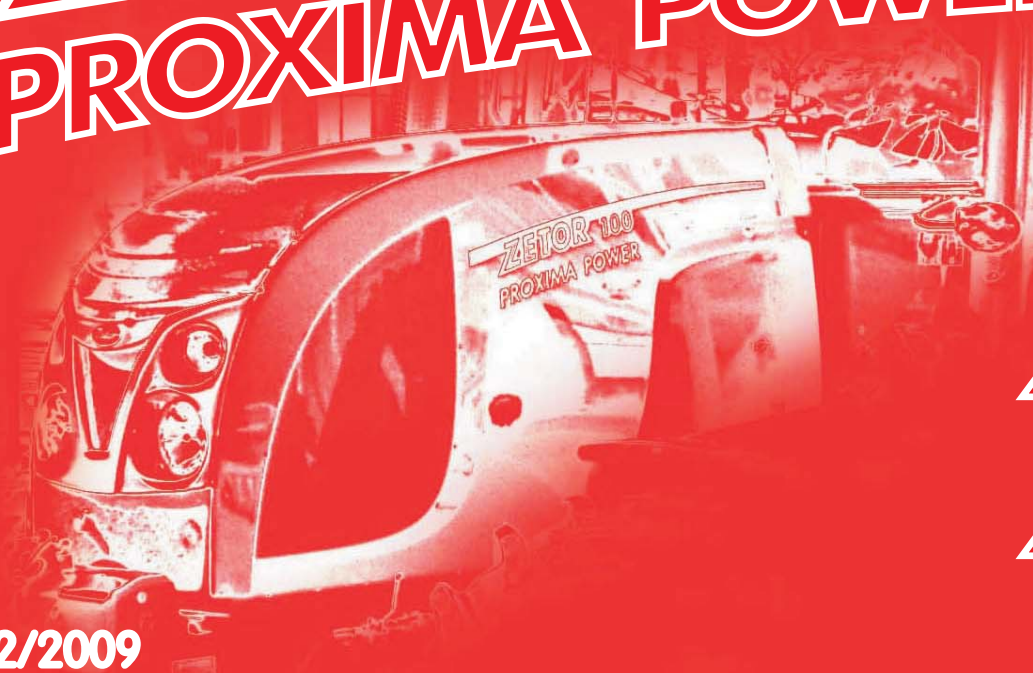


ZETOR

PROXIMA POWER



85

95

105

115

2/2009

Operator's manual

<https://truckmanualshub.com/>

ZETOR



This Operator's Manual 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.

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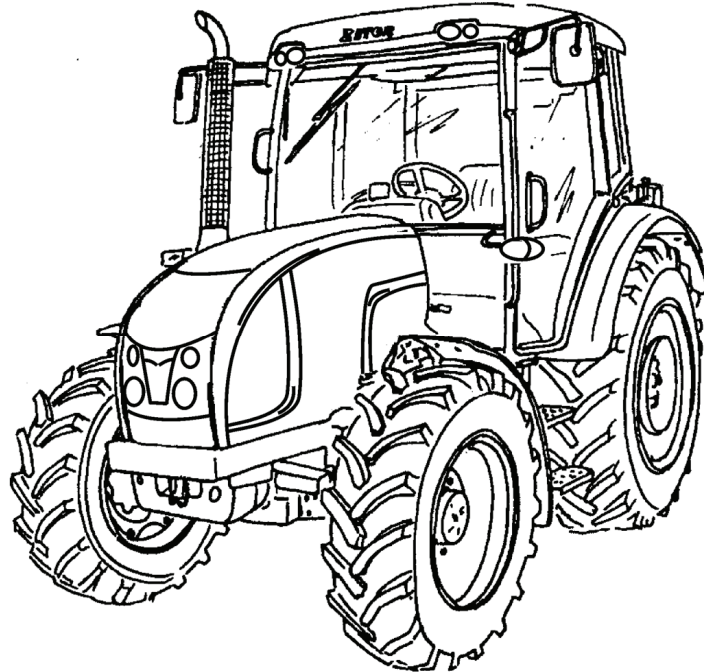
The Operator's Manual deals with the description, operation and maintenance of the standard version and accessories that the tractor may be optionally equipped with. Accessories that are not installed by the manufacturer in the standard way cannot be subject to a claim. The service cheque book for tractors is not part of the Operator's Manual, but forms a separate booklet that is handed over to you at the purchase of your new tractor.

<https://truckmanualclub.com/>

TRACTORS PROXIMA POWER

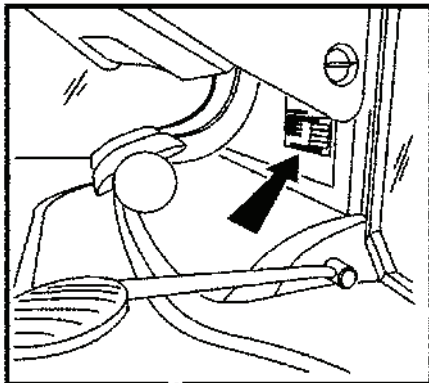
TRACTORS WITH FRONT DRIVING AXLE (4 X 4):

Tractor type	Engine output (kW)
Z 85	60
Z 95	66
Z 105	74
Z 115	81

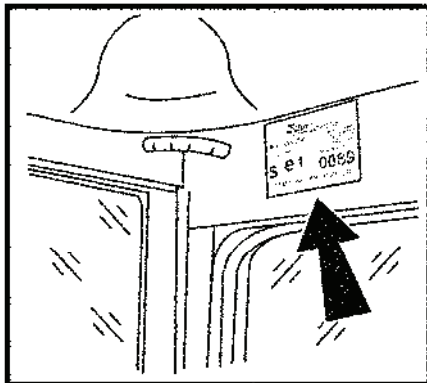


<https://truckmanualshub.com/>
LOCATION OF SERIAL NUMBERS

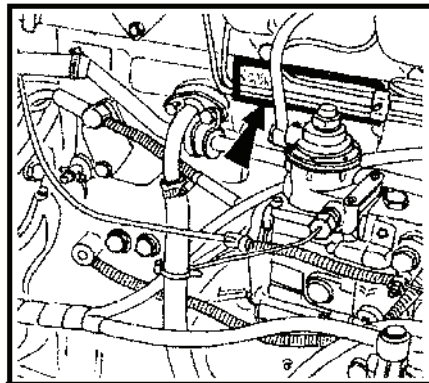
Tractor type plate



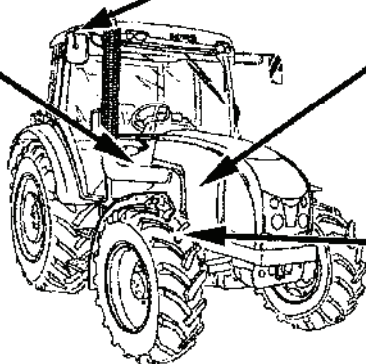
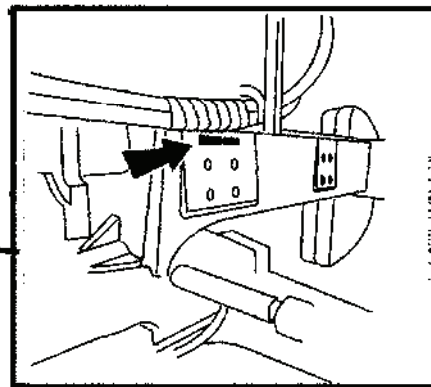
Cabin serial number



Engine serial number



Tractor serial number



<https://truckmanualshub.com/>

LOCATION OF SERIAL NUMBERS

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

Zetor Proxima Power 85

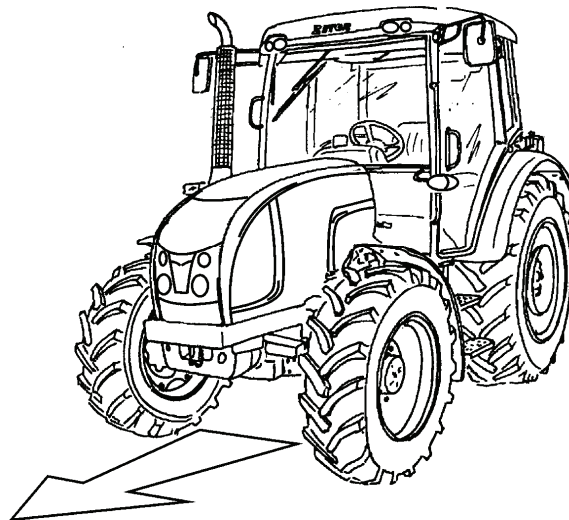
Zetor Proxima Power 95

Zetor Proxima Power 105

Zetor Proxima Power 115

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

The manufacturer reserves the right to implement changes of the design and options during the production to improve the features of the tractor.



<https://truckmanualshub.com/>

SAFETY INSTRUCTIONS FOR USERS

Please, pay increased attention to the parts of the Operator's Manual that are marked with this symbol.



This symbol accompanies all important warnings that concern operation safety.

Observe these warnings and be extremely careful in these cases!

Inform your colleagues and other users about these warnings.



Carefully study the chapters marked with this symbol before starting to perform operation, repairs and adjustments of your tractor.



This symbol identifies all important information concerning operation, adjustment and repairs of the starter motor.

Observe these instructions and be extremely careful in these cases!



This symbol marks parts of the Operator's Manual concerning environment protection.



This symbol refers to optional tractor accessories installed by the manufacturer on the customer's request.

GENERAL SAFETY REGULATIONS

1. 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.

2. 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

3. Do not wear loose clothing and free flying long hair.

4. During work use suitable (prescribed) means of personal protection (working boots, gloves, etc.)

STARTING THE ENGINE

5. The engine cannot be started by driving the tractor downhill.

6. The engine cannot be started by towing the tractor with another tractor.



7. Only start the engine from the driver's seat with the shift lever and reversing lever in the neutral position, PTO switched off and the clutch pedal depressed. Life hazard when starting by means of short-circuiting starter terminals.

8. The key in the switch box must be in the "I" position.

9. When preheating the engine with an electric heater first connect the supply cable to the heater and then connect the heater to the mains. After the end of preheating first disconnect the heater from the mains.

DRIVING OPERATION

10. Hoses of the hydrostatic steering, brakes and fuel system must be checked and replaced if any signs of damage are found. These are some examples of hose damage signs: - cracks on the hose surface, releasing of pre-tensioning 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.

11. During driving on roads with trailers and tools the brake pedals must be connected with a latch.

12. The brakes and steering must be in the perfect condition all the time.

13. Driving downhill without an engaged gear is forbidden.

14. Switching the reversing lever at a speed over 10 km/h is forbidden.

15. Pay special attention when driving on a slope and muddy, sandy, icy or uneven ground.

<https://truckmanualshub.com/>

SAFETY INSTRUCTIONS FOR USERS

16. Observe the maximum specified inclination angle, i.e. 12°.

17. Respect the total permissible weight of the tractor and trailer specified on the data plate of the tractor or on the rear wheel mud-guard.

18. Do not use the differential lock when driving into a bend.

19. It is forbidden to get into and out of a moving tractor.

20. When driving the tractor with agricultural machines attached to the front three-point hitch, reduce the driving speed to 15 km/h.

21. When driving with machines attached to the rear hitches the load of the steered axle must not drop below 20% of the current weight of the set. With the driving speed reduced to 20 km/h the load of the steered axle may drop to 19% of the current weight of the set (set below 4.5 t) or to 18% of the current weight of the set (set exceeding (4.5 t).

TRANSPORTATION OF PERSONS, OPERATION

22. The number of persons transported by the tractor must not exceed the number specified in the technical certificate of the tractor.

23. Persons that are not authorized to work with the attached implement must not stand between the tractor and the hitched machine (implement).

24. Before putting the tractor in motion make sure there is no person or obstacle in the driving direction.

25. During aggregation of the tractor with machines and implements with high tensile resistance when the engine speed drops and the engine tends to stall, the 1R, 2R reduced gears must not be used for the work with these machines.



RECOVERY, PUSHING

26. If the tractor sinks in mud, recover it with the use of a tow bar or rope. *Never use chains! Rupture of the chain represents a danger of death!*

27. During recovery it is dangerous to stand near the towing rope.

28. On the tractor frame a front hook is installed that can only be used to tow the tractor itself, i.e. without a trailer or another implement.

29. When pushing other vehicles (trailers, implements, etc.) with the tractor never insert free wooden blocks between the tractor and the pushed vehicle.

LEAVING THE TRACTOR

30. Only park the tractor on a level ground and if this is not possible, secure a tractor wheel with a wedge on a slope.

31. Do not park the tractor with an attached implement in the lifted position.

32. Before leaving the tractor do not forget to brake the tractor with the parking brake. Engaging a gear does not protect

the tractor from getting in motion (the clutch is disengaged to the front), remove the key from the switch box and lock the cab.

33. To get out of the tractor normally use the left side of the tractor. Look round to see whether a vehicle is approaching that could jeopardize your safety during getting off.

34. When leaving the tractor use the steps and handles. Pay increased attention in the area of the shifting lever and the manual throttle lever.



35. *Before leaving the tractor with the engine running brake the tractor with the parking brake. Shift the main gear shifting lever to the neutral position.*

WITH STOPPED ENGINE ONLY

36. 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.

37. Before removing 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.

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SAFETY INSTRUCTIONS FOR USERS

FIRE PREVENTION PRINCIPLES

- 38.** Only refuel the tractor with the engine stopped.
- 39.** Do not refill fuel up to the top of the fuel tank in summer. Wipe spilt fuel immediately.
- 40.** Do not refuel the tractor near open flame and do not smoke.
- 41.** 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.).
- 42.** If the tractor is equipped with a fire extinguisher, make sure it is always ready to use.



HEALTH AND ENVIRONMENT PROTECTION

- 41.** The tractors may be optionally equipped with special carbon filters of air suctioned into the cab. Without these filters they are not designed for work with aerosols and other harmful substances.
- 42.** 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.

- 43.** 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

- 44.** 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.
- 45.** 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

- 46.** 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.

PREVENTIVE DAILY MAINTENANCE

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

SAFETY CAB

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

AIR-CONDITIONING

- 49.** 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.

- 50.** 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.

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SAFETY INSTRUCTIONS FOR USERS

ELECTRIC INSTALLATION



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

52. The values of the electric installation are:

Nominal voltage 12 V =

Grounded minus pole (-) pole

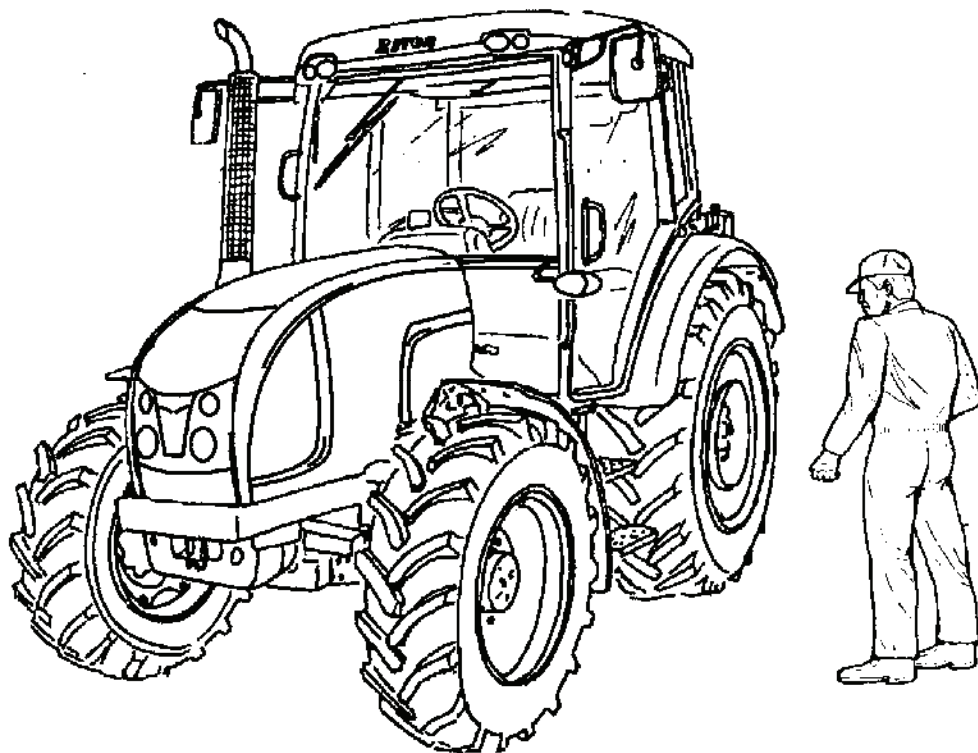
Using starting trucks or auxiliary power supplies with a different voltage or polarity may cause serious failures of the tractor.

53. When handling the battery you must pay increased attention and avoid short-circuits. The tractors are equipped with a battery disconnecter. Switch it off when handling the battery.

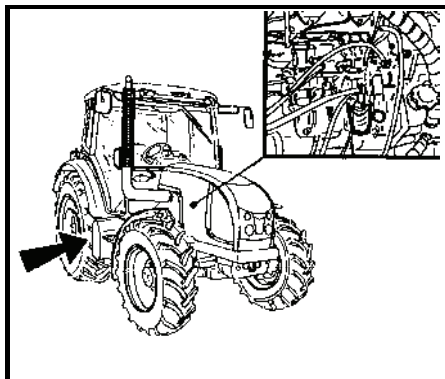
54. The tractors must not be operated with a disconnected battery as this may lead to a serious failure of the tractor.

PREVENTIVE DAILY MAINTENANCE

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



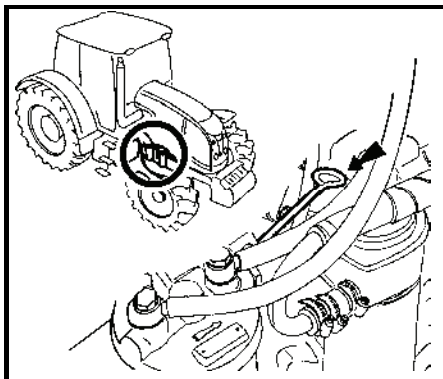
PREVENTIVE DAILY MAINTENANCE



G5

FUEL SYSTEM LEAKS

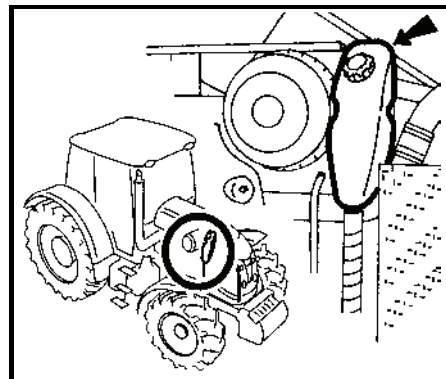
Check the fuel system for leaks, including the drain plug of the fuel tank. Repair any leaks immediately.



E6g

ENGINE OIL LEVEL

The oil dip-stick is situated at the right-hand side of the engine. 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 dip-stick marks.



G716c

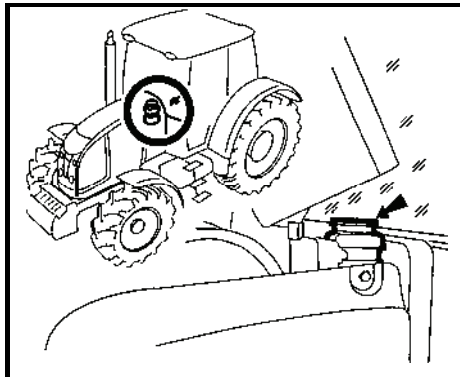
COOLING SYSTEM

Check the connection of the engine cooling system for leaks and the coolant quantity in the expansion tank. The expansion tank is accessible after lifting of the front hood. 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!

PREVENTIVE DAILY MAINTENANCE



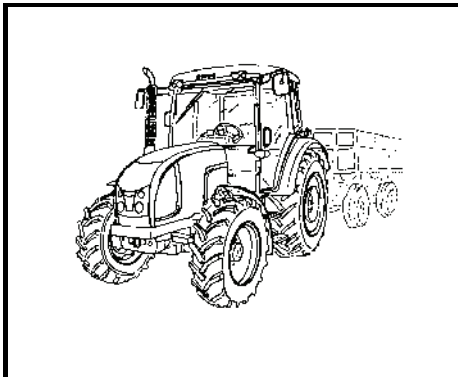
G735a

LIQUID BRAKES

Check the liquid brakes for leaks as well as the liquid control of the clutch and the braking liquid level in the expansion tank. The tank is installed at the left-hand side of the tractor in front of the cab and it is accessible after lifting of the front hood. Maintain the brake liquid level in the range of $3/4$ of the tank content (max. level) and $1/2$ of the tank content (minimum level).



When handling brake liquid, keep absolute cleanness. Check the brake liquid level daily before starting your work.



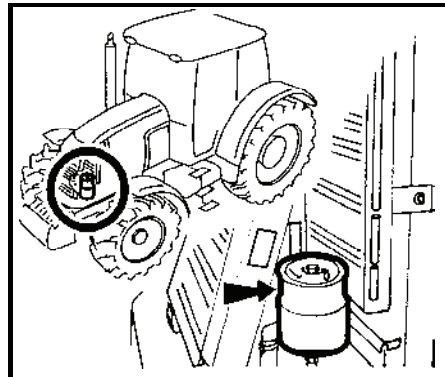
G9

TRAILER AIR BRAKES

Check the air brake system for leaks and the efficiency of the tractor brakes with the trailer.

TRAILER HYDRAULIC BRAKES

Check the hydraulic brake system for leaks and the efficiency of the tractor brakes with the trailer.



G751b

HYDROSTATIC STEERING

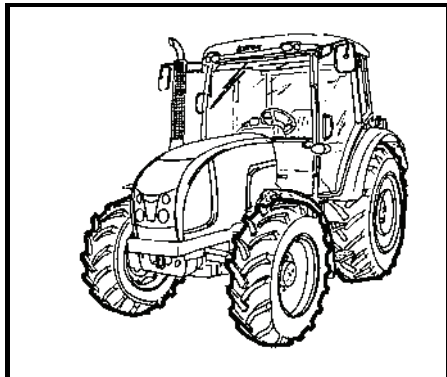
Check the oil level in the hydrostatic steering tank with a dip-stick. The tank is situated in the front left part of the tractor and it is accessible after lifting of the front hood.

If necessary, replenish oil up to the mark of the dip-stick that determines its proper quantity.

Check the condition of all the hoses of the hydraulic steering circuit for damage and for oil leaks.

Check the tightening of screws and nuts of the steering rods and levers.

PREVENTIVE DAILY MAINTENANCE



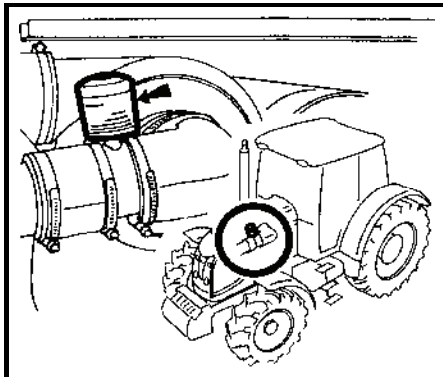
G11

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 (the rim / disc and disc / wheel shaft connection).



Never drive with loose wheel bolts!

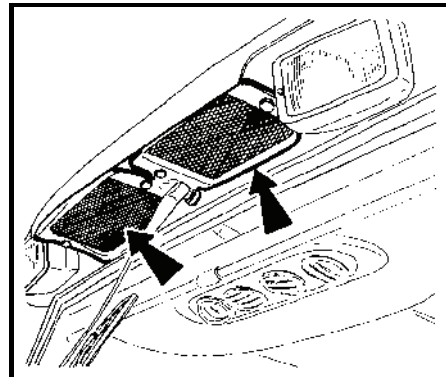


G710b

AIR CLEANER

Maintenance of the air cleaner must be performed after the signal of the clogging indicator.

The indicator is accessible after lifting of the tractor hood. It is installed near the suctioning pipeline elbow.



E13

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.

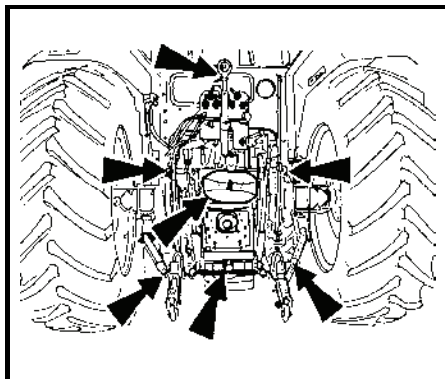
Filters with active carbon can be supplied as an option.



Do not clean or blow the filter with compressed air.

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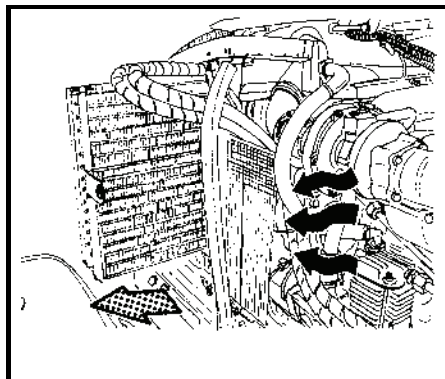
PREVENTIVE DAILY MAINTENANCE



E14

HITCHES

Check the condition of the hitches and attachments, incl. trailer.



E15

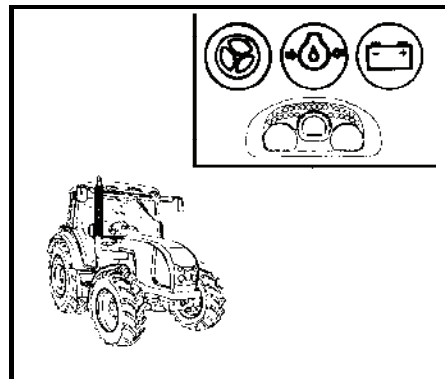
AFTER WORK WITH FRONT IMPLEMENTS

After work with front implements:

- Check the connections of the external hydraulic circuit of the control of the front three-point hitch

Clogging of the coolers:

1. Open the hood.
2. Release and remove the air-conditioning condenser to the left side of the tractor.
3. Clean the front walls of the engine (air-conditioning condenser) cooler with compressed air (blow air in the direction from the engine).
4. Remove residual dirt from the space under the hood (so that it should not be suctioned again).



G16

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.

NOTES

ACQUAINTANCE WITH THE TRACTOR

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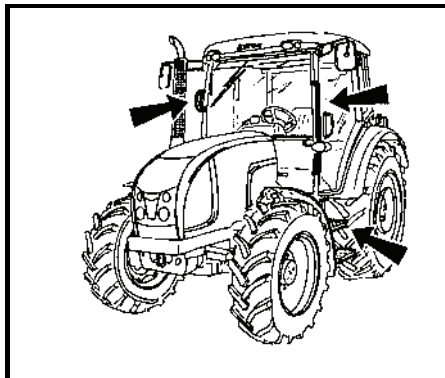
The tractor use is obliged to get acquainted with the recommended procedures and instructions for safe operation of the tractor in advance. It is too late to do so during operation!

ACQUAINTANCE WITH THE TRACTOR

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ACQUAINTANCE WITH THE TRACTOR

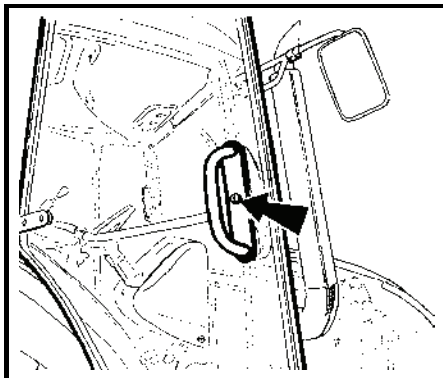


G101

SAFETY CAB



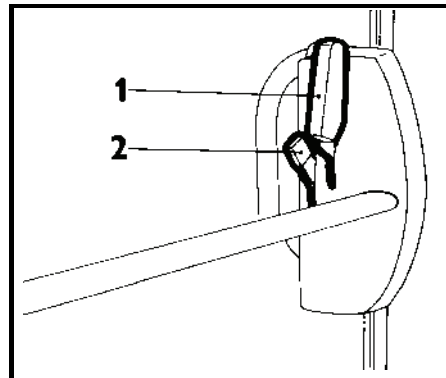
Normally use the left side of the tractor to enter and leave the cab. When entering and leaving the cab use the steps and handles. Pay increased attention in the area of the shifting lever and the manual throttle lever.



E102

DOOR OPENING FROM THE OUTSIDE

The cab doors can be locked from the outside. After unlocking depress the lock button and open the door by pulling the handle.



E103

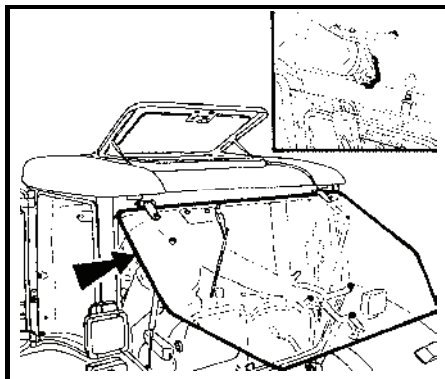
DOOR OPENING FROM THE INSIDE

1. Lever for door opening from the inside
2. Lever for lock opening from the inside
The door is held in the fully open position by a gas strut.



Driving with an open door is forbidden as the door may get damaged.

ACQUAINTANCE WITH THE TRACTOR



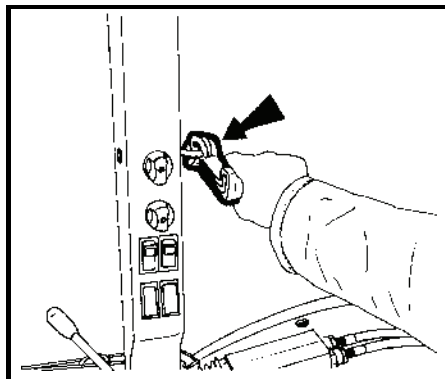
E104

REAR WINDOW

The rear window is equipped with a handle and in the open position it is held by gas struts.



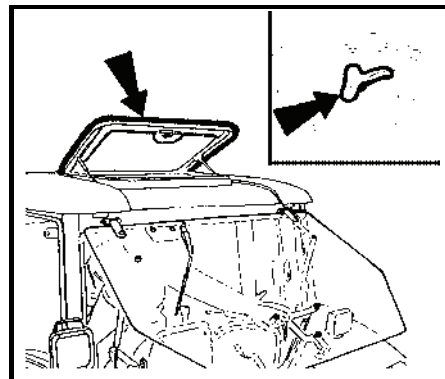
We recommend you to latch the window in the closed position when driving on an uneven ground - danger of cracking of the window. Before you start work with implements attached to the rear three-point hitch make sure there is no danger of collision between the attached implement in the position of maximum lift of the three-point hitch and the open rear window. In case of interference we recommend you to work with the window closed.



E105

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.



E106

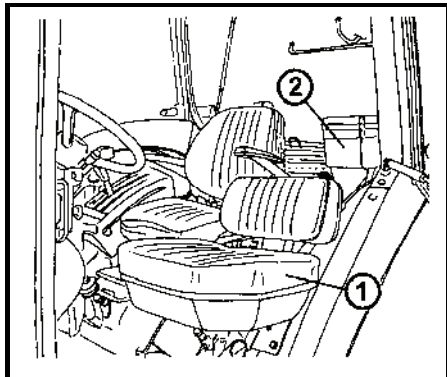
*TILTING LID

It can be opened by partial turning of the locking lever and half-opening.



By opening the tilting lid you will increase the total height of the tractor. Therefore, always close the lid when passing through or parking in places with a lowered profile.

ACQUAINTANCE WITH THE TRACTOR



E107

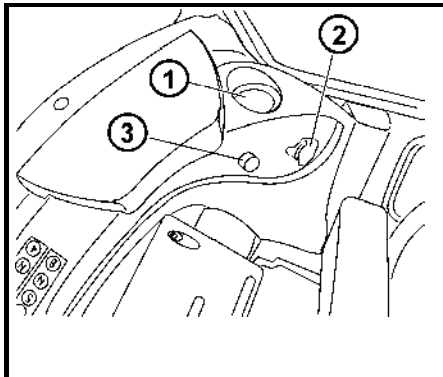
*PASSENGER'S SEAT

Passenger's seat (1) is tilting and is situated on the left cab fender.

To facilitate access to the driver's seat you can tilt the passenger's seat upwards.

TOOLBOX

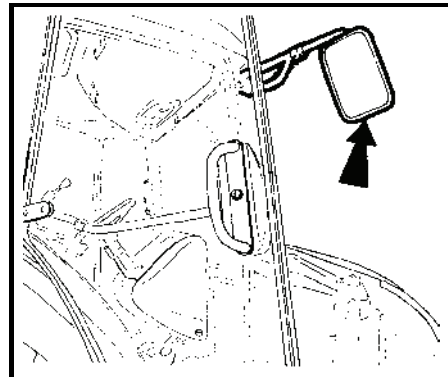
The toolbox (2) is situated at the left side of the driver's seat.



E108

RIGHT REAR PANEL

On the right rear panel there is a storage place for a PET bottle (1), a 12V three-pin socket (2) and a lighter (3).

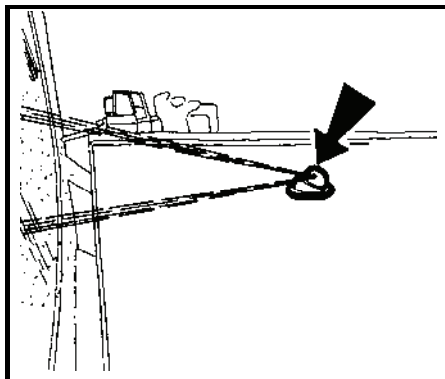


E109

REARVIEW MIRRORS

Before driving or starting work adjust the rearview mirrors to be able to see the entire road or the working field.

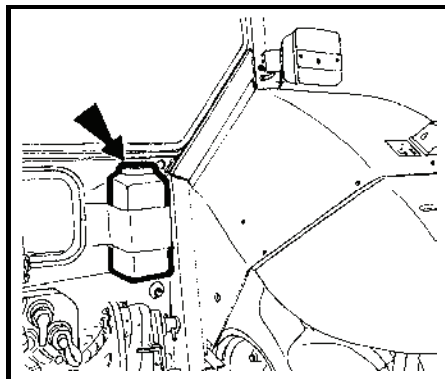
ACQUAINTANCE WITH THE TRACTOR



E110

WASHER NOZZLE

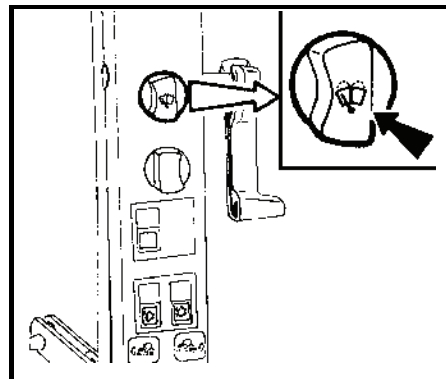
The nozzle is installed in the hood in front of the windshield and is adjustable with a needle or steel wire with the maximum thickness of 0.8 mm.



E111

WASHER TANK

The washer tank is located on the outer rear wall of the cab. The capacity of the tank is 2.5 litres. In the summer season the tank must be filled with distilled water or a washer mixture. In winter the tank must be filled with an antifreeze washer mixture.

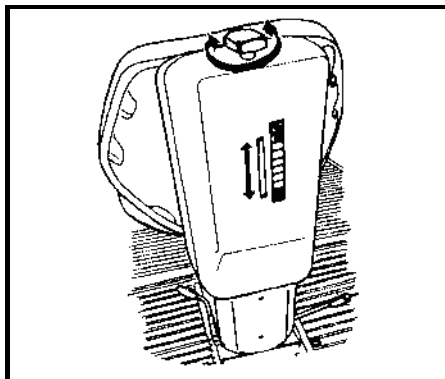


E112

WASHER CONTROL

The starter key must be in position I. The windshield washer is activated by pressing of the selector of the front two-speed wiper located on the right pillar of the cab. The maximum period of uninterrupted operation of the washer pump is 20 s.

ACQUAINTANCE WITH THE TRACTOR



E113

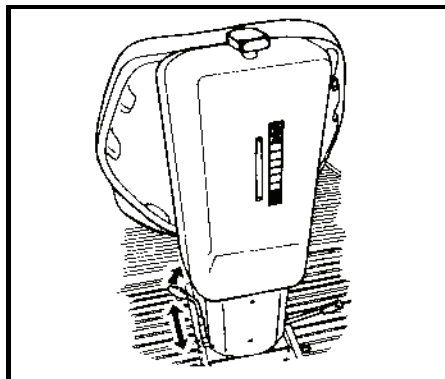
MARS SVRATKA DRIVER'S SEAT

ADJUSTMENT FOR THE DRIVER'S WEIGHT

The seat suspension is adjustable for the driver's weight from 50 to 120 kg. The adjustment is performed by turning a square handle. The weight adjustment indicator is located in the recess of the rear seat cover. The spring stroke is 120 mm.



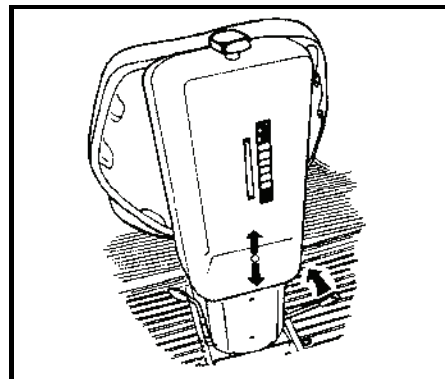
*Do not adjust the seat when driving!
Danger of accident!*



E114

LONGITUDINAL ADJUSTMENT

You can adjust the seat longitudinally after unlocking it with the left lever in the range of ± 75 mm (11 positions).

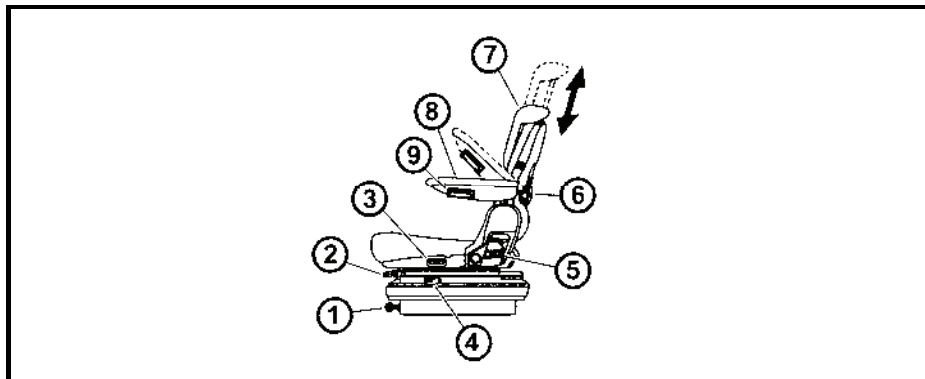


E115

VERTICAL ADJUSTMENT

The seat is adjusted vertically with the right-hand lever; from the central position to the two limit positions in the range of ± 30 mm.

ACQUAINTANCE WITH THE TRACTOR



E116

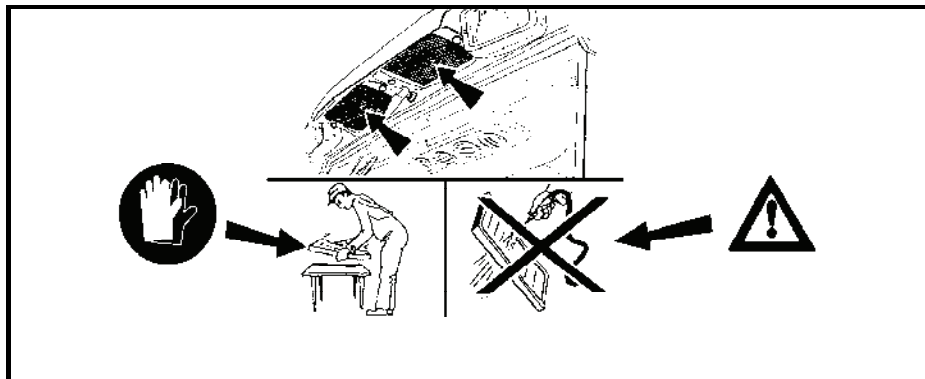
GRAMMER MAXIMO DRIVER'S SEAT

1. Seat suspension adjustment control by the driver's weight (adjustment by turning, direction in accordance with the pictogram on the seat bellows.
2. Longitudinal adjustment lever of the seat (located at the right side of the seat)
3. Seat turning control (the seat can be turned by 20° to both the sides)
4. Seat vibration absorption control (by flipping the control to the front you will select the floating position of the seat)
5. Backrest angle adjustment control
6. Backrest shape adjustment control
7. Height-adjustable backrest (by pulling or pushing in the arrow direction you can adjust it in the range of 170 mm)
8. Tilting armrest
9. Armrest adjustment control (by turning the control you can adjust the height of the armrest)

GRAMMER S DRIVER'S SEAT

It only uses positions 1, 2 and 5.

ACQUAINTANCE WITH THE TRACTOR



E730a

*AIR FILTER WITH ACTIVE CARBON

Filters with active carbon are installed instead of the original 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. You will find the installation instructions in the "Maintenance instructions" chapter.

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.

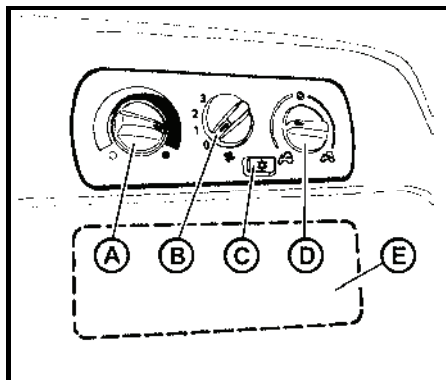
-  **WARNING:** The filter does not provide complete protection from toxic substances
- When handling the filter wear protective gloves
- Do not clean or blow the filter with compressed air.

 **DANGER:** 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.



When pesticides are sprayed and a heating filter with active carbon is used, the recirculation control must be in the "air suctioned from the outside" position and the fan control in the "maximum" position to create overpressure.

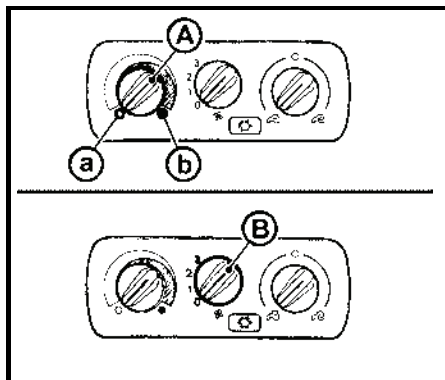
ACQUAINTANCE WITH THE TRACTOR



E117

CONTROL PANEL OF HEATING, *AIR-CONDITIONING, *RADIO

- A - Heating valve control
- B - Fan control
- C - Air-conditioning switch
- D - Control of air circulation in the cab
- E - Space for additional radio installation



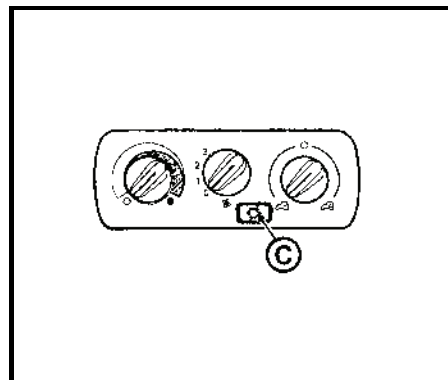
E118

HEATING VALVE CONTROL (A)

- a - Heating valve closed
- b - Heating valve open

FAN CONTROL (B)

- 0- Fan off
- 1- Slow fan speed
- 2- Medium fan speed
- 3- Maximum fan speed



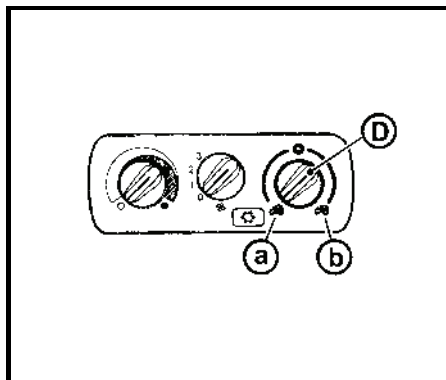
E119

*AIR-CONDITIONING SWITCH (C)

The air-conditioning system is switched on and off with the switch with the snowflake symbol (C).

By pressing the switch you will put the air-conditioning system in operation (the snowflake symbol is lit). You can switch off the air-conditioning system by pressing the switch again (the snowflake symbol is off).

ACQUAINTANCE WITH THE TRACTOR



E120

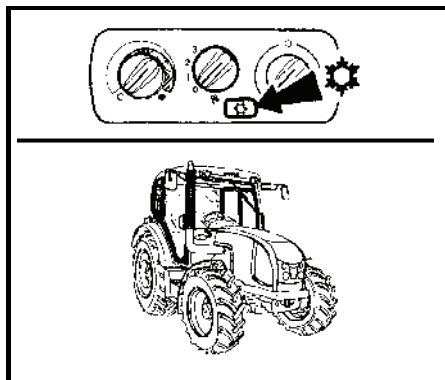
CONTROL OF AIR CIRCULATION IN THE CAB (D)

- a - Surrounding (external) air is suctioned to the cab via filters - air suctioning from the cab is closed.
- b - Air is suctioned from the inside of the cab (air recirculation fast quick adjustment of temperature in the cab).



In this position the air inlet from the outside of the cabin is completely closed and in the cabin there is no overpressure that prevents penetration of unfiltered air to the cabin!

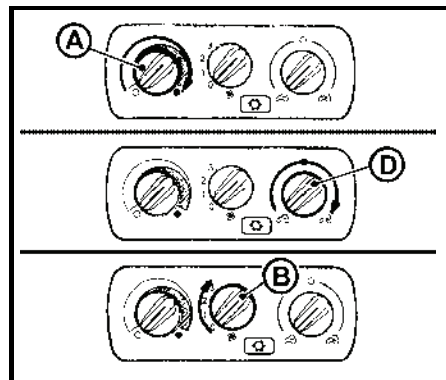
Only use this position of the control for the necessary time!



G121

PROPER FUNCTION OF THE HEATING AND AIR-CONDITIONING SYSTEM

To ensure proper functioning of the heating or air-conditioning system it is necessary to create overpressure in the cab. Therefore, we recommend you to close all the windows, doors and upper lid of the cabin.



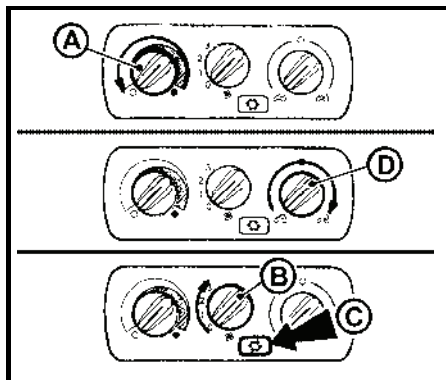
E122

FAST HEATING OF THE CAB SPACE

Proceed as follows:

1. Turn the heating valve control (A) to the right position (heating valve fully open).
2. Set the control of air circulation in the cab (D) to the internal circulation position.
3. Use the fan control (B) to select the corresponding fan speed (position 1, 2, 3).
4. Set the outlets to the required angle to avoid direct blowing of air to the persons in the cab.

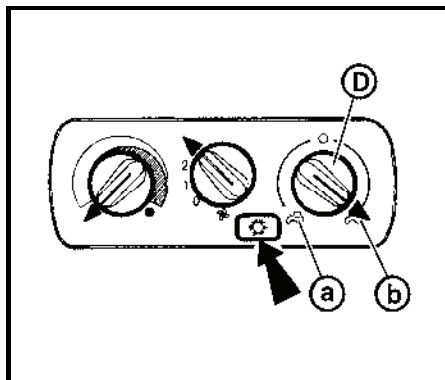
ACQUAINTANCE WITH THE TRACTOR



E123

FAST COOLING OF THE CAB SPACE

1. Turn the heating valve control (A) to the left position.
2. Set the control of air circulation in the cab (D) to the internal circulation position.
3. Use the fan control (B) to select the corresponding fan speed (position 1, 2, 3)
4. Use the switch (C) to switch on the air-conditioning system.
5. Set the outlets to the required angle to avoid blowing of air directly to the persons in the cabin (possible occurrence of an illness due to intensive cooling of body parts).



E124

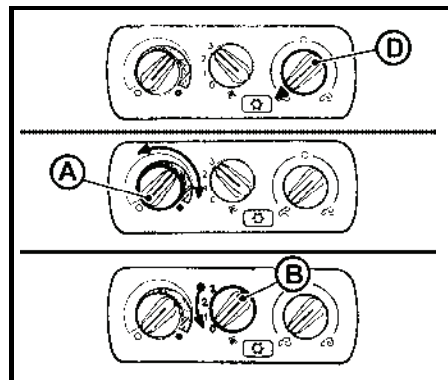
HEATING OR AIR-CONDITIONING OPERATION DURING WORK OF THE TRACTOR

When internal air circulation is on, the air inlet is closed and the air in the cab space may be breathed up by the operators. This situation may cause feelings of tiredness.

Note: During work set the switch (D) in accordance with individual requirements to a temperature in a position between (a) and (b) so that the fan can suction air from the outside via filters.



When pesticides are sprayed and a heating filter with active carbon is used, the recirculation control must be in the "air suctioned from the outside" position and the fan control in the "maximum" position to create overpressure in the cab.



E125

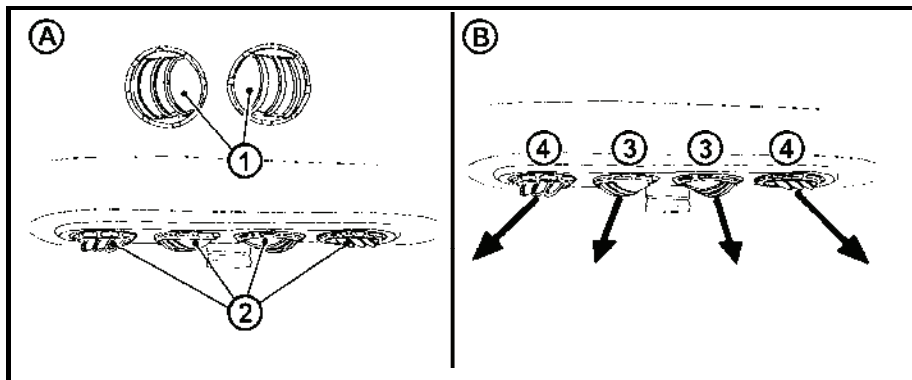
IMMEDIATELY AFTER COOLING DOWN THE CAB

Immediately after cooling of the cabin and reduction of the internal temperature to the required value we recommend you to:

- Switch the air circulation control (D) over from position (b) (air recirculation) to position (a) (suctioning of external air).
- Perform smooth regulation of air temperature with the air-conditioning on by partially opening the heating valve (A). At this setting the air entering the cabin from the outlets is not dried so intensively.
- You can also smoothly regulate the air temperature with the air-conditioning on by reducing the fan output by switching the control (B) to position 1 or 2.

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ACQUAINTANCE WITH THE TRACTOR



E126

HEATING AND AIR-CONDITIONING OUTLETS,*RADIO SPEAKERS

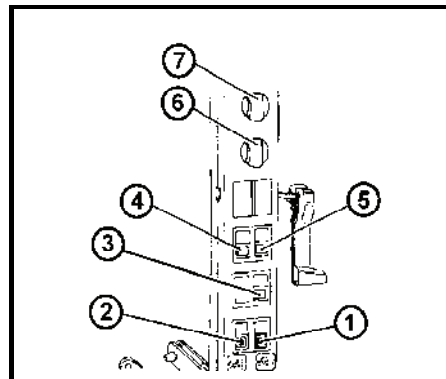
A - Adjustable outlets of heating (2) and *air-conditioning (1)

Radio speakers are only installed in case of preparation for the *radio installation.

FRONT WINDSHIELD DEFROSTING

B - To ensure quick defrosting of the front windshield direct the central heating outlets (3) under the angle of approx. 45° towards the windshield. Direct the side outlets (4) 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.

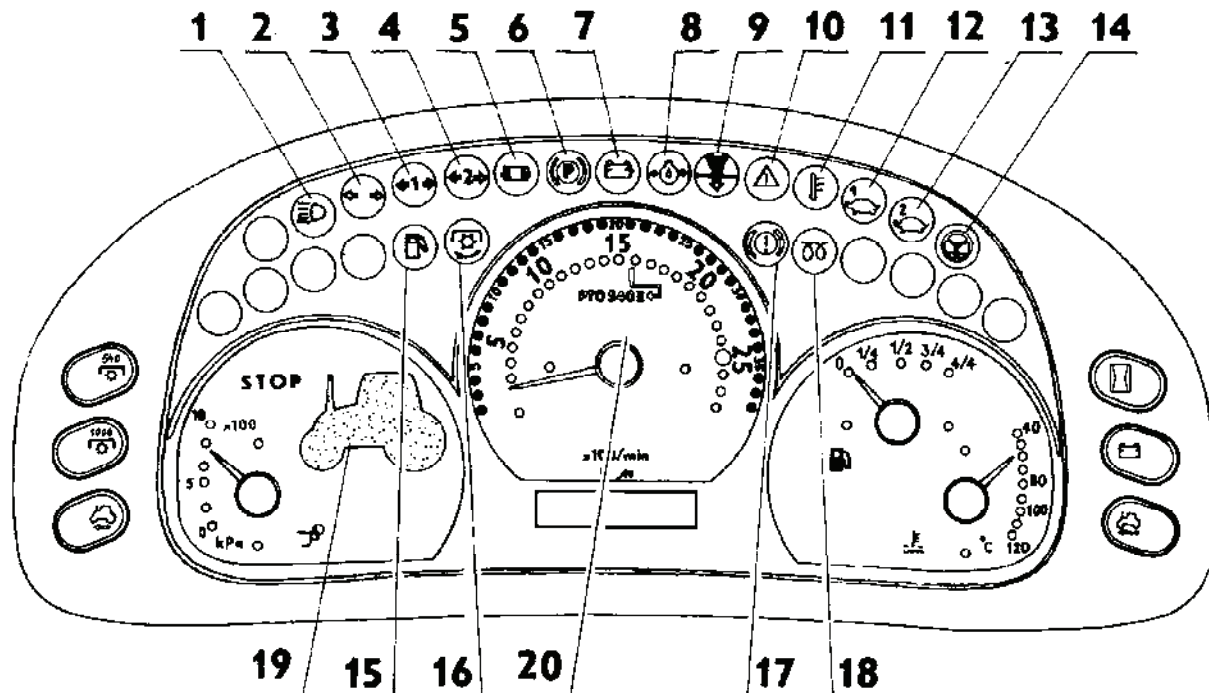


X127

CONTROL PANEL ON THE RIGHT CAB PILLAR

1. Switching on the rear PTO
2. Switching on the front PTO
3. Rear PTO start-up speed Depending on the attached implement you can select 3 stages:
 - 1° - Light start-up
 - 2° - Medium start-up
 - 3° - Strong start-up
4. Switch of the front working lights on the cab roof
5. Switch of the rear working lights on the cab roof
6. Rear wiper switch
7. Two-position selector of the front wiper and control of the front washer

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ACQUAINTANCE WITH THE TRACTOR



X131

ACQUAINTANCE WITH THE TRACTOR

DIGITAL DASHBOARD - INDICATORS

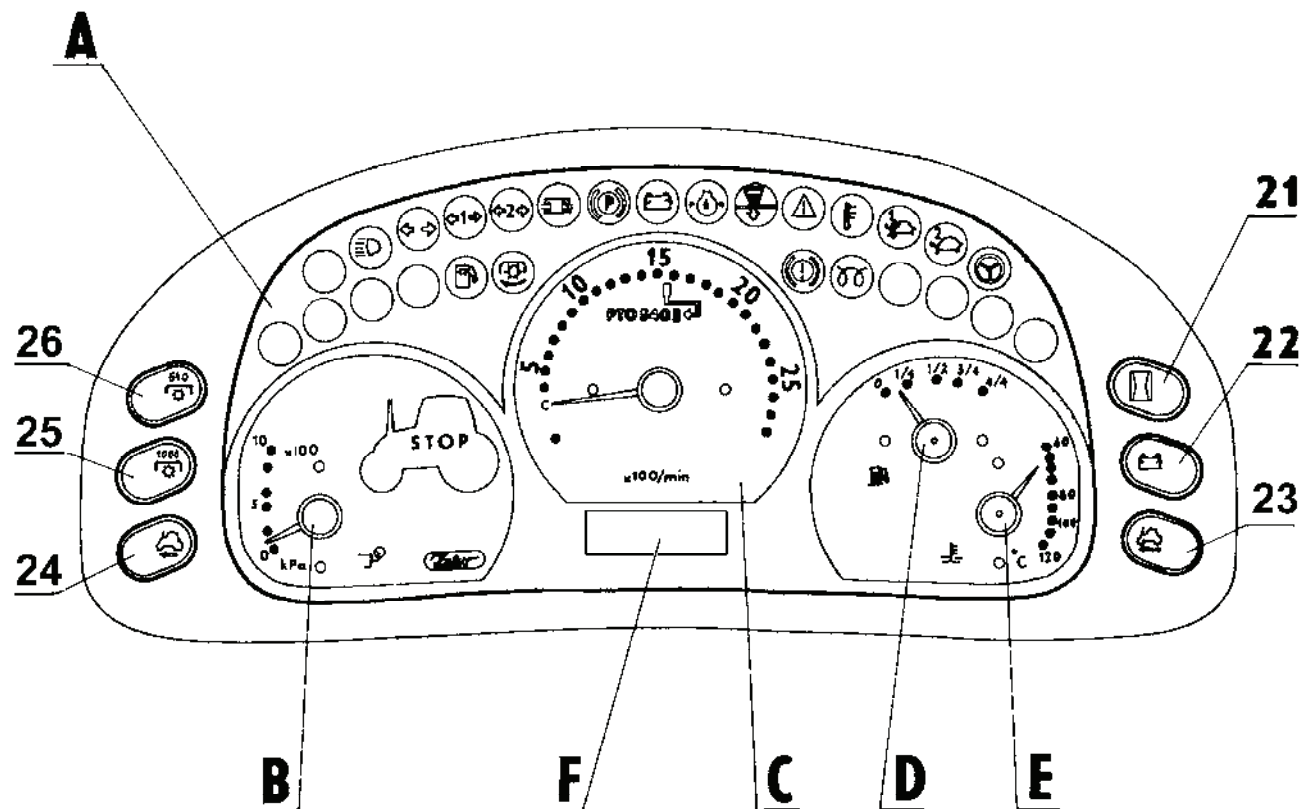
1. High beam lights (blue). Lights up when high beam headlights are on.
2. Tractor turn signal indicator (green)
3. 1st trailer turn signal indicator (green)
4. 2nd trailer turn signal indicator (green)
5. Indicator of minimum air pressure in the brake system (red). Lights up if the air pressure for the air brakes of the trailer drops below the critical limit, i.e. 450 kPa.
6. Parking brake (red). Lights up when the parking brake lever is in the "on" position.
7. Charging (red). During engine operation it light up in case of a charging failure. If the engine is stopped, it must light up when the key is in the "on" position (part of alternator excitation).
8. Lubrication (red). During engine operation it light up if the engine oil pressure drops below 120 to 60 kPa. If the engine is stopped, it must light up when the key is in the "on" position.
9. Air filter clogging indicator (yellow)
10. Indicator of warning lights (red) - not connected
11. Overheating indicator (red) - not connected
12. Indicator of the 1st stage of the torque multiplier "on" (green)
13. Indicator of the 2nd stage of the torque multiplier "on" (green)
14. Indicator (red) of a failure in the hydrostatic control system
15. Fuel (orange) Light up when the remaining quantity of fuel in the tank amounts to 1/6 - 1/10 of the tank volume.
16. Indicator of disengagement of the PTO clutch (green)
17. Cardan brake wear indicator - not connected
18. Engine glowing (yellow) Indicates activation of the engine start facilitating device and by flashing the error code
19. Warning indicator (red) of a failure or tractor operation error.
It lights up if the air pressure drops below the critical limit, i.e. 450 kPa, in case the parking brake lever is in the "on" position, in case of a failure of engine lubrication or charging
20. Symbol marking the rpm of the engine at which the nominal rpm value

of the rear PTO is achieved if the 540E rpm PTO is used



If this indicator lights up during driving together with the gearbox failure indicator on the dashboard, it means that a serious failure of the travel clutch system or gearbox has occurred and the tractor cannot be operated any more.

ACQUAINTANCE WITH THE TRACTOR



X132

ACQUAINTANCE WITH THE TRACTOR

BUTTONS

After pressing of the selected button the corresponding symbol and value will appear on the display.

21. Button of the operation hour counter. The value will appear on the display. Resolution 0.1 hours.
22. Battery voltage button: The voltage value is displayed on the display (with the resolution of 0.1 V).
23. Button of the number of covered kilometres (per day or since the last reset). The number of kilometres is shown on the display. The value can be reset with long pressing of the button.
24. Button of the current travelling speed in km/h, which is shown on the display. Resolution 1 km/h.
25. 1000 rpm PTO button. The rpm value with the resolution of 10 rpm is shown on the display. (engine speed converted to PTO)
26. 540 rpm PTO button. The rpm value with the resolution of 10 rpm is shown on the display.

Note: PTO 540 rpm are only shown on the revolution counter.

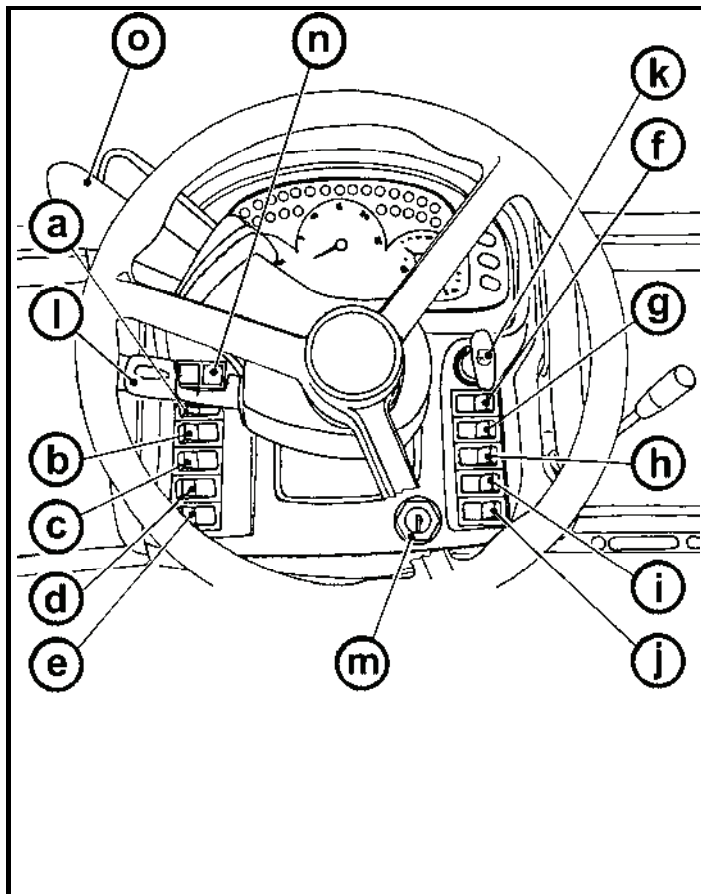


The buttons are only used to display operation data.

DESCRIPTION OF INSTRUMENTS

- A - Indicators
- B - Trailer brake air pressure gauge
- C - Engine revolution meter
- D - Fuel gauge
- E - Coolant thermometer
- F - Display

ACQUAINTANCE WITH THE TRACTOR

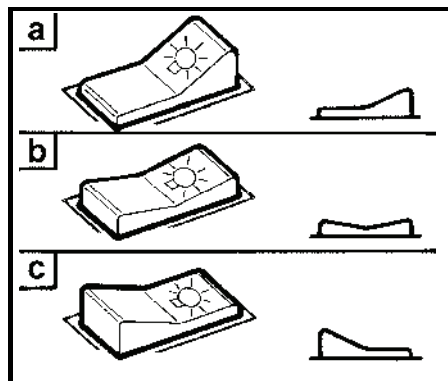


X133d

SELECTORS, SWITCHES AND LEVERS

- a - Light switch (off, parking, main headlights)
- b - Selector of low beam lights in the tractor grill and low beam lights on the tractor cab in the roof.
 - * This selector may be optionally used to control the lights on the tractor cab independently of the tractor grill lights (off - on) as working lights.
- c - Rear fog light switch (off - on). The function of the fog light is indicated by the illuminated symbol on the switch.
- d - Switch of the rear working headlight on the cabin pillar (off - on). The function of the working headlight is indicated by the illuminated symbol on the switch.
- e - Warning light switch - the symbol starts flashing
- f - Switch of the front driving axle. Engaged front driving axle is indicated by the illuminated symbol on the switch.
- g - Beacon switch (off - on); "on" is indicated by the illuminated symbol on the switch
- h - Switch of the working lights in the tractor grill (off - on). The function of the working lights is indicated by the illuminated symbol on the switch.
- i - Multiplier automatic preselection switch
- j - Differential lock button - activation is indicated by the illuminated symbol
- k - Stopping the engine run by pulling (stopping device)
- l - Selector of turn signal, low and high beam lights and the acoustic and light warning signal
- m - Switching box
- n - Gearbox failure indicator (in case of this failure drive home, shut down the tractor and call the repair shop)
- o - Reversing lever (forward, neutral, reverse)

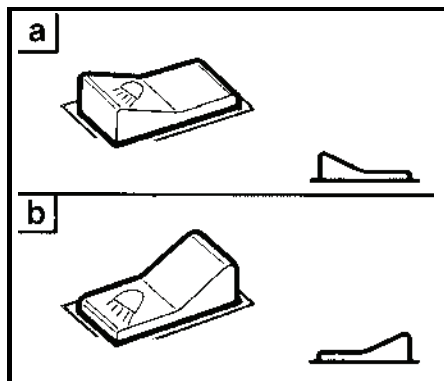
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ACQUAINTANCE WITH THE TRACTOR



E134

LIGHT SWITCH (A)

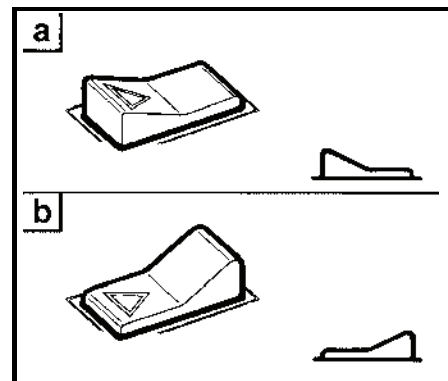
- a - Lights "OFF"
- b - Sidelights and tail lights, registration sign and instrument lighting "ON"
- c - All the electric appliances are ON as in position "b" In addition, low or high beam lights are "ON" (depending on the position of the selector of the turn signal, lights and horn)



E135

SWITCH OF GRILL AND CAB HEADLIGHTS (B)

- a - Light in the roof "OFF"
 - b - Light in the roof "ON"
- This selector controls the lights in the grill or roof of the tractor cab. Only use the lights in the cab roof if an implement is attached to the front three-point hitch that covers the headlights in the grill. Switched on lights in the cabin roof are indicated by the illuminated symbol on the switch.
- High beam lights are only available in the tractor grill.

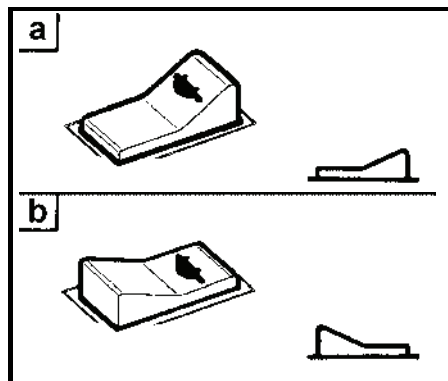


E136

SWITCH OF WARNING LIGHTS (E)

- a - Warning lights "OFF"
 - b - Warning lights "ON"
- The function of the warning lights is indicated by intermittent flashing of the turn light indicators on the dashboard and the symbol on the switch.

ACQUAINTANCE WITH THE TRACTOR



X102

MULTIPLIER PRESELECTION SWITCH

a - Preselection switch "OFF"

b - Preselection switch "ON"

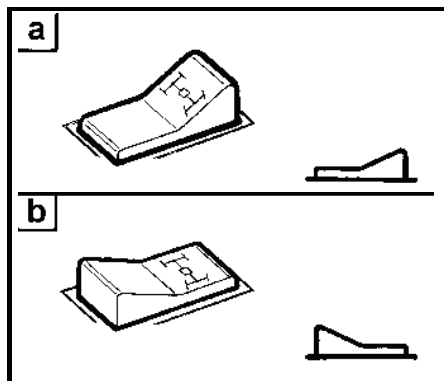
Position (b) - preselection switch "ON" is indicated by the illuminated symbol on the switch.

If the preselection switch (b) is "ON", on each pressing of the clutch pedal the medium stage of the multiplier **M** is automatically engaged - on the dashboard one indicator with the tortoise symbol is lit (see chapter Driving Operation / Indication of the multiplier function of the "Operator's Manual")

After releasing of the clutch pedal the multiplier can be controlled with the buttons on the shifting lever.



During engine starting the switch must be in the "OFF" position (a).



E137

SWITCH OF THE FRONT DRIVING AXLE (F)



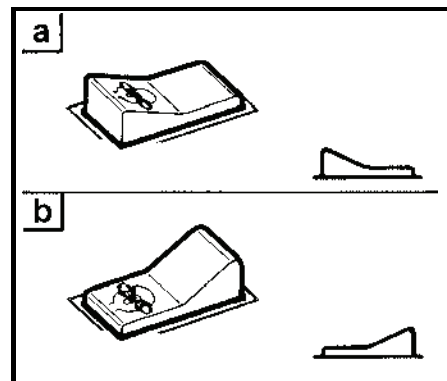
Use the front driving axle in case the rear wheels slip to increase the traction of the tractor.

a - Front driving axle "OFF"

b - Front driving axle "ON"

When the tractor is stopped (the tractor is braked, engine stopped, key of the switching box off), the front driving axle is "ON".

The front driving axle is on in the basic position (indicator lit) and it can be deactivated with the switch (indicator off).



E138

REAR DIFFERENTIAL LOCK BUTTON (J)

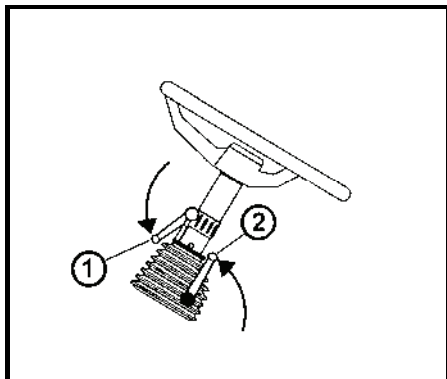
The differential lock is engaged by pressing of the button, which returns to the original position after being released.

The engagement of the differential lock is indicated by the illuminated symbol on the button.

The differential lock is automatically disengaged on pressing of the brake pedals.

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ACQUAINTANCE WITH THE TRACTOR



E128

ADJUSTABLE STEERING WHEEL

The tilting steering column allows variable angle and height adjustment of the steering wheel. By pulling the locking levers in the direction from the steering column you can readjust the levers to any position.

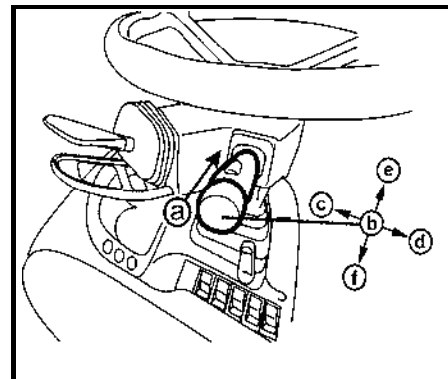
Steering wheel height adjustment

The adjustment is done by extending or retracting the steering wheel after releasing the lock by turning the lever (1) in the arrow direction. After setting the steering wheel lock the lever (1) by tightening against the arrow direction.

Steering wheel angle adjustment

The adjustment is done by tilting the steering wheel after releasing the lock by turning the lever (2) in the arrow direc-

tion. After setting the steering wheel lock the lever (2) by tightening against the arrow direction.

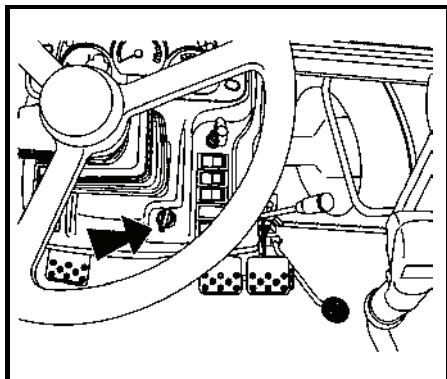


X139

SELECTOR OF TURN SIGNAL, LOW AND HIGH BEAM LIGHTS AND HORN (K)

- a - Acoustic horn - push the selector in the axial direction
- b - Low beam lights
- c - Right turn signal
- d - Left turn signal
- e - Light warning signal
- f - High beam lights

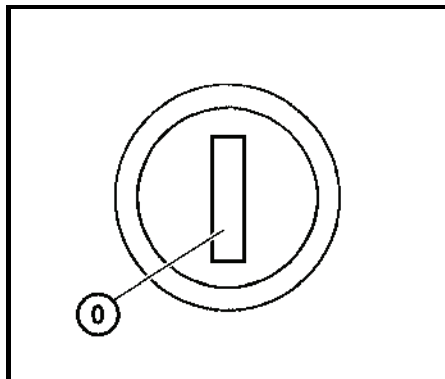
ACQUAINTANCE WITH THE TRACTOR



E140

SWITCHING BOX

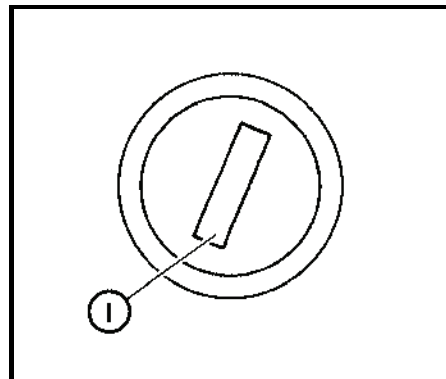
The switching box is located on the dashboard, see arrow.



E141

KEY IN "0" POSITION

The voltage of all appliances controlled via the key is disconnected. The key can be removed.

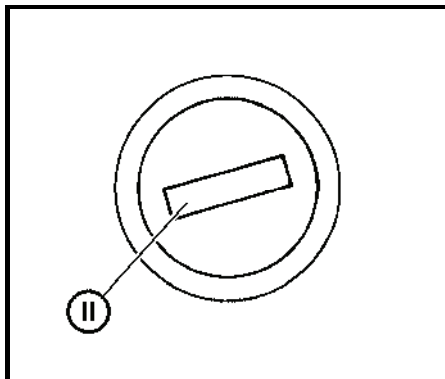


E142

KEY IN "I" POSITION

Voltage is connected to all appliances except the starter. The key is in this position during engine operation. The key cannot be removed.

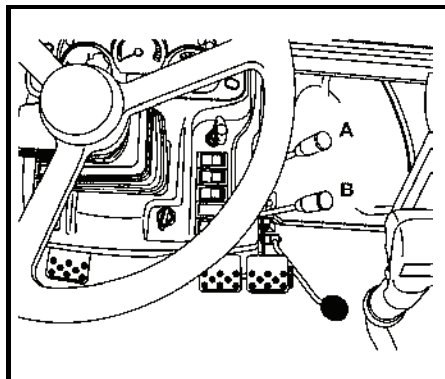
ACQUAINTANCE WITH THE TRACTOR



E143

KEY IN "II" POSITION

The key is in this position during starting of the engine and the starter and all the electric appliances are connected except wipers, washers, cab fan and air-conditioning. After starting the key automatically returns to the "I" position.

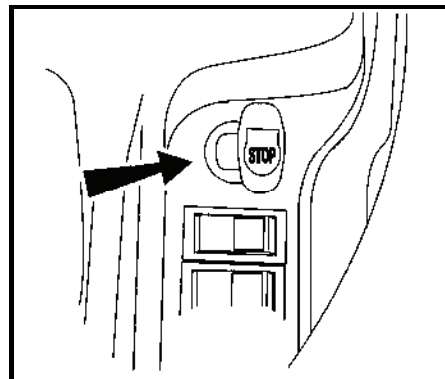


E144

MANUAL THROTTLE LEVER

A - Maximum engine speed
B - Idle run

The lever allows you to set the engine speed in the whole range A to B.



X145b

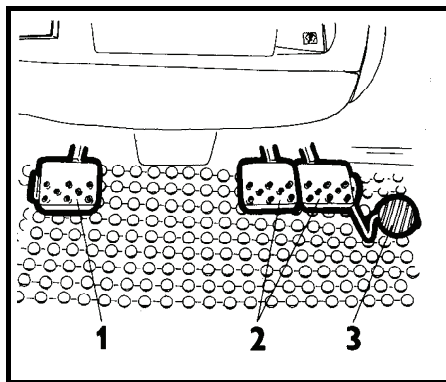
ENGINE STOPPING CONTROL

By pulling the control upwards you will stop the engine run immediately and by turning it in the pulled position you will lock its position.

When the engine run has stopped, return the control to the original position.

 *If the control remains pulled up, the engine cannot be started.*

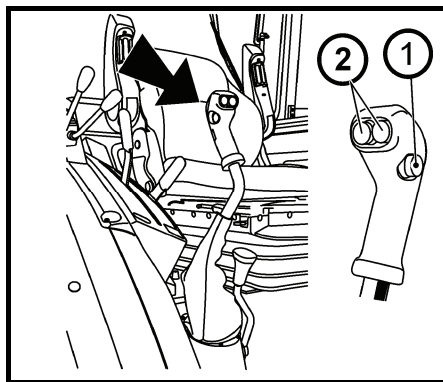
ACQUAINTANCE WITH THE TRACTOR



G146

PEDALS

1. Travel clutch pedal
2. Foot brake pedals connected with a latch
3. Foot throttle pedal

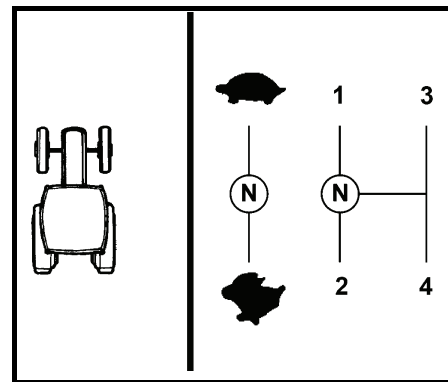


X147

GEAR SHIFTING LEVER

- Main shifting lever

1. Clutch disengagement button on the shifting lever head
2. Shifting buttons of individual multiplier stages



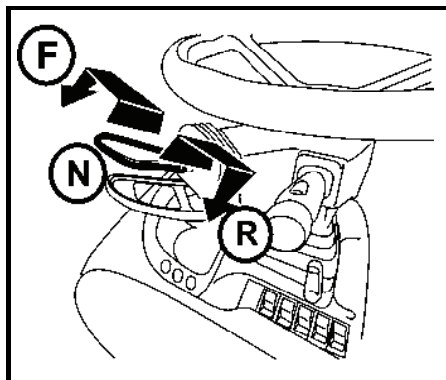
E148a

GEAR SHIFTING PLAN

Reverse gears can only be shifted with the use of the reversing lever. The plan is located on the front left bottom glass of the cab.

<https://truckmanualshub.com/>

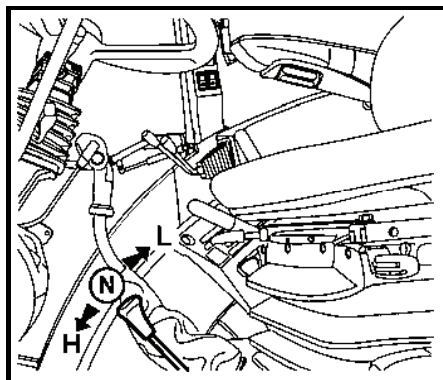
ACQUAINTANCE WITH THE TRACTOR



X212a

REVERSING LEVER

- F** - Forward movement, lever at the front
N - Neutral position
R - Reverse movement, lever at the back



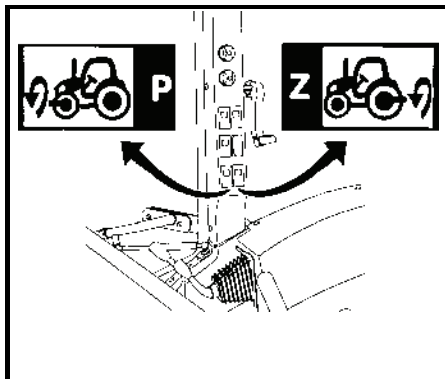
G150

SHIFTING LEVER OF ROAD AND REDUCED GEARS

- H** - Road gears
N - Neutral position
L - Reduced gears

The shifting is performed with the tractor at standstill.

ACQUAINTANCE WITH THE TRACTOR

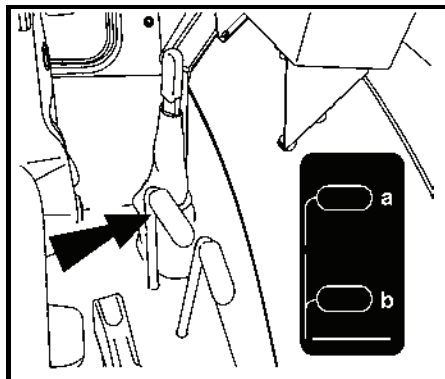


E152

PTO DRIVE CONTROL

PTO drive is activated with switches on the right pillar of the cab.

P - Front PTO
Z - Rear PTO



G153

REAR PTO SPEED CONTROL LEVER, 540 AND 1000 (OR 540E) RPM

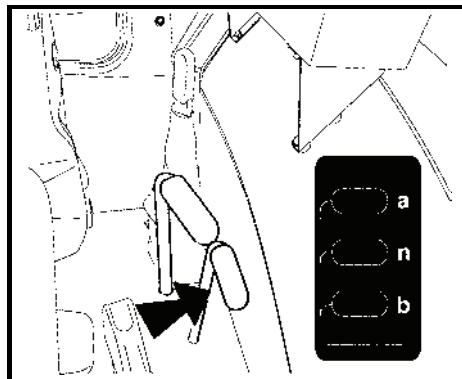
The adjustment is performed with the tractor at standstill by pulling or pushing the lever up and down.

- a - 1000 rpm (or 540E rpm)
- b - 540 rpm

*The tractor may be optionally equipped with a PTO shaft end with eight or twenty-one splines.



Shifting of 540 and 1000 (or 540E) rpm is possible regardless of the number of splines of the installed end. The speed of the PTO and end piece type must be selected with regard to the prescribed speed of the attached machine.



G154

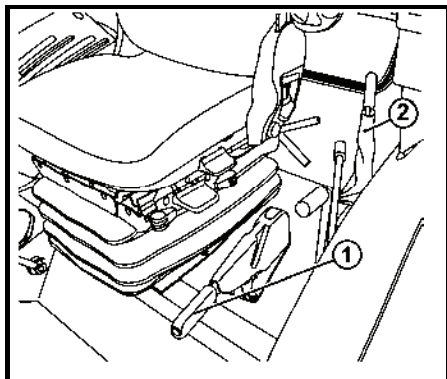
REAR PTO DRIVE CONTROL LEVER

The adjustment is performed with the tractor at standstill by pulling or pushing the lever up and down.

- a - Independent speed of the PTO drive
 - The rpm value of the PTO depends on the engine speed.
- n - Neutral position
- b - Dependent speed of the PTO drive
 - The rpm value of the PTO depends on the engaged gear.

<https://truckmanualshub.com/>

ACQUAINTANCE WITH THE TRACTOR



E155

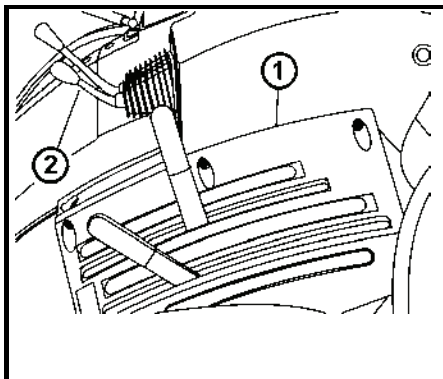
LEVER OF THE PARKING BRAKE AND HITCH FOR A SINGLE-AXLE TRAILER

1. Parking brake lever
2. Hitch control lever for a single-axle trailer



*When stopping or leaving the tractor you must always secure the tractor with the parking brake. **The engagement of a gear does not prevent the tractor from getting in motion (the clutch is disengaged)!***

*If the tractor is standing on a slope, its wheel must be additionally **secured with wedges!***



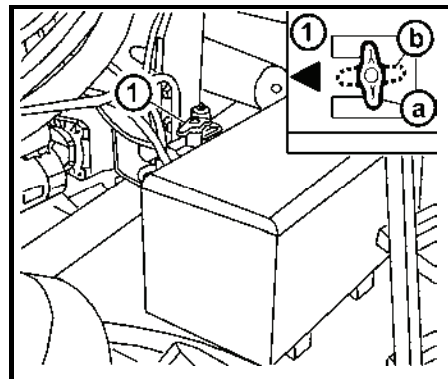
E156

HYDRAULIC CONTROL PANEL

The hydraulic control panel (1) is located in the right fender area.

CONTROL OF THE AUXILIARY HYDRAULIC DISTRIBUTOR

The control of the auxiliary hydraulic distributor (2) is located on the upper part of the right fender.



E157

BATTERY DISCONNECTOR

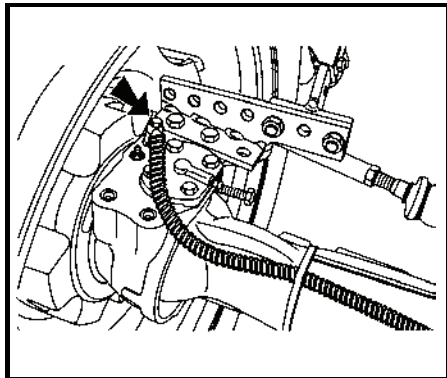


In case of long-term shutdowns, repairs, failures or accidents immediately disconnect the battery with the battery disconnecter.

The battery disconnecter is located at the left-hand side of the tractor in front of the cab.

- a - Battery connected
b - Battery disconnected

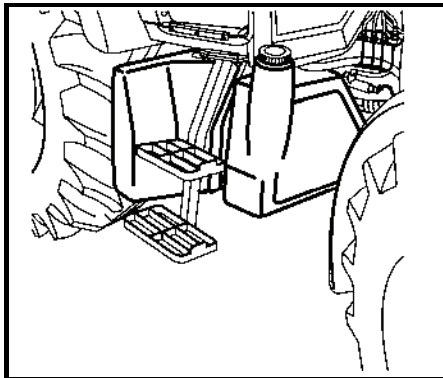
ACQUAINTANCE WITH THE TRACTOR



E158

TRACTORS WITH THE TRAVELLING SPEED OF 40 KM/H

All tractor models with the front driving axle that is equipped with brakes installed in the reducers of the front wheels can be equipped with the travelling speed of 40 km/h.



E159

FUEL TANK

The fuel tank is installed at the right-hand side of the tractor. The tractor is equipped with a plastic tank with the capacity of 180 litres.



Do not step on the fuel tank!

DRAIN PLUG OF THE FUEL TANK

The hole for draining dirt from the fuel tank is found in its bottom.

NOTES

NOTES

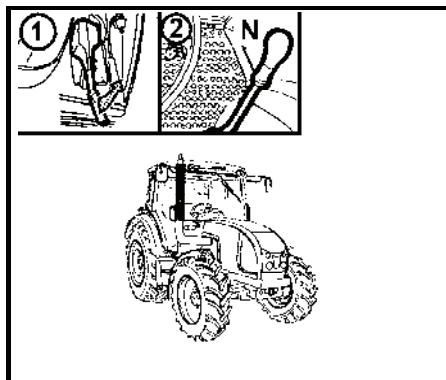
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Before driving the new tractor first get acquainted with the gear shifting pattern and test individual positions of the shifting lever at the engine standstill.

In normal operation, before you start, you must make sure that the technical condition of the tractor corresponds to requirements for safe operation.

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G201

BEFORE STARTING THE ENGINE

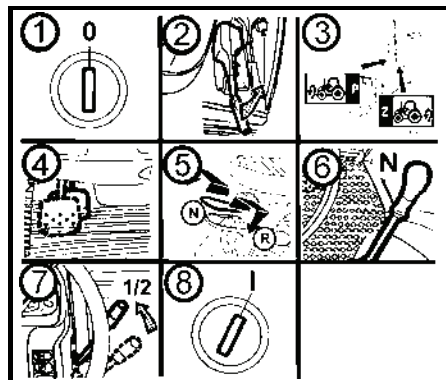


Before you start the engine, make sure:

1. that the tractor is properly braked
2. that the main gear shifting lever is in the neutral position
3. that the reversing lever is in the neutral position
4. that the PTO switches are off.

If the clutch pedal is not pressed - the engine cannot be started - the starting interlock switch is not actuated.

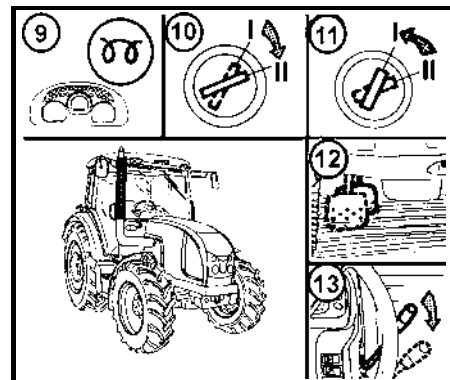
Note: Before the entire starting we recommend you to prime the fuel system with some strokes of the manual feed pump.



X202

STARTING THE ENGINE

1. Insert the key into the switching box - "0" position.
2. Check whether the tractor has been braked with the parking brake.
3. Switch off the PTO switches on the right pillar of the cab.
4. Depress the clutch pedal.
5. Move the reversing lever located under the steering wheel to the neutral position.
6. Shift the main gear shifting lever to the neutral position.
7. Adjust the throttle for increased fuel delivery (approx. 1/2 of the maximum quantity).
8. Turn the starter key from the "0" position to the "I" position. The glowing indicator will light up.



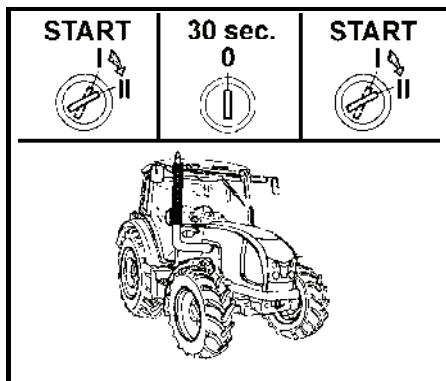
X203

9. Wait until the glowing indicator goes off (the time depends on the temperature of the cooling liquid).



If the glowing indicator only flashes instead of lighting, an error has occurred in the glowing system (chapter Indication of errors of the glowing system). Have the reported error repaired in a specialized repair shop.

10. When the indicator goes off, immediately (within 5 s) turn the key from the "I" position to the "II" position (start).
11. After starting the engine release the key immediately, it will automatically return to the "I" position. **Do not start the engine for more than 15 s.**
12. Release the clutch pedal.
13. After starting the engine gradually reduce the fuel delivery.



G204

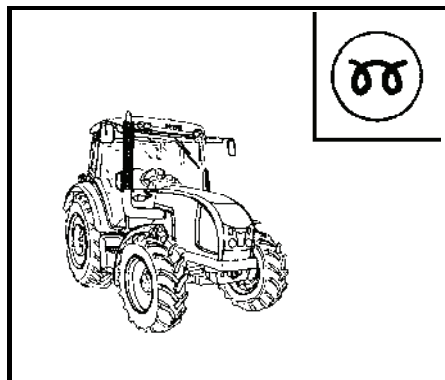
IF THE ENGINE WILL NOT START

Return the key to the "0" position, wait for 30 seconds and repeat starting.

6 starting cycles are permissible at the most (one cycle is 15 s starting and 30 s interruption). Further starting of the engine is only possible when the started has cooled down to the ambient temperature.



Never support the stopping engine with the starter motor. There is a danger of damaging the starter motor.

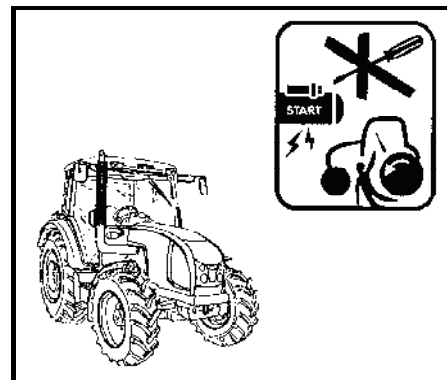


G205

INDICATION OF ERRORS OF THE GLOWING SYSTEM

An error of the glowing system is indicated by flashing of the glowing indicator.

- If at engine standstill the glowing indicator flashes once a second, the glowing will occur in the emergency mode as at low temperatures regardless of the coolant temperature.
- If at engine standstill the glowing indicator flashes twice a second, the glowing is off (out of operation).
- If the glowing indicator flashes permanently during engine operation, the glowing controller is faulty and the glowing has not been finished. This failure must be removed immediately as the battery might get discharged.



G206

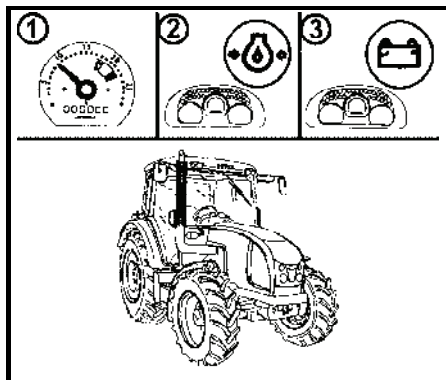
HANDLING THE STARTER MOTOR



It is forbidden to start the engine by short-circuiting the starter motor terminals.

The tractor can only be started from the driver's seat!

During any handling or repair of the started motor the minus pole of the battery must be disconnected and all the shifting levers, incl. PTO must be moved to the neutral position. Starter motor contacts are covered with a cap.



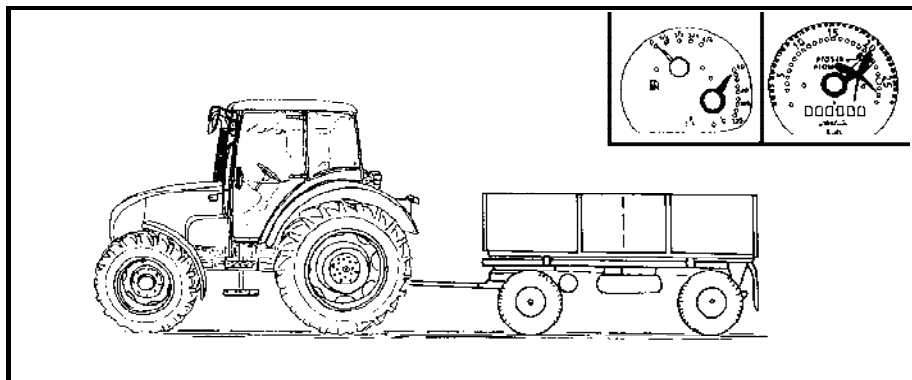
G207

IMMEDIATELY AFTER STARTING



After starting set the engine speed to 800 - 1000 rpm and let the engine run without loading for approx. 2 minutes.

During this time check the lubrication, charging (the indicators must go off) and other functions ensuring proper operation of the engine. The period of running the engine without loading must be observed, especially in winter.



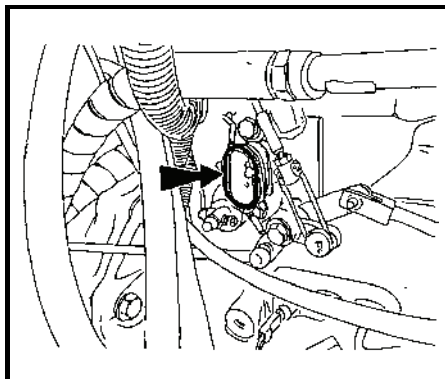
G208

ENGINE PREHEATING



Continue preheating the engine while driving. Preheating the engine by means of a long idle run or abrupt increasing of the engine speed is harmful for the engine.

Until the coolant temperature reaches 45°C, do not exceed the engine speed of 2000 rpm.



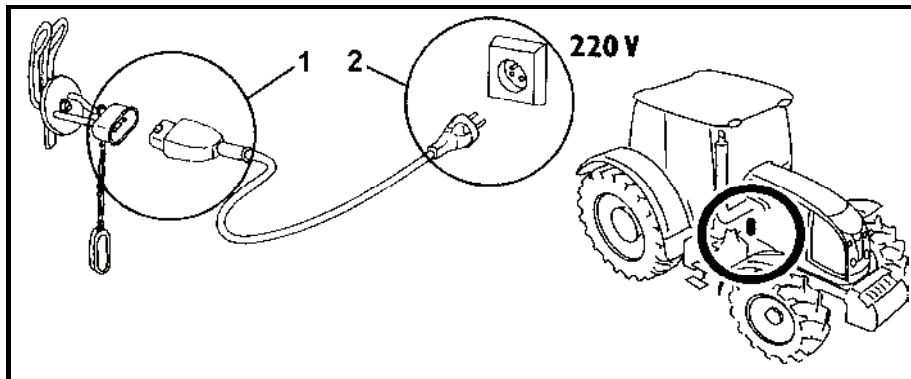
E209

***COOLANT HEATER**

The heater is installed at the right-hand side of the engine block.

Output 1000 W

Voltage 220 V



E210a

STARTING THE ENGINE WITH THE USE OF THE COOLANT HEATER

Heating the coolant facilitates engine starting at low ambient temperatures. The electric installation of the power supply and its protection against electric shock must comply with valid regulations.

1. First, insert the connector to the heater.
2. Then, connect the heater to electric mains with the voltage of 220 V.

With regard to reduced wear of the engine during starting at low temperatures, the use of the heater is recommended by the manufacturer. The heating time depends on the ambient temperature (1 - 2 hours before the planned start should be sufficient).

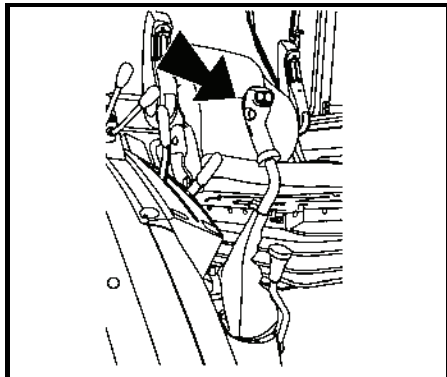


After the end of heating first disconnect the device from the electric mains and only then remove the connector from the heater!

Electric shock hazard!



It is necessary to ensure instructing of the tractor operator and regular inspections of the coolant heater, incl. the power supply cable in the sense of valid standards of the state where the tractor is operated, at least before every winter.

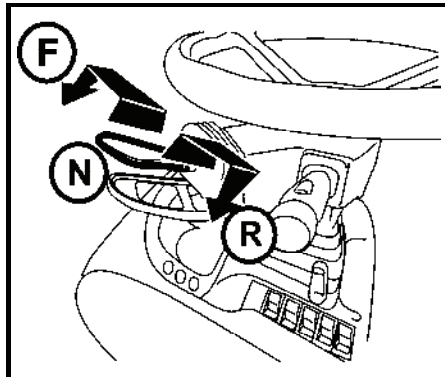


E211

GEAR SHIFTING

The tractors are equipped with a four-speed synchronized gearbox with two-speed reduction, a three-stage torque multiplier and reversing.

The four-speed gearbox is controlled with the shifting lever with buttons for controlling the torque multiplier and a red button for disengaging travelling clutches. The forward and reverse motion of the tractor is selected with the reversing lever located on the steering column.



X212a

REVERSING LEVER

The reversing lever is used to select the driving direction of the tractor (forward, reverse).

F - Forward drive (24 speeds)

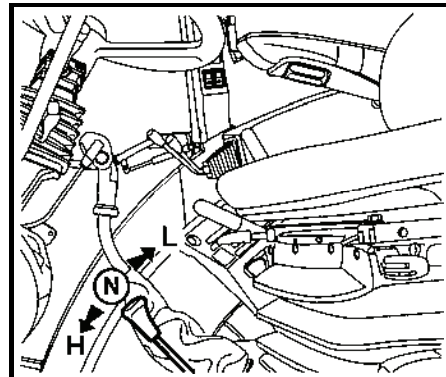
N - Neutral position

R - Reverse drive (24 speeds)

The reversing gearbox offers 24 reverse speeds that are approximately as fast as the forward speeds. Therefore, consider well and select a suitable reverse speed for the particular character of work.



When the lever is shifted from the neutral position without the clutch pedal being depressed, the tractor will start moving (clutch engagement).



G150

SHIFTING OF ROAD AND REDUCED GEARS SPEEDS

H - Road speeds

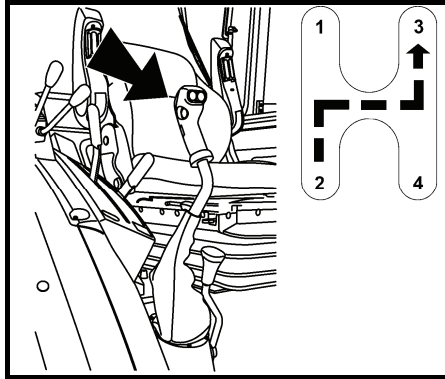
N - Neutral position

L - Reduced speeds

Shifting of gears of the main gearbox at reduced gear speeds is the same as in the case of road speeds



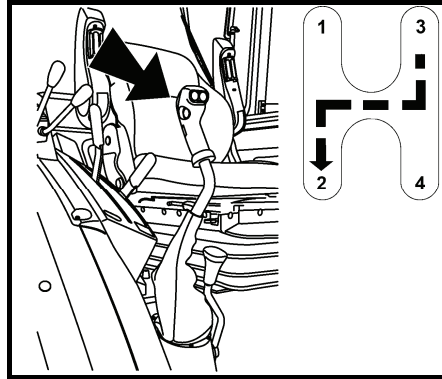
The shifting lever of road and reduced speeds can only be shifted with the tractor at standstill.



E214a

SHIFTING FROM LOWER TO HIGHER GEAR SPEED

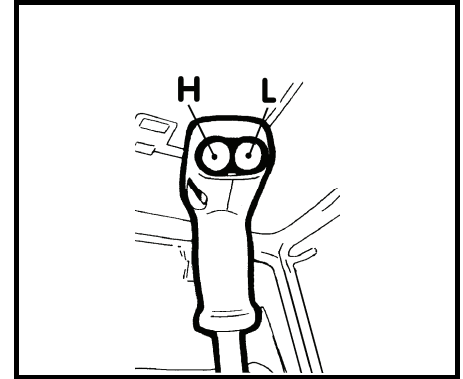
Depress the clutch pedal (clutch disengaged). At the same time release the foot throttle pedal and shift the required higher gear. Smoothly release the clutch pedal (the clutch starts engaging) and at the same time increase the engine speed.



E215a

SHIFTING FROM HIGHER TO LOWER GEAR SPEED

Depress the clutch pedal and move the shifting lever via the neutral position to the lower gear.



E216

THREE-STAGE TORQUE MULTIPLIER

The three-stage multiplier is standard equipment of all tractor types.

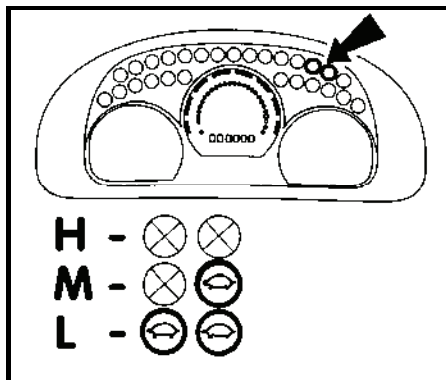
Shifting of individual stages of the three-stage multiplier is controlled with two buttons on the main shifting lever head. The shifting is performed by pressing of the corresponding button without depressing the travelling clutch. The entire shifting of individual stages of the multiplier is automatic even when the tractor is loaded. Shifting the stages of the torque multiplier:

H - Increasing the travelling speed

M - Medium travelling speed

L - Reducing the travelling speed

Note: On starting or stopping of the tractor engine the **H** stage is always engaged automatically.



INDICATION OF THE MULTIPLIER FUNCTION

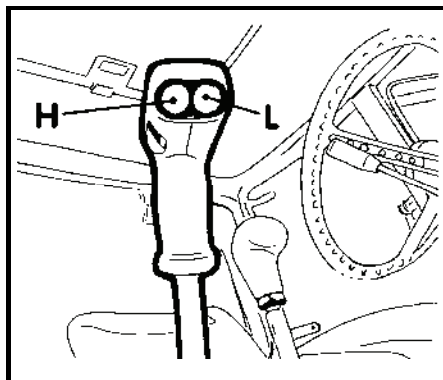
Individual engaged stages of the multiplier (**H**, **M**, **L**) are signalled by indicators on the dashboard with the tortoise symbol.

H - Symbols OFF

M - One indicator with the tortoise symbol is lit.

L - Two indicators with the tortoise symbol are lit.

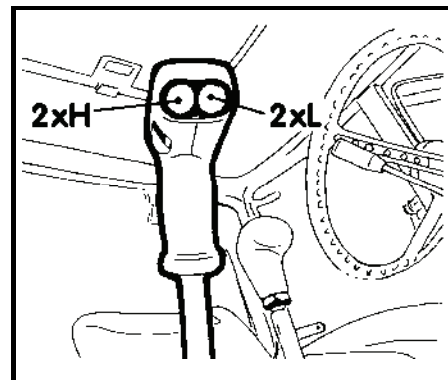
Note: On starting or stopping of the tractor engine the **H** stage is always engaged automatically.



SHIFTING THE STAGES OF THE TORQUE MULTIPLIER

H - Increasing the travelling speed

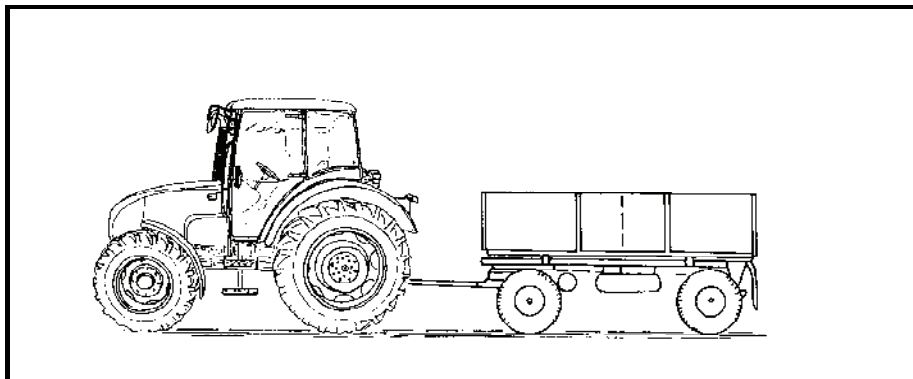
L - Reducing the travelling speed



INCREASING, REDUCING THE TRAVELLING SPEED BY TWO GEARS

2xH Increases the travelling speed by two gears

2xL Reduces the travelling speed by two gears



G218

SETTING IN MOTION - USING THE CLUTCH PEDAL

1. Start the engine
2. Depress the clutch pedal.
3. Select road or reduced gears.
4. Select the suitable gear for putting the tractor in motion.
5. Shift the reversing lever to the requested driving direction of the tractor (forward or reverse).
6. Slightly increase the engine speed.
7. Get the parking brake ready for releasing.
8. Release the clutch pedal until the travel engagement point and while simultaneously increasing the engine speed continue releasing the clutch pedal smoothly.
9. Release the parking brake completely.
10. Start moving smoothly and slowly.



Very fast acceleration may cause overloading of the power train, increased fuel consumption, excessive wear of tyres and damage of the transported load. Only use the 1st gear to put the tractor in motion when driving with a heavy trailer uphill or in rough terrain.



Also use this method of setting the tractor in motion if you need to move the tractor sensitively, e.g. when attaching an implement, etc.

SETTING IN MOTION WITH THE AUTOMATIC FUNCTION

The automatic function consists in shifting the reversing lever with a suitable gear engaged and subsequent putting the tractor in motion without using the clutch pedal or clutch control button.

1. Start the engine
2. Select the suitable gear for putting the tractor in motion.
3. Release the parking brake. If you are standing on a slope, hold the tractor with the foot brake.
4. When you shift the reversing lever from the neutral position to the required driving direction of the tractor (forward or reverse) the tractor will start moving.
5. Release the foot brake completely while simultaneously increasing the engine speed.



When you depress the clutch pedal, the automatic function is deactivated.

CHANGING THE DRIVING DIRECTION - USING THE CLUTCH PEDAL

1. Depress the clutch pedal and brake the tractor with the foot brake.
2. Shift the reversing lever to the required driving direction of the tractor.

3. Release the clutch pedal until the travel engagement point and while simultaneously increasing the engine speed continue releasing the clutch pedal smoothly.
4. Start moving smoothly and slowly.

CHANGING THE DRIVING DIRECTION WITH THE AUTOMATIC FUNCTION



You can change the driving direction with the use of the automatic function at a driving speed lower than 10 km/h. If you try to change the driving direction at a higher speed than 10 km/h, the acoustic signal will sound (continuous tone). The signal will be switched off when you shift the lever back to the N position or after depressing of the clutch pedal.

1. With the use of the brake pedals reduce the tractor speed below 10 km/h.
2. Shift the reversing lever to the required driving direction of the tractor.
3. The tractor will stop automatically and start moving in the requested direction.



If the tractor speed does not drop below 10 km/h, the tractor will shift into neutral and it will be necessary to decrease the tractor speed below 10 km/h, shift the reversing lever to the neutral position and repeat the shift to the requested direction.

4. While simultaneously increasing the engine speed continue putting the tractor in motion smoothly.



When you depress the clutch pedal, the automatic function is deactivated. If you perform the above mentioned activity after an attempt to change the driving direction at a speed over 10 km/h, you must reduce the travelling speed of the tractor below this speed. Otherwise, after releasing of the clutch pedal the neutral gear will still be shifted.

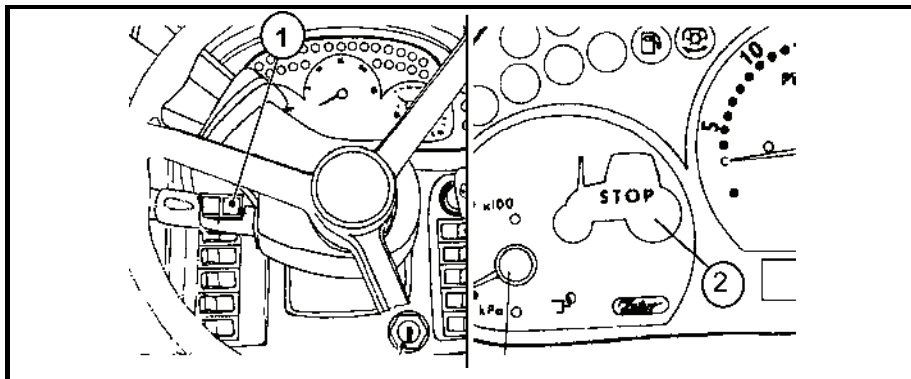
GEAR SHIFTING - USING THE CLUTCH PEDAL

Depress the clutch pedal (clutch disengaged). At the same time release the foot throttle pedal and shift the required gear. Smoothly release the clutch pedal (the clutch starts engaging) and at the same time increase the engine speed.

GEAR SHIFTING - USING THE CLUTCH CONTROL BUTTON ON THE SHIFTING LEVER HEAD

Press the clutch control button on the shifting lever head. At the same time release the foot throttle pedal and shift the required gear. Release the clutch control button (the clutch starts engaging) and at the same time increase the engine speed.

Note: The clutch pedal always overrides the automatic function.



X1333

INDICATION OF ERRORS OF THE SYSTEM OF TRAVELLING CLUTCHES AND REVERSING

Less serious errors of the system of travelling clutches and reversing

A failure of the less serious error category is signalled by illumination of the red "gearbox error" indicator (1) and the acoustic signal sounding for 1 s. All the functions of the tractor remain active; it may happen that a function will not be fully usable.

If this situation occurs, stop working and contact the repair shop.

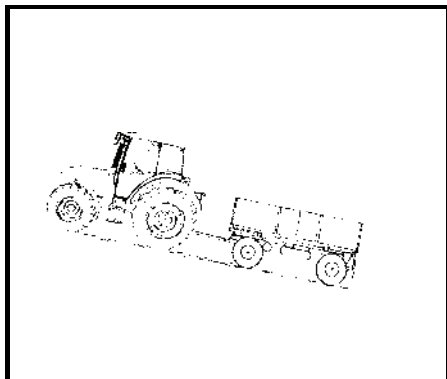
Serious errors of the travelling clutches and reversing

A failure of the serious error category is signalled by illumination of the red "gearbox error" indicator (1) together with the "STOP" indicator (red tractor) and a continuous sound signal.

If this situation occurs, shut down the tractor and contact the repair shop immediately.



If a serious error is signalled, shut the tractor down immediately; if you continue working with the tractor, an accident and a widespread failure of the tractor may occur. Contact the repair shop without delay.

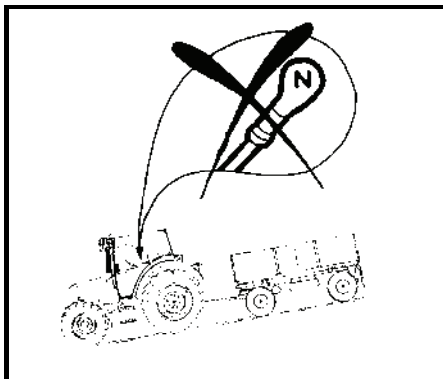


G219

DRIVING UPHILL



When driving uphill, shift from the higher to the lower speed in time to avoid the engine speed dropping below 800 rpm and avoid such driving that would lead to stopping of the engine due to overloading.



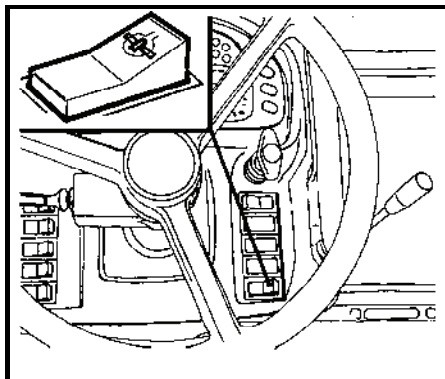
G220

DRIVING DOWNHILL



Driving downhill without an engaged gear is prohibited. When driving down a longer slope, shift the lower gear, the steeper the slope is. If possible, shift the lower gear before the slope already.

Note: The gear that allows you to get uphill reliably is also suitable for getting down the hill safely.



G221

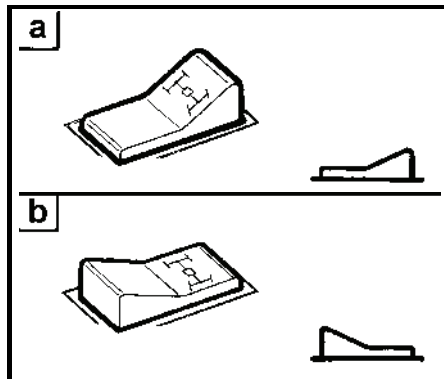
DIFFERENTIAL LOCK

The differential lock is engaged by pressing of the switch, which returns to the original position after being released. The engagement of the differential lock is indicated by the illuminated symbol on the switch.

The differential lock is automatically disengaged on pressing of the brake pedals.



Do not use the differential lock when driving into a bend.



E222

CONTROL OF THE FRONT DRIVING AXLE

The front driving axle is "ON" in basic position.

Engaged front driving axle is indicated by the illuminated symbol on the switch.

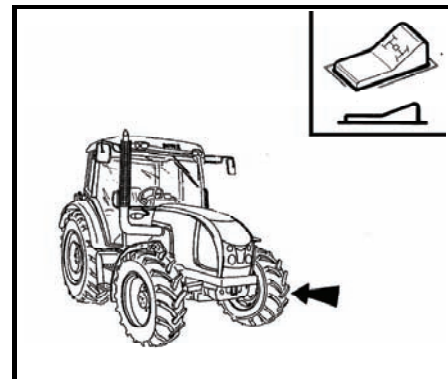
It can be disengaged with the corresponding switch on the dashboard.

a - Front driving axle "ON"

b - Front driving axle "OFF"



In case of a pressure drop in the air pressure system of the tractor the front driving axle is automatically engaged.



G223

DRIVING WITH THE FRONT DRIVING AXLE ENGAGED

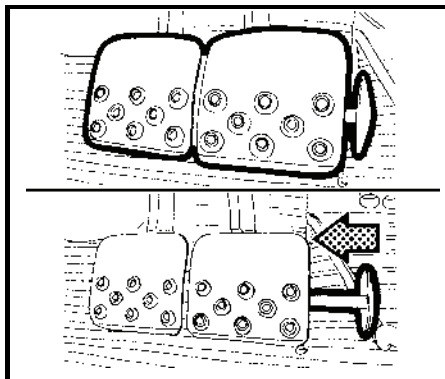


Use the front driving axle in case the rear wheels slip to increase the traction of the tractor.

On a road and hard surface driving with the front driving axle engaged is acceptable up to the maximum speed of 15 km/h (driving with the front axle engaged causes increased wear of the front tyres).

Permanent engagement of the front driving axle is permissible if an agricultural machine or implement is attached to the front of the tractor. This condition is mentioned in the operator's manual of the corresponding machine.

The maximum allowable speed of these sets is 15 km/h.



E224

FOOT BRAKES

The foot brakes are of the disc, wet, hydraulically controlled, double-pedal type with an automatic pressure compensator.

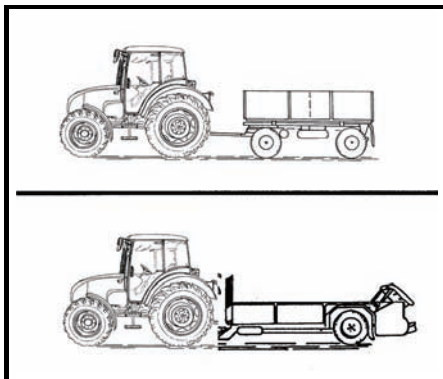


During driving both the pedals must be connected with a latch. Only use unlatched pedals for braking the right or left wheel separately during terrain work and in the field at low travelling speeds.

Note: When driving down a steep slope with a trailer or semi-trailer equipped with air or hydraulic brakes you must use the foot brake from the beginning of the slope already.



During braking with one brake pedal the trailer brakes are not in operation!



G225

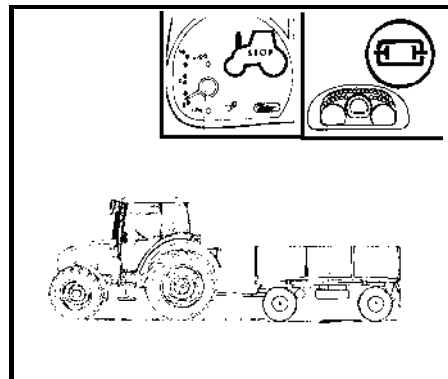
AIR BRAKES OF TRAILERS AND SEMI-TRAILERS

The control of the air brakes of trailers (semi-trailers) and the control of the tractor brakes is designed in such a way that the braking effect of both the vehicles is synchronized.



*During driving with a connected trailer or semi-trailer the pedals of the foot brakes must be connected and secured with a latch. **During braking with one brake pedal the air brakes of the trailer are not in operation.***

Note: In case of a pressure drop the relief valve puts all the secondary devices (differential lock, disengagement of the front driving axle) out of operation.



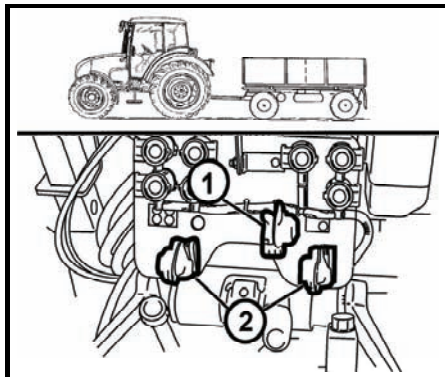
G226

WARNING INDICATION OF AN AIR PRESSURE DROP

A pressure drop below 450 kPa is signalled by the illumination of the red indicator and red TRACTOR symbol with the STOP inscription on the dashboard.



In case of a pressure drop below 450 kPa in the air pressure system a tractor with a braked trailer or semi-trailer must not continue travelling until the air pressure increases again.



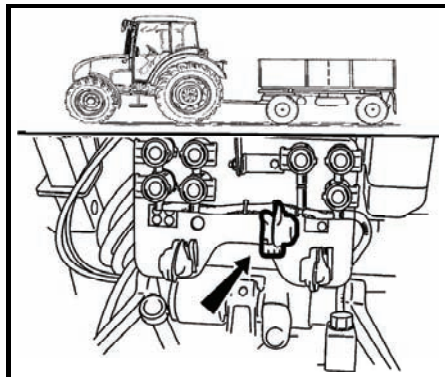
X227

SINGLE-HOSE AND DOUBLE-HOSE BRAKES

1. Coupling of single-hose brakes
2. Couplings of double-hose brakes



After disconnection or without a connected trailer (semi-trailer) the couplings must be closed with a cap.



X228

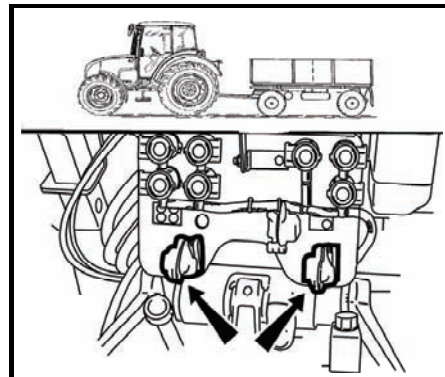
SINGLE-HOSE BRAKES

The cap is marked black.



After connection of a trailer (semi-trailer) with the maximum permissible speed approved for the particular tractor type the maximum allowed speed of the set is **30 km/h**.

The maximum permissible speed of the set results from the maximum permissible speed of the slower vehicle in the set.



X229

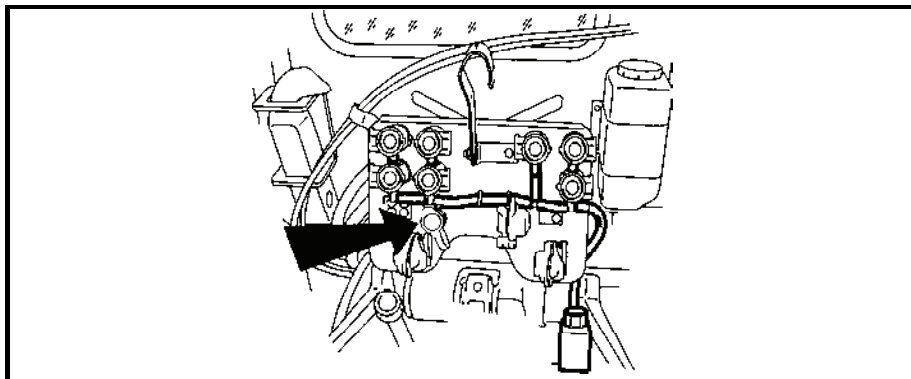
DOUBLE-HOSE BRAKES

The cap of the left coupling is marked yellow (braking branch) and the cap of the right coupling is marked red (filling branch).



After connection of a trailer (semi-trailer) with the maximum permissible speed approved for the particular tractor type the maximum allowed speed of the set is **40 km/h**.

The maximum permissible speed of the set results from the maximum permissible speed of the slower vehicle in the set.



X1a

HYDRAULIC BRAKES OF TRAILERS

The control of the hydraulic brakes of trailers (semi-trailers) and the control of the tractor brakes is designed in such a way that the braking effect of both the vehicles is synchronized. The working pressure is applied by oil delivered by a permanent gear pump of the hydraulic system. A brake valve is installed in the circuit downstream of the pump.

The brake valve of the trailer is controlled by the pressure of the brake liquid from the main brake cylinders depending on the force applied onto the brake pedal. At the maximum depression of the brake pedal the pressure at the coupling must amount to 12 - 15 MPa. The brake valve makes sure that the brake function overrides the hydraulic function. When bleeding the tractor brakes do not forget to bleed the brake valve as well. If during depression of the foot brake pedals shocks occur in the hydraulic circuit, it is necessary to bleed the hose from the brake valve to the quick-coupling.



During driving with a hitched trailer or semi-trailer the pedals of the foot brake must be connected and secured with a latch.

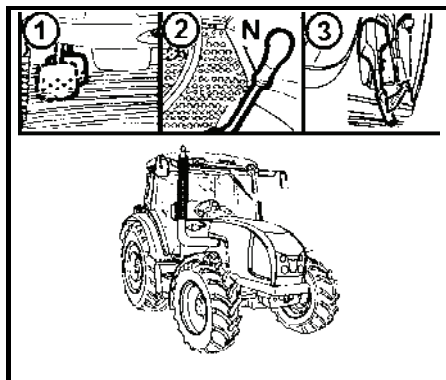
During braking with one brake pedal the hydraulic brakes of the trailer are not in operation.

CONNECTING AND DISCONNECTING QUICK-COUPPLINGS OF HYDRAULIC BRAKES OF THE TRAILER



When connecting and disconnecting the quick-couplings pay increased attention with regard to the residual oil that remains in the socket or on the plug of the quick-coupling.

For environmental reasons after every disconnection of quick-couplings this residual oil must be removed with any textile material.

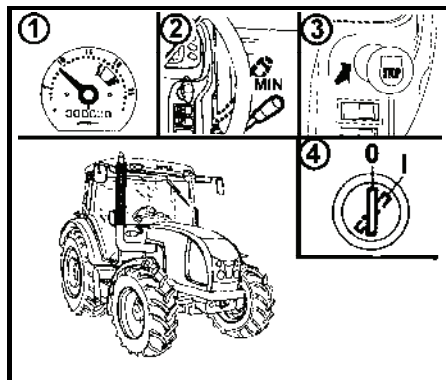


G232

STOPPING THE TRACTOR - PARKING BRAKE

Under normal conditions stop the tractor slowly. Shortly before stopping:

1. Depress the clutch pedal and brake the tractor with the foot brake.
2. Shift the main gear shifting lever to the neutral position.
3. After every stopping secure the tractor against accidental movement with the parking brake. Activation of the parking brake is signalled by illumination of the corresponding indicator on the dashboard.

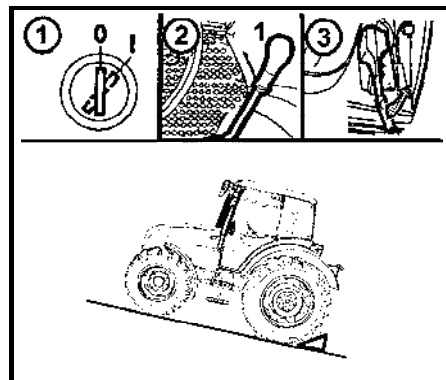


G233

STOPPING THE ENGINE

After work of the tractor when the engine was fully loaded, the engine must be left to cool down.

1. Before stopping the engine reduce the engine speed to 800 - 1000 rpm and let the engine run without loading for approx. 5 minutes.
2. Move the manual throttle lever to the MIN position.
3. Pull up the control of the engine stopping device and turn it; after stopping of the engine operation push the control back.
4. After stopping of the engine you can turn the key from the "I" to the "0" position (only with the engine at standstill - the charging indicator must be lit).



G234

LEAVING THE TRACTOR

Before leaving the tractor with the safety cab do not forget to remove the key from the switching box in the "0" position (in the "I" and "II" positions the key cannot be removed).

The tractor must be secured against accidental movement.

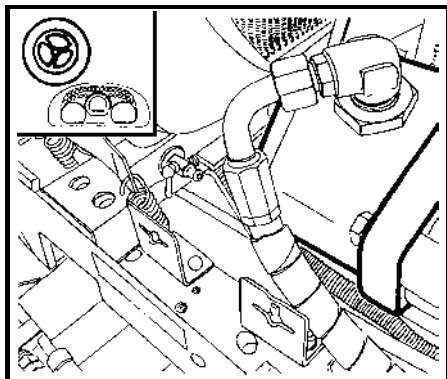
1. The engine must be "off".
2. The tractor must be braked with the parking brake.



The engagement of a gear does not prevent the tractor from getting in motion (the clutch is disengaged)!

If the tractor is standing on a slope, its wheels must be additionally **secured with wedges!** Lock the cabin.

Note: When the engine is stopped, the front driving axle is automatically engaged.

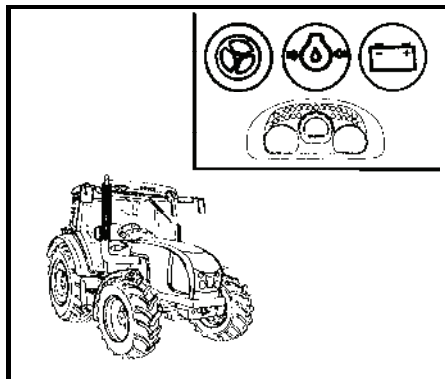


E235

WARNING INDICATION OF A HYDROSTATIC STEERING ERROR

An error of the hydrostatic steering pump is signalled in case of a pressure drop below 120 kPa downstream of the pump on the dashboard by the corresponding symbol.

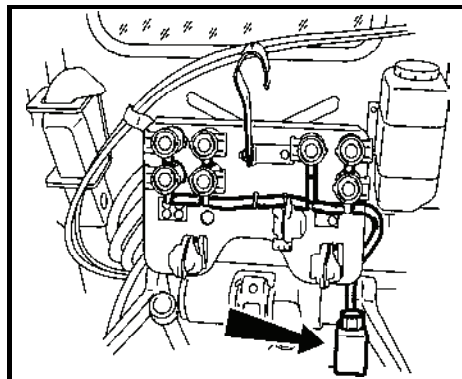
Note: During starting of the engine or at low engine speed the indicator may flash slightly; if after starting or increase of the engine speed the indicator goes off, it is not an error. The system is all right.



G236

IMPORTANT WARNING

If during work of the tractor the lubrication, charging or hydrostatic steering error is illuminated, stop the tractor immediately, switch off the engine and contact a specialized repair shop. This way you will prevent a serious failure or accident of the tractor.



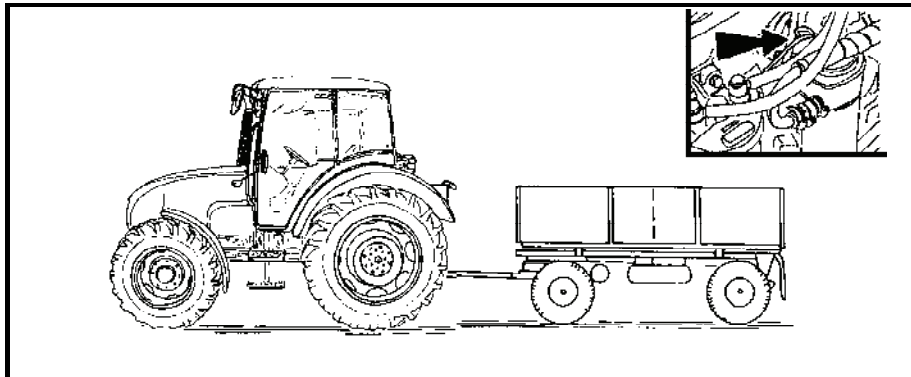
X1

***QUICK-COUPPLINGS WITH DRIP COLLECTION**

Optionally, a system of collection of residual oil drips with a tank can be installed. Regularly check whether the tank is not full; dispose of the oil in an environment-friendly way.

RUNNING IN THE TRACTOR

	Page
General principles for running in the new tractor in the course of the first 100 hours of operation	70
During the first 10 hours	70
From 100 hours on	71

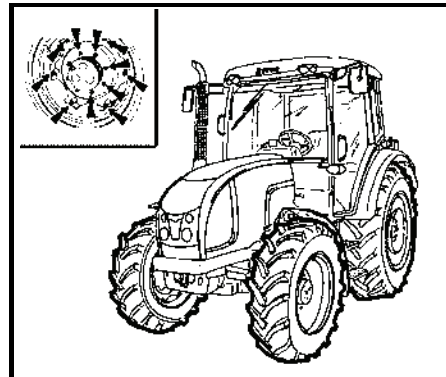


G251

GENERAL PRINCIPLES FOR RUNNING IN THE NEW TRACTOR IN THE COURSE OF THE FIRST 100 HOURS OF OPERATION

During the first 100 operation hours:

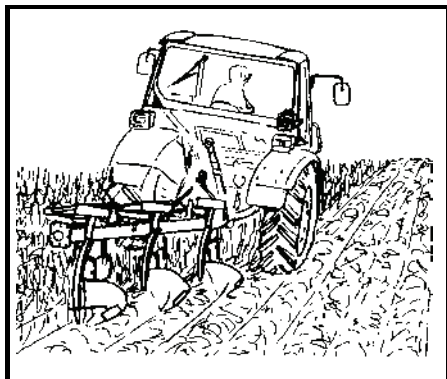
- Avoid operation under high load of the engine.
- Avoid excessive idle run.
- Frequently check the oil level in the engine (increased oil consumption is normal in this period).
- Check screw connections mainly of the supporting parts of the tractor.
- Immediately remove all established shortcomings; thus, you will prevent subsequent damage and possible impairment of operation safety.
- Proceed in the same way after a general overhaul of the tractor as well.



G252

DURING THE FIRST 10 HOURS

- Run in the tractor in the transport regime.
- Tighten the fitting nuts of the front and rear wheels, including the bead / rim connections at the prescribed torque.



E257

FROM 100 HOURS ON

After running-in you can work with the tractor without any restrictions.

Operation regime of the tractor engines:

Recommended operation speed	1400 - 2300 rpm
Idle speed	800 ± 25 rpm
Operation oil pressure	0.2 - 0.5 MPa
Oil pressure at idle speed	min. 0.05 MPa
Max. coolant temperature	106°C

NOTES

TRANSPORTATION

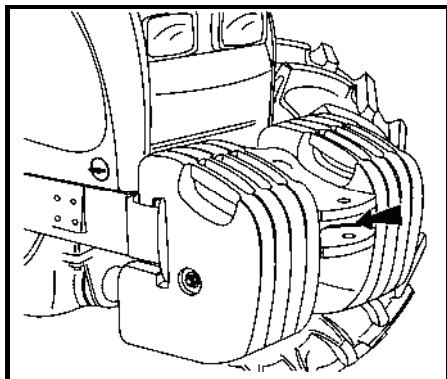
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Height adjustment and disassembly of the CBM stage hitch.....	74
Automatic mouth of the CBM stage hitch.....	75
Modular system of hitches for trailers and semi-trailers.....	75
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Maximum permissible vertical static load of hitches for trailers and semi-trailers.....	80



Before you start, make sure that the technical condition of the tractor corresponds to requirements for safe operation.

When a trailer or implement is attached, check its connection and proper fixation of the load. Never leave the tractor while it is moving to connect the trailer by yourself. Also take care of your assistant's safety.

TRANSPORTATION



E301

FRONT HOOK

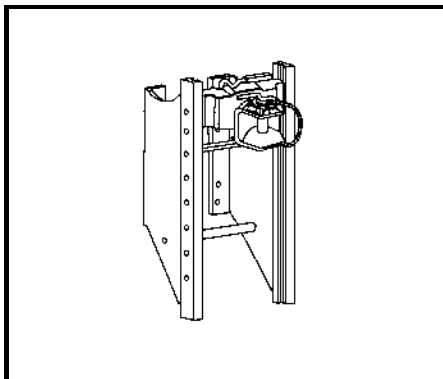
The front hook is only used to tow the tractor without an attached trailer or implement.



Use a pull bar or rope if you need to release the tractor.

Never use chains! Danger of fatal injury in case of a chain rupture!

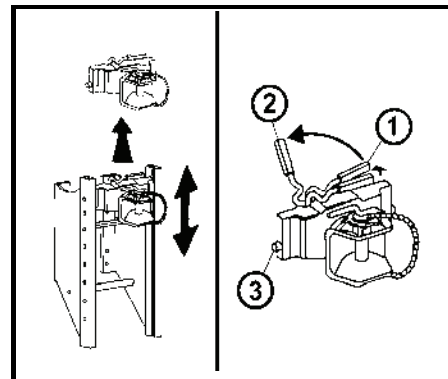
It is prohibited to use the tractor axles (individual wheels) as a winch for releasing a sunken tractor.



E302

CBM STAGE QUICK-ADJUSTING HITCH

It is designed for attachment of double-axle trailers or lighter single-axle semi-trailers. The guiding mouth is height adjustable. During work with various implements it may be necessary to adjust the height of the hitch or to disassemble the entire hitch.

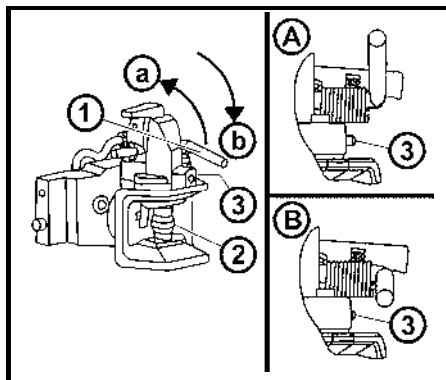


E303

HEIGHT ADJUSTMENT AND DISASSEMBLY OF THE CBM STAGE HITCH

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.

TRANSPORTATION



E304

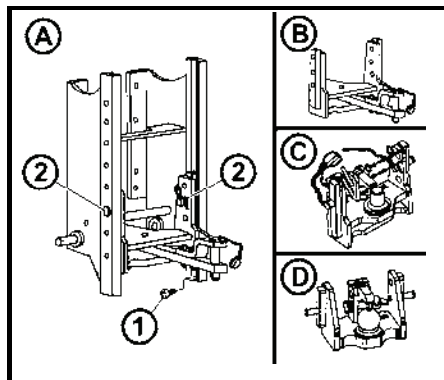
AUTOMATIC MOUTH OF THE CBM STAGE HITCH

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).



E305

MODULAR SYSTEM OF HITCHES FOR TRAILERS AND SEMI-TRAILERS

Module types:

Fig. (B) - Swinging draw-bar console

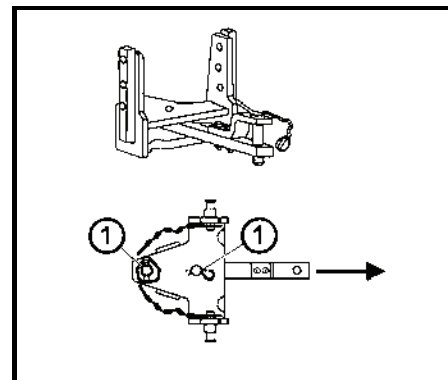
Fig. (C) - Swinging draw-bar console with a fixed pin

Fig. (D) - Console with a $\varnothing$ 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.



E306

SWINGING DRAW-BAR CONSOLE MODULE

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

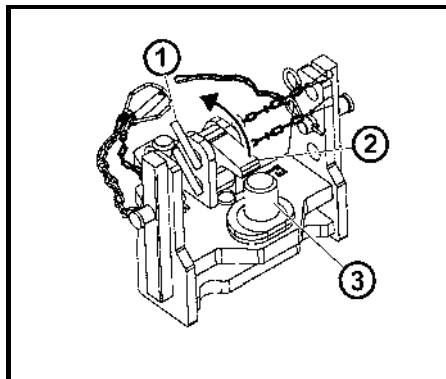
SWINGING DRAW-BAR

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.

TRANSPORTATION

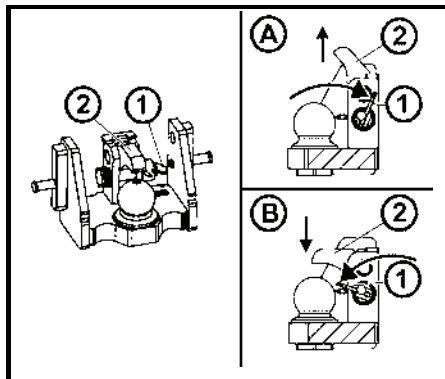


E307

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).



E308

CONSOLE WITH A Ø 80 BALL MODULE



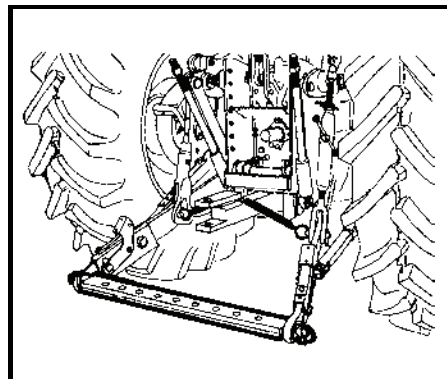
The console with a $\varnothing$ 80 ball is only used to connect semi-trailers with a hitching device designed for a $\varnothing$ 80 ball.

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).



E312

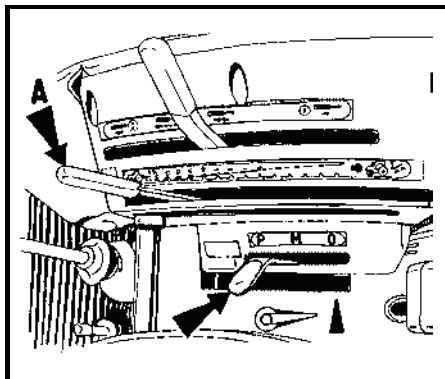
*TOWING BAR

It is height adjustable by the hydraulic lifting mechanisms in the whole lifting range. Only such agricultural machines can be connected to the towing bar that permanently load it downwards.



During work with the towing bar disassemble the stage hitch a swinging draw-bar.

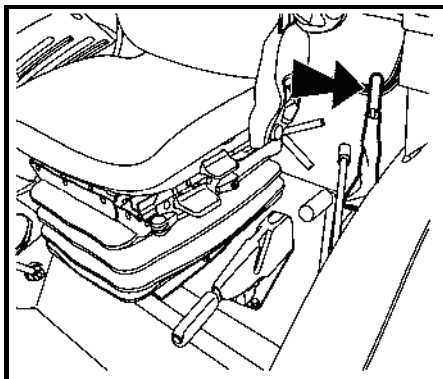
TRANSPORTATION



E310

ATTACHING A SINGLE-AXLE SEMI-TRAILER

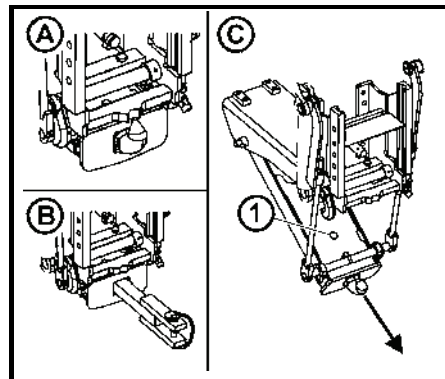
It is performed with the inner hydraulic circuit lever (A) with the position control engaged. The hitch hook with the trailer lug is hydraulically lifted to the position when the supporting hooks snap under the hitch carrier pins. Then the hydraulic lifting arms must be lowered to seat the carrier pins into the supporting hooks - the telescopic draw-bars must not be tensioned.



E311

DISCONNECTING A SINGLE-AXLE SEMI-TRAILER

It is performed after lifting the hitch with the inner hydraulic circuit lever with the position control engaged. Move the hitch control lever backwards. The lever is located at the left side of the driver's seat. With the inner hydraulic circuit lever lower the hitch a disconnected the trailer shaft lug.



E309

HITCH FOR A SINGLE-AXLE CBM SEMI-TRAILER

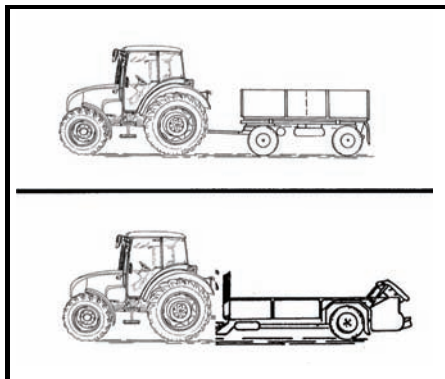
The hitch for a single-axle semi-trailer may be equipped with a hook (A) that is designed for the connection of single-axle semi-trailers with shafts complying with the ISO 5692 standard (inner lug diameter 50 mm and lug height 30 mm) or with a swinging draw-bar. The hitch hook is lifted and lowered hydraulically with the use of length-adjustable telescopic draw-bars.

Replacing the hook with the swinging draw-bar (C):

1. Lower the hitch.
2. Release and remove the pin (1).
3. Remove the hook in the arrow direction.

Install the swinging draw-bar in the reverse order.

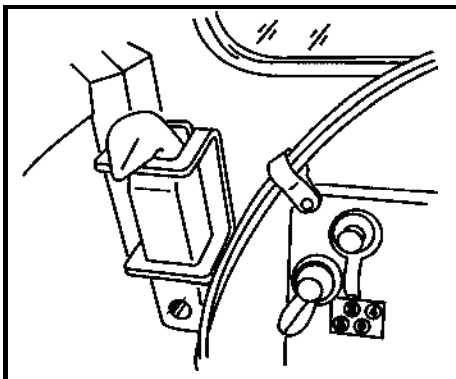
TRANSPORTATION



G313

AGGREGATION WITH A SEMI-TRAILER OR TRAILER

The tractor should only be aggregated with a tractor trailer after matching of the operation brakes of the tractor and pneumatic or hydraulic brakes of the trailer. In aggregation with a semi-trailer the static load of the rear tractor axle must not exceed the value of maximum permissible load.



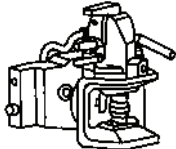
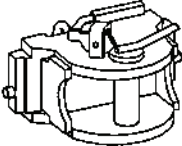
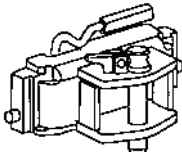
G900

HITCH HOOK FOR A SINGLE-AXLE SEMI-TRAILER

The hitch hook for a single-axle semi-trailer is located in the console on the rear wall of the cab on the left.

TRANSPORTATION

MAXIMUM PERMISSIBLE VERTICAL STATIC LOAD OF HITCHES FOR TRAILERS AND SEMI-TRAILERS

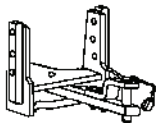
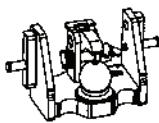
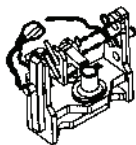
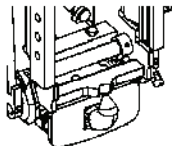
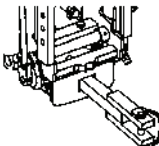
Hitch type	Permissible vertical static load	Hitch pin Ø	Hitch type	Permissible vertical static load	Hitch pin Ø
	2,000 kg ↓	31 mm		2,000 kg ↓	38 mm
D2 class hitch			C class hitch		
	2,000 kg ↓	43 mm		1,500 kg ↓	28 mm



The maximum weight of an aggregated braked trailer or semi-trailer must not exceed the value specified on the data plate of the tractor and the value specified in the technical certificate of the tractor. The maximum permissible speed of the set results from the maximum permissible speed of the slower vehicle in the set. C class hitch - trailer weight 6,000 kg. D2 class hitch - trailer weight 14,000 kg.

TRANSPORTATION

MAXIMUM PERMISSIBLE VERTICAL STATIC LOAD OF HITCHES FOR TRAILERS AND SEMI-TRAILERS

Hitch type	Permissible vertical static load	Hitch pin (ball) Ø	Hitch type	Permissible vertical static load	Hitch pin (ball) Ø	Hitch type	Permissible vertical static load	Hitch pin (ball) Ø
	736 kg ↓	31 mm		3,000 kg ↓	80 mm		Fixed pin 2,000 kg ↓	44.5 mm
	3,000 kg ↓	47 mm		1,200 kg ↓	32 mm			



The maximum weight of an aggregated braked trailer or semi-trailer must not exceed the value specified on the data plate of the tractor and the value specified in the technical certificate of the tractor. The maximum permissible speed of the set results from the maximum permissible speed of the slower vehicle in the set.

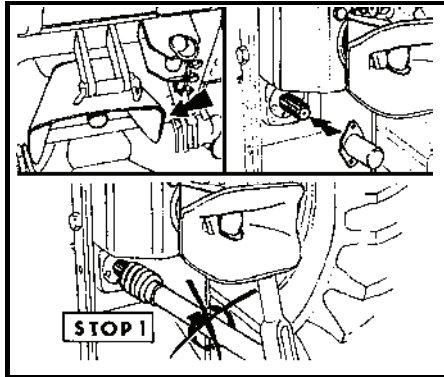
DRIVE OF AGRICULTURAL MACHINES

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Working with PTO	82
Control of the front and rear PTO	82
Rear PTO - dependent and independent speed selection	83
Rear PTO - selecting the pto speed of 540 and 1000 or 540E RPM	83
Front PTO	83
Exchangeable rear PTO end pieces	84
Maximum transmitted power	84
Drive of machines with larger inertial masses (crushers, rotary harrows, mowing machines, etc.)	85

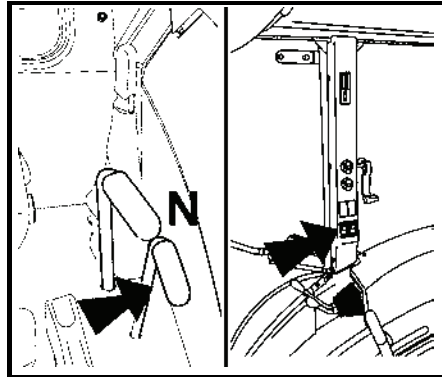


Before connecting a machine driven by a PTO of the tractor check whether the speed of the PTO of the machine corresponds to the speed of the tractor PTO (540 rpm or 1000 rpm). Different speeds may lead to serious damages and injuries.

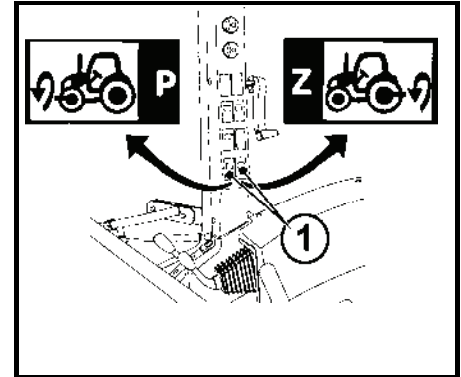
DRIVE OF AGRICULTURAL MACHINES



E351



E352a



X353

WORKING WITH PTO



1. When working with the PTO make sure that all the covers are properly attached.
2. After the end of the work always reassemble the PTO guard.
3. Always connect and disconnect the articulated shaft of the attached machine to and from the rear PTO of the tractor with the engine stopped, PTO switched off and the lever of the dependent and independent PTO speed shifted in the N - neutral position!
4. Always connect and disconnect the articulated shaft of the attached machine to and from the front PTO of the tractor with the engine stopped and PTO switched off!
5. Any repairs or cleaning of parts of attached machines driven by the PTO may only be carried out with the engine stopped, PTO switched off and the lever of the dependent and independent PTO speed shifted in the N - neutral position.

CONTROL OF THE FRONT AND REAR PTO

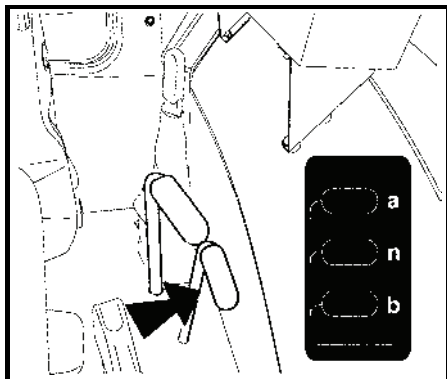
The PTO's are switched on (at the min. engine speed of 1500 rpm) and off with the switches situated on the right pillar of the cab. The switches are equipped with mechanical locks (1) against accidental activation. When using a switch, press the lock downwards.

P - The switch controls the front PTO

Z - The switch controls the rear PTO

By pressing both the switches you will activate both the PTO's (front and rear). Activation of the PTO's is indicated by the illuminated symbol on the switch.

DRIVE OF AGRICULTURAL MACHINES

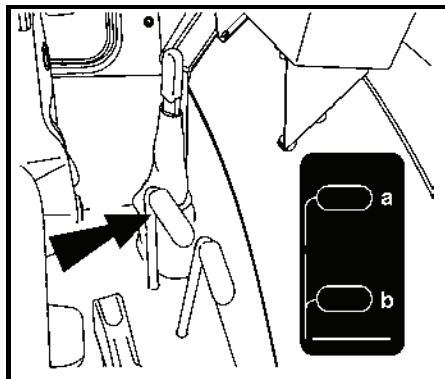


G154

REAR PTO - DEPENDENT AND INDEPENDENT SPEED SELECTION

The selection is performed with the lever (1) with the tractor at standstill.

- a -** Independent PTO speed (the rpm value depends on the engine speed)
- n -** Neutral position
Use this position to facilitate the connection of the articulated shaft of an agricultural machine. The end piece of the rear PTO can be rotated freely.
- b -** Dependent PTO speed (the speed and direction depends on the engaged gear and position of the reversing lever).



G153

REAR PTO - SELECTING THE PTO SPEED OF 540 AND 1000 OR 540E RPM

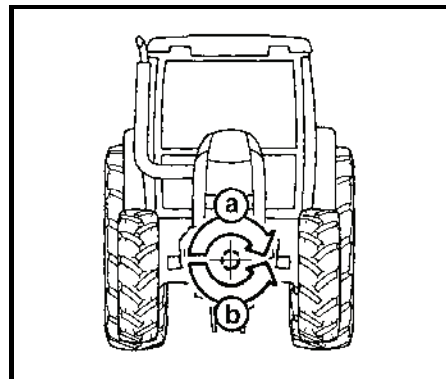
The selection is performed with the lever (1) with the tractor at standstill.

As standard the tractor is equipped with the combination of 540 and 1000 rpm of the PTO; optionally, it can be equipped with the combination of 540 and 540 rpm of the PTO.

- a -** 1000 rpm or 540E rpm
- b -** 540 rpm



Shifting of 540 and 1000 (or 540E) rpm is possible regardless of the number of splines of the installed end piece. The speed of the PTO and end piece type must be selected with regard to the prescribed speed of the attached machine.



E356

FRONT PTO

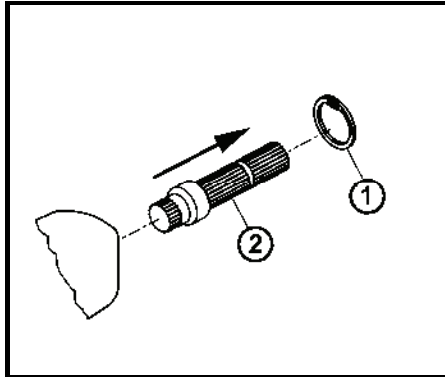
The front PTO is equipped with a fixed six- or twenty-one-spline end piece and it has the speed of 540 or 1000 rpm.

The tractor may be optionally equipped with the front PTO with different turning directions:

- a -** in accordance with the turning direction of the engine (standard)
- b -** against the turning direction of the engine (* option)

DRIVE OF AGRICULTURAL MACHINES

<https://truckmanualshub.com/>



E357

EXCHANGEABLE REAR PTO END PIECES

The tractor is equipped with a fixed six-spline end piece as standard.

*The tractor may be optionally equipped with a six- or twenty-one-spline exchangeable PTO end piece.

Exchange procedure:

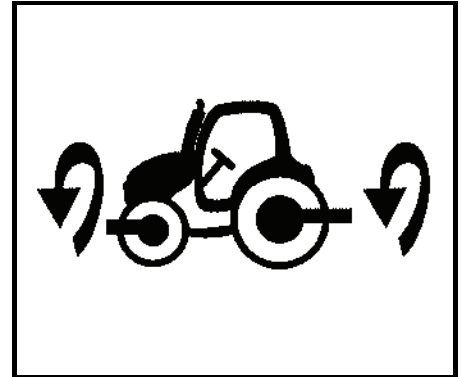
1. Remove the locking ring (1) with locking ring tongs.
2. By pulling in the arrow direction remove the exchangeable end piece (2).
3. Install the end piece in the reverse order, paying increased attention to the assembly of the locking ring (1).



The end piece may only be exchanged with the engine stopped.

The speed of the PTO and end piece type must be selected with regard to the prescribed speed of the attached machine.

Shifting of 540 and 1000 or 540E rpm is possible regardless of the number of splines of the installed end piece.



E358

MAXIMUM TRANSMITTED POWER

PTO	Transmitted power
front	
1000 rpm	60 kW
rear	
1000 rpm	full engine power
540 rpm	full engine power
540E rpm	full engine power

DRIVE OF AGRICULTURAL MACHINES

<https://truckmanualshub.com/>



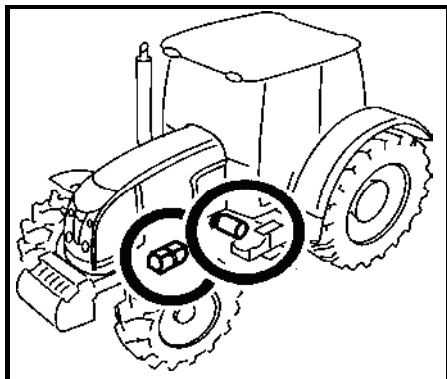
DRIVE OF MACHINES WITH LARGER INERTIAL MASSES (CRUSHERS, ROTARY HARROWS, MOWING MACHINES, ETC.)

The cardan shaft of the drive of these machines must be equipped with a "free-wheel" device that will ensure disconnection of the torque transmission in case of return transmission from the machine to the tractor.

NOTES

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



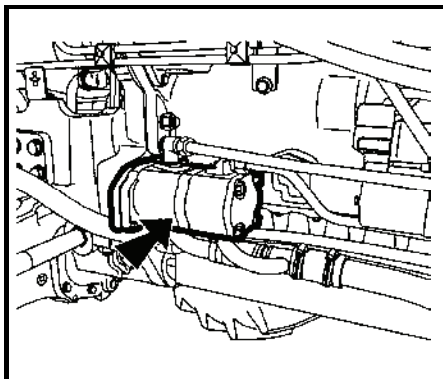
G401a

HYDRAULIC SYSTEM

The system consists of the inner and outer circuit.

The source of pressurized oil is a gear pump.

Oil is drawn from the common filling of the gearbox and final drive housing.

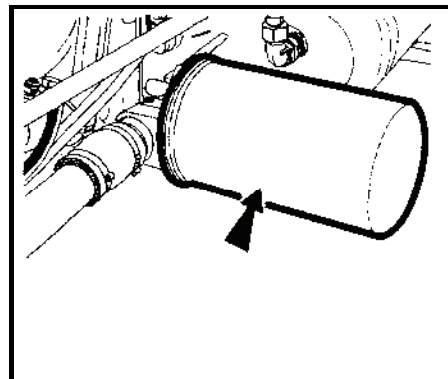


E402a

HYDRAULIC PUMP

The hydraulic pump cannot be disengaged. When the engine is running, the pump is in operation. The delivered quantity is 50 l/min.

The pressure generated in the hydraulic system by the hydraulic pump is limited by a relief valve to 20 MPa.

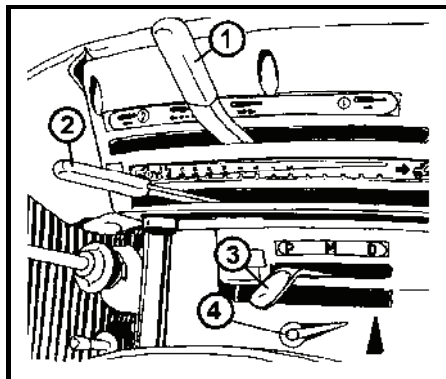


E403a

HYDRAULIC OIL FILTRATION

The hydraulic pump aspirates oil through a suction cleaner that is installed on the left side of the gearbox, under the cab. You can replace the oil cleaner element without draining the oil filling of the gearbox.

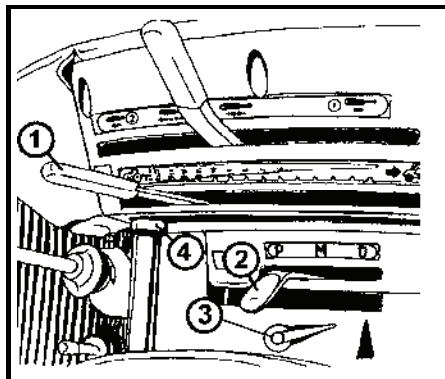
During replacement of the filtration cartridge oil runs out of the filter housing. You should use a clean vessel with the content of approx. 10 l. Prepare the new element in advance. Return the drained oil back to the gearbox (if it is necessary to replace the element outside the recommended element and oil replacement interval).



E404

CONTROL ELEMENT FUNCTIONS

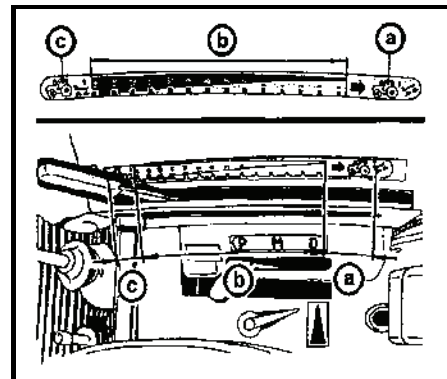
1. Outer hydraulic circuit lever
2. Inner hydraulic circuit lever
3. Selection lever of the hydraulic control mode
4. Response rate control lever



E405

INNER HYDRAULIC CIRCUIT

1. Inner circuit lever
2. Control mode selection lever
3. Response rate control lever
4. Adjustable stops (maintains the set position of the inner circuit lever)

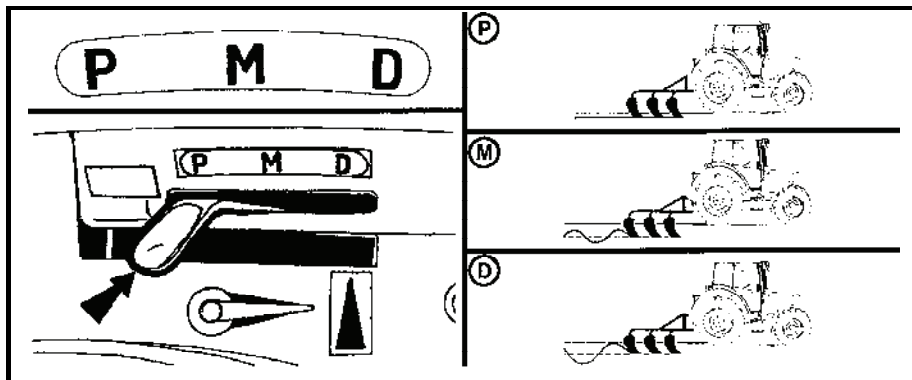


E406

INNER CIRCUIT LEVER

The lever controls:

- a - Lifting the implements to the transport position (max. lift position)
- b - Height adjustment of the three-point hitch with an implement within positional control and adjustment of ploughing depth within power or mixed control
- c - Setting the "free" (floating) position when working with an implement that has its own supporting wheel.



G407

CONTROL MODE SELECTION LEVER

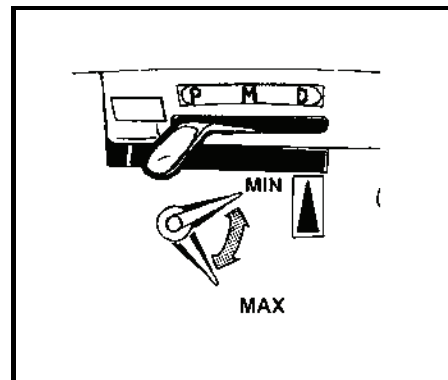
The lever has three positions marked P, M, D.

- P** - Indicates positional control through which the implement attached to the three-point hitch is automatically maintained at a constant height (position) with regard to the tractor.
- M** - Indicates mixed control, which is a combination of positional and power control. It is mainly suitable for ploughing in soils with variable soil resistance.
- D** - Indicates power control through which the implement attached to the three-point hitch is subject to automatic height adjustment depending on soil resistance changes.

All the control modes also allow you to work with implements that have a supporting wheel in the "free" (floating) position.



During transport of the implement the selection lever must be moved to position P!



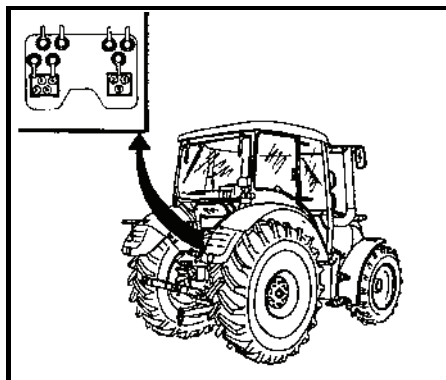
E408

RESPONSE RATE CONTROL LEVER

The lever controls the valve in the distributor that distributes the oil flow to the inner and outer circuit.

When the lever is moved to the position away from the driver's seat (MIN) the oil flow to the inner hydraulic circuit is reduced to the minimum.

The restriction of oil flow in the power or mixed control mode reduces the response rate of the hydraulic system, e.g. during ploughing in variable soil conditions.

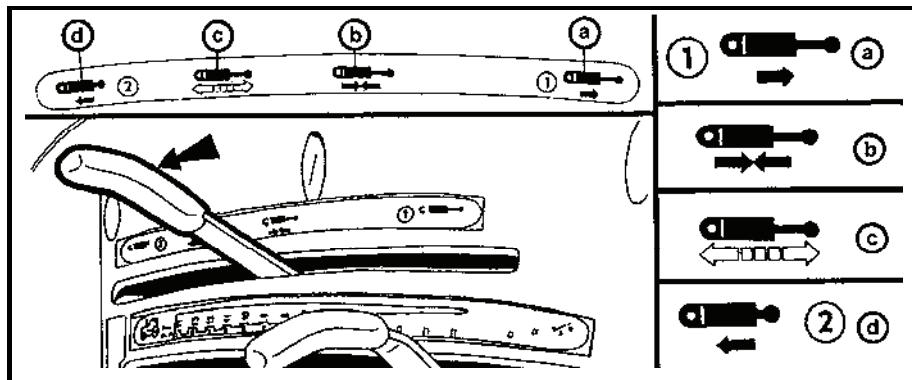


E409

OUTER HYDRAULIC CIRCUIT

The outer circuit supplies pressurized oil to hydraulic implements connected to the outer outlets of the hydraulic system terminated with quick-couplers.

The quick-couplers with the inner diameter of 12,5 mm correspond to international ISO recommendations.

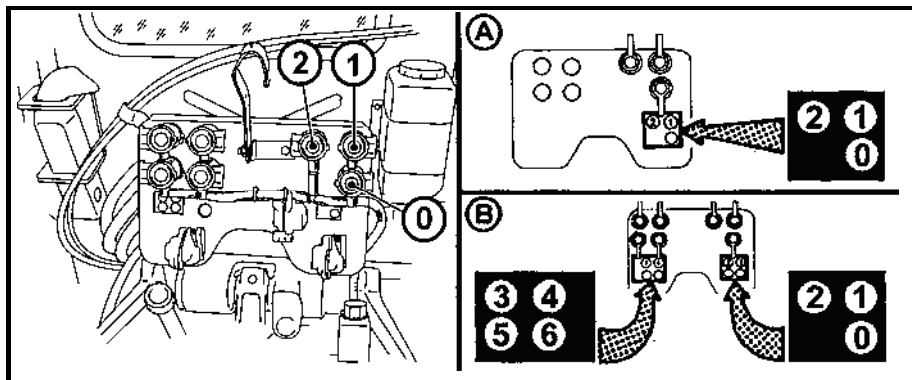


E410

OUTER CIRCUIT LEVER

It has four positions indicated on the label.

- a** - Pressure in quick-coupler "1", quick-coupler "2" is connected to the return line. The lever is shifted to the rear limit position. It must be held in this position, otherwise it automatically returns to position "b" (neutral).
- b** - Neutral position (blocked) The outlets to quick couplers "1" and "2" are closed and oil in the attached hydraulic implement is blocked. The lever is automatically held in this position by a spring.
- c** - Floating (free) position. Both the quick-couplers "1" and "2" are connected to the return line and oil may flow freely in both directions. The lever is locked in this position by a ball lock in the slide valve.
- d** - Pressure in quick-coupler "2", quick-coupler "1" is connected to the return line. The lever is shifted to the front limit position. It must be held in this position, otherwise it automatically returns to position "c" (floating position).



X411

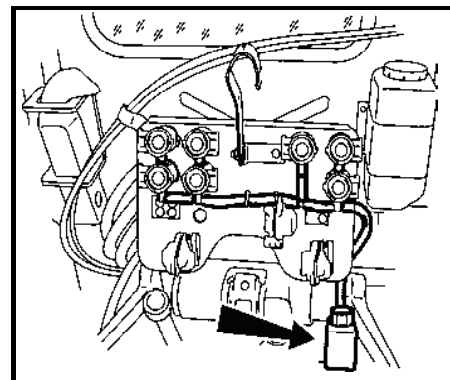
REAR OUTLETS OF THE OUTER HYDRAULIC CIRCUIT

In the basic version they are terminated with three quick-couplers on the panels. Pressurized oil is distributed to the quick-couplers marked "1" and "2" depending on the position of the corresponding control lever. The third quick-coupler marked "0" is directly connected to the final drive housing and is designed for return oil from external hydraulic implements (e.g. from rotational hydraulic motors, etc.).

- A - The layout of the quick-couplers corresponds to the equipment of a tractor without an auxiliary distributor.
- B - The layout of the quick-couplers corresponds to the equipment of a tractor with an auxiliary distributor.



Attached implements using the oil filling of the outer hydraulic circuit must be filled with the same type of oil that is recommended for the tractor transmission!



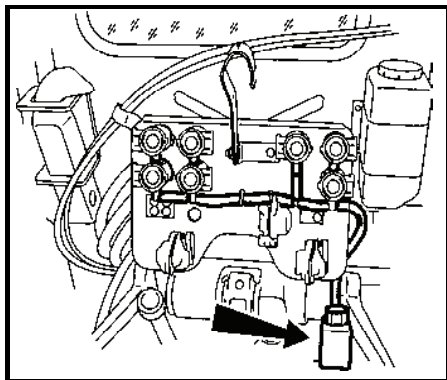
X1

CONNECTING AND DISCONNECTING QUICK-COUPERS



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.

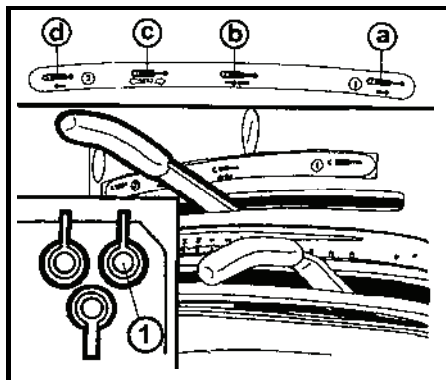
For environmental reasons after every disconnection of quick-couplers this residual oil must be removed with any textile material.



X1

***QUICK-COUPERS WITH DRIP COLLECTION**

Optionally, a drip collection system may be installed to catch residual oil. Regularly check whether the tank is not full; if necessary, dispose of the oil in an environment-friendly way.

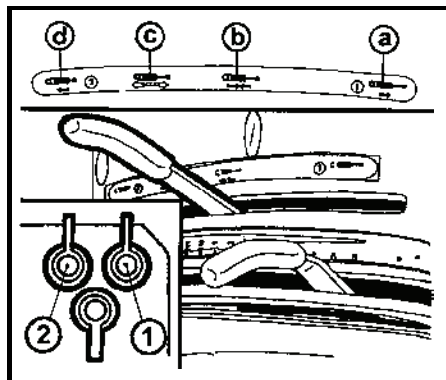


E414

SINGLE-ACTING CYLINDER CONTROL

The cylinder is always connected to quick-coupler "1".

Lifting	Lever in position "a" (pressure in quick-coupler "1")
End of lifting	Lever is shifted to position "b" - neutral
Lowering	Lever is shifted to position "c" - floating
End of lowering	Lever is shifted to position "b" - neutral

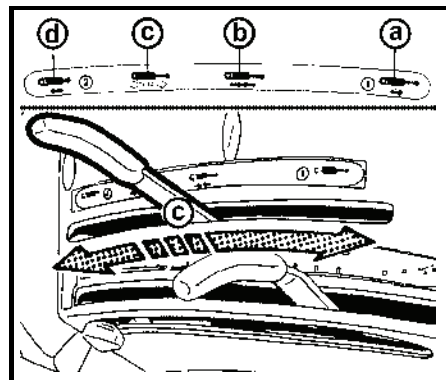


E415

DOUBLE-ACTING CYLINDER CONTROL

The cylinder is connected to quick-coupler "1" and "2".

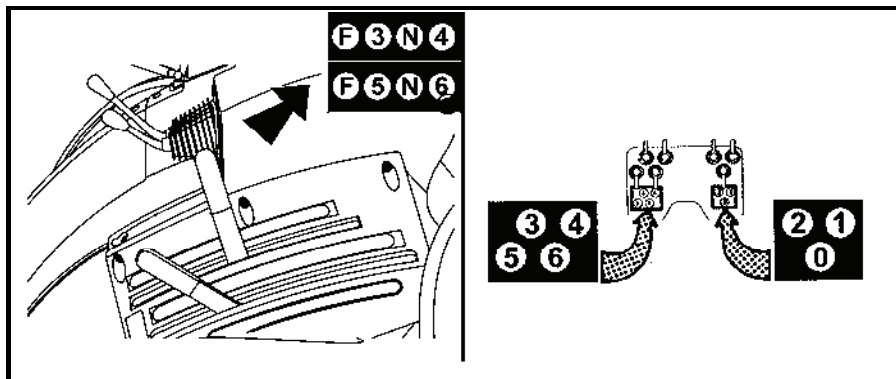
Movement in one direction	Lever in position "a" pressure in quick-coupler "1"
End of movement	Lever in position "b" neutral
Movement in opposite direction	Lever in position "d" pressure in quick-coupler "2"
End of movement	Lever in position "b" neutral
Floating position	Lever in position "c", low pressure in quick-coupler 2



E416



During work with a double-acting cylinder the outer circuit control lever must be shifted as quickly as possible over position "c" (floating position, when both the sides of the working cylinder are connected to the return line and uncontrolled movement of the piston rod might occur.



E417

AUXILIARY HYDRAULIC DISTRIBUTOR

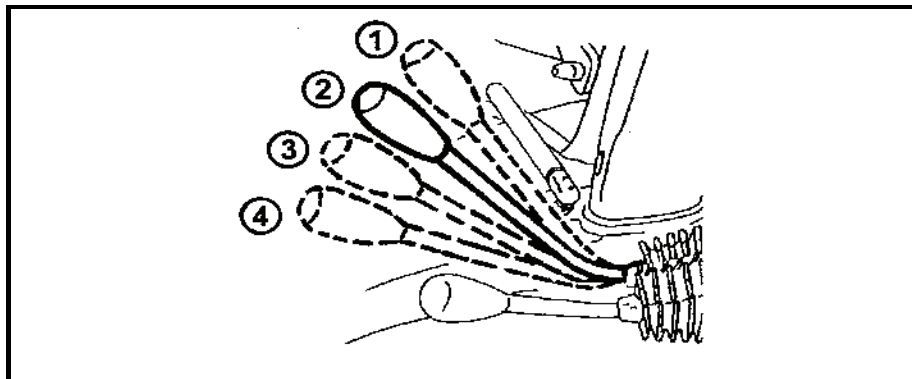
The distributor is situated on the left side of the tractor under the cab and it is delivered in a double-section design. Each section has four positions, incl. the floating position and it controls two pressure outlets (quick-couplers) marked:

"3", "4" Section 1

"5", "6" Section 2

The control levers of the sections are installed in the cab on the fender of the right rear wheel.

In the section of the auxiliary distributor serving quick-couplers "5" and "6" besides the floating position both the working (pressurized) positions are also locked with hydraulic holding of $17,5^{1,5}$ MPa. Outlet "4" is additionally equipped with a check valve - used for the connection of a working branch of the machine with an increased requirement for leakproofness - minimum lowering of the implement e.g. during transport.



E418

CONTROL OF THE AUXILIARY DISTRIBUTOR

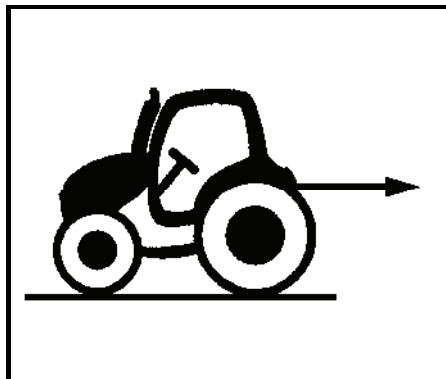
Each section control lever has four positions.

	Lever position	Function
1	Rear (upper) position	Pressurized oil flows to quick-couplers: "4", "6" Quick-couplers connected to the return line: "3", "5"
2	Central position	Neutral
3	Front (lower) position	Pressurized oil flows to quick-couplers: "3", "5" Quick-couplers connected to the return line: "4", "6"
4	Front limit position	With an increased force you can shift the control levers from position (3) further to the front to position (4), i.e. floating (free) position, where the levers are locked. Both the quick-couplers of each section are connected to the return line in this position.

Note: The lever automatically returns from positions (1) and (3) to the neutral.



Always connect a single-acting cylinder to quick-couplers "4", "6"!



E413

OIL QUANTITY DRAWN FROM OUTER HYDRAULIC OUTLETS

For the maximum possible quantities of drawn oil see the following table.

⚠ In case of a higher consumption the hydraulic pump may aspirate air and there is a danger of damaging the pump.

If after the disconnection of a machine an oil level drop occurs in the gearbox due to permanent transfer of oil from the tractor to the hydraulic circuit of the machine, the mixing quantity must be replenished.

		Type of work: On level ground Max. oil consumption: 20 litres Gearbox filling: Standard filling in range (A) between the dipstick marks
		Type of work: On a slope Max. oil consumption: 13 litres Gearbox filling: Standard filling in range (A) between the dipstick marks
		Type of work: On level ground Max. oil consumption: 27 litres Gearbox filling: Range (B) between dipstick marks Gearbox oil filling increased by 7 litres (maximum permissible oil quantity in the gearbox)
		Type of work: On a slope Max. oil consumption: 20 litres Gearbox filling: Range (B) between dipstick marks Gearbox oil filling increased by 7 litres (maximum permissible oil quantity in the gearbox)

CONNECTING MACHINES AND IMPLEMENTS TO THE OUTER HYDRAULIC CIRCUIT

Connecting machines and implements consisting of more parts

Tractor without an auxiliary distributor

During work with agricultural machines that consist of more parts (combinators, skids, harrows) and that have side frames that are hinged to the central frame and during transport are folded to the vertical position by separate hydraulic cylinders controlled by the outer hydraulic circuit of the tractor, the folding of the side frames must always be controlled by the movement of the outer circuit lever to the rear position. This direction of movement of the outer circuit control lever makes sure that pressurized oil in quick-coupler "1" causes lifting of the frames to the vertical (transport) position. Quick-coupler "2" is connected to the return line.

Tractor equipped with an auxiliary distributor

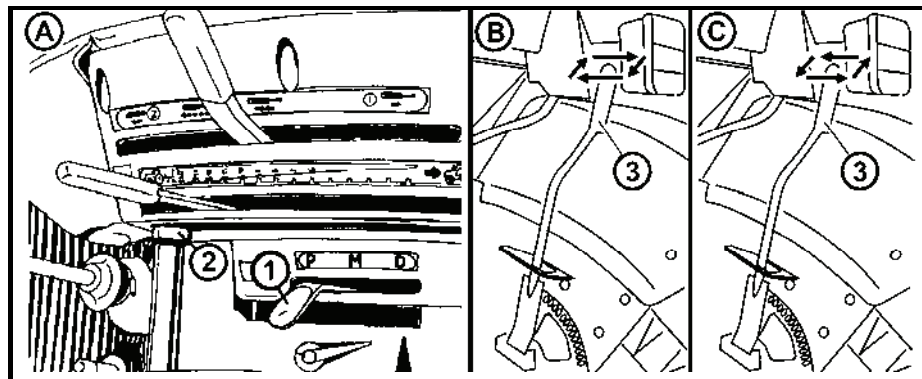
During work with agricultural machines that consist of more parts (combinators, skids, harrows) and that have side frames that are hinged to the central frame and during transport are folded to the vertical position by separate hydraulic cylinders controlled by the outer hydraulic circuit of the tractor, the folding of the side frames must always be controlled by the upward (backward) movement of the auxiliary distributor lever. The "lifting" branches of the cylinders must be connected to quick-couplers "4" or "6".

Connecting a rotational hydraulic motor

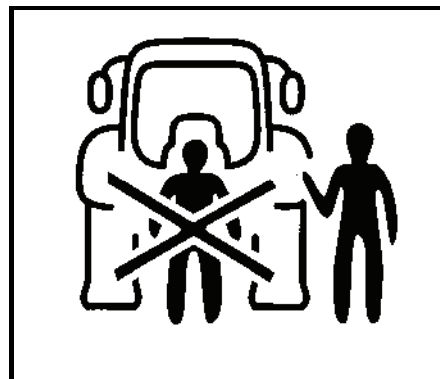
If a rotational hydraulic motor is connected to an outer outlet of the hydraulic system, its return branch must always be connected to quick-coupler "0".

Connecting a reversing hydraulic motor

Due to its function a reversing hydraulic motor must be connected to quick-couplers "1" and "2" or to the quick-couplers of one section of the auxiliary distributor. However, relief valves must be inserted in both the branches in this case as they can reliably limit the pressure peaks during the stopping of the machine. The oil return lines from these valves are connected to quick-coupler "0".



G419



G161

EXTERNAL CONTROL OF REAR ARMS OF THE HYDRAULIC SYSTEM

The external control of the rear hydraulic arms is found on the right rear fender and allows the operator to attach implements more easily thanks to the possibility to control the bottom draw-bars of the three-point hitch from the outside of the tractor. It is only used to connect and disconnect implements.

Fig. (A)

Before using the external control shift the control mode selection lever (1) to position P. Move the adjustable stop of the inner hydraulic circuit (2) to the front limit position.

Lowering the hydraulic arms, fig. (B):

Move the lever (3) in the arrow direction (the movement of the lever is limited by a gate). By repeating of this procedure the hydraulic arms are lowered in small steps.

Lifting the hydraulic arms, fig. (C):

Move the lever (3) in the arrow direction (the movement of the lever is limited by a gate). By repeating of this procedure the hydraulic arms are lifted in small steps.



When handling the three-point hitch with the external control the operator must stand out of reach of the connected implement to avoid being caught or injured.

NOTES

HITCHES

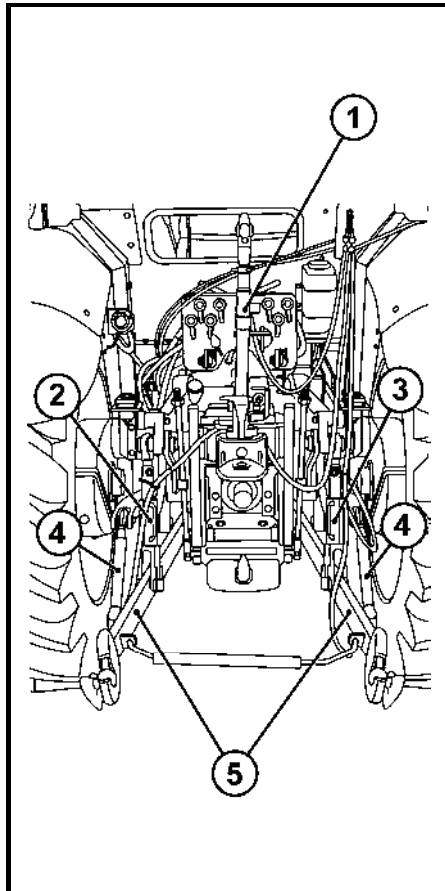
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HITCHES

REAR THREE-POINT HITCH

It is intended for attaching carried or semi-carried agricultural machines and implements with hitching points of ISO category I or II.

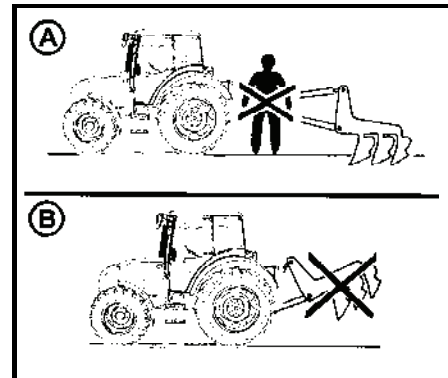
These categories differ with the hitch axis length, which is the distance between the ball centres of the lower suspension joints with an implement connected.



E451

Category I.	
Hitch axis length	728 mm
Ø of openings of connecting balls of the lower draw-bars according to ISO	28 mm
Ø of the upper draw-bar opening	25 mm
Category II.	
Hitch axis length	870 mm
Ø of openings of connecting balls of the lower draw-bars according to ISO	28 mm
Ø of the upper draw-bar opening	25 mm

1. Upper draw-bar
2. Left lifting draw-bar
3. Right lifting draw-bar
4. Limiting draw-bars
5. Lower draw-bars

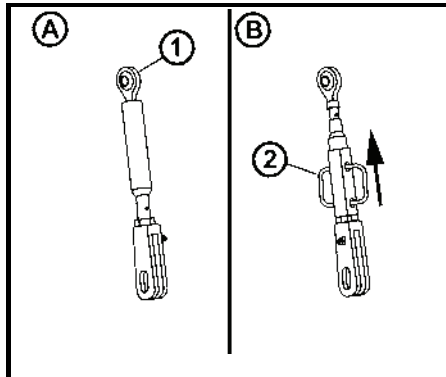


G452

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!

HITCHES



E453

HEIGHT ADJUSTMENT OF THE LIFTING DRAW-BARS

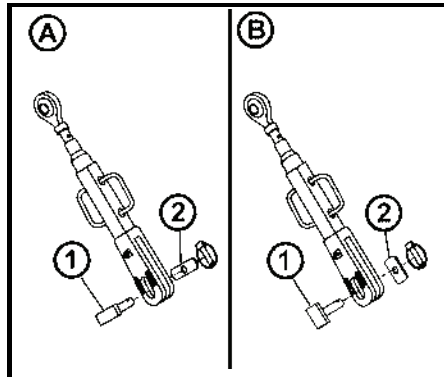
Lifting draw-bar - see fig. (A):

After disconnecting the upper end of the lifting draw-bar from the pin of the hydraulic arm make the adjustment by turning the lug (1).

Lifting draw-bar - see fig. (B):

Extend the handle (2) in the arrow direction and make the adjustment by turning the handle.

Depending on the equipment of the tractor both the draw-bars may be designed as in fig. (B).



E454

FIXED AND FREE POSITION OF THE LOWER HYDRAULIC DRAW-BARS

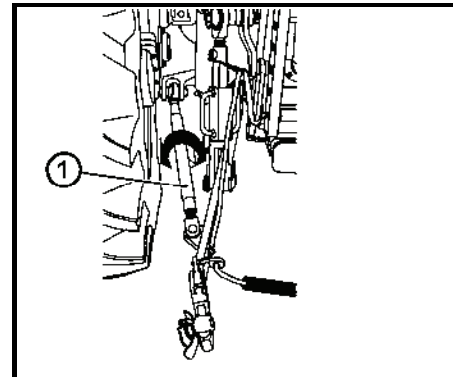
Fixed position of the lower hydraulic draw-bars (A):

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.



E455

LIMITING DRAW-BARS

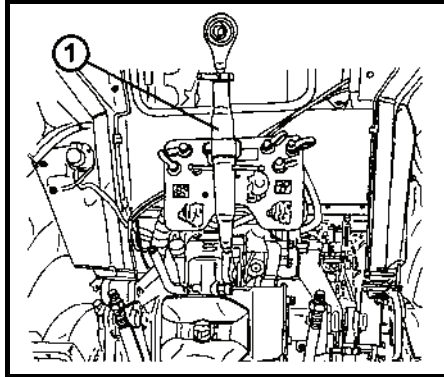
The limiting draw-bars enable lateral swinging of the lower draw-bars.

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.

HITCHES

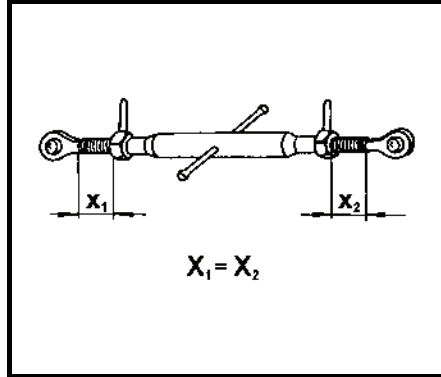


E456

UPPER DRAW-BAR

The upper draw-bar (1) has adjustable length. It is connected to the tractor to one of the four openings of the console that transmits the power from the connected implement to the torsion shaft in the hydraulic control lid.

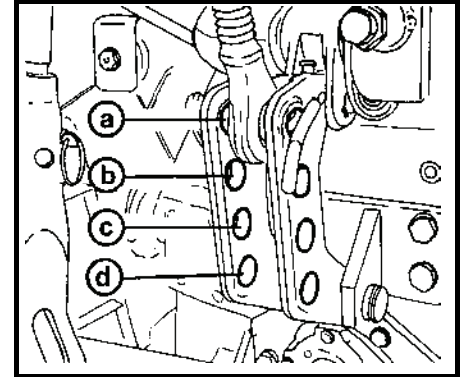
⚠ *During transport of the implement the upper draw-bar must be removed to opening "d" to avoid overloading of the kinematic system of the lifting hydraulic system or fall of the attached implement.*



E457

UPPER DRAW-BAR

⚠ *When extending the upper draw-bar you must make sure that both the joints are unscrewed from the draw-bar pipe to the same length.*



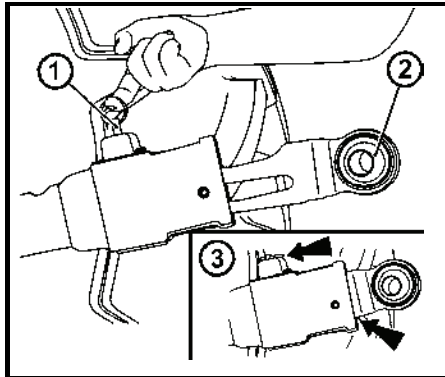
E458

SELECTING OPENINGS IN THE CONSOLE

Connection of the upper draw-bar to one of the openings "a" - "d" of the console influences:

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

HITCHES



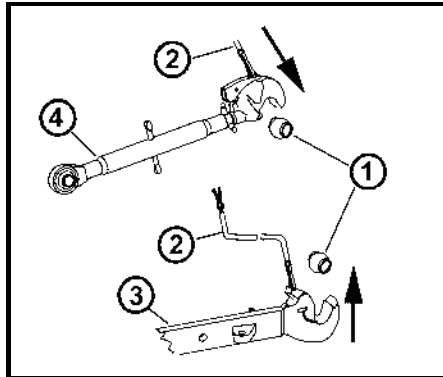
E459

*LOWER DRAW-BARS WITH EXTENSIBLE END PIECES

The lower draw-bars of the hitch are equipped with semi-automatic extensible CBM end pieces. They facilitate attaching of implements to the tractor. After removing of securing pegs (1) extend the end pieces (2). The extended end pieces are attached to the fixing pins of the carried implement. After attaching the carried implement release the hydraulic arms. As the result of lowering and tractor reversing the end pieces (2) will slide into the draw-bars and will be automatically secured in the working position by the securing pegs (1).



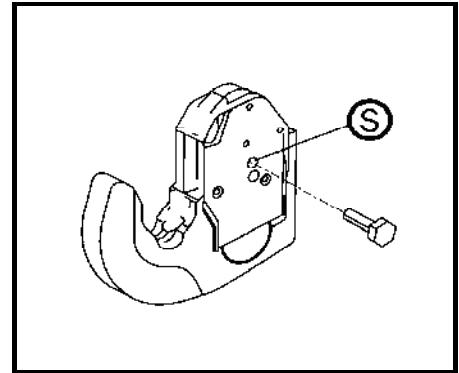
Always check the position of the extensible end pieces and the securing pegs, see fig. (3).



E460

*LOWER DRAW-BARS WITH CBM HOOKS

The lower (3) and upper (4) draw-bars of the hitch are equipped with CBM hooks. First, suspension CBM balls (1) must be fitted to the implement and the limiting draw-bars must be used to set the distance between the lower draw-bars of the hitch (3). After reversing and subsequent lifting of the three-point hitch its lower draw-bars (3) are connected to the implement and then the driver connected the upper draw-bar (4) of the three-point hitch from the cab. When disconnecting the implement release the hooks, with the control wires (2) lift the upper draw-bar (4) and by lowering the three-point hitch disconnect the lower draw-bars (3).



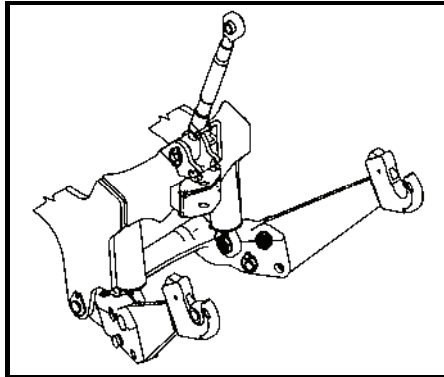
X901

SECURING THE LOWER DRAW-BARS WITH CBM HOOKS



For especially demanding working positions (aggregation with heavy machines on slopes or aggregation with machines overhanging to one side) we recommend you to securely lock the lower draw-bar hook by inserting an M8 screw in the opening (S) and locking it with a nut.

HITCHES



E461

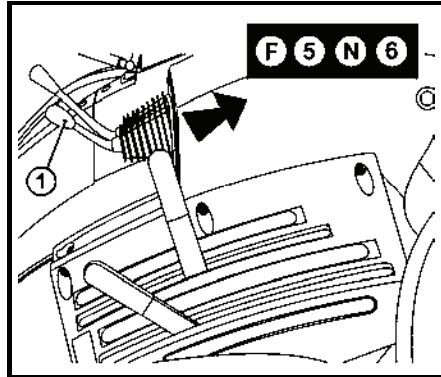
*FRONT THREE-POINT HITCH

It is designed for attachment of frontally carried agricultural machines and implements of category II according to ISO.



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.

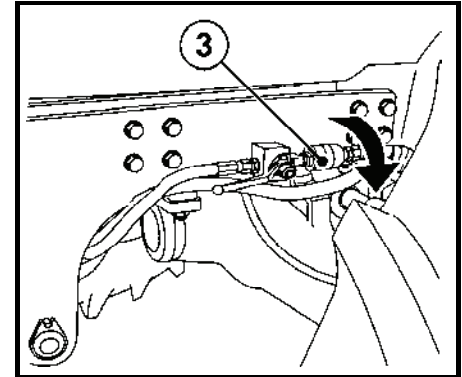


E462

FRONT THREE-POINT HITCH CONTROL

The hitch is equipped with two single-acting hydraulic cylinders that are supplied with oil from an auxiliary hydraulic distributor. The lifting and lowering is controlled by the control lever of the auxiliary distributor (1).

Position 6	Lifting
Position 5	Lowering
Position N	Hitch lock

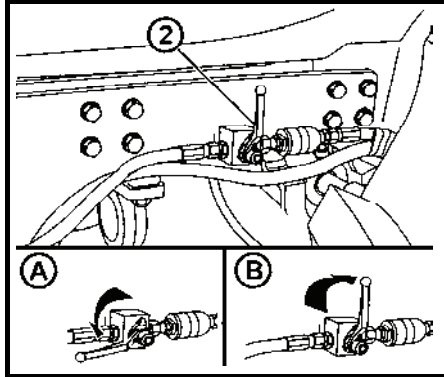


X463

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.

HITCHES

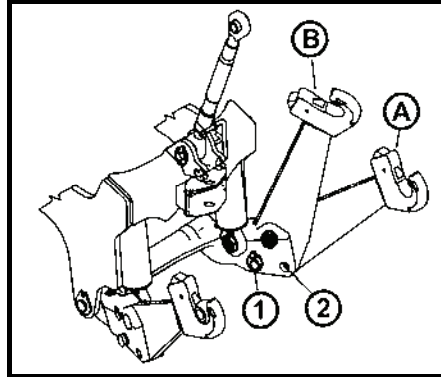


X464

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



E466

WORKING AND TRANSPORT POSITION OF THE FRONT THREE-POINT HITCH

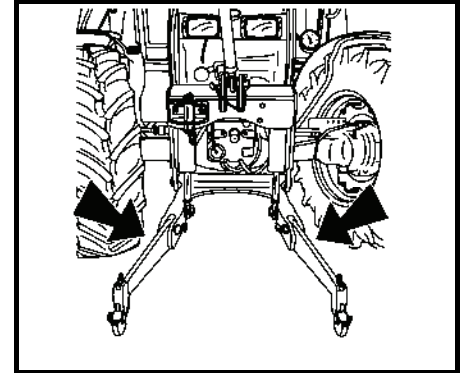
- A** Working position of the front three-point hitch
- B** Transport position of the front three-point hitch

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!



E467

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.

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.

NOTES

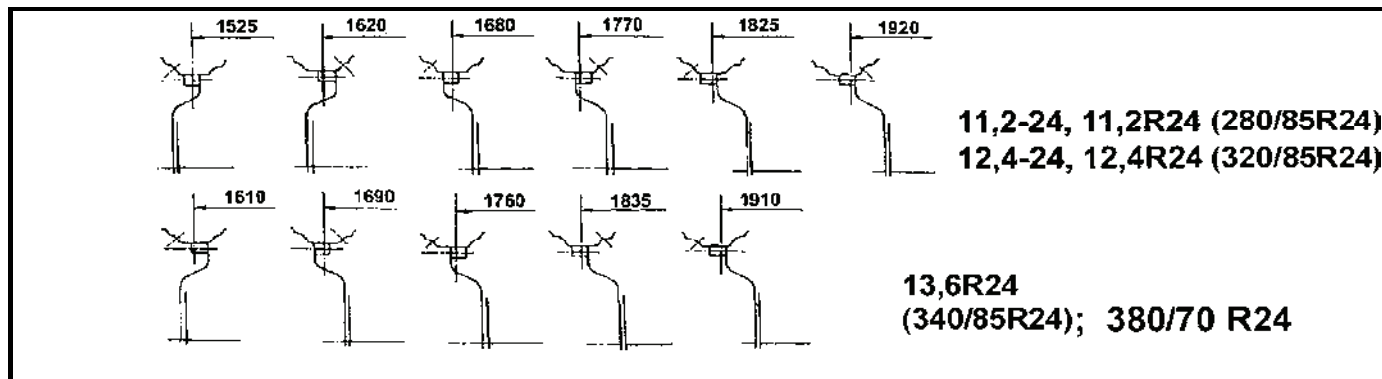
<https://trucksmanualshub.com/>

WHEEL TRACK CHANGE

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Changing the front wheel track of the front driven axle	110
Setting the stops on the front driving axle	111
Front wheel toe-in	112
Adjustment of toe-in of tractors with the front driving axle	113
Fenders of the front driving axle	113
Rear wheel track change	114

WHEEL TRACK CHANGE

<https://tracemanualshub.com/>



G503a

CHANGING THE FRONT WHEEL TRACK OF THE FRONT DRIVEN AXLE

You can change the wheel track by changing the position of the rim and disc.

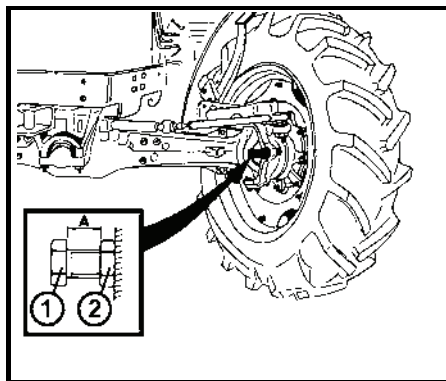
Used tyres	Adjustable wheel tracks (mm)
11,2-24; 11,2R24 12,4-24; 12,4R24	1525, 1620, 1680, 1770, 1825, 1920
13,6R24; 380/70 R24	1610, 1690, 1760, 1835, 1910

1. Disassemble the front wheels.
 2. Loosen the nuts of the screws connecting the disc with the rim and remove the screws.
 3. Change the track by setting the rim in the required position.
 4. Re-install the screws with washers and secure them with nuts.
 5. Tighten the nuts of the screws connecting the disc with the rim with the torque of 200 - 220 Nm.
 6. Tighten the nuts of the screws connecting the disc with the wheel shaft with the torque of 250 - 290 Nm.
 7. After every loosening of a rim connection tighten the screws to the prescribed value.
 8. After driving 100 m with the tractor without load re-tighten the connections with the prescribed torque.
 9. After loading the tractor re-tighten the connections after 3 hours of work.
- After 10 hours of work check the tightening of the nuts of discs and wheel rims.



First, secure the tractor against moving, lift the axle with a lifting jack and support it.

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WHEEL TRACK CHANGE



E502

SETTING THE STOPS ON THE FRONT DRIVING AXLE

Set the stops after every change of the wheel track of the front driving axle in accordance with the provided tables after loosening the nut (2) and releasing or tightening the screw (1) to value "A". After setting the screw (1) tighten the nut (2) with the torque of 100 - 150 Nm.

Tyres	11,2-24; 11,2R24 12,4-24; 12,4R24	13,6R24; 380/70 R24
Wheel tracks	A (mm)	A (mm)
1525	61	-
1610	-	59
1620	55	-
1680	47	-
1690	-	50
1760	-	43
1770	39	-
1825	32	-
1835	-	34
1910	-	27
1920	27	-

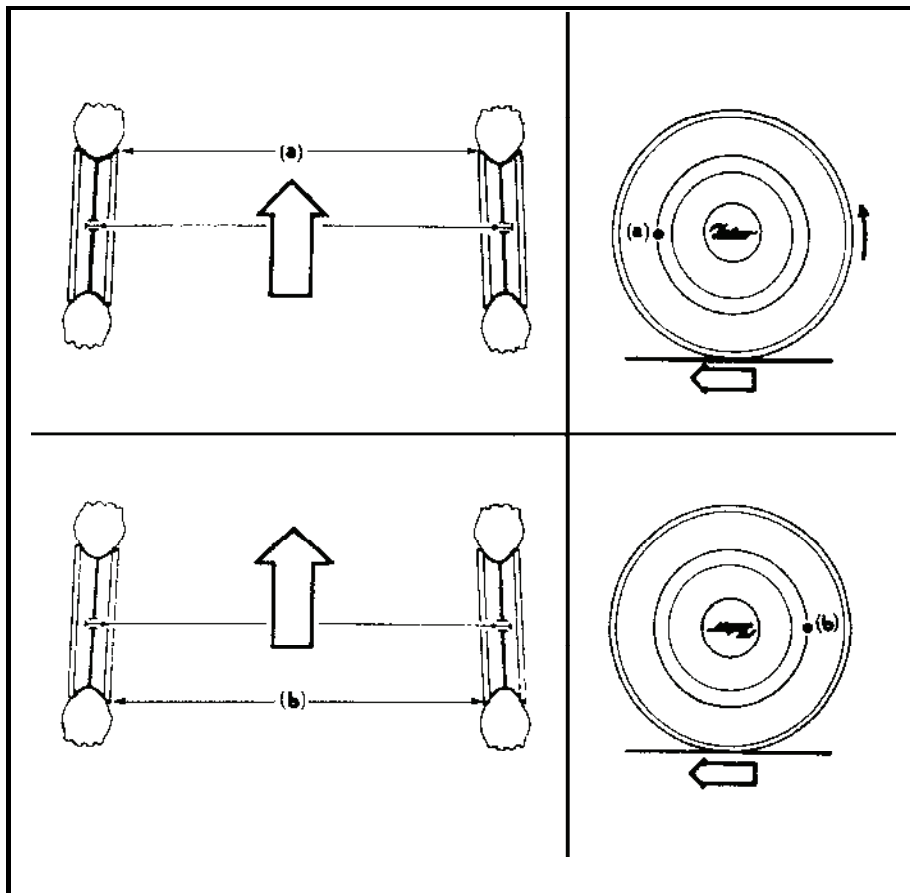


In the case of tractors equipped with the braked front axle after a change of the front wheel track to the value of 1910 or 1920 mm it is necessary after setting the stop screws to the value of 27 mm to check the distance between the threaded end of the wheel screw and the wheel hub.

This distance must be at least 4 mm!

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WHEEL TRACK CHANGE



FRONT WHEEL TOE-IN

The front wheel toe-in value measured on the rim at the tractor:

– **with the driving axle 0 to 4 mm**

Toe-in “S” is determined by the difference of the measured values: $S = b - a$.



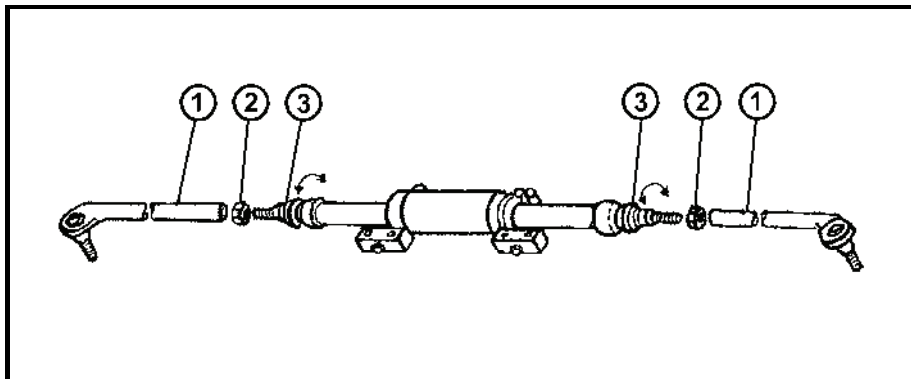
Before checking the toe-in value you must inflate the front tyres to the prescribed pressure.

Toe-in measurement is performed on the wheel rims.

E503

<https://tracmanualshub.com/>

WHEEL TRACK CHANGE

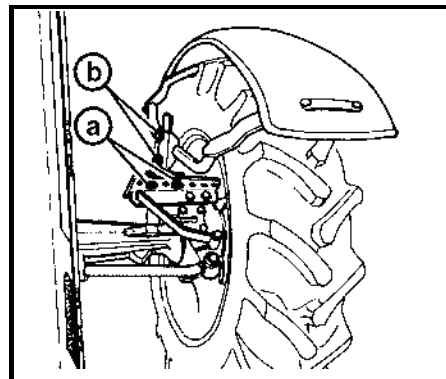


E504

ADJUSTMENT OF TOE-IN OF TRACTORS WITH THE FRONT DRIVING AXLE

Note: The tractors are equipped with hydrostatic steering as standard.

- Set the wheels symmetrically with the longitudinal axis of the tractor.
- At the front on the horizontal plane of the wheel axes measure, in accordance with fig. E503, the distance between the rims. Mark the place of measurement.
- Drive the tractor to move the marked places to the horizontal plane of the wheel axes at the back (turning by 180°) and measure the distance between the marked places again.
- Release the locking nuts of the heads of the ball screws (2) of connecting rods of the steering at the hydraulic cylinder.
- Adjust the toe-in value by turning the shank of the ball screw (3). Perform the adjustment of both the joints symmetrically to maintain the same turning radius at both the sides (perform the measurement at the rim sides).
- Tighten the locking nuts of the heads of the ball screws (2) with the torque of 122 - 136 N. The upper surfaces of the heads (1) must be parallel.

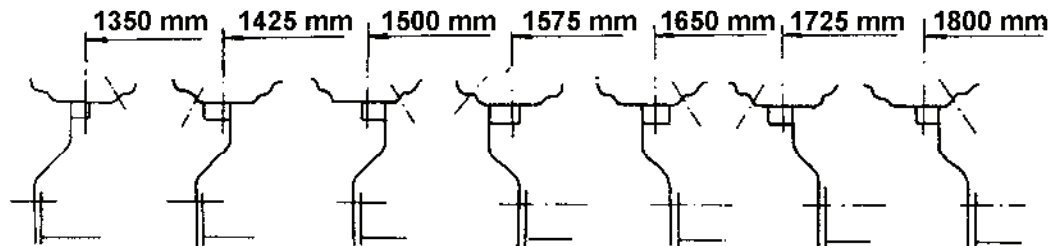


E505

FENDERS OF THE FRONT DRIVING AXLE

The fenders are installed on adjustable holders that can be adjusted laterally (by removing screws "a" to other openings) as well as vertically (by removing screws "b" to other openings) in accordance with the required wheel tracks and the type of used tyres.

WHEEL TRACK CHANGE



E506

REAR WHEEL TRACK CHANGE

Used tyres	Tyre width in mm	Adjustable wheel track
13.6-36	348	1350 - 1800
16.9-30	429	1425 - 1800
16.9R30	429	1425 - 1800
480/70R30	479	1425 - 1800
18.4 -30	467	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

The wheel track of 1500 is adjusted by the manufacturer as standard.

The rear wheel track is adjusted by changing the position of the rim and disc with the rear part of the tractor lifted. The wheels must turn freely.



Before the lifting do not forget to secure the tractor against moving by wedging the front wheels!

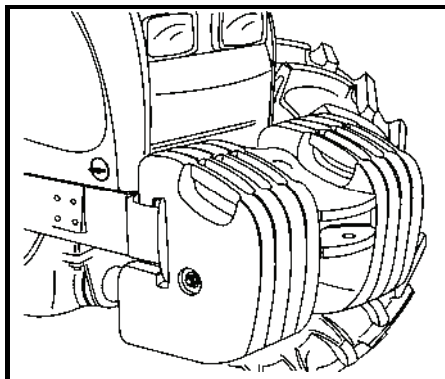
After changing the wheel track tighten all the screws connecting the disc with the rim with the torque of 200 - 220 Nm and the nuts of the screws connecting the disc with the wheel shaft with the torque of 400 - 470 Nm.

- After every loosening of a rim connection tighten the screws to the prescribed value.
- After driving 100 m with the tractor without load re-tighten the connections with the prescribed torque.
- After loading the tractor re-tighten the connections after 3 hours of work.
- After 10 hours of work check the tightening of the nuts of discs and wheel rims again.
- Until reaching the first 100 hours of work perform frequent checks of tightening the nuts of the discs and rims of the front and rear wheels (at least 6 times in the course of the first 100 hours of work).
- Then, always check the tightening of the nuts of the discs and rims of the front and rear wheels after every 100 hours of work.

BALLAST WEIGHTS

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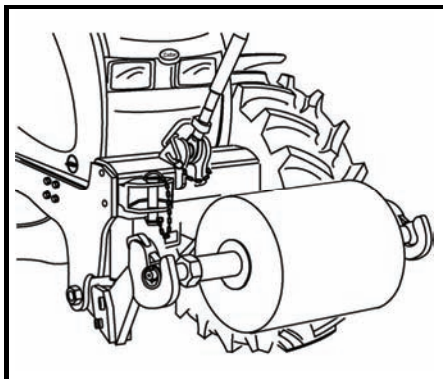
Ballast weights are necessary to increase axle loading and to ensure manoeuvrability of the tractor or its stability (when working with a front loader, observe instructions of its manufacturer).



E551

***WEIGHTS IN FRONT OF THE HOOD GRILL**

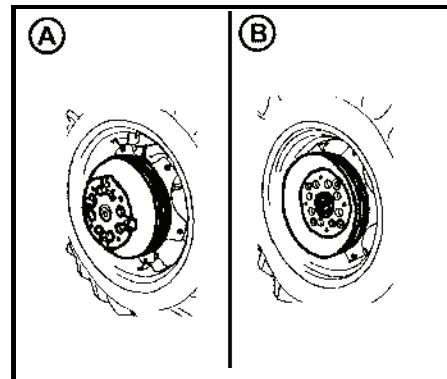
Weights in front of the hood grill		
Combina- tion of weights (pcs)	Mass of weights (kg)	
4+1	4x50 + 66	266
8+1	8x50 + 66	466



E552a

***WEIGHTS OF THE FRONT THREE-POINT HITCH**

The weight of the front three-point hitch is made of concrete
Weight mass (kg) 290

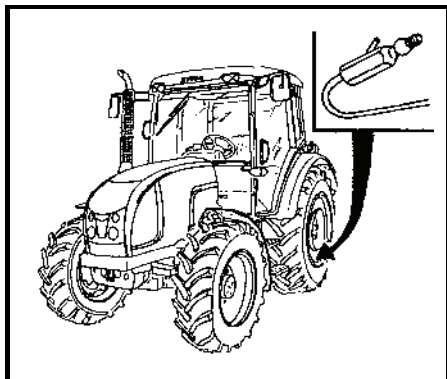


E553

***REAR WHEEL WEIGHTS**

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

- A - Installation of weights for rear wheel tracks of 1350 - 1500 mm
 B - Installation of weights for rear wheel tracks of 1575 - 1800 mm



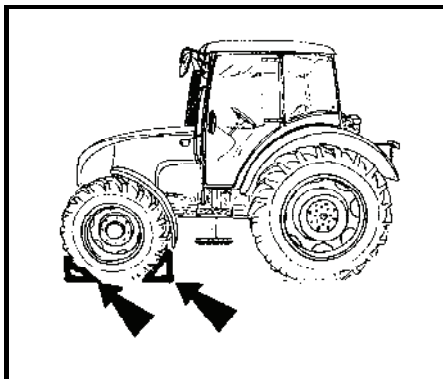
G554

VALVE FOR FILLING TYRES WITH LIQUID

The rear wheels are equipped with a valve that makes it possible to fill the wheels with liquid with the use of an adapter. All the tyres are tubeless.



It is not permitted to use liquid to fill the front wheels and the rear wheels in case of using the double assembly.

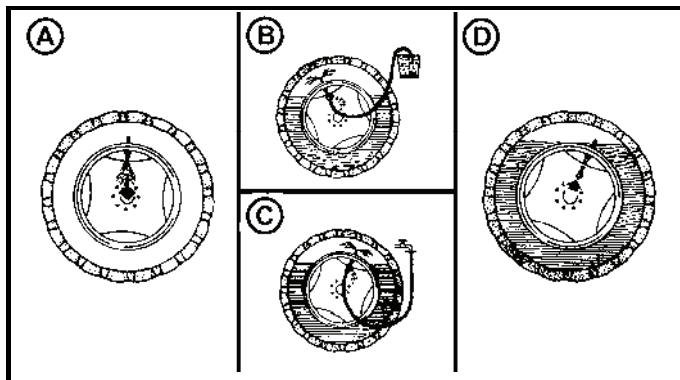


G555

WEDGING THE FRONT WHEELS



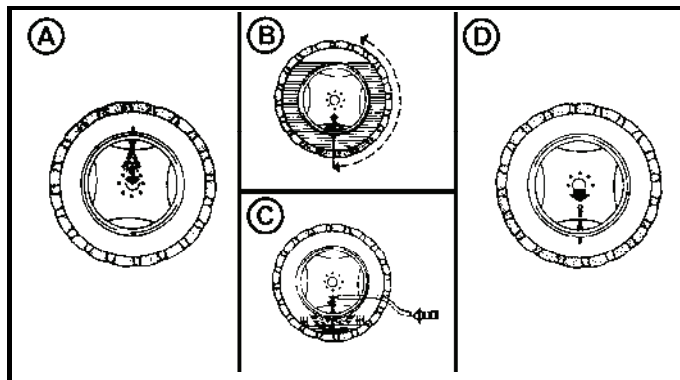
Before lifting the rear wheels do not forget to secure the tractor against moving by wedging the front wheels!



E556

PROCEDURE OF FILLING THE TYRES WITH WATER

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.



E557

PROCEDURE OF DRAINING LIQUID FROM THE TYRES

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.
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 as well.



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)!

BALLAST WEIGHTS

MAXIMUM LIQUID WEIGHT (KG) BY TYRE DIMENSIONS

Tyre dimensions	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

 ***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!***

ANTIFREEZE SOLUTION FOR TYRE FILLING

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

NOTES

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ELECTRIC INSTALLATION

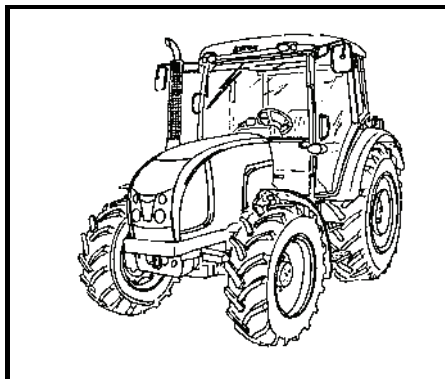
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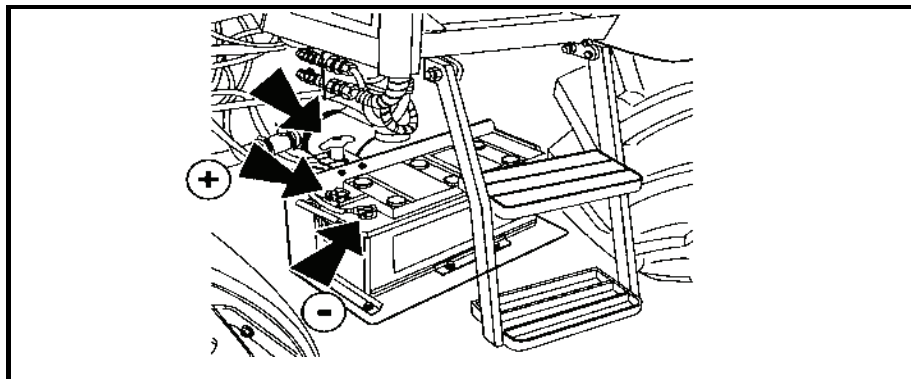
No additional interventions into the electric installation (connection of other electric appliances) are permissible due to its possible overloading!

During repairs of the electric installation pay increased attention to handling the battery to avoid contact of your skin or clothes with the electrolyte.

ELECTRIC INSTALLATION



G601



E602

ELECTRIC SYSTEM

Nominal voltage (minus pole grounded)	12V
Battery	12V/165Ah
Alternator with a built-in voltage controller	14V; 95 A
Starter motor	12V / 3 kW
V-belts driving the alternator and water pump	AVX10x1340La AVX10x1325La

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 disconnecter. This way you will avoid accidental short-circuits on the terminals.



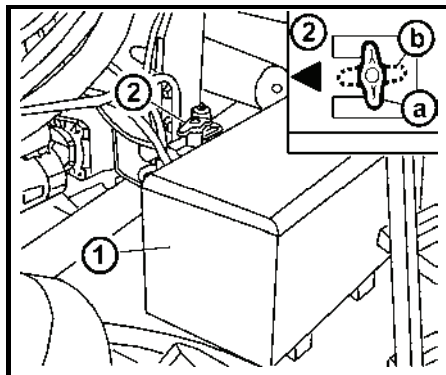
In case of any handling or repair of the started motor the minus pole of the battery must be disconnected and all the shifting levers, incl. the PTO shifting lever, must be in the neutral position (do not forget to check whether the locked PTO switches on the right cabin pillar are off as well) to prevent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

ELECTRIC INSTALLATION



E603

ACCUMULATOR BATTERY

The accumulator battery (1) is installed under the tractor cab on the left side.

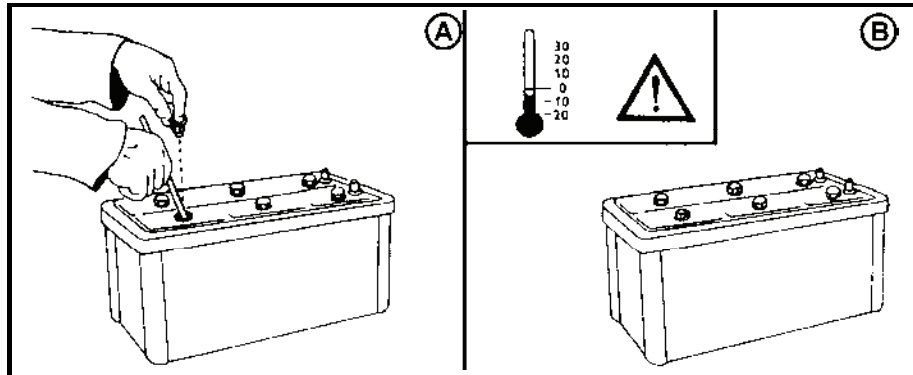
The battery disconnecter is located at the left-hand side of the tractor at the battery.

a - Battery connected

b - Battery disconnected



If the tractor is out of operation for a longer period of time, it is necessary to charge the battery at least once every three months due to its spontaneous discharging. When you put the tractor out of operation, it is recommended to disconnect the battery with the disconnecter.



E604

ACCUMULATOR BATTERY MAINTENANCE

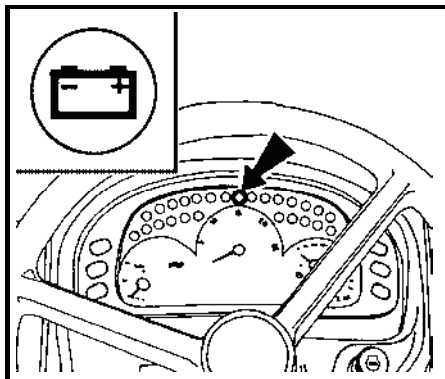
Keep the accumulator battery clean and properly fixed to the vehicle. However, the fixing device must not deform the battery case. In the case of polypropylene batteries the electrolyte level must not be below the minimum mark indicated on the case.



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. Keep the battery out of reach of children!
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. 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.
7. An insufficiently charged battery may get frozen in winter!

ELECTRIC INSTALLATION

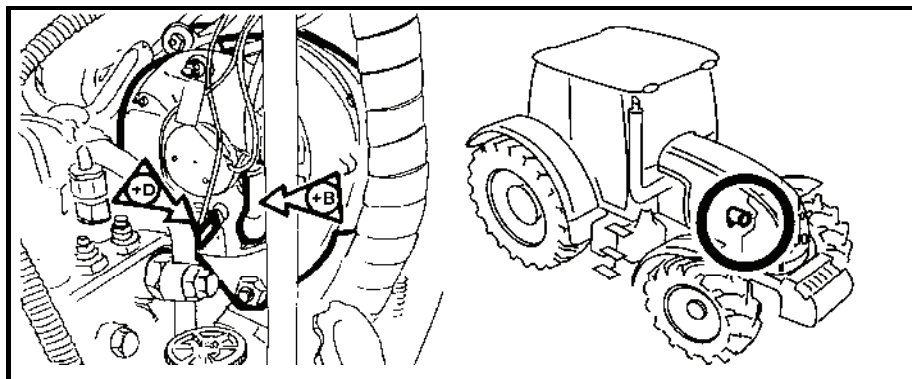


E605

ALTERNATOR

The alternator is accessible after opening of the hood. Proper charging is signalled by the red indicator on the combined dashboard instrument, which must go off after starting.

⚠ The burnt 12V / 2W indicator lamp must be immediately replaced with a lamp of the same parameters. The indicator is part of the exciting circuit of the alternator. If the indicator lamp is burnt, the battery is not charged! During repairs of the tractor by electric welding all the conductors must be disconnected from the alternator. Protect the "+B" conductor from a short-circuit.



E606a

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!

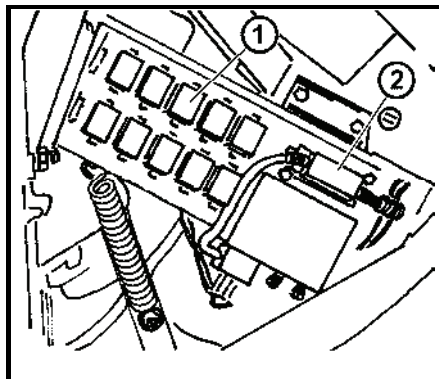
Never short-circuit any alternator terminal during operation!

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!

The polarity of the alternator must not be reversed even for a short time!

ELECTRIC INSTALLATION



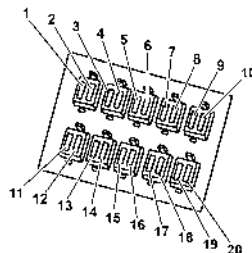
F306

FUSE BOX (20 FUSES)

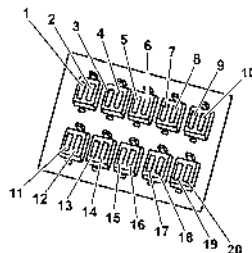
It is accessible after removing of the left lid of the steering console.

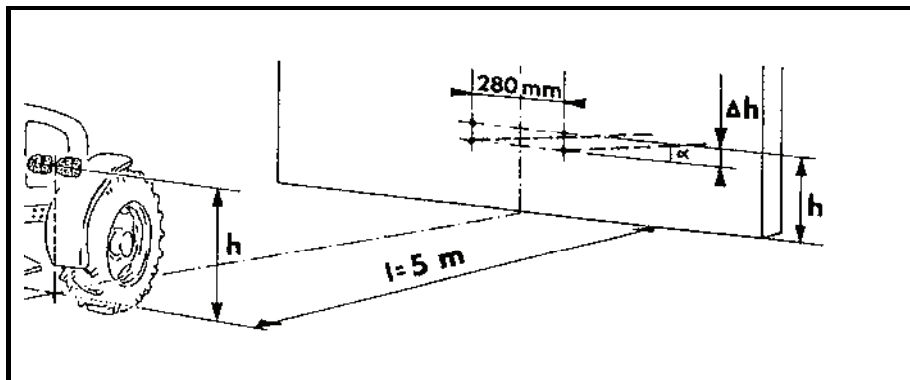
The fuses (1) are of the knife type and in case of replacement the prescribed fuse value must be observed. In case of repeated replacement of a fuse consult the nearest repair shop.

The glowing fuse (2) is of the band type with the value of 80 A.

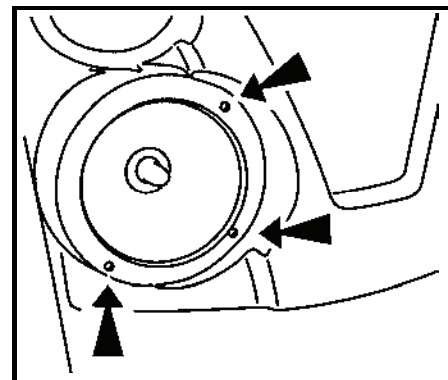


F307

Positions of fuses in the fuse box	Pos.	Fuse size	Protected system
	1	15A	Warning light interrupter Brake lights
	2	15A	Horn, beacon
	3	15A	Front driving axle control, differential lock control, power supply of the dashboard, rear PTO control, multiplier control
	4	15A	High beam lights with the indicator
	5	15A	Left position lights, dashboard lighting, registration number lighting
	6	15A	Right position lights, rear working light with the indicator
	7	15A	Right low beam lights, fog light with the indicator
	8	7,5A	Left low beam lights, indicator of lights in the grill / tractor roof
	9	15A	Working lights in the tractor grill
	10	3A	Front PTO Zuidberg
	11	15A	Front and rear wiper, washer, radio "15"
	12	20A	Heating fan, radio "30"
	13	15A	Recirculation, lighter
	14	7,5A	Air-conditioning (compressor coupling)
	15	15A	Free
	16	15A	Free
	17	15A	Driver's seat compressor
	18	20A	Three-pin socket
	19	15A	Front working lights in the roof
	20	15A	Rear working lights in the roof
	21	80A	Glowing



E609



G610

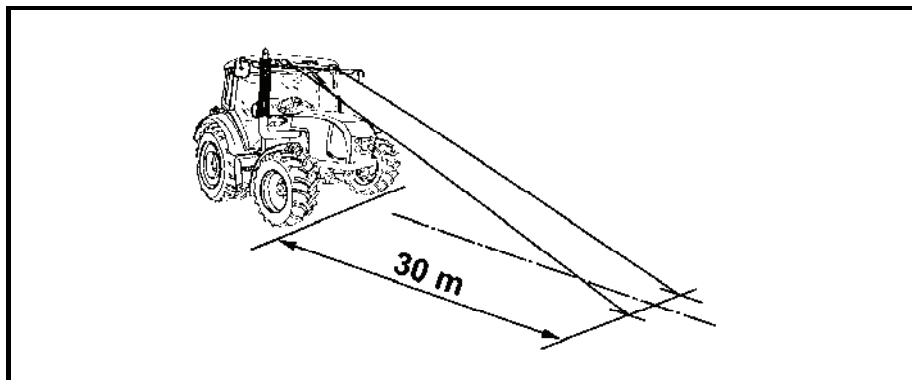
CHECKING AND ADJUSTING FRONT GRILL HEADLIGHTS

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%)

ADJUSTMENT OF 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.



G611

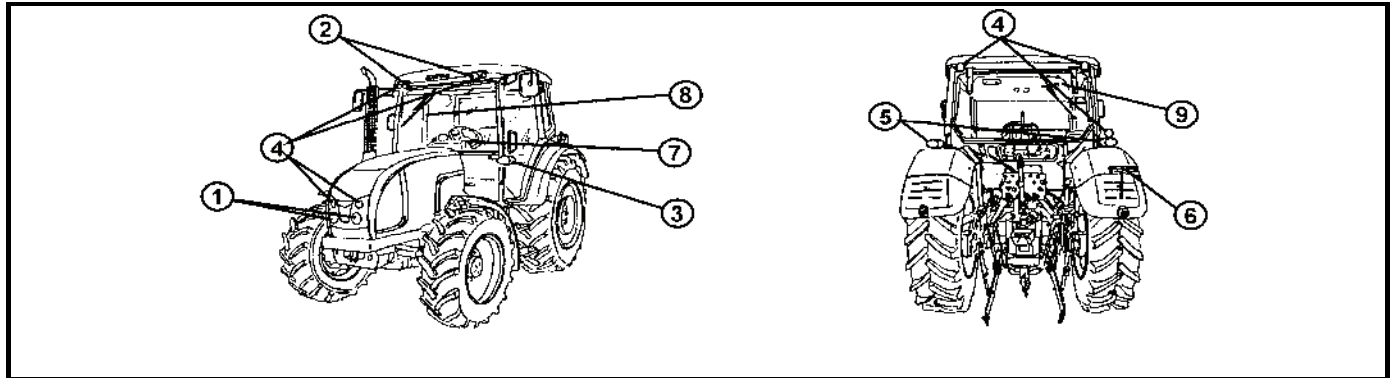
CHECKING THE ADJUSTMENT OF THE CAB ROOF HEADLIGHTS

In the vertical direction there must not be any point of illuminated area lying on the road surface plane to the left from the longitudinal vertical plane passing through the headlight centre further than 30 m from the front outline of the tractor.

In the horizontal direction the light beams must be parallel with the longitudinal axis of symmetry of the tractor.

Check the adjustment of the headlights at the shipping weight of the tractor. The front roof headlights may only be used when driving on public roads when the tractor carries a frontally attached machine or implement covering the main headlights (in the tractor grill).

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ELECTRIC INSTALLATION



G612

LIST OF LAMPS

Pos.	Lamp position	Voltage	Power	Socket	Note
1	Main headlights H4	12 V	55/60 W	P 43t	
2	Roof low beam headlights H7	12 V	55 W	PX26d	
3	Front combined headlights Turn signal lights P21W Position lights R5W	12 V 12 V	21 W 5 W	BA 15s BA 15s	
4	Working and ploughing lights	12 V	65 W	PGJ19-5	
5	Rear combined lights Tail lights and brake lights Turn signal lights	12 V 12 V	5 /21W 21 W	BAY 15d BA 15s	
6	Registration no. lighting C5W	12 V	2x5 W	SV 8,5-8	
7	Dashboard, switches	12 V 12 V	2 W 1,2 W	W2x4,6d W2x4,6d	illumination, charging indicator other indicators
8	Cabin lighting	12 V	5 W	SV 8,5-8	
9	Heating panel lighting	12 V	1,2 W	W2x4,6d	

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TRACTOR MAINTENANCE

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TRACTOR MAINTENANCE

STEPS PERFORMED DAILY BEFORE THE START OF WORK

Before starting the engine

Check the oil level in the engine
Check the level of cooling liquid and tightness of connections of the cooling system
Check the quantity of oil in the tank of the hydrostatic steering circuit
Check the quantity of the brake liquid and check the liquid brakes for leaks
Check the oil quantity in the gearbox and final drive housing
Check the clogging indicator of the air cleaner
Check the air pressure in all tyres
Check the tightening of wheels
Check the condition of hitching and attaching equipment

After starting the engine

Check the engine lubrication function (indicator)
Check the charging function (indicator)
Check the steering function (indicator)
Check the function and tightness of the steering circuit
Check the function and efficiency of the tractor brakes
Check the function and efficiency of the brakes of the trailer or semi-trailer

STEPS PERFORMED EVERY 50 HOURS OF WORK

Lubricate the tractor in accordance with the lubrication plan

STEPS PERFORMED EVERY 100 HOURS OF WORK

Clean the cooler blades with pressurized air
Perform maintenance of the dry air cleaner (in accordance with the signal of the clogging indicator)
Check the oil quantity in the gearbox and final drive housing
Check the oil quantity in the rear axle gantries
Check the oil quantity in the gear box of the front PTO
Check the oil quantity in the reducers and in the box of the front driving axle
Drain condensate from the air reservoir

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TRACTOR MAINTENANCE

STEPS PERFORMED EVERY 500 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
 Clean and lubricate the terminals of the battery with a thin layer of grease
 Check the tightness and function of the pressurized air system
 Check the function of the driver's seat, lubricate the movable parts with grease

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	2 000	2 500	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				o	2000
Replace the hydrostatic steering noz- zles							every 3500 hours or once every 4 years
Check the toe-in of the front wheels					o		2000
Calibrate the travelling clutches	o		o		o		1000

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TRACTOR MAINTENANCE

FILLING AND FILTER REPLACEMENT						
	in a new tractor or tractor after a general overhaul					
hour counter reading	100	500	1 000	1 500	2 000	subsequently after every ...hours
Engine oil replacement	o	o	o	o	o	500
Replacement of the engine oil cleaner element	o	o	o	o	o	500
Replacement of the fuel cleaner element		o	o	o	o	500
Replacement of the air cleaner element			o		o	1000
Replacement of the safety insert of the air cleaner					o	2000
Replacement of the filtration element of heating						every 1000 hours or once every 2 years
Cooling liquid replacement						once every 2 years
Brake liquid replacement						once every 2 years
Replacement of oil in the gearbox and final drive housing			o		o	1000
Replacement of oil in the rear axle gantries				o		1500
Replacement of the transmission oil cleaner element (hydraulic pump suction filter)		o	o	o	o	500
Replacement of the oil cleaner element of the gearbox distributor	o	o	o	o	o	500
Replacement of oil in the front driving axle box	o		o		o	1000
Replacement of oil in the front driving axle reducers	o		o		o	1000
Replacement of hydrostatic steering oil				o		1500
Replacement of the filtration element of hydrostatic steering				o		1500
Replacement of oil in the box of the front PTO and cleaning of the oil strainer		o	o	o	o	500

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TRACTOR MAINTENANCE

USED OPERATION LIQUIDS AND FILLING - QUANTITIES	
Designation	Quantity in litres
Brake liquid	0.5
Cooling liquid	21
Cooling liquid except the cab	
Cooling liquid with the cab	
Engine oil	10
Hydrostatic steering oil	2.5
Oil of the front driving axle box	5.5
Oil of the planetary reducers of the front driving axle	2x0.6
Oil of the planetary reducers of the front driving axle equipped with brakes	2x1.7
Gantry oil	2x1.9
Gearbox and final drive housing oil	70 •
Front PTO gearbox oil	2.7
Fuel	180

- - During work on a slope the filling should be increased by another 7 litres of oil. This also holds good for aggregation with machines connected to the outer hydraulic circuit.

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TRACTOR MAINTENANCE

OIL FOR FOUR-CYLINDER SUPERCHARGED ZETOR ENGINES		
Oil designation	Viscosity class SAE	Performance class API
Shell Rimula R3 X	15W-40	API CH-4
MOL Dynamic Transit	15W-40	API CI-4
MOL Dynamic Turbo Diesel	15W-40	API CF-4
ORLEN OIL Diesel(2)HPDO	15W-40	API CG-4
OMV truck LD	15W-40	API CI-4
ARAL Mega Turboral	10W-40	API CH-4
Fuchs Titan Truck	15W-40	API CG-4

Under extremely low temperatures we recommend you to use an engine oil with the viscosity class 10W.

FRONT PTO OIL	
Manufacturer	Oil designation
BP	Autran DX III
	Fluid 9
Shell	Donax TX
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

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TRACTOR MAINTENANCE

OIL IN THE GEARBOX AND FINAL DRIVE HOUSING			
Manufacturer	Oil designation	Viscosity class SAE	Performance class API
Paramo	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

OIL IN THE REAR AXLE GANTRIES			TAB. 2
Manufacturer	Oil designation	Viscosity class SAE	Performance class API
Paramo	Gyrol - UTTO	80W	GL-4
	Gyrol - PP80	80W	GL-4
Esso	Torque Fluid 62	80W	GL-4
Koramo	Mogul Trans 80	80W	GL-4
	Mogul Traktol UTTO/EKO	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

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TRACTOR MAINTENANCE

OIL FOR THE FRONT DRIVING AXLE

Manufacturer	Oil designation	Viscosity class SAE	Performance class API
Agip	Rotra Multi THT	80W	GL-4
Aral	Fluid HGS	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
Shell	Spirax AX	80W/90	GL-5

OIL FOR HYDROSTATIC STEERING OF TRACTORS

Manufacturer	Oil designation	Classification
Aral	Vitam DE 32	HLP DIN 51524
Fuchs	RENOLIND10VG32	HLP DIN 51524-2
ÖMV	Hyd HLP 32	HLP DIN 51524
Shell	TELLUS DO 32	HLP DIN 51524

PLASTIC LUBRICANT FOR THE TRACTOR

Type	Classification
LA 2	ISO 6743/9 CCEB 2/3, ISO - L - XBCEA 2
LV 2M	ISO 6743/9 CCEB 2/3
ÖMV signum	DIN 51825-K 2 C-30
Shell retinax HD2	DIN 51825 KP 2 K-20

TRACTOR MAINTENANCE

HYDRAULIC BRAKE LIQUID FOR TRACTORS

Type	Classification
Synthol 205	PND 31-656-80, ISO 4925, SAE - J 1703
Fuchs Stopred	SAE - J 1703
Brake Fluid DOT 4	ISO 4925, SAE - J 1703
Shell Donax YB	SAE J 1703, ISO 4925
	CAUTION! 1. <i>The liquid is not designed for arctic conditions!</i> 2. <i>Replace the brake liquid once every two years regardless of the number of hours of work!</i> 3. <i>Liquids of the same classification can be mixed together.</i>

LIQUID FOR THE COOLING SYSTEM OF 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 protection 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 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!*

FUEL

Summer diesel fuel for the period from April 1 to October 31

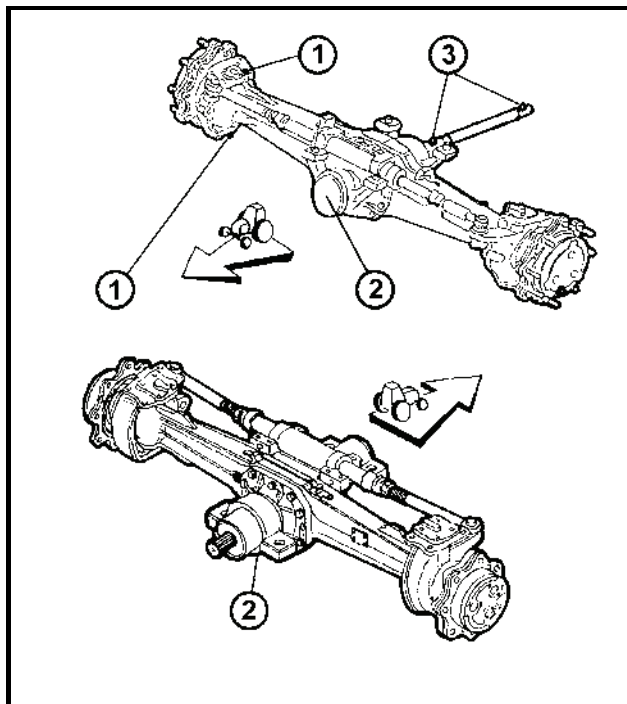
Winter diesel fuel for the period from November 1 to March 31

Note: Suitable fuel types abroad should be used in a similar way.

Natural Diesel mixed fuel (bio-diesel)

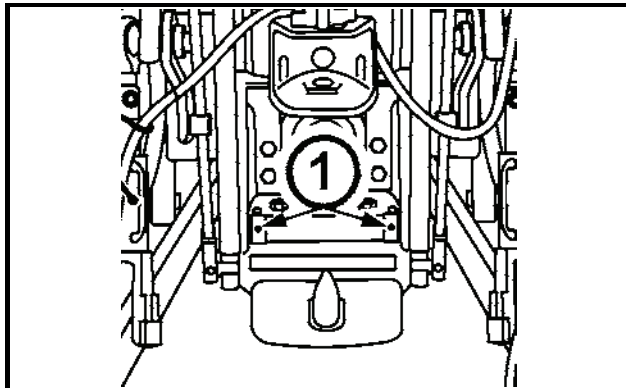
Note: Using bio-fuel in the tractor requires installation of REP hoses in the fuel system. Using bio-fuel increases consumption, reduces the output by approx. 5% and requires replacement of the engine oil after 200 hours of work. It also has an aggressive influence on varnished parts.

LUBRICATION PLAN OF THE TRACTOR



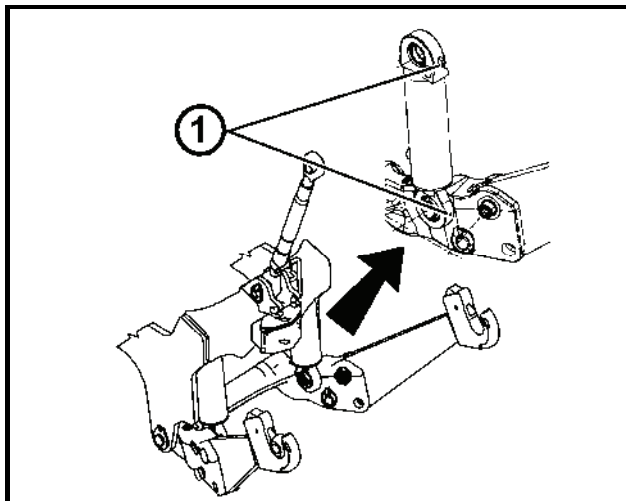
FRONT DRIVEN AXLE

Pos. no.	Identification	No. of lubrication points
1	Turning radius pins	4
2	Central pin	2
3	Connecting shaft coupling	2



HITCH FOR A SINGLE-AXLE SEMI-TRAILER

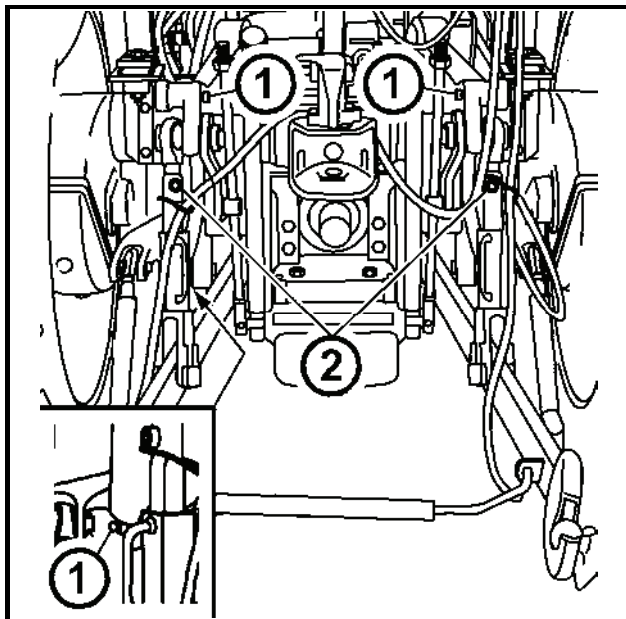
Pos. no.	Identification	No. of lubrication points
1	Hook pin bearings	0 to 4 (by version)



FRONT THREE-POINT HITCH

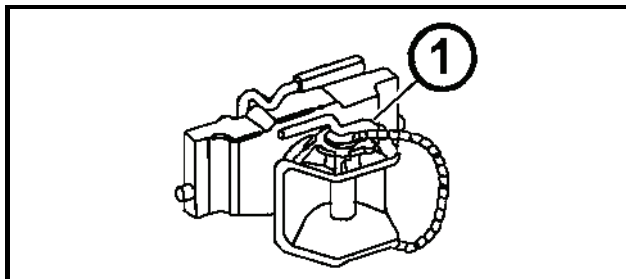
Pos. no.	Identification	No. of lubrication points
1	Pins of cylinders of the front three-point hitch	4

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TRACTOR MAINTENANCE



THREE-POINT HITCH

Pos. no.	Identification	No. of lubrication points
1	Pins of auxiliary hydraulic cylinders	4
2	Lifting draw-bars	2

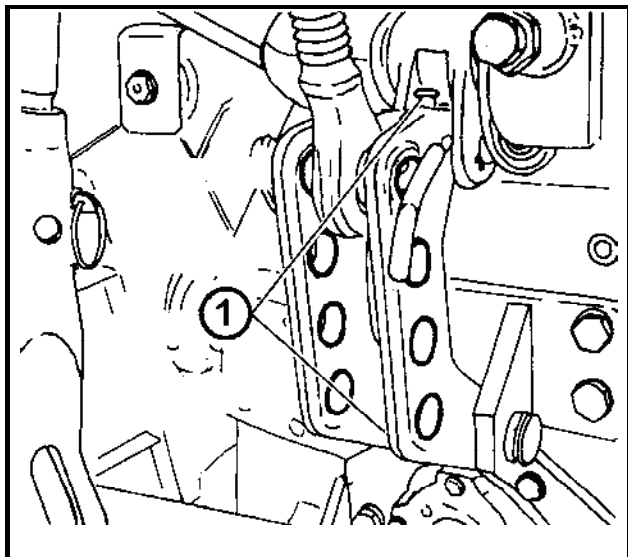


HITCH MOUTH FOR A TRAILER

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

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TRACTOR MAINTENANCE



UPPER DRAW-BAR CONSOLE

Pos. no.	Identification	No. of lubrication points
1	Pins of the upper draw-bar console	2

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TRACTOR MAINTENANCE

GENERAL OVERHAUL OF PROXIMA POWER TRACTORS

A general overhaul of the tractor should be carried out if its further use is uneconomical, if most of its parts require a repair and its overall technical condition endangers traffic safety.

If all the maintenance instructions specified in the technical documentation of the manufacturer are observed and if work is carried out in a moderate climate and plain terrain, the mean service life of the engine and transmission system is 8000 hours of work.

This number of hours is valid on condition of the following distribution of tractor work:

Ploughing and pre-sowing soil treatment	15 - 25 %
Sowing and planting	10 - 15 %
Harvest work	10 - 20 %
Farming transport	40 - 65 %

If the tractor works in mountainous and sub-mountainous regions, the service life of the engine and transmission system is reduced by 15-20%.

If the tractor works under worsened climatic conditions, the service life of the engine and transmission system is reduced by 15-20%.

Note: The transmission system includes the front driving axle.

TECHNICAL MAINTENANCE OF 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.

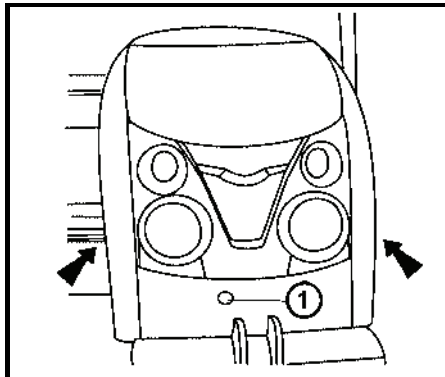
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The driver or user of the tractor can do most of the planned maintenance work by himself. However, if you do not have sufficient technical equipment, entrust the execution of more complicated tasks to a specialized workshop.



All the work related to the cleaning, lubrication and adjustment of the tractor or attached implements may only be performed after stopping of the engine and other movable parts except the brake control, charging and hydraulic system.



G701

OPENING THE HOOD

Opening the hood:

Release the hood by pressing the button (1), grasp it in the places of arrows and lift it. Thanks to a gas brace the hood will open automatically after that.

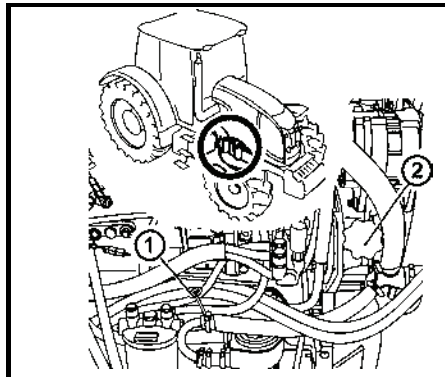
The hood is locked in this lifted position thanks to this gas-liquid brace.

Closing the hood:

Pull the hood down with the strap, grasp it in the place of arrows and press it downwards until the hood lock snaps.



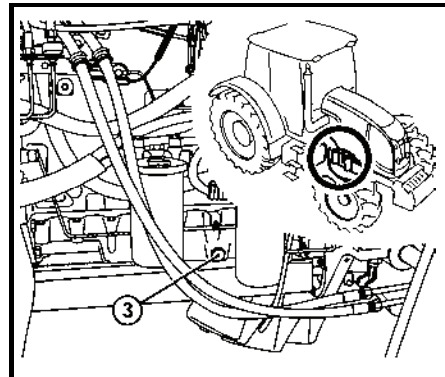
Do not use excessive force to close the front hood as the filaments of headlight bulbs situated in the front hood might get damaged.



X903

CHECKING THE OIL LEVEL IN THE ENGINE

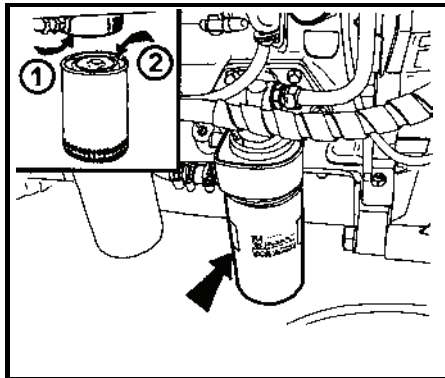
Check the oil level daily before starting work with the tractor in the horizontal position. The engine oil dipstick (1) and the filling opening (2) are situated at the right-hand side of the engine. Unscrew the dipstick (1), wipe it with a piece of cloth and screw it back in. After repeated removal of the dipstick the oil level must not drop below the lower mark. Replenish oil as necessary through the filling opening.



X902

DRAINING OIL FROM THE ENGINE

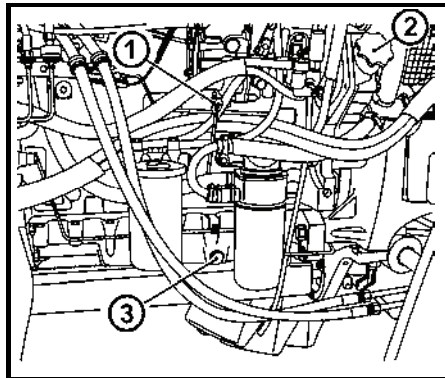
1. Unscrew the drain plug (1), best immediately after a drive or after heating the engine to the working temperature.
2. Drain oil.
3. Clean the drain plug.
4. Replace the drain plug (1).



E704

REPLACING THE FULL-FLOW ENGINE OIL CLEANER

The cleaner is replaced at every engine oil replacement. Before installing the new cleaner clean the sealing surface of the housing (1) and the cleaner (2). Coat the rubber sealing with oil that you will fill the engine with and tighten the cleaner by hand. When the sealing gets in contact with the block sealing, tighten the cleaner again by $\frac{3}{4}$ to $1 \frac{1}{4}$ turns. Check the cleaner for possible leaks after starting the engine.

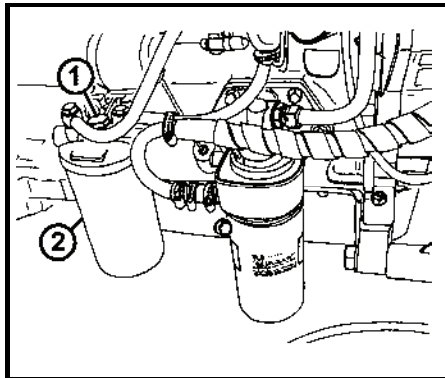


E705

FILLING THE ENGINE WITH OIL

Pour the prescribed quantity of engine oil into the filling opening (2), start the engine and let it run for 2 - 3 minutes at 750 - 800 rpm.

After stopping of the engine and level stabilization use the dipstick (1) to check the oil level and check the cleaner, drain plug (3) and other joints for leaks.



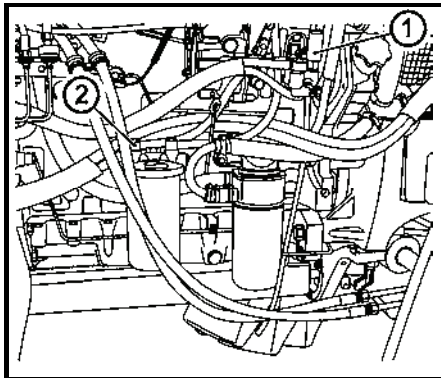
E706

REPLACING THE FUEL FILTER ELEMENT



Before replacing the fuel filter element place a suitable container under the engine to collect dripping fuel from the filter.

1. Release the nut (1).
2. Unscrew the bowl (2).
3. Clean the bowl and replace the filter element.
4. Check proper seating of the bowl sealing.
5. Replace the bowl.
6. Bleed the fuel system.



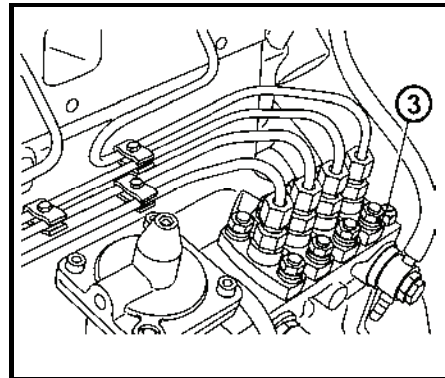
E707

BLEEDING THE FUEL SYSTEM

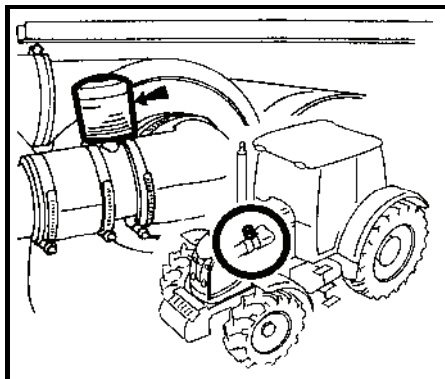


Before bleeding place a suitable container under the engine to collect dripping fuel from the filter and injection pump.

1. Prime the fuel system with several strokes of the manual control of the priming pump (1).
2. Release the screw (2) of the fitting of the fuel inlet to the filter and let the foam escape.
3. Retighten the screw and repeat the procedure until after releasing of the screw clear fuel start to continuously flow from the filter.
4. Bleed the injection pump in the same way.
5. Do the bleeding with the screw (3) positioned on the pump body.



E708

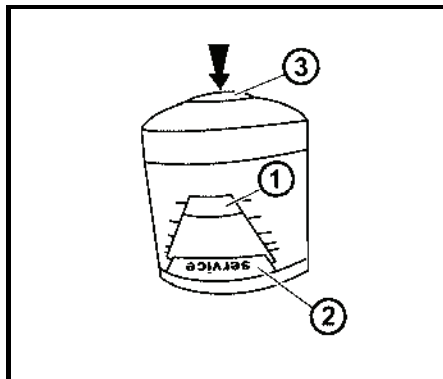


G710b

MAINTENANCE OF THE DRY AIR CLEANER - CLOGGING INDICATOR

Maintenance of the air cleaner must be performed after the signal of the clogging indicator.

The indicator is accessible after lifting of the tractor hood. It is situated at the left-hand side of the air cleaner near the suction pipe elbow.



G711

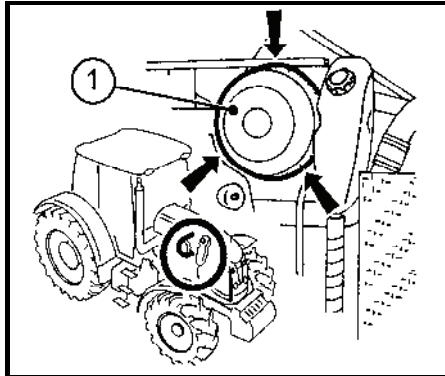
FUNCTION OF THE CLOGGING INDICATOR

The clogging condition of the filter is indicated by the position of the runner (1) in the indicator window. When the runner (1) gets to the red field marked **service** (2), maintenance of the dry air cleaner must be performed.



After the maintenance of the dry air cleaner ensure proper functioning of the clogging indicator again.

Press the cap of the indicator body (3) in the arrow direction to unlock the clogging indication runner (1), which will return to the initial position. The functionality of the indicator has been restored this way.

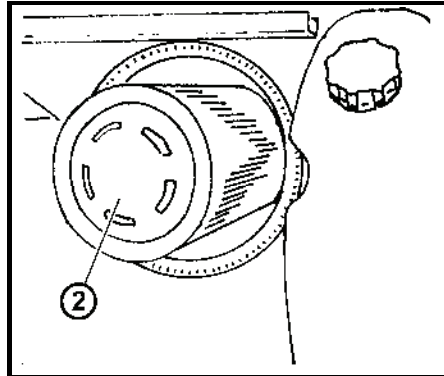


X712

DRY AIR CLEANER MAINTENANCE INSTRUCTIONS

Perform maintenance of the air cleaner in the following way:

1. Lift the front hood.
2. Release the clamps of the air cleaner lid (marked with arrows).
3. Remove the air cleaner lid (1).



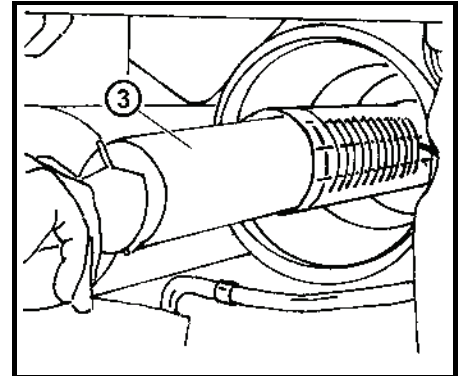
G713

RECOVERY OF THE MAIN AIR CLEANER ELEMENT

- Remove the main element of the dry cleaner (2) by pulling.

If the main element is not damaged (there must not be any dust on the inner side of the element), recover it by blowing pressurized air from the inner side of the element.

This way you can recover the main element 3 times at the most. The element must be replaced once a year.



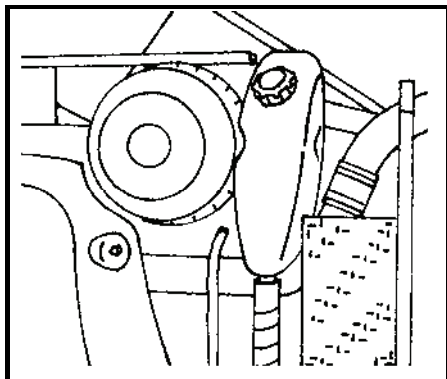
QQQ_G714

REPLACING THE SAFETY ELEMENT OF THE AIR CLEANER

- Remove the safety element of the dry cleaner (3) by pulling.

! *The safety element cannot be recovered. It must always be replaced in these cases.*

- If the main element is damaged.
- After performing maintenance of the air cleaner 5 times.
- At least once every two years.



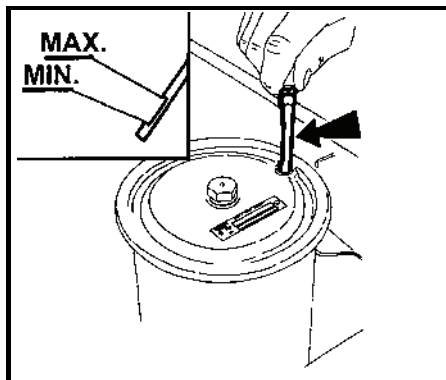
G715

REASSEMBLY OF THE AIR CLEANER ELEMENTS

When reassembling the air cleaner elements proceed in the reverse order.

Observe the following points during the element reassembly:

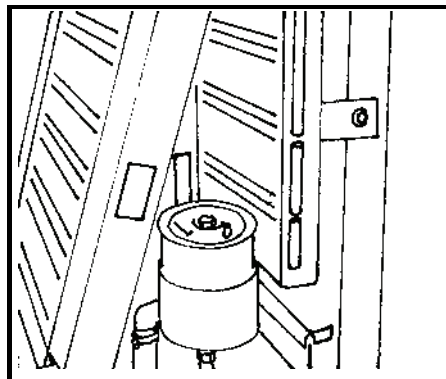
- Make sure the contact surfaces are clean.
- During the assembly the elements must not get deformed and after installation they must not vibrate.
- After closing of the cleaner with the lid the whole cleaner must be perfectly leak-proof.
- After the maintenance of the dry air cleaner ensure proper functioning of the clogging indicator again.



E719

CHECKING THE OIL LEVEL IN THE HYDROSTATIC STEERING TANK

Check the oil level daily before starting work with the tractor in the horizontal position. Open the hood. Unscrew the dipstick, wipe it with a piece of cloth and screw it back in. After repeated removal of the dipstick the oil level must not drop below the lower mark. Replenish oil as necessary after removing the tank cap.



G750

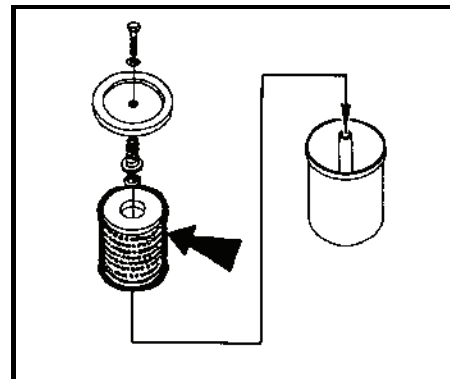
REPLACING OIL AND THE FILTER ELEMENT OF HYDROSTATIC STEERING



1. Place a suitable container under the hydrostatic steering tank.
2. Unscrew the drain screw in the tank bottom.
3. Drain oil.
4. Unscrew the nut of the tank cap.
5. Remove the cap of the hydrostatic steering tank.
6. Remove and replace the filter element.
7. Put the tank cap back.
8. Secure its position with the nut.
9. Tighten the drain screw.



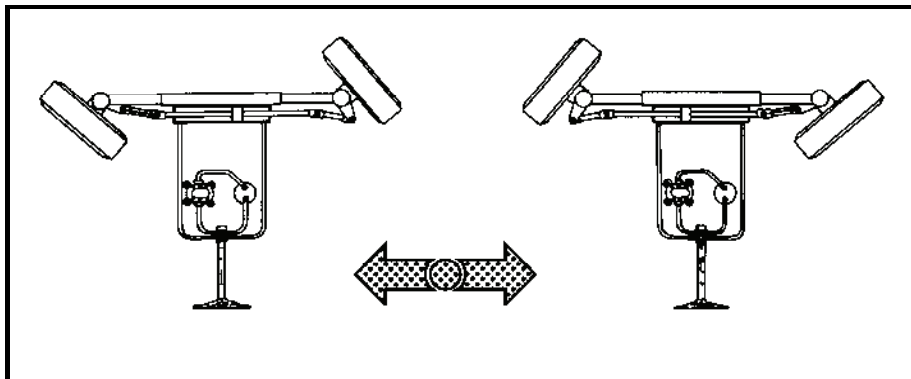
10. Disconnect both the hoses from the working cylinder and the return pipe from the tank



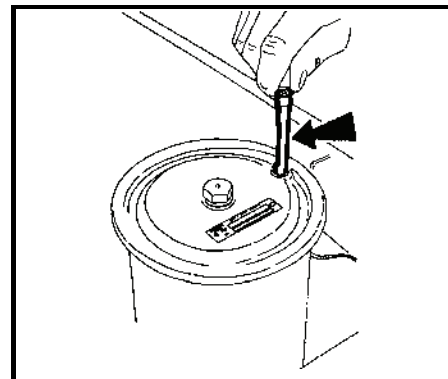
E721

(place a suitable container under the working cylinder hoses and the return pipe to collect old oil).

11. Start the engine and at the idle speed (max. 10 s) turn the steering wheel 2-3 times to both sides to push oil out of the steering unit and the pipes.
12. Secure the tractor against movement and lift the front axle.
13. Place an oil collection container under the working cylinder and by turning the wheels (by hand) push oil out of the working cylinder.
14. Reassemble all the disconnected joints.
15. Fill the tank with oil and bleed the hydrostatic steering circuit.



E722



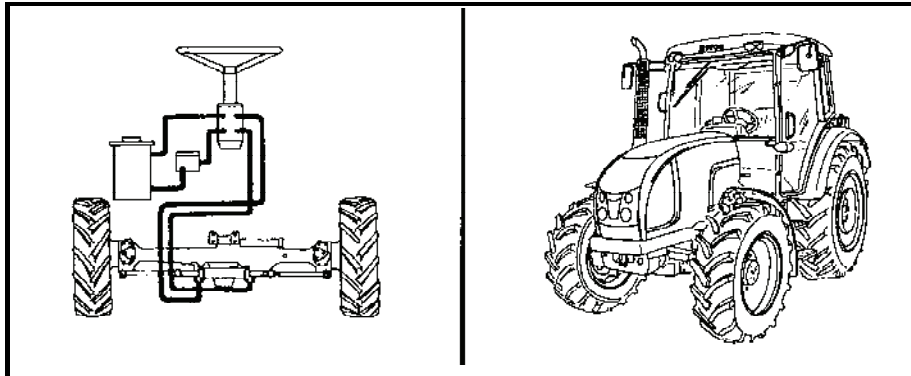
E723

BLEEDING THE HYDRAULIC CIRCUIT OF HYDROSTATIC STEERING

1. Secure the tractor against movement and lift the front axle.
2. Start the engine and let it run at the idle speed for approx. 1 minute.
3. Turn the steering wheel to both the sides at the idle speed of the engine.
4. At the maximum engine speed turn the wheels with the steering wheel 3 times alternately slowly and quickly to both the sides up to the limiting stops of the wheels.
5. Stop the engine.
6. After the end of bleeding check or replenish the oil level to the dipstick mark. Check all the joints and pipes of the hydraulic circuit of the hydrostatic steering for leaks.
7. Lower the tractor on the front wheels.



During all the steps of bleeding of the hydrostatic steering observe the oil level in the tank to avoid aspiration of air to the steering system.



G719

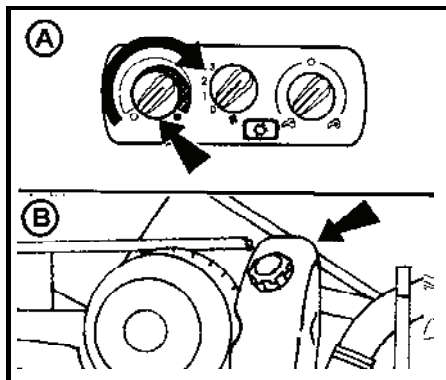
REPLACING THE HYDROSTATIC STEERING HOSES

The hoses must be replaced after four years from the production date (the date is indicated on their surface) or after 3600 hours of work of the tractor or immediately after discovering signs of their damage (hose sweating, local buckling, leaks of the working media around the end pieces and on the hose surface, abrasion of the hose surface to the metallic reinforcement).

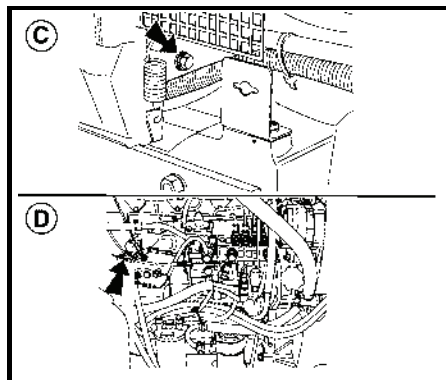


In case of a pump failure or after stopping of the engine the steering capability is maintained, but the required steering force gets higher. You can drive the tractor at a reduced speed to the nearest workshop.

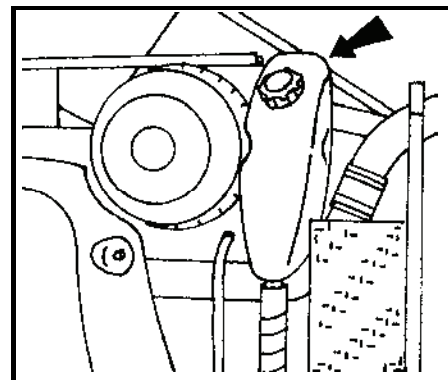
The steering wheel must not be held in the limit turning angle positions for a long time (the maximum time is 20 s); otherwise the oil in the hydrostatic steering circuit is heated up excessively.



G725



E726



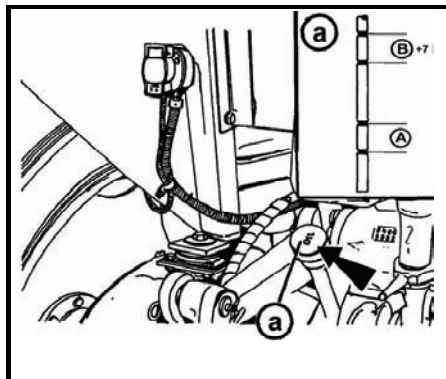
G716

COOLANT REPLACEMENT

Proceed as follows:

1. Open the heating valve (A) and release the overpressure plug on the compensation tank (B).
2. Drain the coolant from the cooler (C). The drain screw is accessible after opening of the hood.
3. Drain the coolant from the engine block (D). The drain valve is accessible after removing of the right shield of the hood.
4. Close the screw and the valve after draining the coolant (leave the heating valve open).
5. Fill the cooling system with an anti-freeze mixture.
6. Start the engine and let it run for approx. 1 min.
7. Add the antifreeze mixture in the compensation tank up to the upper mark with the indication MAX.
8. Close the compensation tank with the overpressure plug.
9. After heating of the engine and opening of the thermostat let the coolant cool down again and replenish it if necessary.

Replace the antifreeze mixture with new mixture after every two years at the latest.



E728

CHECKING AND REPLACING OIL IN THE GEARBOX, FINAL DRIVE HOUSING AND THE REAR AXLE GANTRIES

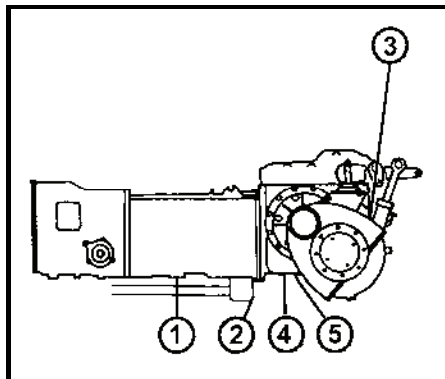
In the transmission system the oil level is checked with the dipstick (a) that is situated on the left rear part of the final drive housing.

A - Standard oil filling

B - Oil filling increased by 7 litres



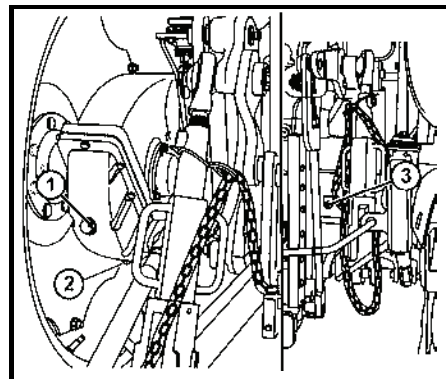
Check the oil level with the engine stopped. The oil level must be between the dipstick marks. If the plug gets damaged or lost, only replace it with a genuine plug, which will ensure bleeding of the final drive housing.



E729

DRAIN AND INSPECTION OPENINGS

1. Drain plug of oil from the transmission system.
2. Drain plug of oil from the line for the front driving axle
3. * Inspection screw of the brake chamber
4. Drain plug of oil from the final drive housing
5. Drain plugs of the right and left brake chamber

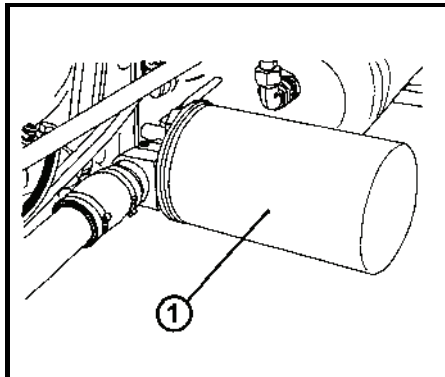


E730

1. * Inspection and filling screw of half-axle case oil (valid for standard gantry setting)
2. Drain plug of oil from the half-axle case
3. * Inspection screw of the brake chamber



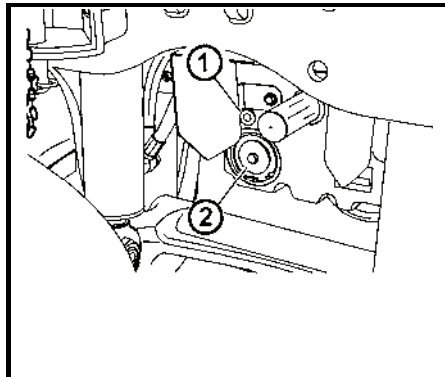
** After unscrewing of the inspection screw the oil level must reach the bottom edge of the inspection opening.*



E731

AFTER OIL DRAINING

1. Replace the cleaner element (1).
2. Check the condition of the sealing rings of the drain plugs; replace them with new ones if necessary.
3. Screw all the drain plugs back on.
4. Fill 60 l of oil.
5. Start the engine and let it run for approx. 2 min.
6. Stop the engine and after stabilization of the oil level in the gearbox add the required oil quantity to reach the specified level.
7. Use the dipstick to check the correct oil level in the gearbox (depending on the type of work performed by the tractor).



F206

FRONT PTO

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

Note: A plug or a hollow bolt is used depending on the version.

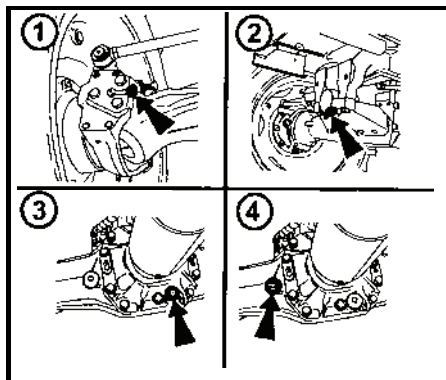
The front PTO with the standard turning direction is equipped with a hollow bolt of the oil cooler hose instead of the inspection and filling plug. Perform the check after removing the hollow bolt.



After unscrewing of the inspection screw 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

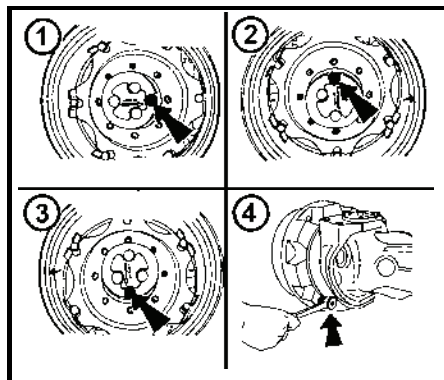
disassembly of the locking ring and removal of the cap.



E733

LUBRICATION AND FILLING POINTS OF THE FRONT DRIVING AXLE

- 1 - Lubricating nipple of the kingpin.
- 2 - Sliding bearings (2 pieces) of the front driving axle
- 3 - Drain opening of the final drive housing 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)

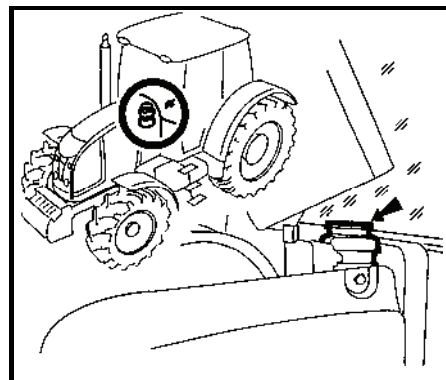


G731

FILLING, INSPECTION AND DRAIN OPENING OF OIL OF THE FRONT WHEEL REDUCERS

Oil is checked, filled and drained through one opening after turning of the reducer in accordance with the figure.

1. Checking the oil level - opening on the horizontal axis of the reducer
2. (after unscrewing of the inspection screw the oil level must reach the bottom edge of the inspection opening).
3. Oil filling - opening at the top
4. Draining oil of unbraked axle - opening at the bottom
5. Draining oil of braked axle - opening at the bottom



G735

BRAKE LIQUID REPLENISHMENT

The tank is installed at the left-hand side of the tractor in front of the cab and it is accessible after lifting of the front hood and lifting of the wing.

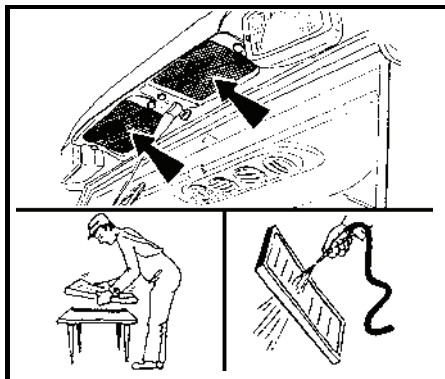
Maintain the brake liquid level in the range of 3/4 of the tank content (max. level) and 1/2 of the tank content (minimum level).



When handling brake liquid, keep absolute cleanness. Check the brake liquid level daily before starting your work.

<https://truckmanualshub.com/>

MAINTENANCE INSTRUCTIONS



E730

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

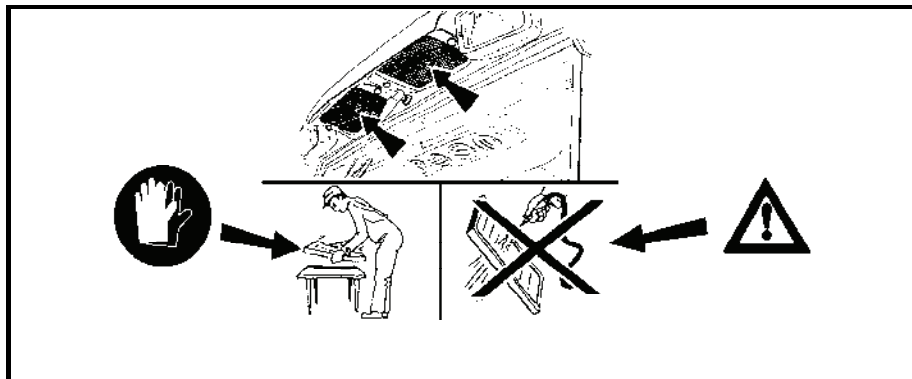
Check the filters for clogging daily. Replace heavily clogged filters.



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.



E730a

*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 installation instructions are found on the next page. 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”

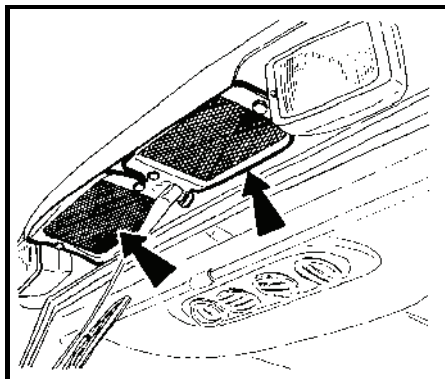
The fan control must be in the “maximum” position.



- **WARNING:** 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.



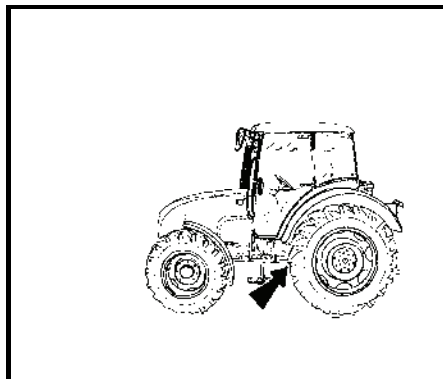
DANGER: Replace the active carbon filter every 200 hours or 36 months (the production date is printed on the filter). If you feel the smell of pesticides in the cab, replace the filter immediately and have the cab sealing checked. Used filters must be disposed of in specialized collection centres.



E13

INSTALLING THE CARBON FILTER

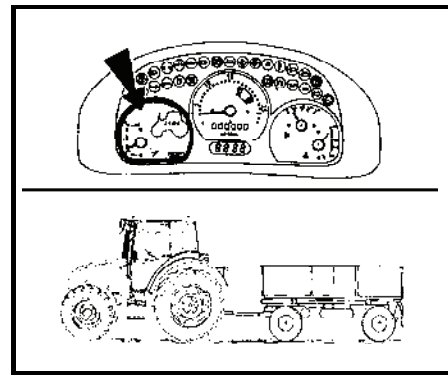
1. Remove the old filter from the air duct orifice in the place of its mounting.
2. Remove the protective package from the new filter.
3. Insert the filter into the air duct orifice in such a way to make the air flow direction correspond to the flow direction through the filter in accordance with the 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.



G731

DRAINING CONDENSATE FROM THE AIR RESERVOIR

Incline the bleeding valve by pulling the ring.
 The valve is located on the bottom part of the air reservoir.



G732

CHECKING THE AIR SYSTEMS FOR LEAKS

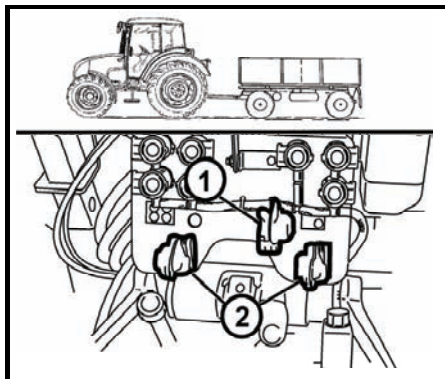
- Fill the air reservoir to the maximum pressure (730 ± 20 kPa).
- With the engine stopped the air pressure must not drop by more than 10 kPa in 10 minutes.

⚠ *Before driving with a trailer or semi-trailer perform the check daily!*

If the pressure in the brake system drops below 450 ± 30 kPa, the corresponding indicator on the dashboard will light up.

<https://truckmanualshub.com/>

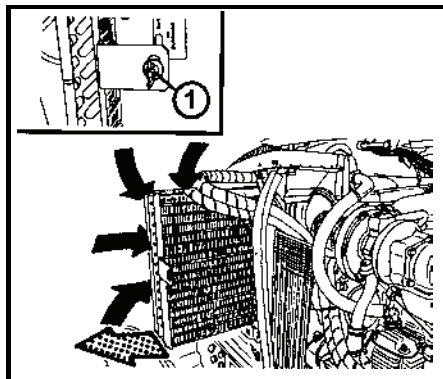
MAINTENANCE INSTRUCTIONS



X227

WORKING PRESSURE OF AIR BRAKES

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



E740

AIR-CONDITIONING MAINTENANCE

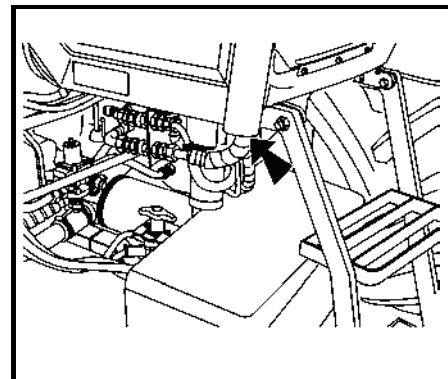


The most important element of maintenance of the air-conditioning system is cleaning the AC condenser (it is installed in front of the engine cooler).

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.

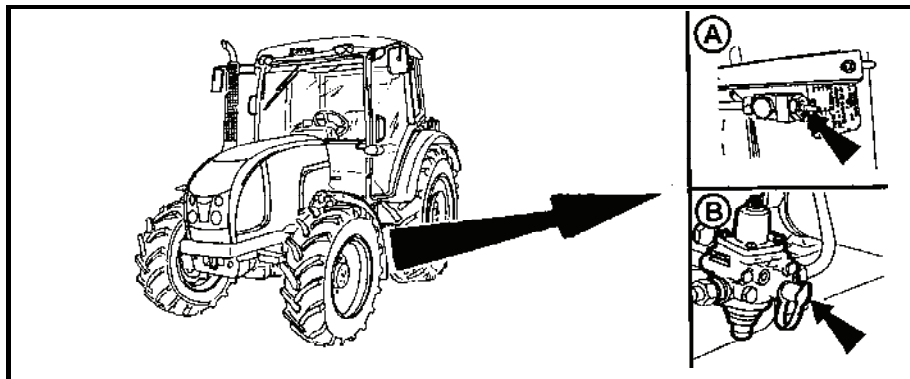
Open the hood, remove the nut (1) and slide the cooler towards the side and clean the condenser with pressurized air or pressurized water (against the driving direction of the tractor).

Then, slide the cooler back and fix it properly. Be careful about the proper routing of hoses to the oil cooler.



E741

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.



G736

MAINTENANCE AND TREATMENT OF TYRES

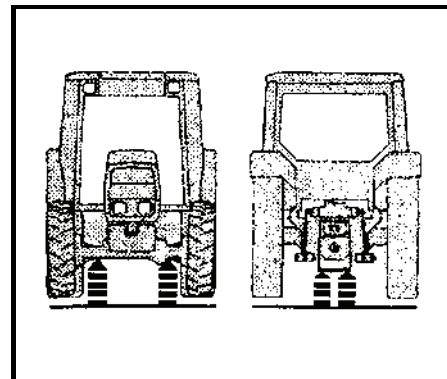
Regularly check the outer surface of tyres and verify whether they are free of defects at the sides and over the bead and whether the reinforcement is not damaged.



Do not use tyres that show a defect any longer.

TYRE INFLATION

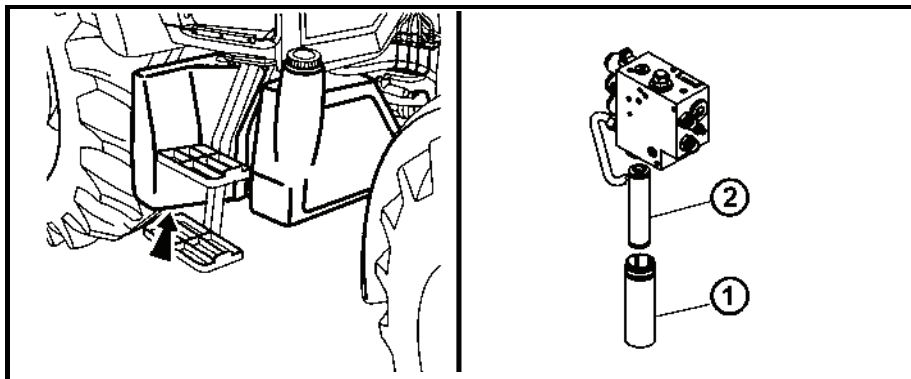
The basic values of recommended inflation are specified in the chapter "Main technical parameters". Regularly check the tyre pressure before driving, when the tyres are cold. To inflate the tyres use the pressure controller (B) that acts as a pressure equalizer, tyre filling device and safety valve. Unscrew the wing nut of the pressure controller (or remove the rubber cap) and screw a tyre inflation hose instead of it. Screw the hose up to the end of the thread to compress the non-return valve. If in the air reservoir there is the maximum pressure of 0.6 MPa (or 0.7 MPa in the case of double-hose brakes), the tyre 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 screw the wing nut back onto the pressure controller (or return the rubber cap).



E743

STORING THE TRACTOR

When the tractor is put out of operation for a longer time (storage), support the tractor and reduce the pressure in the tyres to the minimum (the wheels must not touch the ground).



G749

GEARBOX DISTRIBUTOR - REPLACING THE OIL CLEANER ELEMENT

The gearbox distributor is positioned at the right side of the tractor behind the fuel tank and the oil cleaner is accessible from the bottom side of the tractor.



Before replacing the oil cleaner element place a suitable container under the tractor to collect dripping oil.

5. Unscrew the cleaner housing (1).
6. Replace the filter element (2).
7. Reassemble the cleaner housing (1).

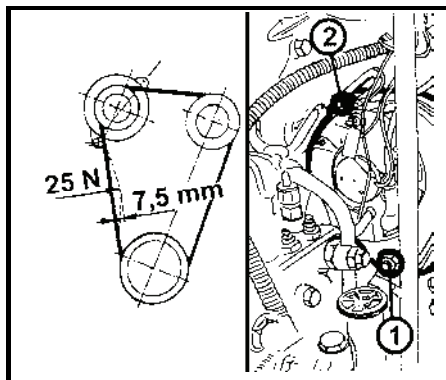
NOTES

ADJUSTMENT

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*Tensioning the V-belt of the AC compressor	166
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Most of the following tasks require certain experience and advanced maintenance and diagnostic equipment. Therefore, we recommend you to entrust this work to specialized or authorized workshops.

ADJUSTMENT



E751

TENSIONING THE V-BELT

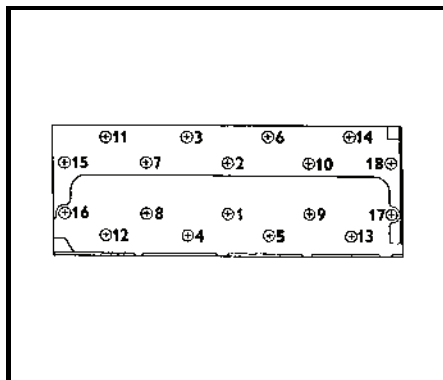
If the V-belt is properly tensioned - its deflection must be 7.5 mm when one belt is subject to the force of 25 N.

Tension the V-belt to the prescribed value after releasing the fixation screws of the alternator (1, 2)

*TENSIONING THE V-BELT OF THE AC COMPRESSOR

If the V-belt is properly tensioned - its deflection must be 7.5 mm when the belt is subject to the force of 25 N.

Tension the V-belt to the prescribed value after releasing the fixation screws of the AC compressor.

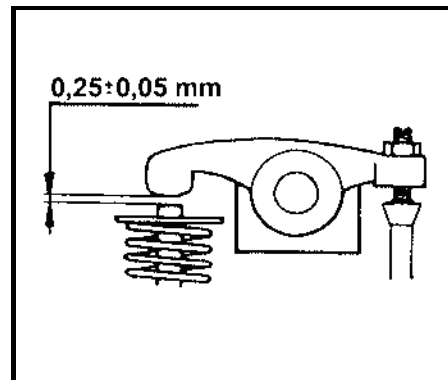


E752

RETIGHTENING THE CYLINDER HEAD

The engine cylinder head is retightened with the cold engine in the prescribed order.

Torque	160 - 180 Nm
Valve clearance	0.25 ± 0.05 mm



E753

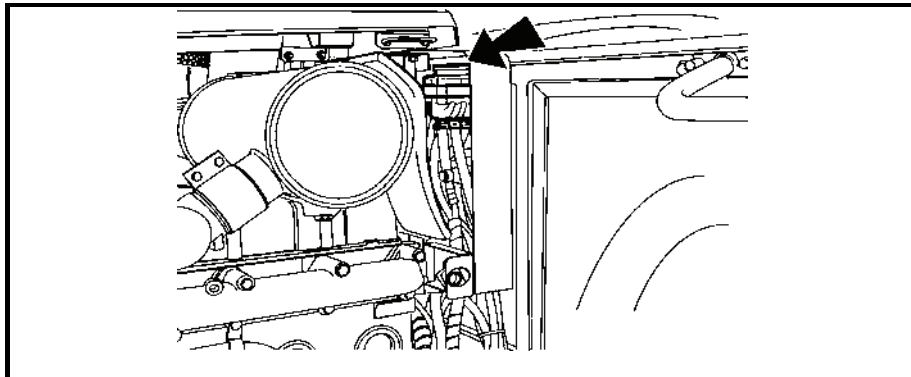
ADJUSTING THE VALVE CLEARANCE

The clearance of the valves is adjusted when the engine is cold. The proper clearance of the suction as well as exhaust valve is 0.25 ± 0.05 mm.

Alternation of the rocker arm movements

On movement of the rocker arm of cylinder no.	the valve of the following cylinder is adjusted
1.	4.
3.	2.
4.	1.
2.	3.

ADJUSTMENT



E756

BLEEDING THE BRAKE SYSTEM OF THE TRACTOR

Always do the bleeding of the brake system of the tractor in the following order:

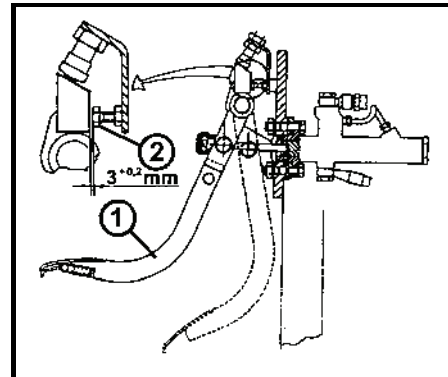
1. Pressure-air brake system for trailers
2. Foot brakes of rear wheels
3. Brake system of the front driving axle
4. Hydraulic brakes of the trailer

Bleed the pressure-air brake system with the brake pedals disconnected, for each wheel separately.

Bleed the brake system of the front driving axle and the hydraulic brakes of the trailer with the brake pedals connected.

During the bleeding observe the liquid level in the equalizing tank to avoid aspiration of air.

After two years you must replace the brake liquid in the whole brake circuit.



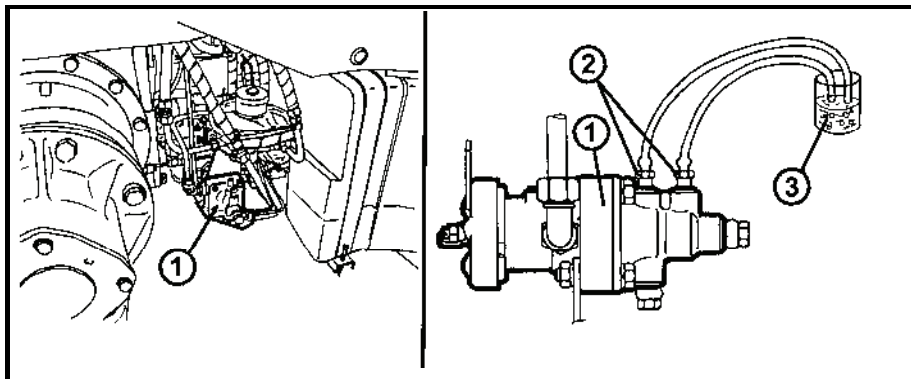
E757

Note:



When bleeding the pressure-air system for trailers and rear wheel brakes you must always depress one pedal (1) by $7.5^{+0.5} \text{ mm}$, measured at the piston rod of the main brake cylinder, which amounts to $3^{+0.2} \text{ mm}$ at the adjustment screw (2) and do the bleeding with the other pedal. To maintain the proper distance insert between the pedal (1) and adjustment screw (2) a gauge with the corresponding thickness, i.e. $3^{+0.2} \text{ mm}$.

ADJUSTMENT



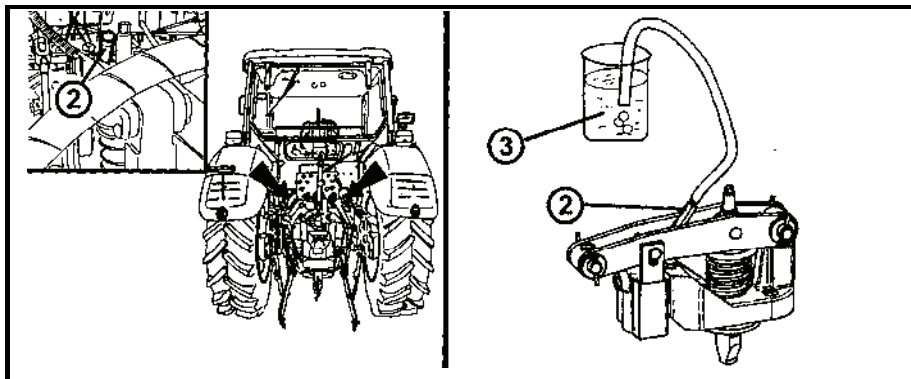
E758

1. BLEEDING THE MAIN BRAKE VALVE FOR TRAILERS

Perform the bleeding at the operation pressure of air in the system of 730 ± 20 kPa in the following way:

1. Fill up the missing volume of brake liquid in the equalizing tank to the maximum quantity.
2. Remove the caps from the bleeding screws (2) of the trailer control valve (1) situated at the right side of the tractor between the tank and the rear half-axle.
3. Slide hoses onto the screws and immerse their other ends to the bottom of a transparent container (3) partly filled with the brake liquid. Place the container at least 300 mm above the bleeding screws. The screws must be permanently under pressure to avoid aeration of the brake system through their threads.
4. Release the bleeding screws by $1/4$ turn at the most.
5. The bleeding procedure is the same as described in the Note (see page 188).
6. Completely depress the pedal that is not blocked with the gauge and tighten the bleeding screw.
7. Release the brake pedal and repeat the procedure until air bubbles stop escaping from the hose.

ADJUSTMENT



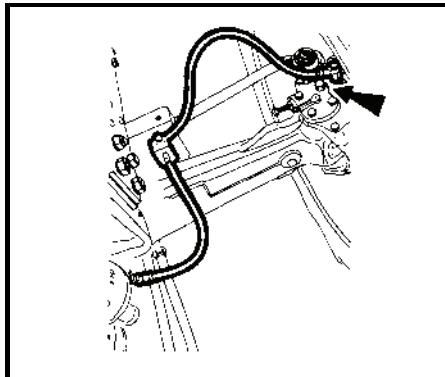
E759

2. BLEEDING THE REAR WHEEL BRAKES

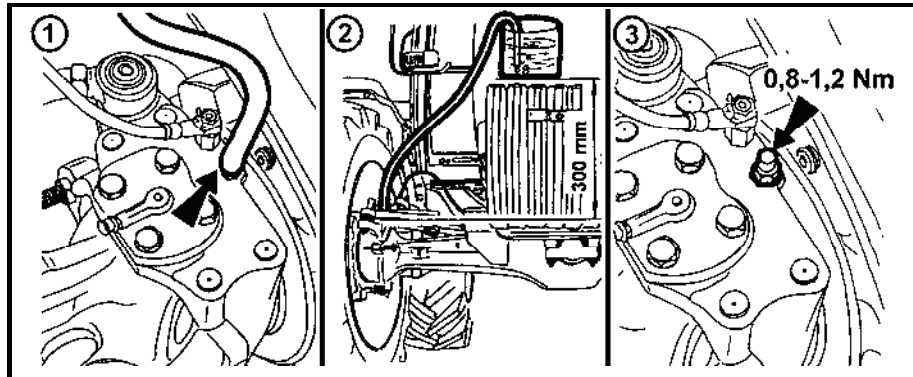
Proceed as follows:

1. Check the brake liquid level in the equalizing tank. If necessary, add new liquid to achieve the maximum level.
2. Slide a hose onto the bleeding screw (2) of the cylinder after removing the spring cap and immerse the other end of the hose to the bottom of a transparent container partly filled with the brake liquid (3). The bleeding screw must be permanently under pressure to avoid aeration of the brake system through its threads. In this step place the container at least 300 mm above the bleeding screw.
3. Release the bleeding screw by 1/4 turn at the most.
4. The bleeding procedure is the same as described in the Note (see page 188).
5. Completely depress the pedal that is not blocked with the gauge and tighten the bleeding screw,
6. Release the brake pedal and repeat the procedure until air bubbles stop escaping from the hose.

ADJUSTMENT



E760



E761

3. BLEEDING THE BRAKE SYSTEM OF THE FRONT DRIVING AXLE

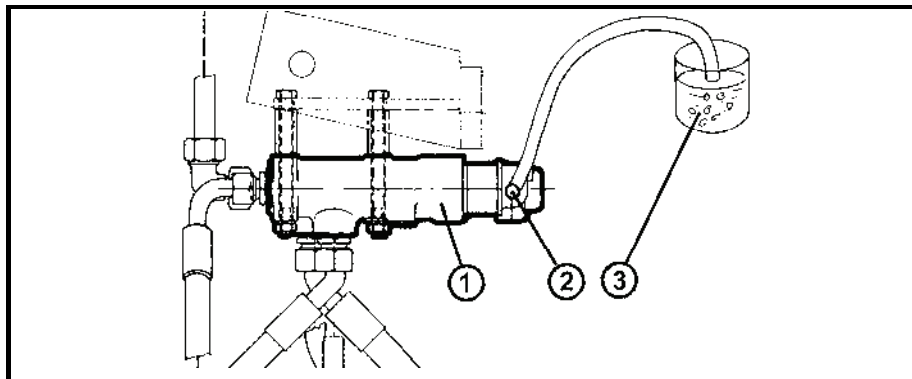
Before the entire bleeding the control valve must be bled in accordance with point 1. **Bleeding of the pressure-air brake system for trailers even in case no air brakes for the trailer are installed.**

Do the bleeding at the operation pressure of air in the system of 730 ± 20 kPa.

Proceed as follows:

1. Check the brake liquid level in the equalizing tank. Add the missing quantity of the brake liquid.
2. Remove the plastic caps from the bleeding screws of the brakes of the front driving axle (the screws are positioned on the upper surfaces of the reducers).
3. Slide hoses (1) onto the screws. Immerse their other end to the bottom of a transparent container partly filled with the brake fluid. Place the container at least 300 mm above the bleeding screws (2). The screws must be permanently under pressure to avoid aeration of the brake system through their threads.
4. Bleed the left and right brakes at the same time.
5. Release the bleeding screws by 1/4 turn at the most.
6. Depress the connected brake pedals to the stop and tighten the bleeding screws.
7. Release the brake pedals and repeat the procedure until air bubbles stop escaping from the hose.
8. After bleeding the brake system of the front driving axle tighten the bleeding screws with the torque of 0.8 - 1.2 Nm (3).

ADJUSTMENT



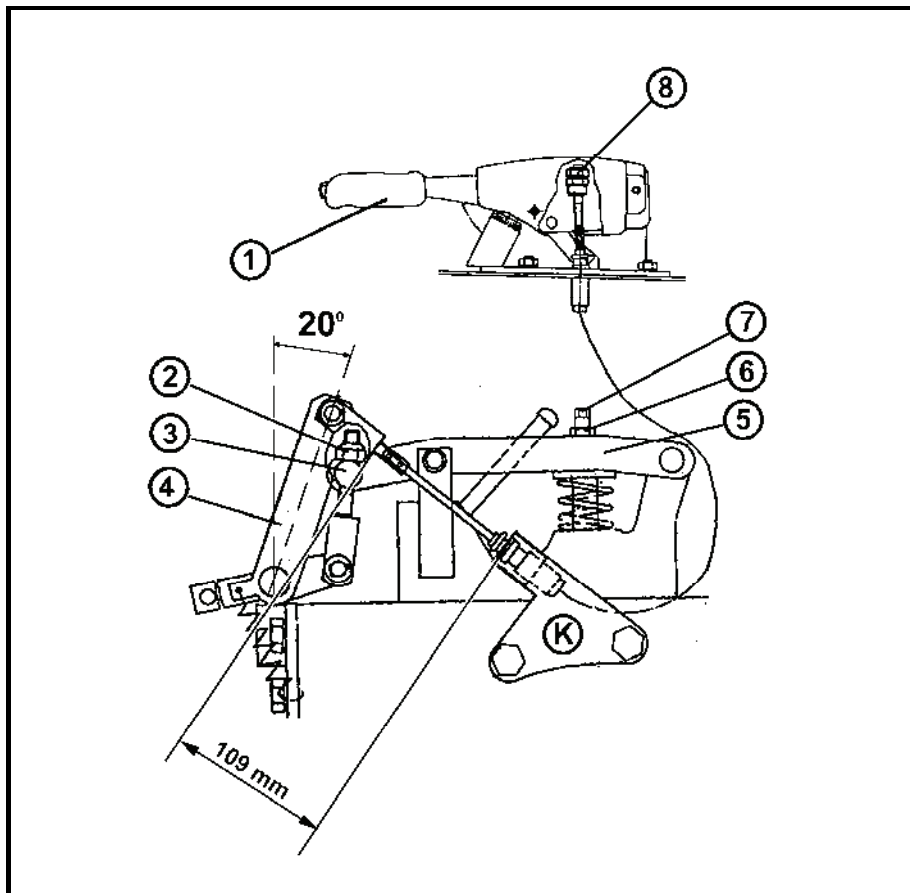
E762

4. BLEEDING THE HYDRAULIC BRAKES OF A TRAILER

Proceed as follows:

1. Fill up the missing volume of brake liquid in the equalizing tank to the maximum quantity.
2. Remove the cap from the bleeding screw (2) of the hydraulic control valve (1) of the trailer positioned on the left front holder of the cab silent-block.
3. Slide a hose onto the screw and immerse its other end to the bottom of a transparent container (3) partly filled with the brake liquid. Place the container at least 300 mm above the bleeding screw. The screw must be permanently under pressure to avoid aeration of the brake system through its thread.
4. Release the bleeding screw by 1/4 turn at the most.
5. Depress the connected brake pedals to the stop and tighten the bleeding screws.
6. Release the brake pedals and repeat the procedure until air bubbles stop escaping from the hose.

ADJUSTMENT



CHECK AND ADJUSTMENT OF THE FOOT AND PARKING BRAKE

Perform the adjustment in this sequence:

1. Foot brake adjustment
2. Parking brake adjustment

No other sequence is possible. Likewise, it is not possible to adjust the foot or parking brake only. The adjustment steps are interrelated.

FOOT BRAKE ADJUSTMENT



Secure the tractor against movement!

1. Lift the rear wheels of the tractor.
2. Release the nuts (2), nuts (6) and nuts (8).
3. Release the screw (7).
4. Instruct your assistant to turn the wheel and at the same time tighten the screw (7) until the wheel starts to be braked.
5. Release the screw (7) by 5/6 turn, check whether the wheel rotates freely and secure the screw (7) with the nut (6).
6. The adjustment procedure is the same at the right as well as left side of the tractor.

E763

ADJUSTMENT

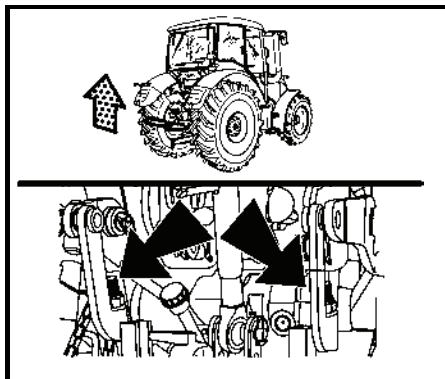
If after the above mentioned adjustment braking asymmetry between the right and left side occurs, it will be necessary to release the adjustment screw (7) of the brake that brakes with a higher force until the braking effect of the right and left wheel equalizes; however, the screw may only be released by 1/2 turn at the most. If even after this readjustment the braking asymmetry is not remedied, the tractor brakes will have to be adjusted in an authorized repair shop.

PARKING BRAKE ADJUSTMENT

1. Set the lever (4) to make the distance between the console (K) and the front of the fork on the lever (4) 109 mm (the lever (4) should make the angle of 20° with the vertical plane).
2. Screw the nut (2) on the seating surface of the pin (3) without a play and pre-stressing - the arms (5) must not get depressed.
3. The adjustment procedure is the same at the right as well as left side of the tractor.
4. Use the nuts (8) to adjust the Bowden cable of the parking brake lever in such a way that with the 20° angle of the lever maintained the parking brake lever should be without any play.
5. Lift and lower the parking brake lever (1) several times to remove possible mutual plays between its parts.
6. Check the setting of the parking brakes system; if necessary adapt the adjustment and check the tightening of all the locking nuts (6), (8).

If after the above mentioned adjustment any asymmetry of the parking brake effect between the right and left side occurs, it will be necessary to release the adjustment nut (2) of the brake with a higher braking effect until the braking effects of the right and left brake equalize; however, it is permissible to release the nut (2) by 1.5 turns at the most. If even after this readjustment the braking asymmetry is not remedied, the tractor brakes will have to be adjusted in an authorized repair shop.

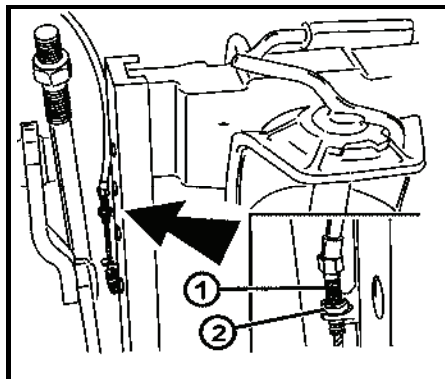
ADJUSTMENT



E766

ADJUSTING THE HITCH FOR A SINGLE-AXLE SEMI-TRAILER

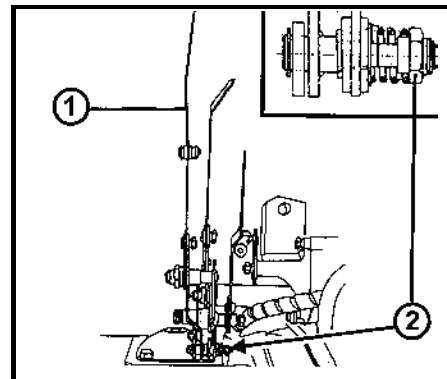
1. Raise the hydraulic arms to the upper - transport position with the position control (P) selected.
2. Screw the nuts on the adjustable draw-bars towards the guiding pipe without any play.
3. Tighten the nuts by another 3.5 turns.
4. Check whether it is possible to tilt off the supporting hooks freely.
5. By lowering and repeated lifting of the hydraulic arms to the transport position check whether the engine does not tend to "stall" at the idle speed - the relief valve of the hydraulic pump must not be in operation.
6. Then, lower the arms slightly.



G767

ADJUSTING THE BOWDEN CABLE

The hitch is in the working position. The Bowden cable must be tensioned to avoid any play of the control lever in the cab. If its tensioning is not sufficient, ensure its tensioning by tightening or releasing of the set screw (1). After the end of the adjustment secure the set screw with a locking nut (2).

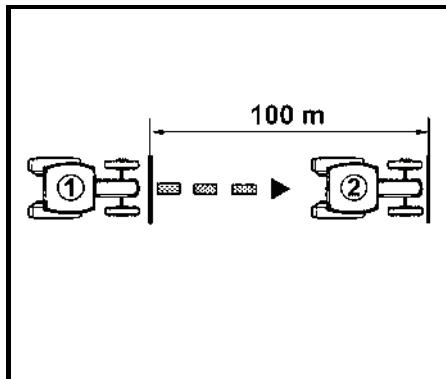


E768

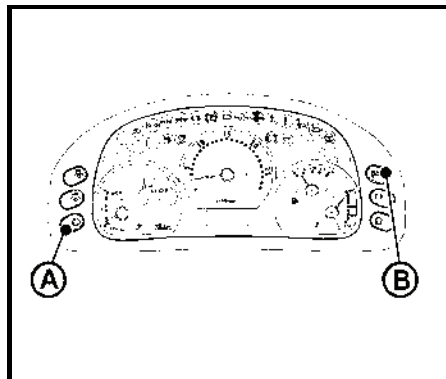
ADJUSTING THE CONTROL FORCE OF THE INNER HYDRAULIC CIRCUIT LEVER

Adjust the friction force of the inner hydraulic circuit lever (1) by tightening the nut (2) in such a way as to avoid spontaneous dropping of the inner hydraulic circuit lever in any position of this lever at the selected power control system.

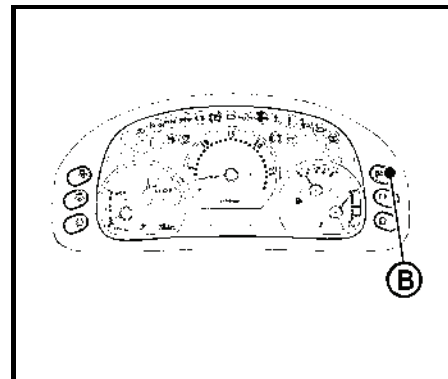
ADJUSTMENT



E769



E770



E771

CALIBRATION OF THE TRAVELLING SPEED OF THE DIGITAL DASHBOARD

After the assembly in the production plant the dashboard is calibrated.
Perform repeated calibration:

- In case of a considerable wear of the tyres
- When installing new tyres
- When replacing the dashboard.

CALIBRATION SEQUENCE

- In a suitable area mark a 100 m long track.
- Inflate the tractor tyres to the prescribed pressure, see the tables of this Manual.
- Start the engine.
- Drive the tractor to the beginning of the 100m track.

- Simultaneously press the button **(A)** and button **(B)**. Hold the buttons depressed for 7 s. The dashboard is switched over to the calibration mode. **“Start”** will start flashing on the display.
- Press the button **(B)**. **“Stop”** will start flashing on the display.
- Drive the tractor at a steady speed of approx. 10 km/h.
- The display will show the number of impulses detected by the travelling sensor.
- After covering the whole distance of 100 m stop the tractor at the marked end of the track (see fig. 0769).

- Press the button **(B)**. This way you will save the number of impulses detected by the travelling sensor in the memory. The dashboard is calibrated and ready for operation.

NOTES

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MAIN TECHNICAL PARAMETERS

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MAIN TECHNICAL PARAMETERS

MAIN DIMENSIONS OF THE TRACTOR (MM)		
		Note
Outline length with hitches with the front three-point hitch lowered	4708	without ballast weights
Outline length with hitches without the front three-point hitch	4067	without ballast weights
Width over the rear fenders	1890	
Height to the exhaust outlet	2694 - 2780	depending on tyre dimensions
Tractor height to the upper cab edge	2639 - 2725	depending on tyre dimensions
Inner height under the front axle support	468 - 508	depending on tyre dimensions
Height of the mouth of the stage hitch in the top position (mouth centre)	1012 - 1098	depending on tyre dimensions
Height of the rear PTO	760 - 845	depending on tyre dimensions
Height of the front PTO	636 - 806	depending on tyre dimensions
Wheel base	2442	

MAIN TECHNICAL PARAMETERS

TECHNICAL DATA OF TRACTOR ENGINES					
Tractor type		Z 85	Z 95	Z 105	Z 115
Engine type		1205	1005	1305	1405
Engine kind		diesel, four-stroke with direct fuel injection, turbocharged			
Engine design		in-line, vertical, water cooled			
Number of cylinders		4	4	4	4
Displacement	cm ³	4156	4156	4156	4156
Bore x stroke	mm	105x120	105x120	105x120	105x120
Nominal speed	rpm	2200	2200	2200	2200
Injection sequence		1-3-4-2	1-3-4-2	1-3-4-2	1-3-4-2
Compression ratio		17	17	17	17
Max. overspeed	rpm	2460	2460	2460	2460
Idle speed	rpm	800±25	800±25	800±25	800±25
Net output at the nominal speed, measured in accordance with ISO 2288	kW	60	66	74	81
Specific fuel consumption at the rated power	g.kW ⁻¹ .h ⁻¹	258	255	252	264
Max. torque (Mt) at 1480 rpm	Nm	361	391	440	480
Inclination Mt	%	38,6	36,5	37	36,5
Net output (Mt) at 1480 rpm	kW	55,9	60,6	68,2	74,4
Specific fuel consumption at 1480 rpm	g.kW ⁻¹ .h ⁻¹	222	218	218	226
Engine lubrication		Pressure type with a gear pump			
Maximum consumption of oil after 10 hours of engine running-in	g.kW ⁻¹ .h ⁻¹	0.7	0.7	0.7	0.7
Oil pressure at the nominal engine speed and the oil temperature of 80°C	MPa	0.2 - 0.5	0.2 - 0.5	0.2 - 0.5	0.2 - 0.5

MAIN TECHNICAL PARAMETERS

TECHNICAL DATA OF TRACTOR ENGINES					
Engine type		1205	1005	1305	1405
Minimum oil pressure at the engine speed of 800 rpm and oil temperature of 80°C	MPa	0,05	0,05	0,05	0,05
Max. coolant temperature	°C	106			
Timing type		OHV			
Oil cleaner		Full-flow, single-use type			
Fuel cleaner		Single-stage with a replaceable element			
Injection pump type		PP 4M 10P1i 3780	PP 4M 10P1i 3775	PP 4M 10P1i 3776	PP 4M 10P1i 3767
Nozzle type		DOP150S428-4104	DOP150S428-4104	DOP150S428-4104	DOP150S526-4150
Injector opening pressure	MPa	25-0,8			
Timing angle	°	12			9
Valve clearance with the engine cold					
– suction	mm	0,25±0,05			
– exhaust	mm	0,25±0,05			

MAIN TECHNICAL PARAMETERS

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MAX. PERMISSIBLE LOAD OF THE FRONT AXLE CARRARO 20.16 (KG)

Travelling speed km/h	Wheel base (mm)				
	1525	1610 - 1620	1680 - 1690	1760 - 1770	1825 - 1835
8	4000 (4500*)	4000(4500*)	4000(4500*)	3800	3600
20	3000	3000	3000	2800	2600
30	3000	3000	3000	2800	2600
40	2500	2500	2500	2500	2500

Note:

The load only refers to the entire axle; the maximum permissible load with regard to the tyres is specified in the table "Load capacity of the front tyres".

(*) The value refers to a front loader

MAXIMUM PERMISSIBLE LOAD OF THE REAR AXLE (KG)

Travelling speed km/h	Wheel base (mm)						
	1350	1425	1500	1575	1650	1725	1800
8	5500	5500	5500	5500	5500	5200	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 only refers to the entire axle; the maximum permissible load with regard to the tyres is specified in the table "Load capacity of the rear tyres".

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MAIN TECHNICAL PARAMETERS

MAXIMUM PERMISSIBLE WEIGHT OF THE "TRACTOR + MACHINE" SET (KG)

Travelling speed (km/h)	Maximum weight of the set
8	7500
20	7000
30	6600
40	6000

STEERING CONTROL CONDITION

Travelling speed (km/h)	Load of the front axle of the tractor out of the total weight of the tractor + attached implement (%)
max. 40	min. 20
max. 20	min. 18 (set exceeding 4.5 t)
max. 20	min. 19 (set below 4.5 t)

MAIN TECHNICAL PARAMETERS

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LOAD CAPACITY OF THE FRONT TYRES												
Tyre dimensions	Travelling speed											
	40 km.h ⁻¹			30 km.h ⁻¹			20 km.h ⁻¹			8 km.h ⁻¹		
	Tyre loading (kg)		Inflation (kPa)	Tyre loading (kg)		Inflation (kPa)	Tyre loading (kg)		Inflation (kPa)	Tyre loading (kg)		Inflation (kPa)
	1 tyre	Axle		1 tyre	Axle		1 tyre	Axle		1 tyre	Axle	
11,2-24	1000	2000	240	1250	2500	240	1500	3000	240	1750	3500	240
11,2R24	1215	2430	160	1300	2600	160	1300	2600	160	1560	3120	160
320/70R24	1250	2500	160	1340	2680	160	1340	2680	160	1600	3200	160
12,4-24	1120	2240	230	1400	2800	230	1570	3000	200	1960	3920	230
12,4R24	1280	2500	120	1500	3000	150	1500	3000	150	1920	3840	160
13,6R24	1290	2500	100	1630	3000	140	1630	3000	140	2120	4000	160
380/70R24	1310	2500	100	1530	3000	120	1530	3000	120	2120	4000	160

Note: (prepared in accordance with technical parameters of Mitas tyres)

The load capacity values refer to the front wheel track width of 1525 - 1610 mm and comply with the axle capacity.

The inflation values are minimum values adapted to the maximum permissible load capacity of the axles.

During operation on a hard base it is suitable with regard to slippage and abrasion of the tyre to increase the pressure by 30 kPa.

CHANGE OF THE LOAD CAPACITY OF THE FRONT TYRES		
Travelling speed (km/h)	diagonal	radial
8	+ 40	+ 50
20	+ 20	+ 23
30	0	+ 7
40	- 20	0

MAIN TECHNICAL PARAMETERS

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LOAD CAPACITY OF THE REAR TYRES

Tyre dimensions	Travelling speed											
	40 km.h ⁻¹			30 km.h ⁻¹			20 km.h ⁻¹			8 km.h ⁻¹		
	Tyre loading (kg)		Inflation (kPa)	Tyre loading (kg)		Inflation (kPa)	Tyre loading (kg)		Inflation (kPa)	Tyre loading (kg)		Inflation (kPa)
	1 tyre	Axle		1 tyre	Axle		1 tyre	Axle		1 tyre	Axle	
16,9-30 _{8PR}	1850	3700	170	2300	4600	170	2760	5000	170	2885	5500	140
16,9R30	2500	5000	160	2680	5000	160	2680	5000	160	3000	5500	140
480/70R30	2575	5000	160	2530	5000	140	2570	5000	120	2860	5500	100
18,4-30 _{8PR}	1950	3900	140	2430	4860	140	2665	5000	120	3110	5500	120
18,4R30	2545	5000	150	2600	5000	140	2500	5000	110	2750	5500	90
16,9-34 _{8PR}	1950	3900	170	2430	4860	170	2580	5000	140	3010	5500	140
16,9R34	2650	5000	160	2620	5000	140	2620	5000	140	2890	5500	120
480/70R34	2500	5000	140	2550	5000	130	2570	5000	110	2820	5500	90
540/65R34	2540	5000	120	2510	5000	100	2510	5000	100	2790	5500	80
18,4-34 _{8 PR}	2120	4240	140	2650	5000	140	2615	5000	100	3050	5500	100
18,4R34	2600	5000	120	2530	5000	100	2530	5000	100	3070	5500	100
520/70R34	2680	5000	120	2640	5000	100	2640	5000	100	2930	5500	80
600/65R34	2520	5000	80	2700	5000	80	2700	5000	80	2960	5500	60
13,6-36 _{6PR}	1300	2600	160	1615	3230	160	1940	3880	160	2000	4000	140

Note: (prepared in accordance with technical parameters of Mitas tyres) The load capacity values refer to the rear wheel track width of 1500 mm and comply with the axle capacity. The inflation values are minimum values adapted to the maximum permissible load capacity of the axles.

During operation on a hard base it is suitable with regard to slippage and abrasion of the tyre to increase the pressure by 30 kPa.

CHANGE OF THE LOAD CAPACITY OF THE REAR TYRES

Travelling speed (km/h)	diagonal	radial
8	+ 40	+ 50
20	+ 20	+ 23
30	0	+ 7
40	- 20	0

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MAIN TECHNICAL PARAMETERS

PERMITTED COMBINATIONS OF WHEELS FOR TRACTORS			
Front wheels		Rear wheels	
Tyre dimensions	Equivalent	Tyre dimensions	Equivalent
11.2-24	11.2R24	13.6-36	
		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

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MAIN TECHNICAL PARAMETERS

POWER				
Tractor type	Z 85	Z 95	Z 105	Z 115
Engine type	1205	1005	1305	1405
PTO power (kW±2%) - at the nominal engine speed and engaged 1000 rpm of the PTO				
Engine in the running-in stage (until 100 hours)	50	55	62.5	69.5
Engine after the running-in stage (from 100 hours on)	52.5	58	65.5	73

LIFTING FORCE OF THE THREE-POINT HITCH				
Tractor type	Z 85	Z 95	Z 105	Z 115
Engine type	1205	1005	1305	1405
Lifting force at the end of the lower draw-bars of the rear three-point hitch in the whole lifting range at the maximum usable pressure - with one auxiliary cylinder (kN) - with two auxiliary cylinders (kN)	34.4 41.5			
Lifting force at the end of the lower draw-bars of the front three-point hitch in the whole lifting range at the maximum usable pressure (kN)	23			

MAIN TECHNICAL PARAMETERS

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FORWARD TRAVELLING SPEED OF THE TRACTOR - 40 KM/H

Gear	Multiplier stage	Tractor speed in km/h at the nominal engine speed (2200 rpm) and defined dimensions of the rear wheel tyres		Speed of the dependent rear PTO 540/1000 at the nominal engine speed (2200 rpm)		Speed of the dependent rear PTO 540/540E at the nominal engine speed (2200 rpm)	
		16.9 - 34	18.4 - 34	540 rpm	1000 rpm	540 rpm	540E rpm
4 Hi	H	36.0	37.2	712	1 344	1 062	1 344
	M	31.1	32.1	615	1 161	917	1 161
	L	26.9	27.8	532	1 004	794	1 004
3 Hi	H	24.8	25.6	490	926	732	926
	M	21.4	22.1	423	799	631	799
	L	18.5	19.1	366	691	546	691
2 Hi	H	15.5	16.0	307	579	457	579
	M	13.4	13.8	265	500	395	500
	L	11.6	11.9	229	433	342	433
1 Hi	H	10.4	10.8	206	388	307	388
	M	9.01	9.31	178	336	266	336
	L	7.78	8.04	154	290	230	290
4 Lo	H	9.11	9.42	712	1 344	1 062	1 344
	M	7.88	8.14	615	1 161	917	1 161
	L	6.81	7.03	532	1 004	794	1 004
3 Lo	H	6.27	6.48	490	926	732	926
	M	5.42	5.61	423	799	631	799
	L	4.69	4.84	366	691	546	691
2 Lo	H	3.92	4.05	307	579	457	579
	M	3.39	3.51	265	500	395	500
	L	2.93	3.03	229	433	342	433
1 Lo	H	2.64	2.73	206	388	307	388
	M	2.28	2.36	178	336	266	336
	L	1.97	2.04	154	290	230	290

Hi – road speeds, Lo – reduced speeds, H – higher multiplier stage, L – lower multiplier stage

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BACKWARD TRAVELLING SPEED OF THE TRACTOR - 40 KM/H							
Gear	Multiplier stage	Tractor speed in km/h at the nominal engine speed (2200 rpm) and defined dimensions of the rear wheel tyres		Speed of the dependent rear PTO 540/1000 at the nominal engine speed (2200 rpm)		Speed of the dependent rear PTO 540/540E at the nominal engine speed (2200 rpm)	
		16.9 - 34	18.4 -34	540 rpm	1000 rpm	540 rpm	540E rpm
4 Hi	H	38.2	39.5	757	1 430	1 130	1 430
	M	33.1	34.2	656	1 239	979	1 239
	L	28.6	29.5	567	1 070	846	1 070
3 Hi	H	26.3	27.2	521	984	778	984
	M	22.8	23.5	452	853	674	853
	L	19.7	20.3	391	737	583	737
2 Hi	H	16.5	17.0	327	618	488	618
	M	14.2	14.7	282	531	420	531
	L	12.3	12.7	244	460	364	460
1 Hi	H	11.1	11.4	220	415	328	415
	M	9.58	9.90	190	359	283	359
	L	8.28	8.55	164	310	245	310
4 Lo	H	9.69	10.02	757	1 430	1 130	1 430
	M	8.38	8.66	656	1 239	979	1 239
	L	7.24	7.48	567	1 070	846	1 070
3 Lo	H	6.67	6.90	521	984	778	984
	M	5.77	5.96	452	853	674	853
	L	4.98	5.15	391	737	583	737
2 Lo	H	4.17	4.31	327	618	488	618
	M	3.61	3.73	282	531	420	531
	L	3.12	3.22	244	460	364	460
1 Lo	H	2.81	2.90	220	415	328	415
	M	2.43	2.51	190	359	283	359
	L	2.1	2.17	164	310	245	310

Hi – road speeds, Lo – reduced speeds, H – higher multiplier stage, L – lower multiplier stage

<https://truckmanualshub.com/>
MAIN TECHNICAL PARAMETERS

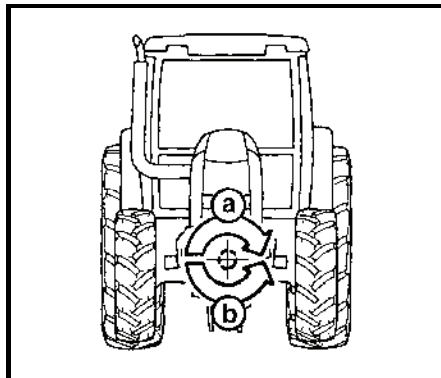
INDEPENDENT REAR PTO SPEED

Indication	Speed	PTO speed / engine speed	PTO speed / engine speed
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 SPEED

Turning direction	PTO speed / engine speed	PTO speed / engine speed
right (a)	1000 / 1920	1146 / 2200
*left (b)	1000 / 2000	1100 / 2200

* – option



E801

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MAIN TECHNICAL PARAMETERS

OUTER OUTLINE AND TRACK TURNING DIAMETER				
Track width	front	1610 mm	Left (mm)	Right (mm)
	rear	1500 mm		
Track diameter (mm)	Without engagement of the front driving axle		11850	11380
	Without engagement of the front driving axle with braking of the inner rear wheel		9880	9650
	With engagement of the front driving axle		12570	12130
	With engagement of the front driving axle with braking of the inner rear wheel		8750	8580
Outline diameter (mm)	Without engagement of the front driving axle		12160	11720
	Without engagement of the front driving axle with braking of the inner rear wheel		10190	9990
	With engagement of the front driving axle		12880	12400
	With engagement of the front driving axle with braking of the inner rear wheel		9060	8920

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