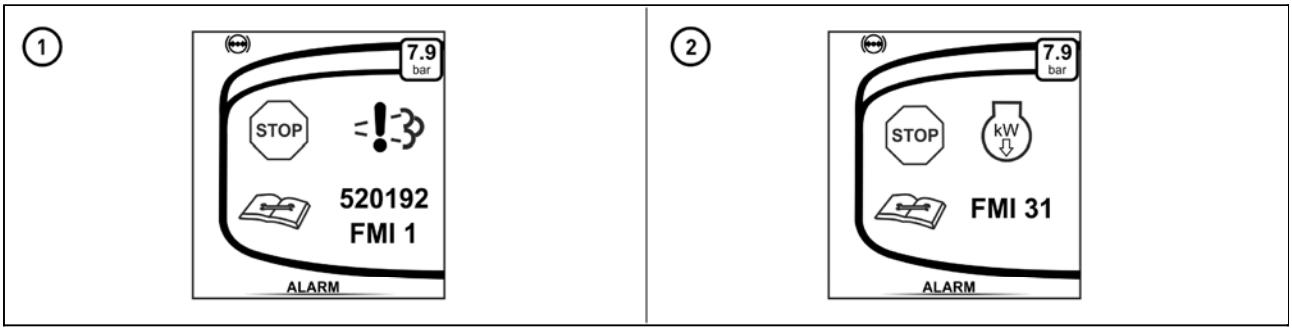
stage 1	reduction of power by 25%
stage 2	reduction of power by 50% and limitation of max. engine revolutions to ca. 1,250 rpm

A serious error can be caused by unauthorised interference in the system of treatment of exhaust gases!



P18N032

If the first phase of the reduced engine power and engine revolutions is approaching, it is indicated for the tractor operator on the display of the instrument panel (1) or (2) together with an acoustic signal and indication of signal lamps. After the transitional period of 10 h for Stage IV (97/68/EC) or 1.5 h for Tier 4f (EPA) expires, limitation of the engine power with continuous starting is activated.
Note: A warning message on the display (1) or (2) is displayed according to the type of the tractor.

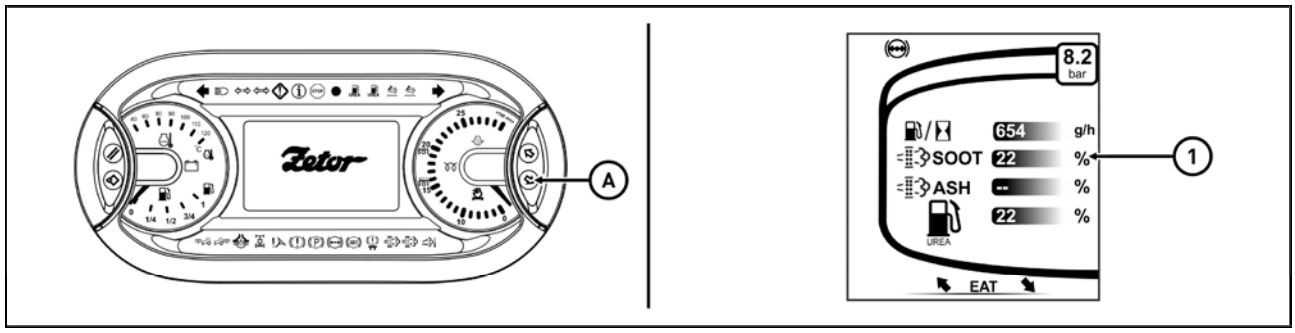


P18N033

If the serious error is not eliminated, the second phase of the reduced engine power and engine revolutions is performed. It is indicated to the tractor operator on the display of the instrument panel (1) or (2) together with an acoustic signal and indication of signal lamps. After the transitional period of 10 h for Stage IV (97/68/EC) or 2.5 h for Tier 4f (EPA) expires, limitation of the engine power with continuous starting is activated.
Note: A warning message on the display (1) or (2) is displayed according to the type of the tractor.

SYSTEM OF ADDITIONAL TREATMENT OF EXHAUST GASES

Signalling of whether DPF is full
Information whether DPF is full is available on the main screen of the display.



P18N035

By repeated pressing of button (A) you can switch between individual screens to the screen with the data on the status how much the DPF filter is full:

1 - percentage filling of DPF with carbon black

The position (**1**) indicates the percentage filling of DPF filter with carbon black that fills the filter during combustion of diesel fuel. This carbon black is combusted during regeneration of the filter and ash is formed. The ash cannot be removed from the diesel particulate filter using a common regeneration. At higher percentage filling of DPF filter with ash, intervals between DPF regenerations are shortened.
Note: If the information how much the filter is full is not available, (---) is displayed on the display instead of percentage values.

At higher percentage filling of DPF filter with ash please contact authorized service.

Long-term shutdown of tractor
During a long-term shutdown of the tractor, the urea filling must be drained from the tank.
Before operating the tractor, the urea tank must be filled with a new filling again and the urea filter element must be replaced and the urea tank must be refilled with fresh material.

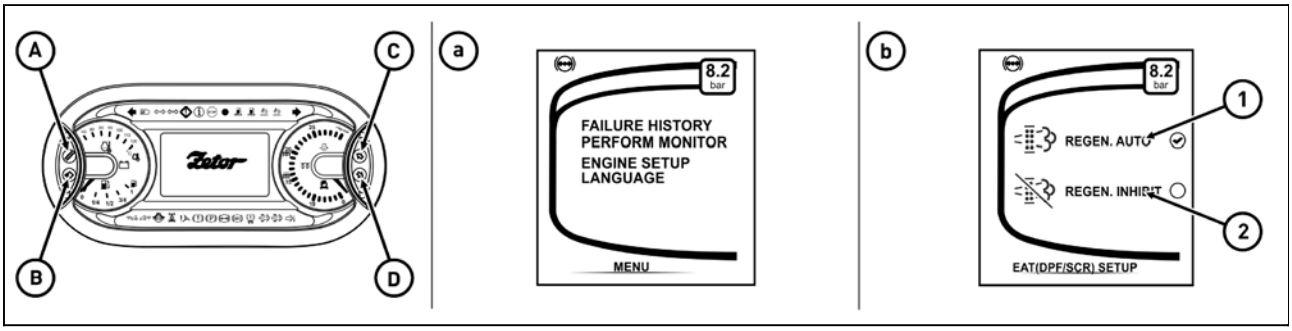
The urea filling should not stay in the tank longer than four month and then it should be replaced.

Repairs and maintenance of the system of additional treatment of exhaust gases
The system requires use of permissible operating fluids which are referred to in this manual In case of signalling errors in the system of additional treatment of exhaust gases proceed according to instructions contained in this manual or contact authorized service.

All repairs and maintenance of the system of additional treatment of exhaust gases must always be performed by a professional service All interventions in the system, except authorized service, are prohibited.

SYSTEM OF ADDITIONAL TREATMENT OF EXHAUST GASES

System of treatment of exhaust gases - setting
The regeneration of the diesel particulate filter in case of increased temperature of exhaust gases is performed at higher engine load. The system of regeneration of the diesel particulate filter DPF can be controlled through the menu of the engine setting on the instrument panel. The regeneration is operated in two modes: The mode of automatic regeneration of the diesel particulate filter and inhibition of regeneration of the DPF filter (for safety reasons only).



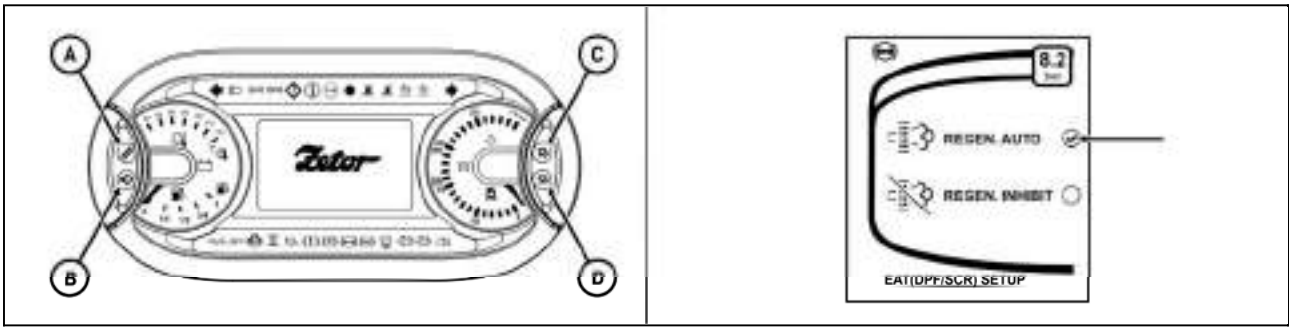
P18N036

Enter the menu of the engine setting by long pressing the button (**B**) on the instrument panel. The service menu screen is displayed. To enter the engine set up, choose the corresponding tab using the buttons (**C**) and (**D**) and confirm the corresponding tab (Engine setup) by long pressing the button (**B**). The following items are displayed on the screen:

1 - Automatic regeneration of the diesel particulate filter - **REGEN. AUTO**
2 - Inhibition of regeneration of the diesel particulate filter - **REGEN. INHIBIT**

Automatic regeneration of the diesel particulate filter - REGEN. AUTO
The mode of automatic control of the treatment of exhaust gases. The regeneration of the filter is started in case of need when a certain level of filling of the filter with carbon black, temperature of exhaust gases and engine load are reached.

Flashing of the green signal lamp indicates that regeneration of the diesel particulate filter is being performed.



P18N037

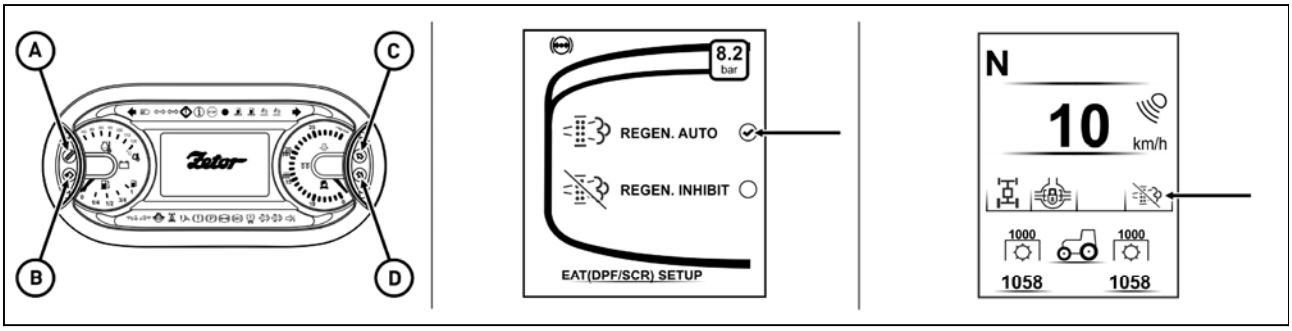
REGEN. AUTO is set in the menu for the engine set up. After entering the tab, choose the corresponding item using the buttons **(C)** and **(D)**. Confirm the mode of automatic control of the filter regeneration by long pressing the button **(B)**. During operation of the tractor the filter regeneration is indicated by flashing of the green signal lamp of exhaust gases temperature on the instrument panel. An approaching defect of the system is indicated by activation of the yellow signal lamp of DPF and if the defect of the system occurs, the red signal lamp of DPF is activated.

For proper functioning of the diesel particulate filter it is necessary to set the system of treatment of exhaust gases to the mode* REGEN. AUTO*, unless working conditions require inhibition of the system for safety reasons!

SYSTEM OF ADDITIONAL TREATMENT OF EXHAUST GASES

Inhibition of regeneration of the diesel particulate filter - REGEN. INHIBIT

The function of inhibition of regeneration of the diesel particulate filter (**REGEN. INHIBIT**) is used to block the process of DPF regeneration for safety reasons only during operation of the tractor in a flammable environment (e.g., storage of hay or straw).



P18N038

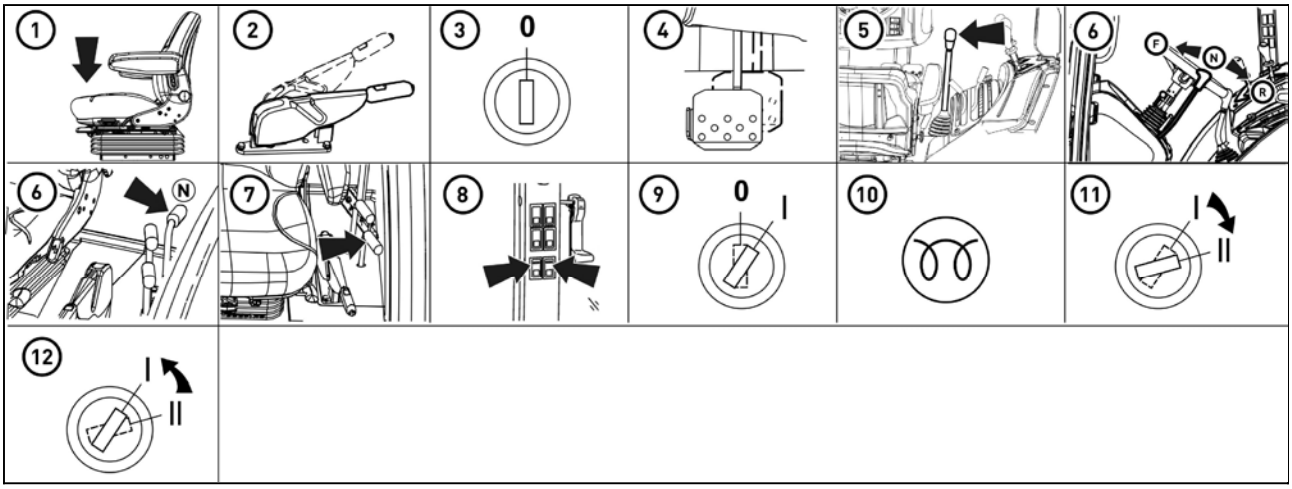
REGEN. INHIBIT is set in the menu for the engine set up. After entering the tab, choose the corresponding item using the buttons (C) and (D). Activate the mode of inhibition of the filter regeneration by long pressing the button (B). Successful activation is indicated by the activated symbol on the display of the instrument panel. In case that the regeneration must be started, a maintenance symbol is activated simultaneously with the symbol of regeneration inhibition.

Long-term inhibition of regeneration (in the order of several hours) causes that the DPF filter becomes full and subsequently the engine power is decreased!

The function of inhibition of DPF regeneration should be active for safety reasons only. After the period when the regeneration must be inhibited has expired, immediately set the mode of DPH automatic regeneration!

Before a drive with the new tractor get to know how to shift gears and try individual positions of the shifting lever when the engine is stopped.
During normal operation and before you set up, make sure that the technical condition ensures safe operation of the tractor.

Starting the engine



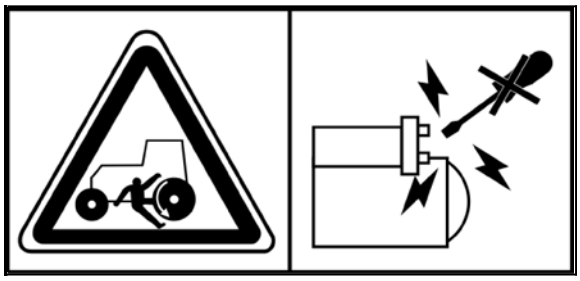
P18N081

1 - The operator must sit on the driver's seat when starting the engine.
2 - Brake the tractor with the hand brake.
3 - Insert the key in the switch box - position '0'.
4 - Push down the clutch pedal.
5 - Move the reversing lever to the neutral position.
6 - If the tractor is equipped with the reversal system, move the gear shift lever to the neutral position.
- If the tractor is equipped with the reductor of crawling speeds, move the lever of crawling speeds to the neutral position.
7 - Move the lever for activation of the PTO shaft drive to the neutral position.
8 - Make sure that the buttons for activation of the front and rear PTO shafts are not activated (must not be highlighted).
9 - Switch the key of the switch box from the position '0' to the position 'I'. The glowing signal lamp will be activated.
10 - Wait until the glowing signal lamp goes out (the time depends on the temperature of the cooling liquid).

In case that the glowing signal lamp only starts flashing instead of glowing, there is a failure in the glowing system (chapter Indication of glowing system failures). The indicated failure should be removed in a specialized service centre.
11 - Immediately after the lamp goes out (5 s max.) turn the key from 'I' position to 'II' position (start); the maximum starting time is 15 s.
12 - After starting the engine, immediately release the key and it is automatically returned to the position 'I'.

Non-permitted starting

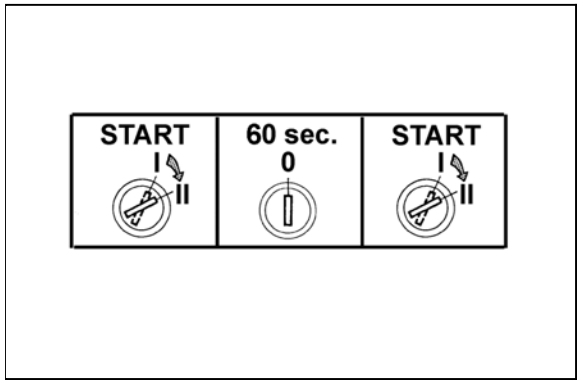
It is prohibited to start the tractor by short-circuiting the terminals of the starter. Perform starting from the driver's seat only. During any handling or repair of the starter, the minus pole of the battery and all gear shift levers, including shifting of the PTO shaft, must be in the neutral position. The terminals of the starter are covered with a cover.



pikt_2

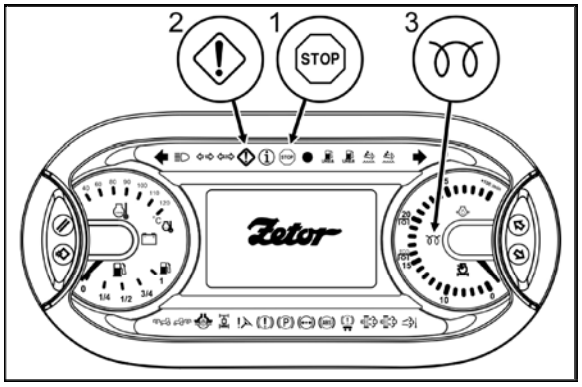
If you do not succeed in starting the engine
Return the key to '0' position. Wait 60 second and repeat the start.

Never help the stopping engine by a starter. You are being exposed to the danger of starter damage.



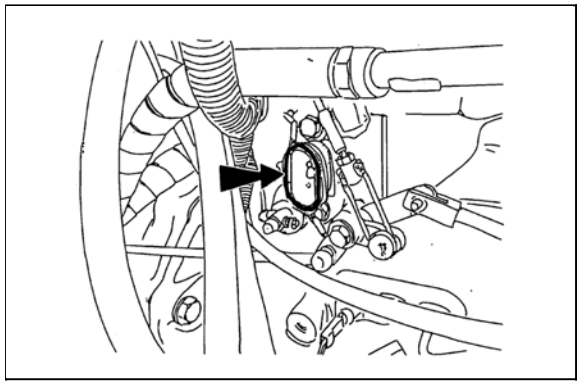
C15N127

Ignition system failure signalization
A failure of the glowing system is indicated by flashing of the glowing signal lamp (3) and simultaneous activation of the red (1) or orange (2) signal lamp. The failure code is displayed in the screen.
- If the engine is at standstill, the glowing signal lamp flashes once a second and the signal lamp (2) glows, glowing in the emergency mode is performed similarly as at low temperatures regardless the temperature of the cooling liquid.
- If the engine is at standstill, the glowing signal lamp flashes twice a second and the signal lamp (2) glows, the glowing is turned off (not functioning).
- If the engine is running, the glowing signal lamp glows permanently and the signal lamp (1) glows, there is a failure of the glowing control and glowing was not finished. The failure must be immediately eliminated since there is a danger that the accumulator will be discharged.



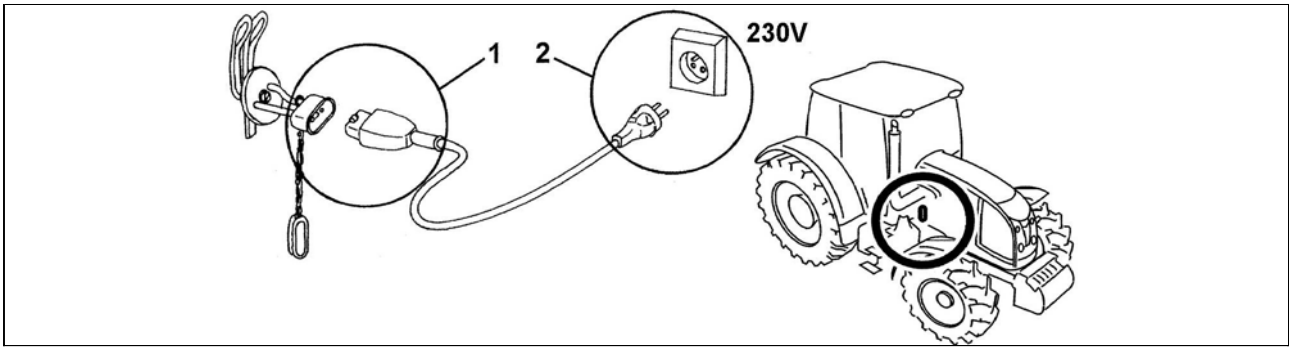
P18N056

***Coolant heater**
Is mounted on the right side of engine block.
output 1,000 W
voltage 230 V



C209

Starting the engine while using coolant heater



G210a

With low temperatures of the surroundings, engine starting eases heating coolant. Leadin electrical installation and its protection against dangerous contact must be done pursuant to valid regulations
1. First plug the plug to the heater.
2. Then connect heater to electrical network of the voltage of 230 V.
With regard for the lower engine wear with low temperature, the use of heater is recommended by manufacturer. The duration of heating is dependent on the surrounding temperature (1 - 2 hours before the expected start).

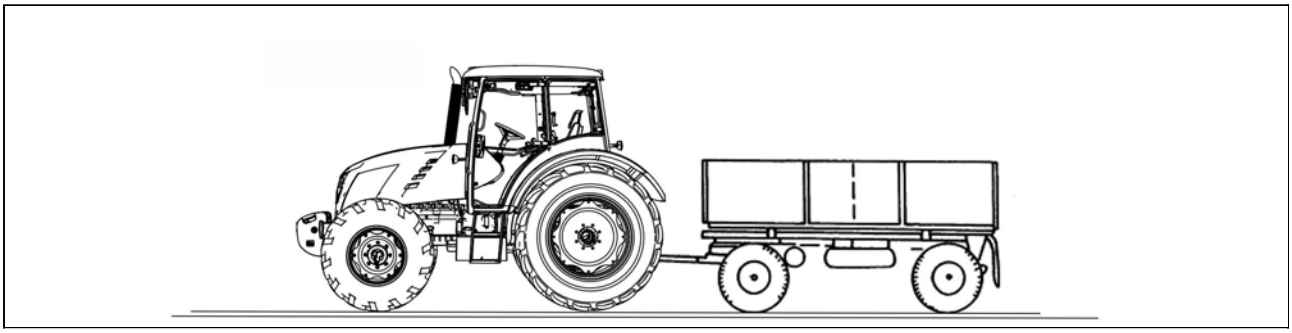
After completing the heating, disconnect the device first from electrical network and only then disconnect the plug from the heater! Danger of injury due to electricity!

It is necessary to ensure tractor operator's instruction and regular revision of coolant heater including feeding cable pursuant to valid legislation of the state where the tractor is operated at least prior to each winter period.

Immediately after start

After starting, set revolutions to 800 - 1,000 rpm and let engine run without load for a period of app. 2 minutes.
Check greasing, charging and other functions ensuring proper engine operation (controls must go out) in this time. The time of engine operation without load must be observed, in particular in winter period.

Engine heating

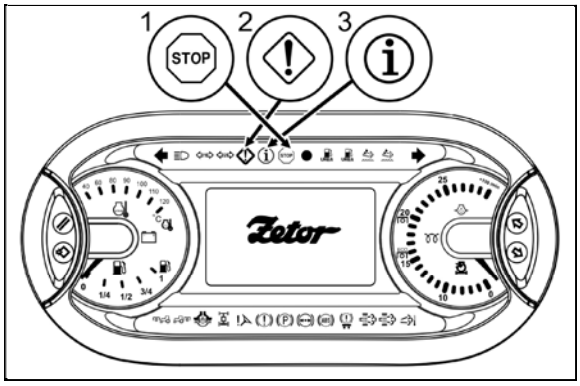


P15N055

Do further heating of the engine when driving. Heating engine by lengthy idle run or abrupt revolutions increase is harmful to the engine. If the temperature of coolant has not reached 45°C, do not overcome engine revolutions over 2,000 rpm.

Error signalling

Errors arising during tractor operation are indicated by switching the corresponding signal lamp, acoustic signal and error message in the instrument panel display.
If the error is indicated, the signal lamp still glows, even though the display is switched to the next display.
If the error is not eliminated or the indicated state has not returned to a normal state:
the corresponding signal lamp glows
when the tractor is switched off, the key in the switch box is moved to position I and then the engine is started, the corresponding signal lamp is switched on again and the error message runs through the display.



P18N048

1 - The signal lamp of a serious defect of the system (red).
2 - The signal lamp of a less serious defect of the system (orange).
3 - Operational protection signal lamp (blue).

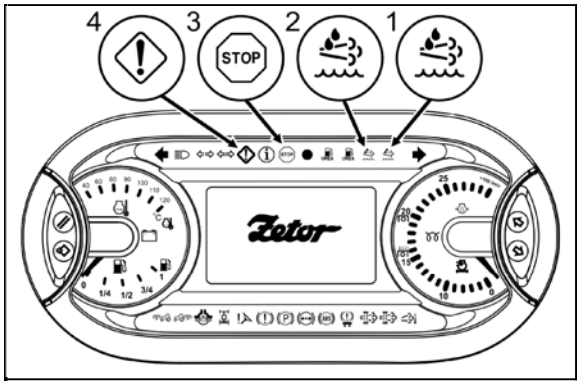
More information in chapter **Instrument panel**.

Indication of the limitation of the engine power and engine revolutions

If there is a serious error in control or auxiliary systems of the engine, SCR system or if the level of urea in the tank is low, the reaction of the system is reduced engine power output and revolutions.

According to the error type, so-called one-stage or two-stage reduction of engine output indicated by glow of the signal lamps (1), (2), (3) and (4) is performed.

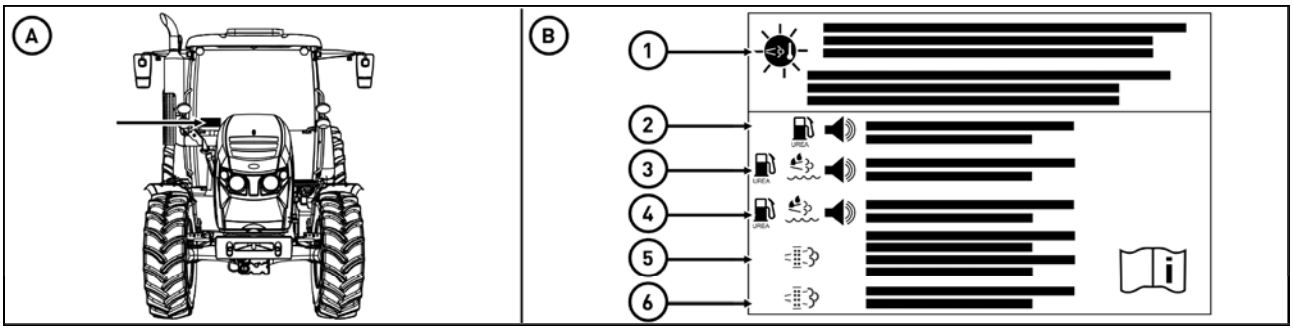
More information in the chapter **System of Additional Treatment of Exhaust Gases**.



P18N029

type of indication	urea signal lamp		defect signal lamp	acoustic signal	reduction of the engine power and engine revolutions
	signal lamp	colour			
1st degree of limitation		orange		1 x 1 s	reduction of power by 25%
2nd degree of limitation		red		2 x 3 s	reduction of power by 50%, reduction of max. engine revolutions to 1,250 rpm

Signalling errors in the system of additional treatment of exhaust gases



P18N057

The label with a short description of indication of errors in the system of additional treatment of exhaust gases and subsequent activities of operators is located in the right bottom corner of the windshield (A).

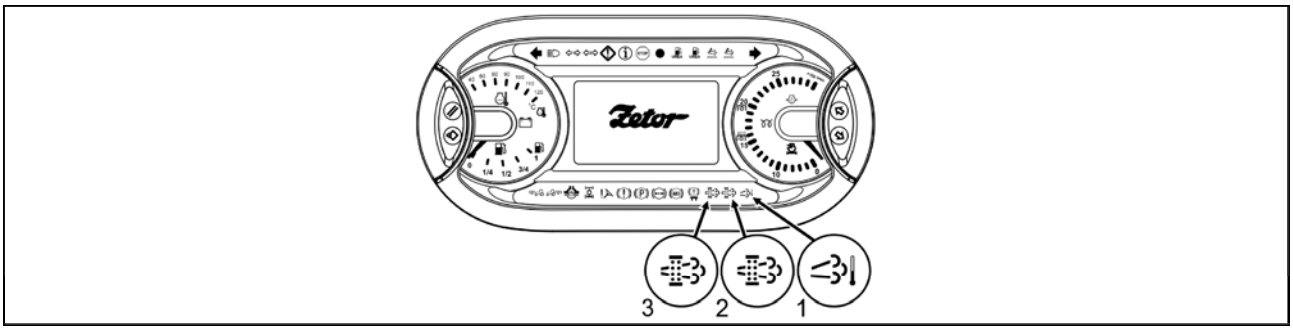
On the label (B) in the left part there is a combination of signal lamps glowing or flashing on the instrument panel indicated using pictograms including their colours and the pictogram of the sounding acoustic warning signal. In the right part of the label a required reaction of the tractor operator is described.

1. If the signal lamp flashes, assisted regeneration of the diesel particulate filter (DPF) is being performed. Caution! Danger of fire from exhaust gases. Caution! Do not lower the tractor load - risk of interruption of regeneration.
2. Add urea!
3. Add urea! The engine power will be limited.
4. Add urea! Engine revolutions will be minimised.
5. Increase the engine load or contact service. The engine power will be limited.
6. Contact the service centre.

Diesel particle filter

 The exhaust system of a tractor is equipped with a diesel particle filter which serves for cleaning exhaust fumes. Solid particles (carbon particles) are collected and burned in diesel particle filter which originate by burning diesel.

Filter of solid particles - indication of operation and failures of the system

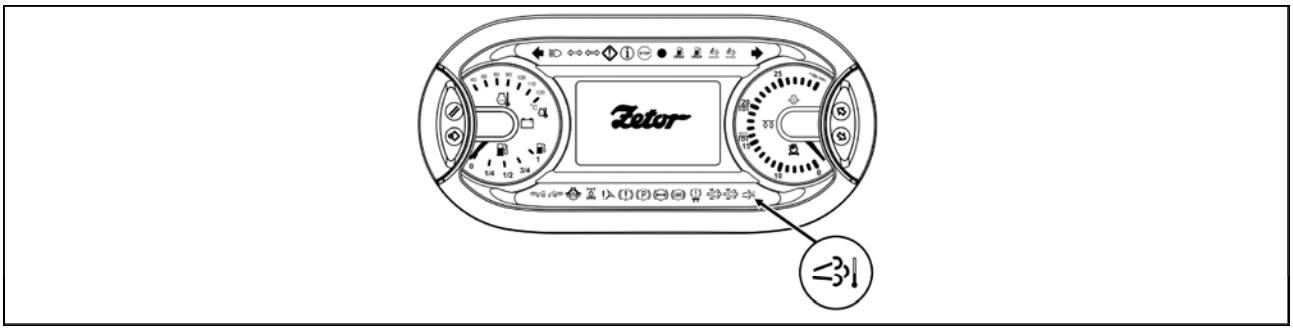


P18N058

Operation of the diesel particulate filter is indicated by the signal lamps (1), (2) and (3) on the instrument panel.
Activation of the signal lamp (1) of the green colour on the instrument panel while the engine is running indicates that there are optimum conditions for filter regeneration. Flashing of the signal lamp indicates that regeneration of the diesel particulate filter is being performed.
Activation of the signal lamp (3) of the yellow colour on the instrument panel while the engine is running indicates that there is a less serious defect in the diesel particulate filter (DPF). The activation of the signal lamp (3) is accompanied by activation of the corresponding failure signal lamp, acoustic signal and error message on the display of the instrument panel.
Activation of the signal lamp (2) of the red colour on the instrument panel while the engine is running indicates that there is a serious defect in the diesel particulate filter (DPF). The activation of the signal lamp (2) is accompanied by activation of the corresponding failure signal lamp, acoustic signal and error message on the display of the instrument panel.

More information in the chapters **Instrument Panel** and **System of Additional Treatment of Exhaust Gases**.

Diesel particle filter regeneration

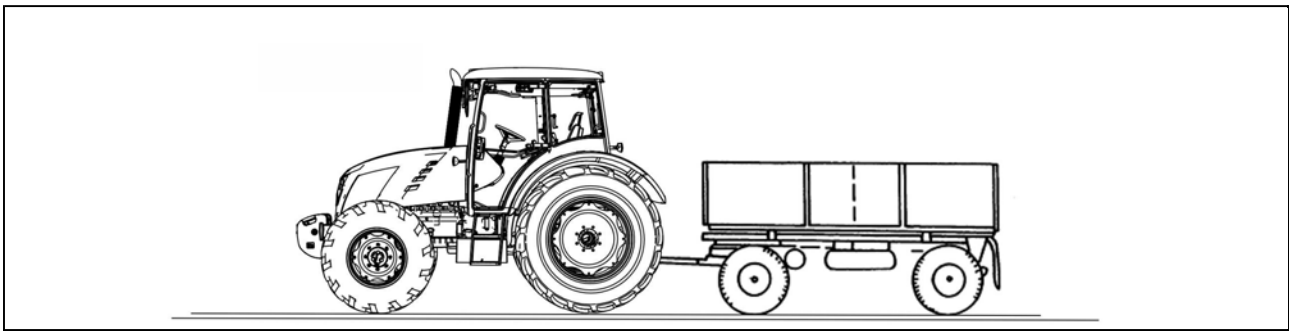


P18N059

When the tractor is operated, the diesel particulate filter is fouled with solid particles during the fuel combustion while the engine is running.
The full filter of solid particles is automatically regenerated (cleaned) while the engine is running by increased temperature of exhaust gases.
The regeneration of the filter of solid particles DPF being performed is indicated by the flashing green signal lamp of sufficient temperature in the exhaust manifold.

ATTENTION: During regeneration of the filter of solid particles DPF the temperature of exhaust gases and of the surface of the filter of solid particles is increased substantially. There is an increased risk of fire or explosion during operation of the tractor in an environment with risk of fire or in an explosive environment.
During operation of the tractor in an environment with risk of fire or in an explosive environment when regenerating the filter of solid particles DPF it is necessary to leave this environment with the tractor immediately or interrupt the regeneration of the filter of solid particles DPF in the menu of the instrument panel.
More information in chapters **Instrument Panel** and **System of Additional Treatment of Exhaust Gases.**

Drive away



C211

1. Press the clutch pedal.
2. Move the main gear shift lever to the neutral position.
3. Start the engine.
4. Select road or reduced speeds.
5. Move the reversing lever to the required tractor driving direction (forward or reverse).
6. Select an appropriate transmission gear to start the tractor moving.
7. Slightly increase the engine revolutions.
8. Prepare the hand brake for unbraking.
9. Release the clutch pedal just to the point of drive engage and while increasing the engine revolutions continue in a smooth release of the clutch pedal.
10. Fully unbrake the hand brake.
11. Accelerate smoothly and slowly.

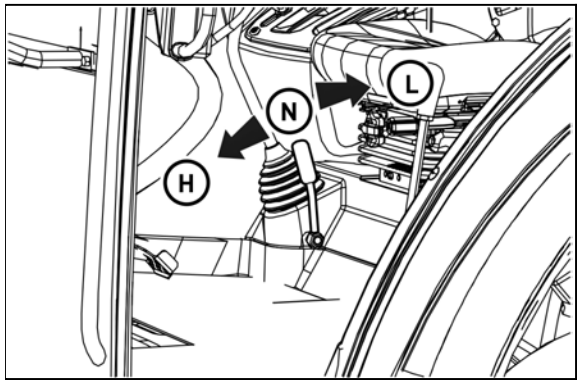
A very fast acceleration may cause overloading of the driving device, increased fuel consumption, excessive wear of tyres and damage of cargo. Use the acceleration with the transmission gear I only when driving with a heavy trailer up tthe slope or in a rough terrain.

During operation of the tractors with the engine equipped with the filter of solid particles avoid long-term operation at idling or at low engine load.

Shifting road and reduced speeds
H - road speeds
N - neutral
L - reduced speeds

Shifting of gears of the main gearbox with reduced speeds is the same as with road speeds.
Considering low speed of the tractor, change nearly always means moving off from rest.

Shifting using the lever of road and reduced speeds is only possible when the tractor is in standstill.

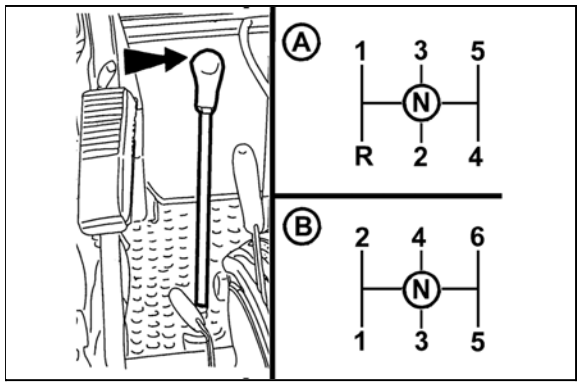


p18n060

Gear shifting
The gears are shifted with the main gear shift lever.

A - The tractor equipped with the reductor of crawling speeds
The main gear shift lever is used to shift the gears and to control the driving direction.

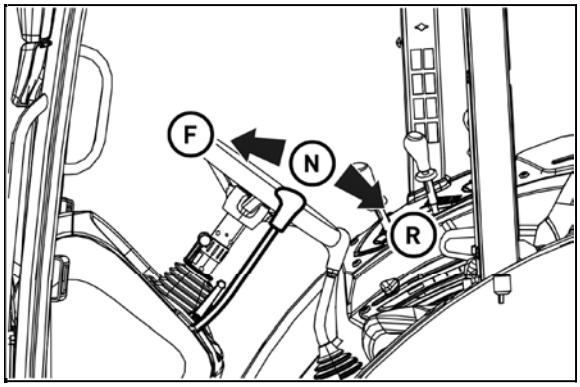
B - The tractor equipped with the reversal system
The main gear shift lever is only used to shift the gears and the driving direction is controlled by the reversing lever.



E149a

Reversing lever
F - forward driving; the lever in the front
N - neutral position
R - reverse driving; the lever in the back
Shifting is performed when the tractor is idling.

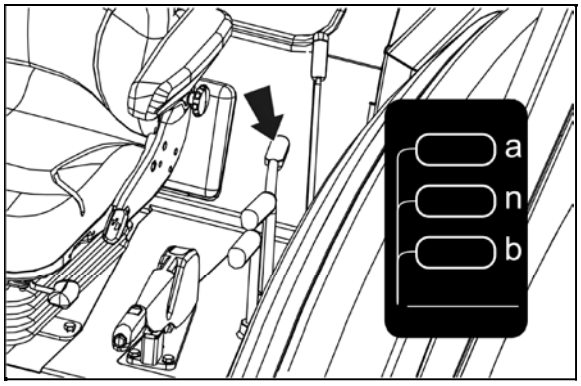
If the tractor is equipped with the reductor of crawling speeds, the reversing lever is not mounted.



P18N053

Gear shift lever of the reductor of crawling speeds
a - reductor of crawling speeds
n - neutral position
b - normal speeds
Shifting is performed when the tractor is standing.

If the tractor is equipped with the reversal system, the lever of the reductor of crawling speeds is not mounted.

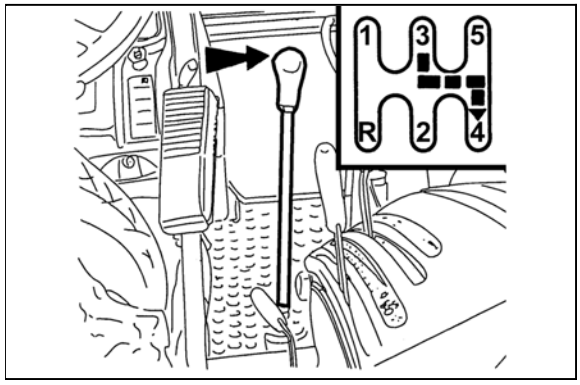


P18N054

Gear shifting from lower to higher gears

Depress the clutch pedal (clutch disengaged). At the same time release the pedal of foot fuel control and shift the applicable higher gear. Release the clutch pedal (clutch is engaged) smoothly and at same time increase engine revolutions.

Note: For increasing the life cycle of synchrones, it is possible to shift from higher to lower gear with the socalled double declutching.

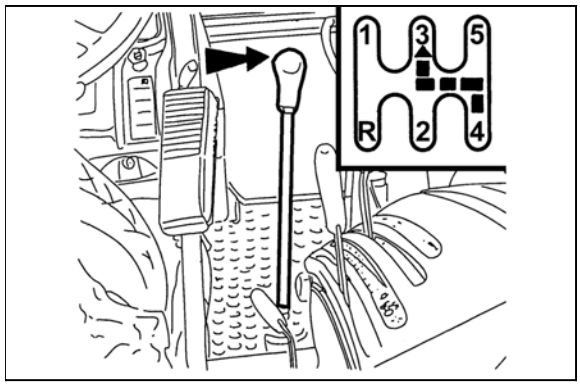


C212

Gear shifting from higher to lower gears

Depress the clutch pedal and shift the gear shifting lever through neutral to lower gear.

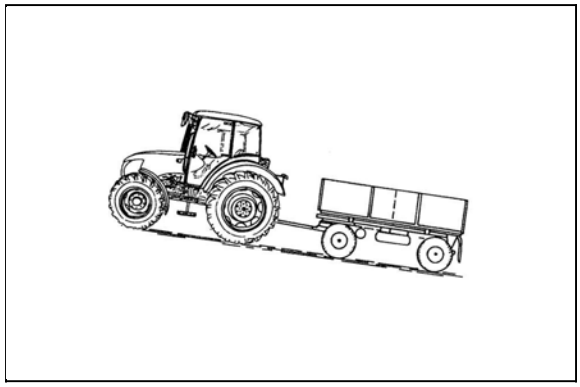
Note: For increasing the life cycle of synchrones, it is possible to shift from higher to lower gear with the socalled double declutching.



C213

Travelling up the slope

Shift gears from higher to lower gears in time when travelling up the slope so as to avoid drop of engine revolutions under 800 rpm and do not allow ride leading to stopping the engine for overload.

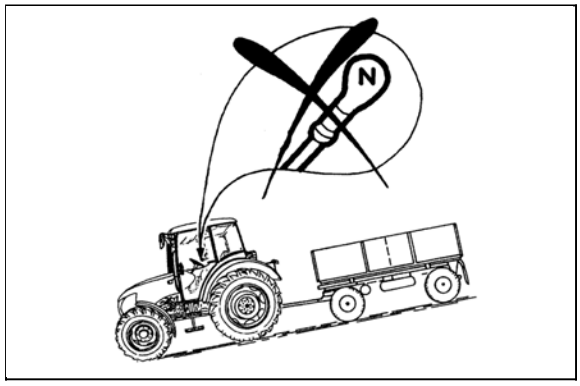


C215

Travelling down the slope

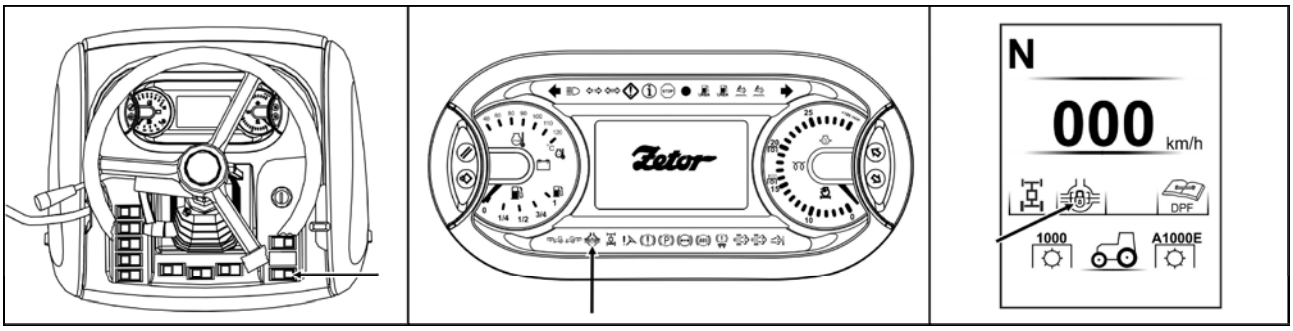
Travelling down the slope without en engaged gear is forbidden. If you are going down a longer slope engage the lower gear the steeper the slope. Engage the lower gear before the slope if possible.

Note: The gear with which you will reliably overcome ascension, it is the one with which you will safely go down.



C216

Differential lock



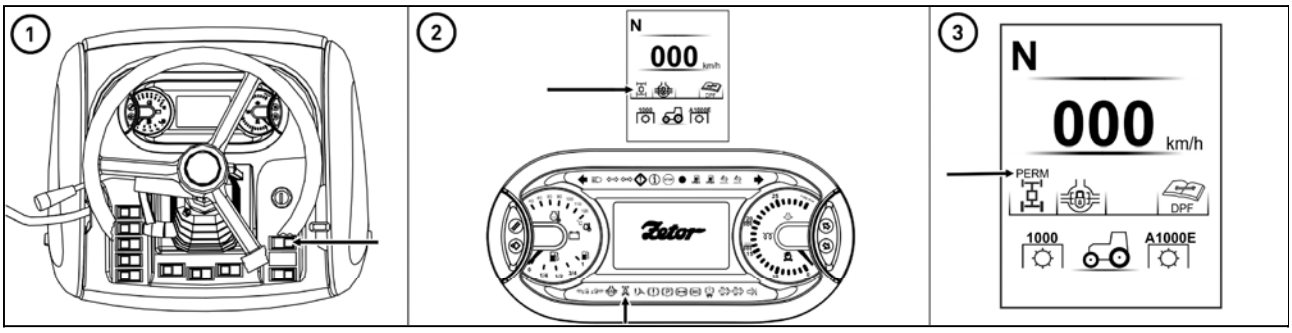
P18N061

Activation of the differential closure is performed by pressing the button on the instrument panel which is, when released, automatically returned into its original position.
Activation of the differential closure is indicated by the activated symbol on the display of the instrument panel, by the activation of the signal lamp on the instrument panel and by the activated symbol on the button.
When one brake pedal is pressed, the differential closure is deactivated.

When the travelling speed of the tractor is higher than 15 km/h, the signal lamp of the differential closure on the display of the instrument panel starts flashing and the differential closure is automatically deactivated.

Do not use the differential closure when driving around a curve.

Control of front driving axle



P18N062

Activation of the drive of the front axle is performed by pressing the button on the panel of the instrument panel (1) which is, when released, automatically returned into its original position.
Activation of the drive of the front axle is indicated by the activated symbol on the display of the instrument panel, by activation of the signal lamp on the instrument panel (2) and by the activated symbol on the button.
Deactivation of the drive of the front axle is performed by pressing the button on the panel of the instrument panel and it is indicated with the deactivated symbol on the display of the instrument panel, by deactivation of the signal lamp on the instrument panel and by the deactivated symbol on the button.
The front driving axle of the tractor after shutdown (tractor is braked, engine is stopped, key in '0' position), is activated.
When the engine is started again, the front driving axle is returned to the mode where it was before the engine was switched off.

During sudden drop of air pressure in the air-pressure system of the tractor, the front driving axle is automatically switched on.

When both brake pedals are pressed, the drive of the front axle is automatically connected.

Driving with engaged front driving axle

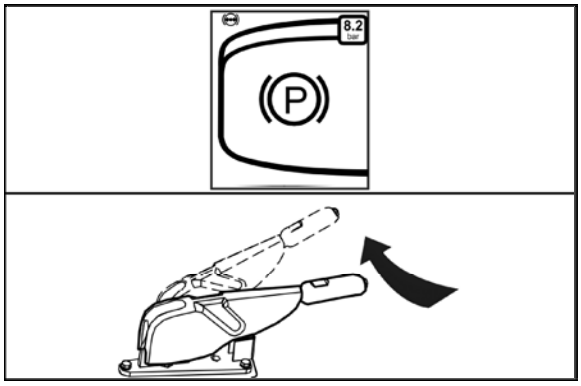
Use the front driving axle when tyre slip of rear wheels occurs to increase the pulling power of the tractor.
Driving with the activated front driving axle is not recommended on the road or on a hard surface (driving with the activated front driving axle causes increased wear of front tyres).

The front driving axle can be permanently activated if a front carried agricultural machine or tool is connected to the tractor. This condition is stated in the instructions for use of the corresponding machine. The maximum permitted speed of these combinations of vehicles is 15 $km.h^{-1}$.

If the travelling speed exceeds 20 km/h, the drive of the front axle is automatically disconnected.
Automatic deactivation of the drive is indicated by flashing of the symbol on the display of the instrument panel (2) and of the symbol on the button.
When the symbols stop flashing, the drive of the front axle is automatically disconnected.
If the travelling speed drops below 20 km/h, the drive of the front axle can be connected by repeated pressing of the button (1).
If the travelling speed is higher than 20 km/h, the drive of the front axle can be connected by repeated pressing of the flashing button.
Press the flashing button for a long time (about 3 s) to activate the drive of the front axle permanently for the whole driving time of the tractor (without automatical deactivation).
The drive of the front axle remains activated even if the travelling speed exceeds 20 km/h.
This state is indicated by the activated symbol **PERM** (3) on the display of the instrument panel.

Manual brake - signalization
If the tractor is not braked by a manual brake, a warning is displayed on a display (a letter **P** in a circle) and at the same time there is a sound signal.
This situation occurs in two cases
a - a tractor unbraked by a manual brake with engine running and a driver leaves its seat
b - a tractor unbraked by a manual brake standing with engine off and the key is shifted in '0' position.

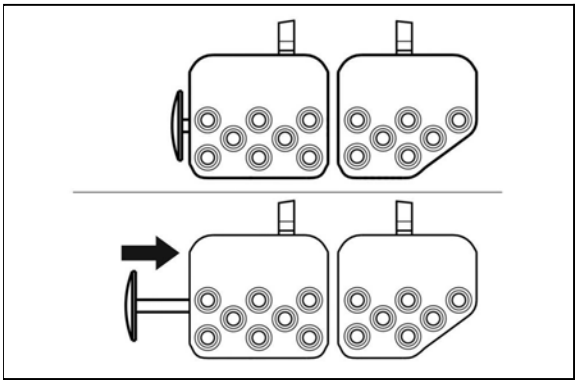
Brake the tractor with a manual brake.



P18N072

Foot brakes

Foot brakes are disc type, wet, controlled hydraulically by the pressure oil from common gearbox filling with strengthening effect of the pump and with automatic pressure equalization in brake circuits.



FHD14N086

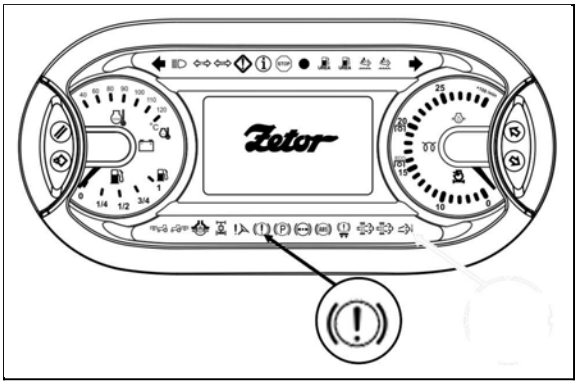
When driving on the road, both pedals must be connected with a latch. Disconnected pedals for braking of the right or left wheel should be used during field work only.

Note: When driving down the steep slope with a trailer or semitrailer equipped with air or hydraulic brakes you must use the foot brake even from the beginning of the slope!

During braking with one brake pedal, the brakes of the trailer are not operating!

Emergency braking

If the pressure in the input hydraulic braking branch does not reach the values providing the specified braking effect, this failure is indicated by activation of the signal lamp on the instrument panel. At zero pressure in the input hydraulic braking branch, the braking effect corresponding to emergency tractor braking is provided.

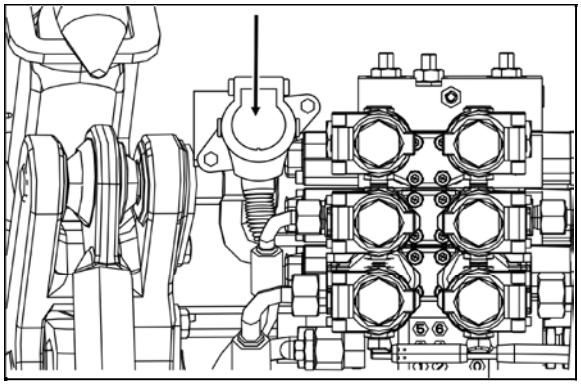


PHS18N050

Brakes of trailers and semi-trailers

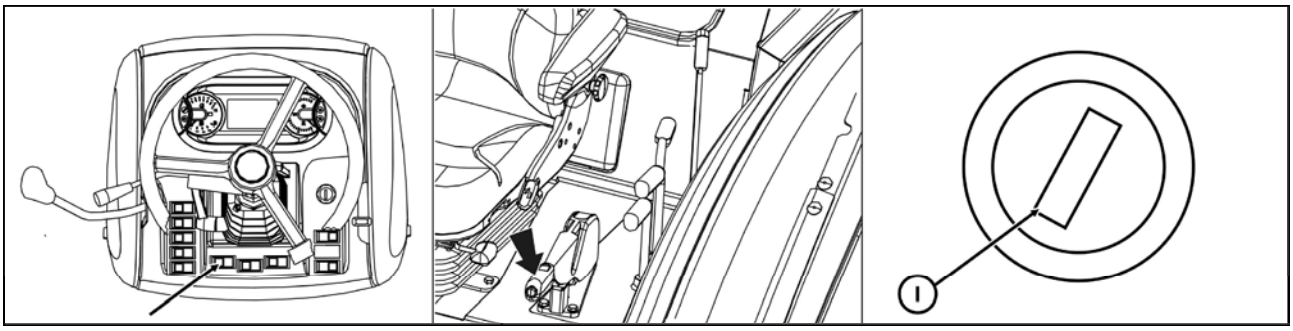
Connection of the ABS system of the trailer or semi-trailer

If the trailer or semi-trailer is equipped with the ABS system, insert the control cable of this system into the socket located in the rear part of the tractor, near outlets of the outer hydraulic circuit.



P18N063

The button for temporary deactivation of brakes of the trailer or semi-trailer



P18N064

Prior to using the button for temporary deactivation of brakes of the trailer or semi-trailer, it is always necessary to provide sufficient space in front of the tractor and behind the connected trailer or semi-trailer where no obstacles or persons will be present for the case that the effect of the parking braking will not be sufficient and the combination of vehicles moves.

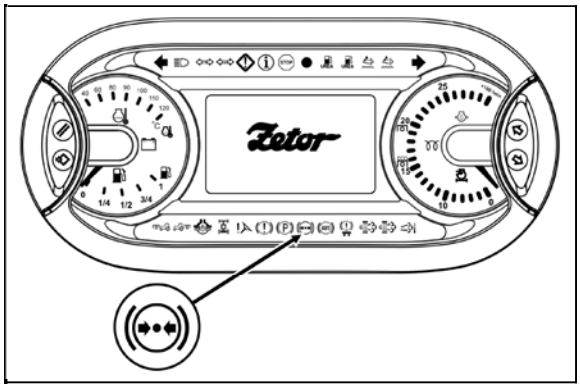
The button for temporary deactivation of brakes of the trailer or semi-trailer can be used by the operator of the tractor with the connected trailer or semi-trailer to make sure that the effect of the parking braking system of the tractor with the connected trailer or semi-trailer when the tractor is braked with the hand brake is sufficient.
If there is a tractor with the connected trailer or semi-trailer which is braked with the hand brake and the key in the switch box is in the position (I), and we press the button for temporary deactivation of brakes of the trailer or semi-trailer, the trailer or semi-trailer is deactivated for the time when the button is pressed (the trailer or semi-trailer does not brake). When the button for temporary deactivation of brakes of the trailer or semi-trailer is released, the brakes of the trailer or semi-trailer are activated (the trailer or semi-trailer brakes).

Only the air brakes are deactivated by the button for temporary deactivation of brakes of the trailer or semi-trailer.

Warning indication of air pressure drop
Decrease of air pressure below 450 kPa is indicated by activation of the red signal lamp on the instrument panel.

The tractor with the braked trailer or semi-trailer during pressure decrease in the air-pressure system below 450 kPa must not continue in operation until increase of air pressure occurs.

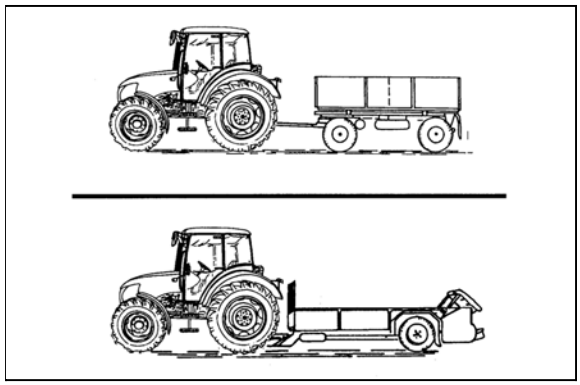
More information in chapter **INSTRUMENT PANEL**.



P18N013

Air brakes of trailers and semi-trailers
Air brakes of trailers (semi-trailers) and brakes of the tractor are designed so that braking effects of both vehicles are synchronised.

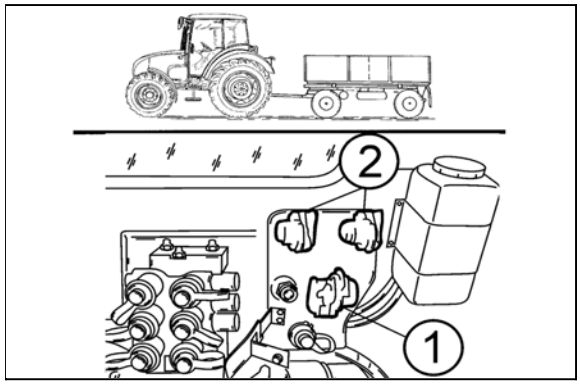
In case of a drop of pressure the transfer valve disables the secondary consumers (differential lock, disengagement of the front driving axle).
When driving with a trailer or semi-trailer the foot brake pedals shall be coupled and secured by a latch!
With braking by one brake pedal the trailer air brakes are not activated.



C222

One-hose and two-hose brakes
1. clutch head of one-hose brakes
2. clutch heads of two-hose brakes

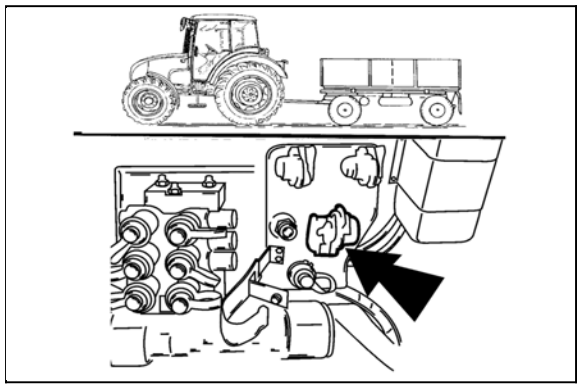
Clutch heads after disconnection or without a connected trailer, articulated trailer must be closed by a valve.



P11NX227

One-hose brakes
Valve is marked with a black colour.
Operating pressure is adjusted with the control valve at 600 ± 20 kPa.

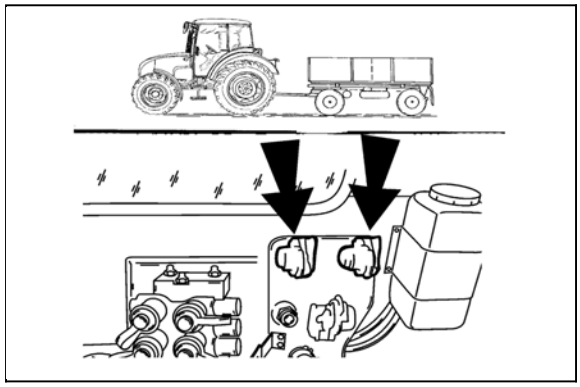
When connecting the trailer (articulated trailer) with a maximum allowed weight approved for the type of tractor at stake is a maximum allowed speed of the set of 30 km per hour! Maximum allowed speed of the set is defined by maximum allowed speed of the slower vehicle of the set.



P11NX228

Two-hose brakes
Operating pressure is adjusted with the control valve at 740 ± 20 kPa. Capacity of air tank is 20 l.
The valve of the left head is labelled in yellow (braking branch), the valve of the right head is labelled in red (filling branch).

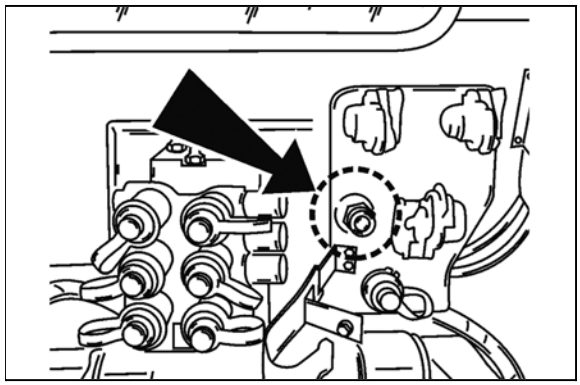
When connecting the trailer (articulated trailer) with a maximum permitted speed approved for the type of tractor, the maximum permitted speed of set is 40 km per hour!
Maximum permitted speed of set is given by maximum permitted speed of the slower vehicle of the set.



P11NX229

Hydraulic brakes of trailers

Connect hydraulic brakes of trailer or articulated trailer to the quick couplings marked by an arrow.
Control of hydraulic brakes of trailers (articulated trailers) and control of tractor brakes is done so that the braking effect of both vehicles is synchronized. Working pressure is derived by oil supplied by non-switched on/switched off gear pump of hydraulics. Brake valve of the trailer is done by the pressure of brake fluid from main braking rollers depending on the force effecting on the brake pedal. The pressure on clutch head must be 12 - 15 MPa with maximum depression of brake pedal. Brake valve of trailer prefers the function of brakes to the function of hydraulics. If there are shocks when foot brake pedals are depressed in the pipeline of hydraulic circuit, it is necessary to bleed the hose from the brake valve to the quick coupling.



P11NE231

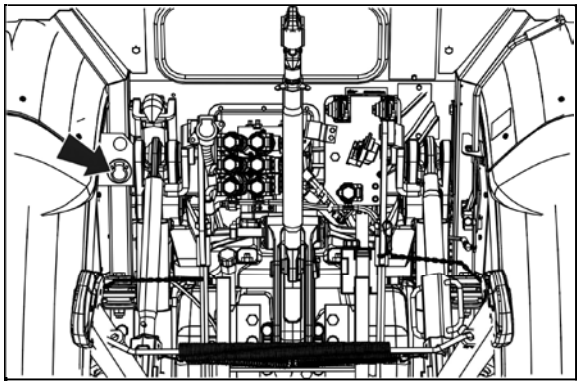
When driving with connected trailer or articulated trailer, the pedals of foot brake must be connected and secured by a valve! When braking with one brake pedal, hydraulic brakes of the trailer are not active.

Connecting and disconnecting quick couplings of trailer hydraulic brakes

When connecting and disconnecting quick couplings, take increased care with regard for remaining oil which remains in the socket or in the plug of quick coupling. For ecological reasons, it is necessary to remove this remaining oil after every disconnection of quick couplings with any textile material.

The socket for connection of the electrical installation of the trailer or semi-trailer

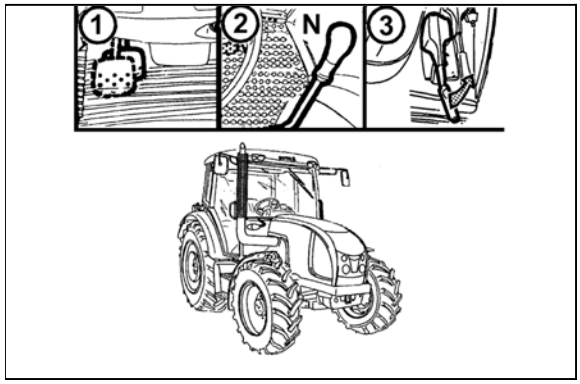
The socket for connection of the electrical installation of the trailer or semi-trailer is located in the rear part of the tractor.
Behind the bracket of the socket there is a conductor enabling control of the hand brake for trailers and semi-trailers with the brake hydraulic system.



P18N066

Stopping the tractor - manual brake
Under normal conditions stop the tractor slowly. Shortly before stopping:

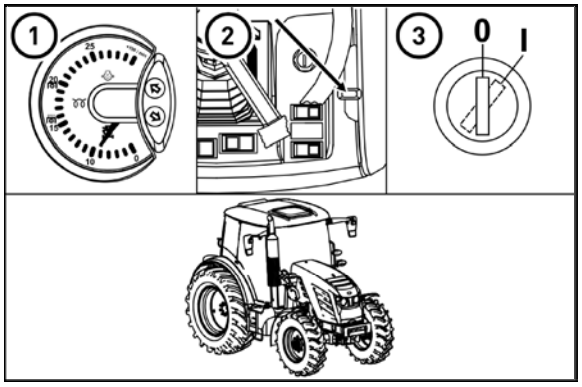
1. Tread on the clutch pedal and brake the tractor by the foot brake.
2. Move the main shifting lever to neutral position.
3. With each stop secure the tractor using the hand brake against spontaneous moving off. Application of the hand brake is indicated by a light on the dashboard.



G232

Stopping the engine
After operation of the tractor when the engine was fully loaded the engine must be cooled.

1. When the engine is started, leave it idling without load for ca. 5 minutes.
2. Move the manual regulation lever to the idling position.
3. When the key is turned from 'I' position to '0' position, the engine is stopped.



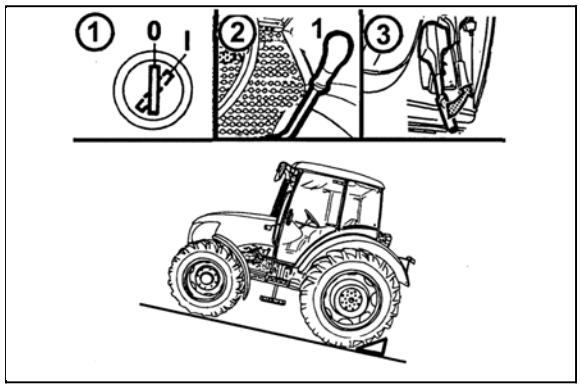
P18N067

Attention! When the engine is switched off, the engine control unit remains active for about 2 minutes because of storage of operation data. During this time the supply of current from the accumulator must not be interrupted. Do not disconnect the accumulator before this time expires.

Leaving the tractor
Before you leave the tractor with safety cabin, do not forget remove the key in position '0' from the ignition box (in positions I and II the key cannot be pulled out).

The tractor shall be secured against spontaneous moving off:
1. ***Engine switched off.***
2. ***1st gear engaged.***
3. ***Hand brake applied.***

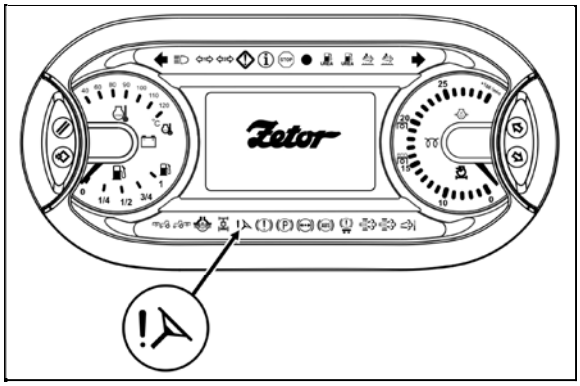
In case that the tractor is standing on a slope, its wheels shall be wedged.
Lock the cabin.



C230

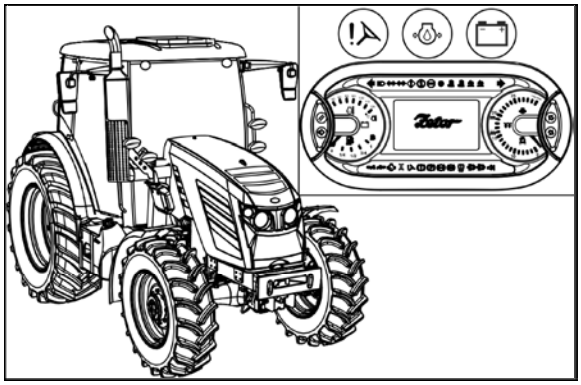
Warning signalization of hydrostatic steering failure
Hydrostatic steering pump failure is with oil pressure drop under 120 kPa behind a pump signalized on a dashboard by an applicable symbol.

Note: When starting the tractor or with low engine revolutions, the control may blink, if it switches off after starting or increasing the revolutions, it is not a failure.



P18N069

Important warnings
In case that indicator of lubrication, battery recharge or a fault of the hydrostatic steering is on during normal operation of the tractor, stop the tractor immediately, stop the engine and contact a specialised repair shop. This prevents a serious damage or breakdown of the tractor.



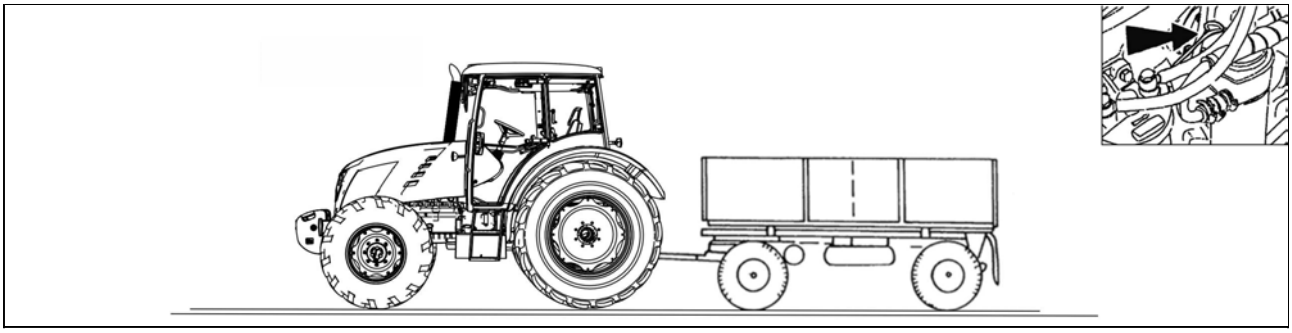
P18N068

Limiting travel speed
With the threat of exceeding the travel speed of 30 km/h, the maximum engine revolutions are automatically reduced at tractors with the maximum travelling speed 30 km/h. This function cannot be switched off.

P18N092

RUNNING-IN THE TRACTOR

General principles of new tractor run-in in first 100 hours of operation

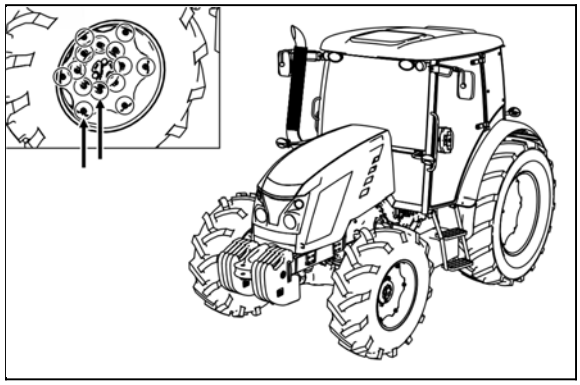


G251

During first 100 hours of operation:
- Load tractor in a normal way, avoid operation with low or maximum engine revolutions
- Avoid operation under partial loading of the engine
- Avoid excessive idle run operation
- Check oil levels in engine often (during this time increased oil consumption is normal)
- Check screw joints in particular in supporting parts of tractor
- Learned insufficiencies to be removed immediately, you will thus prevent subsequent damage or endangered operation
- Keep the same procedure also after tractor complete overhaul

In first 10 hours of operation

- perform run-in in traffic
- tighten fastening nuts of front and rear wheels including connectionbead / rim with prescribed torque



G252

From 100 hours of operation

After drive in completion you can work with tractor without limitations.

Recommended operation revolutions	1,400 - 2,300 rpm
Idle run revolutions	800 ± 25 rpm
Operation oil pressure	0.2 - 0.5 MPa
Oil pressure with idle run revolutions	min. 0.05 MPa
Max. coolant temperature	106°C

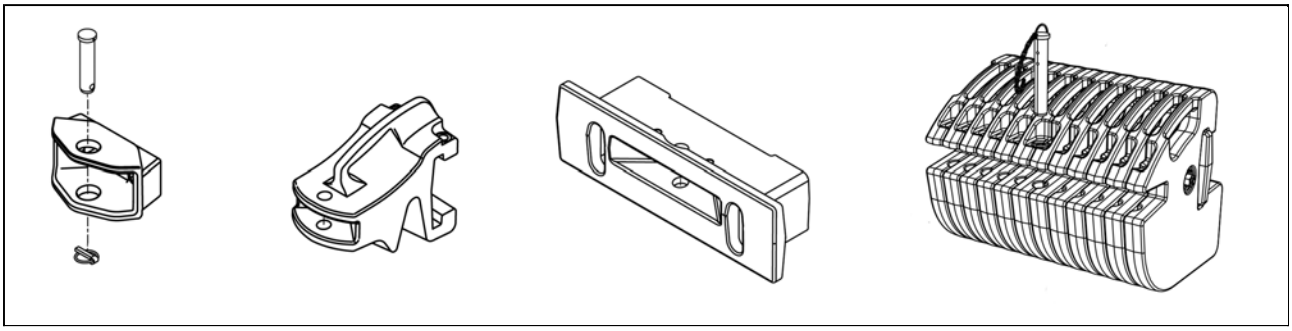
E256

NOTES

Before a drive make sure that the technical condition ensures safe operation of the tractor. In case that a trailer or implement is coupled, verify its coupling and proper fixing of the load. Never get out of the tractor to couple a trailer yourself. Pay also attention to your assistant.

Front hook

Depending on the tractor equipment, the front hitch is available in various versions.
For fixing the tow bar or tow rope to the front hitch always use the original pin which must be secured against extrusion with original lock.

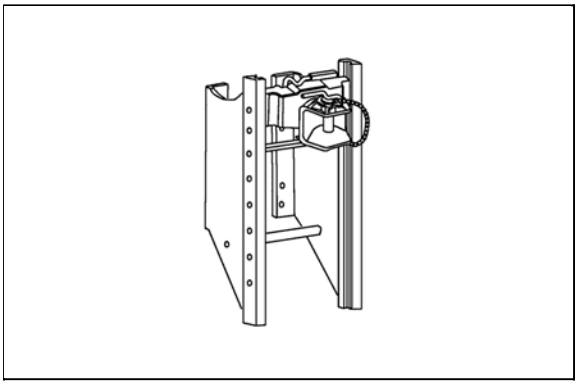


P18N095

Used only for towing tractor without connected trailer or a different connected machinery.

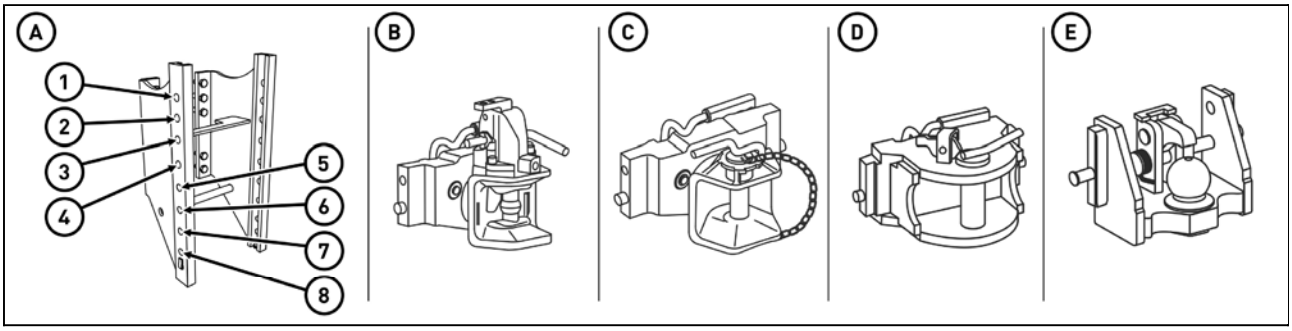
Use a drawbar or a cable for releasing tractor. Never use chains! The possibility of fatal injury if a chain pulls apart!
It is forbidden to use tractor axles (individual travelling wheels) such as reeling jack when rescuing a sunken tractor.

Multistage adjustable suspension
Serves for connecting double axle or lighter single-axle trailers. Guidance nozzle is vertically adjustable. When working with various agricultural machines it is necessary to adjust the suspension vertically or demount where necessary.



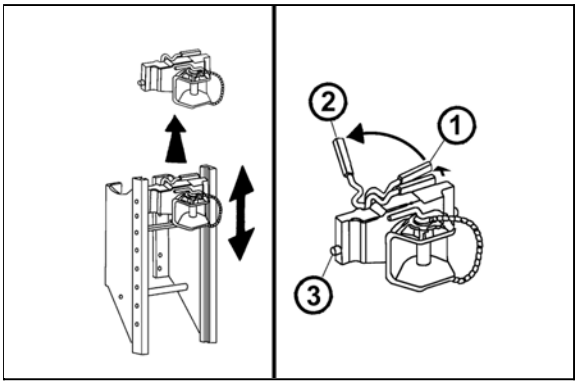
E302

Height adjustment and disassembly of the CBM stage hitch
A - Multi-level hitch bracket
B - The hitch (B) can be adjusted in the range of holes 3-8 see Figure (A)
C - The hitch (C) can be adjusted in the range of holes 3-8 see Figure (A)
D - The hitch (D) can be adjusted in the range of holes 4-8 see Figure (A)
E - The hitch (E) can be adjusted in the range of holes 7-8 see Figure (A)



závěsy_2

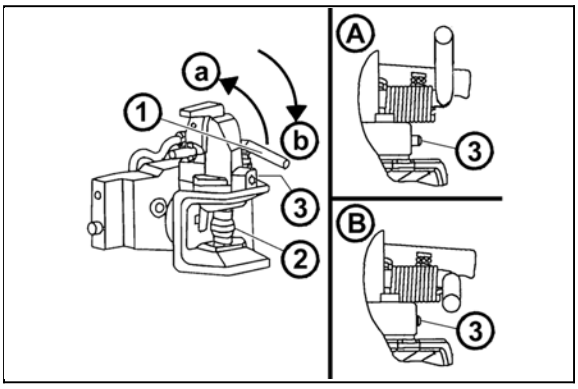
By moving the control lever in the arrow direction to position (1) you will release the lever and by moving it subsequently to position (2) you will retract the locking pins (3). Now, the stage hitch is released and you can adjust its height or disassemble it. When you release the lever from position (2), the locking pins (3) will extend and the lever will automatically return to the initial position.



D202

Automatic mouth of the CBM stage hitch
When the lever (1) is moved in the direction of the arrow (a), the pin (2) is retracted to the upper position, which is signalled by the extended indicator (3), see fig. (A). When the mouth gets onto the shaft lug, the pin will automatically slide into the lug of the connected trailer. You can lower the hitch pin (2) manually by moving the lever (1) in the arrow (b) direction. The insertion of the pin is signalled by the retracted indicator (3), see fig. (B).

After the attachment of the trailer you must always check whether the indicator (3) is retracted in accordance with fig. (B).

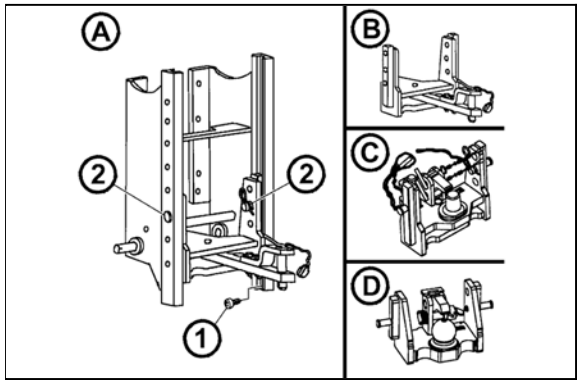


E304

Modular system of hitches for trailers and semi-trailers
Module types:
Fig. (B) - Swinging draw-bar console
Fig. (C) - Swinging draw-bar console with a fixed pin
Fig. (D) - Console with a ø 80 ball

Disassembly, fig. (A):
1 - Remove the locking screw (1).
2 - Secure the module against sinking, release and disassemble the pins (2).
3 - Slide the module out of the console downwards.

Do the assembly in the reverse order.

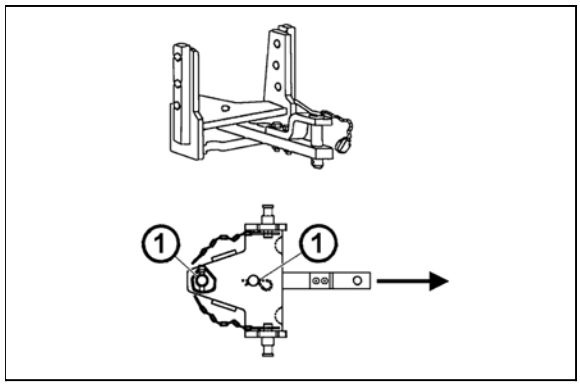


D204

Swinging draw-bar console module
The swinging draw-bar console module is located in the stage hitch console.

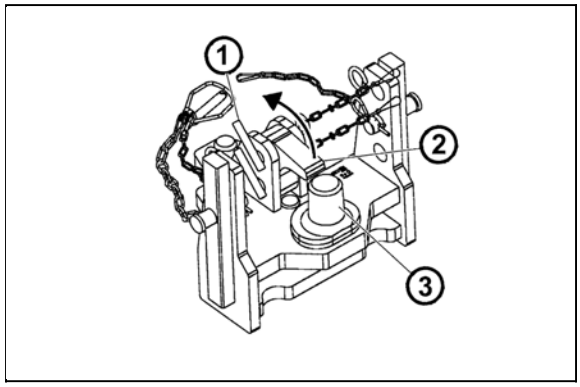
Swinging draw-bar
Disassembly:
1 - Release and remove the pins (1).
2 - Slide the swinging draw-bar out in the arrow direction.

Do the assembly in the reverse order.



D205

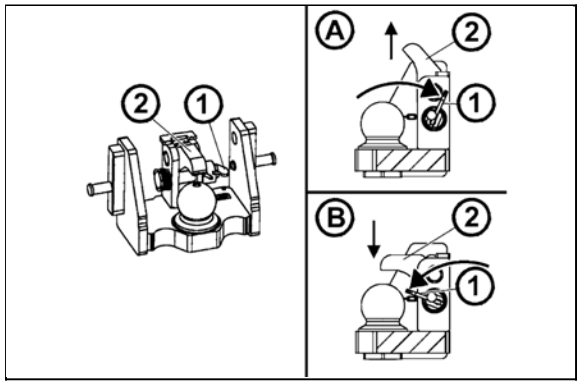
Swinging draw-bar console with a fixed pin module
Perform the assembly and disassembly of the swinging draw-bar in accordance with the 'Swinging draw-bar' chapter.
Connecting the shaft lug to the fixed pin (3):
1 - Release and remove the pin (1).
2 - Lift the locking wedge (2) in the arrow direction.
3 - Connect the shaft lug to the fixed pin (3):
4 - Return the locking wedge (2) to the original position and secure it with the pin (1).



D206

Console with a ø 80 ball module

The console with a ø 80 ball is only used to connect semi-trailers with a hitching device designed for a ø 80 ball.
Releasing the hitch, fig. (A):
By moving the lever (1) in the arrow direction you will remove the locking wedge (2).
Locking the hitch, fig. (B):
By moving the lever (1) in the arrow direction you will retract the locking wedge (2).

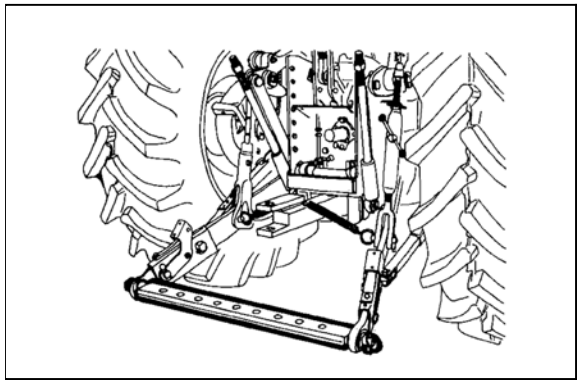


D207

Towing bar

Height of the towing bar can be adjusted within entire extent of the adjustable height.
Only those farming mechanisms can be attached to the towing bar that load it permanently downwards.

When working with the towing bar dismount the multi-level hitch and pivoted pull bar.



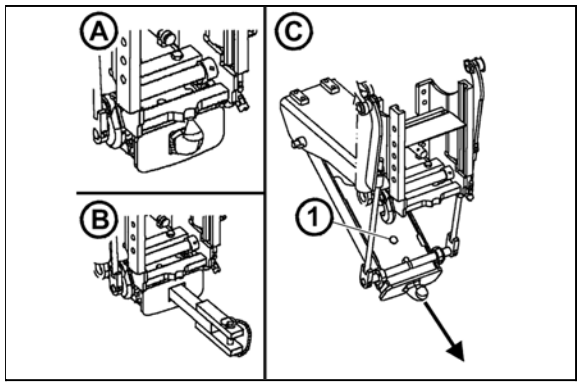
E312

Hitch for a single-axle CBM semi-trailer

The hitch for a single-axle trailer can be equipped with a hook (A) that is designed for coupling of single-axle trailers having poles according to the standard ISO 5692 (inner diameter of the eye 50 mm and height of the eye 30 mm) or pivoted pull bar (B).
The coupling hook is lowered and lifted hydraulically using length-adjustable telescopic pull rods.

Replacement of the hook for the pivoted pull bar (C):
1. Lower the hitch.
2. Unlock and remove the pin (1).
3. Remove the hook in direction of the arrow.

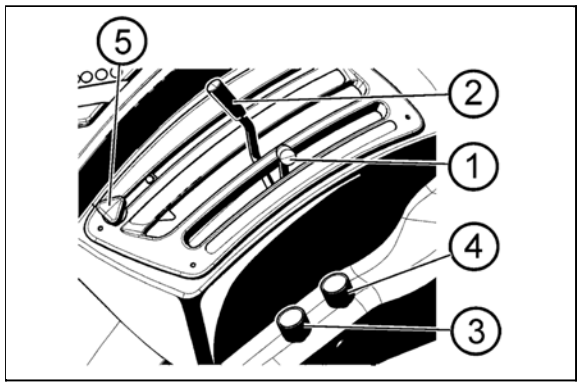
The pivoted pull bar is mounted in reverse order.



D208

Coupling of a single-axle trailer

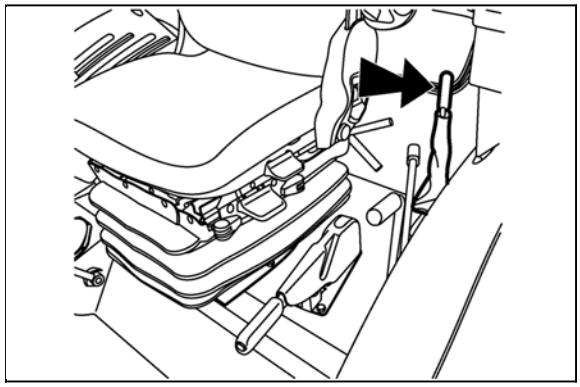
Coupling can be performed using the hydraulic circuit lever (2). The hitch hook with the trailer pole eye is lifted hydraulically to the position where the supporting hooks click under pins of the hitch carrier.
The lifting arms of the hydraulic device then shall be lowered to lock the supporting hooks onto the carrier pins; the telescopic pull rods shall not be under any tension.



P+11N003

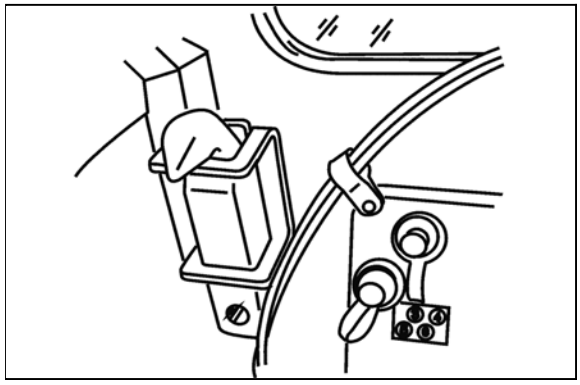
Uncoupling of a single-axle trailer

This can be performed after slight lifting of the hitch by the inner hydraulic circuit lever.
Move the control lever backwards.
The lever is located on the left side of the driver's seat.
Lower the hitch using the inner hydraulic circuit lever and disconnect the trailer pole eye.



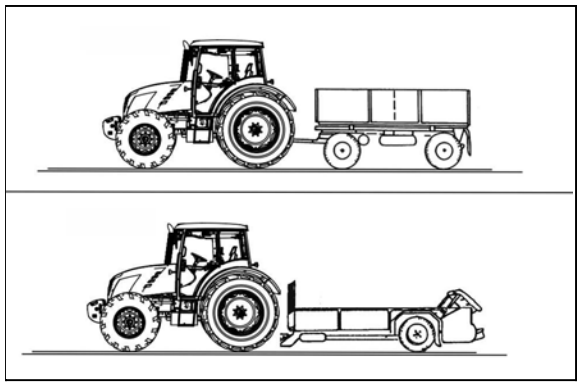
E311

Hook of the mounting for a single-axle trailer
The hook of the mounting for a single-axle trailer is located in the bracket on the left-hand side of the cabin back wall.



G313

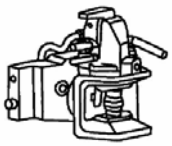
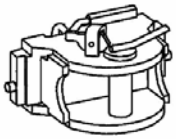
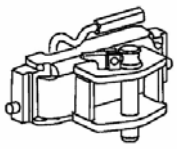
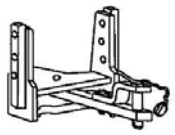
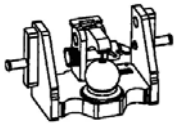
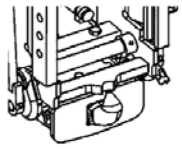
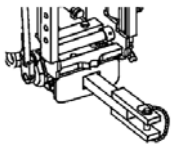
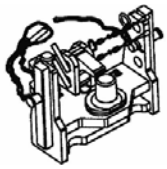
Coupling with a trailer or semi-trailer
The tractor can be coupled only with a tractor trailer after matching of operating brakes of the tractor and pneumatic or hydraulic brakes of the trailer.
In case of coupling with a semi-trailer the static loading of the rear axle of the tractor may not exceed the maximum permitted value.



G900a

TRANSPORT USE

Maximum permissible vertical static load of hitches for trailers and semi-trailers

Hitch type	Allowed vertical static load	Ø of hitch pin	Hitch type	Allowed vertical static load	Ø of hitch pin
	2,000 kg	31 mm		2,000 kg	38 mm
CBM GTF30015			CBM GTF30014		
	2,000 kg	43 mm		1,500 kg	28 mm
CBM Y314SL			CBM X314SL		
	736 kg	31 mm		2,000 kg	80 mm
CBM GTB30003			CBM GTS80001		
	2,000 kg	47 mm		1,200 kg	31 mm
CBM GTU001			CBM GTB30020		
	Fixed pin 2,000 kg	44.5 mm			
CBM GTP001					

The maximum weight of the aggregated braked trailer or semi-trailer must not exceed the value specified on the tractor data plate and the value specified in the vehicle registration book. The maximum allowed speed of the combination of vehicles is connected with the maximum allowed speed of the slower vehicle of the combination.
Hitch X314SL max. trailer weight 6,000 kg
Hitch GTB30003 max. trailer weight 7,500 kg
Hitch GTB30020 max. trailer weight 10,500 kg
Hitch Y314SL max. trailer weight 14,000 kg
Hitch GTP001 max. trailer weight 20,000 kg

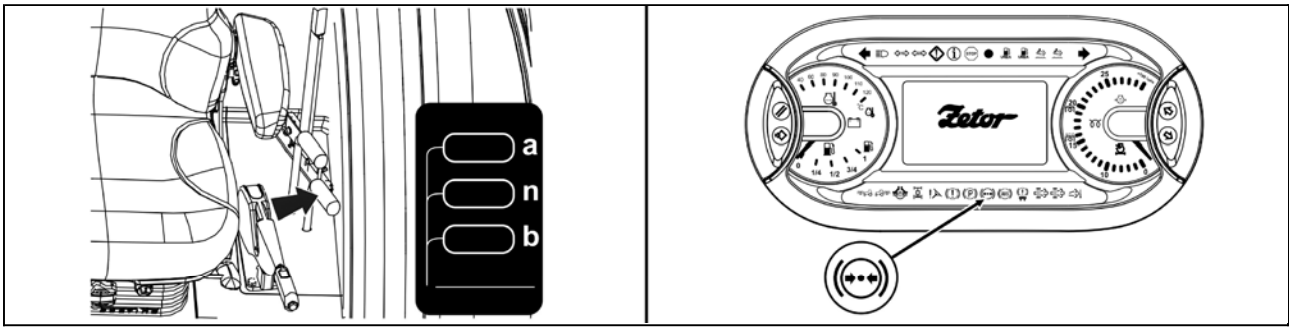
Work with PTO shaft

Before attaching of an implement, driven by means of the tractor PTO shaft, check the speed compatibility of both, it means tractor PTO shaft and implement driven shaft (540 rpm or 1,000 rpm). Different PTO speed values may cause serious damages and injuries.

Within any repair or modification on the implement powered by PTO or within any operation on terrain in its working range the tractor engine ought to be switched off (ignition key in position 0).

When working with the PTO shaft pay attention to proper attachment of all covers.
When the work is finished, always mount the cover of the PTO shaft back.
Connection and disconnection of the transmission shaft of the aggregated machine to the rear PTO shaft of the tractor must always be performed with the stopped engine, deactivated PTO shaft and with the gear shift lever of dependent and independent revolutions of the PTO shaft in the position 'N' - neutral!

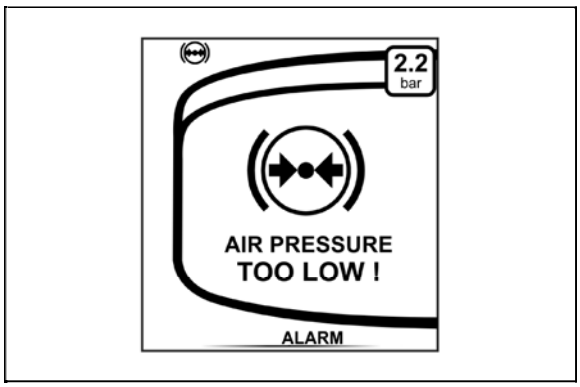
The gear shift lever of dependent and independent revolutions - low air pressure in the air-pressure system of the tractor



P18N021

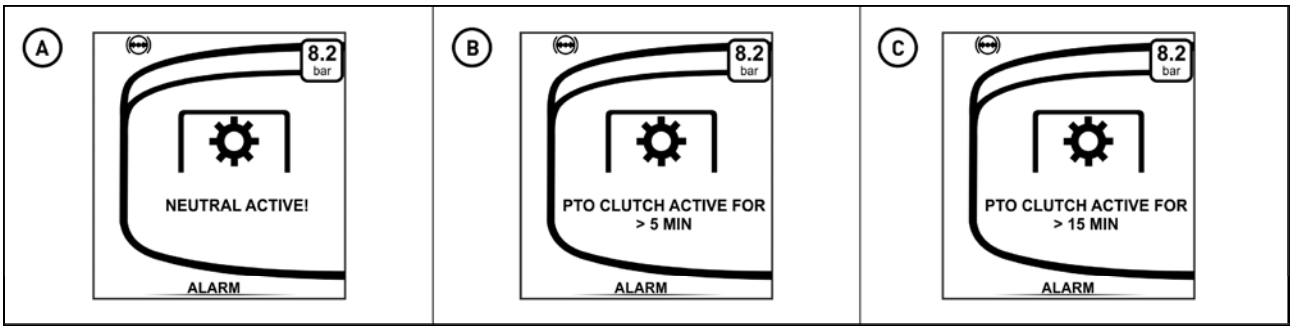
If there is a low air pressure in the air-pressure system of the tractor, the red signal lamp of the low air pressure on the instrument panel is activated and the gear shift lever of dependent and independent revolutions of the rear PTO shaft must always be in the neutral position (n).
If there is a low air pressure in the air-pressure system of the tractor and the gear shift lever of dependent and independent revolutions is moved from the position (n) to the position (a), an audio signal is generated and the engine is shut off.
If the gear shift lever of dependent and independent revolutions is in the position (a) and the air pressure in the air-pressure system of the tractor drops, the red signal lamp of the low air pressure on the instrument panel is activated, an audio signal is generated and the engine is shut off.

The decrease of air pressure in the air-pressure system of the tractor is indicated by a short-time activation of a warning on the display of the instrument panel and with an acoustic signal.
More information in chapter **INSTRUMENT PANEL**.



P18N100

Rear PTO shaft - warning

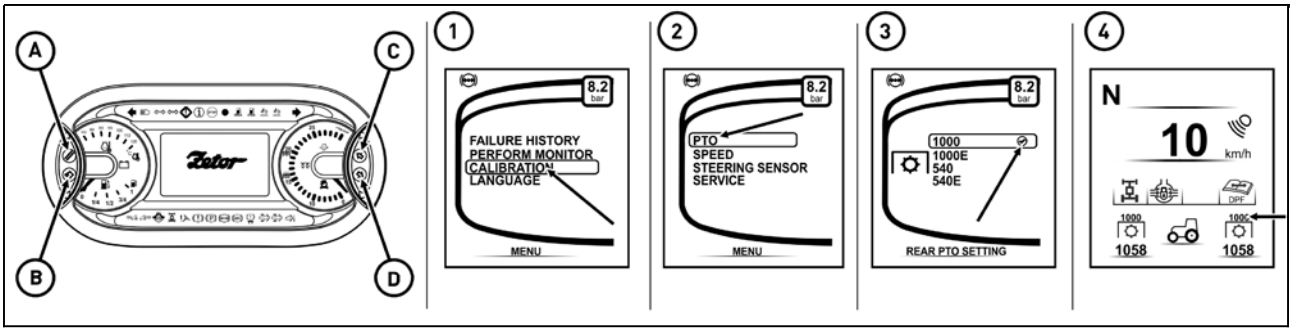


P18N080

In connection with the operation of the rear PTO shaft, the following warnings are shown on the display of the instrument panel:

A - warning - when the rear PTO shaft is activated by the button and the gear shift lever of dependent and independent revolutions is in the neutral position, use the lever to shift independent revolutions of the rear PTO shaft and use the button to restart the rear PTO shaft
B - warning - when the rear PTO shaft is deactivated by the button, the gear shift lever of dependent and independent revolutions remained in the position of independent revolutions of the rear PTO shaft longer than 5 minutes, move the lever to the neutral position
C - defect indication - when the rear PTO shaft is deactivated by the button and the gear shift lever of dependent and independent revolutions remained in the position of independent revolutions of the rear PTO shaft longer than 15 minutes, this state will be recorded in the listing of defects.

Setting of the display of the rear PTO shaft speed



P18N014

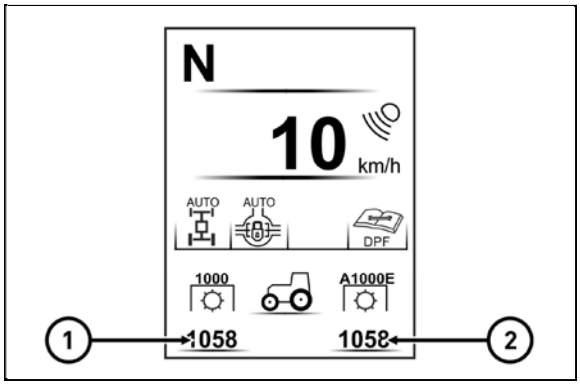
By pressing the button (B) enter the service menu
1 - Use the buttons (C) and (D) to select the item CALIBRATION indicated with the arrow (1) and by pressing the button (B) (ENTER) you enter the CALIBRATION menu.
2 - Use the buttons (B) and (C) to select the item SETTING OF PTO REVOLUTIONS indicated with the arrow (2) and by pressing the button (B) (ENTER) you enter the next screen.
3 - Screen for setting the rear PTO shaft revolutions. Use the buttons (C) and (D) to select the corresponding revolutions of the rear PTO shaft which will be used. Confirm the setting with the button (B) (ENTER). The selected revolutions are indicated by the symbol see arrow (3). By pressing the button (A) repeatedly you exit the menu to the main screen.
4 - The selected revolutions of the rear PTO shaft are shown on the display of the instrument panel - see arrow (4).

The correct shift PTO speed must be chosen for proper display of the PTO speed!

The setting is only used for display of data, shifting of the corresponding gear must be performed with the lever depending on the combination of revolutions of the PTO shaft the tractor is equipped with.

Display of revolutions of PTO shafts

(1) - In case that the tractor is equipped with the front PTO shaft, the revolutions of the front PTO shaft are shown on the display of the instrument panel after switching the front PTO shaft with the button on the right column of the cabin and rotation of the front PTO shaft.
(2) - If independent revolutions of the rear PTO are shifted, the revolutions of the rear PTO shaft are shown on the display of the instrument panel after switching the rear PTO shaft with the button on the right column of the cabin and rotation of the rear PTO shaft.

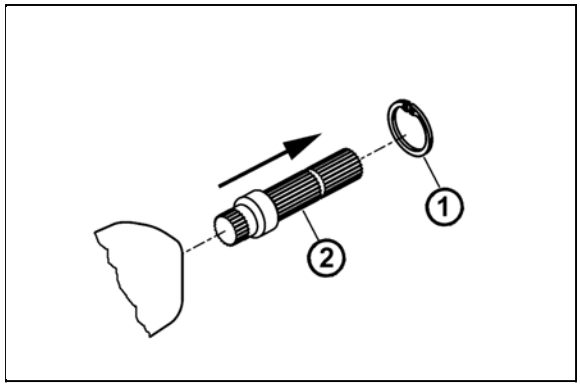


P18N015

If dependent revolutions of the rear PTO shaft are shifted, the revolutions are not shown on the display of the instrument panel.

Replaceable end points of rear PTO shaft

The tractor is equipped with six or twenty-one splined replaceable end point of rear PTO shaft.
Replacement procedure:
1. Use safety ring pliers to demount a safety ring (1)
2. Remove replaceable end point by pulling in the direction of an arrow (2)
3. Mount the end point in an opposite way, pay increased attention to the mounting of the safety ring (1)

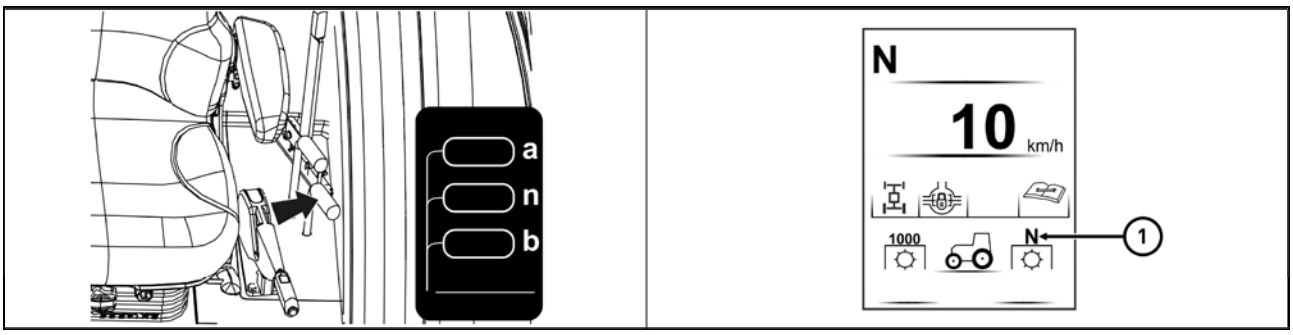


E357

Replacement of the terminal shall be performed when the engine is stopped.
Rpm of the output shaft and terminal type shall be chosen depending on the prescribed rpm of the coupled mechanism.
Shifting 540 and 1,000 or 540E min^{-1} is possible regardless to the number of splines of the installed terminal.

Control elements of PTO shafts

The rear PTO shaft - the gear shift lever of dependent and independent revolutions



P18N016

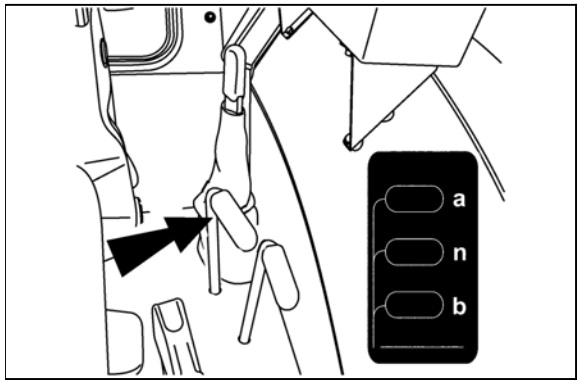
Shifting is performed when the tractor is idling and when the clutch pedal is pressed.

a - independent revolutions of the PTO shaft
(the number of revolutions depends on the number of engine revolutions)
n - neutral position
it is used to facilitate the connection of the cardan shaft of the agricultural machine. The end piece of the rear PTO shaft can be freely rotated.
b - dependent revolutions of the PTO shaft
(number and sense of revolutions depends on the shifted gear and position of the reversing lever)

The neutral position of the gear shift lever of dependent and independent revolutions is indicated with the

The rear PTO shaft - the gear shift lever of revolutions of the PTO shaft

The tractor can be equipped with the double combination of revolutions of the rear PTO shaft:
540/540E or 540/1000 revolutions
a - 1000 (540E) rpm
n - neutral position
b - 540 rpm
Shifting is performed when the tractor is not going and when the clutch pedal is pressed by pulling of pressing the shift lever of revolutions.



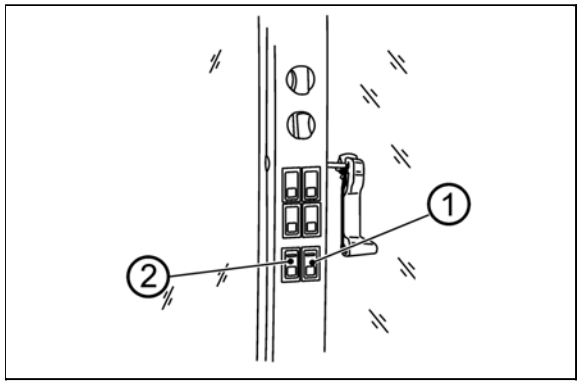
G153a

⚠ ***The combination of revolutions of the rear PTO shaft of the tractor is shown on the label on the left side of the tractor cabin front window.***

The buttons for activation of PTO shafts

1 - button for activation of the rear PTO shaft
2 - button for activation of the front PTO shaft

⚠ ***When the engine is switched off (the key in the switch box is in the position 0), the PTO shafts are deactivated as well. If necessary, at the next start of the engine the PTO shafts must be reactivated in the corresponding mode.***



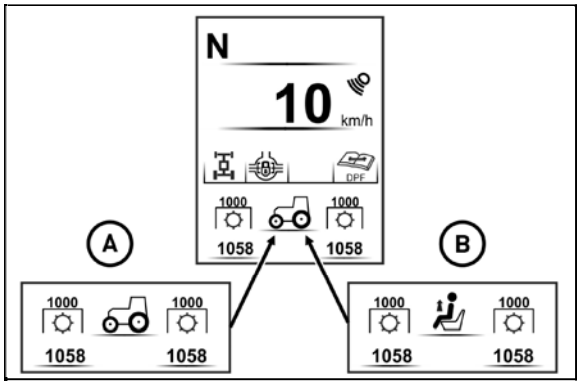
P18N017

Working modes of PTO shafts

The tractor is equipped with two working modes of PTO shafts. The selected mode is indicated on the display of the instrument panel.

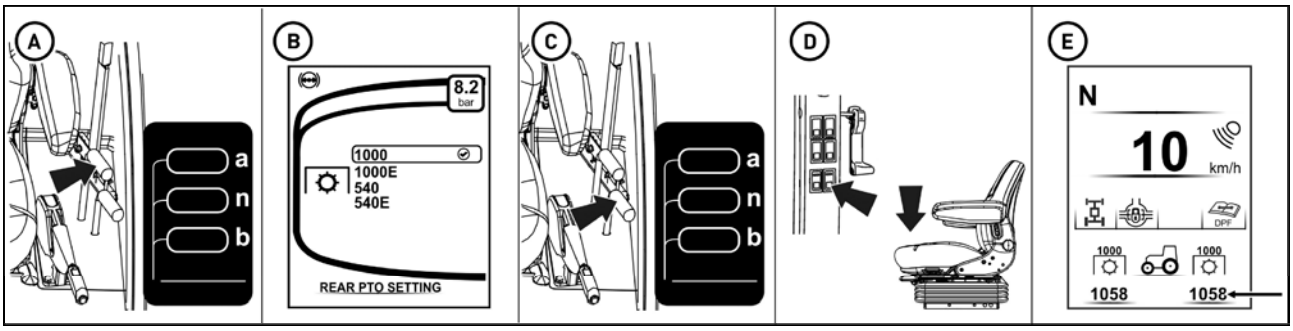
A - common working mode with the PTO shaft
the PTO shaft is rotated regardless the tractor is going or not; the operator must sit on the driver's seat

B - the stationary working mode with the PTO shaft - it is used when the tractor is used as a stationary drive unit, e.g. for the drive of chippers, etc.
the PTO shaft is rotated if the tractor is not going and it is braked with the hand brake; the operator must not sit on the driver's seat



P18N018

Activation of the rear PTO shaft - independent revolutions - common working mode



P18N019

The number of PTO shaft revolutions depends on the number of engine revolutions.

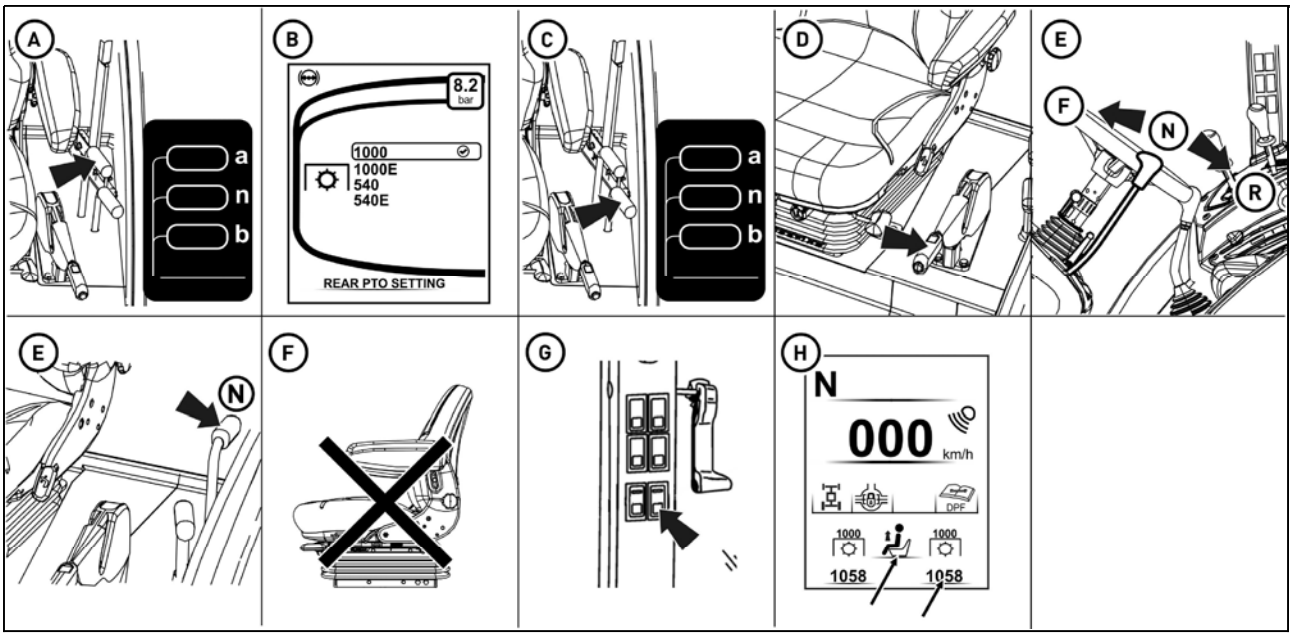
When the tractor is not going with its engine running:
A - When the clutch pedal is pressed, use the gear shift lever to select suitable speed of the rear PTO shaft. Release the clutch pedal.
B - Set proper display of revolutions on the display of the instrument panel according to selected revolutions of the rear PTO shaft.
C - When the clutch pedal is pressed, move the gear shift lever of dependent and independent revolutions to the upper position (a) to shift independent revolutions of the rear PTO shaft. Release the clutch pedal.
D - Press the button on the right pillar of the cabin for at least one second to activate the rear PTO shaft.

⚠ ***The operator must sit on the driver's seat when pressing the button.***
E - Rotation of the rear PTO shaft is indicated by displaying the number of revolutions on the display of the instrument panel.

⚠ ***Press the button on the right column of the cabin for interruption of torque transmission from the rear PTO shaft.***

⚠ ***If the rear PTO shaft is active and the operator leaves the driver's seat for more than five seconds, an audio signal is generated and the rear PTO shaft is deactivated. Reactivation is performed when the operator sits on the driver's seat by pressing the button on the right column of the cabin.***

Activation of the rear PTO shaft - independent revolutions - stationary working mode



P18N082

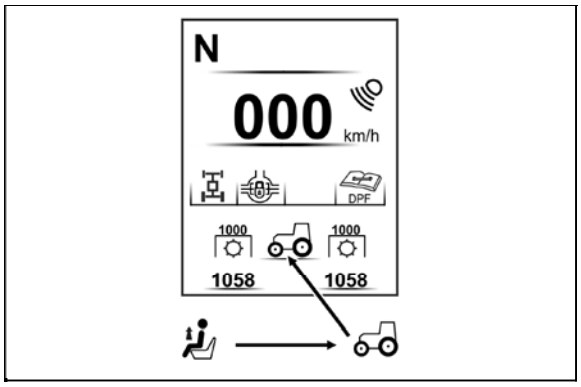
The number of PTO shaft revolutions depends on the number of engine revolutions.

When the tractor is not going with its engine running:
A - When the clutch pedal is pressed, use the gear shift lever to select suitable speed of the rear PTO shaft. Release the clutch pedal.
B - Set proper display of revolutions on the display of the instrument panel according to selected revolutions of the rear PTO shaft.
C - When the clutch pedal is pressed, move the gear shift lever of dependent and independent revolutions to the upper position (a) to shift independent revolutions of the rear PTO shaft. Release the clutch pedal.
D - Brake the tractor with the hand brake.
E - If the tractor is equipped with the reversal system, move the gear shift lever to the neutral position.
- If the tractor is equipped with the reductor of crawling speeds, move the lever of the reductor of crawling speeds to the neutral position.
F - Leave the driver's seat.
G - Press the button on the right pillar of the cabin for at least one second to activate the rear PTO shaft.

The operator must not sit on the driver's seat when pressing the button.
H - Rotation of the rear PTO shaft and the working mode of the rear PTO shaft are indicated by displaying the number of revolutions and the pictogram of the working mode on the display of the instrument panel.

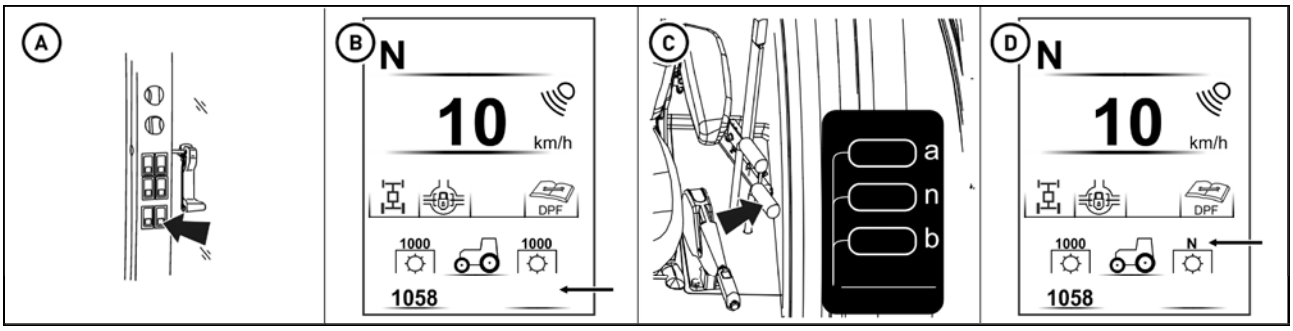
Press the button on the right column of the cabin for interruption of torque transmission from the rear PTO shaft.

If the operator, when working with the rear PTO shaft in the stationary working mode, sits on the driver's seat, the working mode automatically changes to the common mode; this state is indicated by a changed pictogram on the instrument panel.
If the operator, when working with the rear PTO shaft in the stationary working mode, moves the tractor, an audio signal is generated and the rear PTO shaft is deactivated.



P18N023

Deactivation of the rear PTO shaft - independent revolutions

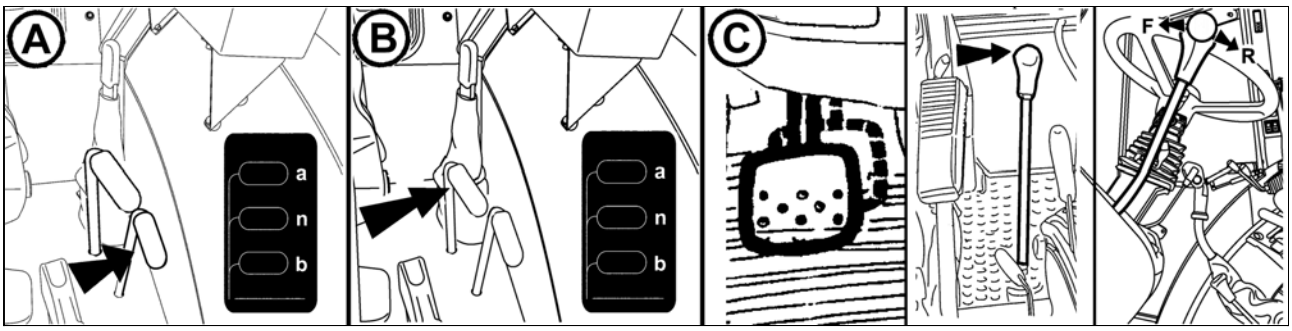


P18N020

A - Press the button on the right column of the cabin to deactivate the rear PTO shaft.
B - This state is indicated by the fact that the revolutions of the rear PTO shaft are not shown on the display of the instrument panel.
C - When the clutch pedal is pressed, move the gear shift lever of dependent and independent revolutions to the middle neutral position (n).
D - This state is indicated by the fact that the selected revolutions of the rear PTO shaft are not shown on the display of the instrument panel, but the symbol **N** is displayed.

When the rear PTO shaft is deactivated by the button on the right column of the cabin, the gear shift lever of dependent and independent revolutions must always be moved to the middle neutral position (n).

Activation of the rear PTO shaft - dependent revolutions - common working mode



p15n037

Number and sense of revolutions depends on the shifted gear and position of the reversing lever. In the mode dependent revolutions, there is no influence of the position of the reduction lever on the number of revolutions of the rear PTO.

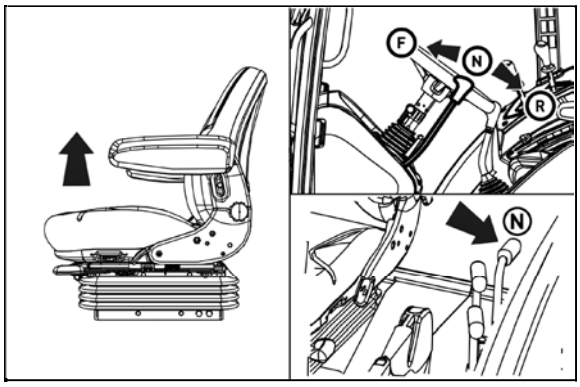
When the tractor is not going with its engine running:

The operator must sit on the driver's seat.
A - When the clutch pedal is pressed, move the gear shift lever of dependent and independent revolutions to the lower position (b) to shift dependent revolutions of the rear PTO shaft.
B - When the clutch pedal is pressed, use the gear shift lever to select suitable speed of the rear PTO shaft.
C - When the clutch pedal is pushed down, use the main gear shift to shift a gear and the reversion level to select the driving direction. In the reduction lever is not in the neutral position, when the tractor starts driving, the rear PTO shaft starts to rotate as well.

Use the clutch pedal for short-term interruption of torque transmission from the rear PTO shaft.

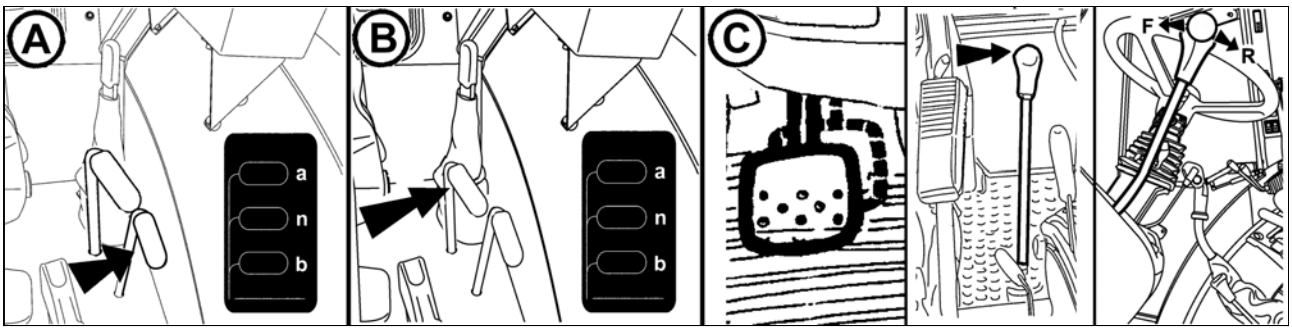
If the operator leaves the driver's seat and the reversing lever or the gear shift lever for crawling speeds (according to the tractor equipment) is not in the neutral position (n), an uninterrupted acoustic signal will be generated.

If the operator leaves the driver's seat and the reversing lever or the gear shift lever for crawling speeds (according to the tractor equipment) is in the neutral position (n), an uninterrupted acoustic signal will be generated and <u>the engine will be shut down</u>.



P18N024

Activation of the rear PTO shaft - dependent revolutions - stationary working mode



p15n037

Number and sense of revolutions depends on the shifted gear and position of the reversing lever. The reduction lever must be in the neutral position.

When the tractor is not going with its engine running:

The operator must not sit on the driver's seat.
A - When the clutch pedal is pressed, move the gear shift lever of dependent and independent revolutions to the lower position (b) to shift dependent revolutions of the rear PTO shaft.
B - When the clutch pedal is pressed, use the gear shift lever to select suitable speed of the rear PTO shaft.
C - When the clutch pedal is pushed down, use the main gear shift to shift a gear and the reversion level to select the driving direction. When the clutch pedal is released, the rear PTO shaft starts to rotate.

If the operator, when working with the rear PTO shaft in the stationary working mode, sits on the driver's seat, the working mode automatically changes to the common mode.

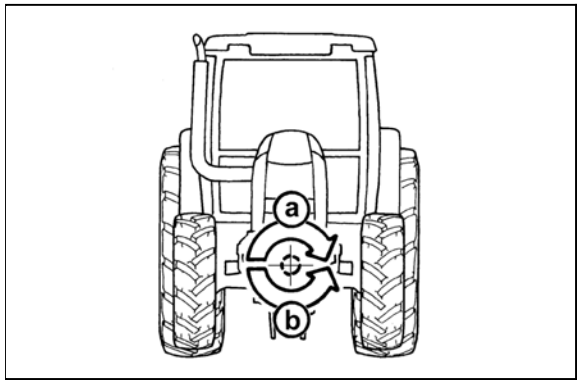
If the tractor for any reason moves or the hand brake is released when working with the rear PTO shaft in the stationary working mode, an uninterrupted audio signal will be generated and the engine will be shut down.

Front PTO shaft

Front PTO shaft is equipped with a solid six or twenty-one splined end point and it comes only in design of 1,000 revolutions.

Tractor may be equipped with front PTO shaft with varied direction of spinning:

a -	In compliance with the direction of engine revolutions (standard)
b -	Against the direction of engine revolutions (*on request)



F_02_64

Activation of the front PTO shaft - common working mode

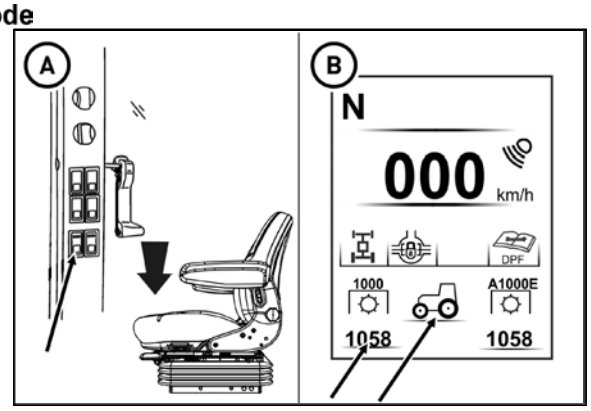
The number of PTO shaft revolutions depends on the number of engine revolutions.

When the tractor is not going with its engine running:

A - Press the button on the right pillar of the cabin for at least one second to activate the front PTO shaft.

The operator must sit on the driver's seat when pressing the button.

B - Rotation of the front PTO shaft is indicated by displaying the number of revolutions on the display of the instrument panel. The working mode is indicated by the pictogram on the display of the instrument panel.

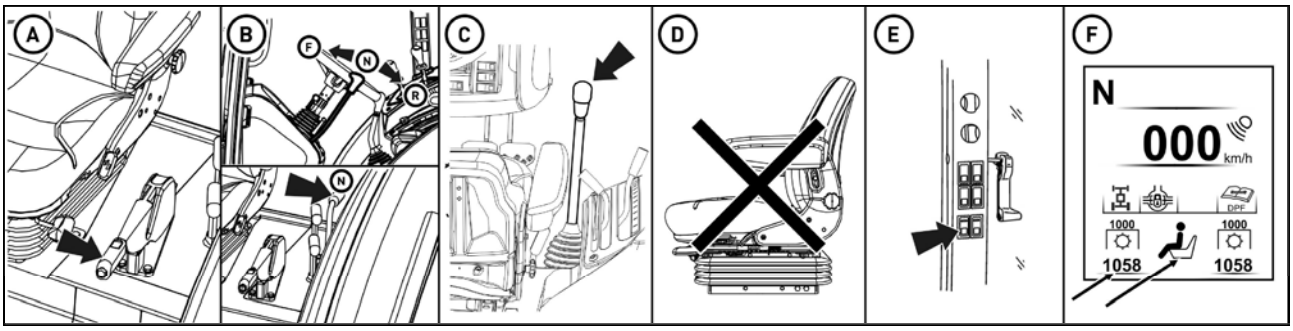


P18N025

If the front PTO shaft is active, the tractor is not going and the operator leaves the driver's seat, an audio signal is generated and after five seconds the rear PTO shaft is automatically deactivated. Reactivation is performed when the operator sits on the driver's seat by pressing the button on the right column of the cabin.

If the front PTO shaft is active, the tractor is going and the operator leaves the driver's seat, an audio signal is generated.

Activation of the front PTO shaft - stationary working mode



P18N027

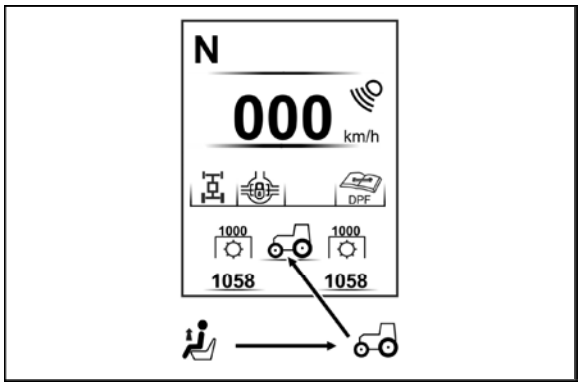
The number of PTO shaft revolutions depends on the number of engine revolutions.

When the tractor is not going with its engine running:

A - Brake the tractor with the hand brake.
B - If the tractor is equipped with the reversal system, move the gear shift lever to the neutral position.
- If the tractor is equipped with the reductor of crawling speeds, move the lever of crawling speeds to the neutral position.
C - The main gear shift lever must be in the neutral position.
D - Leave the driver's seat.
E - Press the button on the right pillar of the cabin for at least one second to activate the front PTO shaft.

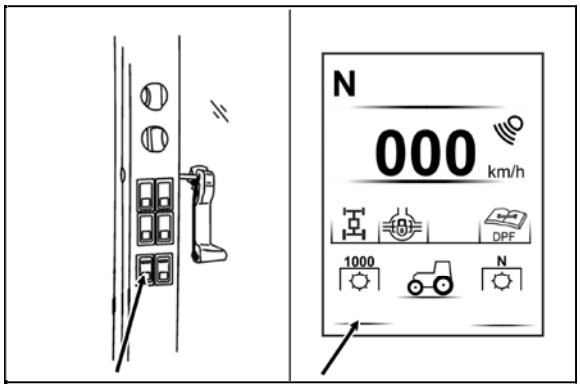
The operator must not sit on the driver's seat when pressing the button.
F - Rotation of the front PTO shaft is indicated by displaying the number of revolutions on the display of the instrument panel. The working mode is indicated by the pictogram on the display of the instrument panel.

If the operator, when working with the front PTO shaft in the stationary working mode, sits on the driver's seat, the working mode automatically changes to the common mode; this state is indicated by a changed pictogram on the instrument panel.
If the operator, when working with the front PTO shaft in the stationary working mode, moves the tractor, an audio signal is generated and the front PTO shaft is deactivated.



P18N023

Deactivation of the front PTO shaft
Press the button on the right column of the cabin to deactivate the front PTO shaft. This state is indicated by the fact that the revolutions of the front PTO shaft are not shown on the display of the instrument panel.



P18N028

Maximum transferred output

P15N038

Output shaft	Transferred power
front	
1,000 min^{-1}	60 kW*
rear	
1,000 min^{-1}	full power
540 min^{-1}	full power
540E min^{-1}	full power

Drive of machines with greater inertia masses.
(crushers, rotary harrows, reaping machines, etc.)
Cardan shaft for drive of these machines must be equipped with the so called freewheel clutch which ensures disconnection of torque transfer with retroaction from the machine on the tractor.

troj

HYDRAULIC SYSTEM

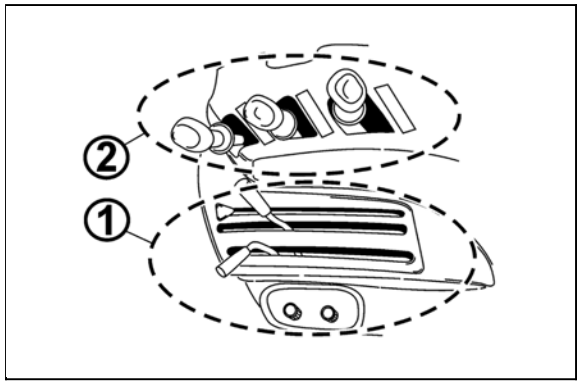
Hydraulic system
The hydraulic system is intended for lifting and lowering of agricultural machines and implements attached in the rear three point hitch.

It consists of the inner and outer circuits. Gear pump is the source of pressure oil.
Oil is taken from reservoir shared by gearbox and transmission.
Hydraulic pump cannot be switched off. If the engine is working, the pump is on.

The amount supplied is:
standard 50 l/min
on request 60 l/min

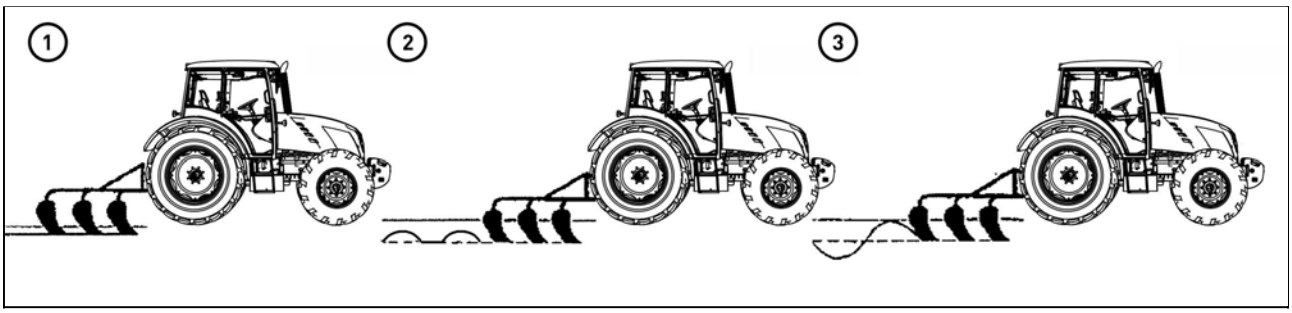
The pressure in hydraulic system raised by the hydraulic pump is restricted by a safety valve to 19 MPa.

Three-point hitch lowering speed control
Hydraulics control panel is located in the area of the right wing.
Controlling the rear three-point hitch is enabled by the inner hydraulic circuit (1).
Controlling outer hydraulic circuits (couplers) is enabled by outer hydraulic circuit (2).



P+11N001

Ways to regulate inner hydraulic circuit



P+11N002

Hydraulic system allows of three ways to regulate the lifting of the rear three-point hitch:

Position regulation (img. 1) - the tool connected to the rear three-point hitch is automatically kept in the same height (position) with regard to the tractor.

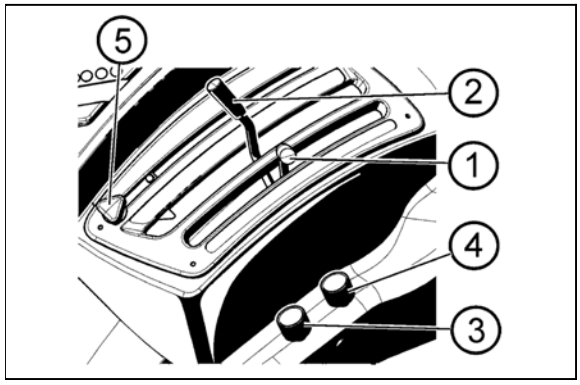
Mixed regulation (img. 2) - a combination of position and power regulation. Suitable mainly for tilling areas of different soil resistance.

Power regulation (img. 3) - the tool connected to the three-point hitch is automatically being adjusted depending on changing soil resistance.

All the regulations can also be used when working with a tool equipped with a support wheel in so-called free (floating) position.

Controlling the inner hydraulic circuit

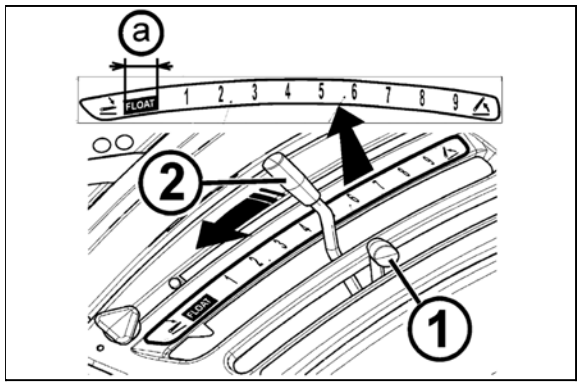
1.position or power regulation lever
2.lever for selecting floating position, adjusting the height of the three-point hitch in position regulation or mixed regulation.
3.three-point hitch lowering speed control
4.hydraulic system sensitivity control
5.adjustable stop



P+11N003

Free (floating) position

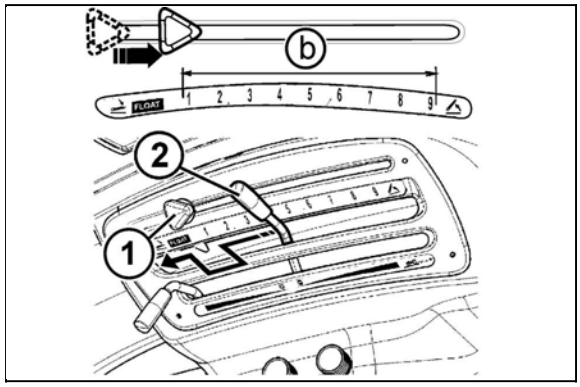
Free (floating) position makes it possible to work with tools with a support wheel. In this position, the arms of the rear three-point hitch are loose.
Move lever (2) to the front position (a).
The position of lever (1) makes no difference.



P+11N004

Adjustable stop

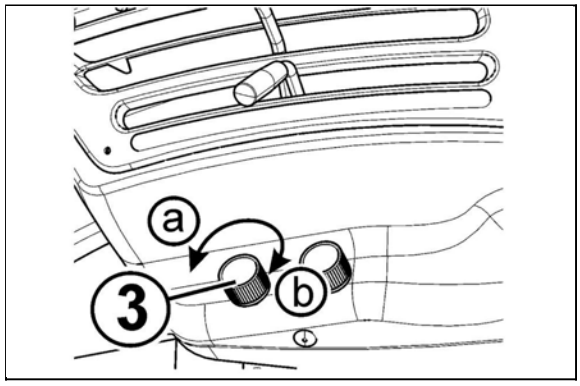
Under default settings, it is recommended to set the adjustable stop (1) to a position on the edge between floating position and the beginning of the range of lifting of the rear three-point hitch (b). After pushing the lever towards you, the lever can be moved over the adjustable stop.



P+11N009

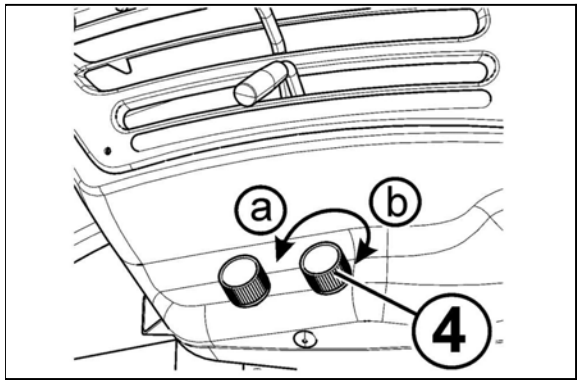
Controller of the starting speed of the three-point hinge

Three-point hitch lowering speed control (3) selects the speed of lowering the arms of the rear three-point hitch. Turning the knob in (b) direction reduces the lowering speed of the arms of the rear three-point hitch, turning it in (a) direction increases the speed. If the knob is turned in (b) direction to its stop point, the arms of the rear three-point hitch cannot be lowered.



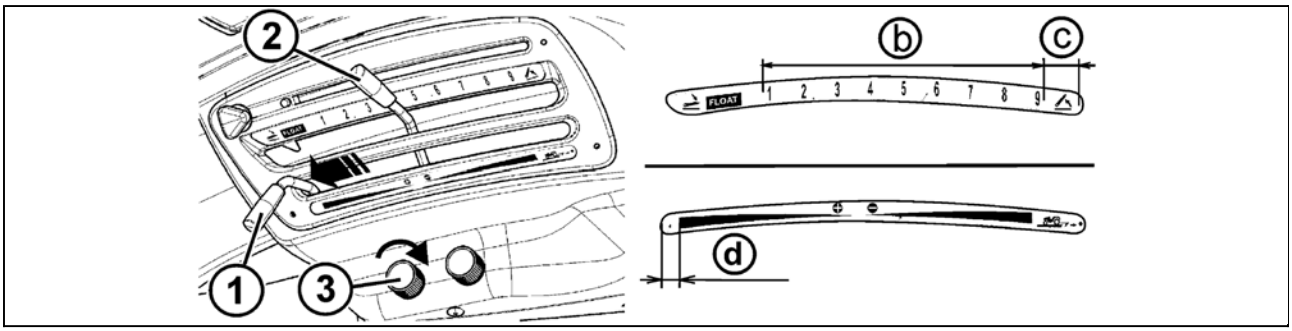
P+11N006

Hydraulic system sensitivity control
Hydraulic system sensitivity control (4) adjusts the sensitivity of the hydraulics in power or mixed regulation. Turning the knob in (a) direction increases sensitivity, turning it in (b) direction decreases sensitivity.



E408

Position regulation of the lifting of the rear three-point hitch



P+11N008

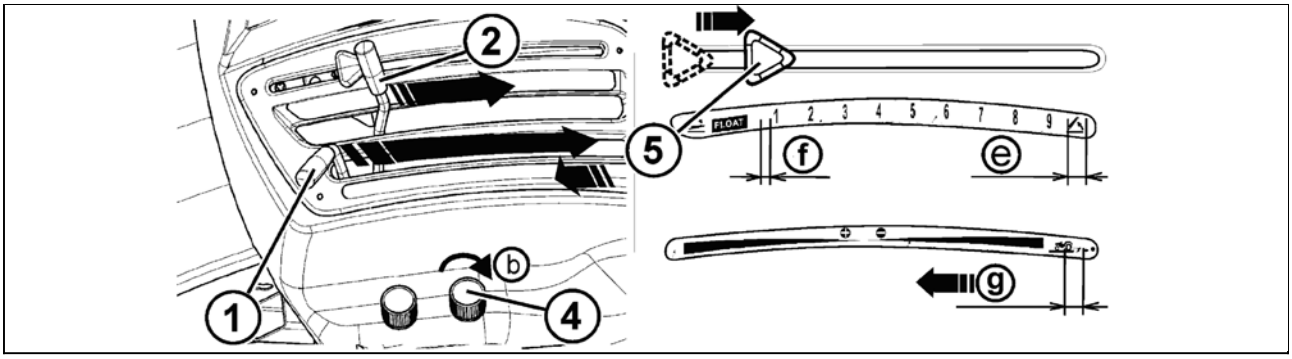
Position regulation of the lifting of the rear three-point hitch means that the tool connected to the rear three-point hitch is automatically kept in the same height (position) with regard to the tractor.
Move lever (1) to the front position (d). Adjust the height of the rear three-point hitch with tools within the (b) range by lever (2). Adjusting the height is smooth within the range 1 - 9. In position 1, the arms of the rear three-point hitch are in the lower position, in position 9, in the highest position. Position (c) is a transport position when the tools connected to the rear three-point hitch is raised at maximum.

To transport tools which are connected to the rear three-point hitch always use position regulation.

To raise tools into transport position, turn the three-point hitch lowering speed control knob (3) in the direction shown by the arrow up to the stop point, which results in interrupting the oil flow in hydraulics. Should tools connected to the rear three-point hitch not be lowered, check the position of the speed lowering control knob (3) - turn it in the opposite direction than shown by the arrow.

If tools connected to the rear three-point hitch are long and heavy, the arms of the rear three-point hitch may get locked in the transport position during transport. If the lowering speed control knob (3) is loosened and the tools still cannot be lowered, move lever (2) to the floating position (c) for a short time and immediately get back to the lowering range (b). The arms of the rear three-point hitch start to go down as set by lever (2).

Power regulation of the lifting of the rear three-point hitch

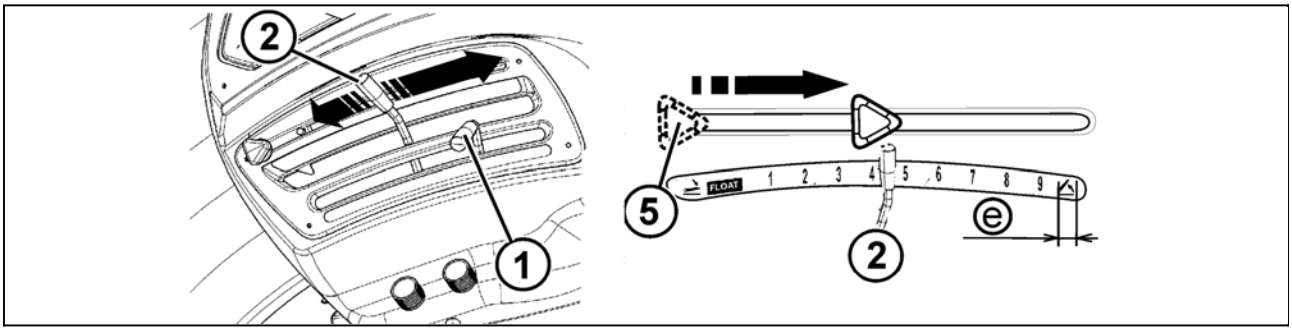


P+11N011

Power regulation of the lifting of the rear three-point hitch means that the tool connected to the rear three-point hitch is automatically being adjusted depending on changing soil resistance.
Set the adjustable stop (5) to a position on the edge between floating position and the beginning of the range of lifting of the rear three-point hitch.
Move lever (2) to (f) position - to the adjustable stop (5).
Move lever (1) to (g) position, accelerate the tractor and move lever (1) in the direction shown by the arrow to set the depth of tilling (in (g) position, depth is the lowest).
Once the depth of tilling is set, lever (1) must be kept in constant position. At the end of each row, raise the tool connected to the rear three-point hitch only by moving lever (2) to (e) position. To lower the tool to its operating position again, move lever (2) to (f) position.

The rear three-point hitch may start oscillating under the influence of changing soil resistance. To reduce oscillation, set lower hydraulic system sensitivity by turning the control knob (4) in (b) direction.

Mixed regulation of lifting the rear three-point hitch



P+11N010

Mixed regulation of lifting the rear three-point hitch means that the tool connected to the rear three-point hitch is automatically being adjusted depending on changing soil resistance and at the same time it prevents any increase in depth of tilling in case of smaller soil resistance.
Set the depth of tilling by lever (1) as described in 'Power regulation of the lifting of the rear three-point hitch'. Then start moving lever (2) in the direction shown by the arrow until the arms of the rear three-point hitch start to rise slightly. Herewith, mixed regulation has been set. Move the adjustable stop (5) to lever (2) which has been set and lock it. At the end of each row, raise the tool connected to the rear three-point hitch only by moving lever (2) to (e) position. To lower the tool to its operating position again, move lever (2) to the preset stop.

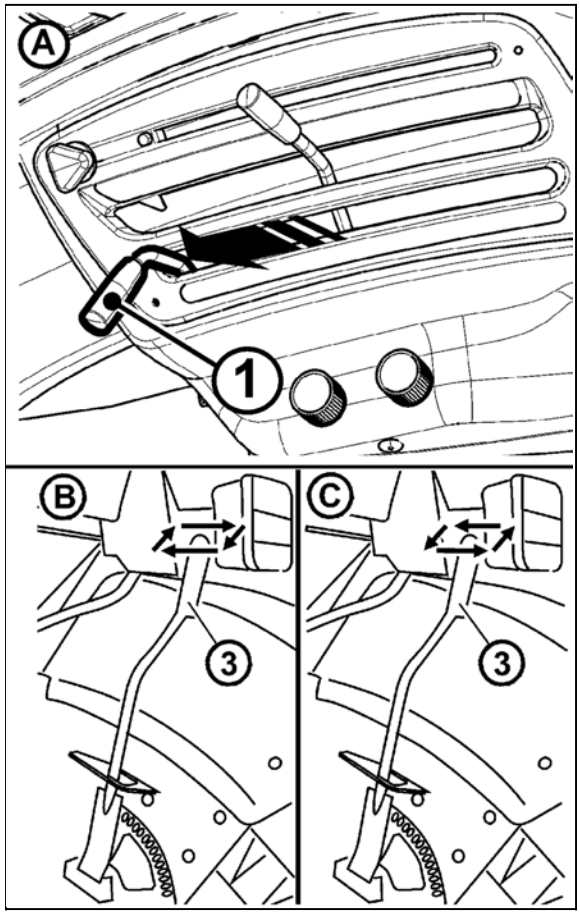
Exterior rear hydraulic arms controls
Exterior rear hydraulic arms controls are located on the rear right wing. They make it easier for the operator to conncet tools by controlling the movements of the lower drawbars of the three-point hitch from the outside. They only serve for connceting and disconnecting the tools.

Img. (A)
Before using exterior controls, move the power regulation lever (1) to its utmost position.

Lowering hydraulic arms img. (B):
Move lever (3) in the direction shown by the arrows (moving the lever is restricted with a link). By repeating this procedure, hydraulic arms are lowered in small steps.

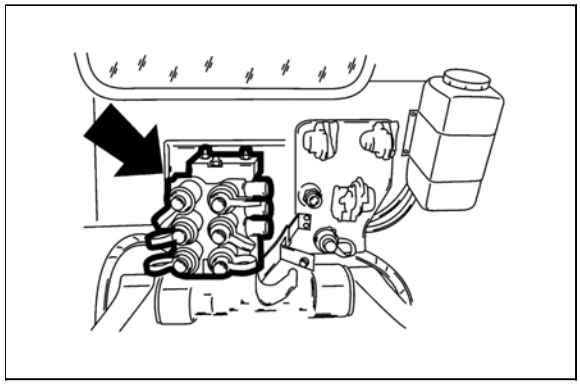
Raising hydraulic arms img. (C):
Move lever (3) in the direction shown by the arrows (moving the lever is restricted with a link). By repeating this procedure, hydraulic arms are raised in small steps.

If the lifting device controlled by exterior controls is loaded, movement of the lower drawbars within one step (on the exterior controls) is longer than if unloaded.



P+11N016

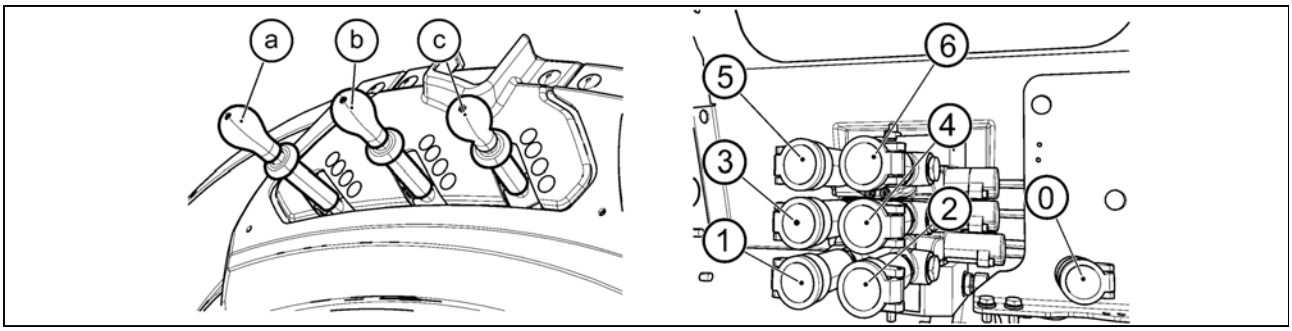
Outer hydraulic circuit
It supplies pressure oil for hydraulic devices on outer drives of hydraulics ended with couplers. Coupler sockets with 12.5 mm bore are in accordance with the international recommendation of ISO.



P+11N012

Control elements of the outer hydraulic circuit

The control levers of the outer hydraulic circuit are distinguished by colours. The lever colour corresponds to the colour of quick coupler dusters that are controlled by the corresponding lever.



P+11N015

Outer hydraulic circuit controls are located on the right wing.

lever (a) controls the lower section of distributor - quick couplers (1) and (2)
lever (b) controls the central section of distributor - quick couplers (3) and (4)
lever (c) controls the upper section of distributor - quick couplers (5) and (6)
Quick coupler (0) is directly connected with transmission and it is supposed for recuperative oil of exterior hydraulic appliances (e.g. from rotary hydraulic engines etc.).

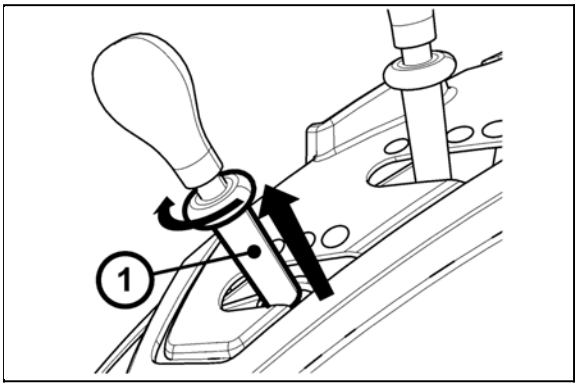
According to the equipment of the tractor, the following combinations of control levers and quick couplers can be supplied:
lever (a) - quick couplers (1) and (2)
levers (a) and (b) - quick couplers (1), (2), (3) and (4)
levers (a),(b) and (c) - quick couplers (1), (2), (3), (4), (5) and (6)
Quick coupler (0) is supplied in any case.

If the tractor is equipped with front three-point hitch, use lever (b) to control it. When the front three-point hitch is used, quick couplers cannot be connected as they are pressured together with the front three-point hitch! When you finish using the front three-point hitch and want to use the section with quick couplers 3 and 4 with connection to the front three-point hitch, raise the arms of the front three-point hitch to the transport position and move the front three-point hitch lever to the 'locked' position.

Locking control levers

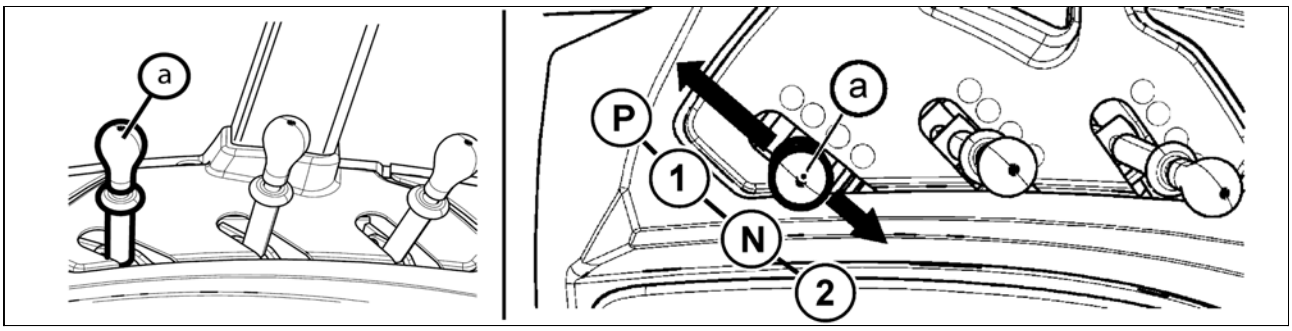
Outer hydraulic circuit control levers are locked in neutral (N) position.
To unlock them, raise the lock control (1) and turn it to a stop point in the direction shown by the arrow.
To lock them again, move the levers to neutral (N) position and turn the lock control in the opposite direction than shown by the arrow to a stop point and push the control down. This locks the lever in neutral position.

For safety reasons, always lock outer hydraulic circuit levers in neutral position (N).



P+11N014

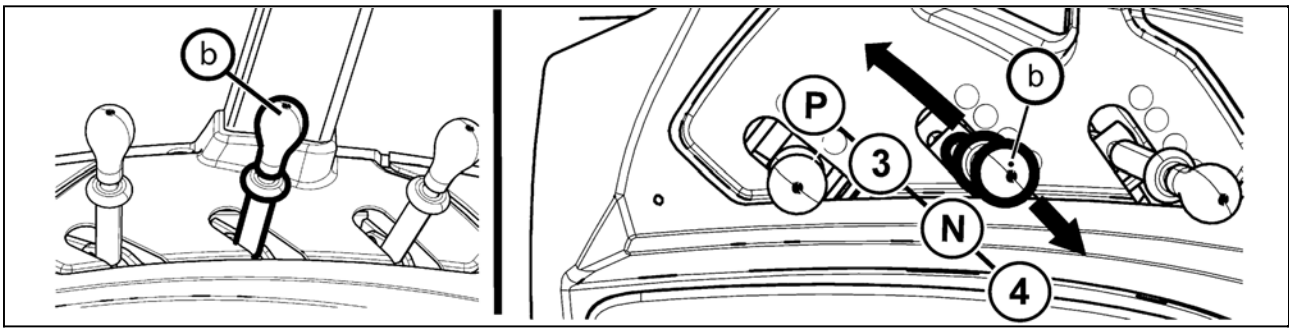
Different functions of outer hydraulic circuit control levers



P+11N017

There are four positions of the lever (a):

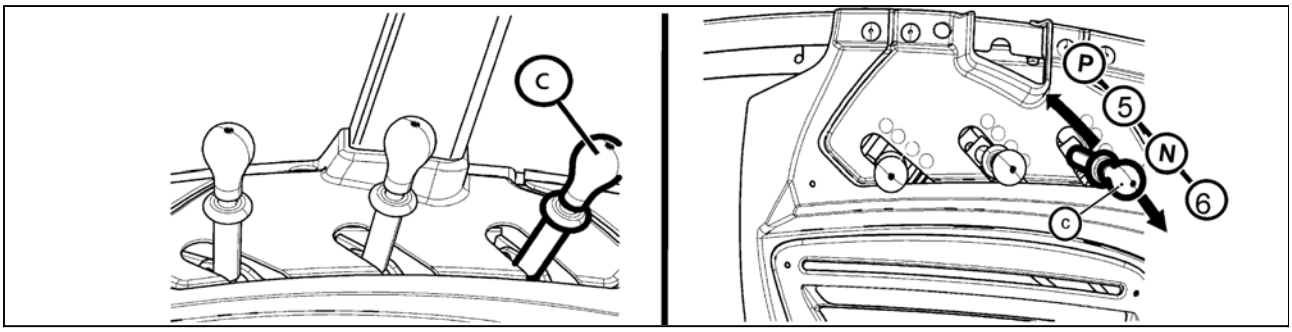
N - Neutral position. Quick coupler drives (1) and (2) are closed and oil in the hydraulic appliance connected is blocked. Lever (a) is locked in this position.
1 - Pressure in quick coupler (1). Quick coupler (2) is connected with the drain. Lever (a) is locked in this position. In case pressure exceeds 16.5 MPa when connected to quick coupler (1), lever (a) automatically returns to (N) position - kick-out function.
2 - Pressure in quick coupler (2). Quick coupler (1) is connected with the drain. Lever (a) is locked in this position. In case pressure exceeds 16.5 MPa when connected to quick coupler (2), lever (a) automatically returns to (N) position - kick-out function.
P - Floating position. Both quick couplers (1) and (2) are connected with the drain and oil is free to flow in both directions. Lever (a) is locked in this position.



P+11N018

There are four positions of the lever (b):

N - Neutral position. Quick coupler drives (3) and (4) are closed and oil in the hydraulic appliance connected is blocked. Lever (b) is locked in this position.
3 - Pressure in quick coupler (3). Quick coupler (4) is connected with the drain. It is necessary to hold lever (b) in this position, when released, lever (b) automatically returns to (N) position. In addition, quick coupler (3) is equipped with a one-way valve - convenient for connecting a tool which requires higher degree of impermeability - minimum lowering of the tool during transport.
4 - Pressure in quick coupler (4). Quick coupler (3) is connected with the drain. Lever (b) is locked in this position.
P - Floating position. Both quick couplers (3) and (4) are connected with the drain and oil is free to flow in both directions. Lever (b) is locked in this position.

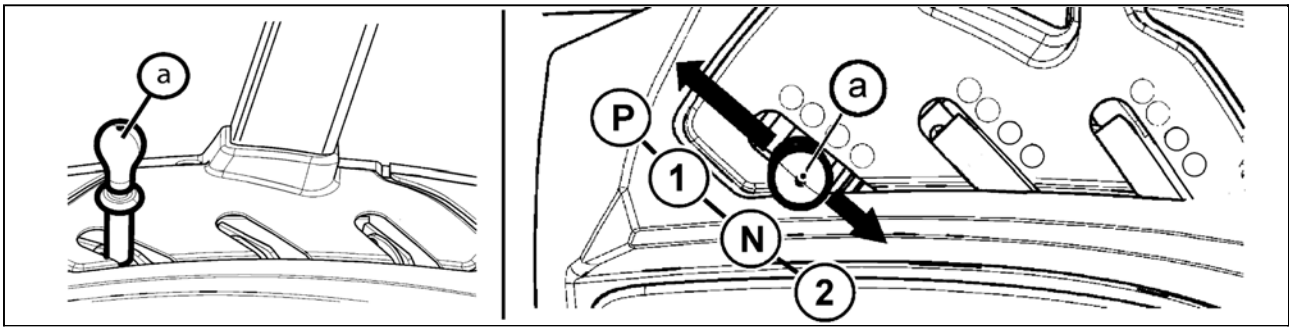


P+11n019

There are four positions of the lever (c) which controls quick couplers (5) and (6):

N - Neutral position. Quick coupler drives (5) and (6) are closed and oil in the hydraulic appliance connected is blocked. Lever (c) is locked in this position.
5 - Pressure in quick coupler (5). Quick coupler (6) is connected with the drain. It is necessary to hold lever (c) in this position, when released, lever (c) automatically returns to (N) position. In addition, quick coupler (5) is equipped with a one-way valve - convenient for connecting a tool which requires higher degree of impermeability - minimum lowering of the tool during transport.
6 - Pressure in quick coupler (6). Quick coupler (5) is connected with the drain. Lever (c) is locked in this position.
P - Floating position. Both quick couplers (5) and (6) are connected with the drain and oil is free to flow in both directions. Lever (c) is locked in this position.

Different functions of outer hydraulic circuit control levers- one section distributor



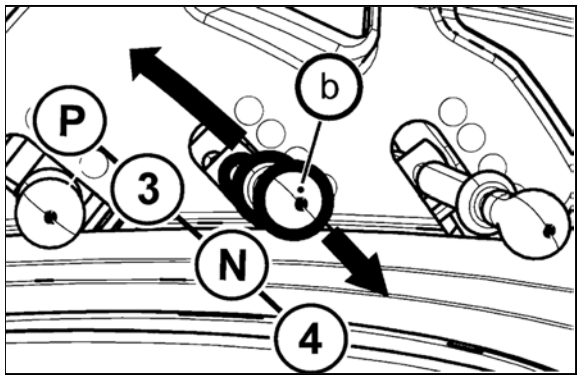
P+11N017d

There are four positions of the lever (a):

N - Neutral position. Quick coupler drives (1) and (2) are closed and oil in the hydraulic appliance connected is blocked. Lever (a) is locked in this position.
1 - Pressure in quick coupler (1). Quick coupler (2) is connected with the drain.
2 - Pressure in quick coupler (2). Quick coupler (1) is connected with the drain. Lever (a) is locked in this position.
P - Floating position. Both quick couplers (1) and (2) are connected with the drain and oil is free to flow in both directions. Lever (a) is locked in this position.

Control of the front 3-point hitch
The hitch is equipped with two single-acting hydraulic cylinders, into which the oil is supplied from the auxiliary hydraulic distributor. The lifting and lowering is performed by the control lever (b) of the auxiliary distributor.

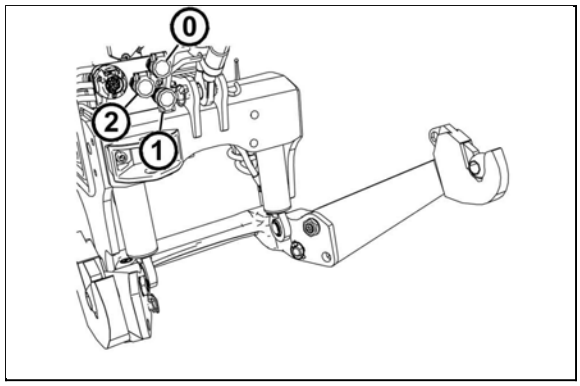
position 3	lifting
position 4	lowering
position N	hitch locking
position P	do not use it



P+11N021

If the tractor is equipped with the front 3-point hitch, the lever (b) is used to control it. The quick couplings must not be connected when the front 3-point hitch is used because they are pressurized together with the front 3-point hitch!
On termination of the work with the front 3-point hitch, for further use of the quick couplings 3 and 4 section with the connection of the front 3-point hitch, it is necessary to lift the front 3-point hitch arms to the transport position and to move the lever of the front 3-point hitch valve to the position 'closed'.

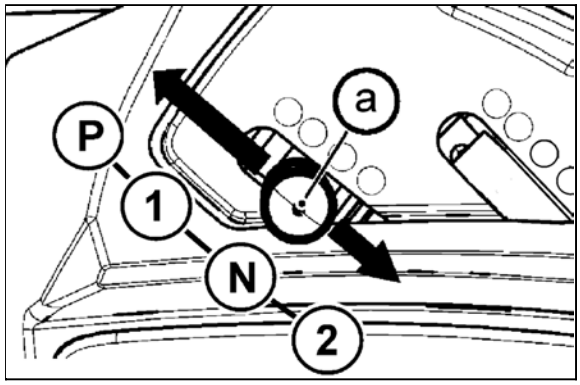
Front outlets of the external hydraulic circuit
On request, the tractor can be equipped with external hydraulic circuit outlets located in the front.
The quick couplings (1) and (2) are the pressure couplings, the quick coupling (0) is directly connected to the space of the axle final drive housing and is designed so that the return oil can flow back from the external hydraulic appliances.
The quick couplings sockets with the 12.5 mm inside diameter comply with the international ISO recommendations.



P13N002

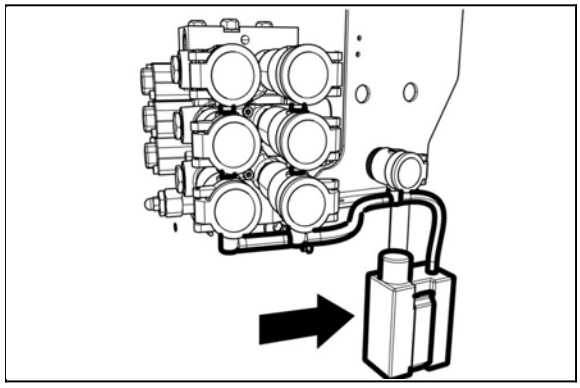
Control of the external hydraulic circuit front outlets
The front outlets of the external hydraulic circuit are controlled by a lever (a) which has four positions:

N - Neutral position. Quick coupler drives (1) and (2) are closed and oil in the hydraulic appliance connected is blocked. Lever (a) is locked in this position.
1 - Pressure in quick coupler (1). Quick coupler (2) is connected with the drain. Lever (a) is locked in this position. In case pressure exceeds 16.5 MPa when connected to quick coupler (1), lever (a) automatically returns to (N) position - 'kick-out' function.
2 - Pressure in quick coupler (2). Quick coupler (1) is connected with the drain. Lever (a) is locked in this position. In case pressure exceeds 16.5 MPa when connected to quick coupler (2), lever (a) automatically returns to (N) position - 'kick-out' function.
P - Floating position. Both quick couplers (1) and (2) are connected with the drain and oil is free to flow in both directions. Lever (a) is locked in this position.



P13N001

Quick-couplings with drip collection
On request, dripping system for holding leakage oil can be installed. Regularly check whether the tank is not full; dispose of the oil in an environment-friendly way.



P+11N020

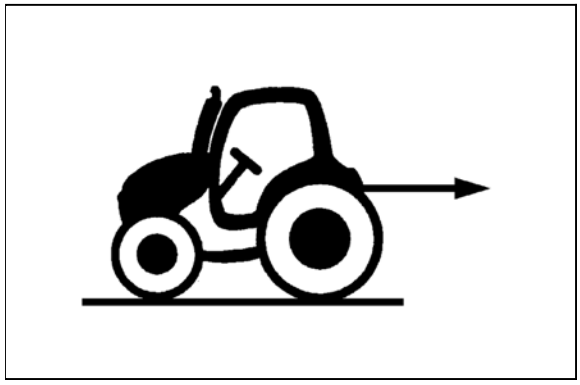
Connecting and disconnecting quick-couplers

When connecting and disconnecting the quick-couplers pay increased attention with regard to the residual oil that remains in the socket or on the plug of the quick-coupler. For environmental reasons after every disconnection of quick-couplers this residual oil must be removed with any textile material.

Amount of oil taken from outer hydraulic drives
If the amount of oil in transmission decreases after disconnecting the tool due to its permanent outflow out of the tractor into the machine's hydraulic circuit, refill the oil missing.

If the amount taken exceeds the limit, hydraulic pump can absorb air and can get damaged.

For maximum amount of oil taken see the following table.



E413

Working area: *in flat terrain* ***Max. amount of oil taken:*** *20 liters* ***Gearbox filling:*** *standard filling*
Working area: *in a slope* ***Max. amount of oil taken:*** *13 liters* ***Gearbox filling:*** *standard filling*
Working area: *in flat terrain* ***Max. amount of oil taken:*** *27 liters* ***Gearbox filling:*** *gearbox oil filling increased by 7 liters(max. amount of oil in gearbox allowed)*
Working area: *in a slope* ***Max. amount of oil taken:*** *20 liters* ***Gearbox filling:*** *gearbox oil filling increased by 7 liters(max. amount of oil in gearbox allowed)*

HYDRAULIC SYSTEM

Connecting machines and tools to External hydraulic circuit

Connecting a double acting cylinder
A double acting cylinder must always be connected to quick couplers of one section.

Connecting machinery and tools assembled from more parts
When working with agriculture machinery which is assembled from more parts (combinators, scrubbers, or harrows) where the edge frame is hinged to the central frame because it is diagonally folded during transport by independent hydraulic cylinders which are controlled by outer hydraulic circuit of the tractor, it is recommended to connect the lifting arms of the cylinders to quick couplers (3) and (5) which are equipped with a one-way valve.

Connecting rotary hydraulic engine
If a hydraulic engine is connected to outer hydraulic drive, it is always necessary to connect its returnable arm to quick coupler (0). Filling (pressure) arm can be connected to quick couplers (1) or (2), where the hydraulic engine is protected by the 'kick-out' function from overload. This function stops the hydraulic engine if pressure in the filling arm exceeds 17 MPa.

Connecting reverse rotary hydraulic engine
Due to its function, reverse rotary hydraulic engine must be connected to quick couplers of one section. It is recommended to use quick couplers (1) and (2), where the hydraulic engine is protected by the 'kick-out' function from overload. This function stops the hydraulic engine if pressure in the filling arm exceeds 17 MPa. If the hydraulic engine is connected to quick couplers of different sections, both arms must be equipped with safety valves which can be relied on to restrict high pressure peaks during run-out. Connect the safety valves drain to quick coupler (0).

Connecting external hydraulic distributor
It is recommend to connect external hydraulic distributor to quick couplers (4) or (6). Control levers (b) and (c) are mechanically locked in these positions without hydraulic lock.

 ***Auxiliary machines using oil filling of external hydraulic circuit must be filled with the same kind of oil, which is recommended for gear system of the tractor! Quick-couplers sockets of an auxiliary machine need to be properly cleaned before connecting.***

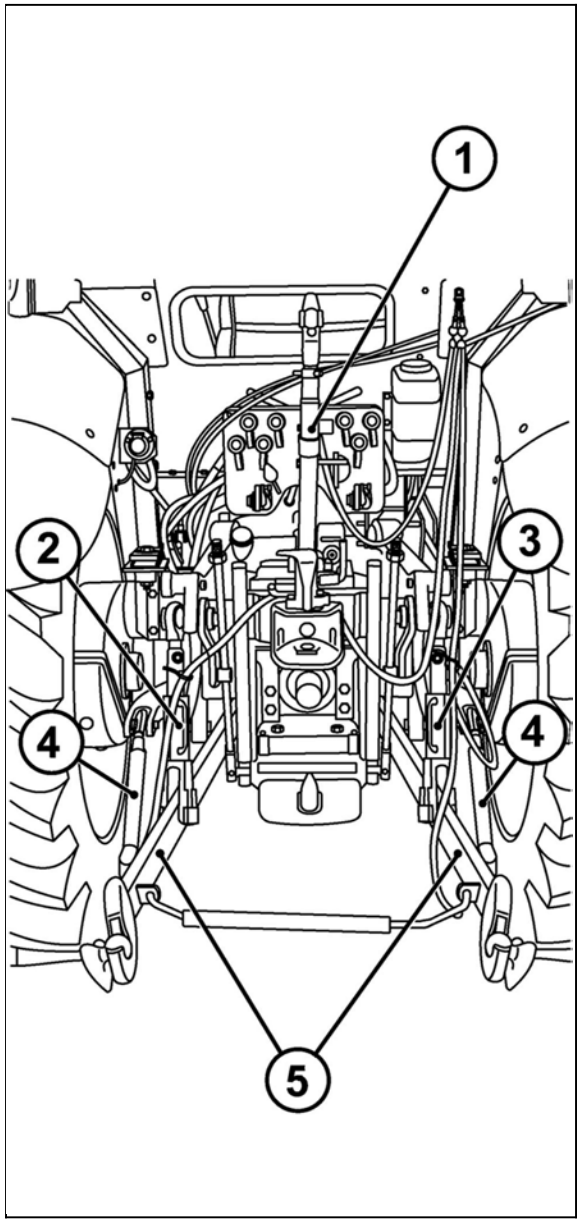
Rear three-point hitch

Serves for connecting carrier-mounted or semi mounted agriculture machines and tools with linkage points of category I. or II. pursuant to ISO. The categories differ based on the length of linkage axis, which is the distance of the centre of balls of lower linkage joints with connected tool.

Category I.	
Length of linkage axis	728 mm
Ø of holes of connecting balls of lower draw bars pursuant to ISO	28 mm
Ø of upper draw bar hole	25 mm

Category II.	
Length of linkage axis	870 mm
Ø connecting balls holes of lower draw bars pursuant to ISO	28 mm
Ø of upper draw bar hole	25 mm

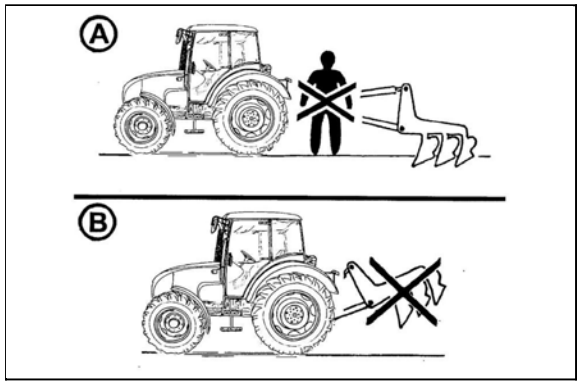
1. Upper draw bar
2. Lift rod left
3. Lift rod right
4. Limiting draw bars
5. Lower draw bars



E451

Safety principles of working with the three-point hitch

Persons that are not authorized to work with the attached implement must not stand between the tractor and the hitched machine (implement) - (A). Do not park the tractor with an attached implement in the lifted position (B). During a drive without an implement the lower draw-bars (5) must be connected with springs and the upper draw-bar (1) must be inserted into the spring suspension! During transport of implements the limiting draw-bars (4) of the lower draw-bars must be adjusted in such a way to avoid unwanted lateral movement of the implement!

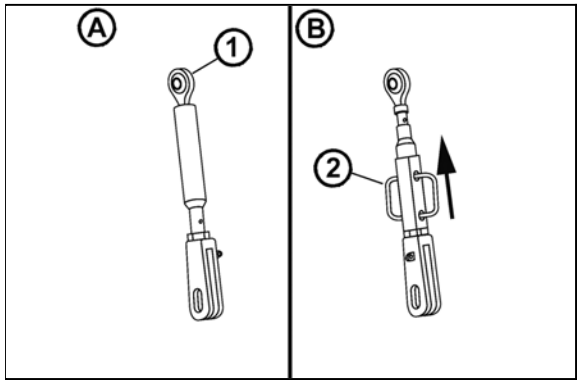


G452

Height adjustment of the lifting draw-bars
Lifting pull rod see fig. (A):
Perform adjustment by turning of the eye (1) after disconnection of the upper end of the lifting pull rod.

Lifting pull rod see fig. (B):
Pull out the arm cross (2) in direction of the arrow and perform adjustment by turning of the arm cross.

According to equipment of the tractor both pull rods can be arranged as shown on fig. (B)

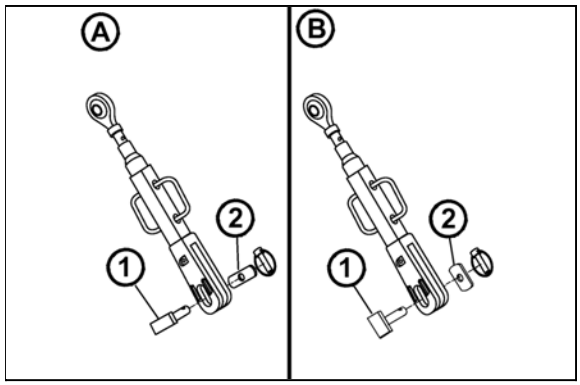


E453a

Fixed and free position of the lower hydraulic draw-bars
Fixed position of the lower hydraulic draw-bars (A):
The pin head (1) and washer (2) are installed horizontally.

Free position of the lower hydraulic draw-bars (B):
The pin head (1) and washer (2) are installed vertically.

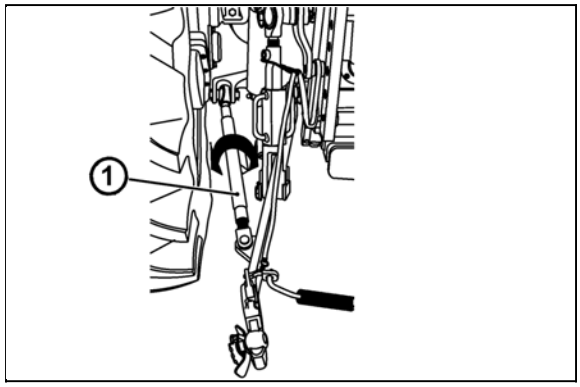
The free position enables free connection of the tractor and implement. In this case both the draw-bar ends may move freely against each other as regards their height.



E454

Limiting draw-bars
The limiting draw-bars - stabilizers (1) limit or completely prevent lateral swinging of the lower draw-bars. The adjustment of the left and right limiting draw-bar is performed by turning of the draw-bar pipe, see arrow.

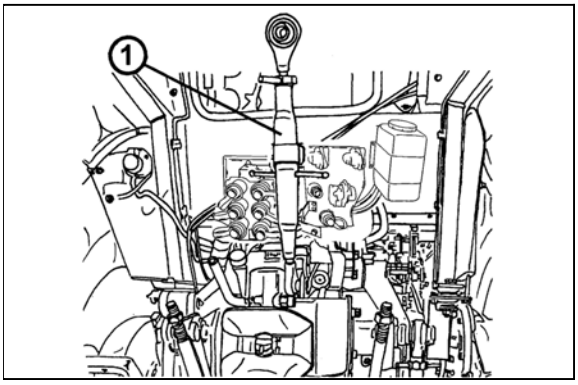
Both the limiting draw-bars must always be installed on the tractor.



E455

Upper pull rod

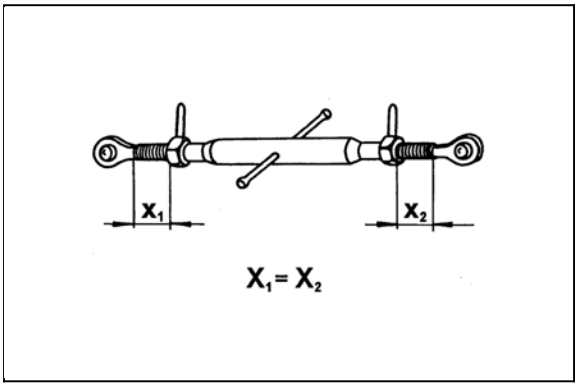
Length of the upper pull rod (1) is adjustable. The pull rod can be connected to the tractor to one of four holes in the bracket that transfers forces from the hitched implement to the torsion rod in the cover of the hydraulics regulation.



P11NE456

When transporting an implement it is necessary to reposition the upper pull rod to the hole 'd' to prevent overloading of the lifting hydraulics kinematic system or fall of the hitched mechanism.

When extending the upper pull rod it is necessary to pay attention that both joints are screwed out from the pull rod pipe in the same length.

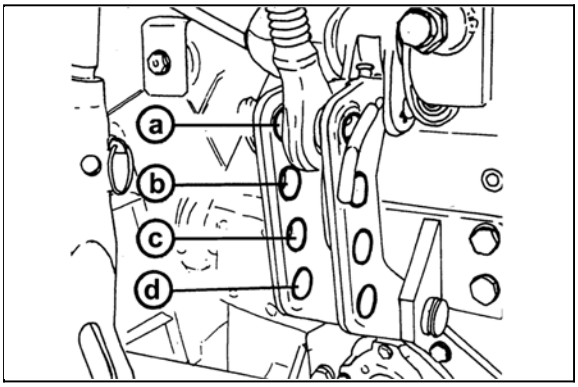


E457

Selection of holes in the bracket

Connection of the upper pull rod to some of the holes 'a' to 'd' of the bracket influences:

- Sensitivity of hydraulic control (system selection lever in position 'D' or 'M'). When the drawbar is connected to opening 'a', the sensitivity of the control is highest.

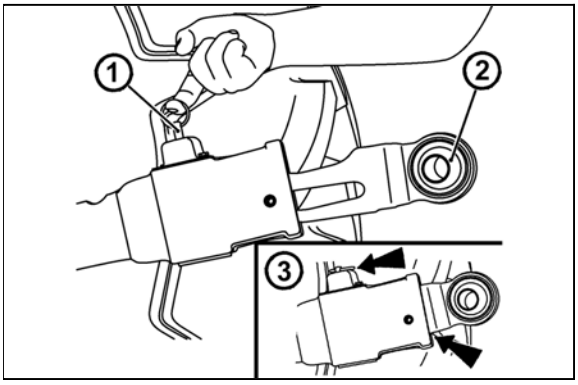


E458

***Lower draw bar with slipping out end pieces**

Lower draw bar of linkages are equipped with semi-automatic protruding CBM end pieces. They enable connecting of tools behind a tractor. After protruding securing pegs (1) slip the end pieces out (2). Slipped-out end pieces are attached to tightening pins of mounted tools.

After connecting the mounted tools, release the arms of hydraulics. By lowering them down and reverse travel of a tractor, endpoints (2) are slid onto draw bars and automatically are locked in working position by means of locking pegs (1).



E459

Always check the position of slipped-out end pieces and locking pegs, see fig. (3).

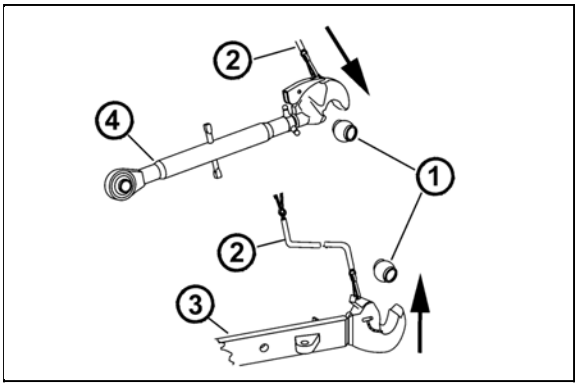
***Lower draw bar with CBM hooks**

Both lower (3) and upper (4) draw bars of linkage are equipped with CBM hooks.

The tools must be first equipped with hanging CBM balls (1) and with limiting draw bars set the distance between lower draw bars of linkage (3).

When reversing and subsequently lifting a three-point linkage, its lower draw bars (3) are connected to tools and then upper draw bar (4) of three-point linkage is connected by the driver from cab.

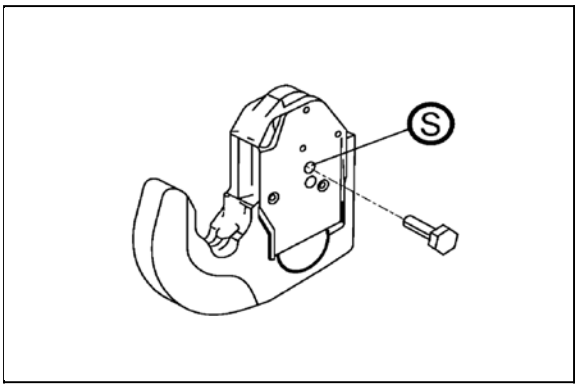
When disconnecting tools, unlock the hooks, by control cable (2) heave upper draw bar (4) and by lowering three-point linkage disconnect lower draw bar (3).



E460

Securing lower draw bars with CBM hooks

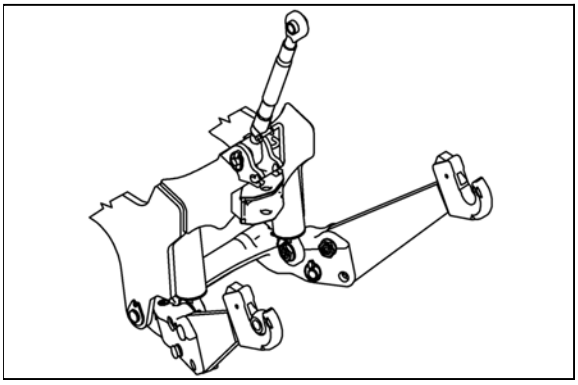
For extremely demanding working conditions (aggregation with heavy machinery on slopes or with aggregation side faced machines) we recommend safely locking the hook of lower draw bar by inserting a M8 screw to (S) hole and locking the screw with a pad.



X901

***Front three-point hitch**

It is designed for attachment of frontally carried agricultural machines and implements in accordance with ISO 8759-2.



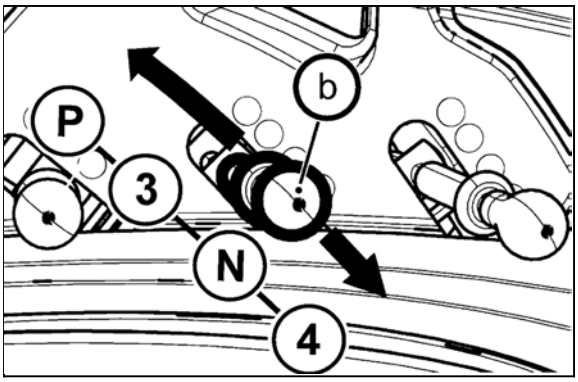
E461

During transport of a carried implement the hitch must always be hydraulically locked in the lifted position with valves that are installed on the left side of the tractor over the front axle.

This hydraulic lock is recommended even in case no machine is attached to the three-point hitch.

Controlling front three-point hitch

The hitch is equipped with two single acting hydraulic cylinders which are supplied with oil from an additional hydraulic distributor. To lift or lower, use lever (b) of the additional distributor.



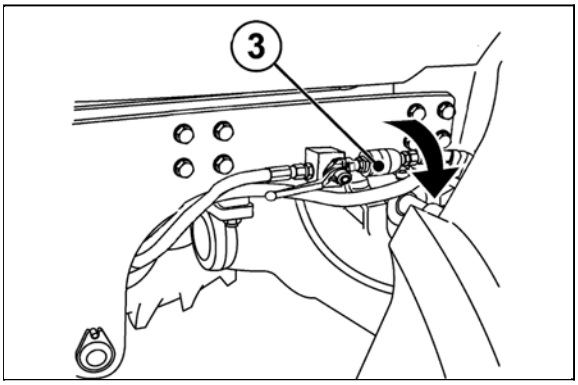
P+11N021

3 position	lifting
4 position	lowering
N position	locking the hitch
P position	not to be used

If the tractor is equipped with front three-point hitch, use lever (b) to control it. When the front three-point hitch is used, quick couplers cannot be connected as they are pressured together with the front three-point hitch! When you finish using the front three-point hitch and want to use the section with quick couplers 3 and 4 with connection to the front three-point hitch, raise the arms of the front three-point hitch to the transport position and move the front three-point hitch lever to the 'locked' position.

Adjusting the lowering rate of the front three-point hitch

Before the start of work with an implement attached to the front three-point hitch it is recommended to adjust the time necessary to lower the implement from the highest to the lowest position to 1 - 1.5 s by setting the throttle valve. By turning the valve body to the left (in the arrow direction) you will increase the lowering speed. During the adjustment the valve levers of the front hitch must be directed horizontally.

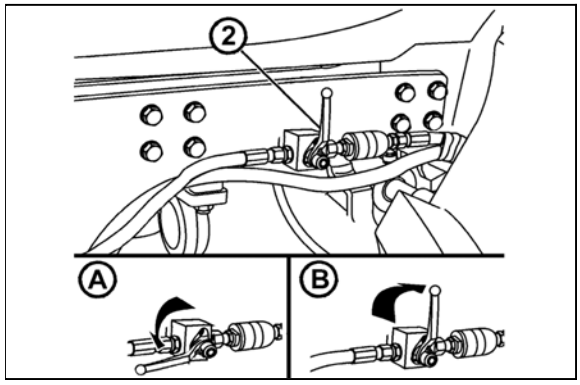


X463

Hydraulic lock of the front three-point hitch

Hydraulic locking of the front three-point hitch is performed in any position of the hydraulic cylinders with the ball valve in the front part of the tractor (2).

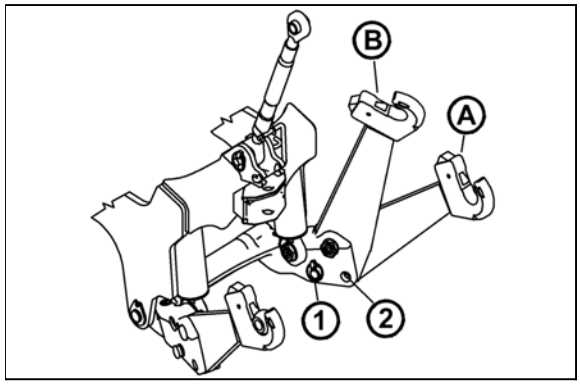
A	Free position Valve levers are in the horizontal position - The hitch can be controlled from the cabin
B	Locked position Valve levers are in the vertical position - The hitch is locked



X464

Working and transport position of the front three-point hitch

A	Working position of the front three-point hitch
B	Transport position of the front three-point hitch



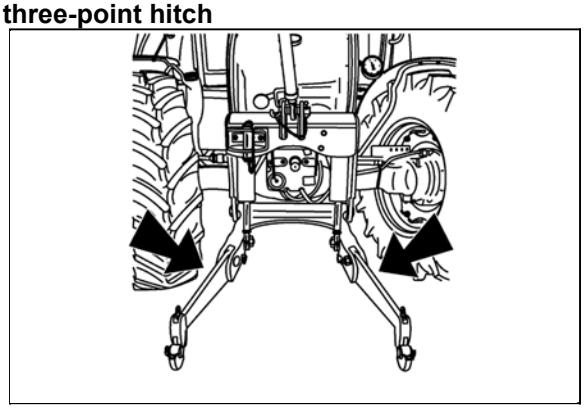
E466

Changing the position of the draw-bars of the front three-point hitch:
1. Release and remove the pin (1) from the opening.
2. Lift the arm from position (A) to position (B).
3. Lock the arm by inserting the pin (2) in the opening (2) and secure the pin.

Only insert the pin in the openings, never check whether the opening is free with your fingers!

Driving with agricultural machines attached to the front three-point hitch

The maximum permissible speed of the tractor with agricultural machines attached to the front three-point hitch is 15 km.h^{-1}. If no implement or weight is attached to the front three-point hitch, we recommend you to lift the lower lifting draw-bars to the transport position.



FH12N066

WHEEL TREAD CHANGE

Change of front wheels track with front drive axle

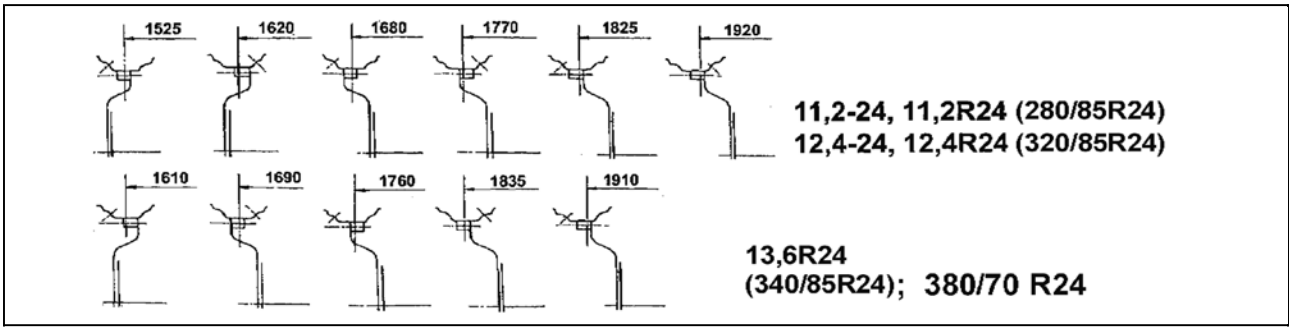
Gauges of the front wheels of the front drive axle of the tractors equipped with screwed footer discs
Change of wheel track is done by a change of rim and disc position.

Secure the tractor against movement first, heave the axle with a hoist and support.

- Demount front wheels.
- Unscrew nuts of screws connecting a disc with rim and protrude the screws.
- Change wheel track by setting the rim to a requested position.
- Mount the screws back with pads and lock with nuts.
- Tighten nuts with a torque of 270 - 300 Nm.
- The nut of front wheels to be tightened with a torque of 250 - 290 Nm.
- After every release of a foot joint, tighten the screws to a prescribed value.
- After travelling a distance of 100 m with an unloaded tractor, retighten the joints to a prescribed torque.
- After tractor run-in tighten the joints after 3 Mh.
- After 10 Mh retest the nuts of discs and foots of wheel rim.

Used tires	Adjustable treads (mm)
280/85 R24, 11,2 - 24, 11,2R24, 320/85 R24, 12,4 - 24, 12,4R24	1525, 1620, 1680, 1770, 1825, 1920
340/58 R24, 13,6R24	1610, 1690, 1760, 1835, 1910

Possible adjustable tracks of the front wheels of the front driving axle of the tractors



G503a_1

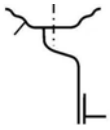
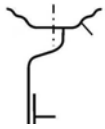
WHEEL TREAD CHANGE

Front wheels track of front drive axle in tractors equipped with non-removable discs

***Secure the tractor against motion first, heave the axle by a heaver and support. Tighten the nut of front wheels at a torque of 250* - 290 Nm.**

The change of wheel tracks is done by turning the wheel and mounting with rim offset to the inside, while the wheels are interchanged to keep the right direction of the tyre pattern with arrow to the front.

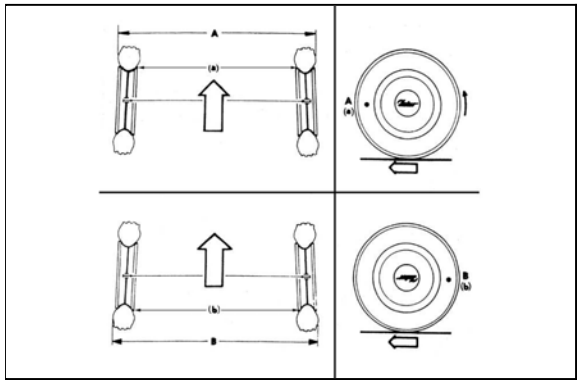
- Demount front wheels.
- Interchange the front wheels and mount with rim offset to the inside.
- Nuts tightening front wheels to be tightened at a torque of 250 - 290 Nm.
- After travelling the distance of 100 m with an unloaded tractor, tighten the nuts tightening the front wheels again to the prescribed torque.
- After loading the tractor, tighten the nuts tightening the front wheels after 3 Mh.
- After 10 Mh, retest the tightening of nuts fixing the front wheels.

	Disc wheel ET (mm)	Front wheel tracks in mm	
			
280/85 R24, 11,2 - 24, 11,2 R24,	-19	1678	1622
13,6R24	51	1538	1762
380/70 R24	-24	1688	1612
12,5/80-18	57	1526	-
380/70R24	15	1610	1690

Front wheels toe-in

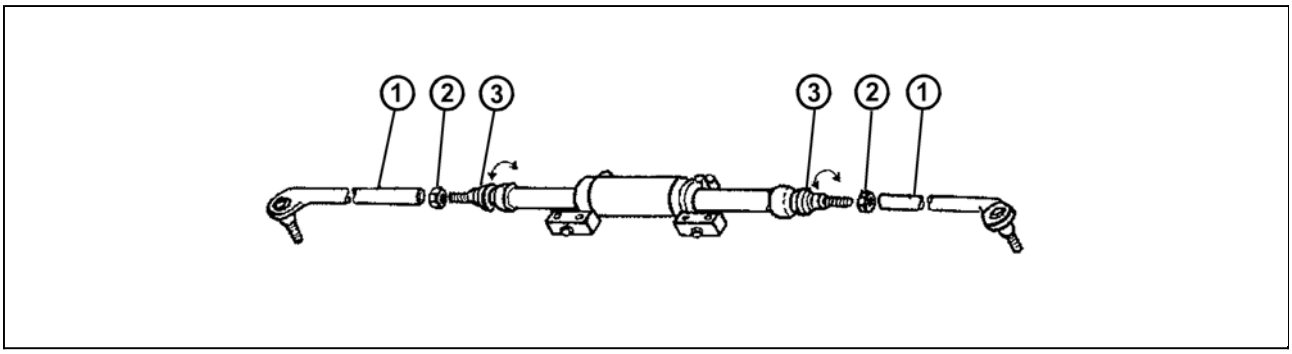
Proper toe-in of the front wheels of tractors with the front driving axle is **0 to 2 mm** and is measured on the front wheel hub flanges (if the front wheels are installed, you can measure toe-in on the wheel rims).

Toe-in **'S'** is determined by the difference of the measured values: **S = b - a**.



F_02_189

Adjustment of toe-in of the wheels of the front driving axle



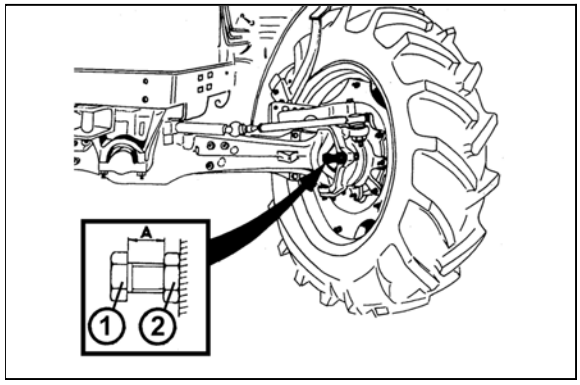
C507

Note: Tractors are in standard equipped with hydrostatic device.

- Set the wheel symmetrically with longitudinal axis of a tractor.
- Measure the distance between rims in the front on horizontal level of wheel axis. Mark the place of measurement.
- Travel forward with a tractor so that the marked places would be on horizontal level of rear wheel axis (turn by 180°) and remeasure the distance between marked places.
- Release locking nuts of ball joint heads (2) of connecting rods of devices in hydraulic cylinder.
- Adjust toe-in by turning the pin of ball joint (3). Do the adjusting symmetrically with both joints to keep the same lock of wheels to both sides (do the measurement on the sides of rims).
- Locking nuts of heads of ball joints (2), tighten with a torque of 122 - 136 N. Upper surfaces of heads must be (1) parallel.

WHEEL TREAD CHANGE

Setting wheel stops with front drive axle
Set the stops always with any wheel track change or tire replacement with front drive axle.
Wheel stops with front drive axle must be set so that there would be a distance of at least 50 mm between front drive axle tires and tractor with full lock and full axle swing around central pin.

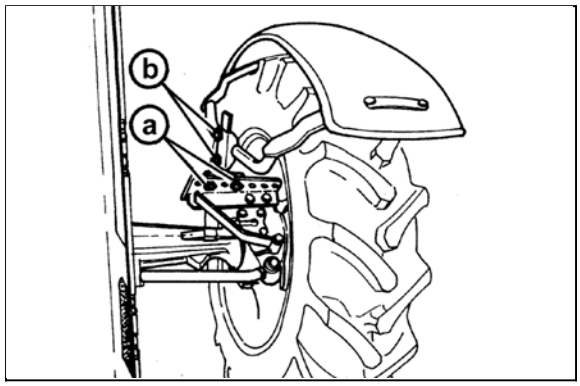


E502

Setting wheel stops with front drive axle check
1. Set full lock to one side and check that the distance between a tire and the nearest solid point on the tractor is at least 50 mm. Check both front tires.
2. Turn the steering to full lock to the other side and check according to point 1.
3. Heave one side of the front axle to the maximum swing (front axle leans against the bracket) and check according to point 1 and 2.
4. Hoist the other side of front axle to the maximum swing (front axle leans against the bracket) and check according to point 1 and 2.
The setting of stops (A) changes after the release of a nut (2) and unscrewing or screwing in a screw (1).

After the change in setting wheel stops with front drive axle, it is always necessary to check their setting according to points 1 to 4.

Front drive axle fenders
Are on adjustable holders which can be set both horizontally (by relocating screws 'a' to different holes) and vertically (by relocating screws 'b' to different hole) based on requested wheel tracks and the kind of used tires.



C508

WHEEL TREAD CHANGE

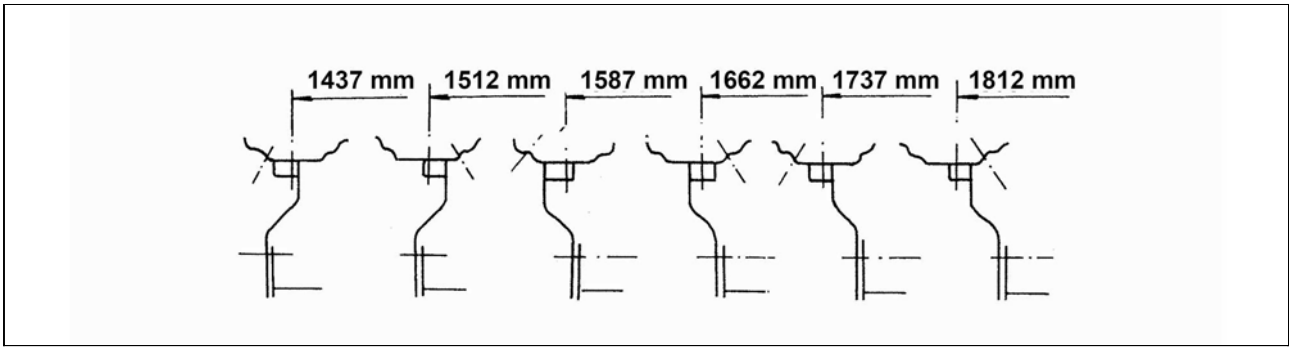
Rear wheels wheel track

Gauges of the tractor rear wheels equipped with screwed footer discs

Used tires	Tire width in mm	Adjustable tread
12,4-36	315	1350 - 1800
13,6-36	348	1350 - 1800
14,9-28	315	1425 - 1800
14,9R28	378	1425 - 1800
16,9-28	429	1425 - 1800
16,9R28	429	1425 - 1800
16,9-30	429	1425 - 1800
16,9R30	429	1425 - 1800
480/70R30	479	1425 - 1800
18,4 -30	467	1500 - 1800
18,4 R30	468	1500 - 1800
16,9-34	429	1425 - 1800
16,9R34	429	1425 - 1800
480/70R34	429	1425 - 1800
18,4-34	467	1500 - 1800
18,4R34	467	1500 - 1800

WHEEL TREAD CHANGE

Rear wheel track change



C509

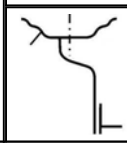
The wheel track setting of rear wheels is done by the change of rim position and disc with a heave rear part of a tractor. It is necessary for wheels to spin freely.

Before heaving do not forget to lock the tractor against movement by making front wheels stable!

After the change of wheel track, tighten all the screws connecting the disc with a rim by a torque of 270 - 300 Nm and nuts of screws connecting a disc with wheel shaft with a torque of 400 - 470 Nm.

- Tighten the screws to a prescribed value after every release of foot joint.
- After travelling a distance of 100 m with an unloaded tractor retighten the joints again to a prescribed torque.
- After loading the tractor, tighten the joints after 3 Mh.
- Retest the tightening of disc nuts and foots of wheel rims after 10 Mh.
- Until you travel first 100 Mh, check the disc nuts and foot of front and rear wheels tightening often (at least 6 times in the first 100 Mh).
- Continue retesting the disc nuts and foot rims of front and rear wheels tightening always after working every 100 Mh.

The gauges of the tractor rear wheels equipped with solid discs

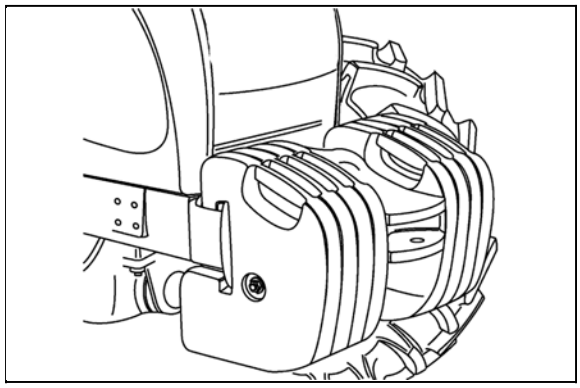
	Rear wheels track (mm)	
		
460/85 R34	1650	-
16,9-30	1580	-
480/70 R30	1576	-
460/85 R30	1576	-
600/65 R34	1650	-
420/85 R34	1576	-
540/65 R34	1650	-
19,5L-24	1590	-

ADDITIONAL WEIGHTS

Ballast weights are necessary to additionally load the tractor axles and to ensure manoeuvrability and stability of the tractor.

Weights in front of the bonnet mask

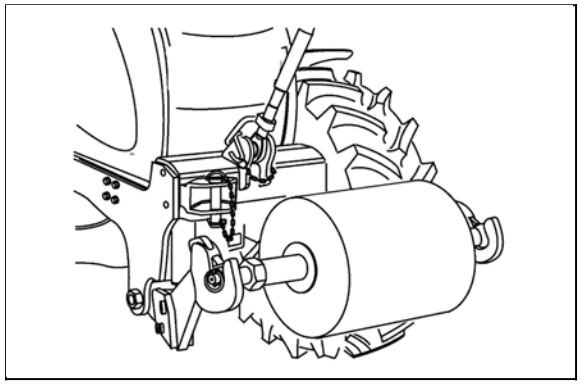
Combination of weights (pcs)	Weights of weights (kg)	
4+1	**4**x50 + 67	**267**
8+1	**8**x50 + 67	**467**
12	**12**x50	**600**



P11NE551

Weights of the front three-point hitch

Number of weights (pcs)	Weight (kg)
1	**300**



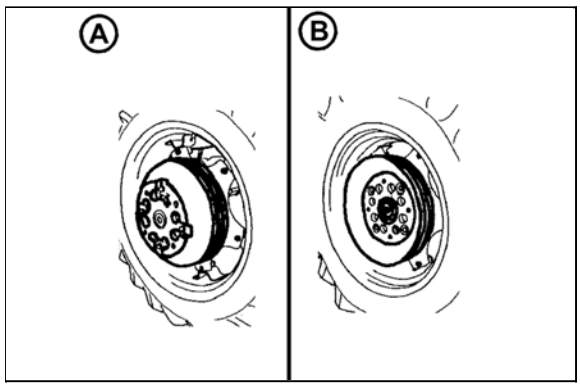
P11NE552a

Weights of rear wheels

A - Mounting of weights for rear wheel treads 1,350 to 1,500 mm

B - Mounting of weights for rear wheel treads 1,575 to 1,800 mm

Combination of weights (pcs)	Weights (kg)	
2+2	**2**x16 + **2**x30	**90**
2+4	**2**x16 + **4**x30	**150**
2+8	**2**x16 + **8**x30	**270**

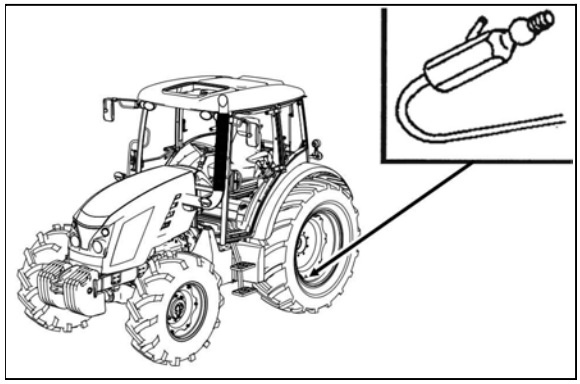


E553

ADDITIONAL WEIGHTS

Valve for filling tyre tubes with liquid

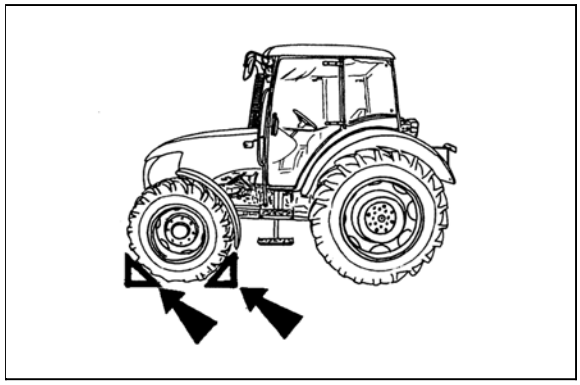
All inner tubes of rear wheels are provided with valves that allow their filling with a fluid if an extension is used.



Tubeless tyres cannot be filled with any fluid! Only radial tubeless tyres can be filled with water for purpose of additional loading. Filling of tubes of the front wheel tyres and rear double wheels with a fluid is not permitted!

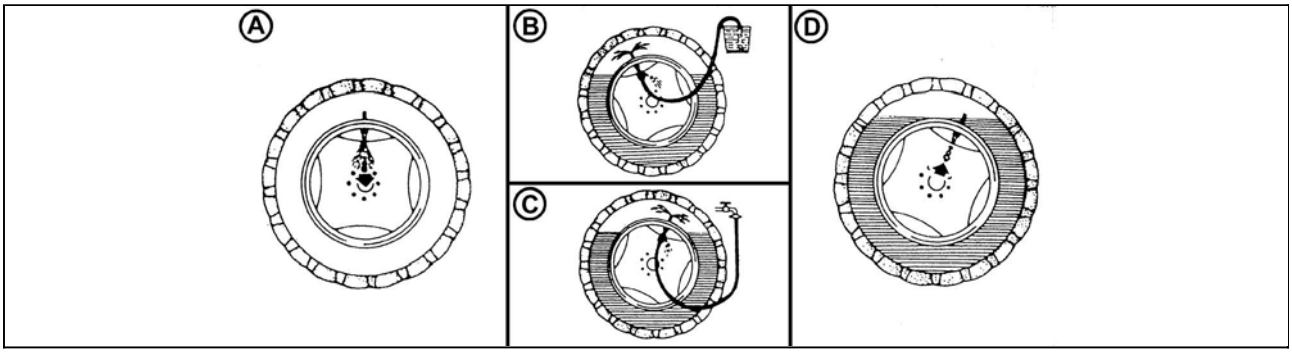
Chocking of front wheels

Before lifting of rear wheel do not forget to secure the tractor against any movement by chocking of front wheels!



E555

Procedure of filling the tyres with liquid



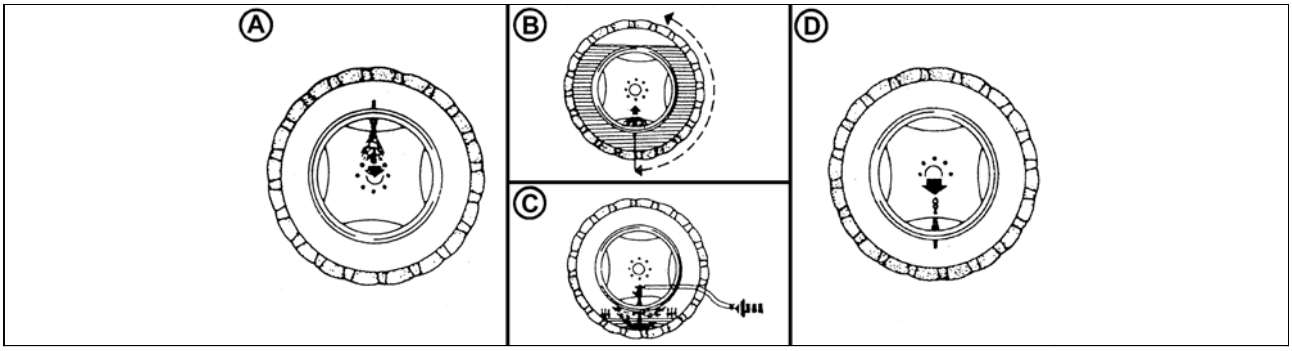
F226

1. Unload the tyre by lifting the tractor and turn it with the valve upwards (A).
2. Deflate the tyre and unscrew the valve insert.
3. Screw the adapter for water filling on and attach the liquid supply hose to it.
4. Fill the tyre with the prescribed quantity of liquid.
5. For the filling you can use a gravity tank (B) or you can fill the tyre under pressure (C).
6. Remove the hose and unscrew the adapter for water filling.
7. Screw on the valve insert and inflate the tyre to the prescribed pressure.
8. After inflating screw the protective cap on the valve.
9. Fill the other tyre in the same way.

Water must not freeze in a tyre!

ADDITIONAL WEIGHTS

Procedure of draining liquid from the tyres



F227

1. Unload the tyre by lifting the tractor and turn it with the valve upwards (A).
2. Deflate the tyre and unscrew the valve insert; turn the wheel with the valve downwards.

During draining of liquid vacuum may occur in the tyre. Therefore, turn the wheel time after time to get the valve to the upper position (B).

3. Remove the rest of the liquid after screwing on the adapter for water filling by supplying pressurized air (C).
4. Blow out the liquid until it stops running through the tube of the air adapter.
5. Unscrew the adapter for water filling
6. Screw the air part of the valve back on and inflate the tyre to the prescribed pressure.
7. Screw the protective cap on the valve.
8. Drain the liquid from the other tyre in the same way.

Maximum liquid weight (kg) by tyre dimensions

Tyredimensions	12,4-36	14,9-28	16,9-28	16,9-30	480/70R30	16,9-34	18,4-30	18,4-34
Weight (kg)	160	190	215	240	280	250	337	345

Antifreeze solution for tyre filling

An antifreeze solution may only be used for filling tyres if you have purchases additional tubes! Caution, the tractor is equipped with tubeless tyres by the manufacturer!

Water for solution preparation	Calcium chloride $CaCl_2$	Hydrated lime	Solution density at 20° C	Freezing point approx.	Total volume	Added weight
(l)	(kg)	(kg)		(°C)	(l)	(kg)
45	11.8	0.21	1.13	-18	50	57
45	13.9	0.23	1.18	-25	50	59
45	15.4	0.25	1.21	-30	50	61

Solution preparation:

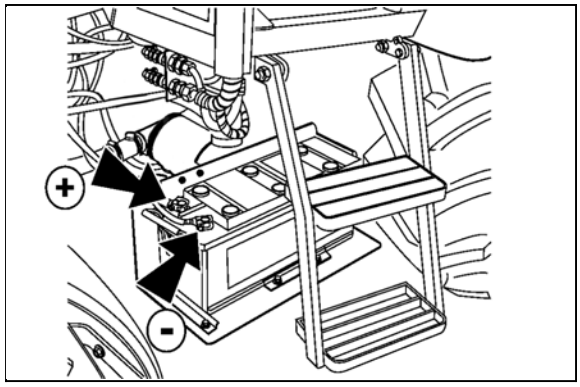
1. Dry calcium chloride $CaCl_2$ is added to water, never the other way round!

2. The solution is not dangerous, but it is necessary to work carefully with it. Remove spilt drops with clean water.
3. Before filling leave the solution to cool down. Observe the prescribed quantity of hydrated lime.
4. The solution must not get in contact with metal parts and the electric installation! The solution is not harmful for the tube valve.
5. The antifreeze solution with the above mentioned composition must not be used in the cooling system!
6. After draining dispose of the antifreeze liquid as special waste!

No additional interventions may be carried out on electric installation of the tractor (connection of other electric consumers) due to its possible overloading!
With repairs of electric installation pay special attention in particular to manipulation with the battery to avoid any contact of electrolyte with skin or clothing.

Basic service information

The battery must always be connected with the 'minus' pole to the ground and with the 'plus' pole to the alternator. If the battery is connected the other way round, it will destroy the whole semiconductor equipment of the alternator. When starting the tractor with the use of an auxiliary battery, do not forget to connect the terminals 'plus' to 'plus' and 'minus' to 'minus'. If you replace a part of the charging circuit, disconnect the battery from the tractor ground (-) with the battery disconnector. This way you will avoid accidental short-circuits on the terminals.



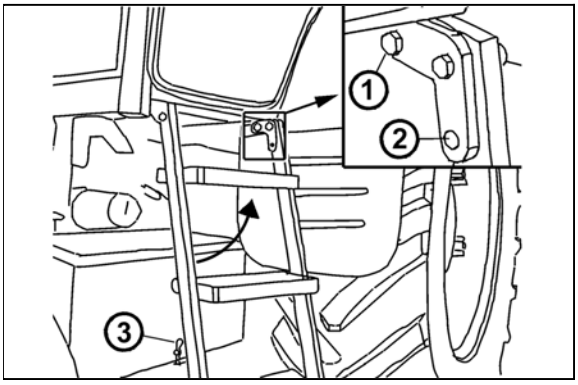
P18N103

In case of any handling or repair of the started motor the minus pole of the battery must be disconnected and all the shifting levers, incl. the PTO shifting lever, must be in the neutral position (do not forget to check whether the locked PTO switches on the right cabin pillar are off as well to prevent spontaneous start and endangering of the service person's life).

It is forbidden to start the engine by short-circuiting the starter motor terminals. Only start the tractor from the driver's seat!

Accumulator battery

The accumulator battery is installed under the cover on the left side of the tractor under the cab step. The battery is accessible after folding up of the cab step.

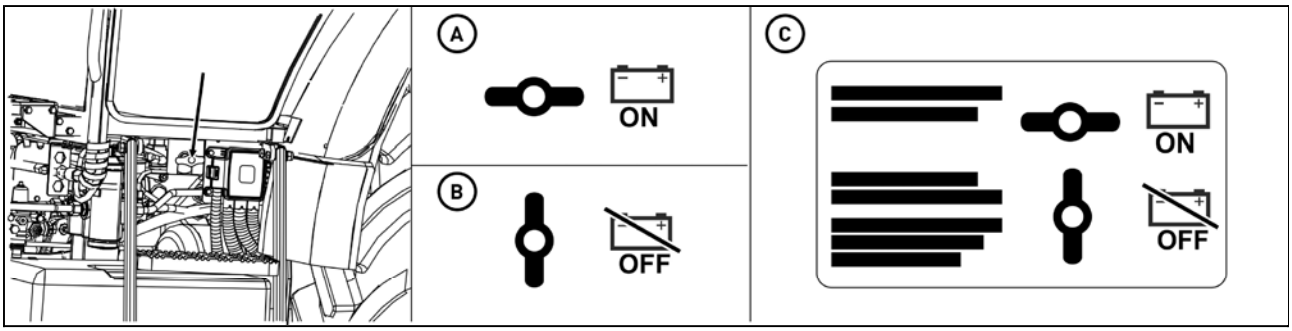


D305

During folding up of the cab step the cab door must be closed.

1 - Remove the screw (1)
2 - Lift the step in the arrow direction
3 - Secure the lifted step with a screw inserted to the opening (2) in the step
4 - Remove the safety pin (3)
5 - Grasp the bottom edge of the cover and remove it

Battery disconnector



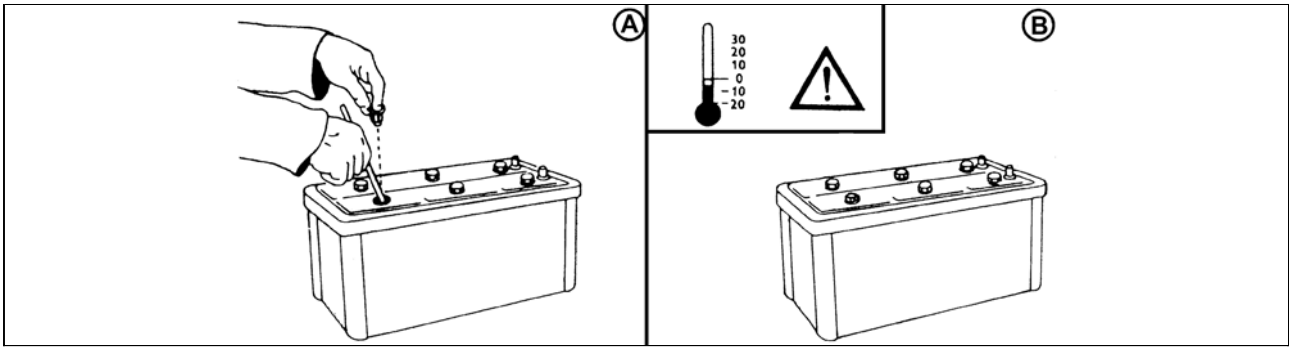
P18N100

The battery disconnector is located on the left side of the tractor behind the driver's stairs.
A - Battery connected
B - Battery disconnected
C - Disconnector plate is located on the cover of the accumulator battery

During tractor shutdown disconnect the battery using the battery disconnector. When the tractor is shutdown for longer time it is necessary to charge the battery at least once in three months due to battery auto discharge.

Attention! When the engine is switched off, the control unit of the engine and of the exhaust system remains active for about 2 minutes because of storage of the engine operation data and drawing of urea back into the tank. During this time the supply of current from the accumulator must not be interrupted. Do not disconnect the accumulator before this time expires.

Accumulator battery maintenance



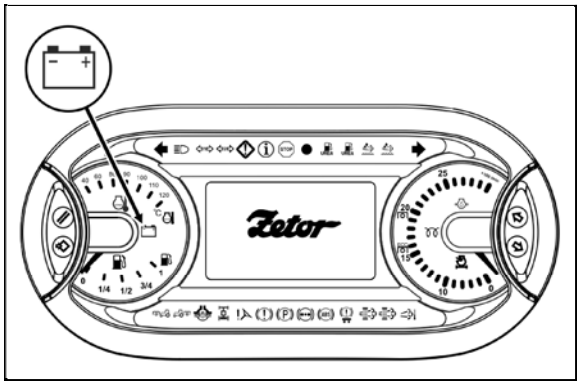
F298

Keep the accumulator battery clean and properly fixed to the vehicle. However, the fixing device must not deform the battery case. In the case of polypropylene batteries the electrolyte level must not be below the minimum mark indicated on the case.

Only add distilled water to the battery!
1. When working with the battery first read the attached manual.
2. During work with the battery protect your eyes with goggles or a safety shield!
3. The electrolyte is a caustic substance; therefore, handle it with proper care.If your skin or clothes get stained by electrolyte, wash the skin or clothes with water and neutralize them with soap.
4. During charging hydrogen is released from the electrolyte on the electrodes. Hydrogen mixed with the air forms an explosive mixture. Therefore, it is prohibited to handle open fire near the battery during charging.
5. An explosion may also be caused by a spark created on the disconnection or release of a terminal when the charging circuit is on.
6. Keep the battery out of reach of children!
7. A discarded battery is dangerous waste for the environment - when buying a new battery hand the old one over to the dealer, who will dispose of it free of charge.

Alternator

Charging is indicated by the red signal lamp on the united board instrument which must be deactivated after the start.
If the engine is running and the red signal lamp is activated, it is a charging error. If this situation occurs, stop the tractor and contact the service centre.



P18N004

When repairing tractor by electric welding, all the conductors must be disconnected alternator. Protect conductor '+B' against short circuit.

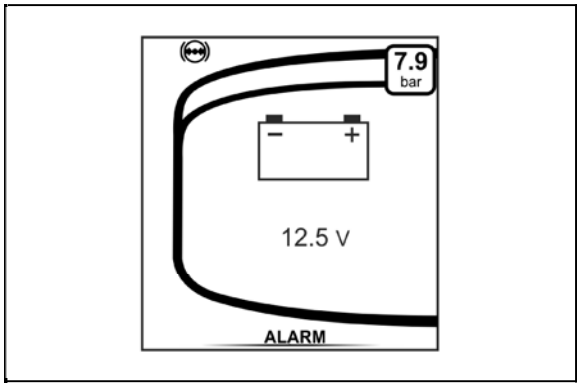
Alternator maintenance

When washing and cleaning the tractor protect the alternator from penetration of water or diesel fuel! During operation the alternator must not be disconnected from the battery! The alternator must never be put in operation without load, i.e. with the conductor disconnected from the '+B' terminal and the '+D' terminal connected. Such a condition may induce an extremely high voltage when the engine speed is increased, which would destroy the semiconductors! Never short-circuit any alternator terminal during operation! The alternator must not be additionally excited. Such an intervention would damage the semiconductors. Ensure perfect electric connection of the alternator terminals and proper grounding of the alternator! Poles of the alternator may not be re-versed even for a short time!

Electric installation overload

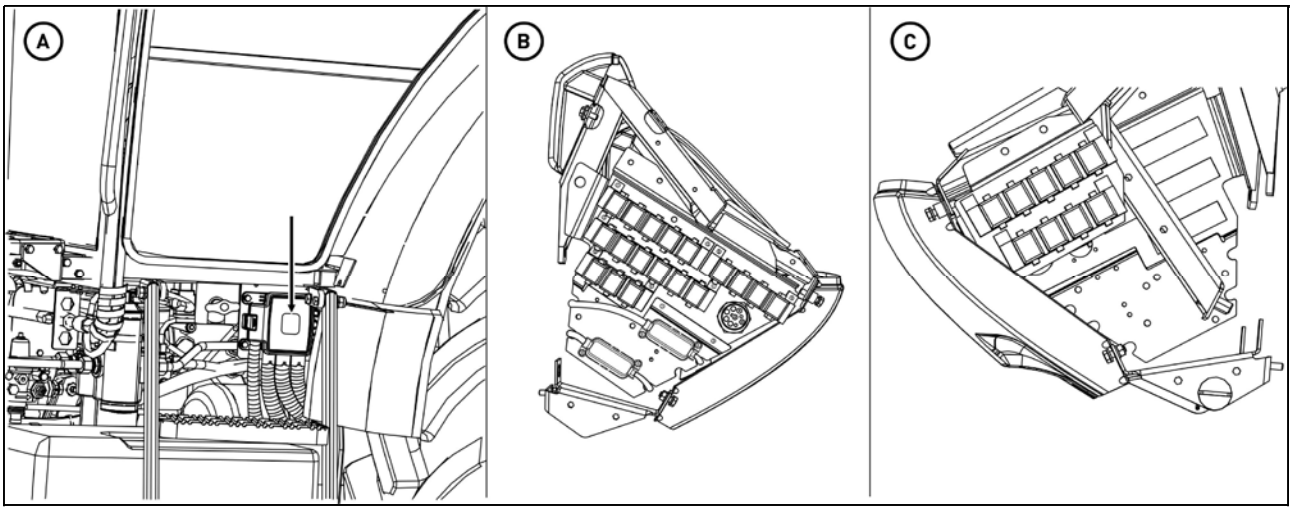
Is signalized by the selected display changing to a display with a symbol of a battery. It is a condition when electric installation of the tractor has such take-off, that the alternator performance is not sufficient to accumulator charging. If this state occurs, turn off a device or increase engine revolutions, load of electric installation drops and originally selected display is displayed.

The operation of tractor in the electric installation overload mode can lead to accumulator depletion.



P18N005

Fuse panels



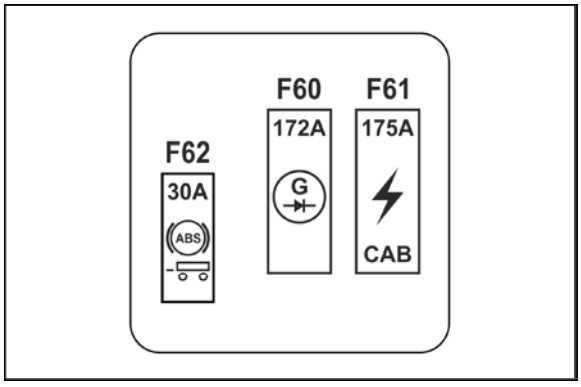
P18N006

There are three fuse panels located on the tractor: The fuse panel (A) is located on the left side of the tractor behind the driver's stairs, not far from the battery disconnector and it is accessible from the outside of the tractor.
The fuse panel (B) is accessible after disassembly of the left side cover of the control bracket and it is accessible from the tractor cabin.
The fuse panel (C) is accessible after disassembly of the right side cover of the control bracket and it is accessible from the tractor cabin.

During replacement of fuses it is necessary to adhere to the prescribed value of the fuse. If interrupted repeatedly, search the nearest service.

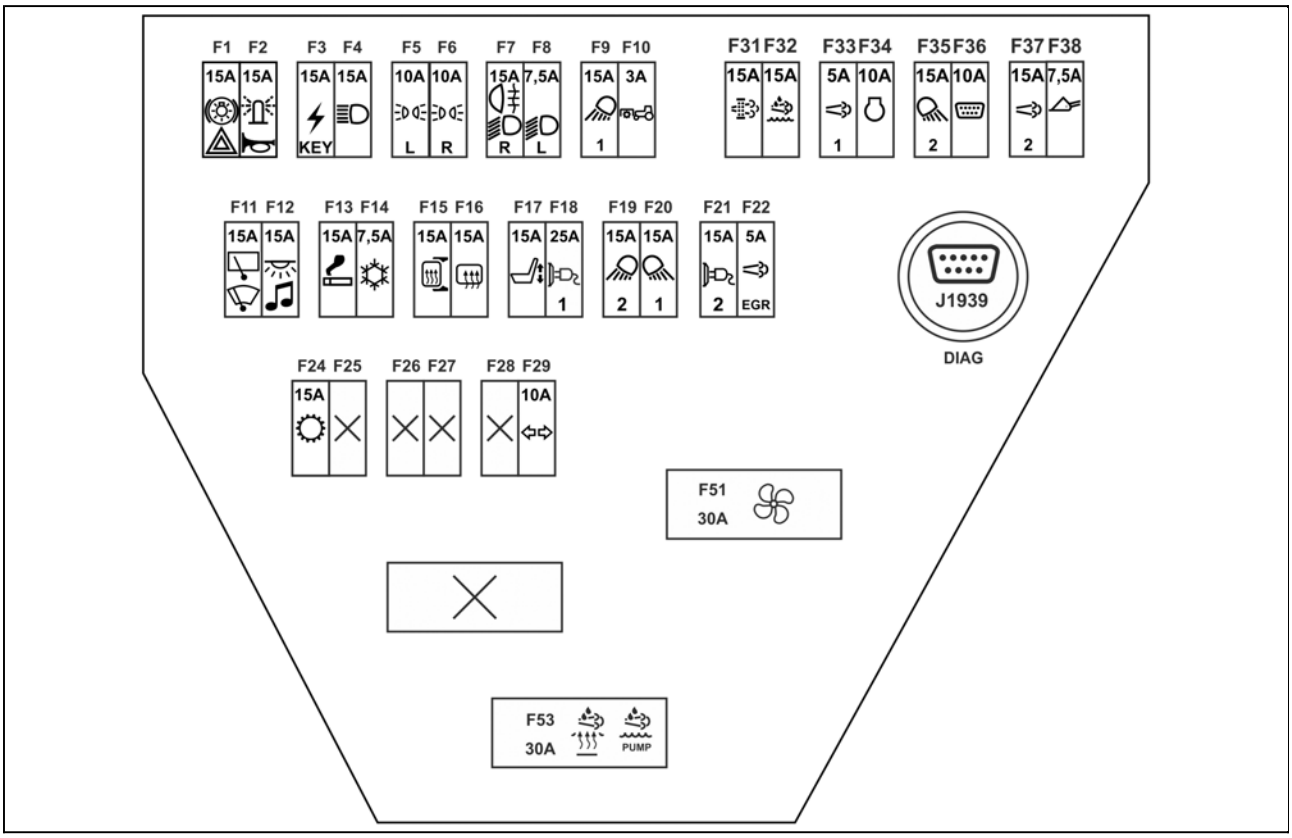
Fuse panel (A)

Note	Fuse size	Secured system
F60	175A	Cabin electric circuits
F61	175A	Alternator
F62	30A	Brake system



P18N007

Fuse panel (B)

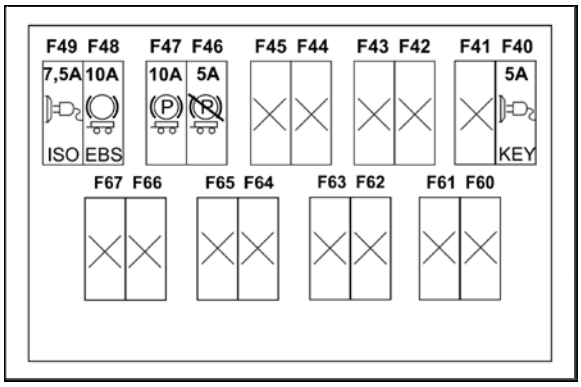


P18N009

Note	Fuse size	Secured system
F1	15A	brake lights, tripper of warning lights
F2	15A	horn, beacon
F3	15A	appliances fed when key is in position I
F4	15A	distance lights with signal lamp
F5	10A	left position lights, instrument panel lighting, number plate lighting
F6	10A	market lights right
F7	15A	right dimmed lights, fog lamp with signal lamp
F8	7.5A	left dimmed lights
F9	15A	front work lights in engine bonnet
F10	3A	front PTO shaft
F11	15A	front and rear wiper, windshield washer
F12	15A	radio, dome light
F13	15A	firer, two-pole socket
F14	7.5A	air-conditioning
F15	15A	heating of mirrors
F16	15A	heating of rear window
F17	15A	compressor of drivers seat
F18	25A	three pin socket DIN 9680
F19	15A	work lights under the roof
F20	15A	work lights under the roof
F21	15A	double plug socket
F22	5A	EGR valve
F24	15A	power supply of the gearbox control unit
F25		unoccupied
F26		unoccupied
F27		unoccupied
F28		unoccupied
F29	10A	tripper of direction lights
F31	15A	DPF system
F32	15A	SCR system
F33	5A	control unit of the exhaust system
F34	10A	engine control unit
F35	15A	rear work lights on the cabin
F36	10A	diagnostic socket, instrument panel
F37	15A	control unit of the exhaust system
F38	7.5A	front loader
F51	30A	heating
F52		unoccupied
F53	30A	heating and urea pump

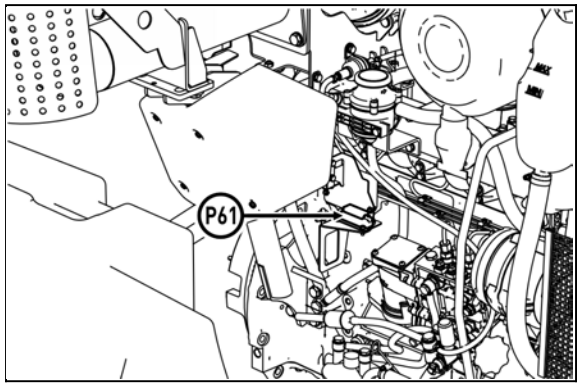
Fuse panel (C)

Note	Fuse size	Secured system
F40	5A	socket in the cabin
F46	7.5A	socket in the cabin
F47	10A	trailer brake system
F48	10A	trailer brake system
F49	5A	trailer brake system



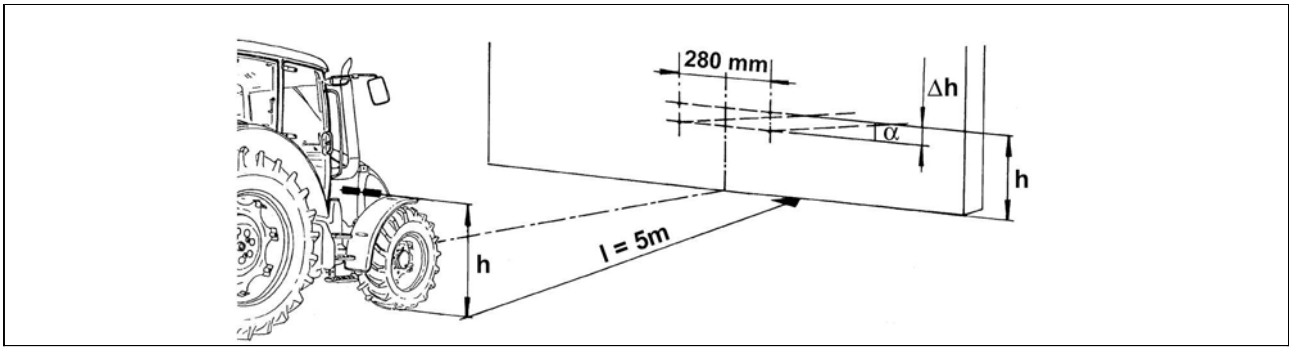
P18N008

The glow fuse F61 is a strip type with the size of 80 A. It is located in the right side of the engine and is accessible when the engine bonnet is open.



F15N045

Checking the adjustment of the front grill headlights



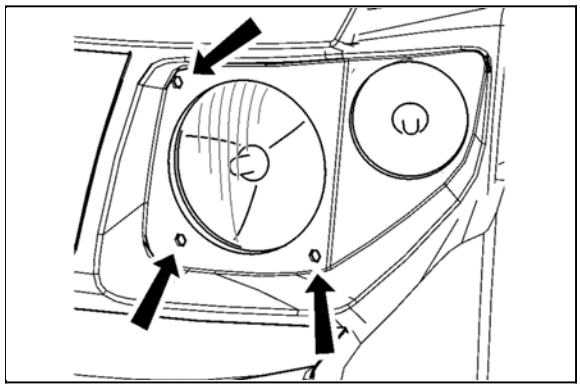
F_02_145

During a check on a test wall the tractor must stand on a level surface and the tyres must be inflated to the prescribed pressure. The basic vertical setting is 3.5% at the shipping weight of the tractor.In the horizontal direction the light beams must be parallel with the longitudinal axis of symmetry of the tractor.

l	-	distance of the test wall from the headlight (5 m)
h	-	height of the headlight centre above the road surface
Δh	-	headlight inclination (-3.5 %) to the distance of the test wall = 17.5 cm
α	-	raising of the outline of an asymmetrical headlight (15%)

Adjusting the front grill headlights

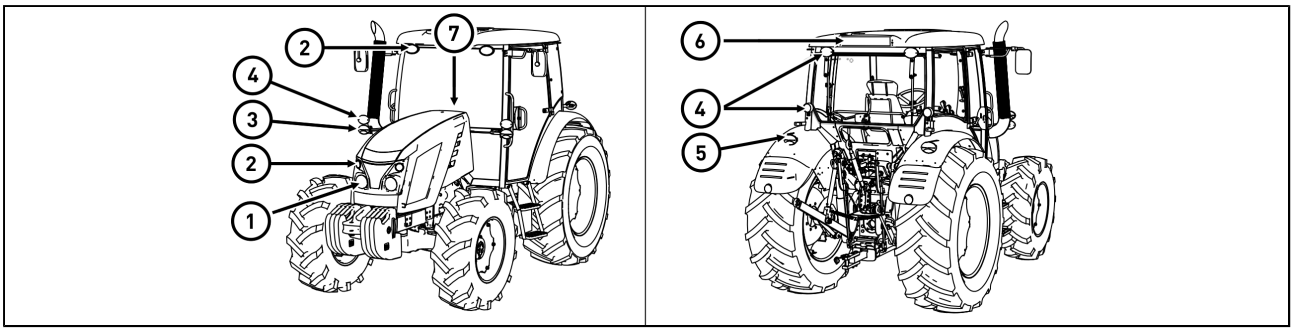
The adjustment is performed simultaneously with all the screws for the vertical and horizontal direction of the beam. In the adjusted condition all the springs of non-adjusting screws must be pre-tensioned. Each headlight is adjusted separately. The lamps are replaced by removing from the rear side of the reflector.



F12N00126

When the bulb is replaced, it is recommended to always adjust the headlights.

List of lamps



P15N068

Pos.	Lamp position	Voltage	Power	Socket	Note
1	Main headlights H4	12 V	55/60 W	P 43t	
2	Working and ploughing lights	12 V	65 W	PGJ19-5	
3	Front combined headlights				
	Turn signal lights P21W	12 V	21 W	BA 15s	
	Position lights R5W	12 V	5 W	BA 15s	
4	Lower beam headlights H7	12 V	55 W	PX26d	
5	Rear combined lights				
	Tail lights and brake lights	12 V	5 /21W	BAY 15d	
	Turn signal lights	12 V	21 W	BA 15s	
6	Registration no. lighting C5W	12 V	5 W	BA 15s	
7	Dashboard, switches	12 V	1,2 W	W2x4,6d	illumination
8	Cabin lighting	12 V	5 W	W2,1x9,5d	All-glass without base
9	Heating panel lighting	12 V	1,2 W	W2x4,6d	

TRACTOR MAINTENANCE

Service inspections
Service inspections are performed as follows:
The first service inspection at the state of the engine hour counter of 100 EH maximum, but not later than 6 months after commissioning of the tractor. The second service inspection after covering another 400 EH (at the state of the engine hour counter of 500 EH maximum) but not later than 12 months after the first service inspection. Next service inspections always after covering another 500 EH but not later than 12 months after the previous service inspection. The service inspections are a part of tractor maintenance. The services authorized by Zetor will provide professional performance of service inspections according to the manufacturer's instructions.

Steps performed daily before the start of work

Prior to starting the engine
Checking the tightness of the fuel system
Checking the oil level in the engine
Checking the amount of the cooling liquid and tightness of connections in the cooling system
Inspection of fouling of coolers
Checking the oil level in the reservoir of the hydrostatic control circuit
Checking the oil level in the gearbox and final drive housing
Checking the air pressure in all tyres
Checking the tightening of wheels
Checking the state of the tractor-drawn and connecting equipment

When the engine is started
Checking the function of engine lubrication (signal lamp)
Checking the function of charging (signal lamp)
Checking the function of driving (signal lamp)
Checking the function and tightness of the control circuit
Checking the function and efficiency of the tractor brakes
Checking the function and efficiency of the trailer or semi-trailer brakes

Steps performed every 50 hours of work
Lubrication of the tractor according to the lubrication schedule
Inspection of fouling of the cabin filter elements

Steps performed every 100 hours of work
Steps performed every 50 hours of work
Cleaning of radiator elements with compressed air
Maintenance of dry air cleaner (depending on signal from the pollution indicator)
Check of amount of oil in gearbox and axle driving box
Check of amount of oil in rear axle portal
Check of amount of oil in front output shaft gearbox housing
Check of amount of oil in reducers and front driving axle housing
Discharge of condensate from air reservoir
Cleaning and application of a lubricating grease thin layer on accumulator battery terminals

Steps performed every 500 hours of work
Steps performed every 100 hours of work
Check the tension of V-belts
Check the whole hydrostatic steering system for play
Check the front axle pin for play
Check the play adjustment of the clutch and brake pedals
Check the function of the parking and foot brake
Check the function of the brakes for the trailer
Check the tightness and function of the pressurized air system
Check the function of the driver's seat, lubricate the movable parts with grease
Calibration of the stops of the injection pump
Adjustment of the release bearing of the clutch of PTO shaft
Inspection whether there is a current software in control units.

Steps performed outside the interval of 500 hours of work

in a new tractor or tractor after a general overhaul								
hour counter reading	100	500	1000	1500	2000	2500	3000	subsequently after every...hours
Check and adjust valve play		o				o		2000
Check the opening pressure of injectors and the function of injection nozzles							o	3000
Diesel particle filter maintenance							o	3000
Replace the hydrostatic steering hoses								every 3500 hours or once every 4 years
Check the toe-in of the front wheels					o			2000

Monthly performed actions

If the tractor is equipped with the air conditioning system that has not been used, it is necessary at least once a month to switch for a minimum of 5 minutes at ambient temperature higher than 4°C.

Filling and filter replacement

of new tractor or tractor after general overhaul						
state of the counter of EH (engine hours)	100	500	1000	1500	2000	subsequently always after...EH
Replacement of engine oil	o	o	o	o	o	500
Replacement of oil filter element of engine oil	o	o	o	o	o	500
Replacement of filter element of fuel		o	o	o	o	500
Replacement of air filter element			o		o	1000
Replacement of safety element of air filter					o	2000
Replacement of filter element of heating						after every 1000 EH or every 2 years
Replacement of cooling liquid						every 2 years
Replacement of the liquid for control of the travel clutch						every 2 years
Replacement of oil in gearbox and final drive housing			o		o	1000
Replacement of oil in portals of the rear axle				o		1500
Replacement of suction filter (suction filter of hydraulics pump)	o	o	o	o	o	500
Replacement of oil filter element of pushing filter of hydraulics pump	o	o	o	o	o	500
Replacement of oil filter element of pushing filter of the brake system	o	o	o	o	o	500
Replacement of oil in housing of front axle drive switch	o		o		o	1000
Replacement of oil in reductors of front axle drive switch	o		o		o	1000
Replacement of oil of hydrostatic control				o		1500
Replacement of filter element of hydrostatic control				o		1500
Replacement of oil in housing of front PTO shaft and cleaning of sieve oil filter		o	o	o	o	500
Replacement of the filter element of the oil separator for ventilation of the crankcase			o		o	1000

Fuels, coolants and lubricants used - amounts

Determination name	amount in litres
Liquid for control of the travel clutch	0,3
Cooling liquid	
Cooling liquid without the cabin	19
Cooling liquid with the cabin	20.5
Oil in engine	10
Oil for hydrostatic control	2,5
Oil for housing of the front driving axle	5.5
Oil for planet reductors of the front driving axle equipped with brakes	2x1.7
Oil for portal	2x1.9
Oil for gearbox and final drive housing	59 *
Oil for gearbox of the front PTO shaft	2.7
Urea	30
Fuel	150

The manufacturer does not take responsibility for any damages caused by the usage of service fillings that do not comply with requirements stated in this service manual.

ZETOR service fillings
To maintain best operational characteristics of your tractor, original operational **Zetor** fillings are recommended to be used.

Motor oils
Engine oil **Zetor 15W40 L-SAPS**

Oil to gear systems of tractors
(gearbox with final drive housing, portals of the rear axle)
Oil for gearing mechanisms of tractors **ZETOR EXTRA 10W30 STOU**

Oil for the front driving axle
Oil for the front axle **ZETOR LS 80W**

Oil for the hydrostatic steering of the tractors
Hydraulic oil **ZETOR HM 32**

Specification of oils for Zetor engines equipped by diesel particle filter

Classification ACEA	Viscosity class SAE	Performance class API
E9/E7	15W-40	API CJ-4/SM

Specification of the oil for the gearbox housing and the final drive housing

Viscosity Class SAE	Performance Class API
10W - 30	GL-4

Specification of the oil for the portals

Viscosity Class SAE	Performance Class API
80W	GL-4
10W - 30	GL-4

Specification of oil for the front driving axle

Viscosity class SAE	Performance class API
80W 80W-90 10W - 30	GL-4 / GL-5

Use oils with additives for the limited slip differential.

Specification of oil for the tractor hydrostatic control system

Specification DIN
51524 HLP

Other recommended service fillings tested on Zetor tractors

Oils for Zetor engines which are equipped with diesel particle filter

Oil marking	Viscosity class SAE	Performance class API
MOGUL DIESEL L-SAPS	15W-40	API CJ-4/SM

Oil in the gearbox and final drivehousing

Manufacturer	Oil designation	Viscosity class SAE	Performance class API
Paramo	MOGUL Traktol STOU	10W - 30	GL-4
Aral	Super Traktoral	10W - 30	GL-4
ÖMV	Austrotrac	10W - 30	GL-4
Fuchs	AGRIFARM STOU 10W-30 MC	10W - 30	GL-4
ORLEN OIL	Agro STOU	10W - 40	GL-4

Oil in the rear axle gantries

Manufacturer	Oil designation	Viscosity class SAE	Performance class API
Shell	Spirax AX	80W - 90	GL-5
Aral	Fluid HGS	80W	GL-4
Agip	Rotra Multi THT	80W	GL-4
Esso	Torque Fluid 62	80W	GL-4
Fuchs	Titan Supergear	80W - 90	GL-4/GL-5
	Titan Hydramot 1030MC	10W - 30	GL-4
	Titan Renep 8090MC	80W - 90	GL-4/GL-5
ÖMV	Gear Oil LS	85W - 90	GL-5
MOL	Hykomol K 80W-90	80W - 90	GL-5
ORLEN OIL	Platinum Gear 80W-90	80W - 90	GL-5

Oil for the front driving axle

Manufacturer	Oil designation	Viscosity class SAE	Performance class API
Paramo	Gyrol - UTTO	80W	GL-4
	Gyrol 80W	80W	GL-4
	Mogul Trans 80	80W	GL-4
	Mogul Traktol UTTO/EKO	80W	GL-4
Esso	Torque Fluid 62	80W	GL-4
Aral	EP 80	80W	GL-4
	Fluid HGS	80W	GL-4
	Super Traktoral	10W - 30	GL-4
ÖMV	Austromatic HGN	80W	GL-4
	Gear Oil EC 4	80W - 85	GL-4
	Austrotrac	10W - 30	GL-4
Shell	Shell Donax TD	80W	GL-4
	Shell spirax GX	80W	GL-4
Fuchs	AGRIFARM STOU 10W-30 MC	10W - 30	GL-4
	Renolin G 100	80W	GL-4
MOL	Farm NH Ultra (UTTO)	80W	GL-4
	Hykomol 80W	80W	GL-4
ORLEN OIL	Hipol® 6	80W	GL-4

Oil for the hydrostatic steering of the tractors

Manufacturer	Oil designation	Classification
Shell	TELLUS DO 32	HLP DIN 51524
Aral	Vitam DE 32	HLP DIN 51524
Fuchs	RENOLIND10VG32	HLP DIN 51524-2
ÖMV	Hyd HLP 32	HLP DIN 51524
PARAMO	MOGUL H-LPD 32	HLP DIN 51524
	MOGUL HM 32	HLP DIN 51524
MOL	Hydro HV 32	HVLP DIN 51524-3
ORLEN OIL	Hydrol L-HM 32	HLP DIN 51524-2
	Hydrol L-HM 46	HLP DIN 51524-2

Front PTO oil

Manufacturer	Oil designation
Shell	Donax TX
BP	Autran DX III
	Fluid 9
Esso	ATF E 25131
Castrol	Transmax S
Elf	Elfmatic G2 Syn
	Elfmatic G3
FINA	Finamatic HP
	Finamatic S6726
Mobil	Mobil ATF
Texaco	Texamatic 7045
Valvoline	ATF Dextron II-E
Beverol	Dextron II-E
	(Fina)matic HP
JD	Hygard JDMJ 20C
Total	Fluide AT42
	Fluidematic Syn
MOL	ATF 3G

Plastic lubricant for the tractor

Type	Classification
Shell retinax HD2	DIN 51825 KP 2 K-20
MOGUL LA 2	ISO 6743/9 CCEB 2/3, ISO - L - XBCEA 2
MOGUL LV 2M	ISO 6743/9 CCEB 2/3
ÖMV signum	DIN 51825-K 2 C-30
MOL	Liton LT 2EP
ORLEN OIL	Liten® Premium ŁT-4 EP2

Liquid for the cooling system of the tractors

FRIDEX - STABIL, FRIDIOL 91 or FRICOFIN S and demineralised water in the proportion of 1:1.5 (replenish the mixture in this proportion).
Antifreeze liquids for replacement abroad must contain anti-corrosion additives protecting all materials (incl. rubber and head gaskets) of the cooling system of the engine.

CAUTION!
1. *Water without an antifreeze mixture must not be used in the tractors!*
2. *Replace the cooling liquid after two years of operation. The FRIDEX - STABIL and FRIDIOL 91 liquids can be mixed together.*
3. *Miscibility with liquids of other manufacturers has not been verified!*

Liquid for control of the travel clutch
Hydraulic oil is used as a liquid in the hydraulic system for control of the travel clutch
TITAN ZH LHM PLUS

TITAN ZH LHM PLUS is not compatible with synthetic hydraulic fluids and therefore must not be mixed with them.
Under no circumstances TITAN ZH LHM PLUS should be mixed with brake fluids of DOT type!

Fuel for Zetor engines which are equipped with diesel paricle filter

Diesel complies with EN 590 standard
IMPORTANT NOTE! ***By using motor oil with elevated sulphur content, the service life of diesel particle filter can be significantly reduced.***

Urea (urea solution AUS 32)
Urea a highly pure aqueous urea 32.5% solution used as a reducing agent NOx for additional treatment of exhaust gases.
The product is labelled as urea or AUS 32 (AUS: Aqueous Urea Solution).
Add only solution adhering to prescribed specifications.

Specification
DIN 70070 ISO 22241-1 ASTM D 7821

Note:
The urea solution AUS 32 is known in USA and North America as Diesel Exhaust Fluid (DEF).

The lifetime of urea without the loss of the quality is influenced by storage conditions. It crystallizes at -11°C and over +35°C it initiates hydrolytic reaction which means that a slow decomposition to ammonia and carbon dioxide begins.
It is essential to protect unprotected vessels from direct sunlight.

Tractor greasing plan

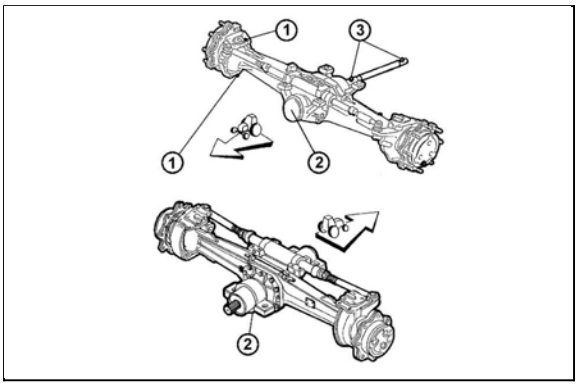
Safety instructions for lubrication of the tractor

- The tractor maintenance may be performed only by the trained personnel thoroughly familiarized with operational and safety principles.
- During maintenance of the tractor wear appropriate (specified) personal protective equipment (occupational footwear, protective gloves, safety goggles, etc.).
- Prior to starting the work, secure the tractor against movement using manual brake.

Lubrication must be performed only when the engine is at standstill!

Solid front drive axle

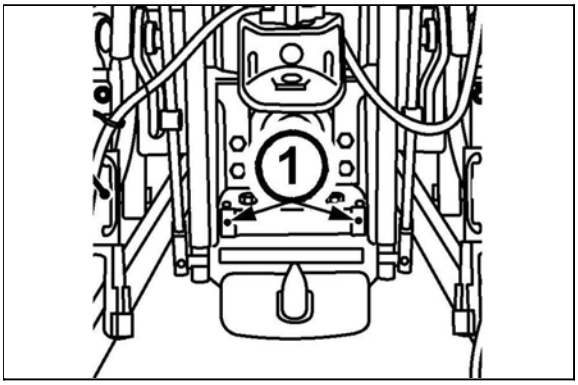
Pos. No.	Name	Number of lubr. points
1	Kingpins	4
2	Central pin	2
3	Connecting shaft coupling	2



8P

Hitch for a single-axle semi-trailer

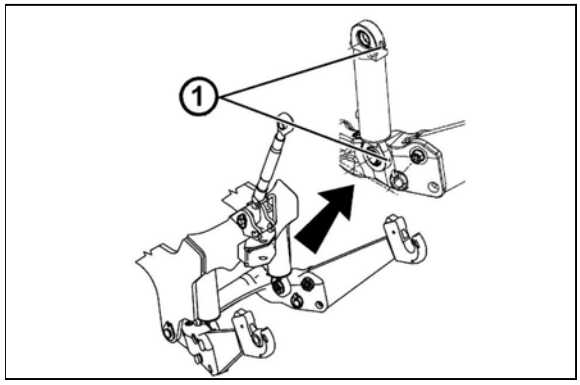
Pos. no.	Identification	No. of lubrication points
1	Hook pin bearings	0 to 4 (by version)



01F

Front three-point hitch

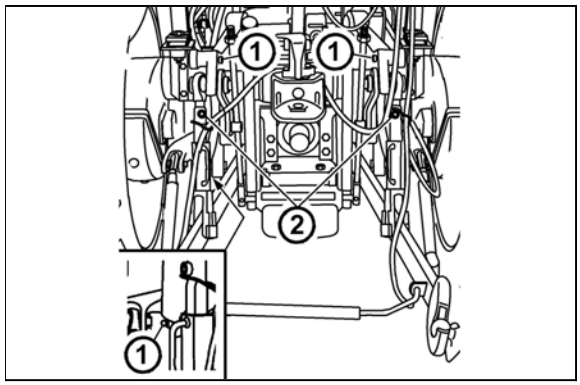
Pos. no.	Identification	No. of lubrication points
1	Pins of cylinders of the front three-point hitch	4



02F

Three-point hitch

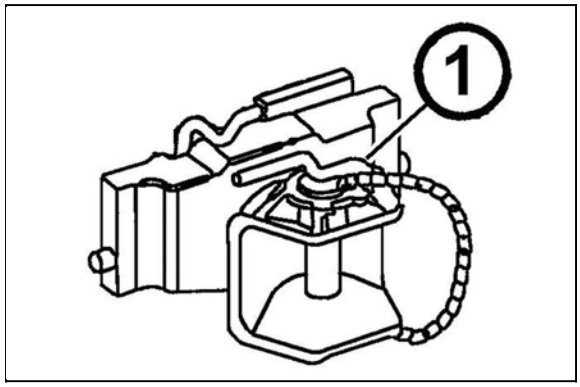
Pos. no.	Identification	No. of lubrication points
1	Pins of auxiliary hydraulic cylinders	2
2	Lifting draw-bars	2



21

Hitch mouth for a trailer

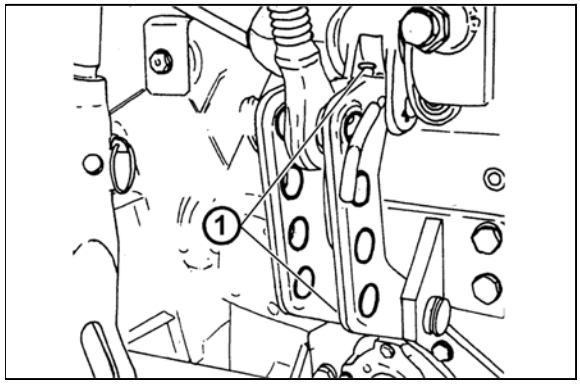
Pos. no.	Identification	No. of lubrication points
1	Hitch mouth for a trailer	1



5P

Upper linkage bracket

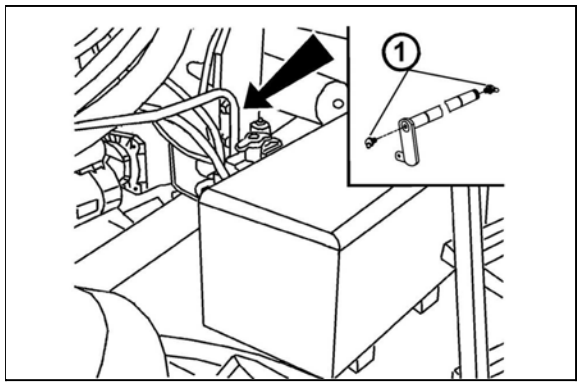
Pos. No.	Name	Number of lubr. points
1	Pins of upper linkage bracket	2



6P

Pin of coupling switching off

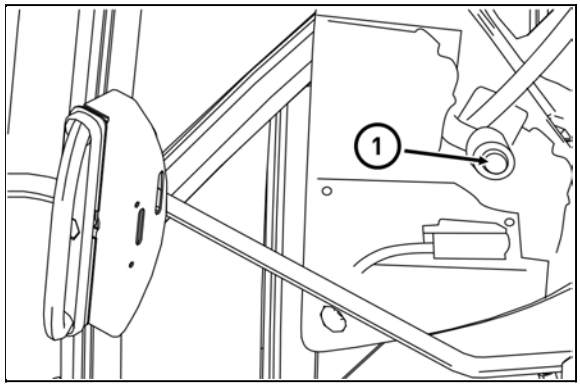
Pos. No.	Name	Number of lubr. points
1	Pin of coupling switching off	2



7P

Reversion lever pin

Disassemble the left side cover of the control panel.
Disassemble the lock ring (1) of the reversion lever pin.
Partly push out the reversion lever towards the instrument panel.
Lubricate reversion lever pin with lubricating oil.Push the reversion lever back and secure with the lock ring (1).



P15N066

Technical maintenance of the tractors after a general overhaul of the main groups

Run in the tractor after a general overhaul in accordance with the instructions for running in a new tractor.
Perform the maintenance in the same way as with a new tractor.

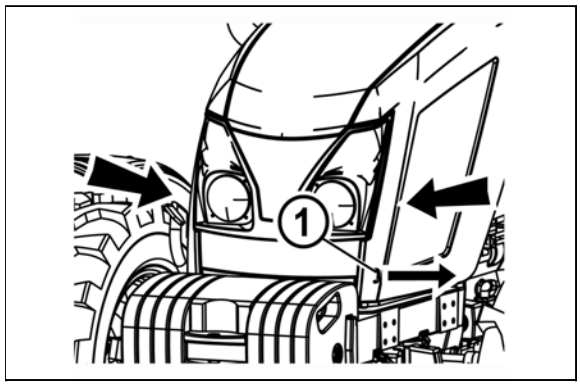
MAINTENANCE INSTRUCTIONS

Most of operations of planned maintenance may be carried out by the driver or other user of the tractor. In case you do not have sufficient technical equipment, let the difficult operations carried out by a specialised repair shop.

All works, connected with cleaning, lubrication and adjustments of the tractor or coupled mechanisms may only be carried out after stopping of the engine and other movable components except checks of brakes, recharging and hydraulic system.

Front bonnet opening

Opening the bonnet:
Unlock the bonnet by pulling the draw bar (1) in the direction of an arrow, grip where the arrows are and heave.
The bonnet is locked in the heaved position by a gas-fluid prop.



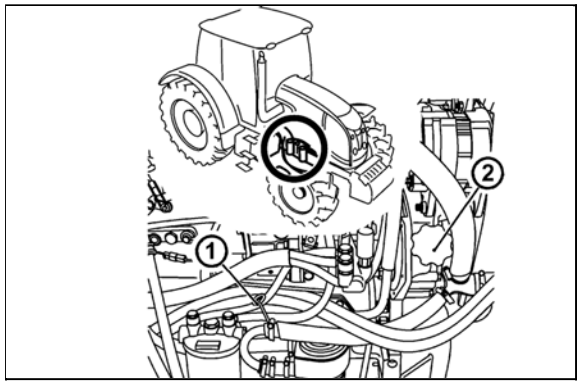
NM13N107

Closing the bonnet:
Pull the bonnet by means of a belt, grip where the arrows are and snap in the downward direction so that the lock of bonnet snaps down.

Rapid closing of the bonnet may damage filaments of bulbs in headlights in the front mask.

Checking oil levels in engine

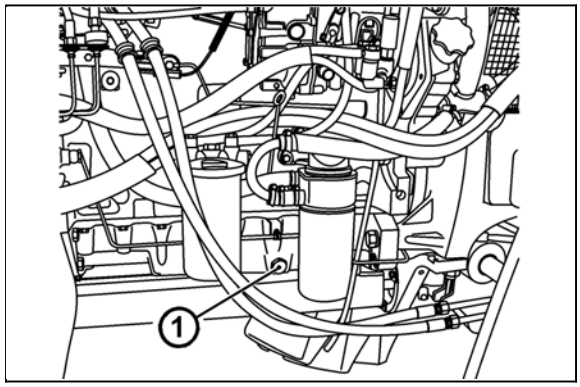
Check daily before starting the operation with the tractor standing horizontally. Engine oil dipstick (1) and filling hole (2) are placed on the rights side of the engine. Unscrew the dipstick (1), wipe off with a cloth and screw back in. When you unscrew the dipstick again, the level must not drop below the bottom gauge. If necessary, refill oil by a filling hole (2).



X903

Draining oil from engine

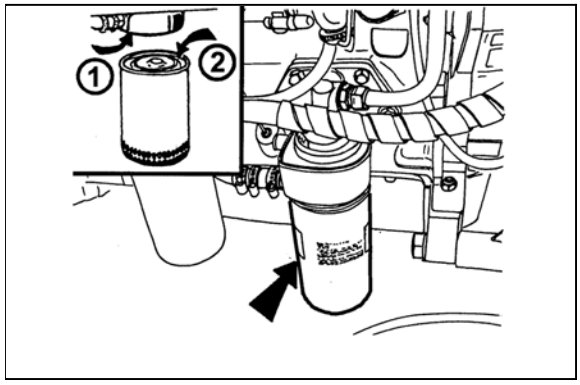
1. unscrew the drain plug (1), best immediately after terminating the drive or after heating the engine to working temperature
2. drain oil
3. clean the drain plug
4. screw the drain plug (1) back in



E703

Replacing full-continuous motor oil filter

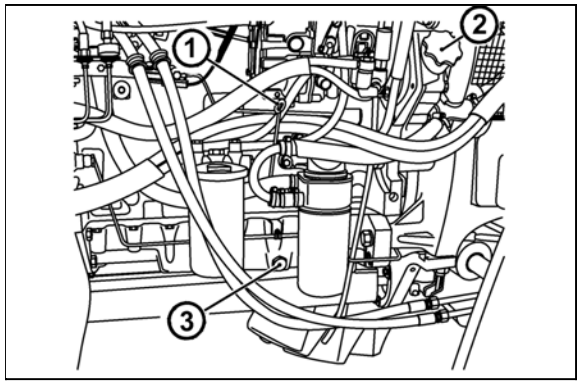
To be done with every oil replacement in engine. Before you screw in a new filter, clean the sealing surface of the body (1) and the filter (2). Grease rubber sealing with oil, with which you will fill the engine and tighten the filter with your hand. After the sealing seats on the sealing of the block, tighten the filter for a 3/4 to 1 and 1/4 of a revolution. Check the tightness again after starting the engine.



E704

Pouring oil to engine

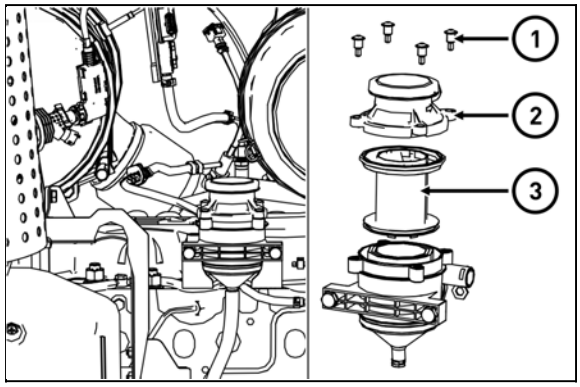
Pour the set amount of motor oil engine by filling hole (2), start the engine and allow it to run for 2 - 3 minutes with engine revolutions of 750 - 800.
After stopping the engine and settling the level recheck the amount of oil with a dipstick (1) and check the tightness of filter, drain plug (3) and other joints.



E705

Replacement of carter exhaust oil separator filter element

Oil separator is placed on engine's right hand side and is accessible when lifting the hood. To replace the filter element dismount four bolts (1) and separator cover (2). Pull the element (3) to remove it. Clean the inside surface of separator first and verify the function of reverse valve, placed in the separator cover, then place back a new filter element. Verify the correct position of filter element seal, mount back the separator cover and tighten four bolts (1).

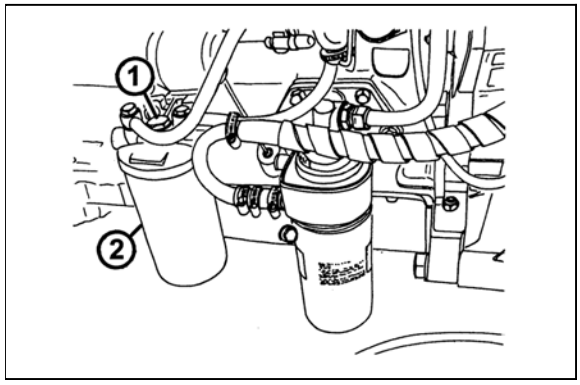


FHD15N014

Fuel filter element replacement

Before you replace fuel filter, place a suitable vessel under the engine for catching dripping fuel from the filter.

1. release the nut (1)
2. unscrew bulb (2)
3. clean the bulb and replace the filter element
4. check proper positioning of bulb sealing
5. do the bulb back assembly
6. do fuel system venting

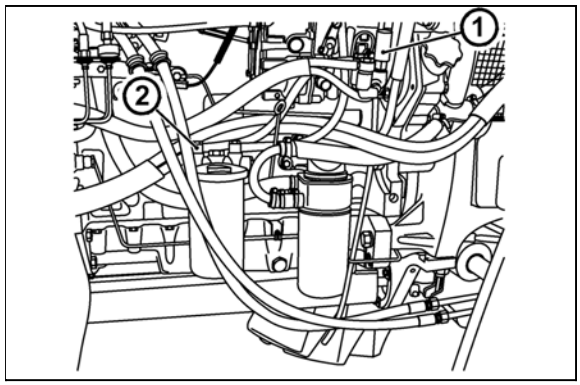


E706

Fuel system venting

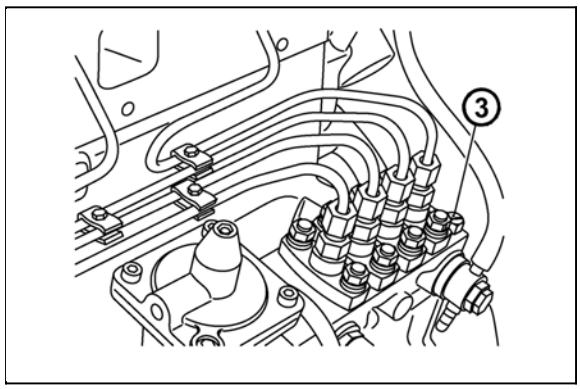
Before you vent, place a suitable vessel under the engine to catch dripping fuel from the filter and injection pump.

1. by several heaves of a manual control of feeding pump (1) pressurize the fuel system
2. release the screw of branch pipe of fuel feeder to filter (2) and allow the fume to escape
3. tighten the screw (2) and repeat the procedure to the moment when a clear fuel starts flowing smoothly from the filter



E707

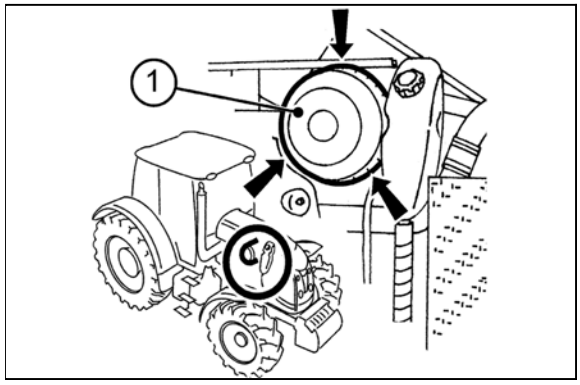
4. vent injection pump in a similar procedure
5. vent with a screw (3) placed on the body of the pump



E708

Maintenance instruction of dry air filter

Do air filter maintenance accordingly:
1. heave the front bonnet
2. release the clamps of air filter lid (marked with arrows)
3. remove air filter lid (1)

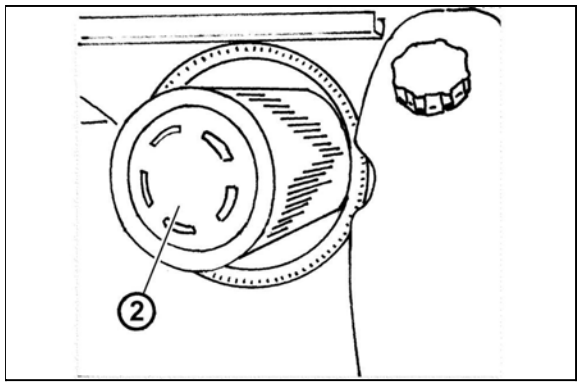


X712

Main air filter element regeneration

- pull to remove the main dry filter element (2)

If main element is not damaged (there must not be dust on the internal side of the element) regenerate by blowing with compressed air from the internal side of the element. Main element can be regenerated this way 3 times maximum. Element must be replaced once a year.

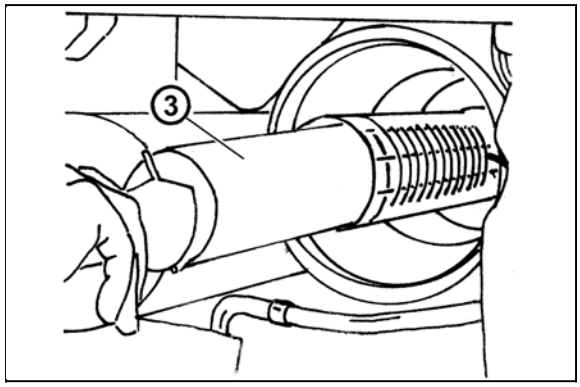


G713

Replacing dry filter locking element

- remove dry filter locking element (3) with a pull

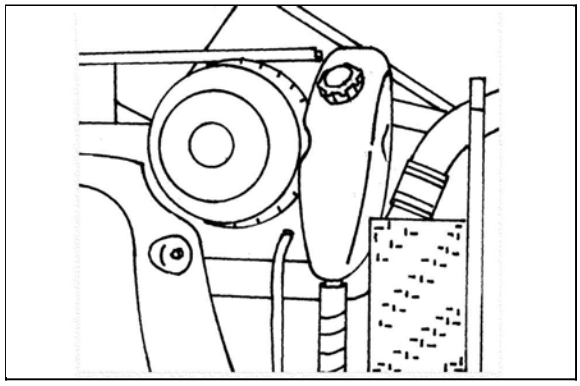
Locking element cannot be regenerated. It must be always replaced in these cases:
- when damaging main element
- after 5 maintenances of air filter
- at least once in two years



G714

Back assembly of air filter elements

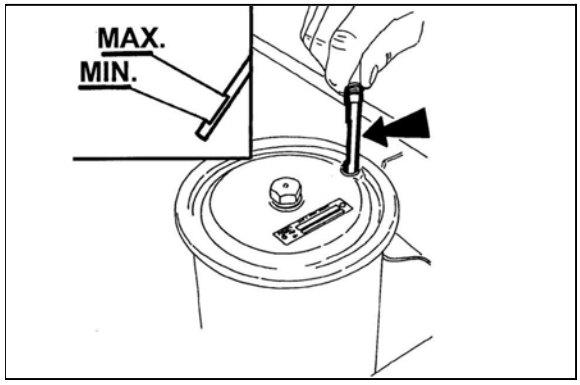
Do back assembly of air filter elements reversely.
Mind the following with back assembly:
- contact surfaces cleanliness
- elements must not be deformed with assembly and must not vibrate after assembly
- after closing the filter with a lid a perfect tightness of the whole filter must be ensured
- after completing the maintenance of dry air filter, secure proper function of pollution indicator



G715

Checking amount of oil in hydrostatic steering tank

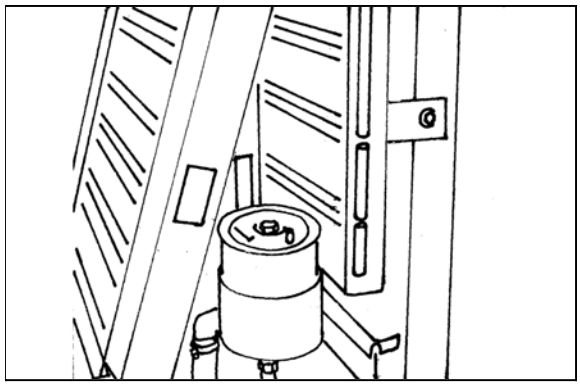
Inspect daily before starting the operation with tractor standing horizontally. Lift off the bonnet. Unscrew dipstick, wipe off with a cloth and screw back in. After repeated unscrewing of the gauge, the level must not drop below bottom gauge line. Replenish the oil when necessary after demounting the cap of the tank.



E719

Replacing oil and hydrostatic steering filter element

1. place a suitable vessel under the hydrostatic steering tank
2. unscrew drain screw at the bottom of the tank
3. drain the oil
4. unscrew the nut of tank cap
5. demount the cap of hydrostatic steering tank

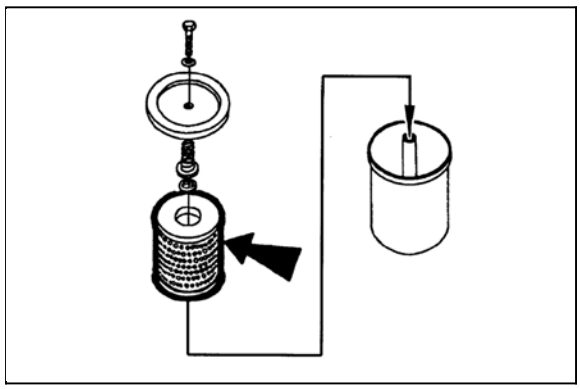


G750

6. remove and replace filter element
7. set the lid of the tank back in
8. lock its position with a nut
9. screw drain screw back in

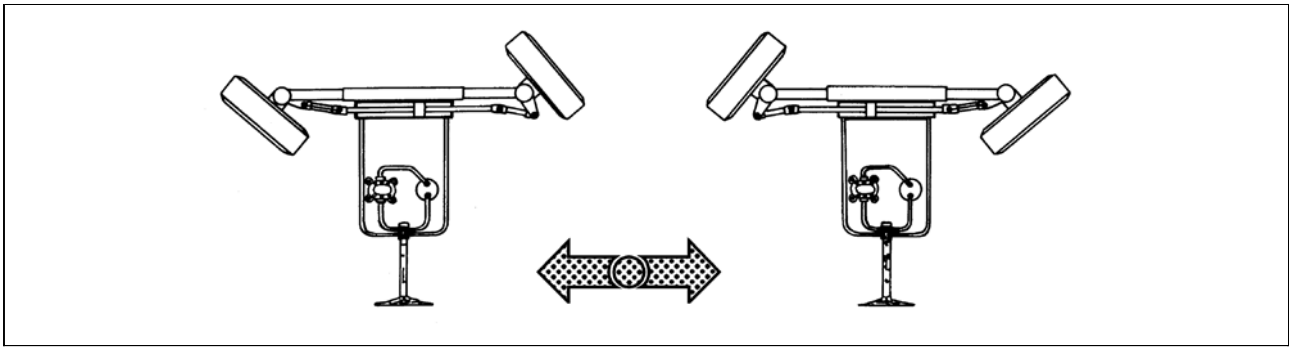
10. disconnect both hoses from working roller and waste pipeline from the tank (place vessels for used oil under working roller hoses and waste pipeline)
11. start the engine and with idle run (max. 10 seconds) turn the steering wheel 2-3 times to both sides so that you pushed oil from control unit and pipeline
12. secure the tractor against movement and lift front drive axle

13. place a vessel for oil under the working roller and by turning the wheels (manually) push the oil from working roller
14. do the back assembly of all disconnected joints
15. fill the tank with oil and vent hydrostatic steering circuit



E721

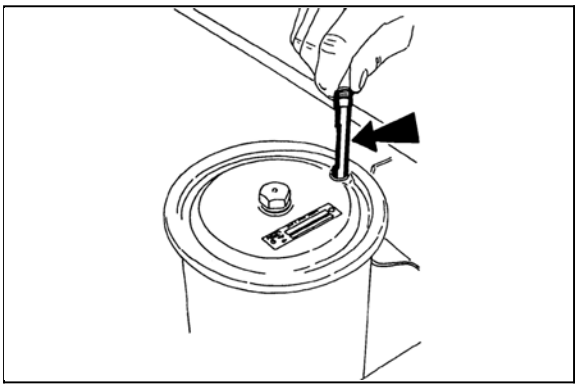
Venting hydraulic circuit of hydrostatic steering



E722

1. secure the tractor against movement and lift the front axle
2. start the engine and allow it to run for approximately 1 minute in idle run
3. turn the steering wheel several times to both sides with idle run
4. with maximum engine revolutions, turn the steering wheel 3 times alternately slowly and quickly to both sides to restricting wheel stop
5. stop the engine
6. after completing the venting check or replenish the oil level to control gauge line. Check the tightness of all joints and hydraulic circuit guide-ways of hydrostatic steering
7. lower the tractor down to front wheels

Monitor oil level in the tank with all hydrostatic steering venting steps to prevent air sucking to the system of steering.



E723

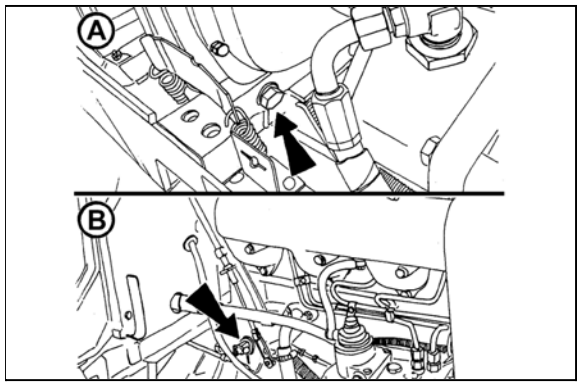
Replacing the hoses of hydrostatic steering

Hoses need to be replaced four years from the date of their manufacture (date is given on their surface) or after working 3,500 hours with tractor, or right after learning the symptoms of their damage (hose, local swelling, penetration of working medium around endpoints and hose surface, wrapping damage by mechanical smear to a metallic body, damage to external buckle braid with low-pressure hoses).

If a pump gets damaged or if the engine is at standstill, steerability is observed, but the force on the steering wheel increases. It is possible to get to the nearest place where repairs can be done with lowered speed. The steering wheel must not be held in the positions of extreme wheel locks for longn (maximum time is 20 sec.), otherwise there is excessive oil heating in hydrostatic steering circuit.

Replacing coolant

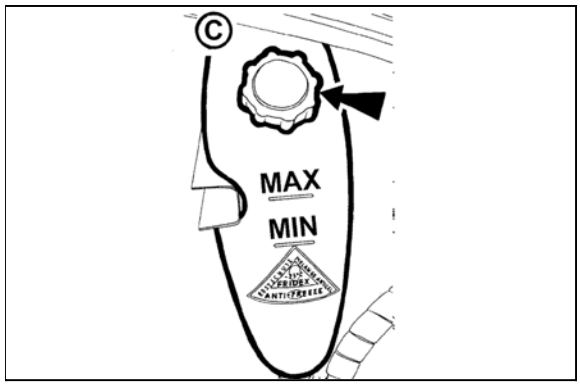
Proceed in the following way:
1 - Open the heating valve and release the pressure cap (C) on equalizing vessel.
2 - Drain the coolant from the radiator. Plug (A) is accessible after lifting the bonnet.
3 - Drain the coolant from the block of engine. Drain cock (B) is accessible after the disassembly of right side part.
4 - After draining the coolant close the drain valve and cap (leave heating cock open).
5 - Fill the cooling system with a coolant to the neck in equalizing vessel and close by pressure cap.



FH12N084

6 - Start the engine and allow it to run for approximately 1 min.
7 - Fill the level of coolant in equalizing vessel to MAX. gauge.
8 - Close the vessel with a pressure cap (C).

Always use the prescribed coolant to fill the cooling system of the engine. Never fill the cooling system with water. Using other than the prescribed coolant may damage the engine.

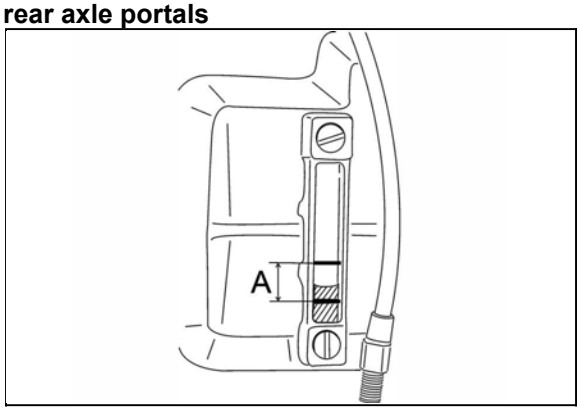


XF_02_199

Check and replacement of oil in gearbox, axle drive and rear axle portals

Oil level in the gear mechanisms is checked oil gauges, whitch is located in left rear part of the gearbox case.
A - Standard oil filling

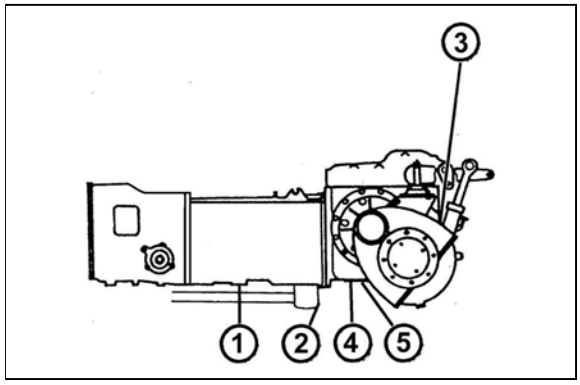
Carry out checks when the engine is stopped.



P12N001

Drainage and inspection holes

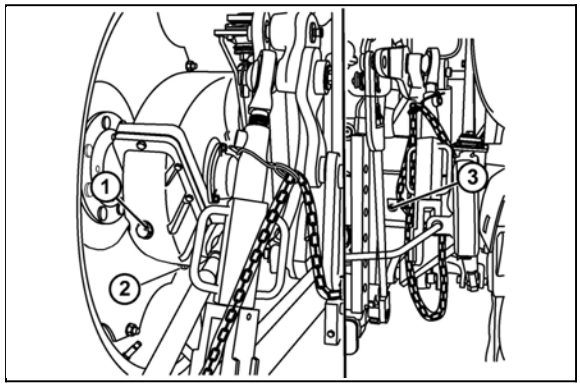
1. Drain plug of the gear mechanism.
2. Oil drain plug from the outlet for the front driving axle.
3. * Brake chamber inspection screw.
4. Plug for drainage of oil from the axle drive case.
5. Drain plugs of the left and right brake chambers.



E729

1. * Inspection and oil filling screw of the axle shaft case (applicable for standard adjustment of the portal).
2. Plug for draining of oil from the axle shaft case.
3. * Inspection screw of the brake chamber.

After screwing out the inspection screw the level of oil shall reach lower edge of the inspection hole.

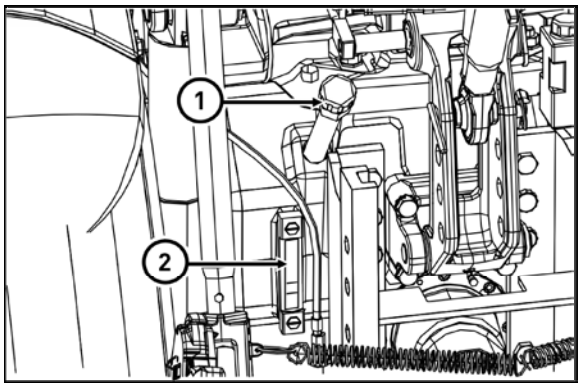


E730

Oil replacement in gear system

Prior to draining the oil always put a suitable vessel for catching the dripping oil under the tractor.

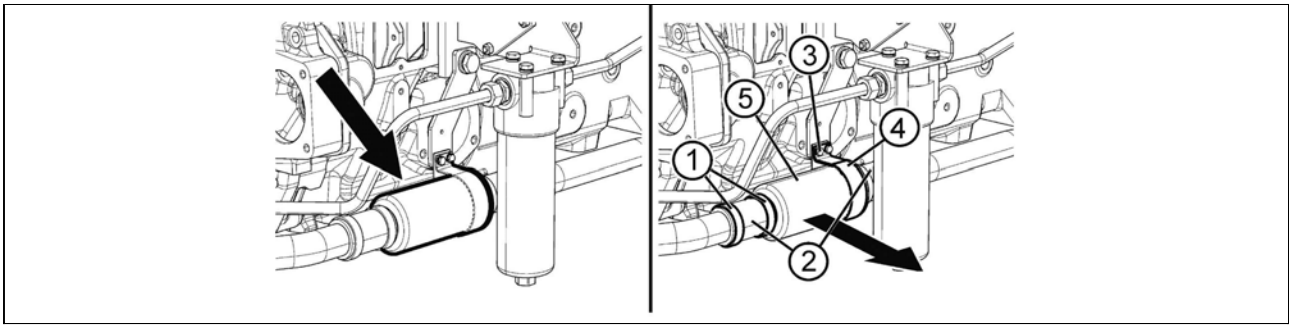
1. Unscrew the drain plugs, preferably after the drive or when the oil is heated to the operating temperature
2. Drain oil (remove the filling hole plug to facilitate drainage)
3. Clean the draining plugs and screw them back (new sealing of the drainage plugs must always be used)
4. Replace the filter elements, if necessary
5. Pour new oil through the filling hole (1) located in the rear part of the tractor
6. Check the amount of the added oil on the oil level gauge (2)
7. Start the engine and leave it running for ca. 3 minutes at idling speed
8. When the engine is stopped and the surface is calm, check the amount of oil on the oil level gauge (2), if necessary, add oil to the required level



P18N010

After replacement of oil filling in the tractor transmission system, bleeding of the whole braking system must always be performed!

Changing suction filter



P11004

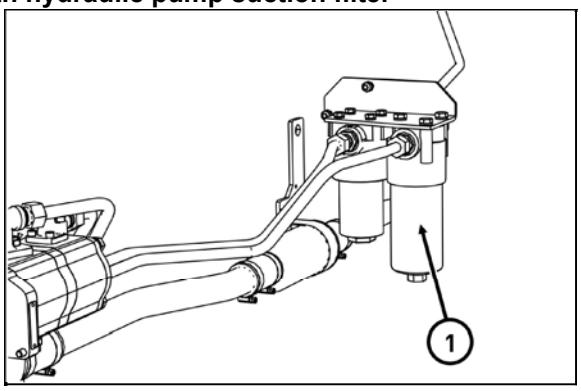
Suction filter is located on the left side of gearbox. To change the filter, empty the oil from gearbox.
Oil flows out of the hoses while changing the filter. Capture the oil in a clean container.
Loosen cuffs (1) on both sides and pull off the hoses (2). Remove the bolts (3), take off the cuff (4), and remove the filter (5). To place a new filter, proceed contrariwise. Put the oil which has flown out back to gearbox (this holds if it is necessary to change the filter outside the period recommended for changing the filter and oil).

Replacement of the transmission oil cleaner element with hydraulic pump suction filter

The oil cleaner is placed on the left side of the gearbox.

Before replacing the oil cleaner element, place a suitable vessel for dripping oil under the tractor.

1. Unscrew the body of the cleaner (1)
2. Replace the filtration element
3. Reassemble the body of the cleaner



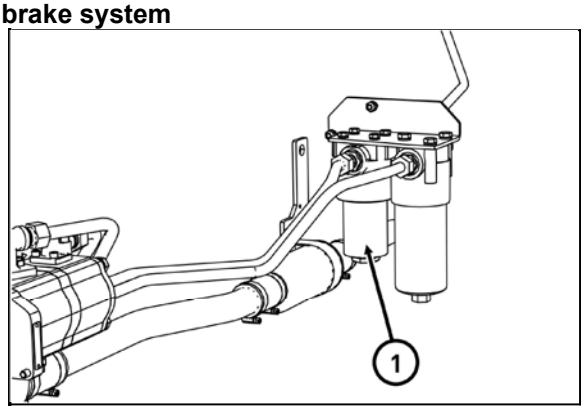
P18N011

Replacement of oil filter element of pushing filter of the brake system

The oil cleaner is placed on the left side of the gearbox.

Before replacing the oil cleaner element, place a suitable vessel for dripping oil under the tractor.

1. Unscrew the body of the cleaner (1)
2. Replace the filtration element
3. Reassemble the body of the cleaner



P18N012

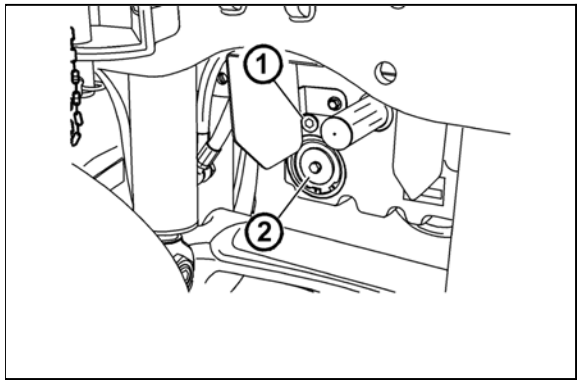
After replacement of the oil filter element of pushing filter of the brake system, after starting the tractor the engine must be left running for at least one minute when self-bleeding of the brake system occurs. During this time do not press the brake pedals in order to avoid bleeding of the brake system.

Front PTO

The inspection and filling plug of oil (1) is situated on the front side of the front PTO case.

Note: The front PTO with the standard turning direction is equipped with a hollow bolt of the oil cooler hose instead of the inspection and filling plug. Perform the check after removing the hollow bolt.

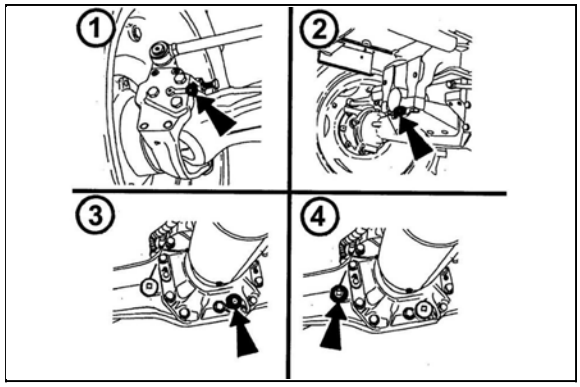
After unscrewing of the inspection plug the oil level must reach the bottom edge of the inspection opening. During the oil replacement the oil cleaning strainer (2) must be cleaned. The cleaning strainer is accessible after the disassembly of the locking ring and removal of the cap.



F206

Filling, controlling and draining hole of oil of front drive axle

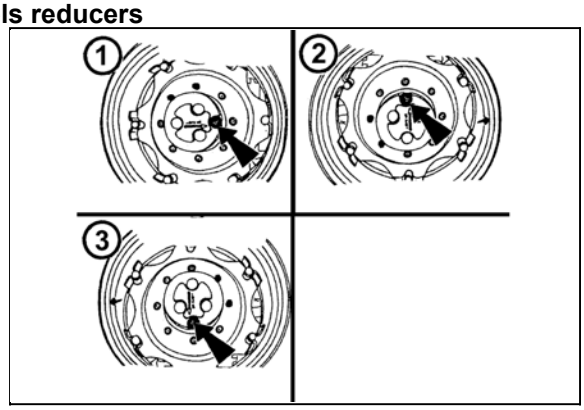
1 - lubricating nipple of the kingpin
2 - sliding bearings (2 pieces) of the front driving axle
3 - drain opening of the final drive hous-ing oil
4 - filling and inspection opening of final drive housing oil (after removing of the inspection screw the oil level must reach the bottom edge of the inspection opening)



E733

Filling, controlling and draining hole of oil of front wheels reducers

Inspection, filling and draining oil is done by a one hole after turning reducer according to figure.
1. amount of oil inspection - hole in the horizontal axis of a reducer (after unscrewing control screw the level of oil must reach the brim of checking hole)
2. filling oil - hole at the top
3. draining hole - hole at the bottom

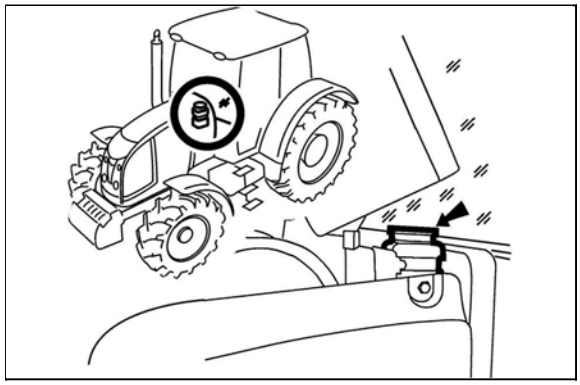


C731

Addition of the liquid for control of the clutch

The reservoir is located on the left side of the tractor in front of the cabin and is accessible when the front engine bonnet is open.
Maintain the liquid level within the range from 3/4 of the reservoir content (max. height) to 1/2 of the reservoir content (minimum level height).

Strictly maintain the cleanness when handling the liquid. Check the level height daily prior to the drive.



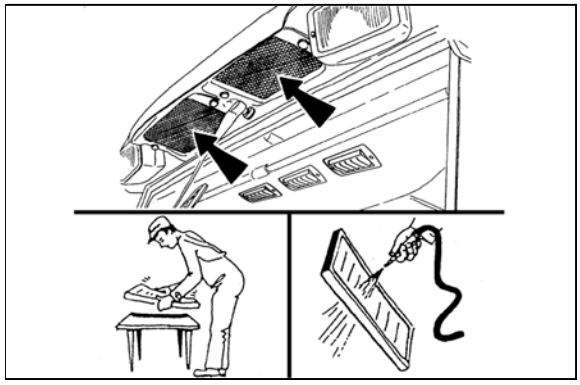
G735a

Cleaning the heating filters

Recover the filters positioned under the covering grills over the windshield outside the cabin with regard to the degree of clogging:
- by shaking
- by blowing with compressed air

Check the filters for clogging daily. Replace heavily clogged filters.

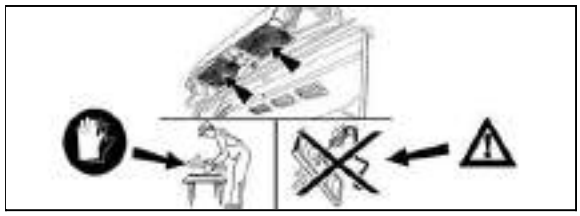
The safety cab of the tractor is not equipped with special filters of air aspirated to the cab. It does not protect the operator from the effect of aerosols and other harmful substances! Use a filter with active carbon when working with harmful substances.



F13BN030

Air filter with active carbon

Filters with active carbon are installed instead of the standard dust filter and they are replaced in the same way as the normal filters. The filter must be inserted with the white side towards the grill.
The filter is only used during spraying of pesticides; then it must be replaced with a paper filter again as flying dust would clog the carbon filter in a very short time.
During its use the recirculation control must be in the position of 'air suctioned from the outside'.
The fan control must be in the 'maximum' position.



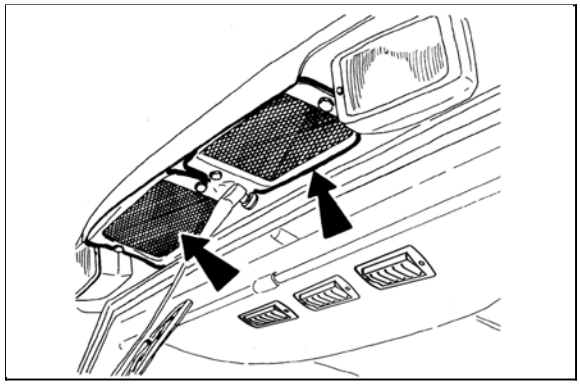
F13BN031

The filter does not provide complete protection from toxic substances:
- When handling the filter wear protective gloves
- Do not clean or blow the filter with compressed air

Replace the active carbon filter every 200 hours or 36 months (the production date is printed on the filter). If you feel the smell of pesticides in the cab, replace the filter immediately and have the cab sealing checked. Used filters must be disposed of in specialized collection centres.

Carbon filter installation instructions

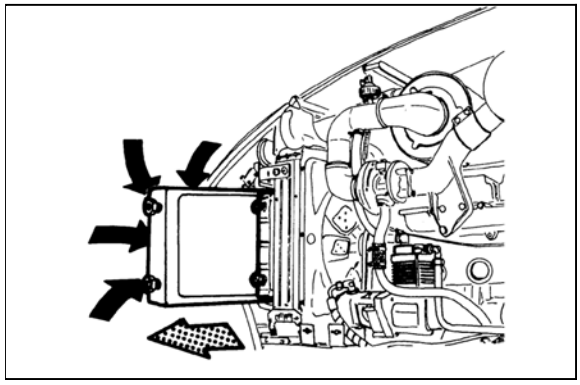
1. Remove the old filter from the air duct orifice in the place of its mounting.
2. Remove the protective package from the new filter.
3. Insert the filter into the air duct orifice in such a way to make the air flow direction correspond to the flow direction through the filter in accordance with the arrow on the filter. The entering air must first pass through the white dust filtration layer.
4. Check proper sealing of the filter.
5. Secure the filter.



F13BN029

Air-conditioning maintenance

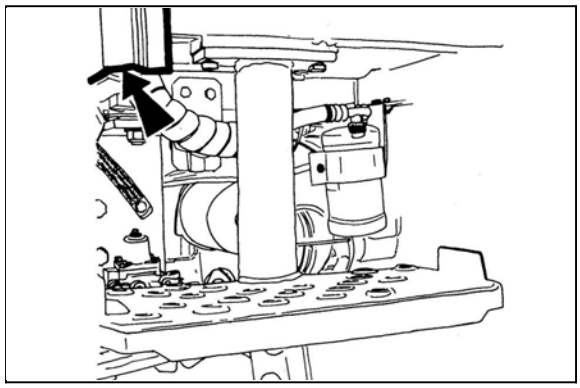
The most important element of maintenance of the air-conditioning system is cleaning the AC condenser (it is installed in front of the engine cooler). If the AC condenser is clogged, it does not only reduce the cooling efficiency of the AC system but also the efficiency of the engine cooling.



F_02_120

Remove the front side plate of the hood, release and slide the cooler towards the side and clean the condenser with pressurized air or pressurized water (against the driving direction of the tractor). Then, slide the cooler back and fix it properly. Be careful about the proper routing of hoses to the oil cooler.

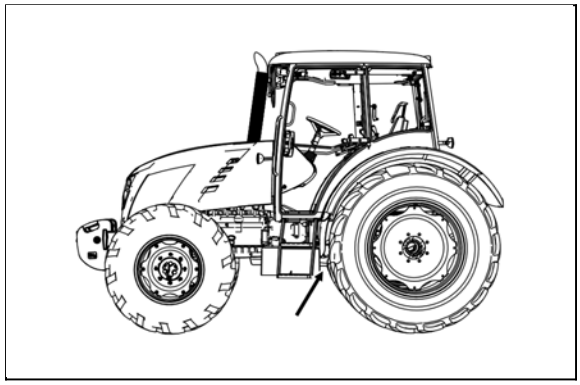
When the air-conditioning functions properly, water condenses in the roof space of the cab and the condensate is drained through hoses in the cab pillars and runs out at the bottom side of the pillar. This is why you must make sure that the condensate drain hoses will not be blocked.



F267

Draining condensate from the air reservoir

Drain condensate by pulling the ring to deflect the bleeding valve.
The valve is installed on the air accumulator bottom.

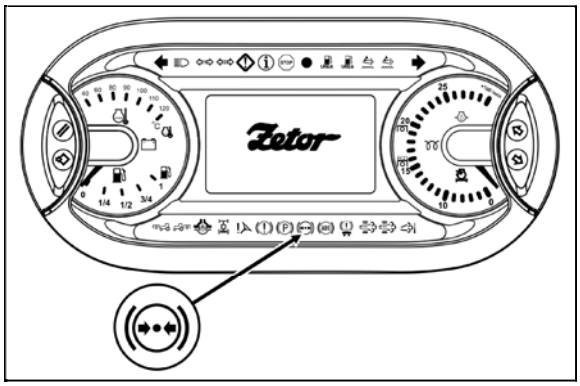


G731

Checking the air systems for leaks

- fill the air reservoir to the maximum pressure (730 ± 20 kPa).
- with the engine stopped the air pressure must not drop by more than 10 kPa in 10 minutes.

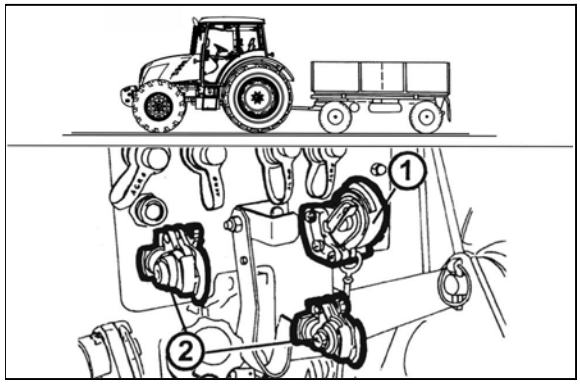
Perform the leak check daily before driving with a trailer or semi-trailer. In case of a brake system failure or if the pressure drops below 450 ± 30 kPa, the warning indicator on the dashboard will light up.



P18N013

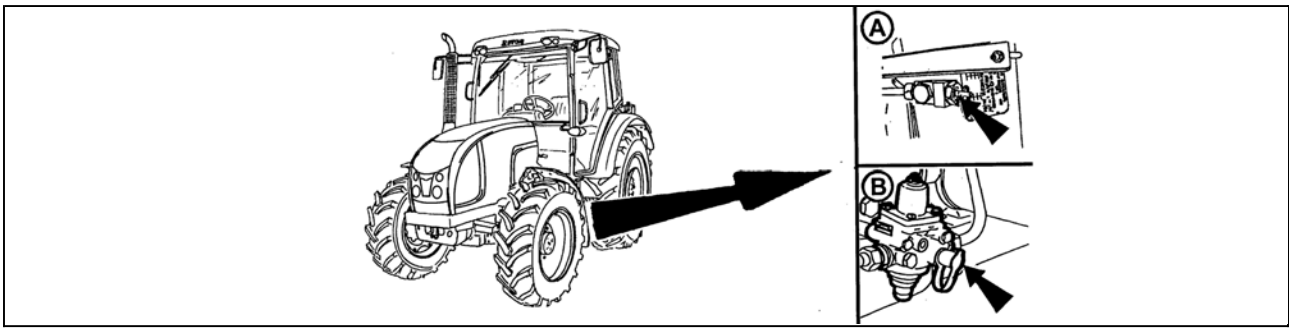
Working pressure of air brakes

In the single- and double-hose version the air pressure at the double-hose coupling (2) (red cap) is 740 ± 20 kPa and at the single-hose coupling (1) max. 600 ± 20 kPa (at the moment the pressure controller relieves the compressor - blows out the air).



G733

Maintenance and treatment of tyres



G736

Regularly check the outer surface of tyres and verify whether they are free of defects at the sides and over the bead and whether the reinforcement is not damaged.

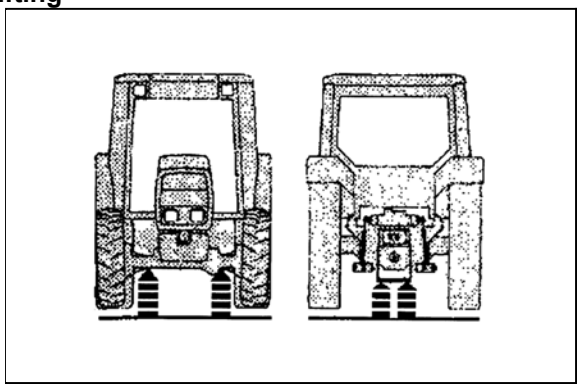
Do not use tyres that show a defect any longer.

Tyre inflation

The basic recommended inflation values are specified in the table. Regularly check the tyre pressure before driving, when the tyres are cold. To inflate the tyres use the pressure controller (B), which acts as a pressure equalizer, tyre filling device and safety valve. Remove the rubber cap of the pressure controller and screw a tyre inflation hose instead. Screw the hose up to the end of the thread to compress the non-return valve. If there is the maximum pressure in the air reservoir (A), the tyres cannot be inflated. In this case you must first reduce the pressure with the condensate drain valve located in the bottom part of the air reservoir (A). After inflating the tyres you must put the rubber cap back on the pressure controller.

Tractor shutdown and recommended points for tractor lifting

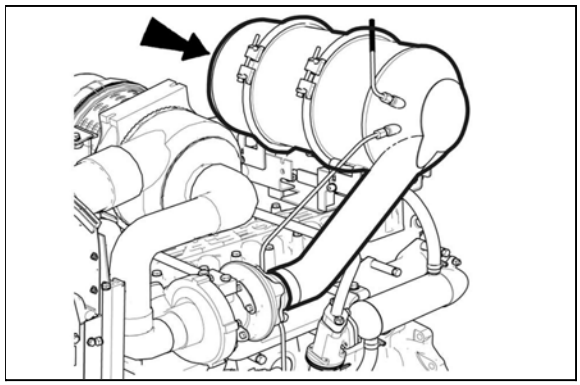
If the tractor is to be put out of operation for a shorter period, inflate the tyres to the value required for road transport. In case of a longer period of inactivity of the tractor (storage), support the tractor and reduce the pressure in the tyres to the minimum (the wheels must not touch the ground).



E743

Diesel particle filter maintenance

Leave the maintenance of diesel particle filter to an authorized service.

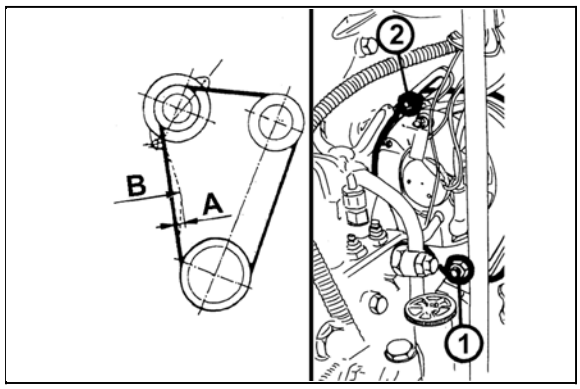


FH12N056

Almost all the following works require certain experience and more exacting service and diagnostic equipment. That's why we recommend to do the works at specialized or authorized workshops.

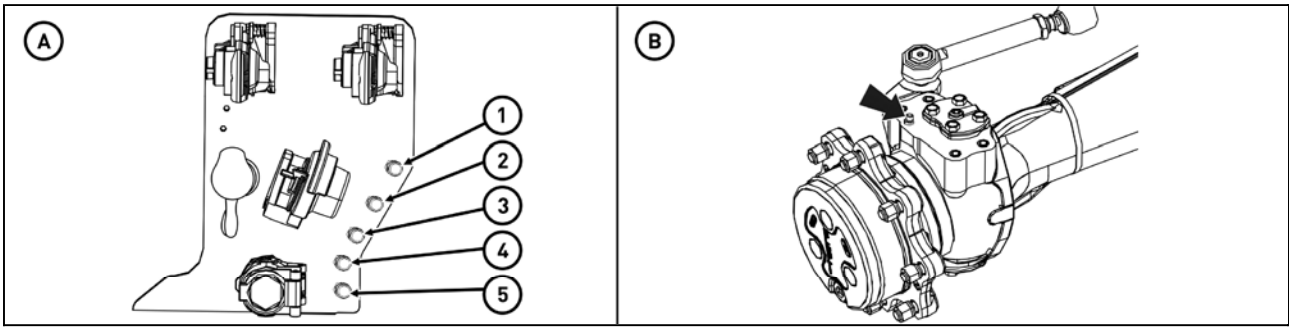
Cogged belt tension
If the V-belt is properly stretched,
the belt deflection must be **A** = 7-8 mm
when the force **B** = 50 N is applied on one belt.
Perform stretching of the V-belt to the required value after release of fixing bolts (1, 2).

*** Stretching of the V-belt of the air conditioning compressor**
If the V-belt is properly stretched, the belt deflection must be 7.5 mm when the force 25 N is applied on the belt.
Perform stretching of the V-belt to the required value after release of fixing bolts of the air conditioning compressor.



PHS18N054

Bleeding of tractor brake system



P18N086

Oil from the gearbox filling is used as a medium in the brake system of the tractor.
Perform bleeding of the brake system of the tractor always when the tractor is started and the brake pedals are connected in the following order:

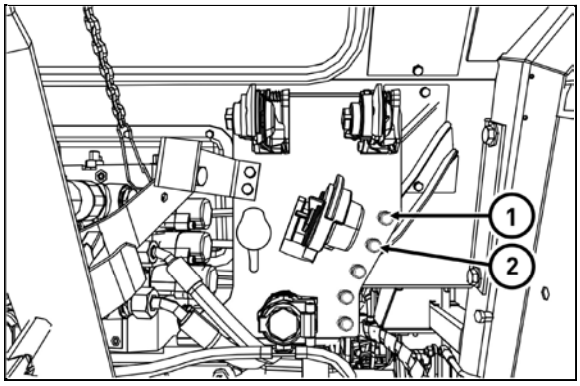
1. Foot brakes of rear wheels
2. Brakes of the front driving axle
3. Pressure air brake system for trailers
4. Hydraulic brakes of the trailer

The bleeder screws except the bleeder screws of front axle are located on the rear panel of the quick couplers (A):
1 - The bleeder screw of the brake of the right rear wheel
2 - The bleeder screw of the brake of the left rear wheel
3, 4 - The bleeder screws of the pressure air brake system for trailers
5 - The bleeder screw of the trailer hydraulic brakes

The bleeder screws of the front axle are located from the above on the reductors of the front axle (B).

When bleeding the brakes, return the oil drained from the bleeder screws into the gearbox filling.

Bleeding of the brakes of the rear wheels

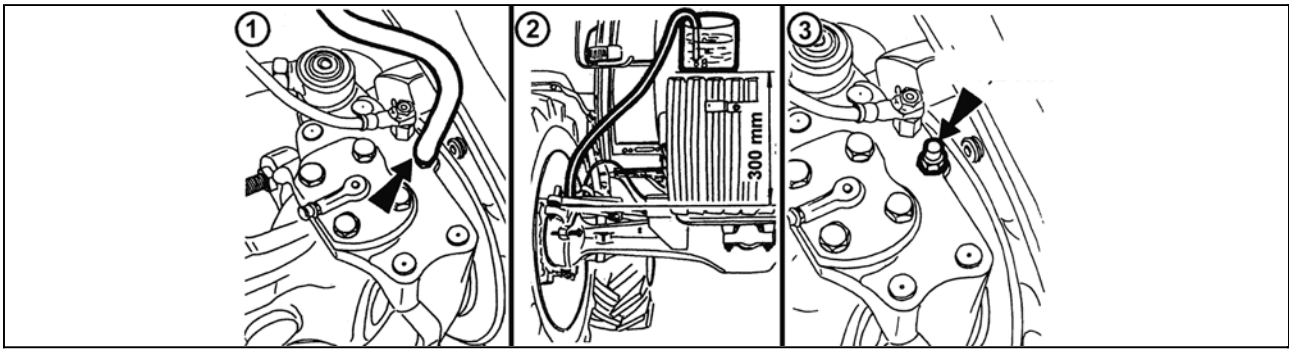


P18N087

Should be performed with the started engine and connected brake pedals according to the following procedure:

1. Remove the rubber cap, install the hose on the bleeder screw (1) and immerse the other end to the bottom of the transparent vessel partly filled with the oil that forms the filling of the gearbox. The bleeder screw must be permanently under pressure to prevent air penetration through its threads, therefore when doing this place the vessel at least 300 mm above the bleeder screw.
2. Release the bleeder screw by 1/4 revolution max.
3. Press down the connected brake pedals and tighten the bleeder screw.
4. Release the brake pedal and repeat the procedure until no air bubbles come out of hose.
5. Remove the hose from the bleeder screw and install the rubber cap back on it.
6. Follow the same procedure for bleeding the screw (2).

Bleeding of the brakes of the front wheels

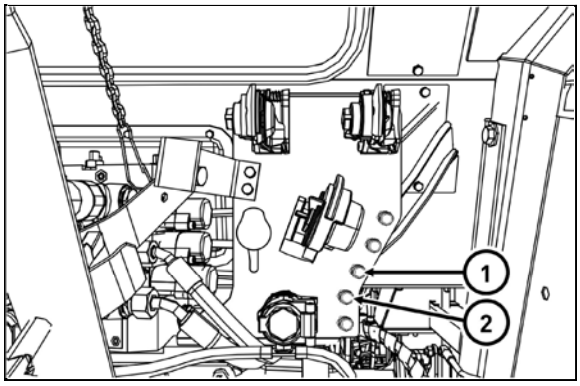


P18N088

Should be performed with the started engine and connected brake pedals according to the following procedure:

1. Remove the rubber cap, install the hose on the bleeder screw (1) on the left reductor of the front axle and immerse the other end to the bottom of the transparent vessel partly filled with the oil that forms the filling of the gearbox. The bleeder screw must be permanently under pressure to prevent air penetration through its threads, therefore when doing this place the vessel at least 300 mm above the bleeder screw (2).
2. Release the bleeder screw by 1/4 revolution max.
3. Press down the connected brake pedals and tighten the bleeder screw.
4. Release the brake pedal and repeat the procedure until no air bubbles come out of hose.
5. Remove the hose from the bleeder screw and install the rubber cap back on it (3).
6. Follow the same procedure for bleeding the brake of the right front wheel with the bleeder screw on the right reductor of the front axle.

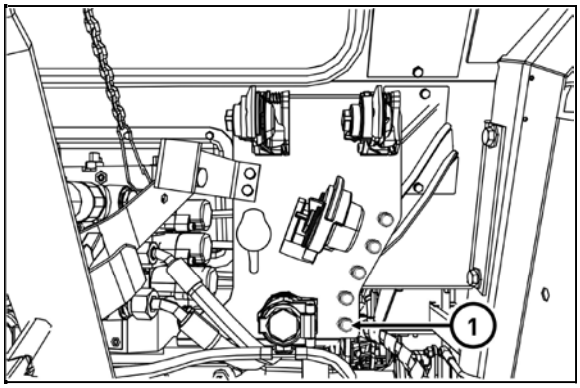
Bleeding of the pressure air brake system for trailers
Should be performed with the started engine and connected brake pedals according to the following procedure:



P18N089

1. Remove the rubber cap, install the hose on the bleeder screw (1) and immerse the other end to the bottom of the transparent vessel partly filled with the oil that forms the filling of the gearbox. The bleeder screw must be permanently under pressure to prevent air penetration through its threads, therefore when doing this place the vessel at least 300 mm above the bleeder screw.
2. Release the bleeder screw by 1/4 revolution max.
3. Press down the connected brake pedals and tighten the bleeder screw.
4. Release the brake pedal and repeat the procedure until no air bubbles come out of hose.
5. Remove the hose from the bleeder screw and install the rubber cap back on it.
6. Follow the same procedure for bleeding the screw (2).

Deaeration of the trailer hydraulic brakes
Should be performed with the started engine and connected brake pedals according to the following procedure:

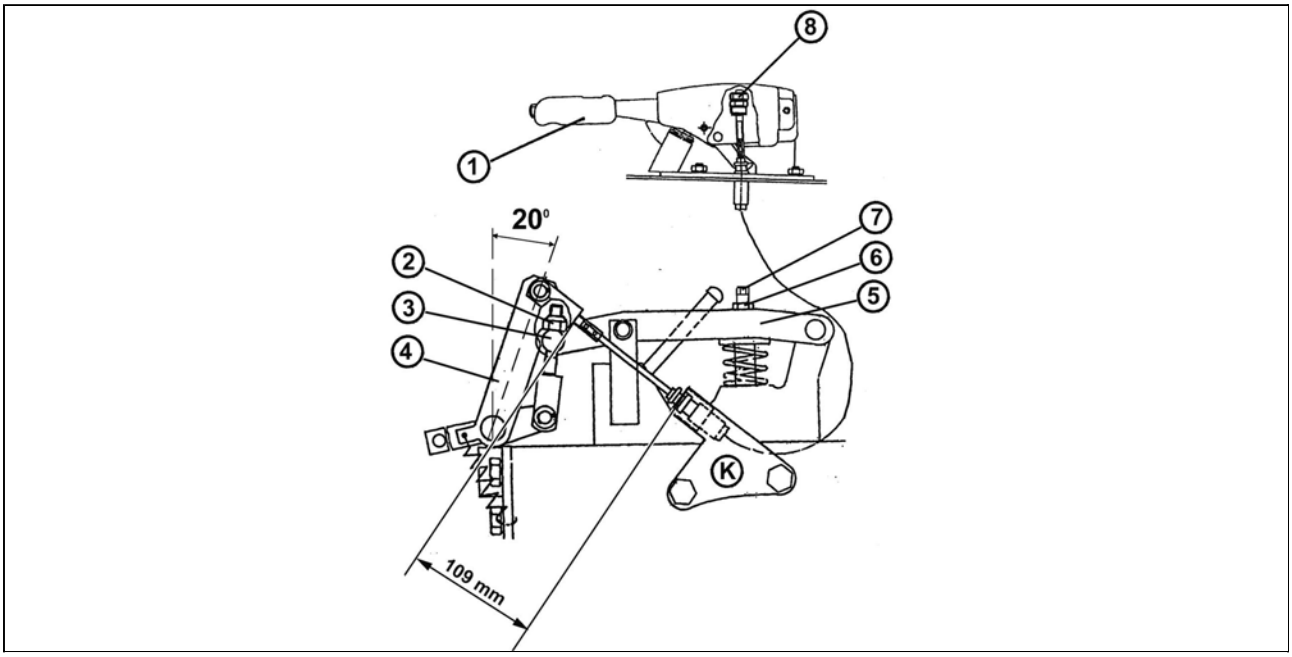


P18N019

1. Remove the rubber cap, install the hose on the bleeder screw (1) and immerse the other end to the bottom of the transparent vessel partly filled with the oil that forms the filling of the gearbox. The bleeder screw must be permanently under pressure to prevent air penetration through its threads, therefore when doing this place the vessel at least 300 mm above the bleeder screw.
2. Release the bleeder screw by 1/4 revolution max.
3. Press down the connected brake pedals and tighten the bleeder screw.
4. Release the brake pedal and repeat the procedure until no air bubbles come out of hose.
5. Remove the hose from the bleeder screw and install the rubber cap back on it.

ADJUSTMENT

Check and adjustment of service and parking brakes
Adjustment must be done in the following steps:
1. service brake adjustment
2. parking brake adjustment
Another way is not possible. Also only separate adjustment of either service or parking brake is not possible. Adjusting operations depend on one another.



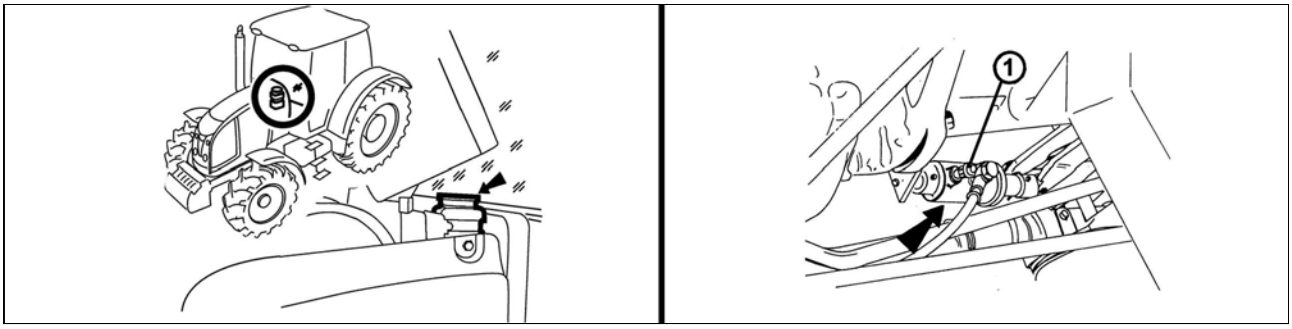
E763

Service brake adjustment

Secure the tractor against movement!
1. Lift the tractor rear wheels.
2. Loosen the nuts (2), nuts (6) and nuts (8).
3. Loosen the screw (7).
4. Let your helper turn one wheel and simultaneously tighten the screw (5) until the wheel starts to be braked.
5. Loosen the screw (7) by 5/6 turn, check, if the wheel can turn freely and secure the screw (7) with the nut (6).
6. Adjusting process is the same at the right-hand and left-hand sides.
If asymmetry of brake effect appears between the left and right brakes, it is necessary to loosen the adjusting screw (7) of the brake with bigger brake effect, until the brake effects of the right and left wheels are equal. But the screw can be loosened maximum by 1/2 turn. If asymmetry of brake effect is not eliminated even after such adjusting, the tractor brakes must be adjusted in an authorized service.

Parking brake adjustment
1. Set the lever (4), so that the distance between the bracket (K) and the fork face at the level (4) might be 109 mm (so that the lever (4) might form angle 20° with vertical plane)
2. Screw the nut (2) to the seating surface of the pin (3) without play and without pre-stressing - it must not come to depressing of the arms (5).
3. Adjusting process is the same at the right-hand and left-hand tractor sides.
4. By means of the nuts (8) adjust the Bowden cable of the parking brake lever so that at preservation of angle 20° at the lever (4), the parking brake lever could be without play.
5. Rise and lower the parking brake lever (1) several times. You will eliminate possible mutual plays among the parts by this way.
6. Check adjustment of the parking brake system, in case of necessity re-adjust, and check tightening of all locking nuts (6), (8)
If asymmetry of brake effect of the parking brake appears between the left and right brakes, it is necessary to loosen the upper adjusting nut (6) of the brake with bigger brake effect until the brake effects of the right and left wheels are equal. But the nut (2) can be loosened maximally by 1,5 turn. If asymmetry of brake effect is not eliminated after such adjusting, the tractor brakes must be adjusted in an authorized service.
Note: There are adjusting openings in the tractor cab floor for making easy the brake.

Bleeding of hydraulic clutch circuit



P18N091

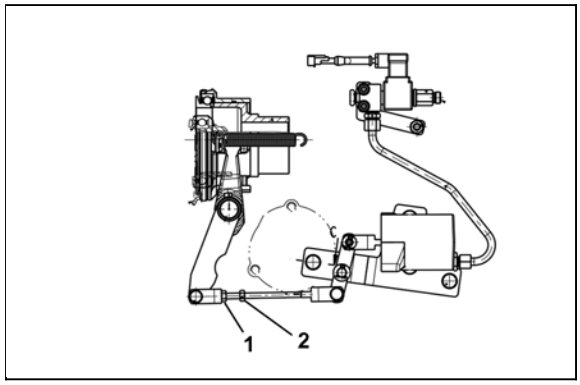
The liquid reservoir for control of the clutch is located on the left in front of the tractor cabin and is accessible when the front engine bonnet is open.
During bleeding observe the amount of liquid in the balancing tank to avoid intake of air.
1. Add the missing amount of the fluid in the equalizing vessel to the max. amount.
2. Remove the rubber cap, install the hose on the bleeder screw (1) on the tripping cylinder of the clutch located on the left side of the tractor near the clutch housing and immerse the other end to the bottom of the transparent vessel partly filled with the fluid for control of the clutch. The bleeder screw must be permanently under pressure to prevent air penetration through its threads, therefore when doing this place the vessel at least 300 mm above the bleeder screw.
3. Press fully the clutch pedal and keep it pressed in the lower position.
4. Release the bleeder screw by 1/4 revolution max.
5. Tighten the bleeder screw.
6. Release the clutch pedal.
7. Repeat the procedure until no air bubbles come out of the hose.
8. Remove the hose from the bleeder screw and install the rubber cap back on it.

Only new fluid can be added in the equalizing vessel. After two years of operation, replacement of the fluid in the whole clutch release hydraulic circuit must be performed.

Adjustment of the pneumatic control of the PTO shaft clutch

The clearance between the release bearing and the release levers of the clutch must be adjusted to 4 mm and during operation it must not fall below 2.5 mm.

The adjusting pull rod is located on the left side of the tractor near the clutch housing.



P18N085

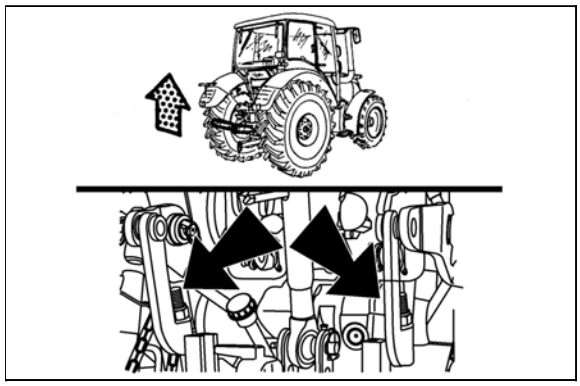
Adjustment procedure:
Release the lock nut (1).
Pull (shorten) the pull rod (2) until the release bearing touches the clutch release levers; the touch is indicated by a significant increase of the force necessary for rotation of the pull rod (2).
Loosen (extend) the pull rod (2) by 4/6 revolution.
Secure the position of the pull rod (2) by tightening the lock nut (1).

Engine travel clutch adjustment

The travel clutch is designed in such manner that no adjustment is required during the entire service life of clutch plate lining. Full wear of the plate becomes evident by clutch slipping. All the three travel clutch levers must be in one plane and must be in touch with the clutch release sleeve. When replacing the travel clutch plate, adjust the clutch to the following value still at disassembled tractor. Set the travel clutch levers 25 mm from the recess in the clutch cover by means of the nuts. The difference in setting of the levers can be maximum 0,15 mm. Depress the clutch pedal approx. 5 times up to the stop after assembly of the engine with the transmission.

Adjustment of hitch for single-axle trailers

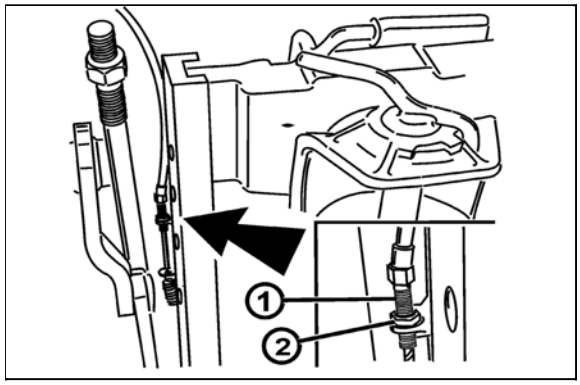
1. Lift the hydraulic arms to their upper (transport) position with selected position regulation (**P**)
2. Screw the nuts on the adjustable pull rods to the guide tube without any play.
3. Further tighten the nuts by 3.5 turns.
4. Check free tilting of the supporting hooks.
5. By repeated lowering and lifting of the hydraulic arms to their transport position verify free run of the engine at idle speed; the safety valve of the hydraulic pump shall not be activated.
6. Then lower slightly the arms.



E766

Adjustment of bowden cable

The hitch is in transport position. The Bowden cable shall be stretched so that there is no play on the control lever in the cabin. In case that it is stretched insufficiently, adjust it using the set screw (1). After completion of the adjustment lock the set screw by the lock nut (2).



G767

MAIN TECHNICAL PARAMETERS

Main dimensions of tractor (mm)

Tractor model	tractors with front drive	Note
Contour length with hitches with lowered front three point hitch	4717	
Contour length with hitches without front three point hitch		
- without ballast weights in front of tractor mask	3787,5	
- with ballast weights in front of tractor mask	4066,5	
Width over rear fenders	1910	
Height up to muffler top	2671 - 2692	According to applied tires
Height up to cab top	2600 - 2667	According to applied tires
Ground clearanceunder front axle housing	385 - 429	According to applied tires
Height of trailer hitch mouth in highest position (mouth centre)	826 -972	According to applied tires
Height of swinging draw bar (to inner bottom surface of clevis)	209- 358	According to applied tires
Height of rear PTO shaft	641 - 764	According to applied tires
Height of front PTO shaft	512 - 600	According to applied tires
Wheel base	2236	

MAIN TECHNICAL PARAMETERS

Technical data of engines

Tractor type		Proxima CL 100
Engine type		1017
Engine kind		diesel, four-stroke with direct fuel injection, turbocharged
Engine design		in-line, vertical, water cooled
Engine revolutions control		electronic
Number of cylinders		4
Displacement	cm^3	4156
Bore x stroke	mm	105x120
Nominal speed	rpm	2200
Injection sequence		1-3-4-2
Compression ratio		17
Max. overspeed	rpm	2460
Idle speed	rpm	800 ± 25
Net power at the nominal speed (ECE R24)	kW	66
Fuel consumption at the nominal engine speed (2200 rpm) (ECE R24)	g/kWh	238
Max. torque (1,480 rpm) (ECE R24)	Nm	408
Inclination Mt (ECE R24)	%	42
Fuel consumption at the maximum torque (1,480 rpm) (ECE R24)	g/kWh	220
Engine lubrication		Pressure type with a gear pump
Maximum consumption of oil after 100 hours of engine running-in	g/kWh	0,5
Oil pressure at the nominal engine speed and the oil temperature of 80°C	MPa	0,2 - 0,5
Minimum oil pressure at the engine speed of 750 rpm and oil temperature of 80°C	MPa	0,08
Max. coolant temperature	°C	110
Timing type		OHV
Timing angle	°	13
Valve clearance with the engine cold - suction - exhaust	 mm mm	 0,3 0,4

MAIN TECHNICAL PARAMETERS

Max. permitted loading of the front axle tractors with front drive (kg)

Travel speed ($km.h^{-1}$)	Wheel track (mm)				
	1,525	**1,610 - 1,620**	**1,680 - 1,690**	**1,760 - 1,770**	**1,825 - 1,835**
8	4,000	4,000	4,000	3,800	3,600
20	3,000	3,000	3,000	2,800	2,600
30	3,000	3,000	3,000	2,800	2,600
40	2,600	2,600	2,600	2,600	2,600

The load is valid with regard to axle. The allowed load with regard to tires is given in chart 'Loading capacity of front tires'.

Max. allowed load of rear axle (kg)

Travel speed ($km.h^{-1}$)	Track of wheels (mm)						
	1350	**1425**	**1500**	**1575**	**1650**	**1725**	**1800**
8	5000	5000	5000	5000	5000	5000	5000
20	5000	5000	5000	5000	5000	4500	4300
30	5000	5000	5000	5000	5000	4500	4300
40	5000	5000	5000	5000	5000	4500	4300

Note: The load is valid in relation to the axle, permissible load with regard to tyres is provided in the Tab. 'Load capacity of rear tyres'.

Max. allowed weight of set 'tractor + hitched implement' (kg)

Travel speed ($km.h^{-1}$)	Maximum weight of vehicles combination
8	6500
20	6500
30	6500
40	6500

Condition of steeringability

Travel speed ($km.h^{-1}$)	Tractor front axle load from the total weight tractor + carried machine (%)
max. 40	min. 20
max. 30	min. 20
max. 20	min. 20

MAIN TECHNICAL PARAMETERS

Loading capacity of front tires

Tire size	Travel speed					
	40 km.h^{-1}			**30 km.h^{-1}**		
	Loading capacity of tires (kg)			Loading capacity of tires (kg)		
	Tire 1 pc	Axle	Inflating (kPa)	Tire 1 pc	Axle	Inflating (kPa)
9,5-24	890	1780	280	1110	2220	280
11,2-24	980	1960	240	1225	2450	240
11,2R24	1000	2000	130	1250	2500	160
320/70R24	1000	2000	120	1300	2600	160
12,4-24	1000	2000	190	1300	2600	200
12,4R24	1000	2000	100	1300	2600	140
12,4-28 $_{10\ PR}$	1000	2000	170	1300	2600	180
13,6R24	1000	2000	90	1300	2600	130
380/70R24	1000	2000	80	1300	2600	110

Tire size	Travel speed					
	20 km.h^{-1}			**8 km.h^{-1}**		
	Loading capacity of tires (kg)			Loading capacity of tires (kg)		
	Tire 1 pc	Axle	Inflating (kPa)	Tire 1 pc	Axle	Inflating (kPa)
9,5-24	1330	2660	280	1550	3100	280
11,2-24	1450	2900	240	1700	3400	240
11,2R24	1450	2900	160	1700	3400	150
320/70R24	1450	2900	150	1700	3400	140
12,4-24	1450	2900	180	1700	3400	180
12,4R24	1450	2900	130	1700	3400	120
12,4-28 $_{10\ PR}$	1450	2900	160	1700	3400	160
13,6R24	1450	2900	120	1700	3400	110
380/70R24	1450	2900	100	1700	3400	90

Note: Loading capacity values are valid for front wheel tread 1495 - 1525 mm and are in accordance with axle loading capacity.
At operation on hard surface it is suitable with regard to slipping and galling of tire to raise pressure by 30 kPa.

MAIN TECHNICAL PARAMETERS

Loading capacity of rear tires

Tire size	Travel speed					
	40 km.h^{-1}			**30 km.h^{-1}**		
	Loading capacity of tires (kg)			Loading capacity of tires (kg)		
	Tire 1 pc	Axle	Inflating (kPa)	Tire 1pc	Axle	Inflating (kPa)
12,4-28 $_{10\ PR}$	1430	2860	280	1790	3580	280
14,9-28	1500	3000	180	1880	3760	180
14,9R28	1700	3400	150	1930	3860	160
16,9-28	1700	3400	170	2000	4000	150
16,9R28	1700	3400	110	2000	4000	130
16,9-30	1700	3400	160	2000	4000	150
16,9R30	1700	3400	100	2000	4000	120
480/70R30	1700	3400	90	2000	4000	100
18,4-30	1700	3400	120	2000	4000	100
18,4R30	1700	3400	80	2000	4000	100
16,9-34	1700	3400	150	2000	4000	130
16,9R34	1700	3400	100	2000	4000	110
480/70R34	1700	3400	80	2000	4000	90
18,4-34 $_{8\ PR}$	1700	3400	110	2000	4000	110
18,4R34	1700	3400	80	2000	4000	90
12,4-36	1150	2300	170	1440	2880	170
520/70R34	2680	5000	120	2640	5000	100
600/65R34	2520	5000	80	2700	5000	80
13,6-36	1300	2600	160	1615	3230	160

MAIN TECHNICAL PARAMETERS

Dimension of tyre	Travel speed					
	20 km.h^{-1}			**8 km.h^{-1}**		
	tyre load capacity (kg)			tyre load capacity (kg)		
	tyre 1 pcs	axle	inflation (kPa)	tyre 1 pcs	axle	inflation (kPa)
12,4-28 $_{10\ PR}$	2000	4000	260	2000	4000	210
14,9-28	2000	4000	150	2000	4000	120
14,9R28	2000	4000	140	2000	4000	100
16,9-28	2000	4000	110	2000	4000	90
16,9R28	2000	4000	100	2000	4000	80
16,9-30	2000	4000	100	2000	4000	80
16,9R30	2000	4000	100	2000	4000	80
480/70R30	2000	4000	80	2000	4000	80
18,4-30	2000	4000	80	2000	4000	80
18,4R30	2000	4000	80	2000	4000	80
16,9-34	2000	4000	100	2000	4000	80
16,9R34	2000	4000	90	2000	4000	80
480/70R34	2000	4000	80	2000	4000	80
18,4-34 $_{8PR}$	2000	4000	110	2000	4000	110
18,4R34	2000	4000	80	2000	4000	80
12,4-36	1730	3460	170	2000	4000	170
520/70R34	2640	5000	100	2930	5000	80
600/65R34	2700	5000	80	2960	5000	60
13,6-36	1940	3880	160	2000	4000	140

Note: Loading capacity values are valid for rear wheel tread 1725 mm and are in accordance with axle loading capacity.
At operation on hard surface it is suitable with regard to slipping and galling of tire to raise pressure by 30 kPa.

MAIN TECHNICAL PARAMETERS

Change of load capacity of front tires %

Travel speed ($km.h^{-1}$)	**diagonal**	**radial**
8	+ 40	+ 50
20	+ 20	+ 23
30	0	+ 7
40	- 20	0

Change of load capacity of rear tires %

Travel speed ($km.h^{-1}$)	**diagonal**	**radial**
8	+ 40	+ 50
20	+ 20	+ 23
30	0	+ 7
40	- 20	0

Permitted combinations of wheels for tractors

Front wheels		**Rear wheels**	
Tyre size	equivalent	Tyre size	equivalent
11,2-24	11,2R24	13,6-36	
	320/70R24	16,9-30	16,9R30 480/70R30
12,4-24	12,4R24 360/70R24	18,4 -30	18,4 R30 520/70R30
		16,9-34	16,9R34 480/70R34
		13,6-36	
13,6-24	13,6R24 380/70R24	16,9-34	16,9R34 480/70R34
		18,4-34	18,4R34 520/70R34 600/65R34

MAIN TECHNICAL PARAMETERS

Lifting force of the three-point hitch

Type of engine	**Proxima CL 100**
Lift capacity at the end of the lower drawbars of the rear thee-point hitch during the entire lift while using up the maximum pressure with 2 outer cylinders - *cylinder 75mm in diameter (kN)	38
Lift capacity at the end of the lower drawbars of the front three-point hitch during the entire lift while using up the maximum pressure (kN)	23

Power

Type of engine	**Proxima CL 100**
Power on output shaft (kW ± 2%) - at nominal speed engine and shifted speed 1,000 rpm of the output shaft	
New engine having 100 Mh max.	58
Run-in engine (over 100 Mh)	60.5

Tensile force

Type of engine	**Proxima CL 100**
Maximum tensile force (kN) in swinging draw bar on concrete, tractor in emergency finish with ballast weights, with slippage to 15%	36,5

MAIN TECHNICAL PARAMETERS

Tractor travel speed (km/h)

Tractor equipped with synchronized transmission and reversor - speed 30 km.h^{-1}

Shifted gear	Ground PTO speed	**Tractor travel speed (km.h^{-1}) at rated engine speed and at below stated tire dimensions of rear wheels**							
		14,9 - 28	**16,9 - 28**	**12,4 - 36**	**16,9 - 30**	**13,6 - 36**	**18,4 - 30**	**16,9 - 34**	**18,4 - 34**
1	228,08	4,34	4,55	4,68	4,72	4,85	4,89	5,06	5,23
2	293,43	5,59	5,85	6,03	6,07	6,24	6,29	6,51	6,72
3	418,20	7,97	8,34	8,59	8,65	8,90	8,96	9,27	9,58
4	590,96	11,26	11,78	12,13	12,22	12,57	12,66	13,10	13,54
5	935,05	17,81	18,64	19,20	19,34	19,90	20,04	20,73	21,43
6	1344,44	25,61	26,81	27,61	27,81	28,61	28,81	29,81	30,81
1L	228,08	1,10	1,15	1,19	1,20	1,23	1,24	1,28	1,32
2L	293,43	1,42	1,48	1,53	1,54	1,58	1,59	1,65	1,70
3L	418,20	2,02	2,11	2,18	2,19	2,25	2,27	2,35	2,43
4L	590,96	2,85	2,99	3,07	3,10	3,19	3,21	3,32	3,43
5L	935,05	4,51	4,72	4,87	4,90	5,04	5,08	5,25	5,43
6L	1344,44	6,49	6,79	7,00	7,05	7,25	7,30	7,55	7,81
1R	-249,21	4,75	4,97	5,12	5,15	5,30	5,34	5,53	5,71
2R	-320,63	6,11	6,39	6,58	6,63	6,82	6,87	7,11	7,35
3R	-456,96	8,70	9,11	9,38	9,45	9,72	9,79	10,13	10,47
4R	-645,74	12,30	12,88	13,26	13,36	13,74	13,84	14,32	14,80
5R	-1021,71	19,46	20,37	20,98	21,13	21,74	21,89	22,65	23,41
6R	-1469,05	27,98	29,29	30,17	30,38	31,26	31,48	32,57	33,66
1LR	-249,21	1,20	1,26	1,30	1,31	1,34	1,35	1,40	1,45
2LR	-320,63	1,55	1,62	1,67	1,68	1,73	1,74	1,80	1,86
3LR	-456,96	2,21	2,31	2,38	2,39	2,46	2,48	2,57	2,65
4LR	-645,74	3,12	3,26	3,36	3,38	3,48	3,51	3,63	3,75
5LR	-1021,71	4,93	5,16	5,32	5,35	5,51	5,55	5,74	5,93
6LR	-1469,05	7,09	7,42	7,64	7,70	7,92	7,98	8,25	8,53

L - reduction, R - reverse gear

MAIN TECHNICAL PARAMETERS

Tractor equipped with synchronized transmission and reversor - speed 40 km.h^{-1}

Shifted gear	Ground PTO speed	**Tractor travel speed (km.h^{-1}) at rated engine speed and at below stated tire dimensions of rear wheels**							
		14,9 - 28	**16,9 - 28**	**12,4 - 36**	**16,9 - 30**	**13,6 - 36**	**18,4 - 30**	**16,9 - 34**	**18,4 - 34**
1	228,08	5,24	5,49	5,65	5,69	5,85	5,89	6,10	6,30
2	293,43	6,74	7,06	7,27	7,32	7,53	7,58	7,85	8,11
3	418,20	9,61	10,06	10,36	10,43	10,73	10,81	11,18	11,56
4	590,96	13,58	14,21	14,64	14,74	15,17	15,27	15,80	16,33
5	935,05	21,48	22,49	23,16	23,33	24,00	24,17	25,01	25,84
6	1344,44	30,89	32,33	33,30	33,54	34,51	34,75	35,95	37,16
1L	228,08	1,33	1,39	1,43	1,44	1,48	1,49	1,55	1,60
2L	293,43	1,71	1,79	1,84	1,85	1,91	1,92	1,99	2,06
3L	418,20	2,43	2,55	2,62	2,64	2,72	2,74	2,83	2,93
4L	590,96	3,44	3,60	3,71	3,74	3,84	3,87	4,00	4,14
5L	935,05	5,44	5,70	5,87	5,91	6,08	6,12	6,34	6,55
6L	1344,44	7,83	8,19	8,44	8,50	8,74	8,80	9,11	9,42
1R	-249,21	5,73	5,99	6,17	6,22	6,40	6,44	6,66	6,89
2R	-320,63	7,37	7,71	7,94	8,00	8,23	8,29	8,57	8,86
3R	-456,96	10,50	10,99	11,32	11,40	11,73	11,81	12,22	12,63
4R	-645,74	14,83	15,53	15,99	16,11	16,57	16,69	17,27	17,85
5R	-1021,71	23,47	24,57	25,31	25,49	26,22	26,41	27,32	28,24
6R	-1469,05	33,75	35,33	36,39	36,65	37,70	37,97	39,29	40,60
1LR	-249,21	1,45	1,52	1,56	1,58	1,62	1,63	1,69	1,75
2LR	-320,63	1,87	1,95	2,01	2,03	2,09	2,10	2,17	2,25
3LR	-456,96	2,66	2,78	2,87	2,89	2,97	2,99	3,10	3,20
4LR	-645,74	3,76	3,94	4,05	4,08	4,20	4,23	4,38	4,52
5LR	-1021,71	5,95	6,23	6,41	6,46	6,64	6,69	6,92	7,16
6LR	-1469,05	8,55	8,95	9,22	9,29	9,55	9,62	9,95	10,29

L - reduction, R - reverse gear

MAIN TECHNICAL PARAMETERS

Tractor equipped with reductor for creeping gears - speed 30 km.h^{-1}

Shifted gear	Ground PTO speed	**Tractor travel speed (km.h^{-1}) at rated engine speed and at below stated tire dimensions of rear wheels**							
		14,9 - 28	**16,9 - 28**	**12,4 - 36**	**16,9 - 30**	**13,6 - 36**	**18,4 - 30**	**16,9 - 34**	**18,4 - 34**
1	293,43	5,59	5,85	6,03	6,07	6,24	6,29	6,51	6,72
2	418,20	7,97	8,34	8,59	8,65	8,90	8,96	9,27	9,58
3	590,96	11,26	11,78	12,13	12,22	12,57	12,66	13,10	13,54
4	935,05	17,81	18,64	19,20	19,34	19,90	20,04	20,73	21,43
5	1344,44	25,61	26,81	27,61	27,81	28,61	28,81	29,81	30,81
1L	293,43	1,42	1,48	1,53	1,54	1,58	1,59	1,65	1,70
2L	418,20	2,02	2,11	2,18	2,19	2,25	2,27	2,35	2,43
3L	590,96	2,85	2,99	3,07	3,10	3,19	3,21	3,32	3,43
4L	935,05	4,51	4,72	4,87	4,90	5,04	5,08	5,25	5,43
5L	1344,44	6,49	6,79	7,00	7,05	7,25	7,30	7,55	7,81
1S	31,64	0,60	0,63	0,65	0,65	0,67	0,68	0,70	0,72
2S	45,09	0,86	0,90	0,93	0,93	0,96	0,97	1,00	1,03
3S	63,72	1,21	1,27	1,31	1,32	1,36	1,37	1,41	1,46
4S	100,82	1,92	2,01	2,07	2,09	2,15	2,16	2,24	2,31
5S	144,96	2,76	2,89	2,98	3,00	3,08	3,11	3,21	3,32
1LS	31,64	0,15	0,16	0,16	0,17	0,17	0,17	0,18	0,18
2LS	45,09	0,22	0,23	0,23	0,24	0,24	0,24	0,25	0,26
3LS	63,72	0,31	0,32	0,33	0,33	0,34	0,35	0,36	0,37
4LS	100,82	0,49	0,51	0,52	0,53	0,54	0,55	0,57	0,59
5LS	144,96	0,70	0,73	0,75	0,76	0,78	0,79	0,81	0,84
R	-364,92	6,95	7,28	7,49	7,55	7,76	7,82	8,09	8,36
RL	-364,92	1,76	1,84	1,90	1,91	1,97	1,98	2,05	2,12
RS	-39,35	0,75	0,78	0,81	0,81	0,84	0,84	0,87	0,90
RLS	-39,35	0,19	0,20	0,20	0,21	0,21	0,21	0,22	0,23

L - reduction, R - reverse gear, S - creeping gears

MAIN TECHNICAL PARAMETERS

Tractor equipped with reductor for creeping gears - speed 40 km.h^{-1}

Shifted gear	Ground PTO speed	**Tractor travel speed (km.h^{-1}) at rated engine speed and at below stated tire dimensions of rear wheels**							
		14,9 - 28	**16,9 - 28**	**12,4 - 36**	**16,9 - 30**	**13,6 - 36**	**18,4 - 30**	**16,9 - 34**	**18,4 - 34**
1	293,43	6,74	7,06	7,27	7,32	7,53	7,58	7,85	8,11
2	418,20	9,61	10,06	10,36	10,43	10,73	10,81	11,18	11,56
3	590,96	13,58	14,21	14,64	14,74	15,17	15,27	15,80	16,33
4	935,05	21,48	22,49	23,16	23,33	24,00	24,17	25,01	25,84
5	1344,44	30,89	32,33	33,30	33,54	34,51	34,75	35,95	37,16
1L	293,43	1,71	1,79	1,84	1,85	1,91	1,92	1,99	2,06
2L	418,20	2,43	2,55	2,62	2,64	2,72	2,74	2,83	2,93
3L	590,96	3,44	3,60	3,71	3,74	3,84	3,87	4,00	4,14
4L	935,05	5,44	5,70	5,87	5,91	6,08	6,12	6,34	6,55
5L	1344,44	7,83	8,19	8,44	8,50	8,74	8,80	9,11	9,42
1S	31,64	0,73	0,76	0,78	0,79	0,81	0,82	0,85	0,87
2S	45,09	1,04	1,08	1,12	1,12	1,16	1,17	1,21	1,25
3S	63,72	1,46	1,53	1,58	1,59	1,64	1,65	1,70	1,76
4S	100,82	2,32	2,42	2,50	2,52	2,59	2,61	2,70	2,79
5S	144,96	3,33	3,49	3,59	3,62	3,72	3,75	3,88	4,01
1LS	31,64	0,18	0,19	0,20	0,20	0,21	0,21	0,21	0,22
2LS	45,09	0,26	0,27	0,28	0,29	0,29	0,30	0,31	0,32
3LS	63,72	0,37	0,39	0,40	0,40	0,41	0,42	0,43	0,45
4LS	100,82	0,59	0,61	0,63	0,64	0,66	0,66	0,68	0,71
5LS	144,96	0,84	0,88	0,91	0,92	0,94	0,95	0,98	1,02
R	-364,92	8,38	8,78	9,04	9,10	9,37	9,43	9,76	10,09
RL	-364,92	2,12	2,22	2,29	2,31	2,37	2,39	2,47	2,56
RS	-39,35	0,90	0,95	0,97	0,98	1,01	1,02	1,05	1,09
RLS	-39,35	0,23	0,24	0,25	0,25	0,26	0,26	0,27	0,28

L - reduction, R - reverse gear, S - creeping gears

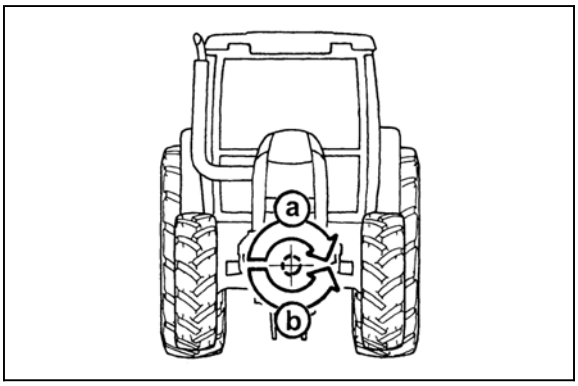
Rear independent PTO shaft rotation

mark	rotation	shaft rotation/engine rotation	shaft rotation/engine rotation
540/1000	**540**	540 / 1987	598 / 2200
	1000	1000 / 1950	1128 / 2200
540/540E	**540**	540 / 2005	592 / 2200
	540E	540 / 1584	750 / 2200

Front PTO shaft

Sense of rotation	PTO shaft speed/engine speed	PTO shaft speed/engine speed
right	1000/1818	1210/2200
***left**	1000/1870	1176/2200

* - option



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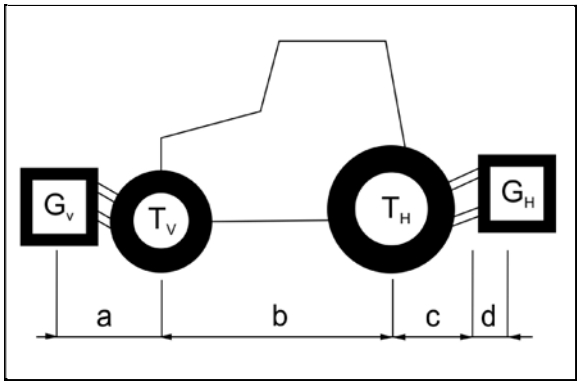
Contour and tread turning diameters tractors with front drive

Wheel tread	front	1585 mm	Tire size	front	13,6R24	Left	Right
	rear	1500 mm		rear	16,9R34		
Tread diameter (mm)	without engaged front driving axle					11150 mm	11100 mm
	without engaged front driving axle with inner rear wheel braked					9360 mm	9110 mm
	with engaged front driving axle					11970 mm	11930 mm
	with engaged front driving axle with inner rear wheel braked					8025 mm	8025 mm
Contour diameter (mm)	without engaged front driving axle					11690 mm	11600 mm
	without engaged front driving axle with inner rear wheel braked					9900 mm	9620 mm
	with engaged front driving axle					12510 mm	12430 mm
	with engaged front driving axle with inner rear wheel braked					8565 mm	8525 mm

Calculation of tractor load limit

Connection of machines to the front or rear hydraulic arms must not exceed the allowed total load of the tractor, individual axles and tractor tyres. Therefore make sure before buying the aggregation that these assumptions are fulfilled using the following calculation:



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The following data must be known for the calculation:

T_L (kg) - instantaneous mass ❶

T_v (kg) - instantaneous front axle load ❶

T_H (kg) - instantaneous rear axle load ❶

G_H (kg) - total machine weight suspended in the rear / rear load ❷

G_V (kg) - total machine weight suspended in the front / front load ❷

a (m) - distance between the gravity centre of the front carried machine / front load and load through the centre of the front axle ❷ ❸

b (m) - tractor wheelbase ❶ ❸

c (m) - distance between the centre of the rear axle and the centre of fixing holes of lower hydraulic arms ❶ ❸

d (m) - distance between the centre of fixing holes of lower hydraulic arms and the gravity centre of the machine suspended in the rear / rear load ❷

❶ see instructions for use of the tractor

❷ see instructions for use of the machine

❸ machine measurement

MAIN TECHNICAL PARAMETERS

Rear carried machine or front and rear carried combination

1. Calculation of the minimum front axle load $G_{V\ min}$

The calculated value of the minimum front axle load should be recorded in the table.

$$G_{V\,min} = \frac{G_H \bullet (c+d) - T_V \bullet b + 0{,}2 \bullet T_L \bullet b}{a + b}$$

Front carried machine

2. Calculation of the minimum rear axle load $G_{H\ min}$

The calculated value of the minimum rear axle load should be recorded in the table.

$$G_{V\,min} = \frac{G_V \bullet a - T_H \bullet b + 0{,}45 \bullet T_L \bullet b}{b + c + d}$$

3. Calculation of the real front axle load $T_{v\ tat}$

If the necessary front axle load cannot be reached with the front attached machine (G_V), the weight of the front carried machine must be increased to the minimum allowed load.

The real values and allowed values specified in the instructions for use of the tractor designed for the front axle should be recorded in the table.

$$T_{V\,tat} = \frac{G_V \bullet (a + b) + T_V \bullet b - G_H \bullet (c + d)}{b}$$

4. Calculation of the real total load G_{tat}

If the necessary rear axle load cannot be reached with the rear attached machine (G_H), the weight of the rear carried machine must be increased to the minimum allowed load.

The real values and allowed values specified in the instructions for use of the tractor designed for the total load should be recorded in the table.

$$G_{tat} = G_V + T_L + G_H$$

5. Calculation of the real rear axle load $T_{h\ tat}$

The real values and allowed values specified in the instructions for use of the tractor valid for the rear axle load should be recorded in the table.

$$T_{H\,tat} = G_{tat} - T_{V\,tat}$$

6. Load-bearing capacity of tyres

The calculation of the double value (two tyres) of the allowed tyre load (see, e.g., documents for tyre manufacturers) should be recorded in the table.

MAIN TECHNICAL PARAMETERS

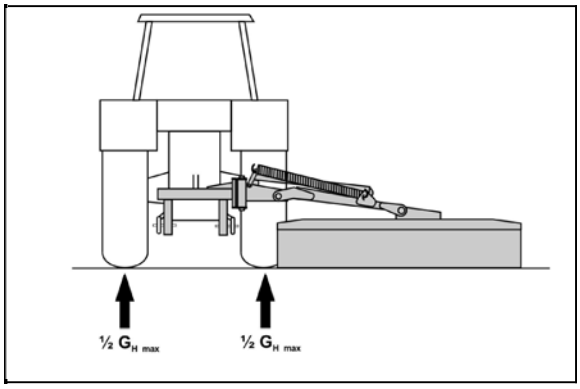
Allowed load of the tractor and axles

Table

	Real value according to the calculation	Allowed value according to the manufacturer	
		30 km/h	40 km/h
Total tractor weight		6,500 kg	6,500 kg
Front axle load		3,000 kg	2,600 kg
Rear axle load		5,000 kg	5,000 kg

The real value according to the calculation must be lower or equal to the allowed value specified by the tractor manufacturer.
The driveability of the front axle must be preserved under all load conditions, i.e., min. 20% of the real tractor weight must lie on the front axle.

During aggregation with side moving machines, side ditch trimmers and similar types of aggregation, there is an unequal distribution of the load on the right and on the left side of the tractor axle. It is necessary to ensure that the load on one side of the axle does not exceed ½ of the allowed load of the rear axle of the tractor.



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$G_{H\ max}$ - allowed load of the rear axle

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