ZETOR
PROXIMA PLUS
Model 2012
90
100
110
2/2012
Operator’s manual
This present operation manual provides information with operation and maintenance of your new tractor the PROXIMA PLUS series 2012.

Despite the fact that many of you have rich experience with operation of other types of tractors, please read this manual carefully to acquaint yourself with its contents as thoroughly as possible.

In the manual, you can find a lot of information how to utilise the best your tractor with various types of work.

When following the given principles of operation and maintenance of the tractor and safety of driving, your tractor will become your reliable partner for many years.

The manufacture of your tractor wishes you thousands hours of satisfying work.

ZETOR
Brno
The operation manual includes description, operation and maintenance of standard accessories of the tractor. The accessory that is not installed by the manufacturer (manufacturing plant) as standard is not covered by the warranty. The service cheque book for tractors is not included in the operation manual; it is a separate brochure that is delivered to you with purchase of a new tractor.

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## TRACTORS PROXIMA PLUS

### TRACTORS WITH FRONT DRIVING AXLE (4 x 4):

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LOCATION OF SERIAL NUMBERS

Tractor type plate

Cabin serial number

Engine serial number

Tractor serial number
LOCATION OF SERIAL NUMBERS

When ordering spare parts and with all written and oral communication use please the data of your tractor that you shall write down to the following frames.

Type of the tractor
Zetor Proxima Plus Z90
Zetor Proxima Plus Z100
Zetor Proxima Plus Z110

Serial number of the tractor

Serial number of the engine

Designation "to the right", "to the left", "in the front", "in the back" is meant in direction of drive of the tractor.
During production, the manufacturer reserves the right to carry out changes in the construction and equipment for the purpose of technical progress.
SAFETY INSTRUCTIONS FOR THE USERS

Pay proper attention to those sections of the operation and maintenance manual that are marked with this symbol.

You can find this symbol with all important warnings that relate to safety of operation.
Follow these warnings and behave with special attention in these cases!
Inform your colleagues and other users about these warnings.

The chapters marked with this symbol should be read thoroughly before any operating, repair or adjustment action on the tractor.

You can find this symbol with all important warnings that relate to operation, adjustments and repairs of the starter.
Follow these warnings and behave with special attention in these cases!

This symbol appears with the parts of the operation manual that relates to protection of the environment.

GENERAL SAFETY REGULATIONS

1. The tractor may only be operated by a trained worker having a valid qualification to drive the tractor and who is acquainted thoroughly with the operational and safety principles.
2. In addition to the warnings relating to safety and given in the operational manual, it is necessary to respect all the generally applicable safety and traffic regulations of the country in which the tractor is used.

PROPER CLOTHING

3. Do not wear loose clothing and free flying long hair.
4. When executing any work, use suitable (prescribed) personal protective means (working shoes, gloves, etc.)

STARTING THE ENGINE

5. Starting of the engine by driving from slopes is not allowed.
6. Make the tractor moving for the purpose of starting the engine using other tractor or another vehicle is permitted only with use of a tow bar.
7. Start the engine only from the driver’s seat with the shifting lever in neutral position and clutch pedal depressed. Danger of death when starting the engine using short-circuited terminals of the starter!
8. The key in the ignition box shall be in position "I".
9. When warming up the engine using an electric heater, first plug in the power supply cord to the heater and then to the mains socket. When the engine is warm, first disconnect the supply cord from the mains socket.

DRIVING

10. Hoses of hydrostatic steering, brakes and fuel system shall be checked regularly and in case that some traces of damage are observed, replace the damaged components. The traces of damage include, for example, cracks, loose pre-stressing of hose connections (this can be verified by easy pulling out the hose from the coupling) and mechanical damages of hoses. The hoses with specified life span shall be replaced immediately after termination of the specified period.
11. When driving with trailers and implements on roads the brake pedals shall be connected by a latch.
12. Brakes and steering shall be always in perfect condition.
13. Driving downhill without shifted any gear is forbidden!
14. Special attention shall be paid to driving a tractor on slopes, muddy, sandy, icy and uneven surfaces.
15. Observe the permitted angle of the gradient accessibility, i.e. max. 12°.
SAFETY INSTRUCTIONS FOR THE USERS

16. Respect the total permitted weight of the vehicle train, given on the type plate of the tractor or mudguard of the rear wheel.
17. When driving through road bends, do not use the differential lock.
18. Getting on and off the moving tractor is forbidden.
19. When driving a tractor with agricultural machines suspended on the front three-point suspension reduce travel speed of the tractor to 15 km.h⁻¹.
20. When driving a tractor with machines suspended in the rear hitch, loading of the steered axle shall not be reduced under 20% of the immediate weight of the vehicle train. In case of travel speed reduced to 20 km/h, loading of the steered axle may be reduced to 19% of the immediate weight of the vehicle train (vehicle train up to 4.5t) and to 18% of the immediate weight (vehicle train over 4.5t).

TRANSPORT OF VEHICLES, OPERATION
21. The tractor may transport only so many people as specified in the MOT certificate of the vehicle.
22. The persons that are not charged to work with the accessories of the tractor may not stay between the tractor and the hitched machined (tools).
23. Before you bring the tractor in motion, check whether an unauthorised person or barrier obstructs your drive.
24. With aggregation of the tractor with machines and tools with great tractive resistance, when speed of the engine decreases and the engine has a tendency to stop, the reduction gears 1R, 2R may not be used to work with these machines.

EXTRICATION, PULLING
25. Ung bars or ropes for extrication of a stuck tractor.

⚠️ Never use chains! A risk of death in case of a chain rupture!

26. When extricating a tractor it is dangerous to stay close the towing rope.
27. A front hook is installed on the frame of the tractor; this hook can only be used for towing of the tractor itself, i.e. without trailer or other additional equipment.
28. Then pushing other vehicles (trailers, etc.) by the tractor never use freely inserted balks or bars between the tractor and the pushed object.

LEAVING THE TRACTOR
29. Do not park the tractor with carried tools in lifted position.
30. Before you leave the tractor, do not forget to brake the tractor using the hand brake, shift a gear and reversing lever move to position for driving forward, remove the key from the ignition box and lock the cabin.
31. Use left side to get out of the tractor. Look around whether some vehicle does not come near to jeopardise your safety when getting out of the vehicle.
32. When getting out of the tractor, use footboards and hold tight to the grab handles. Pay special attention close to the shifting lever and lever of manual regulation of fuel supply.
33. When leaving the tractor with engine running apply the hand brake.

ONLY WITH ENGINE STOPPED
34. All works connected with refilling of fuel, cleaning, lubrication and adjustments of the tractor or suspension machines may only be carried out with engine stopped and stopping of movable parts of the tractor, except check of function of brakes, hydraulics and recharging of the battery.
35. Before removing the bonnet it is always necessary to stop the engine. In closed rooms the engine of the tractor may run only if sufficient ventilation is provided. Exhaust gases are harmful for human health.
SAFETY INSTRUCTIONS FOR THE USERS

PRINCIPLES OF FIRE SAFETY
36. Carry out refilling of fuel with engine stopped.
37. In summer season do not refill fuel tank to its full capacity. Wipe immediately spilled fuel.
38. Do not refill fuel in vicinity of open flame and do not smoke.
39. When inspecting level of electrolyte in the battery, do not smoke and do not use open flame. Pay attention to consistent observation of fire safety instructions in environment of increased risk of fire (haylofts, straw stacks, etc.).
40. In case that the tractor is equipped with a fire extinguisher, have it still available.

PROTECTION OF HEALTH AND THE ENVIRONMENT
41. The tractors are not equipped with any special filters of air supplied to the cabin. Therefore the tractors are not designed for work with aerosols and other harmful substances. Kerosene, diesel oil and other oil products that are used for operation and treatment of the tractor may cause skin diseases with direct contact, show irritation effects to mucous membranes, eyes, digestive and upper respiratory tract. Some of them may cause general poisoning when swallowed.
42. The workers that come into contact with oil products are obliged to observe safety and hygienic directives, use suitable protective means and work in well ventilated rooms.

WHEN WORKING WITH OIL PRODUCTS
43. After end of your work of before taking a food it is necessary to wash the hands thoroughly with a non-irritating washing preparation and use a suitable protective hand cream.
44. When connecting and disconnecting quick-couplings of hydraulic circuits remove, using any textile material, excessive hydraulic oil remaining in the socket or plug of the quick-coupling.

DISPOSAL OF WASTE
46. With disposal of the tractor or its parts (including its operational fluids) after termination of their service life it is necessary to follow the applicable laws and executing notices to the laws of the country in which the tractor is used. Based on the act on waste, when selling the tractor, the final dealer of the tractor is liable to inform the consumer about the way of back taking of some used parts of the tractor. These include oils and other operational fluids, batteries and tyres. Back taking of these used products shall be carried out without any demands for any payment from the consumer for this back taking.

DAILY PREVENTIVE MAINTENANCE
47. Perform this daily or at least every 8-10 working hours of the engine.

SAFETY CABIN
48. In case that the protective frame of the cabin is damaged from corrosion, accident or otherwise, the safety cabin shall be replaced for a new one.

AIR-CONDITIONING
49. In any case do not dismount, change direction or otherwise manipulate with the fitting of the air-conditioning system. This may cause a sudden escape of the cooling medium and fast local cooling. A contact of such component with skin may result in a serious injury.
50. The air-conditioning system is equipped with quick-couplings that allow, if necessary, to separate the cab from the tractor body without any leakage of the cooling medium. Any interventions into the air-conditioning system should be performed by a specialised service shop.
SAFETY INSTRUCTIONS FOR THE USERS

ELECTRIC INSTALLATION

51. No additional modifications of electric installation of the tractor shall be carried out (such as connection of other electric appliances) due to its possible overloading!

52. Values of electric installation:

Nominal voltage  12 V =
Grounded minus ( - ) pole

Use of starting trucks or other auxiliary sources with a different voltage or polarity may cause serious damages to the tractor.

53. When manipulating with the battery pay special attention and avoid short circuits. The tractors are equipped with a battery disconnector that shall be switched off before any manipulation with the battery.

54. The tractors cannot be operated with disconnected battery; this may cause serious damages to the tractor.
DAILY PREVENTIVE MAINTENANCE

Carry out this maintenance every day or at least every 8-10 working hours of the engine.
**TIGHTNESS OF THE FUEL SYSTEM**
Check tightness of the fuel system, including the fuel tank discharge plug. Eliminate immediately all leakages.

**LEVEL OF OIL IN THE ENGINE**
The oil gauge rod can be found on the right side of the engine. After screwing and pulling out the rod, check level of oil in the engine and tightness of connections of the engine lubrication system. Keep level of oil between the gauge rod marks.

**COOLING SYSTEM**
Check tightness of connections of the engine cooling system and level of cooling fluid in the expansion tank. The expansion tank is accessible after opening of the front bonnet. Refill the missing volume up to the upper gauge mark MAX. The minimum permissible level of cooling fluid is at the gauge mark MIN.

⚠️ *Release the overpressure lid after the cooling fluid has cooled down. Risk of scalding!*
DAILY PREVENTIVE MAINTENANCE

FLUID BRAKES
Check tightness of fluid brakes, fluid control of the clutch and level of brake fluid in the expansion tank. The tank can be found on the left side of the tractor, in front of the cabin and is accessible after lifting of the front bonnet.
Keep level of the brake fluid within 3/4 (max.) and 1/2 (min.) of the tank volume.

\[ \text{When manipulating with the brake fluid, keep strictly cleanliness. Check level of brake fluid every day before driving.} \]

AIR BRAKES OF THE TRAILER
Check tightness of the air system of the brakes and effectiveness of brakes of the tractor with a trailer.

HYDRAULIC BRAKES OF THE TRAILER
Check tightness of hydraulic brakes of the trailer and effectiveness of brakes of the tractor with a trailer.

HYDROSTATIC STEERING
Using the oil gauge rod check level of oil in the hydrostatic steering tank that can be found on the left side of the tractor. It is accessible after lifting of the front bonnet.
If necessary, refill oil up to the oil gauge rod mark that defines its correct volume.
Check condition of all hoses of the hydraulic steering circuit for any damage and oil leakage.
Check tightening of bolts and nuts of steering rods and levers.
TYRES AND WHEELS
Check air pressure in the front and rear tyres. According to nature of work, adjust correct pressure. Check and tighten if necessary all screws of the front and read wheels (connection rim/disk and disk/wheel shaft).
⚠️ *Never drive with loose wheel screws!*

AIR CLEANER
Maintenance of the air cleaner shall be carried out after indication of the indicator of clogging.
The indicator is accessible after lifting of the bonnet. It is located close to the inlet pipe elbow.

FILTRATION OF THE CAB
Check and clean if necessary air filters for ventilation of the cab in the front overhang of the roof.
Replacement of filters depends on amount of dust in the working environment.
Partial regeneration can be carried out by dusting of blowing with compressed air.
Carry out cleaning or replacement of filter cartridges after dismounting of cover grilles in the roof overhang.
At the customer’s request we supply filters with active carbon.
⚠️ *Don’t clean the filter; don’t flush it with compressed air.*
DAILY PREVENTIVE MAINTENANCE

SUSPENSION EQUIPMENT
Check condition of suspension and connection equipment including the trailer.

AFTER WORK WITH FRONT-CARRIED MACHINES
After work with front-carried machines:
- Check tightness of connections of the external hydraulic circuit for control of the front three-point suspension.

Clogging of radiators:
1. Tilt up the bonnet.
2. Release and slide out the A/C condenser to the left side of the tractor.
3. Clean the front walls of the engine radiator (A/C condenser) using compressed air (blow air in direction from the engine).
4. Remove remaining dirt from the space under the bonnet (to prevent its re-sucking).

SHORT FUNCTIONAL TEST
After starting the engine check whether the indicator of hydrostatic steering fault, indicator of engine lubrication and indicator of recharging are off.
Check function and tightness of hydraulic steering circuits.
GETTING TO KNOW THE TRACTOR

The user of the tractor shall learn beforehand the recommended procedures and instructions for safe operation of the tractor. It is too late to do it during operation!
## GETTING TO KNOW THE TRACTOR

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SAFETY CABIN

⚠️ Use commonly left side of the tractor for getting in and out the cabin.
Use footboards for getting in and out the cabin and hold tight to the grab bars.
Pay special attention in space of the shifting lever and lever of manual regulation of fuel.

OPENING OF DOORS FROM OUTSIDE

The cabin doors can be locked from the outer side. Doors can be opened after unlocking and pulling the grab bar.

OPENING OF DOORS FROM INSIDE

1. Lever for opening of the door from inside.
2. Lever for opening of the lock from inside.
With full opening the door is held by a gas strut.
⚠️ It is forbidden driving with open door due to its possible damage.
GETTING TO KNOW THE TRACTOR

REAR WINDOW
It is provided with a grab bar and in open position it is held by gas struts.

⚠️ When driving on an uneven surface it is advisable to secure the window in closed position due to danger of a glass break. Before commencement of work with machines carried in the rear three-point suspension make sure if there is no risk of a collision between the carried tool with maximum stroke of the rear three-point suspension and open rear window. In case of a collision it is recommended to work with rear window closed.

SIDE WINDOW
In partly open position it is held by a plastic window handle. The window can be opened by lifting the handle upwards and its pushing to lock it in the groove; this secures the window in a fixed position.

TILTABLE COVER
It can be opened by turning the catch lever of the cover and pushing upwards.

⚠️ Opening of the tiltable cover increases the total height of the tractor. Therefore close the cover always when driving through places with low clearance.
GETTING TO KNOW THE TRACTOR

RIGHT REAR PANEL
The right rear panel includes a storage place for a PET bottle (1), socket 12V (2) and cigarette lighter (3).

WINDOW MIRRORS
Before driving or commencement of work adjust window mirrors to enable observation of whole driving lane or working field.
GETTING TO KNOW THE TRACTOR

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

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

SEAT TILTING
Lift the passenger´s seat in the direction of an arrow (2), pull the lever (3) to the direction of the driver´s seat, tilt the seat in the direction of an arrow (4).
GETTING TO KNOW THE TRACTOR

WASHER NOZZLE
The nozzle is installed on the bonnet in front of the windscreen and adjustable using a needle or steel wire with diameter 0.8mm.

WASHER TANK
The tank is installed on the rear wall of the cabin on the outer side. Volume of the tank is 2.5 litres. In winter season it is necessary to fill it with anti-freeze mixture for windscreen washers.

WASHER ACTIVATION
The key in the ignition box shall be in position II. The windscreen washer can be activated after pressing of the front two-speed wiper on the right column of the cabin. The maximum time of continuous run of the washer pump is 20 s.
GETTING TO KNOW THE TRACTOR

DRIVER’S SEAT MARS SVRATKA

ADJUSTMENT ACCORDING TO THE DRIVER’S WEIGHT
Cushioning of the seat is adjustable for driver’s weight from 50 to 120kg. Adjustment is carried out using a rotary square handle. Indicator of adjustment of the weight can be found in a recess of the seat rear cover. Cushioning stroke is 120mm.

⚠️ Do not adjust during drive!
Risk of an accident!

LONGITUDINAL ADJUSTMENT
The seat can be adjusted longitudinally within range ±75mm (11 positions) after unlocking by the left lever.

VERTICAL ADJUSTMENT
The seat can be adjusted vertically by a lever on the right side within range ±30mm from the middle position to both marginal positions.
GETTING TO KNOW THE TRACTOR

DRIVER’S SEAT GRAMMER MAXIMO
1. Lever for adjusting of cushioning of the seat according weight of the driver (adjustment by turning in direction as shown on the pictogram on the seat below).
2. Lever of longitudinal adjustment of the seat (located on the right side of the seat).
3. Turning of the seat (can be turned by 20° to both sides).
4. Control of adjustment of absorption of vibrations of the seat (tilting of the controller forwards adjusts a floating position of the seat).
5. Control of adjustment of the seat inclination.
6. Control of adjustment of the back shape.
7. Height-adjustable backrest (pulling or pushing in direction of the arrow adjusts the backrest within range 170mm).
8. Tiltable armrest.
9. Control of adjustment of the armrest (turning of the controller adjusts height of the armrest).

DRIVER’S SEAT GRAMMER S
Here only items 1, 2 and 5 are used.
*AIR FILTER WITH ACTIVE CARBON

Filters with active carbon are installed instead of the standard dust filter and replacement is carried out in the same way as in the common filters. The filter should be located with the white surface on the grid. Installation directions are stated in the chapter “Instructions for Maintenance”.

The filter is used only when spraying pesticides, after the work the paper filter should be reinstalled, because the carbon filter would be choked with dust after a short period of time. Upon work the re-circulation controller should be in the position “air is drawn into from the outside”.

The fan controller should be in the position “fan maximum work”.

- **WARNING**: The filter does not provide full protection against toxic substances.
- When handling the filter, wear protective gloves.
- Don’t clean the filter; don’t flush it with compressed air.

**DANGER**: The filter with active carbon should be replaced after every 200 hours or 36 months (manufacture date is stated on the filter). If you can smell pesticides in the cabin, replace the filter immediately and check the cabin sealing. Used filters should be disposed in special disposal centres.

When spraying pesticides and using the heating filter with active carbon, the re-circulation controller should be in position “air is drawn into from the outside” and the fan controller should be in the position “fan maximum work” to create overpressure in the cabin.
GETTING TO KNOW THE TRACTOR

HEATING CONTROL PANEL, *A/C, *RADIO
A - Heating valve control  
B - Fan control  
C - Air-conditioner (A/C) switch  
D - Control of air circulation in the cabin  
E - Space for additional installation of a radio receiver

HEATING VALVE CONTROL (A)

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

FAN CONTROL (B)

- 0. Fan off  
- 1. Fan slow run  
- 2. Fan medium run  
- 3. Fan fast run

*AIR-CONDITION SWITCH (C)

The A/C system can be switched on/off using the pushbutton switch with a symbol of a snow flake (C). Pressing of the pushbutton activates the A/C system (the snow flake symbol is on) and next pressing the A/C system deactivates (the snow flake symbol is off).
GETTING TO KNOW THE TRACTOR

CONTROL OF AIR CIRCULATION IN THE CABIN (D)
a - Ambient (outdoor) air is sucked through the filters into the cabin; sucking of air from inside is closed;
b - Air is sucked from inside and exhausted to the cabin again (inner circulation for fast adjustment of temperature in the cabin).

\[\text{Intake of air from outdoor is completely closed and there is no overpressure in the cabin to prevent penetration of non-filtrated air into the cabin!}\]

Use this control position for necessary period only!

CORRECT FUNCTION OF THE HEATING AND A/C SYSTEMS

It is necessary to create overpressure in the cabin for correct function of heating or air-conditioning. Therefore it is recommended to close all windows, doors and upper cover.

FAST WARMING-UP OF THE CABIN SPACE

Proceed as follows:
1. Turn the heating valve control (A) to the right (fully open heating valve).
2. Set the air circulation in the cabin control (D) to position of inner recirculation.
3. Select the desired speed of the fans (position 1, 2, 3) using the fan control (B).
4. Adjust angles of the air outlets to prevent direct blowing of persons in the cabin.
GETTING TO KNOW THE TRACTOR

FAST COOLING OF THE CABIN SPACE
1. Turn the heating valve control (A) to the left.
2. Set the air circulation in the cabin control (D) to inner recirculation.
3. Select the desired speed of the fans (position 1, 2, 3) using the fan control (B).
4. Switch of the A/C system using the button (C).
5. Adjust angles of the air outlets to prevent direct blowing of persons in the cabin (risk of an disease due to intensive cooling of body parts).

OPERATION OF HEATING OF AIR-CONDITIONING WITH WORK OF THE TRACTOR
In case that inner recirculation is activated, fresh air supply is closed and all the air in the cabin becomes breathed up. This situation may cause a feeling of fatigue.

Note: When working with the tractor, set the control (D) to fit your individual requirements for temperature, i.e. between positions (a) and (b) so that the fan will suck outdoor air through the filters.

⚠️ When spraying pesticides and using the heating filter with active carbon, the re-circulation controller should be in position “air is drawn into from the outside” and the fan controller should be in the position “fan maximum work” to create overpressure in the cabin.
GETTING TO KNOW THE TRACTOR

WHEN THE CABIN IS COOLED
When the cabin is cooled to the desired air temperature, we recommend:

- Set the air circulation control (D) from position ‘b’ (air recirculation) to position ‘a’ (sucking of outdoor air).
- Carry out regulation of air temperature with A/C switched on by partial opening/closing of the heating valve (A). In case of this setting air, coming to the cabin from the air outlets, is not dried so intensively.
- Desired setting of temperature with A/C switched on can also be carried out by reducing speed of the fan by setting the control (B) to position 1 or 2.
GETTING TO KNOW THE TRACTOR

HEATING AND A/C AIR OUTLETS; *RADIO RECEIVER LOUDSPEAKERS
A - Adjustable heating air outlets (2) and *air-conditioning (1).
Radio receiver loudspeakers are installed only in case of a preparation mounting for the *radio receiver.

WINDSCREEN DEFROSTING
B - Adjust heating central outlets (3) under angle approx. 45° towards the front glass to ensure its fast defrosting. Adjust the margin outlets under angle approx. 45° to the corners of the cabin.
After the windscreen is defrosted, direct the margin outlets to the door windows and continue in defrosting them. Direct the outlets downwards to the foots, not directly to the driver.

CONTROL PANEL ON THE CAB RIGHT PILLER
1. rear PTO shaft switch
2. front shaft switch
3. two-position switch of the windscreen wiper and washer
4. rear window wiper switch
5. switch of front working lights on cab roof
6. switch of rear working lights on cab roof
7. *rear mirrors heating switch
8. *rear window defroster switch
VERTRAUTMACHUNG MIT DEM TRAKTOR

COCKPIT

BESCHREIBUNG DER GERÄTE
A - Kontrollleuchten
B - Luftdruckmesser
C - Drehzahlmesser mit dem Motostundenzähler und Symbole, die die Drehzahl des Motors bezeichnen, bei der die Nenndrehzahl der hinteren Zapfwelle in Abhängigkeit von der geschalteten Drehzahl der hinteren Zapfwelle erreicht wird
D - Kraftstoffanzeiger
E - Kühlerwasserthermometer

KONTROLLLEUCHTEN
1. Fernlichter (blau). Leuchtet bei eingeschalteten Fernlichtern
2. Kontrollleuchte der Blinker (grün)
5. Kontrollleuchte für den minimalen Luftdruck im Bremssystem (feuerrot). Leuchtet bei der Senkung des Luftdrucks für Luftdruckbremsen des Anhängers unter den kritischen Wert d.h. 450 kPa
6. Handbremse (feuerrot). Leuchtet bei dem angezogenen Hebel der Handbremse
7. Ladung (feuerrot). Beim Motorlauf leuchtet sie bei der Störung der Ladung. Beim abgestellten Motor muss sie leuchten
8. Schmierung (feuerrot). Beim Motorlauf leuchtet sie bei der Senkung des Drucköls im Motor unter 120 bis 60 kPa. Beim abgestellten Motor muss sie leuchten
9. Reserve
10. Reserve
11. Reserve
12. Kontrollleuchte ein des Vervielfachers (grün)
13. Reserve
14. Kontrollleuchte (rot) signalisiert einen Mangel im System der hydrostatischen Steuerung
15. Kraftstoff (orange). Leuchtet beim Restwert 1/6 – 1/10 des Tankvolumens
16. Kontrollleuchte AUS der Kupplung der Zapfwelle (feuerrot)
17. Motorheizung (gelb). Signalisiert die Tätigkeit der Einrichtung zur Vereinfachung des Motorstartens
18. Kontrollleuchte des Filters für feste Partikeln (rot), mehr dazu s. der Kapitel Fahrbetrieb
19. Reserve
20. Warnleuchte (feuerrot). Leuchtet bei der Senkung des Luftdrucks unter den kritischen Grenzwert d.h. 450 kPa, gezogener Handbremse, Störung des Ladevorgangs oder niedrigem Öldruck im Motor
21. Kontrollleuchte des Filters für feste Partikeln (grün), mehr dazu s. der Kapitel Fahrbetrieb
GETTING TO KNOW THE TRACTOR
GETTING TO KNOW THE TRACTOR

DIGITAL DASHBOARD
A digital dashboard is installed upon request.

DESCRIPTION OF INSTRUMENTS
A - Indicators
B – Air pressure gauge
C – Engine speed indicator
D – Fuel-content gauge
E – Cooling fluid thermometer
F – Display

INDICATORS & PUSHBUTTONS
Layout of the indicators on the digital dashboard is identical with analog dashboard.
After pressing the selected pushbutton the display shows the respective symbol and value.

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 immediate travel speed in km.h-1, which is displayed on the display

25. Free

26. PTO button. The rpm value with the resolution of 10 rpm is shown on the display.

   Serves only for operation data display

27. The switch of hours of operation. The information is displayed on the display
GETTING TO KNOW THE TRACTOR

DISPLAY OF PTO SPEED
By pressing the switch marked with the arrow, you will display the PTO speed in the left and right parts of the display. It is a number of revolutions with engaged PTO independent revolutions.
By pressing the buttons gradually, you will induced the number of PTO revolutions for individual gears of PTO revolutions.
A - for 1000 revolutions
B - for 540 revolutions
C - for 540E revolutions

⚠️ The button serves only for displaying data.

DIESEL PARTICLE FILTER
Solid particles (carbon particles) which originate by burning diesel are accumulated and burnt in diesel particle filter.
You can tell whether a tractor is equipped by diesel particle filter from production number (VIN code).
If letters P or N are placed on the eighth position in the production number, the tractor is equipped with diesel particle filter.

⚠️ The service life of diesel particle filter can be significantly reduced if you use motor oil with elevated levels of sulphur.
**GETTING TO KNOW THE TRACTOR**

*TILT STEERING WHEEL*

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

*TILT AND TELESCOPE STEERING WHEEL*

Adjusting the height
To adjust height, pull the wheel up or push it down after it is unlocked by moving the lever (1) in the direction shown by the arrow. After adjusting, lock the wheel by pressing the lever (1) in the opposite direction than shown by the arrow.

Adjusting the angle
To adjust angle, tilt the wheel after it is unlocked by moving the lever (2) in the direction shown by the arrow. After adjusting, lock the wheel by pressing the lever (2) in the opposite direction than shown by the arrow.

> After adjusting, tilt the lever (2) towards the dashboard and the lever (1) in such a way so that it is parallel to the steering wheel column axis.

Pushing the levers in the direction farther from the steering wheel column changes the position of the levers as desired.
GETTING TO KNOW THE TRACTOR

SWITCHERS, SWITCHES AND LEVERS

- Lights switcher (off, parking lights, headlamps).
- Switcher of low beams in the mask of the tractor and low beams on the cabin.
  * Optionally this switch can control the lights on the cabin independently on the lights in the mask of the tractor (on/off).
- Switch of the rear fog lamp (on/off). Function of the fog lamp is indicated by the illuminated symbol on the switch.
- Switch of the rear working headlamp on the column of the cabin (on/off). Function of the working headlamp is indicated by the illuminated symbol on the switch.
- Switch of warning lights.
- Switch of the front driving axle. Engaged front driving axle is indicated by the illuminated symbol on the switch.
- Switch of the light beacon (on/off).
- Switch of the working lights in the mask of the tractor (on/off). Function of the working lights is indicated by the illuminated symbol on the switch.
- Blinded.
- Pushbutton of lock of the differential.
- Engine stopping device.
- Combined switch of direction indicators, low and high beams and acoustic horn and flash lights.
- Ignition box.
GETTING TO KNOW THE TRACTOR

LIGHTS SWITCHER (A)

a - Lighting off.
b - Marker and tail and registration plate lights and illumination of instruments on.
c - All consumers on as in position “b”. In addition to this, also low or high beams are on (according to position of the direction indicators, headlamps and flash lights switch).

SWITCH FOR SWITCHING OVER LIGHTS IN THE MASK AND ON THE ROOF (b)

a - Lights on the roof off.
b - Lights on the roof on.

The switch controls lights in the mask or on the roof of the cabin. Use the lights on the roof of the cabin only if some implements, covering the headlamps in the mask, are installed in the front three-point suspension. Lighting headlamps on the roof of the cabin are indicated by the illuminated symbol on the switch.

The high beams may only light in the front mask of the tractor.

SWITCH OF WARNING LIGHTS (e)

a - Warning lights off.
b - Warning lights on.

Function of warning lights is indicated by a flashing indicator on the dashboard.
GETTING TO KNOW THE TRACTOR

FRONT DRIVING AXLE SWITCH (f)

Use the front driving axle with slipping of rear wheels to increase the tractive force of the tractor.

a - Front driving axle off.
b - Front driving axle on.

When the tractor is laid up (the tractor is braked, key in the ignition box in position off) the front driving axle is switched on. The front driving axle is switched on in the basic position (indicator is on) and can be switched off by the same switch (the indicator is off).

PUSHBUTTON OF REAR DIFFERENTIAL LOCK (j)

Press the pushbutton to switch on the lock; the pushbutton then returns to its original position.

Switched on lock is indicated by the illuminated symbol on the pushbutton. Depressing brake pedals switches off automatically the differential lock.

COMBINED SWITCH OF INDICATOR LIGHTS, LOW AND HIGH BEAMS AND FLASH LIGHTS (k)

a - Acoustic horn (depress the switch in direction of theaxis)
b - Low beams
c - Right direction indicators
d - Left direction indicators
e - Flash lights
f - High beams
GETTING TO KNOW THE TRACTOR

IGNITION BOX
The ignition box is located on the dashboard, see the arrow.

KEY IN POSITION "0"
Voltage to all consumers, controlled through the key, is disconnected. The key can be removed.

KEY IN POSITION "I"
Voltage is connected to all consumers except the starter. The key is in this position when the engine is running. The key cannot be removed.
GETTING TO KNOW THE TRACTOR

KEY IN POSITION "II"
The key is in this position when starting the engine; voltage is connected to the starter and all consumers except wipers, washers, cabin fan and A/C equipment. After start of the engine the key returns automatically back to position "I".

LEVER OF MANUAL REFULATION OF FUEL
A - Maximum speed of the engine
B - Idle run
The lever allows setting of speed of the engine within range A to B.

CONTROL OF ENGINE STOP
Pulling up the control knob causes immediate stop of the engine and it slight turning in pulled up position locks its position.
After the engine is stopped, turn back the control knob to its original position.

⚠️ The engine cannot be started if the control knob remains pulled up.
GETTING TO KNOW THE TRACTOR

PEDALS
1. Travel clutch pedal
2. Foot brake pedals, connected with a latch
3. Pedal of foot regulation of fuel supply

LEVER OF SHIFTING GEARS
- Main shifting lever

SCHEME OF SHIFTING OF GEARS
Reverse can be shifted only using the reversing lever. The scheme is attached in the left lower corner of the windscreen.
GETTING TO KNOW THE TRACTOR

REVERSING LEVER
F – Travel forwards; lever forwards
R – Travel backward; lever backward

LEVER OF SHIFTING OF ROAD AND REDUCED GEARS
H  Road gears
N  Neutral
L  Reduced gears
Shifting is carried out with tractor in standstill.

TORQUE MULTIPLIER
The multiplier is controlled electro-hydraulically using the pushbuttons located on the shifting lever. Activation (pushbutton L) is indicated by illumination of the indicator on the dashboard.
GETTING TO KNOW THE TRACTOR

SWITCHING ON OUTPUT SHAFT DRIVE
This drive can be switched on using switches on the right column of the cab-in.

LEVER OF SHIFTING OF SPEED 540 (OR 540E) AND 1,000 RPM OF THE REAR OUTPUT SHAFT
Shifting can be carried out when the tractor is in standstill by pulling up or pushing down the lever.
  a - 1,000 min⁻¹ (or 540E min⁻¹)
  b - 540 min⁻¹
*The tractor can be equipped optionally by 6-, 8- or 21-groove termination of the output shaft.

Shifting of 540 and 1,000 (or 540E) min⁻¹ is possible regardless to the number of grooves on the installed termination. Speed of the output shaft and type of the termination shall be chosen depending on the prescribed speed of the aggregated machine.
LEVER OF SWITCHING ON REAR OUTPUT SHAFT DRIVE
Shifting can be carried out when the tractor is in standstill by pulling up or pushing down the lever.
- **a** - Independent rpm of the output shaft drive
  - Speed depends on speed of the engine.
- **n** - Neutral
- **b** - Dependent speed of the output shaft speed through a gearbox.
  - Speed depends on the engaged gear.

LEVER OF HAND BRAKE AND HITCH FOR SINGLE-AXLE TRAILER
1. Hand brake lever.
2. Lever of the single-axle trailer hitch control.
GETTING TO KNOW THE TRACTOR

TRACTORS WITH TRAVEL SPEED 40 KM.H-1
All types of tractors with driven front axle that includes brakes in reducers of front wheel can be equipped with travel speed 40 km.h⁻¹.

FUEL TANK
The fuel tank is located on the right side of the tractor. The volume of this plastic tank is 150 litres.

⚠️ Do not step onto the fuel tank!

DRAINING PLUG OF THE FUEL TANK
A plug for draining of dirt from the fuel tank is installed in its bottom.

BATTERY DISCONNECTOR
⚠️ Disconnect the battery immediately using the battery disconnector in case of a long-term standstill, repairs, fault or accident.
The battery disconnector is located on the left side of the tractor, in front of the cabin.

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

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BEFORE YOU START THE ENGINE

Before you start the engine, make sure:
1. If the tractor is properly braked.
2. If the main shifting lever is in neutral position.

Unless the clutch pedal is depressed, the engine cannot be started, as the start security switch is not closed.

Note: Before starting of the engine it is advisable to pressurise the fuel system by several strokes of the manual feeding fuel pump.

STARTING THE ENGINE

1. Put the key in ignition - "0" position.
2. Depress the clutch pedal.
3. Move the gear lever to the neutral position.
4. Turn the key to "I" position. The glow plug indicator illuminates.
5. Wait till the glow plug indicator goes out (the time depends on the temperature of the liquid coolant).
6. When the indicator goes out, turn the key immediately (do not wait for longer than 5 sec. at maximum) to "II" position (start).
7. After ignition, release the key immediately, it automatically turns back to "I" position. Do not extend the starting process to more than 15s.
8. After ignition, decrease the amount of fuel gradually.

If the glow plug indicator does not illuminate but flashes, there is an error of the ignition system (Ignition system error signals chapter). Have the error repaired in a specialized service station.
IN CASE THE ENGINE DOES NOT START

Turn the ignition key back to position "0", wait for 30 seconds and repeat starting. It is permitted to execute 6 starting cycles (15 sec starting and 30 sec pause). Next starting of the engine is permitted after the starter is cooled down to the ambient temperature.

Never activate the starter if the tractor is stopping. The starter should be exposed to a risk of damage.

INDICATIONS OF FAULTS IN THE HEATING SYSTEM

A fault of the heating system is indicated by a flashing indicator of heating.
- Flashing of the indicator in second intervals during standstill of the engine indicates heating in an emergency regime as at low temperatures regardless to temperature of the cooling fluid.
- Flashing of the indicator two times per second during standstill of the engine indicates stopped (non-functioning) heating.
- Permanent flashing of the indicator of heating during run of the engine indicates a fault of the regulator of heating, whilst heating continues. The fault shall immediately be eliminated to prevent discharge of the battery.

MANIPULATION WITH THE STARTER

It is forbidden to start the engine using short-circuited starter terminals!
The tractor can only be started from the driver’s seat!
With any manipulation of repair of the starter it is necessary to disconnect the minus pole of the battery and move all levers including shifting of the output shaft to neutral position! The starter contacts are protected by caps.
IMMEDIATELY AFTER STARTING

⚠️ After starting of the engine adjust speed to 800-1000 min⁻¹ and let the engine running without loading for approx. 2 minutes.

In this period perform checks of lubrication and recharging of the battery (the indicator shall be off) and other functions providing proper run of the engine. The time of run without loading shall be observed, particularly in winter period.

WARMING-UP OF THE ENGINE

⚠️ Further warming-up of the engine should be performed during driving. Warming-up of the engine using long idle run or sudden increase of speed is harmful for the engine.

Unless temperature of cooling fluid reaches 45 °C, do not exceed speed of the engine 2000 min⁻¹.
STARTING OF THE ENGINE USING HEATER OF COOLING FLUID

Heating of cooling fluid facilitates starting of the engine at low temperatures. Power supply installation and its protection against dangerous contact shall be made according to the applicable regulations.

1. First insert the plug into the heater.
2. Then connect the heater to the power supply mains with voltage 220V.

For reduced wearing of the engine with its starting at low temperatures, the manufacturer recommends use of the heater. Time of heating depends on the ambient temperature (1 to 2 hours before the expected starting is sufficient).

⚠️ After end of heating first disconnect the device from the power supply mains and then unplug the cable from the heater!

**Risk of injury from electric shock!**

⚠️ It is necessary to instruct operators of the tractor and ensure regular revisions of the cooling fluid heater including power supply cable according to the applicable standards of the country where the tractor is operated, at least before each winter season.
SHIFTING OF GEARs
The tractors are equipped with a 4-speed synchronised gearbox, torque multiplier, reversing and two-stage reduction. The 4-speed gearbox is operated using the main shifting lever with pushbuttons to control the torque multiplier. Movement of the tractor forward and backward is selected by the reversing lever.

REVERSING LEVER
Reversing lever selects direction of movements of the tractor (forward, backward).
F – travel forward (16 speeds)
R – travel backward (16 speeds)
The reversing gearbox includes 16 reverse speeds that are approximately the same as the forward speeds. Therefore consider carefully when shifting a reverse gear for the given character of your work.

Perform reverse shifting with clutch pedal depressed and tractor in standstill.

SHIFTING OF ROAD AND REDUCED GEARS
H – road speeds
N – neutral
L – reduced speeds
Shifting of gears of the main gearbox with reduced speeds is the same as with road speeds.

⚠️ Shifting using the lever of road and reduced speeds is only possible when the tractor is in standstill.
SHIFTING FROM LOWER TO HIGHER GEAR

Tread on the clutch pedal (the clutch is disengaged); at the same time release the accelerator pedal and shift the desired higher gear. Release smoothly the clutch pedal (the clutch is engaging) and at the same time increase speed of the engine.

Note: It is advisable to shift from a lower to a higher gear with double treading on the clutch pedal to increase service life of the synchronisation device.

SHIFTING FROM HIGHER TO LOWER GEAR

Tread on the clutch pedal and move the shifting lever through neutral position to a lower gear.

Note: It is advisable to shift from a higher to a lower gear with increasing of speed of the engine in the neutral position to increase service life of the synchronisation device.
**TORQUE MULTIPLIER**

The two-stage multiplier is standard equipment of all types of tractors. Selection of individual stages of the two-stage multiplier is operated by two pushbuttons on the main shifting lever head. Selection is performed by pressing the respective pushbutton without treading on pedal of the travel clutch. Shifting individual stages of the multiplier is automatic even with loading of the engine. Shifting of the torque multiplier stages:

- **H** – increase of travel speed
- **L** – decrease of travel speed

**Note:** When starting or stopping the engine there is always shifted automatically the stage **H**.

**INDICATION OF FUNCTION OF THE MULTIPLIER**

Engagement of the multiplier (decrease of travel speed) is indicated by a light indicator on the dashboard.
DIESEL PARTICLE FILTER
The exhaust system of a tractor is equipped with a diesel particle filter which serves for cleaning exhaust fumes. Solid particles (carbon particles) are collected and burned in diesel particle filter which originate by burning diesel. The activity of diesel particle filter is signalized by a pair of controls (green and red) on the dashboard. When starting the engine, a green control lights up on a dashboard briefly. It signalizes that the system of diesel particle filter works. The failures in diesel particle filter system are with the engine running signalized by a red control lighting up on the dashboard. Clogging of diesel particle filter automatically regenerates the exhaust gases temperature with higher engine load.

⚠️ *When operating tractors with engines equipped with diesel particle filter, avoid long-term operation or low engine load.*
DIESEL PARTICLE FILTER – SYSTEM FAILURES SIGNALIZATION

Failures in diesel particle system failure are signalized by a red control lighting up on the dashboard with engine running and subsequently by an acoustic signal.

If the failure is not removed, it is signalized with any following starting of the engine.

The code of failure is displayed on a display (1) of the displaying unit which is accessible after removing the right cover of the steering console.

The failures are displayed on display (1) in a form of E: double-figured code of failure.

For example: E:36, number 36 representing the code of failure.

If failure is not signalized, operation data of diesel particle filter system are displayed on the display.

The acoustic signal can be turned off by the button (2). If the failure has not been removed, the acoustic signal is active with repeated starting of the engine and can be turned off again by the button (2).

If the key is in switchbox in “I” position and the engine is not started, approximately ten minutes later the diesel particle filter system starts signalizing a failure. Switch the key to “0” position and start the engine. The code of failure on the display E:32 or E:33.

DIESEL PARTICLE FILTER FAILURE CODES

<table>
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<tr>
<th>Failure code E:</th>
<th>Operator’s activity</th>
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<td>11, 12, 21,</td>
<td>The tractor can be worked without any limitations, after</td>
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<td>22, 23, 31,</td>
<td>terminating your work, contact authorized service</td>
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<td>34, 35, 37,</td>
<td>and report the code of failure.</td>
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<td>38, 41, 42,</td>
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<td>51, 52, 61,</td>
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<td>62</td>
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<tr>
<td>32, 33,</td>
<td>Switch the key to “0” position and start the engine.</td>
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<tr>
<td>36</td>
<td>Regenerate diesel particle filter</td>
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DRIVING

DIESEL PARTICLE FILTER REGENERATION
During the operation of a tractor, diesel particle filter is clogged by solid particles originating in engine run when burning fuel. Clogged diesel particle filter automatically regenerates the temperature of exhaust fumes with higher load of the engine. When operating the tractor with low load of the engine, e.g. with long-term operation on idle run, there is a partial clogging of diesel particle filter. This condition is signalized with the engine run by a lit red control of diesel particle filter, and followingly also by acoustic signal and on the display of displaying unit of diesel particle filter by failure code E:36

If this situation occurs, increase the load of engine and continue working until red control of diesel particle filter switches off and acoustic signal does not stop. By increasing the engine load, the temperature of exhaust fumes increases and the solid particles which clog diesel particle filter burn. Depending on the temperature of exhaust fumes and the degree of diesel particle filter clogging, regeneration can take up to thirty minutes.

Increased load of engine shall be work with a tractor at higher engine revolutions with connected tools, power intake via PTO shaft or outer hydraulic circuit.
MOVING OFF
1. Tread on the clutch pedal.
2. Move the main shifting lever to neutral position.
3. Start the engine.
4. Adjust speed of the engine to 800 min⁻¹.
5. Choose road or reduced speeds.
6. Move the reversing lever to the desired direction of travel (forward or backward).
7. Shift the suitable gear for moving off the tractor.
8. Increase slightly speed of the engine.
9. Make ready the hand brake for its release.
10. Release the clutch pedal just till the engagement point; with simultaneous increasing of speed of the engine continue in releasing of the clutch pedal.
11. Release completely the hand brake.
12. Begin move off smoothly and slowly.

⚠️ Very fast moving off may cause overloading of the driving mechanism, increased consumption of fuel, excessive wearing of tyres and damage to the load. Moving off with engaged 1st gear should be used only when driving with a heavy trailer uphill and in difficult terrain.
**DRIVING UPHILL**

⚠️ Shifting from a higher to a lower gear when driving uphill should be performed soon enough to prevent a drop of speed of the engine under $800 \text{ min}^{-1}$ and driving leading to stop of the engine due to its overloading.

**DRIVING DOWNHILL**

⚠️ Driving downhill without shifted gear is forbidden. When driving downhill for a longer time, shift as low gear as steep the road is. If possible, shift a lower gear before you start driving downhill.

**Note:** You can go downhill safely with the same gear engaged as you should shift it when driving uphill.
DIFFERENTIAL LOCK
The differential can be locked by pressing a switch that returns back to its original position after it is released. Locking of the differential is indicated by an illuminated symbol on the switch. Depressing of the brake pedals unlocks automatically the differential.

Do not use the differential lock when driving through road bends.

CONTROL OF FRONT DRIVING AXLE
The front driving axle is engaged in the basic position. Engagement of the front driving axle is indicated by an illuminated symbol on the switch. It can be disengaged using a switch on the dashboard.

- Front driving axle engaged
- Front driving axle disengaged

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

DRIVING WITH ENGAGED FRONT DRIVING AXLE

Use the front driving axle with slipping of the rear wheels to increase the traction force of the tractor. It is permitted to engage the front driving axle on roads and hard surfaces up to 15 km/h (travel with engaged front driving axle causes increased wearing of front tyres).

Permanent engagement of the front driving axle is permitted if there is a farming mechanism attached to the front suspension. This condition is mentioned in the instructions manual to the respective mechanism. Maximum permitted speed when driving with these attachments is 15km.h⁻¹.
FOOT BRAKES
The foot brakes are disk wet type, hydraulic-controlled, with two pedals and automatic pressure balancer.

⚠️ During travel both pedal have to be coupled with a latch. Use uncoupled pedals for barking of the right or left wheel only when working in terrain and on a field at low travel speeds.

Note: When driving from a steep downslope with a trailer or semi-trailer equipped with air or hydraulic brakes it is necessary to start braking by foot brake already from beginning of the slope!

⚠️ With braking by one brake pedal the trailer brakes are not activated!

AIR BRAKES OF TRAILERS AND SEMI-TRAILERS
Air brakes of trailers (semi-trailers) and brakes of the tractor are designed so that braking effects of both vehicles are synchronised.

⚠️ When driving with a trailer or semi-trailer the foot brake pedals shall be coupled and secured by a latch!

With braking by one brake pedal the trailer air brakes are not activated.

Note: In case of a drop of pressure the transfer valve disables the secondary consumers (differential lock, disengagement of the front driving axle).

WARNING INDICATION OF AIR PRESSURE DROP
Decrease of air pressure under 450kPa is indicated by a red lamp and red symbol of a tractor with a sign STOP on the dashboard.

⚠️ In case of a pressure drop in the compressed air system under 450kPa the tractor with braked trailer or semi-trailer may not travel until air pressure increases.
**SINGLE-HOSE AND DOUBLE-HOSE BRAKES**

1. Coupling head of single-hose brakes.
2. Coupling heads of double-hose brakes.

⚠️ The coupling heads shall be covered with lids after disconnecting or when a trailer (semi-trailer) is not coupled.

**SINGLE-HOSE BRAKES**

The lid is marked by black colour.

⚠️ When a trailer (semi-trailer) with maximum permitted weight approved for the given type of tractor is coupled, the maximum permitted speed of the vehicle train is 30km.h⁻¹!

The maximum permitted speed of the vehicle train is given by the maximum permitted speed of the slower vehicle of the train.

**DOUBLE-HOSE BRAKES**

The lid of the left head is marked by yellow colour (braking branch), the lid of the right head is marked by red colour (filling branch).

⚠️ When a trailer (semi-trailer) with maximum permitted weight approved for the given type of tractor is coupled, the maximum permitted speed of the vehicle train is 40km.h⁻¹!

The maximum permitted speed of the vehicle train is given by the maximum permitted speed of the slower vehicle of the train.
TRAILER HYDRAULIC BRAKES
Connect the trailer or semi-trailer hydraulic brakes with the quick coupler marked with an arrow.

The control of the trailer (semi-trailer) hydraulic brakes and the control of the tractor brakes ensure synchronized braking effect of both the vehicles. Working pressure is enforced by oil supplied from the hydraulic gear-type pump that works permanently. The trailer brake control valve is controlled by brake fluid pressure from the main brake cylinders depending on force that influences the brake pedal. Upon maximum pressing down the brake pedal, pressure on the coupling head should be 12 - 15 MPa. The trailer brake valve prefers the brake function to the hydraulic function.

In the event of shocks when you press down the brake pedal, you have to bleed the hose from the brake valve to the quick coupling.

⚠️ When driving with trailer, the brake pedals should be connected and safeguarded with a lock!

When braking with one brake pedal, the trailer hydraulic brakes are out of operation.

CONNECTION AND DISCONNECTION OF QUICK COUPLINGS OF THE TRAILER HYDRAULIC BRAKES

When connecting and disconnecting the quick couplings you should be aware of the rest of oil that is kept in the quick coupling plug or socket.

To protect environment you have to remove the oil residues after each disconnection of the quick couplings with a textile rag.
STOPPING THE TRACTOR - HAND BRAKE
Under normal conditions stop the tractor slowly. Shortly before stopping:
1. Tread on the clutch pedal and brake the tractor by the foot brake.
2. Move the main shifting lever to neutral position.
3. With each stop secure the tractor using the hand brake against spontaneous moving off. Application of the hand brake is indicated by a light on the dashboard.

STOPPING THE ENGINE
After stopping the work, if the engine was fully loaded, it is necessary to ensure to let the engine cooled down.
1. Before you stop the engine, reduce its speed to 800-1000 min⁻¹ and let it running without loading for approx. 5 minutes.
2. Move the lever of manual regulation of fuel supply to position MIN.
3. Pull out the controller of stopping of the engine (stopping device) and turn it slightly; push it back after the engine stops.
4. When the engine stops, the ignition key can be turned from position "I" to "0" (only if the engine is stopped; the battery recharging indicator shall be on).

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

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

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

Note: When the engine is stopped, the front driving axle is engaged automatically.
WARNING INDICATION OF A HYDROSTATIC STEERING FAULT

A fault of the hydrostatic steering pump occurs when pressure of oil drops under 120kPa; it is indicated by the respective symbol on the dashboard.

Note: When starting the engine or at low speed of the engine the indicator may flash; if the indicator light disappears after starting of increase of speed of the engine, this does not indicate any fault. The system is OK.

IMPORTANT WARNINGS

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

General principles for running-in a new tractor in the course of first 100 operating hours ................................................................. 70
In the course of first 100 operating hours ......................................................... 70
From 100 operating hours ........................................................................... 71
GENERAL PRINCIPLES FOR RUNNING-IN A NEW TRACTOR IN THE COURSE OF FIRST 100 OPERATING HOURS
In the course of first 100 operating hours:
- do not load the engine excessively;
- avoid run with partial load of the engine;
- avoid excessive idle run time;
- check frequently level of oil in the engine (increased consumption of oil within this period is normal);
- checks screwed joints, in particular supporting parts of the tractor;
- remedy immediately all found faults; this prevents consequent damages and/or threats to safety of operation;
- follow also the same procedure after overhaul of the tractor

IN THE COURSE OF FIRST 100 OPERATING HOURS
- perform running-in in normal traffic;
- retighten nuts of front and rear wheels including connection flange/rim by the prescribed torques.
RUNNING-IN THE TRACTOR

FROM 100 OPERATING HOURS
After running-in you can work with the tractor without any limitation.

Operating values of engines of tractors:

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recommended operating speed</td>
<td>1400-2300 min⁻¹</td>
</tr>
<tr>
<td>Idle run</td>
<td>800±25 min⁻¹</td>
</tr>
<tr>
<td>Operating oil pressure</td>
<td>0.2-0.5 MPa</td>
</tr>
<tr>
<td>Oil pressure at idle run</td>
<td>min. 0.05 MPa</td>
</tr>
<tr>
<td>Max. temperature of cooling fluid</td>
<td>106 °C</td>
</tr>
</tbody>
</table>
Before a drive make sure that the technical condition ensures safe operation of the tractor.

In case that a trailer or implement is coupled, verify its coupling and proper fixing of the load. Never get out of the tractor to couple a trailer yourself. Pay also attention to your assistant.
TRANSPORT USE

FRONT HOOK
It can only be used for towing of the tractor without trailer or other accessories attached.

⚠️ Use a towing bar or rope to extricate the tractor.
Never use chains! Risk of a lethal injury with rupture of the chain!
It is forbidden to use axles of the tractor (individual travel wheels) as a winch with extrication of the stuck tractor.

MULTI-LEVEL QUICK-ADJUSTABLE HITCH CBM
It is used for coupling of double-axle of light single-axle trailers. The guide hitch is height-adjustable. When working with farming mechanisms it is necessary to adjust height of the hitch or dismount it.

HEIGHT ADJUSTMENT AND DISMOUNTING OF THE MULTI-LEVEL HITCH CBM
Moving of the control lever in direction of the arrow to position (1) unlocks the lever, consequent moving to position (2) engages the arrestment pins (3); this releases the multi-level hitch and its height can be adjusted or the hitch can be dismounted. After release of the lever from position (2) the arrestment pins (3) are disengaged and the lever returns automatically to its initial position.
**TRANSPORT USE**

**AUTOMATIC HITCH OF THE MULTI-LEVEL HITCH DEVICE CBM**

Moving of the lever (1) in direction of the arrow (a) slides the pin (2) into the upper position that is indicated by the extracted warning indicator (3), see fig. (A).

After sliding the hitch onto the pole eye the pin slides automatically into the trailer pole eye. The hitch pin (2) can be engaged manually by sliding the lever (1) in direction of the arrow (b). Engagement of the pin is indicated by the retracted warning indicator (3), see fig. (B).

⚠️ **After connecting the trailer it is always necessary to check whether the warning indicator (3) is retracted as shown on fig. (B).**

**MODULAR SYSTEM OF HITCHES FOR TRAILERS AND SEMI-TRAILERS**

Types of modules:
- Fig. (B) – Pivoted pull bar bracket.
- Fig. (C) – Pivoted pull bar bracket with fixed pin.
- Fig. (D) – Bracket with ball ø 80.

Dismounting – fig. (A):
1. Dismount the locking screw (1).
2. Secure the module against fall, unlock and dismount the pins (2).
3. Slide out the module from the bracket downward.

Mounting is performed in reverse order.

**BRACKET MODULE OF PIVOTED PULL BAR**

The bracket module of the pivoted pull bar is located in the multi-level hitch bracket.

**PIVOTED PULL BAR**

Dismounting:
1. Unlock and dismount the pins (1).
2. Pull out the pivoted pull bar in direction of the arrow.

Mounting is performed in reverse order.
**TRANSPORT USE**

**BRACKET MODULE OF PIVOTED PULL BAR WITH FIXED PIN**

Mounting and dismounting of the pivoted pull bar should be performed as described in the chapter “Pivoted pull bar”.

Coupling the pole eye to the fixed pin (3):
1. Unlock and dismount the pin (1).
2. Lift the locking wedge (2) in direction of the arrow.
3. Couple the pole eye to the fixed pin (3).
4. Return the locking wedge (2) to its initial position and lock it using the pin (1).

**BRACKET MODULE WITH BALL Ø 80**

*The bracket with ø 80 is used only for coupling of trailers with a coupling device designed for balls ø 80.*

Fig. (A) – Unlocking of the hitch: Moving of the lever (1) in direction of the arrow slides off the locking wedge (2).

Fig. (B) – Locking of the hitch. (B): Moving of the lever (1) in direction of the arrow slides in the locking wedge (2).

**TOWING BAR**

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

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

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

UNCOUPLING OF A SINGLE-AXLE TRAILER
This can be performed after slight lifting of the hitch by the inner hydraulic circuit lever. Move the control lever backwards. The lever is located on the left side of the driver’s seat. Lower the hitch using the inner hydraulic circuit lever and disconnect the trailer pole eye.

HITCH CBM FOR SINGLE-AXLE TRAILERS
The hitch for a single-axle trailer can be equipped with a hook (A) that is designed for coupling of single-axle trailers having poles according to the standard ISO 5692 (inner diameter of the eye 50mm and height of the eye 30mm) or pivoted pull bar (B).

The coupling hook is lowered and lifted hydraulically using length-adjustable telescopic pull rods.

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

The pivoted pull bar is mounted in reverse order.
TRANSPORT USE

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

HOOK OF THE MOUNTING FOR A SINGLE-AXLE TRAILER
The hook of the mounting for a single-axle trailer is located in the bracket on the left-hand side of the cabin back wall.
## TRANSPORT USE

### MAXIMUM PERMITTED VERTICAL STATIC LOADING OF HITCHES FOR TRAILERS AND SEMI-TRAILERS

<table>
<thead>
<tr>
<th>Hitch type</th>
<th>Permitted vertical static loading</th>
<th>Diameter of hitch pin</th>
<th>Hitch type</th>
<th>Permitted vertical static loading</th>
<th>Diameter of hitch pin</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.png" alt="Hitch class D2" /></td>
<td>2,000kg</td>
<td>31mm</td>
<td><img src="image2.png" alt="Hitch class C" /></td>
<td>2,000kg</td>
<td>38mm</td>
</tr>
<tr>
<td>Hitch class D2</td>
<td><img src="image3.png" alt="Hitch class D2" /></td>
<td>2,000kg</td>
<td>Hitch class C</td>
<td><img src="image4.png" alt="Hitch class C" /></td>
<td>1,500 kg</td>
</tr>
<tr>
<td></td>
<td>43mm</td>
<td></td>
<td></td>
<td>28mm</td>
<td></td>
</tr>
</tbody>
</table>

⚠️ Maximum weight of a coupled braked trailer or semi-trailer shall not exceed the value given on the type plate of the tractor and value given in the MOT certificate of the vehicle. Hitch of class C: max. weight of the trailer 6,000kg. Hitch of class D2: max. weight of the trailer 14,000kg.
### TRANSPORT USE

**MAXIMUM PERMITTED VERTICAL STATIC LOADING OF HITCHES FOR TRAILERS AND SEMI-TRAILERS**

<table>
<thead>
<tr>
<th>Hitch type</th>
<th>Permitted vertical static loading</th>
<th>Diameter of the pin (ball) of the hitch</th>
<th>Hitch type</th>
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<th>Diameter of the pin (ball) of the hitch</th>
<th>Hitch type</th>
<th>Permitted vertical static loading</th>
<th>Diameter of the pin (ball) of the hitch</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>736kg</td>
<td>31mm</td>
<td></td>
<td>3,000kg</td>
<td>80mm</td>
<td></td>
<td>fixed pin 2,000kg</td>
<td>44.5mm</td>
</tr>
<tr>
<td></td>
<td>3,000kg</td>
<td>47mm</td>
<td></td>
<td>1,200kg</td>
<td>32mm</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

⚠️ Maximum weight of a coupled braked trailer or semi-trailer shall not exceed the value given on the type plate of the tractor and value given in the MOT certificate of the vehicle. Maximum speed of the vehicle train is given by the maximum permitted speed of the slower vehicle of the vehicle train.
Before connecting a mechanism, driven by the output shaft of the tractor, check matching of speeds of the output shafts of the mechanism and tractor (540 or 1,000 rpm). Different speeds may lead to serious damages and injuries.
DRIVE OF FARMING MACHINES

WORK WITH OUTPUT SHAFT

1. When working with the output shaft pay attention to proper fixing of all covers.
2. After completion of work install always the output shaft cover.
3. Connect and disconnect the articulated shaft of the coupled mechanism to the rear output shaft of the tractor always when the engine is stopped, output shaft disengaged and lever of shifting of dependent and independent rpm of the output shaft in position N - neutral!
4. Connect and disconnect the articulated shaft of the coupled mechanism to the front output shaft of the tractor always when the engine is stopped and output shaft disengaged!
5. Perform any repairs or cleaning of parts of the coupled mechanisms driven by the output shaft only when the engine is stopped, output shaft disengaged and lever of shifting of dependent and independent rpm of the output shaft in position N - neutral.

CONTROL OF FRONT AND READ OUTPUT SHAFTS

Engagement (at minimum speed of the engine 1,500 min⁻¹) and disengagement of output shafts can be performed using switches on the right column of the cabin. The switches are equipped with mechanical locks (1) against unintentional switching. When using the switch, push the lock downwards.

P - Front output shaft switch
Z - Rear output shaft switch

Switching of both switches engages both (front and rear) output shafts. Engagement of the output shafts is indicated by an illuminated symbol on the switch.
REAR OUTPUT SHAFT – SHIFTING OF DEPENDENT AND INDEPENDENT SPEED OF THE SHAFT

Shifting is performed by the lever (1) when the tractor is in standstill.

- **a** - Independent speed of the output shaft (rpm of the shaft depends on rpm of the engine)
- **n** - Neutral position. Use this position to facilitate connection of the farming mechanism propeller shaft. The terminal of the rear output shaft is freely rotatable.
- **B** - Dependent speed of the output shaft (rpm and direction of rotation depends on the engaged gear and position of reversing lever).

REAR OUTPUT SHAFT – SHIFTING OF SPEED OF THE OUTPUT SHAFT 540 AND 1,000 OR 540E RPM

Shifting is performed by the lever (1) when the tractor is in standstill.
The tractor is equipped standardly with a combination of 540 and 1,000 rpm of the output shaft; other optional combination is 540 and 540E rpm of the output shaft.

- **a** - 1,000 min⁻¹ or 540E min⁻¹
- **b** - 540 min⁻¹

⚠️ Shifting of 540 and 1,000 (or 540E) min⁻¹ is possible regardless to the number of splines of the installed terminal. Speed of the output shaft and type of terminal shall be chosen depending on the prescribed rpm of the coupled mechanism.

FRONT OUTPUT SHAFT

The front output shaft is equipped with a fixed terminal with 6 or 21 splines and its speed in 1,000 min⁻¹.
The tractor may be equipped upon request by a front output shaft with different directions of rotation:

- **a** - In direction of rotation of the engine (standard)
- **b** - Against direction of rotation of the engine (* upon request)
REPLACEABLE TERMINALS OF THE REAR OUTPUT SHAFT

The tractor is equipped standardly with a terminal having 6 splines.

*The tractor may also be equipped upon request with a replaceable output shaft terminal having 6 or 21 splines.

Replacement procedure:
1. Using circlip tongs remove the circlip (1)
2. Pull out the replaceable terminal (2) in direction of the arrow.
3. Perform installation of a new terminal in reverse order and pay special attention to installation of the circlip (1).

Replacement of the terminal shall be performed when the engine is stopped.

Rpm of the output shaft and terminal type shall be chosen depending on the prescribed rpm of the coupled mechanism.

Shifting 540 and 1,000 or 540E min⁻¹ is possible regardless to the number of splines of the installed terminal.

MAXIMUM TRANSFERRED POWER

<table>
<thead>
<tr>
<th>Output shaft</th>
<th>Transferred power</th>
</tr>
</thead>
<tbody>
<tr>
<td>front</td>
<td></td>
</tr>
<tr>
<td>1,000 min⁻¹</td>
<td>60 kW*</td>
</tr>
<tr>
<td>rear</td>
<td></td>
</tr>
<tr>
<td>1000 min⁻¹</td>
<td>full engine power</td>
</tr>
<tr>
<td>540 min⁻¹</td>
<td>full engine power</td>
</tr>
<tr>
<td>540E min⁻¹</td>
<td>full engine power</td>
</tr>
</tbody>
</table>
DRIVE OF MACHINES WITH GREATER INERTIAL MASSES
(CRUSHERS, ROTARY HARROW, REAPERS, ETC.)

The propeller shaft for drive of such machines shall be equipped with a so-called free engine clutch that provides disconnection of the transfer of torques with backward effects from the machine to the tractor.
The hydraulic system is intended for lifting and lowering of agricultural machines and implements attached in the rear three point hitch.
HYDRAULIC SYSTEM

It consists of the inner and outer circuits. Gear pump is the source of pressure oil. Oil is taken from reservoir shared by gearbox and transmission.

Hydraulic pump cannot be switched off. If the engine is working, the pump is on. The amount supplied is 50 liters per minute.

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

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

WAYS TO REGULATE INNER HYDRAULIC CIRCUIT
Hydraulic system allows of three ways to regulate the lifting of the rear three-point hitch:
Position regulation (img. 1) – the tool connected to the rear three-point hitch is automatically kept in the same height (position) with regard to the tractor.
Mixed regulation (img. 2) – a combination of position and power regulation. Suitable mainly for tilling areas of different soil resistance.
Power regulation (img. 3) – the tool connected to the three-point hitch is automatically being adjusted depending on changing soil resistance.

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

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

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

ADJUSTABLE STOP
Under default settings, it is recommended to set the adjustable stop (1) to a position on the edge between floating position and the beginning of the range of lifting of the rear three-point hitch (b). After pushing the lever towards you, the lever can be moved over the adjustable stop.
THREE-POINT HITCH LOWERING SPEED CONTROL
Three-point hitch lowering speed control (3) selects the speed of lowering the arms of the rear three-point hitch. Turning the knob in (b) direction reduces the lowering speed of the arms of the rear three-point hitch, turning it in (a) direction increases the speed. If the knob is turned in (b) direction to its stop point, the arms of the rear three-point hitch cannot be lowered.

HYDRAULIC SYSTEM SENSITIVITY CONTROL
Hydraulic system sensitivity control (4) adjusts the sensitivity of the hydraulics in power or mixed regulation. Turning the knob in (a) direction increases sensitivity, turning it in (b) direction decreases sensitivity.
POSITION REGULATION OF THE LIFTING OF THE REAR THREE-POINT HITCH

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

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

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

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

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

Power regulation of the lifting of the rear three-point hitch means that the tool connected to the rear three-point hitch is automatically being adjusted depending on changing soil resistance.

Set the adjustable stop (5) to a position on the edge between floating position and the beginning of the range of lifting of the rear three-point hitch.

Move lever (2) to (f) position – to the adjustable stop (5).

Move lever (1) to (g) position, accelerate the tractor and move lever (1) in the direction shown by the arrow to set the depth of tilling (in (g) position, depth is the lowest).

Once the depth of tilling is set, lever (1) must be kept in constant position. At the end of each row, raise the tool connected to the rear three-point hitch only by moving lever (2) to (e) position. To lower the tool to its operating position again, move lever (2) to (f) position.

⚠️ The rear three-point hitch may start oscillating under the influence of changing soil resistance. To reduce oscillation, set lower hydraulic system sensitivity by turning the control knob (4) in (b) direction.
MIXED REGULATION OF LIFTING THE REAR THREE-POINT HITCH

Mixed regulation of lifting the rear three-point hitch means that the tool connected to the rear three-point hitch is automatically being adjusted depending on changing soil resistance and at the same time it prevents any increase in depth of tilling in case of smaller soil resistance.

Set the depth of tilling by lever (1) as described in “Power regulation of the lifting of the rear three-point hitch”. Then start moving lever (2) in the direction shown by the arrow until the arms of the rear three-point hitch start to rise slightly. Herewith, mixed regulation has been set. Move the adjustable stop (5) to lever (2) which has been set and lock it. At the end of each row, raise the tool connected to the rear three-point hitch only by moving lever (2) to (e) position. To lower the tool to its operating position again, move lever (2) to the preset stop.
EXTERIOR REAR HYDRAULIC ARMS CONTROLS
Exterior rear hydraulic arms controls are located on the rear right wing. They make it easier for the operator to connect tools by controlling the movements of the lower drawbars of the three-point hitch from the outside. They only serve for connecting and disconnecting the tools.

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

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

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

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

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

Outer hydraulic circuit controls are located on the right wing.
lever (a) controls the lower section of distributor – quick couplers (1) and (2)
lever (b) controls the central section of distributor – quick couplers (3) and (4)
lever (c) controls the upper section of distributor – quick couplers (5) and (6)

Quick coupler (0) is directly connected with transmission and it is supposed for recuperative oil of exterior hydraulic appliances (e.g. from rotary hydraulic engines etc.).

According to the equipment of the tractor, the following combinations of control levers and quick couplers can be supplied:
lever (a) – quick couplers (1) and (2)
levers (a) and (b) – quick couplers (1), (2), (3) and (4)
levers (a),(b) and (c) – quick couplers (1), (2), (3), (4), (5) and (6)

Quick coupler (0) is supplied in any case.

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

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

⚠️ For safety reasons, always lock outer hydraulic circuit levers in neutral position (N).
DIFFERENT FUNCTIONS OF OUTER HYDRAULIC CIRCUIT CONTROL LEVERS

There are four positions of the lever (a):

**N** - Neutral position. Quick coupler drives (1) and (2) are closed and oil in the hydraulic appliance connected is blocked. Lever (a) is locked in this position.

**1** - Pressure in quick coupler (1). Quick coupler (2) is connected with the drain. Lever (a) is locked in this position. In case pressure exceeds 16.5 MPa when connected to quick coupler (1), lever (a) automatically returns to (N) position – “kick-out” function.

**2** - Pressure in quick coupler (2). Quick coupler (1) is connected with the drain. Lever (a) is locked in this position. In case pressure exceeds 16.5 MPa when connected to quick coupler (2), lever (a) automatically returns to (N) position – “kick-out” function.

**P** - Floating position. Both quick couplers (1) and (2) are connected with the drain and oil is free to flow in both directions. Lever (a) is locked in this position.
DIFFERENT FUNCTIONS OF OUTER HYDRAULIC CIRCUIT CONTROL LEVERS

There are four positions of the lever (b):

N - Neutral position. Quick coupler drives (3) and (4) are closed and oil in the hydraulic appliance connected is blocked. Lever (b) is locked in this position.

3 - Pressure in quick coupler (3). Quick coupler (4) is connected with the drain. It is necessary to hold lever (b) in this position, when released, lever (b) automatically returns to (N) position. In addition, quick coupler (3) is equipped with a one-way valve – convenient for connecting a tool which requires higher degree of impermeability – minimum lowering of the tool during transport.

4 - Pressure in quick coupler (4). Quick coupler (3) is connected with the drain. Lever (b) is locked in this position.

P - Floating position. Both quick couplers (3) and (4) are connected with the drain and oil is free to flow in both directions. Lever (b) is locked in this position.
DIFFERENT FUNCTIONS OF OUTER HYDRAULIC CIRCUIT CONTROL LEVERS

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

N - Neutral position. Quick coupler drives (5) and (6) are closed and oil in the hydraulic appliance connected is blocked. Lever (c) is locked in this position.

5 - Pressure in quick coupler (5). Quick coupler (6) is connected with the drain. It is necessary to hold lever (c) in this position, when released, lever (c) automatically returns to (N) position. In addition, quick coupler (5) is equipped with a one-way valve – convenient for connecting a tool which requires higher degree of impermeability – minimum lowering of the tool during transport.

6 - Pressure in quick coupler (6). Quick coupler (5) is connected with the drain. Lever (c) is locked in this position.

P - Floating position. Both quick couplers (5) and (6) are connected with the drain and oil is free to flow in both directions. Lever (c) is locked in this position.
HYDRAULIC SYSTEM

<table>
<thead>
<tr>
<th>Working area: in flat terrain</th>
<th>Working area: in a slope</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. amount of oil taken: 20 liters</td>
<td>Max. amount of oil taken: 13 liters</td>
</tr>
<tr>
<td>Gearbox filling: standard filling</td>
<td>Gearbox filling: standard filling</td>
</tr>
</tbody>
</table>

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

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

AMOUNT OF OIL TAKEN FROM OUTER HYDRAULIC DRIVES

For maximum amount of oil taken see the following table.

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

If the amount of oil in transmission decreases after disconnecting the tool due to its permanent outflow out of the tractor into the machine’s hydraulic circuit, refill the oil missing.
**QUICK COUPLERS WITH DRIPPING OIL RESERVOIR**

On request, dripping system for holding leakage oil can be installed. Check the reservoir regularly; if it is full, empty it ecologically.

**CONNECTING AND DISCONNECTING QUICK COUPLERS**

When connecting or disconnecting quick couplers, be careful about leakage oil which rests on the coupler socket. To behave ecologically, remove the leakage oil each time after disconnecting the couplers with a textile cloth.
HYDRAULIC SYSTEM

CONNECTING MACHINERY AND TOOLS TO OUTER HYDRAULIC CIRCUIT

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

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

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

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

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

⚠️ Connectable machinery which makes use of oil in outer hydraulic circuit must be filled with the same kind of oil as recommended for tractor gearbox!
Quick coupler sockets of connectable machinery must be cleaned properly before connecting.
## HITCHES

<table>
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<th>Page</th>
</tr>
</thead>
<tbody>
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<td>Safety principles with work with a three-point hitch</td>
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<td>Working and transport positions of the front three-point hitch</td>
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<td>Drive with farming mechanisms attached to the front three-point hitch</td>
<td>112</td>
</tr>
</tbody>
</table>
HITCHES

REAR THREE-POINT HITCH

It is designed for coupling of carried or semi-carried farming mechanisms and implements with hitch points of category I or II according to ISO. The categories differ in the length of the hitch axis, i.e. distance of centres of balls of lower hitch joints with attached implements.

### Category I.

<table>
<thead>
<tr>
<th>Length of hitch axis</th>
<th>728mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ø of holes of coupling balls</td>
<td>28mm</td>
</tr>
<tr>
<td>Ø of lower pull rods acc. to ISO</td>
<td>25mm</td>
</tr>
</tbody>
</table>

### Category II.

<table>
<thead>
<tr>
<th>Length of hitch axis</th>
<th>870mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ø of holes of coupling balls</td>
<td>28mm</td>
</tr>
<tr>
<td>Ø of lower pull rods acc. to ISO</td>
<td>25mm</td>
</tr>
</tbody>
</table>

1. Upper pull rod
2. Left lifting pull rod
3. Right lifting pull rod
4. Limiting pull rods
5. Lower pull rods

SAFETY PRINCIPLES WITH WORK WITH A THREE-POINT HITCH

⚠️ The persons not charged with work with an implement to the tractor may not stay between the tractor and hitched mechanism (implement) - (A).

Do not park the tractor with hitched implement in lifted position (B).

When driving without any implement it is necessary to couple lower pull rods (5) using springs and set the upper pull rod (1) into the flexible hitch! For transport of an implement the limiting pull rods (4) shall be adjusted to prevent any undesired side movements of the implement!
HEIGHT ADJUSTMENT OF LIFTING PULL RODS
Lifting pull rod see fig. (A):
Perform adjustment by turning of the eye (1) after disconnection of the upper end of the lifting pull rod.

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

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

FIXED AND FREE POSITION OF LOWER HYDRAULIC PULL RODS
Fixed position of lower hydraulic pull rods see fig. (A):
The pin head (1) and washer (2) are mounted horizontally.

Free position of lower hydraulic pull rods see fig. (B):
The pin head (1) and washer (2) are mounted vertically.
Free position allows free coupling of the tractor and implement. Both ends of the pull rods may move freely each other in this case.

LIMITING PULL RODS
The limiting pull rods (1) allow side swings of the lower pull rods. The left and right limiting pull rods can be adjusted by turning of the pull rod pipe, see the arrow.

Both limiting pull rods shall always be mounted on the tractor.
UPPER PULL ROD
Length of the upper pull rod (1) is adjustable. The pull rod can be connected to the tractor to one of four holes in the bracket that transfers forces from the hitched implement to the torsion rod in the cover of the hydraulics regulation.

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

UPPER PULL ROD

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

SELECTION OF HOLES IN THE BRACKET
Connection of the upper pull rod to some of the holes "a" to "d" of the bracket influences:
- Sensitivity of hydraulics regulation (selection lever of the system in position "D" or "M"). Sensitivity is highest when the pull rod is connected to the hole "a".
*LOWER PULL BARS WITH EXTENSIBLE TERMINALS*

The lower pull bars of the hitch are provided with semi-automatic extensible terminals CBM. These terminals facilitate coupling of the implement to the tractor. After pulling out the locking pins (1) push out the terminals (2). The pushed out terminals can be then attached to the fixing pins of the carried implement. After attaching the carried implement release the hydraulic arms. By lowering them and reversing the tractor the terminals (2) slide into the pull bars and lock themselves automatically in the working position using the locking pins (1).

*Check always position of extensible terminals and locking pins, see fig. (3).*

*LOWER PULL BARS WITH HOOKS CBM*

The lower (3) and upper (4) pull bars of the hitch are provided with hooks CBM. First the implement shall be completed with hitch balls CBM (1) and adjust the distance between lower pull bars of the hitch (3) using the limiting pull bars. By reversing of the tractor and slight lifting of the three-point hitch its lower pull bars (3) are connected to the implement and the upper pull bar (4) of the three-point hitch is then connected by the driver from the cabin. When uncoupling the implement, unlock the hooks, lift the upper pull bar (4) using the control stranded wires and disconnect the lower pull bars (3) by lowering of the three-point hitch.

*BLOCKING OF LOWER LINKAGES WITH CBM HOOKS*

*For very difficult working conditions (aggregation with heavy machines on slopes or aggregation with side loaded machines) we recommend to lock the lower linkage hook by inserting of a M8 bolt to the orifice (S) and blocking of the bolt with a nut.*
FRONT THREE-POINT HITCH
It is designed for coupling of front-carried farming mechanisms and implement of category II according to ISO.

⚠️ When transporting a carried implement it is always necessary to secure the hitch lifted position hydraulically using the valves that are located on the left side of the tractor above the front axle.

This hydraulic locking is recommended even in case that there is not coupled any mechanism to the three-point hitch.

ADJUSTMENT OF LIFTING SPEED OF THE FRONT THREE-POINT HITCH
Before commencement of work with the implement attached to the front three-point hitch it is recommended to adjust the throttling valve (3) so that the time necessary to lower the implement from the highest to the lowest position is 1 to 1.5 second. Rotation of the valve body counterclockwise (in direction of the arrow) the lowering speed increases. During adjustment the front hitch valve levers shall be in horizontal position.
COTROLLING FRONT THREE-POINT HITCH

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

<table>
<thead>
<tr>
<th>Position</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 position</td>
<td>lifting</td>
</tr>
<tr>
<td>4 position</td>
<td>lowering</td>
</tr>
<tr>
<td>N position</td>
<td>locking the hitch</td>
</tr>
<tr>
<td>P position</td>
<td>not to be used</td>
</tr>
</tbody>
</table>

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

Hydraulic locking of the front three-point hitch can be carried out in any position of the hydraulic cylinders using valves installed in the front part of the tractor (2).

A Free position
   - The valve levers are in horizontal position
   - The hitch can be controlled from the cabin

B Locked position
   - The valve levers are in vertical position
   - The hitch is locked

WORKING AND TRANSPORT POSITIONS OF THE FRONT THREE-POINT HITCH

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

Change of position of the pull bars of the front three-point hitch:
1. Unlock and remove the pin (1) from the hole.
2. Lift the arm from position (A) to position (B).
3. Lock the arm by inserting the pin to the hole (2) and then lock the pin.

Insert only pin to the hole; never check its clearness by fingers!

DRIVE WITH FARMING MECHANISMS ATTACHED TO THE FRONT THREE-POINT HITCH

When driving a tractor farming mechanisms attached to the front three-point hitch, the maximum permitted speed is 15 km.h⁻¹. In case that there is not coupled any mechanism or weight to the front three-point hitch, it is recommended to lift the lower lifting pull bars to their transport position.
# CHANGE OF WHEELS TREAD

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| Setting of stops on the front driving axle | 115 |
| Front wheels toe-in | 116 |
| Adjustment of toe-in with tractors equipped with a front driving axle | 117 |
| Mudguards of the front driving axle | 117 |
| Change of rear wheels tread | 118 |
CHANGE OF WHEEL TREAD

CHANGE OF FRONT WHEELS TREAD ON THE FRONT DRIVING AXLE

Change of trend can be performed by change of position of the rim and disk.

<table>
<thead>
<tr>
<th>Tyres used</th>
<th>Adjustable treads (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>11,2-24; 11,2R24</td>
<td>1,525; 1,620; 1,680; 1,770; 1,825; 1,920</td>
</tr>
<tr>
<td>12,4-24; 12,4R24</td>
<td>1,610; 1,690; 1,760; 1,835; 1,910</td>
</tr>
<tr>
<td>13,6R24; 380/70 R24</td>
<td>1,610; 1,690; 1,760; 1,835; 1,910</td>
</tr>
</tbody>
</table>

1. Dismount the front wheels.
2. Screw out nuts of bolts securing the disk with the rim and slide out the bolts.
3. Adjust wheels tread by setting the rim to the desired position.
4. Reinstall the bolts with washers and secure the bolts by the nuts.
5. Tighten nuts of the bolts, connecting the disk with the rim, by a torque 200 to 220Nm.
6. Tighten nuts of bolts, connecting the disk with the shaft, by a torque 250 to 290Nm.
7. After every loosening of the beed connection tighten the bolts to the prescribed value.
8. After covering the distance 100m with unloaded tractor retighten the connections to the prescribed torque value.
9. After loading the tractor retighten the bolts after 3 operating hours.
10. After 10 operating hours recheck tightening of the nuts of disks and beeds on the wheels.

First secure the tractor against any movement; lift the axle using a jack and chock it.
SETTING OF STOPS ON THE FRONT DRIVING AXLE

Carry out setting of the stops in case of any change of front wheels tread of the driving axle according to the tables after loosening the nut (2) and screwing out or screwing in the bolt (1) to the value "A". After setting the bolt (1) tighten the nut (2) by a torque 100 to 150Nm.

<table>
<thead>
<tr>
<th>Tire</th>
<th>11,2-24</th>
<th>12,4-24</th>
<th>13,6R24</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treads</td>
<td>A (mm)</td>
<td>A (mm)</td>
<td>A (mm)</td>
</tr>
<tr>
<td>1525</td>
<td>60</td>
<td>61</td>
<td></td>
</tr>
<tr>
<td>1610</td>
<td></td>
<td></td>
<td>59</td>
</tr>
<tr>
<td>1620</td>
<td>46</td>
<td>55</td>
<td></td>
</tr>
<tr>
<td>1680</td>
<td></td>
<td>47</td>
<td></td>
</tr>
<tr>
<td>1690</td>
<td></td>
<td>50</td>
<td></td>
</tr>
<tr>
<td>1760</td>
<td></td>
<td>43</td>
<td></td>
</tr>
<tr>
<td>1770</td>
<td></td>
<td>39</td>
<td></td>
</tr>
<tr>
<td>1825</td>
<td></td>
<td>32</td>
<td></td>
</tr>
<tr>
<td>1835</td>
<td></td>
<td></td>
<td>34</td>
</tr>
<tr>
<td>1910</td>
<td></td>
<td></td>
<td>27</td>
</tr>
<tr>
<td>1920</td>
<td></td>
<td></td>
<td>27</td>
</tr>
</tbody>
</table>

In case of tractors equipped with a braked front axle and change of the front wheels tread to the value 1,910mm or 1,920mm it is necessary to check the distance between the threaded end of the stop screw and wheel hub after adjustment of the stop screw to the value 27mm. **This distance shall be at least 4mm!**
The value of front wheels toe-in was measured on the rim of the tractor:
- **With driving axle:** 0 to 4mm

The toe-in "S" is given by the difference of the measured values: \( S = b - a \).

⚠️ Before you check the toe-in, it is necessary to inflate the front tyres to the prescribed pressure. *Measurement of toe-in is performed on rims of the wheels.*
**CHANGE OF WHEELS TREAD**

**ADJUSTMENT OFToe-IN WITH TRACTORS EQUIPPED WITH A FRONT DRIVING AXLE**

*Note:* The tractors are equipped standardly with hydrostatic steering.
- Set the wheels symmetrically with the longitudinal axis of the tractor.
- As shown on fig. E503, measure at the front end in horizontal axis the distance between the rims. Mark the point of measurement.
- Drive on with the tractor so that the marked points are in horizontal plane of the wheels axis on the back (turning by 180°) and repeated measurement of the distance between the marked points.
- Release the lock nuts of ball joint heads (2) of steering connecting rods at the hydraulic cylinder.
- Adjust toe-in of wheels by turning the ball joint shank (3). Perform adjustment of both joints symmetrically to preserve the same locks of wheels to both sides (carry out measurement on sides of the rims).
- Tighten lock nuts of ball joint heads (2) by a torque 122 to 136N. The upper surfaces of the heads (1) shall be parallel.

**MUDGUARDS OF THE FRONT DRIVING AXLE**

The mudguards are mounted on adjustable brackets that can be adjusted to sides (by relocation of screws “a” into other holes) and to the desired height (by relocation of the screws “b” to other holes) according to the desired wheel treads and type of the tyres used.
CHANGE OF WHEELS TREAD

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

After a change of the wheels tread tighten all bolts, connecting the disk with the rim, by a torque 200 to 220Nm and the nuts of bolts, connecting the disk with the shaft, by a torque 400 to 470Nm.

- After each release of the bead joint tighten the bolts to the prescribed torque.
- After covering of 100m with unloaded tractor retighten the joints to the prescribed torque value.
- After loading of the tractor retighten the joints after 3 operating hours.
- After 10 operating hours recheck tightening of nuts of the disks and wheel rim beads.
- Carry out frequent checks of tightening of nuts of disks and beads on the front and rear wheels within first 100 operating hours (at least 6 checks in the course of first 100 operating hours).
- Recheck tightening of nuts of disks and rim beads on the front and rear wheels every other 100 operating hours.

CHANGE OF REAR WHEELS TREAD

<table>
<thead>
<tr>
<th>Tyres used</th>
<th>Tyre width (mm)</th>
<th>Adjustable wheel tread</th>
</tr>
</thead>
<tbody>
<tr>
<td>13.6-36</td>
<td>348</td>
<td>1,350 – 1,800</td>
</tr>
<tr>
<td>16.9-30</td>
<td>429</td>
<td>1,425 – 1,800</td>
</tr>
<tr>
<td>16.9R30</td>
<td>429</td>
<td>1,425 – 1,800</td>
</tr>
<tr>
<td>480/70R30</td>
<td>479</td>
<td>1,425 – 1,800</td>
</tr>
<tr>
<td>18.4-30</td>
<td>467</td>
<td>1,500 – 1,800</td>
</tr>
<tr>
<td>16.9-34</td>
<td>429</td>
<td>1,425 – 1,800</td>
</tr>
<tr>
<td>16.9R34</td>
<td>429</td>
<td>1,425 – 1,800</td>
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<td>429</td>
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</tr>
<tr>
<td>18.4-34</td>
<td>467</td>
<td>1,500 – 1,800</td>
</tr>
<tr>
<td>18.4R34</td>
<td>467</td>
<td>1,500 – 1,800</td>
</tr>
</tbody>
</table>

Standard adjustment of the wheel tread by the manufacturer is 1,500mm.
The rear wheels tread can be adjusted by a change of position of the rim and disk when the rear part of the tractor is lifted. It is necessary to ensure free rotation of the wheels.
ADDITIONAL WEIGHTS

Additional weights are necessary to increase pressure onto axles, better steering ability and stability of the tractor (when working with a front loader, observe directions of its manufacturer).
### ADDITIONAL WEIGHTS

#### WEIGHTS IN FRONT OF THE BONNET MASK

<table>
<thead>
<tr>
<th>Combination of weights (pcs)</th>
<th>Weights (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>4+1</td>
<td>4x50 + 66</td>
</tr>
<tr>
<td>8+1</td>
<td>8x50 + 66</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Combination of weights (pcs)</th>
<th>Weights (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>10x28</td>
</tr>
</tbody>
</table>

#### WEIGHTS OF REAR WHEELS

<table>
<thead>
<tr>
<th>Combination of weights (pcs)</th>
<th>Weights (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2+2</td>
<td>2x16 + 2x30</td>
</tr>
<tr>
<td>2+4</td>
<td>2x16 + 4x30</td>
</tr>
<tr>
<td>2+8</td>
<td>2x16 + 8x30</td>
</tr>
</tbody>
</table>

A - Mounting of weights for rear wheel treads 1,350 to 1,500mm
B - Mounting of weights for rear wheel treads 1,575 to 1,800mm
ADDITIONAL WEIGHTS

VALVE FOR FILLING OF TYRES WITH A FLUID
All inner tubes of rear wheels are provided with valves that allow their filling with a fluid if an extension is used.

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

CHOCKING OF FRONT WHEELS
⚠️ Before lifting of rear wheel do not forget to secure the tractor against any movement by chocking of front wheels!
ADDITIONAL WEIGHTS

PROCEDURE OF FILLING OF TYRES WITH WATER
1. Lift the tractor to relieve the tyre and turn the tyre to position the tyre valve upwards (A).
2. Discharge air and screw out the valve insert.
3. Screw on the extension for filling with water and connect a hose of water supply.
4. Fill the tyre with prescribed volume of the fluid.
5. For filling of the tyre you can use a gravity tank (B) us fill the tyre under pressure (C).
6. Disconnect the hose and screw off the water filling extension.
7. Screw in the valve insert and inflate the tyre to the prescribed pressure (D).
8. Then screw on a protective cap onto the valve.
9. Fill up the other tyre in the same way.

PROCEDURE OF DISCHARGE OF A FLUID FROM TYRES
1. Lift the tractor to relieve the tyre and turn the tyre to position the tyre valve upwards (A).
2. Discharge air and screw out the valve insert; turn the wheel to position the valve downwards.

Discharging of the fluid may cause underpressure in the tyre. Therefore turn slightly the wheel from time to time to get the valve to upper position (B)!

3. Remove residues of the fluid using compressed air after screwing in the water filling extension (C).
4. Blow out fluid as long as it stops flowing out from the air extension pipe.
5. Screw off the water filling extension.
6. Screw in the (D)
7. Then screw on a protective cap onto the valve.
8. Discharge fluid from the other tyre in the same way.
ADDITIONAL WEIGHTS

MAXIMUM WEIGHT OF FLUID (kg) ACCORDING TO DIMENSIONS OF TYRES

<table>
<thead>
<tr>
<th>Tyre dimensions</th>
<th>12,4-36</th>
<th>14,9-28</th>
<th>16,9-28</th>
<th>16,9-30</th>
<th>480/70R30</th>
<th>16,9-34</th>
<th>18,4-30</th>
<th>18,4-34</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight (kg)</td>
<td>160</td>
<td>190</td>
<td>215</td>
<td>240</td>
<td>280</td>
<td>250</td>
<td>337</td>
<td>345</td>
</tr>
</tbody>
</table>

NON-FREEZING SOLUTION FOR FILLING OF TYRES

<table>
<thead>
<tr>
<th>Water for preparation of solution</th>
<th>Calcium chloride CaCl₂</th>
<th>Lime hydrate</th>
<th>Solution density at 20 °C</th>
<th>Solidification point approx.</th>
<th>Total volume</th>
<th>Additional weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>(l)</td>
<td>(kg)</td>
<td>(kg)</td>
<td>(°C)</td>
<td>(l)</td>
<td>(kg)</td>
<td></td>
</tr>
<tr>
<td>45</td>
<td>11,8</td>
<td>0,21</td>
<td>1,13</td>
<td>-18</td>
<td>50</td>
<td>57</td>
</tr>
<tr>
<td>45</td>
<td>13,9</td>
<td>0,23</td>
<td>1,18</td>
<td>-25</td>
<td>50</td>
<td>59</td>
</tr>
<tr>
<td>45</td>
<td>15,4</td>
<td>0,25</td>
<td>1,21</td>
<td>-30</td>
<td>50</td>
<td>61</td>
</tr>
</tbody>
</table>

Preparation of solution:

1. *Anhydrous lime CaCl₂ shall be added to water, never inversely!*
2. The fluid is not dangerous, however, handle it carefully. Wash spilled drops with clean water.
3. Before filling let the solution cooled down. Observe the prescribed volume of hydrated lime.
4. The solution may not come into contact with metal parts and electric installation! It does not damage the tyre tube valve.
5. Frost-resistant solution, prepared in the given composition, may not be used in the cooling system!
6. Dispose anti-freeze means after discharging as special waste!
No additional interventions may be carried out on electric installation of the tractor (connection of other electric consumers) due to its possible overloading!
With repairs of electric installation pay special attention in particular to manipulation with the battery to avoid any contact of electrolyte with skin or clothing.
ESSENTIAL SERVICE INFORMATION

The battery shall always be connected with “minus” pole to the frame and “plus” pole to the alternator. Reverse connection of the battery destroys the semi-conducting equipment of the alternator. With use of an additional battery for starting of the tractor, do not forget connect the outlets "plus" to "plus" and "minus" to "minus". In case of a replacement of some part of the charging circuit, disconnect the battery using the disconnector from the frame of the tractor ("-" pole). This prevents any accidental short-circuit on the terminals.

⚠️ With any manipulation or repair of the starter it is necessary to disconnect minus pole of the battery and move all shifting levers including lever of engagement of the output shaft to neutral position (do not also forget if arrested switches of output shafts on the right column of the cabin are off to avoid spontaneous start and jeopardise life of the mechanic.

⚠️ It is forbidden to start the tractor by short-circuiting the starter terminals.
Start the tractor from the driver’s seat only.
ELECTRIC INSTALLATION

BATTERY
The battery (1) is installed on the left side, under the cabin.
The battery disconnector (2) is installed on the left side at the battery.
a - Battery connected
b - Battery disconnected

In case that the tractor is put out of operation for a longer period, it is recommended to disconnect the battery using the battery disconnector. It is necessary to charge the battery at least each three months due to its self-discharging.

MAINTENANCE OF THE BATTERY
Keep the battery clean and fixed safely to the vehicle. However, the fixing device may not deform the battery case. In case of polypropylene batteries electrolyte level shall not be under the minimum level mark as seen on the case.

Refill the battery with distilled water only!
1. Read carefully the instructions delivered with the battery before you handle with it!
2. Protect your eyes with goggles or face shield when handling with the battery!
3. Electrolyte is strong caustic, therefore handle with it carefully! Wash skin, stained with electrolyte, with water and neutralise with soap, as well as stained clothes. Keep out of reach of children!
4. Charging generates hydrogen on the electrodes that is explosive if mixed with air. It is forbidden to handle with open flame close to the battery being charged!
5. Explosion may also be caused by a spark when disconnecting the battery or by released terminal when the charging circuit is under voltage!
6. Disposed battery is dangerous waste; when purchasing a new battery, deliver the old one to the dealer for free disposal.
7. Insufficiently charged battery may freeze in winter.
**ELECTRIC INSTALLATION**

**ALTERNATOR**

It is accessible after opening of the bonnet. Recharging of the battery is indicated by a red light on the dashboard cluster; this light shall be off after starting the engine.

Burnt indication lamp 12V/2W shall be immediately replaced by a lamp of identical parameters. The indicator is part of the alternator excitation circuit; in case that the lamp is burnt, the battery is not recharged! When repairing the tractor using electric welding all conductors shall be disconnected from the alternator. Protect the conductor "+B" against short-circuit.

**MAINTENANCE OF THE ALTERNATOR**

During cleaning and washing of the tractor protect the alternator against water or diesel oil! Alternator shall not be disconnected from the battery during run of the engine! Alternator shall not be put into operation without loading, i.e. with the conductor disconnected from the terminal “+B” and connected terminal “+D”. Such connection may generate extraordinary high voltage in case of increasing of speed of the engine and such voltage might destroy the semi-conductors! Never short-circuit any battery terminal during run of the engine! Alternator shall not be excited additionally. In such case the semi-conductors may be damaged! Pay attention to perfect electric connection on the terminals and grounding of the alternator! Poles of the alternator may not be reversed even for a short time!
FUSE BOX
It is accessible after removal of the left cover of the steering bracket.
The blade-type fuses (1) shall be replaced for new ones having the same rating. In case of repeated blowing seek an authorised repair shop.
Rating of the strip-type fuse (2) is 80 A.
### ELECTRIC INSTALLATION

#### PLACEMENT OF FUSES IN FUSE BOX

<table>
<thead>
<tr>
<th>Pos.</th>
<th>Fuse size</th>
<th>Protected system</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>15A</td>
<td>Warning lights chopper</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Brake lights</td>
</tr>
<tr>
<td>2</td>
<td>15A</td>
<td>horn, beacon</td>
</tr>
<tr>
<td>3</td>
<td>15A</td>
<td>Dashboard feeding, EHR control and engine ignition</td>
</tr>
<tr>
<td>4</td>
<td>15A</td>
<td>Lower beam headlights with a switch</td>
</tr>
<tr>
<td>5</td>
<td>15A</td>
<td>Left side lights, dashboard illumination, licence label illumination</td>
</tr>
<tr>
<td>6</td>
<td>15A</td>
<td>Right side lights, rear working light with a control</td>
</tr>
<tr>
<td>7</td>
<td>15A</td>
<td>Right dipped lights, fog headlamp with a control</td>
</tr>
<tr>
<td>8</td>
<td>7.5A</td>
<td>Left dipped lights, lights control in a grill/roof of tractor</td>
</tr>
<tr>
<td>9</td>
<td>15A</td>
<td>Working lights in bonnet grill</td>
</tr>
<tr>
<td>10</td>
<td>3A</td>
<td>Front PTO shaft</td>
</tr>
<tr>
<td>1A</td>
<td>15A</td>
<td>Diesel particle filter</td>
</tr>
<tr>
<td>1B</td>
<td>15A</td>
<td>Reserved</td>
</tr>
<tr>
<td>11</td>
<td>15A</td>
<td>Front and rear windshield wiper, windshield washer, radio “15”</td>
</tr>
<tr>
<td>12</td>
<td>20A</td>
<td>Heating ventilator, radio “30”</td>
</tr>
<tr>
<td>13</td>
<td>15A</td>
<td>recirculation, igniter</td>
</tr>
<tr>
<td>14</td>
<td>7.5A</td>
<td>Air-condition (compressor clutch)</td>
</tr>
<tr>
<td>15</td>
<td>15A</td>
<td>Mirror heater</td>
</tr>
<tr>
<td>16</td>
<td>15A</td>
<td>Rear glass heater</td>
</tr>
<tr>
<td>17</td>
<td>15A</td>
<td>Driver’s seat compressor</td>
</tr>
<tr>
<td>18</td>
<td>20A</td>
<td>Three-pin socket</td>
</tr>
<tr>
<td>19</td>
<td>15A</td>
<td>Front working headlight in the roof</td>
</tr>
<tr>
<td>20</td>
<td>15A</td>
<td>Rear working headlights in the roof</td>
</tr>
<tr>
<td>21</td>
<td>80A</td>
<td>Ignition</td>
</tr>
</tbody>
</table>
CHECK OF ADJUSTMENTS OF LIGHTS IN THE MASK OF THE TRACTOR

When checking the headlamps using a testing wall, the tractor shall stand on a horizontal surface and the tyres inflated to the prescribed pressure. Basic vertical adjustment is 3.5% at unladen weight of the tractor. In horizontal direction the light beams shall be parallel with longitudinal axis of the tractor symmetry.

- **l** - Distance of the testing wall from the headlamp (5m)
- **h** - Height of the headlamp centre above the road surface
- **Δh** - Headlamp inclination -3.5% of the testing wall distance = 17.5cm
- **α** - Elevation of the asymmetric light picturing (15%)

ADJUSTMENT OF LIGHTS IN THE MASK OF THE TRACTOR

Adjustment is carried out by all screws for vertical and horizontal directions simultaneously. After adjustment all springs of non-adjustment screws shall be pre-stressed! Each headlight is adjusted independently. The lamp can be replaced by its pulling out from the rear side of the headlight parabola.
CHECK OF ADJUSTMENT OF LIGHTS ON THE ROOF OF THE CABIN

In vertical direction any point of the illuminated area within plane of the road to the left from the longitudinal vertical plane passing through the headlight centre shall not be more than 30m from the front outline of the tractor.

In horizontal direction the headlight beams shall be parallel with the longitudinal axis of symmetry of the tractor.

Carry out checks of adjustment of the headlamps at unladen weight of the tractor.

The front roof headlights may be used during traffic on ground roads only if there is a front-carried mechanism is coupled to the tractor or an equipment covering the main headlights (in the mask of the tractor).
# ELECTRIC INSTALLATION

## LIST OF LAMPS

<table>
<thead>
<tr>
<th>Pos.</th>
<th>Locations of lamps</th>
<th>Voltage</th>
<th>Power</th>
<th>Socket</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Main headlights H4</td>
<td>12V</td>
<td>55/60W</td>
<td>P 43t</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Roof low beams H7</td>
<td>12V</td>
<td>55W</td>
<td>PX26d</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Front combined lights</td>
<td>12V</td>
<td>21W</td>
<td>BA 15s</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Direction indicators P21W</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Marker lights R5W</td>
<td>12V</td>
<td>5W</td>
<td>BA 15s</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Working and ploughing headlamps</td>
<td>12V</td>
<td>65W</td>
<td>PGJ19-5</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Rear combined lights</td>
<td>12V</td>
<td>5 /21W</td>
<td>BAY 15d</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Tail and stop lamps</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Direction indicators</td>
<td>12V</td>
<td>21W</td>
<td>BA 15s</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Registration plate illumination C5W</td>
<td>12V</td>
<td>2x5W</td>
<td>SV 8,5-8</td>
<td>Illumination, recharging indicator</td>
</tr>
<tr>
<td>7</td>
<td>Dashboard</td>
<td>12V</td>
<td>2W</td>
<td>W2x4,6d</td>
<td>Other indicators</td>
</tr>
<tr>
<td>8</td>
<td>Lighting of the cabin</td>
<td>12V</td>
<td>5W</td>
<td>SV 8,5-8</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Illumination of the heating panel</td>
<td>12V</td>
<td>1,2W</td>
<td>W2x4,6d</td>
<td></td>
</tr>
</tbody>
</table>
TRACTOR MAINTENANCE

OPERATIONS CARRIED OUT DAILY BEFORE BEGINNING OF WORK

Before engine start
Check of amount of oil in engine
Check of amount of coolant and impermeability of joints of the cooling system
Check of amount of oil in steering hydrostatic circuit reservoir
Check of amount of brake fluid and impermeability of hydraulic brakes
Check of amount of oil in gearbox and axle drive
Check of indicator of air cleaner pollution
Check of air pressure in all of the tyres
Check of tightening of wheels
Check of towing jaws and connecting equipment

After engine start
Check of engine lubrication function (indicator lamp)
Check of charge function (indicator lamp)
Check of steering function (indicator lamp)
Check of steering circuit function and impermeability
Check of tractor brakes function and efficiency
Check of trailer or semi-trailer brakes function and efficiency

OPERATIONS CARRIED OUT AFTER EVERY 50 HOURS OF WORK
Tractor lubrication in accordance with lubrication chart

OPERATIONS CARRIED OUT AFTER EVERY 100 HOURS OF WORK
Cleaning of radiator elements with compressed air
Maintenance of dry air cleaner (depending on signal from the pollution indicator)
Check of amount of oil in gearbox and axle driving box
Check of amount of oil in rear axle portal
Check of amount of oil in front output shaft gearbox housing
Check of amount of oil in reducers and front driving axle housing
Discharge of condensate from air reservoir
TRACTOR MAINTENANCE

OPERATIONS CARRIED OUT AFTER EVERY 500 HOURS OF WORK
Diesel particle filter maintenance
Check of Vee belt tension
Check of clearances in the whole hydrostatic steering system
Check of front axle pin clearance
Check of adjustment of coupling and brake pedal clearance
Check of foot brake and handbrake function
Check of trailer brake function
Cleaning and application of a lubricating grease thin layer on accumulator battery terminals
Check of air-pressure system impermeability and function
Check of driver’s seat function, lubrication of movable parts with grease

OPERATIONS CARRIED OUT OUTSIDE THE INTERVAL OF 500 HOURS OF WORK

<table>
<thead>
<tr>
<th>Condition of engine hour-meter</th>
<th>In a new tractor or a tractor after overhaul</th>
<th>Always after… hours of work</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>500 1 000 1 500 2 000 2 500 3 500</td>
<td></td>
</tr>
<tr>
<td>Check and adjustment of valve clearance</td>
<td>o o o o 2000</td>
<td></td>
</tr>
<tr>
<td>Check of injector opening pressure and injection nozzle function</td>
<td>o o 3000</td>
<td></td>
</tr>
<tr>
<td>Replacement of hydrostatic steering hoses</td>
<td>After every 3500 Mth or 4 years</td>
<td></td>
</tr>
<tr>
<td>Check of convergency of the front wheels</td>
<td>o 2000</td>
<td></td>
</tr>
</tbody>
</table>
# TRACTOR MAINTENANCE

## REPLACEMENT OF FILLINGS AND FILTERS

<table>
<thead>
<tr>
<th>Condition of engine hour-meter</th>
<th>In a new tractor or a tractor after overhaul</th>
<th>Always after …. hours of work</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>100</td>
<td>500</td>
</tr>
<tr>
<td>Replacement of engine oil</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>Replacement of engine oil filter cartridge</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>Replacement of fuel filter cartridge</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>Replacement of air filter cartridge</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>Replacement of air filter safety cartridge</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>Replacement of heating filter cartridge</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>Replacement of coolant</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>Replacement of brake fluid</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>Replacement of oil in gearbox and axle drive</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>Replacement of oil in rear axle portals</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>Changing suction filter (hydraulic pump suction filter)</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>Changing insertion of oil cleaner</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>Replacement of oil filter fine cartridge in gearbox distributor</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>Replacement of oil in front driving axle housing</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>Replacement of oil in front driving axle reducers</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>Replacement of hydrostatic steering oil</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>Replacement of hydrostatic steering filter cartridge</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>Replacement of oil in front output shaft housing and cleaning of oil filter screen</td>
<td>o</td>
<td>o</td>
</tr>
</tbody>
</table>
### TRACTOR MAINTENANCE

#### FUELS, COOLANTS AND LUBRICANTS USED - AMOUNTS

<table>
<thead>
<tr>
<th>Name</th>
<th>liter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brake fluid</td>
<td>0,5</td>
</tr>
<tr>
<td>Coolant</td>
<td>20,5</td>
</tr>
<tr>
<td>Oil in engine</td>
<td>10</td>
</tr>
<tr>
<td>Oil for hydrostatic steering</td>
<td>2,5</td>
</tr>
<tr>
<td>Oil for front driving axle housing</td>
<td>5,5</td>
</tr>
<tr>
<td>Oil for front driving axle planet reducers</td>
<td>2x0,6</td>
</tr>
<tr>
<td>Oil for front driving axle planet reducers equipped with brakes</td>
<td>2x1,7</td>
</tr>
<tr>
<td>Oil for portal</td>
<td>2x1,9</td>
</tr>
<tr>
<td>Oil for gearbox and axle drive</td>
<td>62</td>
</tr>
<tr>
<td>Oil for front output shaft gearbox</td>
<td>2,7</td>
</tr>
<tr>
<td>Fuel</td>
<td>150</td>
</tr>
</tbody>
</table>

- If the tractor works on a slope, filling should be increased by about another 7 litres oil. This should also apply to aggregation with machines connected with the hydraulic outside circuit.
## TRACTOR MAINTENANCE

### OIL FOR ZETOR ENGINES EQUIPPED WITH DIESEL PARTICLE FILTER

#### SPECIFICATION OF OILS FOR ZETOR ENGINES EQUIPPED BY DIESEL PARTICLE FILTER

<table>
<thead>
<tr>
<th>Classification</th>
<th>Viscosity class</th>
<th>Performance class</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACEA E9/E7</td>
<td>10W-40</td>
<td>API CJ-4/SM</td>
</tr>
</tbody>
</table>

### OILS FOR ZETOR ENGINE,

<table>
<thead>
<tr>
<th>Oil marking</th>
<th>Viscosity class</th>
<th>Performance class</th>
</tr>
</thead>
<tbody>
<tr>
<td>MOGUL DIESEL L-SAPS 10W-40</td>
<td>10W-40</td>
<td>API CJ-4/SM</td>
</tr>
</tbody>
</table>

### OILS FOR FRONT OUTPUT SHAFT

<table>
<thead>
<tr>
<th>Producer</th>
<th>Oil marking</th>
</tr>
</thead>
<tbody>
<tr>
<td>BP</td>
<td>Autran DX III</td>
</tr>
<tr>
<td></td>
<td>Fluid 9</td>
</tr>
<tr>
<td>Shell</td>
<td>Donax TX</td>
</tr>
<tr>
<td>Esso</td>
<td>ATF E 25131</td>
</tr>
<tr>
<td>Castrol</td>
<td>Transmax S</td>
</tr>
<tr>
<td>Elf</td>
<td>Elfmatic G2 Syn</td>
</tr>
<tr>
<td>FINA</td>
<td>Elfmatic G3</td>
</tr>
<tr>
<td></td>
<td>Finamatic HP</td>
</tr>
<tr>
<td></td>
<td>Finamatic S6726</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Producer</th>
<th>Oil marking</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mobil</td>
<td>Mobil ATF</td>
</tr>
<tr>
<td>Texaco</td>
<td>Texamatic 7045</td>
</tr>
<tr>
<td>Valvoline</td>
<td>ATF Dextron II-E</td>
</tr>
<tr>
<td>Beverol</td>
<td>Dextron II-E</td>
</tr>
<tr>
<td>JD</td>
<td>Hygard JDMJ 20C</td>
</tr>
<tr>
<td>Total</td>
<td>Fluide AT42</td>
</tr>
<tr>
<td></td>
<td>Fluidematic Syn</td>
</tr>
</tbody>
</table>
# TRACTOR MAINTENANCE

## OILS FOR TRACTOR TRANSMISSION GEARING

<table>
<thead>
<tr>
<th>Viscosity class</th>
<th>Output class API</th>
<th>Suitability of use</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAE J 306 MAR 85</td>
<td>SAE J 308 NOV 82</td>
<td>All year round</td>
<td>MIL-L-2105</td>
</tr>
</tbody>
</table>

### TAB. 2

<table>
<thead>
<tr>
<th>Producer</th>
<th>Oil marking</th>
<th>Viscosity class SAE</th>
<th>Output class API</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paramo Pardubice</td>
<td>Gyrol - UTTO</td>
<td>80W</td>
<td>GL-4</td>
</tr>
<tr>
<td></td>
<td>Gyrol 80W</td>
<td>80W</td>
<td>GL-4</td>
</tr>
<tr>
<td></td>
<td>Mogul Trans 80</td>
<td>80W</td>
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</tr>
<tr>
<td></td>
<td>Mogul Traktol UTTO/EKO</td>
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<td>Torque Fluid 62</td>
<td>80W</td>
<td>GL-4</td>
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<tr>
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<td>EP 80</td>
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<tr>
<td></td>
<td>Fluid HGS</td>
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<td>GL-4</td>
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<tr>
<td></td>
<td>Super Traktoral</td>
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<td>GL-4</td>
</tr>
<tr>
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<td>Austromatic HGN</td>
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<td>GL-4</td>
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<td></td>
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<td>GL-4</td>
</tr>
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<td>Austrotrac</td>
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<td>GL-4</td>
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<td>Shell Donax TD</td>
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<td>GL-4</td>
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<tr>
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<td>Shell spirax GX</td>
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<td>Titan Hydramot 1030MC</td>
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<tr>
<td></td>
<td>Renolin G 100</td>
<td>80W</td>
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<td>MOL</td>
<td>Farm NH Ultra (UTTO)</td>
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<td>GL-4</td>
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<tr>
<td></td>
<td>Hykomol 80W</td>
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<td>GL-4</td>
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<tr>
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<td>Hipol® 6</td>
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### OILS FOR FRONT DRIVE AXLE

<table>
<thead>
<tr>
<th>Producer</th>
<th>Oil marking</th>
<th>Viscosity class SAE</th>
<th>Output class API</th>
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<tr>
<td>Agip</td>
<td>Rotra Multi THT</td>
<td>80W</td>
<td>GL-4</td>
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<tr>
<td>Aral</td>
<td>Fluid HGS</td>
<td>80W</td>
<td>GL-4</td>
</tr>
<tr>
<td>Esso</td>
<td>Torque Fluid 62</td>
<td>80W</td>
<td>GL-4</td>
</tr>
<tr>
<td>Fuchs</td>
<td>Titan Supergear</td>
<td>80W-90</td>
<td>GL-4/GL-5</td>
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<tr>
<td></td>
<td>Titan Hydramot 1030MC</td>
<td>10W-30</td>
<td>GL-4</td>
</tr>
<tr>
<td>ÖMV</td>
<td>Gear Oil LS</td>
<td>85W-90</td>
<td>GL-5</td>
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<tr>
<td>Shell</td>
<td>Spirax AX</td>
<td>80W-90</td>
<td>GL-5</td>
</tr>
<tr>
<td>MOL</td>
<td>Hykomol K 80W-90</td>
<td>80W - 90</td>
<td>GL-5</td>
</tr>
<tr>
<td>ORLEN OIL</td>
<td>Platinum Gear 80W-90</td>
<td>80W - 90</td>
<td>GL-5</td>
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</table>

### OIL FOR HYDROSTATIC STEERING FOR TRACTORS

<table>
<thead>
<tr>
<th>Producer</th>
<th>Oil marking</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aral</td>
<td>Vitam DE 32</td>
<td>HLP DIN 51524</td>
</tr>
<tr>
<td>Fuchs</td>
<td>RENOLIND10VG32</td>
<td>HLP DIN 51524-2</td>
</tr>
<tr>
<td>ÖMV</td>
<td>Hyd HLP 32</td>
<td>HLP DIN 51524</td>
</tr>
<tr>
<td>Shell</td>
<td>TELLUS DO 32</td>
<td>HLP DIN 51524</td>
</tr>
<tr>
<td>PARAMO</td>
<td>MOGUL H-LPD 32</td>
<td>HLP DIN 51524</td>
</tr>
<tr>
<td>PARAMO</td>
<td>MOGUL HM 32</td>
<td>HLP DIN 51524</td>
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<tr>
<td>MOL</td>
<td>Hydro HV 32</td>
<td>HVLP DIN 51524-3</td>
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<tr>
<td>ORLEN OIL</td>
<td>Hydrol L-HM 32</td>
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</tr>
<tr>
<td></td>
<td>Hydrol L-HM 46</td>
<td>HLP DIN 51524-2</td>
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</tbody>
</table>
# TRACTOR MAINTENANCE

## PLASTIC LUBRICANT FOR TRACTOR

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

## FLUIDS FOR TRACTOR HYDRAULIC BRAKES

<table>
<thead>
<tr>
<th>Type</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Synthol 205</td>
<td>PND 31-656-80, ISO 4925, SAE - J 1703</td>
</tr>
<tr>
<td>Fuchs MAINTAIN DOT 4</td>
<td>SAE - J 1703</td>
</tr>
<tr>
<td>Brake Fluid DOT 4</td>
<td>ISO 4925, SAE - J 1703</td>
</tr>
<tr>
<td>Shell Donax YB</td>
<td>SAE J 1703, ISO 4925</td>
</tr>
<tr>
<td>EVOX DOT 4+</td>
<td>SAE J 1704, ISO 4925/4</td>
</tr>
</tbody>
</table>

**NOTE!**
1. The fluid is not determined for arctic conditions!
2. The brake fluid should be replaced once every two years regardless of hours of work!
3. The fluids of the same classification may be mixed.
## TRACTOR MAINTENANCE

### FLUID FOR TRACTOR COOLING SYSTEM

FRIDEX - STABIL, FRIDIOL 91 or FRICOFIN S and demineralised water in proportion 1:1.5 (refilling should be carried out in the above-mentioned proportion).

Anti-freeze for refilling abroad should contain anti-corrosive additives protecting any materials (including rubber and head sealing) of the engine cooling system.

**NOTE!**

1. **It is forbidden to charge the tractor cooling system with water without antifreeze!**
2. **The coolant should be changed after two years of operation. Fluids FRIDEX - STABIL and FRIDIOL 91 may be mixed.**
3. **Possibility to mix with fluids of other producers hasn't been tested!**

### FUEL FOR ZETOR ENGINES WHICH ARE EQUIPPED WITH DIESEL PARICLE FILTER

Diesel complies with EN 950 standard

**IMPORTANT NOTE!**

*By using motor oil with elevated sulphur content, the service life of diesel particle filter can be significantly reduced.*
TRACTOR MAINTENANCE

TRACTOR LUBRICATION CHART

FRONT DRIVING AXLE

<table>
<thead>
<tr>
<th>Pos. No.</th>
<th>Name</th>
<th>Number of lubr. points</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Kingpins</td>
<td>4</td>
</tr>
<tr>
<td>2</td>
<td>Central pin</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>Connecting shaft coupling</td>
<td>2</td>
</tr>
</tbody>
</table>
### TRACTOR MAINTENANCE

#### SUSPENSION FOR SINGLE-AXLE TRAILER

<table>
<thead>
<tr>
<th>Pos. No.</th>
<th>Name</th>
<th>Number of lubr. points</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Hook pin bearings</td>
<td>2</td>
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</tbody>
</table>
## THREE-POINT SUSPENSION

<table>
<thead>
<tr>
<th>Pos. No.</th>
<th>Name</th>
<th>Number of lubr. points</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Pins of hydraulic auxiliary cylinders</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>Lifting linkages</td>
<td>2</td>
</tr>
</tbody>
</table>
### Front Three-Point Suspension

<table>
<thead>
<tr>
<th>Pos. No.</th>
<th>Name</th>
<th>Number of lubr. points</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Pins of cylinders of front three-point suspension</td>
<td>4</td>
</tr>
</tbody>
</table>

### Suspension Mouth for Trailer

<table>
<thead>
<tr>
<th>Pos. No.</th>
<th>Name</th>
<th>Number of lubr. points</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Suspension mouth for trailer</td>
<td>1</td>
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</tbody>
</table>
### TRACTOR MAINTENANCE

**UPPER LINKAGE BRACKET**

<table>
<thead>
<tr>
<th>Pos. No.</th>
<th>Name</th>
<th>Number of lubr. points</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Pins of upper linkage bracket</td>
<td>2</td>
</tr>
</tbody>
</table>

![Diagram of upper linkage bracket with numbered points](image-url)
TRACTOR MAINTENANCE

PIN OF COUPLING SWITCHING OFF

<table>
<thead>
<tr>
<th>Pos. No.</th>
<th>Name</th>
<th>Number of lubr. points</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Pin of coupling switching off</td>
<td>2</td>
</tr>
</tbody>
</table>
TRACTOR MAINTENANCE

OVERHAUL IN PROXIMA TRACTORS
Overhaul of the tractor is necessary if its subsequent use is not economical, most of its parts require repair or the overall technical condition endangers safety of transport.

If all instructions for maintenance are followed in accordance with the manufacturer’s documentation and in work in moderate climate and on flat terrain the engine and gear mechanism average service life is 8000 hours of work.

The number of hours of work shall apply to the following distribution of the tractor work:

- ploughing and ground preparation for sowing: 15 - 25 %
- planting and sowing: 10 - 15 %
- harvesting: 10 - 20 %
- agricultural transport: 40 - 65 %

If the tractor works in mountain and piedmont areas, the engine and gear mechanism service life is reduced by 15-20 %.

If the tractor works in severe climate conditions, the engine and gear mechanism service life is reduced by 15 - 20 %.

Notice: The front driving axle is considered a part of the gear mechanism.

TECHNICAL MAINTENANCE OF TRACTORS AFTER OVERHAUL OF UNITS

Initial run of the tractor after the overhaul should follow instructions for initial run of a new tractor. Maintenance is the same as in a new tractor.
Most of operations of planned maintenance may be carried out by the driver or other user of the tractor. In case you do not have sufficient technical equipment, let the difficult operations carried out by a specialised repair shop.

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

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MAINTENANCE INSTRUCTIONS

OPENING OF FRONT BONNET
Opening of the bonnet:
Unlock the bonnet by pressing of the pushbutton (1); grasp it in places of the arrows and lift it.
The bonnet is hold in lifted position by a gas-fluid strut.
Closing of the bonnet:
Grasp the bonnet in places of the arrows; pull it downwards until the lock clicks.

CHECK OF ENGINE OIL LEVEL
Check oil level every day, before start of operation, on the tractor standing on a horizontal surface. The oil gauge rod (1) and filling hole (2) are located on the right side of the engine. Screw out the gauge rod (1), wipe it with a cloth and screw in. After re-screwing it out the oil level shall not be under the lower gauge mark. Refill oil through the filling hole as necessary (2).

DISCHARGE OF ENGINE OIL
1. Screw out the drain plug (1), the best immediately after a drive or warming-up of the engine to its operating temperature.
2. Discharge oil.
3. Clean the drain plug.
4. Screw the drain plug (1) into the hole.

Rapid closing of the bonnet may damage filaments of bulbs in headlights in the front mask.
REPLACEMENT OF FULL-FLOW ENGINE OIL CLEANER

It is replaced with each replacement of engine oil. Before re-installation of a new cleaner clean the sealing surface of the body (1) and cleaner (2). Apply engine oil on rubber sealing and tighten the cleaner by hand. After seating of the sealing onto sealing of the block tighten the cleaner by additional 3/4 to 1 1/4 turn. Check tightness after start of the engine.

POURING OF OIL INTO ENGINE

Pour prescribed volume of oil into the filling hole (2, start the engine and let it running for 2 to 3 minutes at 750 to 800 rpm.

After stopping the engine and stabilisation of level check oil level using the oil gauge rod (1) and check tightness of the cleaner, drain plug (3) and other connections.
REPLACEMENT OF FUEL FILTER CARTRIDGE

Before replacement of the fuel filtration cartridge put a suitable container under the engine to catch any fuel leaking from the cleaner.
1. Release the nut (1).
2. Screw out the body (2).
3. Clean the body and replace the filtration cartridge.
4. Check correct seating of the body sealing.
5. Re-install the body.
6. Bleed the fuel system.

BLEEDING OF FUEL SYSTEM

Before bleeding put a suitable container under the engine to catch any fuel leaking from the cleaner and injection pump.
1. Pressurise the fuel system by several strokes of the feeding pump (1).
2. Release the screw of connection of fuel supply to the cleaner (2) and let the foam escaped.
3. Tighten the screw (2) and repeat the procedure until clean fuel begins flow out from the cleaner after release of the screw.
4. Bleed the injection pump in the same way.
5. Carry out bleeding by the screw (3) that is located on the pump body.
MAINTENANCE INSTRUCTIONS

MAINTENANCE OF DRY AIR CLEANER – INDICATOR OF CLOGGING

Maintenance of the cleaner should be carried out when indicator of clogging warns you of clogging. The indicator is accessible after opening of the front bonnet of the tractor. It is installed on the left side of the air cleaner, close to the suction pipe elbow.

FUNCTION OF INDICATOR OF CLOGGING

Degree of clogging of the air filter is indicated by position of the slider (1) in the indicator window. In case that the slider (1) reached the red field marked service (2), maintenance of the dry air cleaner is necessary.

Push the cap on the indicator body (3) in direction of the arrow; this unlocks mechanically the slider (1) that indicates clogging; the slider then returns of its initial position and restores function of the indicator.

After completion of maintenance of the dry air cleaner ensure correct function of the indicator of clogging.
INSTRUCTIONS FOR MAINTENANCE OF DRY AIR CLEANER

Carry out maintenance of the air cleaner as follows:
1. Lift the front bonnet.
2. Release clips of the air cleaner lid (marked by arrows).
3. Remove the cleaner lid (1).

REGENERATION OF THE MAIN AIR CLEANER CARTRIDGE

Pull out the main cartridge of the dry cleaner (2).
Unless the main cartridge is damaged (no dust may be on the inner surface of the cartridge), carry out regeneration by purging using compressed air from the inner side of the cartridge. This cleaning procedure may be repeated maximum three times. The cartridge shall be replaced every year.

REPLACEMENT OF AIR CLEANER LOCKING CARTRIDGE

Pull out the locking cartridge of the dry cleaner (3).
The locking cartridge cannot be regenerated. It shall always be replaced in these cases:
- when the main cartridge is damaged
- after 5 maintenances of the air cleaner
- at least every two years
REINSTALLATION OF AIR CLEANER CARTRIDGES
Reinstall the air cleaner cartridges in reverse order.

During this operation pay attention to:
- cleanliness of contact surfaces,
- cartridges may not be deformed and may not vibrate after installation,
- perfect tightness of the whole cleaner shall be ensured after closed with the lid,
- after completion of maintenance of the dry air cleaner restore function of the indicator of clogging.
CHECK OF OIL LEVEL IN HYDROSTATIC STEERING TANK

Carry out checks every day before start of operation, on the tractor standing on a horizontal surface. Open the bonnet, screw out the gauge rod, wipe if with a cloth and screw in. The screw it again and check the level that shall not be under the lower gauge mark. Refill oil as necessary after removal of the tank lid.

REPLACEMENT OF OIL AND HYDROSTATIC STEERING FILTRATION CARTRIDGE

1. Put a suitable container under the hydrostatic steering tank.
2. Screw out the drain screw in the tank bottom.
3. Drain oil.
4. Screw out the tank lid nut.
5. Remove hydrostatic steering tank lid.
6. Replace the filtration cartridge.
7. Reinstall the tank lid.
8. Lok its position by the nut.
9. Screw in the drain screw.
10. Disconnect both hoses from the working cylinder and drain tube from the tank (put containers under working cylinder hoses and under the drain tube).
11. Start the engine and at idle speed (max. 10 sec) turn the steering wheel 2-3 times to both sides to push off oil from the control unit and piping.
12. Secure the tractor against any movement and lift the front axle.
13. Put a container under the working cylinder and rotate (manually) wheels to push out oil from the working cylinder.
14. Reconnect all joints.
15. Fill the tank with oil and bleed the hydrostatic steering circuit.
MAINTENANCE INSTRUCTIONS

BLEEDING OF HYDROSTATIC STEERING HYDRAULIC CIRCUIT

1. Secure the tractor against any movement and lift the front axle.
2. Start the engine let it running at idle speed for approx. 1 minute.
3. At idle speed turn the steering wheel to both sides several times.
4. At maximum speed of the engine turn the steering wheel alternately 3 times slowly and quickly up to the limiting stops of the wheels.
5. Stop the engine.
6. After completion of bleeding check and refill (if necessary) oil up to the gauge rod mark. Check tightness of all connections and lines of the hydrostatic steering hydraulic circuit.
7. Lower the front axle.

With all bleeding operations on the hydrostatic steering watch oil level in the tank to prevent suction of air into the steering system.
REPLACEMENT OF HYDROSTATIC STEERING HOSES

The hoses shall be replaced after four years from the date of their manufacturing (the date can be found on their surface) or after 3,500 Mh of the tractor or in case that any traces of their damage are found (weeping of a hose, local bulging, leakage of working medium around terminals and from the surface, damaged jacket by rubbing against metal frame, damaged outer braid of low-pressure hoses).

⚠️ In case of a failure of the pump or if the engine is in standstill, steering ability is preserved, however, the steering wheel shall be manipulated with much higher effort. It is possible to drive with the tractor to the nearest repair shop at reduced speed.

The steering wheel shall not be hold in any side limit position for a longer period (max. 20 sec), otherwise this causes excessive warming of oil in the hydrostatic steering circuit.
REPLACEMENT OF COOLING FLUID

Follow this procedure:
1. Open the heating circuit cock (A) and release the overpressure lid on the expansion tank (B).
2. Drain cooling fluid from the tank (C). The drain screw is accessible after removal of the left part of the bonnet.
3. Drain cooling fluid from the block of the engine (D). The drain cock is accessible after removal of the right part of the bonnet.
4. After drainage of cooling fluid close the screw and cock (let the heating circuit cock open).
5. Fill the cooling system with an anti-freezing mixture.
6. Start the engine and let it running for approx. 1 minute.
7. Refill anti-freezing mixture in the expansion tank up to the upper gauge mark MAX.
8. Close the expansion tank by the overpressure lid.

Replace anti-freezing mixture after two years at the latest.
MAINTENANCE INSTRUCTIONS

CHECK AND REPLACEMENT OF OIL IN GEARBOX, AXLE DRIVE AND REAR AXLE PORTALS

Oil level in the gear mechanisms is checked with oil gauges, which is located in the left rear part of the gearbox case.

A - Standard oil filling

⚠ Check the oil level with the engine stopped.

DRAINAGE AND INSPECTION HOLES

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

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

⚠ *After screwing out the inspection screw the level of oil shall reach lower edge of the inspection hole.
MAINTENANCE INSTRUCTIONS

CHANGING SUCTION FILTER
Suction filter is located on the left side of gearbox. To change the filter, empty the oil from gearbox.

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

CHANGING INSERTION OF OIL CLEANER
Oil cleaner is located on the left side of gearbox.

Before changing the insertion of oil cleaner, place a suitable container under the tractor to capture dripping oil.

1. screw out cleaner body (1)
2. change the filter insertion
3. place the cleaner body back in its original position
**FRONT OUTPUT SHAFT**

The inspection and oil filling plug is located on the front output shaft face.  
*Note:* A plug or hollow screw is installed according to the particular design.  
A hollow screw of the oil cooler hose is installed instead of the inspection and filling plug on the front output shaft with standard direction of rotation. Carry out checks after removal of the hollow screw.

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

With replacement of oil it is necessary to clean the screen oil cleaner (2). This screen-type cleaner is accessible after removal of the retaining ring and the lid.
MAINTENANCE INSTRUCTIONS

LUBRICATION AND FILLING POINTS OF THE FRONT DRIVING AXLE
1 - Steering knuckle lubricator.
2 - Sliding bearing (2x) of the front driving axle.
3 - Gearbox oil drain hole.
4 - Oil filling and inspection hole on the gearbox (after screwing off the inspection screw the oil level shall reach the lower edge of the inspection hole).

OIL FILLING, INSPECTION AND DRAIN HOLES OF FRONT WHEEL REDUCERS
Carry out check, filling and draining of oil through one hole after turning the reducer as illustrated.
1. Check of oil level – the hole is in the reducer horizontal axis (after screwing off the inspection screw the oil level shall reach the lower edge of the inspection hole).
2. Filling of oil – the hole is on the top.
3. Drainage of oil from a non-braked axle – the hole is in the bottom.
4. Drainage of oil from a braked axle – the hole is in the bottom.

REFILLING OF BRAKE FLUID
The tank is located on the left side of the tractor in front of the cabin and accessible after lifting of the bonnet. Keep level of brake fluid within 3/4 (max. height) and 1/2 (min. level) of the tank volume.

⚠️ When manipulating with brake fluid observe strict cleanliness. Check level every day before you drive out.
MAINTENANCE INSTRUCTIONS

CLEANING OF HEATING SYSTEM FILTERS

Carry out regeneration of filters, installed under covering grilles above front glass outside the cabin, as necessary according to the degree of clogging:
- by dusting,
- by purging using compressed air.
Carry out checks of clogging every day. Replace strongly clogged filters.

The safety cabin of the tractor is not equipped with any special filters of air sucked into the cabin. The filters do not protect the driver against effects of aerosols and other harmful substances!

*AIR FILTER WITH ACTIVE CARBON

Filters with active carbon are installed instead of the standard dust filter and replacement is carried out in the same way as in the common filters. The filter should be located with the white surface on the grid.
The filter is used only when spraying pesticides, after the work the paper filter should be reinstalled, because the carbon filter would be choked with dust after a short period of time. Upon work the re-circulation controller should be in the position “air is drawn into from the outside”.
The fan controller should be in the position “fan maximum work”.

- WARNING: The filter does not provide full protection against toxic substances.
- When handling the filter, wear protective gloves.
- Don’t clean the filter; don’t flush it with compressed air.

DANGER: The filter with active carbon should be replaced after every 200 hours or 36 months (manufacture date is stated on the filter). If you can smell pesticides in the cabin, replace the filter immediately and check the cabin sealing. Used filters should be disposed in special disposal centres.
INSTRUCTIONS FOR INSTALLATION OF THE CARBON FILTER
1. Remove the worn out filter from the air duct neck.
2. Remove the protective package of a new filter.
3. Put the filter to the air duct neck so that the air passage direction corresponds to the passage direction through the filter in accordance with the arrow on the filter. The inlet air should pass to the white duct filtration layer first.
4. Check proper sealing of the filter.
5. Fix the filter.

DRAINAGE OF CONDENSATE FROM AIR ACCUMULATOR
Drain condensate by pulling the ring to deflect the bleeding valve. The valve is installed on the air accumulator bottom.

CHECK OF TIGHTNESS OF AIR SYSTEMS
- Fill the air accumulator up to the maximum pressure (730 ± 20 kPa).
- When the engine is stopped, pressure may not drop by more than 10 kPa.

⚠ Carry out checks every day before you drive out with a trailer or semi-trailer!
A warning light on the dashboard lights on in case of a drop of pressure in the brake system under 450 ± 30 kPa!
MAINTENANCE INSTRUCTIONS

WORKING PRESSURE OF AIR BRAKES
In case of a single hose (1) and double-hose (2) designs, air pressure on the double-hose coupling head (red capsule) is 740 ± 20 kPa and on the single-hose coupling head is 600 ± 20 kPa max. (at the moment when pressure regulator relieves the compressor by blowing off).

MAINTENANCE OF THE AIR-CONDITIONING (A/C) SYSTEM
Cleaning of the A/C condenser is the most important part of maintenance of this equipment (it is installed in front of the engine radiator).
Clogged A/C condenser reduces effectiveness of cooling of the A/C system as well as cooling of the engine.

Open the bonnet, screw off the nut (1) and slide the radiator to the side and purge it using compressed air or flush it pressurised water (against direction of drive).
Then slide the radiator back to its position and fix it properly. Pay attention to correct arrangement of hoses to the oil cooler.

With correct function of the A/C system, water condensates in the roof space of the cabin. Condensate is drained by hoses in columns of the cabin and flows out in lower ends of the columns. Therefore pay attention to the hoses that should not be clogged to drain condensate.
MAINTENANCE AND CARE FOR TYRES
Check regularly outer surfaces of the tyres and their sides for defects in side walls and at tyre beads and damaged tyre skeletons.

⚠️ Take out of service tyres with any defects.

INFLATION OF TYRES
Basic values of recommended inflation are specified in the chapter “Essential technical parameters”. Check pressure regularly before you drive out if the tyres are cold. Use the pressure regulator (B) for inflation; this device is used for balancing of pressure, inflation of tyres and as a safety valve. Screw off the wing nut on the pressure regulator (or remove the rubber cap) and screw in a hose for inflation of tyres instead. Screw in the hose up to the end of its thread to squeeze the backflow valve. In case that there is maximum pressure 0.6MPa (or 0.7MPa with double-hose brakes) in the air accumulator, tyres cannot be inflated. In such case it is necessary first to reduce pressure using the valve for draining ofcondensate that is installed on the air accumulator bottom (A). After inflation of tyres it is then necessary to screw on the wing nut onto the pressure regulator (or put back the rubber cap).

LAYING BY THE TRACTOR
In case that the tractor has to be put out of operation for a longer period (storage), support the tractor and reduce pressure in tyres for minimum (the wheels may not be in contact with ground).
GEARBOX DISTRIBUTOR – REPLACEMENT OF OIL CLEANER CARTRIDGE

The gearbox distributor is located on the right side of the tractor behind the fuel tank; the oil cleaner is accessible from the bottom of the tractor.

Before replacement of the oil cleaner cartridge, put a suitable container under the tractor to catch any leaking oil.

1. Screw out the cleaner body (1).
2. Replace the filtration cartridge (2).
3. Reinstall the cleaner body (1).

DIESEL PARTICLE FILTER MAINTENANCE

Leave the maintenance of diesel particle filter to an authorized service.
Most of the following works require certain experience and particular diagnostic equipment. Therefore we recommend that the works executed by a specialised or authorised repair shops.

### ADJUSTMENTS

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ADJUSTMENTS

STRETCHING OF V-BELT
With correct stretching of the V-belt the slack of the belt shall be 5.5mm when a force 25N to one belt is applied. Stretch the V-belt to the prescribed value after releasing of the alternator fixing screws (1, 2).

STRETCHING OF A/C COMPRESSOR V-BELT
With correct stretching of the V-belt the slack of the belt shall be 7.5mm when a force 25N to one belt is applied. Stretch the V-belt to the prescribed value after releasing of the A/C compressor fixing screws.
BLEEDING OF TRACTOR BRAKE SYSTEM

Carry out bleeding of the brake system of the tractor always in the following order:
1. Pneumatic brake system for trailers.
2. Foot brakes of rear wheels.
3. Brake system of the front driving axle.
4. Hydraulic brakes of the trailer.

Carry out bleeding of the pneumatic brake system for trailers and foot brakes of the rear wheels with disconnected brake pedals, separately for each wheel.
Carry out bleeding of the brake system of the front driving axle and hydraulic brakes of the trailer with coupled brake pedals.
During bleeding watch level of the fluid in the expansion tank to prevent suction of air.
Brake fluid in the entire brake system should be replaced after two years.

Warning:
With bleeding of a pneumatic brake system for trailers and brakes of rear wheels it is always necessary to tread on one pedal (1) by 7.5\(^{+0.5}\) mm on the piston rod of the main brake cylinder, i.e. 3\(^{+0.2}\) mm on the adjustment screw (2) and bleed the system using the other pedal. Insert a gauge of the corresponding thickness, i.e. 3\(^{+0.2}\) mm, between the pedal (1) and adjustment screw (2) to ensure correct distance.
1. BLEEDING OF THE MAIN BRAKE VALVE FOR TRAILERS

This operation should be carried out at 730±20 kPa in the system using the following procedure:
1. Refill the missing volume of brake fluid in the expansion tank to the maximum level
2. Remove caps on bleeding screws (2) of the trailer control valve (1), located on the right side of the tractor between the tank and rear axle shaft.
3. Slide hoses onto the screws and sink their other ends to the bottom of a transparent container (3), filled partly with brake fluid. Put the container at least 300mm above the bleeding screws. The screws shall be still under pressure to prevent penetration of air into the system through their threads.
4. Release the bleeding screws max. by 1/4 of turn.
5. The bleeding procedure is the same as in Warning, see p. 188.
6. Tread on completely the pedal that is not blocked by the gauge and tighten the bleeding screw.
7. Release the brake pedal and repeat the procedure until air bubbles stop escaping from the hose.
2. BLEEDING OF BRAKES OF REAR WHEELS

Carry out bleeding as follows:
1. Check level of brake fluid in the expansion tank. Refill missing volume to the maximum if necessary.
2. Slide a hose onto the bleeding screw (2) of the brake cylinder after prior removal of a rubber cap from the screw and sink other end of the hose to the bottom of a transparent container filled partly with brake fluid (3). The bleeding screw shall be still under pressure to prevent penetration of air into the system through its threads. Put the container at least 300mm above the bleeding screw.
3. Release the bleeding screw max. by 1/4 of turn.
4. The bleeding procedure is the same as in Warning, see p. 188.
5. Tread on completely the pedal that is not blocked by the gauge and tighten the bleeding screw.
6. Release the brake pedal and repeat the procedure until air bubbles stop escaping from the hose.
3. BLEEDING OF THE BRAKE SYSTEM OF FRONT DRIVING AXLE

Before bleeding procedure it is always necessary to carry out bleeding of the trailer control valve, as described in par. 1. **Bleeding of air brake system for trailers**, even in case that air brakes are not mounted for the trailer.

Carry out bleeding at operating air pressure 730 ± 20 kPa in the system.

Carry out bleeding as follows:
1. Check level of brake fluid in the expansion tank. Refill missing volume to the maximum if necessary.
2. Remove plastic caps of bleeding screws on brakes of the front driving axle (the screws are located on upper surfaces of the reducers).
3. Slide hoses onto the screws and sink their other ends to the bottom of a transparent container (3), filled partly with brake fluid. Put the container at least 300mm above the bleeding screws. The screws shall be still under pressure to prevent penetration of air into the system through their threads.
4. Bleed left and right brakes simultaneously.
5. Release the bleeding screws max. by 1/4 of turn.
6. Tread on coupled brake pedals up to their 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 of the brake system of the front driving axle tighten the bleeding screws by a torque 0.8 to 1.2 Nm (3).
4. BLEEDING OF HYDRAULIC BRAKES OF THE TRAILER

Carry out bleeding as follows:
1. Refill missing volume of brake fluid in the expansion tank to the maximum.
2. Remove the cap on the bleeding screw (2) of the trailer hydraulic brake valve (1) that is located on the left front bracket of the cabin silentblock.
3. Slide a hose onto the bleeding screw (2) of the brake cylinder after prior removal of a rubber cap from the screw and sink other end of the hose to the bottom of a transparent container filled partly with brake fluid (3). Put the container at least 300mm above the bleeding screw. The bleeding screw shall be still under pressure to prevent penetration of air into the system through its threads.
4. Release the bleeding screw max. by 1/4 of turn.
5. Tread on coupled brake pedals up to their stop and tighten the bleeding screws.
6. Release the brake pedals and repeat the procedure until air bubbles stop escaping from the hose.
CHECK AND ADJUSTMENT OF FOOT AND HAND BRAKES

Carry out adjustment in the following order:
1. Adjustment of the foot brake
2. Adjustment of the hand brake

Any other procedure is not possible as well as adjustment of only foot or only hand brake. The adjustment operations are linked each other.

ADJUSTMENT OF FOOT BRAKE

⚠ Secure the tractor against any movement!

1. Lift rear wheels of the tractor.
2. Release nuts (2), (6) and (8).
3. Release the screw (7).
4. Let the assistant rotated the wheel and tighten the screw (7) up to the moment when the wheel begins to be braked.
5. Release the screw (7) by 5/6 of turn, check free rotation of the wheel and lock the screw (7) using the nut (6).
6. The adjustment procedure is the same for the left and right wheels of the tractor.
ADJUSTMENTS

In case that some asymmetry of braking between the left and right brake occurs after such adjustment, it is necessary to release the adjustment screw (7) of that brake that brakes more intensively up to the moment when braking effects of both wheels are balanced; however, it is allowed to release the screw max. by 1/2 of turn. In case that even after this readjustment the asymmetry of braking continues, it is necessary to adjust the brakes of the tractor in an authorised repair shop.

ADJUSTMENT OF HAND BRAKE

1. Adjust the lever (4) so that the distance between the bracket (K) and face of the fork on the lever (4) is 109mm (the lever (4) should form an angle 20° with vertical plane).
2. Screw in the nut (2) onto the contact surface of the pin (3) without any play and pre-stress – the arms (5) shall not be squeezed.
3. The adjustment procedure is identical for the right and left sides of the tractor.
4. Using the nuts (8) adjust the hand brake lever Bowden so that at angle 20° on the lever (4) the hand brake lever is without any play.
5. Lift and lower the hand brake lever (1) several times to eliminate any possible plays between the components.
6. Check adjustment of the hand brake system and if necessary, correct the adjustment and check tightening of all locking nuts (6), (8).

In case that some asymmetry of hand brake effect between the left and right brake occurs after such adjustment, it is necessary to release the adjustment nut (2) of that brake that brakes more intensively up to the moment when braking effects of both wheels are balanced; however, it is allowed to release the nut (2) by 1.5 of turn. In case that even after this readjustment the asymmetry of braking continues, it is necessary to adjust the brakes of the tractor in an authorised repair shop.

**Note:** Adjustment holes are on the floor of the tractor cabin to facilitate adjustment of the brakes.

ADJUSTMENT OF FREE TRAVEL OF BRAKE PEDALS

Correct play between the piston rod of brake pedal and the piston of main brake valve is 0,5-1,0 mm (3 - 6 mm when measured at the edge of the brake pedals at unlatched pedals). Adjust the play at unlatched pedals and after releasing of the adjusting nut (1), in which the piston rod is screwed.
ADJUSTMENT OF CLUTCH PEDAL PLAY
Correct play between the piston rod of the pedal and piston of the main cylinder is not adjustable – it is adjusted by the manufacturer. Mutual positions of the piston rod and piston rod eye (1) so that when the piston rod is fully extended from the cylinder, the play between the pedal and upper stop screw (2) is 0.1-0.2mm. Then position of the piston rod should be secured against the eye using the nut (3). After adjustment check whether the dust cover of the cylinder is not deformed and reposition it if necessary.

BLEEDING OF CLUTCH HYDRAULIC CIRCUIT
Carry of bleeding using the same procedure as bleeding of the rear brake system. The bleeding screw of the hydraulic circuit for disengagement of the clutch is installed on the disengagement cylinder of the clutch (1).

ENGINE TRAVEL CLUTCH ADJUSTMENT
The travel clutch is designed in such manner that no adjustment is required during the entire service life of clutch plate lining. Full wear of the plate becomes evident by clutch slipping.

⚠️ The expansion tank that is common for both the brake and clutch circuits shall be refilled with new fluid only.

Brake fluid in the entire brake system including hydraulic circuit for disengagement of the clutch shall be replaced after two years of operation.
ADJUSTMENT OF HITCH FOR SINGLE-AXLE TRAILERS

1. Lift the hydraulic arms to their upper (transport) position with selected position regulation (P).
2. Screw the nuts on the adjustable pull rods to the guide tube without any play.
3. Further tighten the nuts by 3.5 turns.
4. Check free tilting of the supporting hooks.
5. By repeated lowering and lifting of the hydraulic arms to their transport position verify free run of the engine at idle speed; the safety valve of the hydraulic pump shall not be activated.
6. Then lower slightly the arms.

ADJUSTMENT OF BOWDEN CABLE

The hitch is in transport position. The Bowden cable shall be stretched so that there is no play on the control lever in the cabin. In case that it is stretched insufficiently, adjust it using the set screw (1). After completion of the adjustment lock the set screw by the lock nut (2).
ADJUSTMENTS

CALIBRATION OF TRAVEL SPEED OF DIGITAL DASHBOARD
Dashboard is calibrated after the assembly in production plant.
Do the repeated calibration:
- After significant wear of tyres
- When assembling new tyres
- When replacing the dashboard

CALIBRATION PROCEDURE
- On an appropriate area, mark a track of 100 m length
- Infl ate the tyres of the tractor to the prescribed pressure, see tables of this Operator’s Manual
- Start the engine
- Locate the tractor at the beginning of the hundred-metre track
- Press the (A) and (B) buttons simultaneously. Keep the buttons pressed for 7 sec. There will be an acoustic signal and in “c-n-t” inscription starts flashing on the display.
- Release both buttons (A) and (B), “c-n-t” inscription stops flashing
- Start the tractor in a balanced speed of 10 km.h⁻¹
- After travelling the whole distance of 100 m, stop the tractor on a marked end of the track (see fig. E769)
- Press (B) button.
- If calibration has been completed without errors, there will be acoustic signal and “Pulse” inscription will appear on the display
- After 2 sec, calibration value will appear on the display.
- After another 2 sec, the calibration is automatically completed, dashboard is calibrated and ready for operation.
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### MAIN DIMENSIONS OF THE TRACTOR (MM)

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<th>Note</th>
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<td>4,708</td>
<td>without additional weights</td>
</tr>
<tr>
<td>Contour length with a hitch device and without the front three-point hitch</td>
<td>4,067</td>
<td>without additional weights</td>
</tr>
<tr>
<td>Width over rear mudguards</td>
<td>1,890</td>
<td></td>
</tr>
<tr>
<td>Height to the exhaust pipe mouth</td>
<td>2,694 – 2,780</td>
<td>acc. to tyre size</td>
</tr>
<tr>
<td>Height of the tractor to the cabin upper edge</td>
<td>2,639 – 2,725</td>
<td>acc. to tyre size</td>
</tr>
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<td>Clearance under front axle beam</td>
<td>468 - 508</td>
<td>acc. to tyre size</td>
</tr>
<tr>
<td>Height of the multi-level guide in the highest position (guide centre)</td>
<td>1,012 – 1,098</td>
<td>acc. to tyre size</td>
</tr>
<tr>
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<td>760 - 845</td>
<td>acc. to tyre size</td>
</tr>
<tr>
<td>Height of the front output shaft</td>
<td>636 - 806</td>
<td>acc. to tyre size</td>
</tr>
<tr>
<td>Wheel base</td>
<td>2,328</td>
<td></td>
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<tr>
<td>Model of the tractor</td>
<td>Proxima Plus 90</td>
<td>Proxima Plus 100</td>
</tr>
<tr>
<td>----------------------</td>
<td>----------------</td>
<td>-----------------</td>
</tr>
<tr>
<td>Model of the engine</td>
<td>1206</td>
<td>1006</td>
</tr>
<tr>
<td>Type of engine</td>
<td>compression ignition, four-stroke engine with direct injection of fuel, turbo-charged</td>
<td></td>
</tr>
<tr>
<td>Design</td>
<td>in-line, upright, water-cooled</td>
<td></td>
</tr>
<tr>
<td>Number of cylinders</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Cubic capacity cm³</td>
<td>4,156</td>
<td>4,156</td>
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<tr>
<td>Boring x stroke mm</td>
<td>105x120</td>
<td>105x120</td>
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<tr>
<td>Nominal speed rpm</td>
<td>2,200</td>
<td>2,200</td>
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<tr>
<td>Injection order</td>
<td>1-3-4-2</td>
<td>1-3-4-2</td>
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<td>Compression ratio</td>
<td>17</td>
<td>17</td>
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<tr>
<td>Max. overrun speed rpm</td>
<td>2,460</td>
<td>2,460</td>
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<tr>
<td>Idle speed rpm</td>
<td>800±25</td>
<td>800±25</td>
</tr>
<tr>
<td>Net power at nominal speed measured acc. to EC24 kW</td>
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<td>pressure type with gear pump</td>
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<td>0.5</td>
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<td>0.2 - 0.5</td>
<td>0.2 - 0.5</td>
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<td>Minimum oil pressure at engine speed 750 rpm and oil temperature 80 °C MPa</td>
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<td>Max. temperature of cooling fluid °C</td>
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<th>1006</th>
<th>1306</th>
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<tr>
<td>Valve gear type</td>
<td></td>
<td></td>
<td>OHV</td>
</tr>
<tr>
<td>Advanced injection angle °</td>
<td>11</td>
<td>11</td>
<td>12</td>
</tr>
<tr>
<td>Valve play of cold engine</td>
<td>mm</td>
<td></td>
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</tr>
<tr>
<td>– inlet valves</td>
<td></td>
<td>0.25±0.05</td>
<td></td>
</tr>
<tr>
<td>– exhaust valves</td>
<td></td>
<td>0.25±0.05</td>
<td></td>
</tr>
<tr>
<td>– valve bridge clearance</td>
<td>mm</td>
<td>0,05</td>
<td></td>
</tr>
</tbody>
</table>


## ESSENTIAL TECHNICAL PARAMETERS

### PERMITTED MAX. LOADING OF FRONT AXLE (KG)

<table>
<thead>
<tr>
<th>Travel speed km.h⁻¹</th>
<th>Wheel gauge (mm)</th>
<th>1,525</th>
<th>1,610 – 1,620</th>
<th>1,680 – 1,690</th>
<th>1,760 – 1,770</th>
<th>1,825 – 1,835</th>
</tr>
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<tr>
<td>8</td>
<td>4,000 (4,500*)</td>
<td>4,000 (4,500*)</td>
<td>4,000 (4,500*)</td>
<td>3,800</td>
<td>3,600</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>3,000</td>
<td>3,000</td>
<td>3000</td>
<td>2,800</td>
<td>2,600</td>
<td></td>
</tr>
<tr>
<td>30</td>
<td>3,000</td>
<td>3,000</td>
<td>3000</td>
<td>2,800</td>
<td>2,600</td>
<td></td>
</tr>
<tr>
<td>40</td>
<td>2,500</td>
<td>2,500</td>
<td>2500</td>
<td>2,500</td>
<td>2,500</td>
<td></td>
</tr>
</tbody>
</table>

**Note:**
Loading is applicable with respect to the axle itself; permitted loading with respect to the tyres is given in the table “Loading capacity of front tyres”.

(*) the value is applicable for a front loader

### PERMITTED MAX. LOADING OF REAR AXLE (KG)

<table>
<thead>
<tr>
<th>Travel speed km.h⁻¹</th>
<th>Wheel gauge (mm)</th>
<th>1,350</th>
<th>1,425</th>
<th>1,500</th>
<th>1,575</th>
<th>1,650</th>
<th>1,725</th>
<th>1,800</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>5,500</td>
<td>5,500</td>
<td>5,500</td>
<td>5,500</td>
<td>5,500</td>
<td>5,200</td>
<td>5,000</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>5,000</td>
<td>5,000</td>
<td>5,000</td>
<td>5,000</td>
<td>5,000</td>
<td>4,500</td>
<td>4,300</td>
<td></td>
</tr>
<tr>
<td>30</td>
<td>5,000</td>
<td>5,000</td>
<td>5,000</td>
<td>5,000</td>
<td>5,000</td>
<td>4,500</td>
<td>4,300</td>
<td></td>
</tr>
<tr>
<td>40</td>
<td>5,000</td>
<td>5,000</td>
<td>5,000</td>
<td>5,000</td>
<td>5,000</td>
<td>4,500</td>
<td>4,300</td>
<td></td>
</tr>
</tbody>
</table>

**Note:**
Loading is applicable with respect to the axle itself; permitted loading with respect to the tyres is given in the table “Loading capacity of rear tyres”.
### ESSENTIAL TECHNICAL PARAMETERS

**PERMITTED MAXIMUM WEIGHT OF VEHICLE SET "TRACTOR + MECHANISM" (KG)**

<table>
<thead>
<tr>
<th>Travel speed (km.h⁻¹)</th>
<th>Maximum weight of the vehicle set</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>7,500</td>
</tr>
<tr>
<td>20</td>
<td>7,000</td>
</tr>
<tr>
<td>30</td>
<td>6,600</td>
</tr>
<tr>
<td>40</td>
<td>6,000</td>
</tr>
</tbody>
</table>

**CONDITION OF STEERAGE**

<table>
<thead>
<tr>
<th>Travel speed (km.h⁻¹)</th>
<th>Loading of the front axle of the tractor of total weight tractor + carried mechanism (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>max. 40</td>
<td>min. 20</td>
</tr>
<tr>
<td>max. 20</td>
<td>min. 18 (set over 4.5t)</td>
</tr>
<tr>
<td>max. 20</td>
<td>min. 19 (set over 4.5t)</td>
</tr>
</tbody>
</table>
### ESSENTIAL TECHNICAL PARAMETERS

#### LOADING CAPACITY OF FRONT TYRES

<table>
<thead>
<tr>
<th>Tyre size</th>
<th>Travel speed</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>40 km.h⁻¹</td>
</tr>
<tr>
<td></td>
<td>Tyre loading capacity (kg)</td>
</tr>
<tr>
<td></td>
<td>tyre 1 pc</td>
</tr>
<tr>
<td>11,2-24</td>
<td>1,000</td>
</tr>
<tr>
<td>11,2R24</td>
<td>1,215</td>
</tr>
<tr>
<td>12,4-24</td>
<td>1,120</td>
</tr>
<tr>
<td>12,4R24</td>
<td>1,280</td>
</tr>
<tr>
<td>13,6R24</td>
<td>1,290</td>
</tr>
<tr>
<td>380/70R24</td>
<td>1,310</td>
</tr>
</tbody>
</table>

**Note:** (prepared according to technical parameters of tyres Mitas)

The loading capacity values are applicable for front wheel gauge 1,525-1,610mm and are in compliance with loading capacity of the axle.

Inflation values are minimum values, adapted to the maximum permitted loading capacity of the axle.

In case of driving on hard surfaces it is suitable to increase pressure by 30kPa with respect to slipping and abrasion of the tyres.

#### CHANGE OF LOADING CAPACITY OF FRONT TYRES (%)

<table>
<thead>
<tr>
<th>Travel speed (km.h⁻¹)</th>
<th>diagonal</th>
<th>radial</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>+ 40</td>
<td>+ 50</td>
</tr>
<tr>
<td>20</td>
<td>+ 20</td>
<td>+ 23</td>
</tr>
<tr>
<td>30</td>
<td>0</td>
<td>+ 7</td>
</tr>
<tr>
<td>40</td>
<td>- 20</td>
<td>0</td>
</tr>
</tbody>
</table>
## ESSENTIAL TECHNICAL PARAMETERS

### LOADING CAPACITY OF REAR TYRES

| Tyre size | Travel speed 40 km.h⁻¹ | | Travel speed 30 km.h⁻¹ | | Travel speed 20 km.h⁻¹ | | Travel speed 8 km.h⁻¹ |
|-----------|-------------------------|---|------------------------|---|------------------------|---|------------------------|---|
|           | Tyre loading capacity (kg) | Tyre loading capacity (kg) | Tyre loading capacity (kg) | Tyre loading capacity (kg) | Tyre loading capacity (kg) | Tyre loading capacity (kg) | Tyre loading capacity (kg) | Tyre loading capacity (kg) |
|           | tyre 1 pc | axle | inflation (kPa) | tyre 1 pc | axle | inflation (kPa) | tyre 1 pc | axle | inflation (kPa) | tyre 1 pc | axle | inflation (kPa) | tyre 1 pc | axle | inflation (kPa) |
| 16,9-30 8PR | 1,850 | 3,700 | 170 | 2,300 | 4,600 | 170 | 2,760 | 5,000 | 170 | 2,885 | 5,500 | 140 |
| 16,9R30 | 2,500 | 5,000 | 160 | 2,680 | 5,500 | 160 | 2,680 | 5,000 | 160 | 3,000 | 5,500 | 140 |
| 480/70R30 | 2,575 | 5,000 | 160 | 2,530 | 5,500 | 140 | 2,570 | 5,000 | 120 | 2,860 | 5,500 | 100 |
| 18,4-30 8PR | 1,950 | 3,900 | 140 | 2,430 | 4,860 | 140 | 2,665 | 5,000 | 120 | 3,110 | 5,500 | 120 |
| 18,4R30 | 2,545 | 5,000 | 150 | 2,600 | 5,000 | 140 | 2,500 | 5,000 | 110 | 2,750 | 5,500 | 90 |
| 16,9-34 8PR | 1,950 | 3,900 | 170 | 2,430 | 4,860 | 170 | 2,580 | 5,000 | 140 | 3,010 | 5,500 | 140 |
| 16,9R34 | 2,650 | 5,000 | 160 | 2,620 | 5,000 | 140 | 2,620 | 5,000 | 140 | 2,890 | 5,500 | 120 |
| 480/70R34 | 2,500 | 5,000 | 140 | 2,550 | 5,000 | 130 | 2,570 | 5,000 | 110 | 2,820 | 5,500 | 90 |
| 18,4-34 8PR | 2,120 | 4,240 | 140 | 2,650 | 5,000 | 140 | 2,615 | 5,000 | 100 | 3,050 | 5,500 | 100 |
| 18,4R34 | 2,600 | 5,000 | 120 | 2,530 | 5,000 | 100 | 2,530 | 5,000 | 100 | 3,070 | 5,500 | 100 |
| 520/70R34 | 2,680 | 5,000 | 120 | 2,640 | 5,000 | 100 | 2,640 | 5,000 | 100 | 2,930 | 5,500 | 80 |
| 600/65R34 | 2,520 | 5,000 | 80 | 2,700 | 5,000 | 80 | 2,700 | 5,000 | 80 | 2,960 | 5,500 | 60 |
| 13,6-36 6PR | 1,300 | 2,600 | 160 | 1,615 | 3,230 | 160 | 1,940 | 3,880 | 160 | 2,000 | 4,000 | 140 |

**Note:** The loading capacity values are applicable for rear wheel gauge 1,500mm and are in compliance with loading capacity of the axle. Inflation values are minimum values, adapted to the maximum permitted loading capacity of the axles. Inflation values are minimum values, adapted to the maximum permitted loading capacity of the axle.

### CHANGE OF LOADING CAPACITY OF REAR TYRES (%)

<table>
<thead>
<tr>
<th>Travel speed (km.h⁻¹)</th>
<th>diagonal</th>
<th>radial</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>+ 40</td>
<td>+ 50</td>
</tr>
<tr>
<td>20</td>
<td>+ 20</td>
<td>+ 23</td>
</tr>
<tr>
<td>30</td>
<td>0</td>
<td>+ 7</td>
</tr>
<tr>
<td>40</td>
<td>- 20</td>
<td>0</td>
</tr>
</tbody>
</table>
## ESSENTIAL TECHNICAL PARAMETERS

### PERMITTED COMBINATIONS OF WHEELS FOR TRACTORS

<table>
<thead>
<tr>
<th>Front wheels</th>
<th>Rear wheels</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tyre size</td>
<td>Tyre size</td>
</tr>
<tr>
<td>equivalent</td>
<td>equivalent</td>
</tr>
<tr>
<td>11,2-24</td>
<td>11,2R24</td>
</tr>
<tr>
<td>13,6-36</td>
<td></td>
</tr>
<tr>
<td>16,9-30</td>
<td>16,9R30</td>
</tr>
<tr>
<td></td>
<td>480/70R30</td>
</tr>
<tr>
<td>12,4-24</td>
<td>12,4R24</td>
</tr>
<tr>
<td>18,4-30</td>
<td>18,4 R30</td>
</tr>
<tr>
<td>360/70R24</td>
<td>520/70R30</td>
</tr>
<tr>
<td>16,9-34</td>
<td>16,9R34</td>
</tr>
<tr>
<td>480/70R34</td>
<td></td>
</tr>
<tr>
<td>13,6-36</td>
<td></td>
</tr>
<tr>
<td>13,6-24</td>
<td>13,6R24</td>
</tr>
<tr>
<td>16,9-34</td>
<td>16,9R34</td>
</tr>
<tr>
<td>380/70R24</td>
<td>480/70R34</td>
</tr>
<tr>
<td>18,4-34</td>
<td>18,4R34</td>
</tr>
<tr>
<td>520/70R34</td>
<td>600/65R34</td>
</tr>
</tbody>
</table>
## ESSENTIAL TECHNICAL PARAMETERS

### POWER

<table>
<thead>
<tr>
<th>Model of the tractor</th>
<th>Proxima Plus 90</th>
<th>Proxima Plus 100</th>
<th>Proxima Plus 110</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Model of the engine</strong></td>
<td>1206</td>
<td>1006</td>
<td>1306</td>
</tr>
<tr>
<td>Power on the output shaft (kW±2%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- at nominal speed of the engine and engaged 1,000 min(^{-1}) of the output shaft</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not run-in engine (up to 100 Mth)</td>
<td>50</td>
<td>55</td>
<td>62.5</td>
</tr>
<tr>
<td>Run-in engine (from 100 Mth)</td>
<td>52.5</td>
<td>58</td>
<td>65.5</td>
</tr>
</tbody>
</table>

### LIFTING FORC EOF THREE-POINT HITCH

| Lift capacity at the end of the lower drawbars of the rear three-point hitch during the entire lift while using up the maximum pressure with 2 outer cylinders | 38 |
| - *cylinder 75mm in diameter (kN) | |
| Lift capacity at the end of the lower drawbars of the front three-point hitch during the entire lift while using up the maximum pressure (kN) | 23 |
## ESSENTIAL TECHNICAL PARAMETERS

### FORWARD TRAVEL SPEED OF THE TRACTOR - 30 KM/H

<table>
<thead>
<tr>
<th>Gear</th>
<th>Multiplier stage</th>
<th>Speed of the tractor in km/h at nominal speed of the engine (2,200 rpm) and given sizes of rear wheel tyres</th>
<th>Speed of dependent rear output shaft <strong>540/1000</strong> at nominal speed of the engine (2,200 rpm)</th>
<th>Speed of dependent rear output shaft <strong>540/540E</strong> at nominal speed of the engine (2,200 rpm)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Speed of dependent rear output shaft <strong>540/1000</strong> at nominal speed of the engine (2,200 rpm)</td>
<td>540 rpm</td>
<td>1000 rpm</td>
</tr>
<tr>
<td>4 Hi</td>
<td>H</td>
<td>29.8</td>
<td>30.8</td>
<td>28.8</td>
</tr>
<tr>
<td></td>
<td>L</td>
<td>23.0</td>
<td>23.8</td>
<td>22.2</td>
</tr>
<tr>
<td>3 Hi</td>
<td>H</td>
<td>20.5</td>
<td>21.2</td>
<td>19.8</td>
</tr>
<tr>
<td></td>
<td>L</td>
<td>15.8</td>
<td>16.3</td>
<td>15.3</td>
</tr>
<tr>
<td>2 Hi</td>
<td>H</td>
<td>12.8</td>
<td>13.2</td>
<td>12.4</td>
</tr>
<tr>
<td></td>
<td>L</td>
<td>9.9</td>
<td>10.2</td>
<td>9.6</td>
</tr>
<tr>
<td>1 Hi</td>
<td>H</td>
<td>8.9</td>
<td>9.2</td>
<td>8.6</td>
</tr>
<tr>
<td></td>
<td>L</td>
<td>6.8</td>
<td>7.1</td>
<td>6.6</td>
</tr>
<tr>
<td>4 Lo</td>
<td>H</td>
<td>7.6</td>
<td>7.8</td>
<td>7.3</td>
</tr>
<tr>
<td></td>
<td>L</td>
<td>5.8</td>
<td>6.0</td>
<td>5.6</td>
</tr>
<tr>
<td>3 Lo</td>
<td>H</td>
<td>5.2</td>
<td>5.4</td>
<td>5.0</td>
</tr>
<tr>
<td></td>
<td>L</td>
<td>4.0</td>
<td>4.1</td>
<td>3.9</td>
</tr>
<tr>
<td>2 Lo</td>
<td>H</td>
<td>3.3</td>
<td>3.4</td>
<td>3.1</td>
</tr>
<tr>
<td></td>
<td>L</td>
<td>2.5</td>
<td>2.6</td>
<td>2.4</td>
</tr>
<tr>
<td>1 Lo</td>
<td>H</td>
<td>2.2</td>
<td>2.3</td>
<td>2.2</td>
</tr>
<tr>
<td></td>
<td>L</td>
<td>1.7</td>
<td>1.8</td>
<td>1.7</td>
</tr>
</tbody>
</table>

Hi – road gears
Lo – reduced gears
H – higher stage of the multiplier
L – lower stage of the multiplier
# ESSENTIAL TECHNICAL PARAMETERS

## BACKWARD TRAVEL SPEED OF THE TRACTOR - 30 KM/H

<table>
<thead>
<tr>
<th>Gear</th>
<th>Multiplier stage</th>
<th>Speed of the tractor in km/h at nominal speed of the engine (2,200 rpm) and given sizes of rear wheel tyres</th>
<th>Speed of dependent rear output shaft <strong>540/1000</strong> at nominal speed of the engine (2,200 rpm)</th>
<th>Speed of dependent rear output shaft <strong>540/540E</strong> at nominal speed of the engine (2,200 rpm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 Hi</td>
<td>H</td>
<td>31.7 32.8 30.6 30.4</td>
<td>757.9 1430.2</td>
<td>1129.6 1430.2</td>
</tr>
<tr>
<td></td>
<td>L</td>
<td>24.4 25.2 23.6 23.4</td>
<td>757.9 1430.2</td>
<td>1129.6 1430.2</td>
</tr>
<tr>
<td>3 Hi</td>
<td>H</td>
<td>21.8 22.5 21.1 20.9</td>
<td>521.8 984.6</td>
<td>777.7 984.6</td>
</tr>
<tr>
<td></td>
<td>L</td>
<td>16.8 17.4 16.2 16.1</td>
<td>521.8 984.6</td>
<td>777.7 984.6</td>
</tr>
<tr>
<td>2 Hi</td>
<td>H</td>
<td>13.6 14.1 13.1 13.1</td>
<td>326.2 615.6</td>
<td>486.2 615.6</td>
</tr>
<tr>
<td></td>
<td>L</td>
<td>10.5 10.9 10.1 10.1</td>
<td>326.2 615.6</td>
<td>486.2 615.6</td>
</tr>
<tr>
<td>1 Hi</td>
<td>H</td>
<td>9.4 9.7 9.1 9.0</td>
<td>225.2 424.8</td>
<td>335.6 424.8</td>
</tr>
<tr>
<td></td>
<td>L</td>
<td>7.3 7.5 7.0 7.0</td>
<td>225.2 424.8</td>
<td>335.6 424.8</td>
</tr>
<tr>
<td>4 Lo</td>
<td>H</td>
<td>8.0 8.3 7.8 7.7</td>
<td>192.1 362.4</td>
<td>286.2 362.4</td>
</tr>
<tr>
<td></td>
<td>L</td>
<td>6.2 6.4 6.0 5.9</td>
<td>192.1 362.4</td>
<td>286.2 362.4</td>
</tr>
<tr>
<td>3 Lo</td>
<td>H</td>
<td>5.5 5.7 5.3 5.3</td>
<td>132.2 249.5</td>
<td>197.1 249.5</td>
</tr>
<tr>
<td></td>
<td>L</td>
<td>4.3 4.4 4.1 4.1</td>
<td>132.2 249.5</td>
<td>197.1 249.5</td>
</tr>
<tr>
<td>2 Lo</td>
<td>H</td>
<td>3.5 3.6 3.3 3.3</td>
<td>82.7 156.0</td>
<td>123.2 156.0</td>
</tr>
<tr>
<td></td>
<td>L</td>
<td>2.7 2.8 2.6 2.6</td>
<td>82.7 156.0</td>
<td>123.2 156.0</td>
</tr>
<tr>
<td>1 Lo</td>
<td>H</td>
<td>2.4 2.5 2.3 2.3</td>
<td>55.6 105.0</td>
<td>82.9 105.0</td>
</tr>
<tr>
<td></td>
<td>L</td>
<td>1.8 1.9 1.8 1.8</td>
<td>55.6 105.0</td>
<td>82.9 105.0</td>
</tr>
</tbody>
</table>

Hi – road gears  
Lo – reduced gears  
H – higher stage of the multiplier  
L – lower stage of the multiplier
## ESSENTIAL TECHNICAL PARAMETERS

### FORWARD TRAVEL SPEED OF THE TRACTOR - 40 KM/H

<table>
<thead>
<tr>
<th>Gear</th>
<th>Multiplier stage</th>
<th>Speed of the tractor in km/h at nominal speed of the engine (2,200 rpm) and given sizes of rear wheel tyres</th>
<th>Speed of dependent rear output shaft 540/1000 at nominal speed of the engine (2,200 rpm)</th>
<th>Speed of dependent rear output shaft 540/540E at nominal speed of the engine (2,200 rpm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 Hi</td>
<td>H</td>
<td>36.0 37.2 34.8 34.6</td>
<td>712.5 1344.4</td>
<td>1061.9 1344.4</td>
</tr>
<tr>
<td></td>
<td>L</td>
<td>27.7 28.6 26.8 26.6</td>
<td>712.5 1344.4</td>
<td>1061.9 1344.4</td>
</tr>
<tr>
<td>3 Hi</td>
<td>H</td>
<td>24.8 25.6 24.0 23.8</td>
<td>490.5 925.5</td>
<td>731.0 925.5</td>
</tr>
<tr>
<td></td>
<td>L</td>
<td>19.1 19.7 18.5 18.3</td>
<td>490.5 925.5</td>
<td>731.0 925.5</td>
</tr>
<tr>
<td>2 Hi</td>
<td>H</td>
<td>15.5 16.0 15.0 14.9</td>
<td>306.7 578.7</td>
<td>457.1 578.7</td>
</tr>
<tr>
<td></td>
<td>L</td>
<td>11.9 12.3 11.5 11.4</td>
<td>306.7 578.7</td>
<td>457.1 578.7</td>
</tr>
<tr>
<td>1 Hi</td>
<td>H</td>
<td>10.7 11.06 10.34 10.27</td>
<td>211.7 399.4</td>
<td>315.4 399.4</td>
</tr>
<tr>
<td></td>
<td>L</td>
<td>8.23 8.51 7.95 7.90</td>
<td>211.7 399.4</td>
<td>315.4 399.4</td>
</tr>
<tr>
<td>4 Lo</td>
<td>H</td>
<td>9.11 9.42 8.80 8.74</td>
<td>180.5 340.7</td>
<td>269.1 340.7</td>
</tr>
<tr>
<td></td>
<td>L</td>
<td>7.02 7.26 6.78 6.74</td>
<td>180.5 340.7</td>
<td>269.1 340.7</td>
</tr>
<tr>
<td>3 Lo</td>
<td>H</td>
<td>6.27 6.48 6.06 6.02</td>
<td>124.3 234.5</td>
<td>185.2 234.5</td>
</tr>
<tr>
<td></td>
<td>L</td>
<td>4.83 4.99 4.67 4.64</td>
<td>124.3 234.5</td>
<td>185.2 234.5</td>
</tr>
<tr>
<td>2 Lo</td>
<td>H</td>
<td>3.92 4.05 3.79 3.76</td>
<td>77.7 146.6</td>
<td>115.8 146.6</td>
</tr>
<tr>
<td></td>
<td>L</td>
<td>3.02 3.12 2.92 2.90</td>
<td>77.7 146.6</td>
<td>115.8 146.6</td>
</tr>
<tr>
<td>1 Lo</td>
<td>H</td>
<td>2.71 2.80 2.62 2.60</td>
<td>52.3 98.7</td>
<td>77.9 98.7</td>
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<tr>
<td></td>
<td>L</td>
<td>2.08 2.15 2.01 2.00</td>
<td>52.3 98.7</td>
<td>77.9 98.7</td>
</tr>
</tbody>
</table>

Hi – road gears  
Lo – reduced gears  
H – higher stage of the multiplier  
L – lower stage of the multiplier
## ESSENTIAL TECHNICAL PARAMETERS

### BACKWARD TRAVEL SPEED OF THE TRACTOR - 40 KM/H

<table>
<thead>
<tr>
<th>Gear</th>
<th>Multiplier stage</th>
<th>Speed of the tractor in km/h at nominal speed of the engine (2,200 rpm) and given sizes of rear wheel tyres</th>
<th>Speed of dependent rear output shaft 540/1000 at nominal speed of the engine (2,200 rpm)</th>
<th>Speed of dependent rear output shaft 540/540E at nominal speed of the engine (2,200 rpm)</th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>16.9 - 34</td>
<td>18.4 - 34</td>
<td>18.4 - 30</td>
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<tr>
<td>4 Hi</td>
<td>H</td>
<td>38.2</td>
<td>39.5</td>
<td>36.9</td>
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<td></td>
<td>L</td>
<td>29.5</td>
<td>30.5</td>
<td>28.5</td>
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<tr>
<td>3 Hi</td>
<td>H</td>
<td>26.3</td>
<td>27.2</td>
<td>25.4</td>
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<td>20.3</td>
<td>21.0</td>
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<tr>
<td>2 Hi</td>
<td>H</td>
<td>16.5</td>
<td>17.1</td>
<td>15.9</td>
</tr>
<tr>
<td></td>
<td>L</td>
<td>12.7</td>
<td>13.1</td>
<td>12.3</td>
</tr>
<tr>
<td>1 Hi</td>
<td>H</td>
<td>11.4</td>
<td>11.78</td>
<td>11.02</td>
</tr>
<tr>
<td></td>
<td>L</td>
<td>8.75</td>
<td>9.04</td>
<td>8.46</td>
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<tr>
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<td>H</td>
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<td>7.46</td>
<td>7.71</td>
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<td>5.14</td>
<td>5.31</td>
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<td>H</td>
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<td>4.31</td>
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<td>2.22</td>
<td>2.29</td>
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</table>

Hi – road gears  
Lo – reduced gears  
H – higher stage of the multiplier  
L – lower stage of the multiplier
## ESSENTIAL TECHNICAL PARAMETERS

### SPEED OF REAR INDEPENDENT OUTPUT SHAFT

<table>
<thead>
<tr>
<th>Selection</th>
<th>Speed</th>
<th>Speed of output shaft / speed of engine</th>
<th>Speed of output shaft / speed of engine</th>
</tr>
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<tr>
<td>540/1000</td>
<td>540</td>
<td>540 / 1,987</td>
<td>598 / 2,200</td>
</tr>
<tr>
<td></td>
<td>1000</td>
<td>1,000 / 1,950</td>
<td>1,128 / 2,200</td>
</tr>
<tr>
<td>540/540E</td>
<td>540</td>
<td>540 / 2005</td>
<td>592 / 2,200</td>
</tr>
<tr>
<td></td>
<td>540E</td>
<td>540 / 1584</td>
<td>750 / 2,200</td>
</tr>
</tbody>
</table>

### SPEED OF FRONT OUTPUT SHAFT

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<thead>
<tr>
<th>Direction of rotation</th>
<th>Speed of output shaft / speed of engine</th>
<th>Speed of output shaft / speed of engine</th>
</tr>
</thead>
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<tr>
<td>right (a)</td>
<td>1,000 / 1,920</td>
<td>1,146 / 2,200</td>
</tr>
<tr>
<td>*left (b)</td>
<td>1,000 / 2,000</td>
<td>1,100 / 2,200</td>
</tr>
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* – optional
## ESSENTIAL TECHNICAL PARAMETERS

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<th>Outer Contour and Track Wheeling Diameter</th>
<th>Wheel track</th>
<th>To the left (mm)</th>
<th>To the right (mm)</th>
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<td>Wheel track</td>
<td>front</td>
<td>1,610mm</td>
<td></td>
</tr>
<tr>
<td></td>
<td>rear</td>
<td>1,500mm</td>
<td></td>
</tr>
<tr>
<td>Track diameter (mm)</td>
<td>Without engaged front driving axle (PHN)</td>
<td>11,850</td>
<td>11,380</td>
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<tr>
<td></td>
<td>Without engaged front driving axle with partial braking of the inner rear wheel</td>
<td>9,880</td>
<td>9,650</td>
</tr>
<tr>
<td></td>
<td>With engaged front driving axle</td>
<td>12,570</td>
<td>12,130</td>
</tr>
<tr>
<td></td>
<td>With engaged front driving axle with partial braking of the inner rear wheel</td>
<td>8,750</td>
<td>8,580</td>
</tr>
<tr>
<td>Contour diameter (mm)</td>
<td>Without engaged front driving axle</td>
<td>12,160</td>
<td>11,720</td>
</tr>
<tr>
<td></td>
<td>Without engaged front driving axle with partial braking of the inner rear wheel</td>
<td>10,190</td>
<td>9,990</td>
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<tr>
<td></td>
<td>With engaged front driving axle</td>
<td>12,880</td>
<td>12,400</td>
</tr>
<tr>
<td></td>
<td>With engaged front driving axle with partial braking of the inner rear wheel</td>
<td>9,060</td>
<td>8,920</td>
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