Zetor

# PROXIMA HS

## OPERATOR´S MANUAL

02/2018


80 90 100 110 120

Tractor is Zetor. Since 1946.

# CONTENTS

# SAFETY INSTRUCTIONS FOR USERS

**Health and environment protection**

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

**Working with oil products**

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

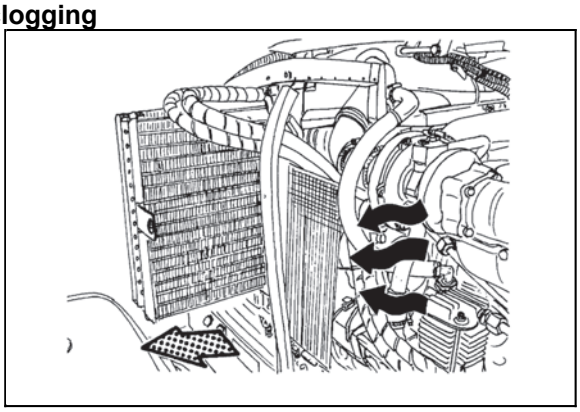
**Waste disposal**

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

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

**After work with front implements and in case of cooler clogging**
After working with front-mounted implements:
- Check the leakage of the connections of the front three-point hitch control external hydraulic circuit
- Perform the air cleaner maintenance
- Check the radiators clogging

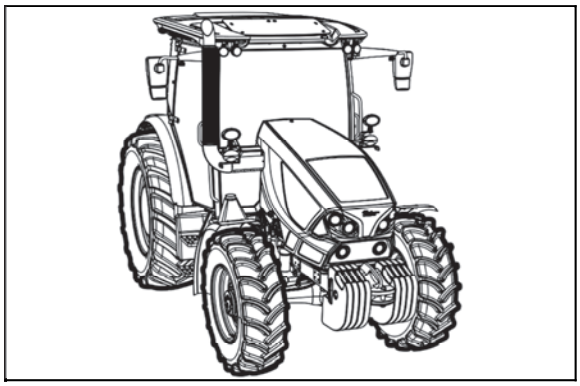
In case of the radiators clogging:
- Release and slide the radiator to the left side of the tractor
- Clean the engine radiator front walls (gearbox radiator, air conditioning condenser) with compressed air (blow air in the direction from the engine)
- Remove remaining dirt from underneath so as not to re-suck it



*C113*

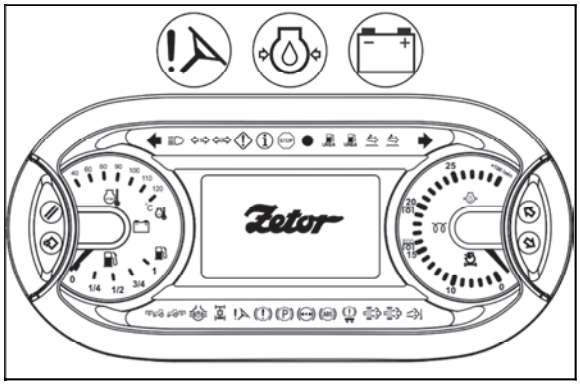
**Tyres and wheels**
Check the air pressure in the front and rear tyres. Depending on the character of work adjust the pressure to the recommended value. Check and if necessary retighten the bolts of the front and rear wheels.

***Never drive with loose wheel bolts!***



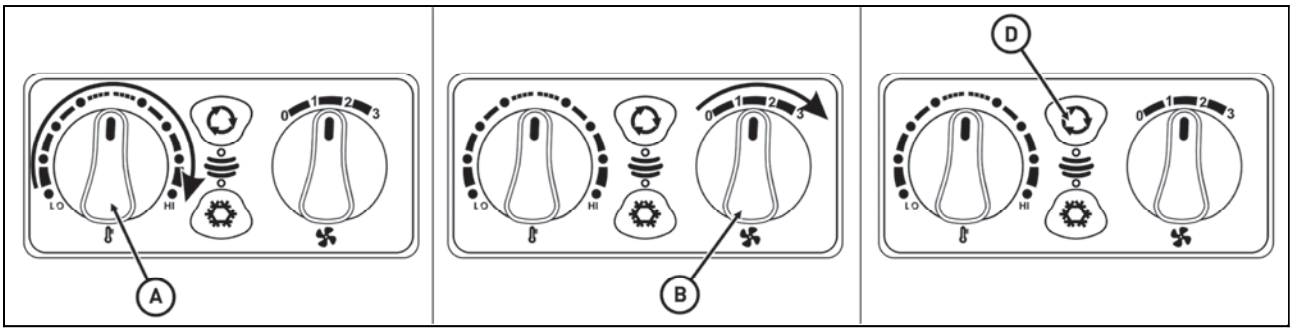
*PCLPN015*

**Short functional test**
After starting the engine check whether the hydrostatic steering failure, engine lubrication and charging indicators have gone off.
Verify the function of the hydraulic steering circuits and check them for leaks.



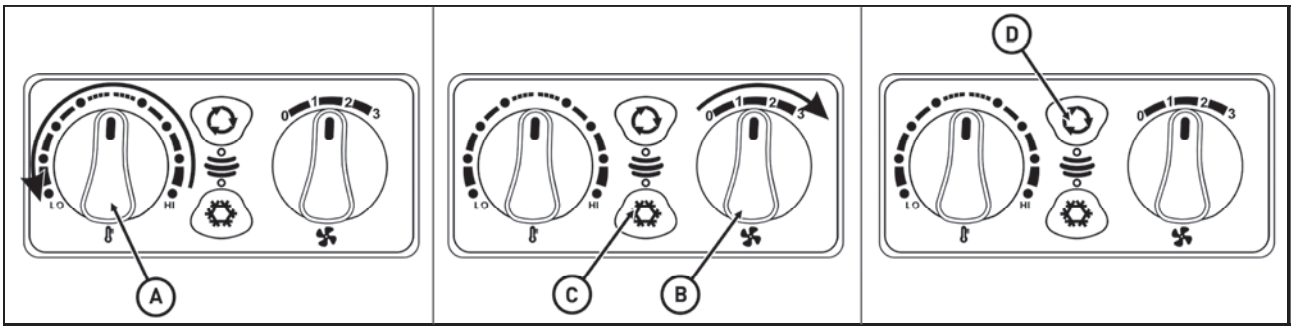

*PCLPN016*

**Fast heating of the cabin area**
Proceed as follows:
1 - Turn the heating valve control (A) to the right (HI) position (fully open heating valve)
2 - Use the fan control (B) to select the appropriate fan speed (position 1, 2, 3)
3 - Switch on the internal air circulation with the switch (D) (the diode under the switch is on)
4 - Adjust the air vents at the desired angle so that the people in the cab are not directly blown on
5 - After heating the cab space, switch off the internal air circulation by pressing the switch (D) and set the heating control (A) to the desired temperature



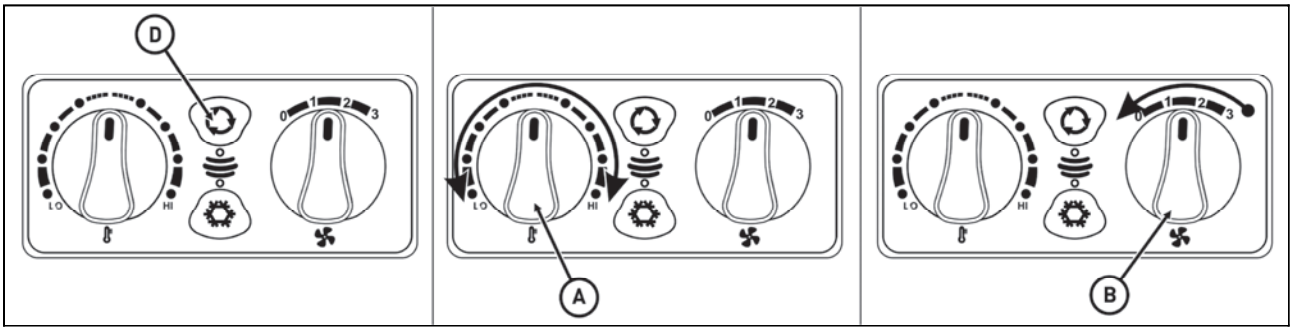

*PGPPN131*

**Fast cooling of the space of the cabin**
Proceed as follows:
1 - Turn the heating valve control (A) to the left (LO) position
2 - Use the fan control (B) to select the appropriate fan speed (position 1, 2, 3)
3 - Switch on the air conditioning system with the switch (C)
4 - Switch on the internal air circulation with the switch (D) (the diode under the switch is on)
5 - Adjust the air vents at the desired angle so that the people in the cab are not directly blown on (possibility of disease due to intense cooling of body parts)



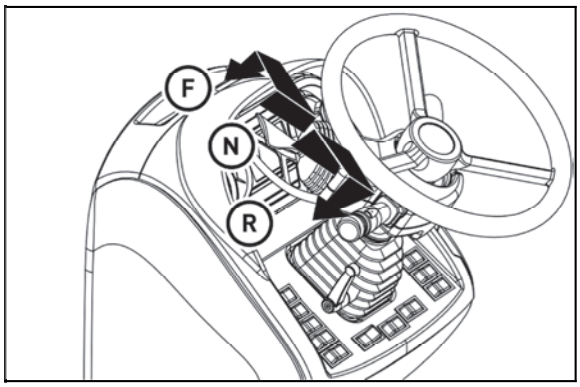

*PGPPN132*

**Immediately after cooling the cabin**
Immediately, after the cab has cooled down and the internal temperature has been lowered to the desired value, we recommend:
1 - Switch off the internal air circulation by pressing the button (D)
2 - By opening the heating valve (A), perform the continuous regulation of the air temperature, with the air conditioning on. With this setting, the air entering the cabin from the exhalation is not so intensively dried
3 - Continuous regulation of the air temperature, when the air conditioner is switched on, can also be performed by reducing the fan output by turning the control (B) to position 1 or 2




*PGPPN133*

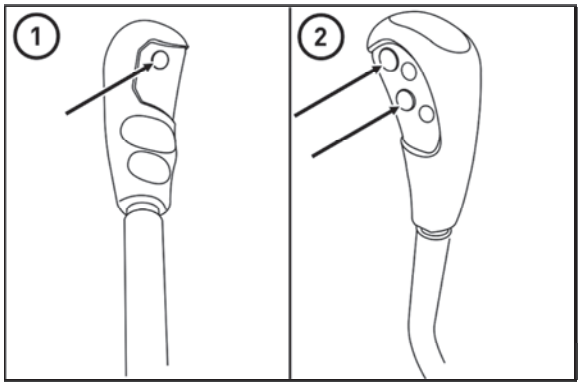
**Reversing lever**
**F -** front driving; lever in the front
**N** - neutral
**R -** back driving; lever at the back




*PHSPN004*

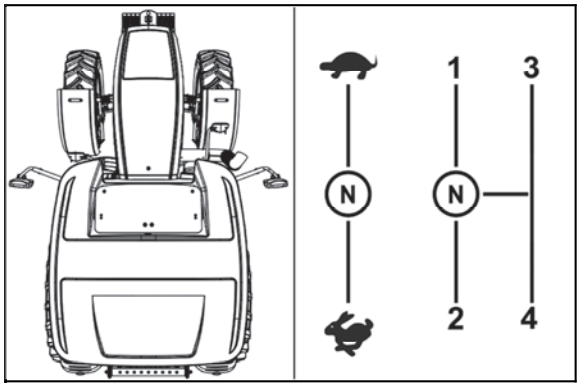
**Gear shifting lever**
- main gear shifting lever

1. button for disengaging clutch on the head of gear shifting
2. buttons of shifting individual gears of multiplier



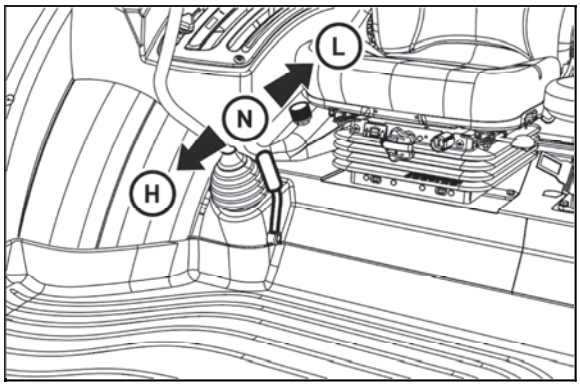

*PHS18N005*

**Gear shifting scheme**
Reverse speeds can be shifted with the reversing lever only.
The scheme is located on the head of the gear shift lever.




*PHSPN005*

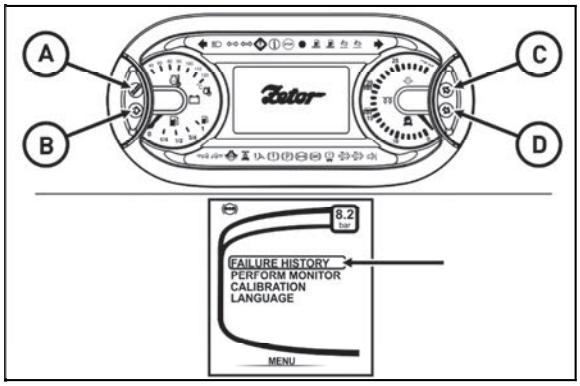
**Road and reduced speeds shifting lever**
**H** Road gears
**N** Neutral
**L** Reduced gears
Shifting is carried out with tractor in standstill.




*PGPPN161*

**Display - service menu**

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



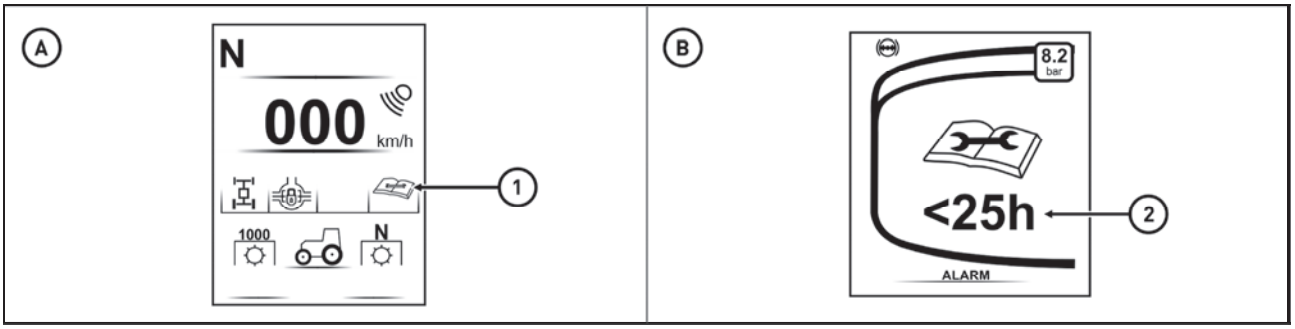

*P18N049*

**Service menu**

The service menu contains these items:

**Display settings** - setting of the display backlight
**Failure history** - contains listing of errors according to individual tractor nodes
**Performance monitor** - allows monitoring of the processed area (only when the tractor is equipped with electro-hydraulics)
**Calibration** - enables setting of display of revolutions of the rear PTO shaft, calibration of travel speed, reset of the service interval
**Engine setup** - enables setting of blocking of DPF filter baking
**Language** - enables setting of language mutation of the menu

**Display - indicator of service inspection intervals**

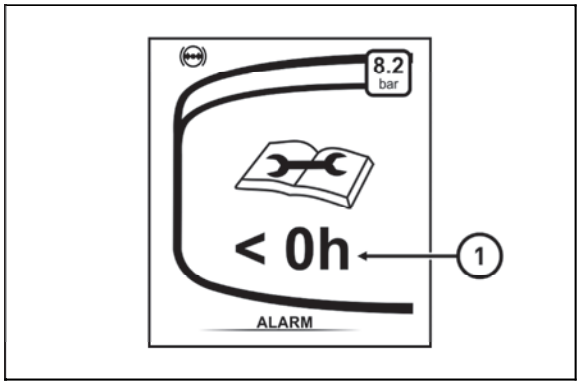



*P18N070*

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

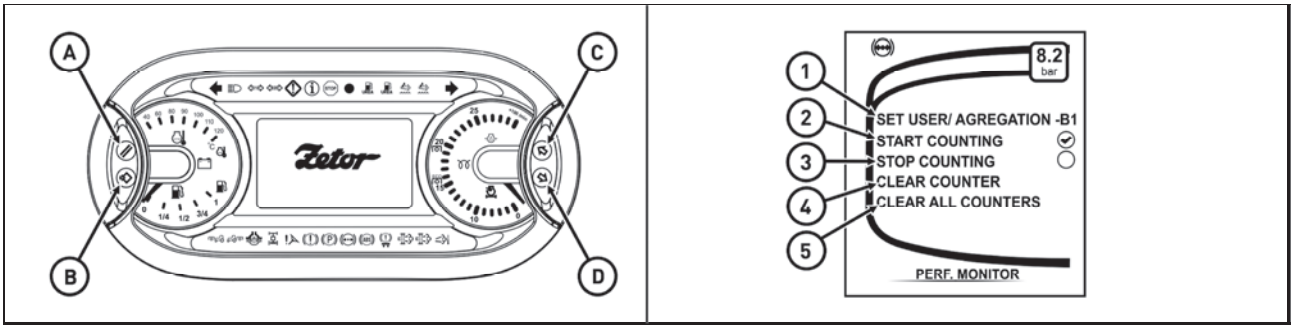
**Exceeding the service interval**

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




*P18N071*

**Machined area record**




*PHS18N012*

Enter the aggregation setting menu.
Check whether the proper user and aggregation width (1) are adjusted or perform setting of the user and aggregation width. Each user has their values of the processed area; when the user is changed, values valid for the selected user are displayed on the main screen.
Use the buttons (C) and (D) to select the item (2) and press the button (**B**) to start the record of the processed area (the item is marked by the tick).
From now, if the tractor is moving, the processed area will be recorded depending on the aggregation width and the covered distance.

***The processed area is recorded only in the case that the arms of the rear three-point hinge are lowered in the working position.***

The record of the processed area ends if in the processed area menu you use the buttons (C) and (D) to select the item (3) and press the button (B) to end the record of the processed area (the item is marked by the tick).If you start the record of the processed area again, the newly read values are added to the values already stored.

If it is necessary to change the user during recording of the processed area, end the recording of the processed area, perform selection of another user and aggregation width, start record of the processed area, newly read values are added to the values already stored for the newly selected user.

Use the buttons (**C**) and (**D**) to select the item (4) and press the button (**B**) to reset the values of the processed area for the selected user.
Use the buttons (**C**) and (**D**) to select the item (5) and press the button (**B**) to reset the values of the processed area for all users.
After return to the main screen of the processed area, there will be no data in the display field.

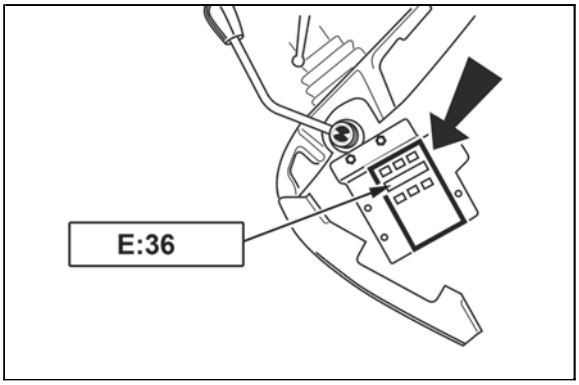
***The reset values cannot be restored any other way.***

**Diesel particle filter failure codes**

| Failure code E: | Operator´s activity |
|---|---|
| 11, 12, 21, 22, 23, 31, 34, 35, 37, 38, 41, 42, 51, 52, 61, 62 | The tractor can be worked without any limitations, after terminating your work, contact authorized service and report the code of failure. |
| 32, 33, | Switch the key to '0' position and start the engine. |
| 36 | Regenerate diesel particle filter. |

**Diesel particle filter regeneration**

When the tractor is operated, the diesel particulate filter is fouled with solid particles during the fuel combustion while the engine is running. The full diesel particulate filter is automatically regenerated by temperature of exhaust gases at higher engine load.
During operation of the tractor with low engine load, e.g. during long-term operation at idling, the diesel particulate filter can become partially full. While the engine is running, this state is indicated by activation of the orange signal lamp of the diesel particulate filter, by the subsequent acoustic signal and by the defect code on the display of the display unit of the diesel particulate filter. **E:36**




*FH12N076*

If this situation occurs, increase the engine load and continue in your work until the orange signal lamp of the diesel particulate filter is deactivated and the acoustic signal stops. By increasing the engine load the temperature of exhaust gases is increased and the solid particles blocking the diesel particulate filter are combusted.
The conditions suitable for regeneration of the diesel particulate filter while the engine is running are indicated by activation of the green signal lamp on the instrument panel. The regeneration may take up to thirty minutes depending on the temperature of exhaust gases and the degree of clogging of the diesel particulate filter.

***If the regeneration is completed, indication of the warning message is deactivated (error 36). If this indication is not deactivated, repeat this procedure. If it is not deactivated even then, you must contact the authorized service.***

***The increased engine load means operation of the tractor at higher engine revolutions (1,800 rpm) with attached tools, consumption of the power through the PTO shaft or outer hydraulic circuit.***

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

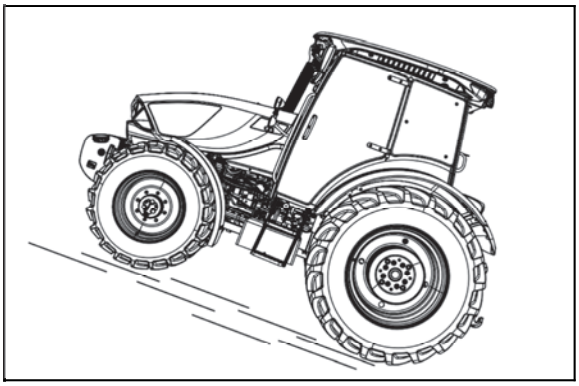
**Blocking and automatic gear change of multiplier**
If brake pedals are used with the controller of multiplier pre-selection on, the system of automatic gear change of multiplier blocks the automatic shift of multiplier to a higher gear (increasing taxing speed), automatic shift of multiplier to lower gear (lowering taxing speed) remains in operation.

Cancelling the blockage:
**a -** In the event when brake pedals were used with taxing speed higher than 12 km/h, the full-function of the system of automatic gear change of a multiplier is reset by releasing brake pedals and pressing any key for multiplier operation on gear lever (**H** or **L**) or we release a travel clutch. **The full function of the system of multiplier automatic shift is not renewed automatically.**
**b -** If the brake pedals are used with taxing speed lower than 12 km/h, the full function of the system of automatic shift of multiplier will be renewed automatically after releasing brake pedals.

***Blocking of automatic gear change of multiplier serves for the need of braking with an engine, e.g. while going down the slope.***

**Travelling up the slope**

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

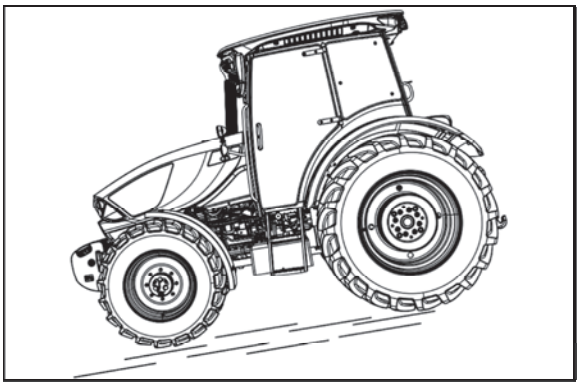


*PCLPN040*

**Travelling down the slope**

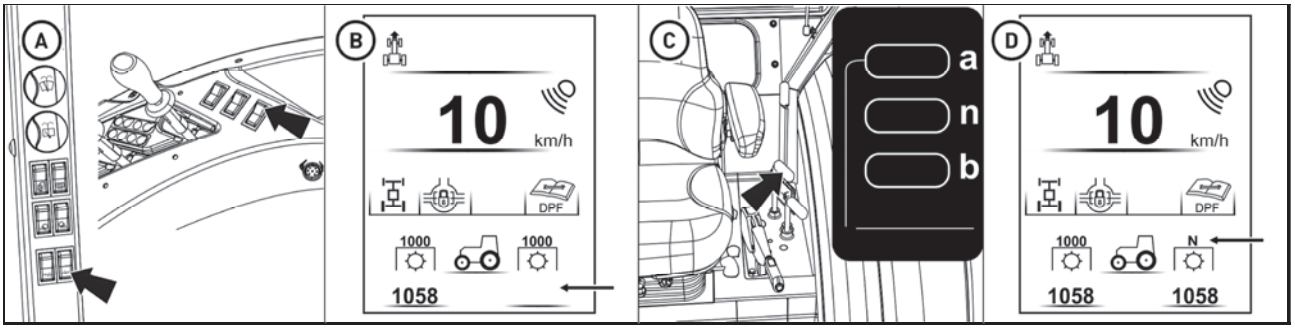
***Travelling down the slope without en engaged gear is forbidden. If you are going down a longer slope engage the lower gear the steeper the slope. Engage the lower gear before the slope if possible.***

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



*PCLPN041*

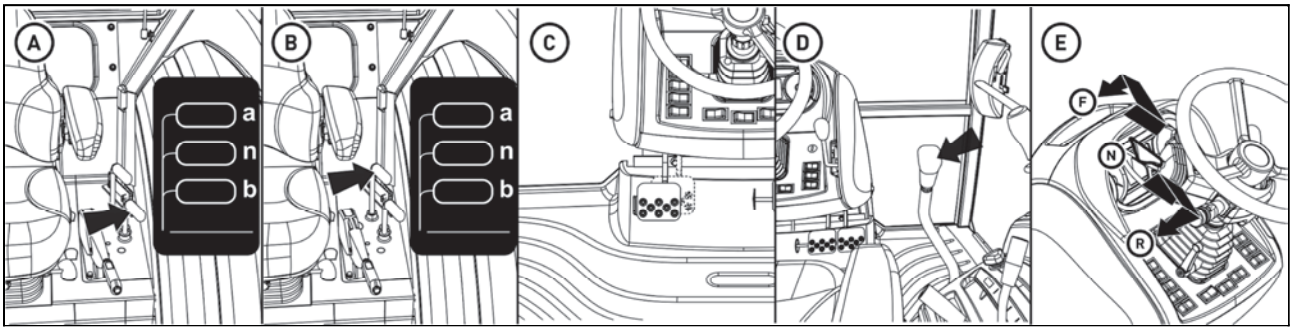
**Deactivation of the rear PTO shaft - independent revolutions**




*PHS18N017*

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

**Switching on the rear PTO shaft - dependent revolutions**




*PHS18N018*

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

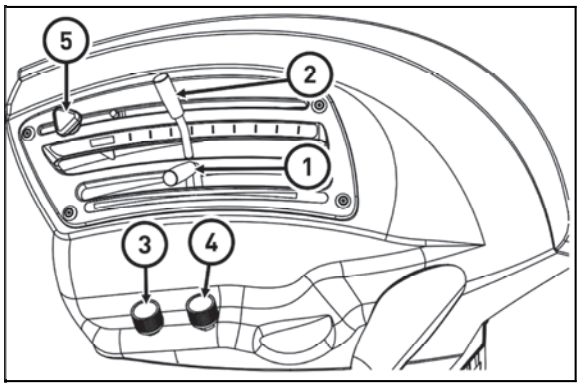
When the tractor is not going with its engine running:
A - move the gear shift lever of dependent and independent engine speed to the lower position to gear dependent revolutions of the rear PTO shaft
B - use the gear shift lever to select suitable speed of the rear PTO shaft
C - After pressing the clutch pedal
D - use the main gear shift to shift a gear and release the clutch pedal
E - use the reversion level to select the driving direction
When the tractor starts driving, the rear PTO shaft starts to rotate as well.

***Use the clutch pedal for short-term interruption of torque transmission from the rear PTO shaft. The switch of the rear PTO shaft is not functional in this mode.***

***If the operator in this mode of work of the rear PTO shaft leaves the driver's seat, the engine is shut down.***

**Controlling the inner hydraulic circuit**

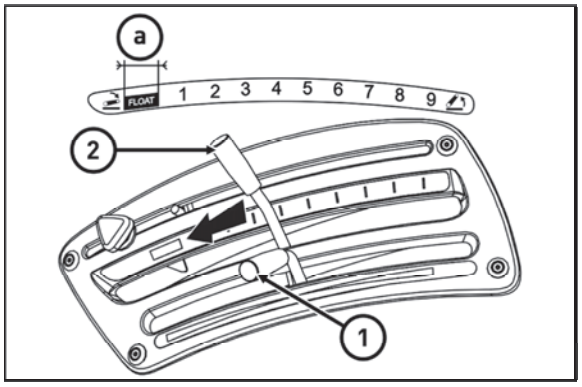
1.position or power regulation lever
2.lever for selecting floating position, adjusting the height of the three-point hitch in position regulation or mixed regulation.
3.three-point hitch lowering speed control
4.hydraulic system sensitivity control
5.adjustable stop




*PGPPN040*

**Free (floating) position**

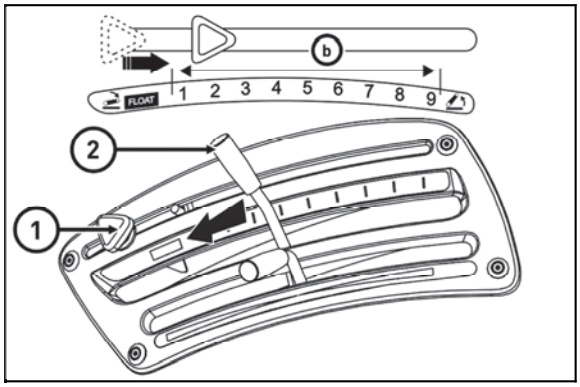
Free (floating) position makes it possible to work with tools with a support wheel. In this position, the arms of the rear three-point hitch are loose.
Move lever (2) to the front position (a).
The position of lever (1) makes no difference.




*PGPPN041*

**Adjustable stop**

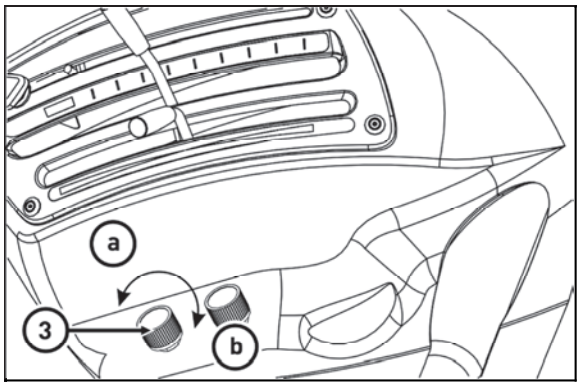
Under default settings, it is recommended to set the adjustable stop (1) to a position on the edge between floating position and the beginning of the range of lifting of the rear three-point hitch (b). After pushing the lever towards you, the lever can be moved over the adjustable stop.




*PGPPN013*

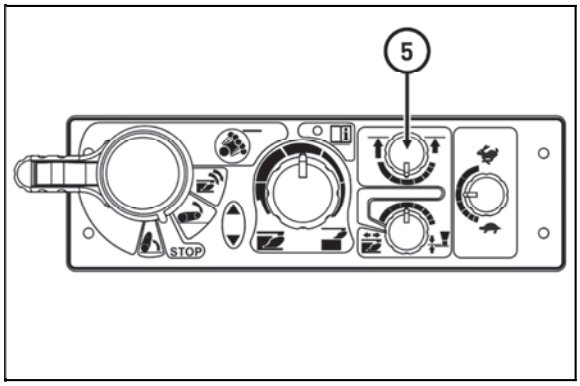
**Three-point hitch lowering speed control**

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.




*PGPPN042*

**Limitation of the upper position of the three-point hitch**
It is activated with the control (5). The limitation can be implemented in the upper half of the three-point hitch lift.

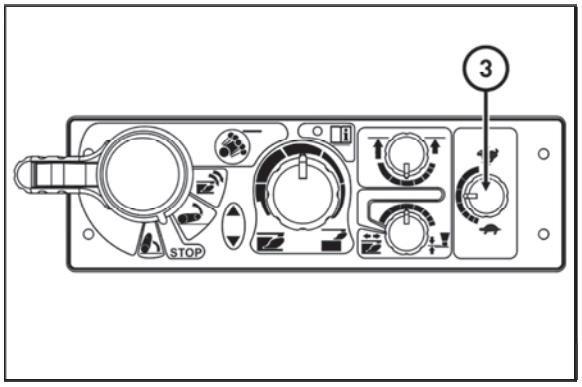



C18N117

**Lowering speed**
The lowering speed of the three-point hitch is set with the control (3).

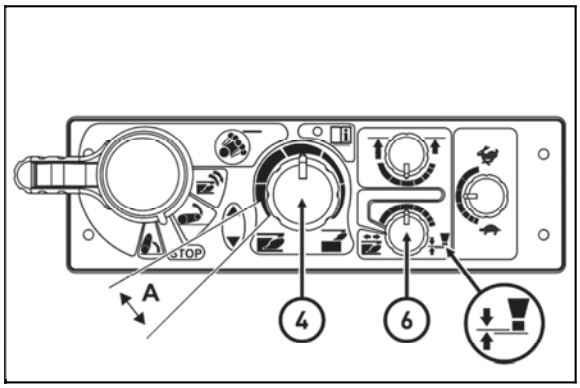
| | |
|---|---|
| Symbol of the maximum lowering speed | |
| Symbol of the minimum lowering speed | |

***In the vibration dampening mode and during the use of the rear control buttons the lowering speed setting is out of function.***




PGPPN071

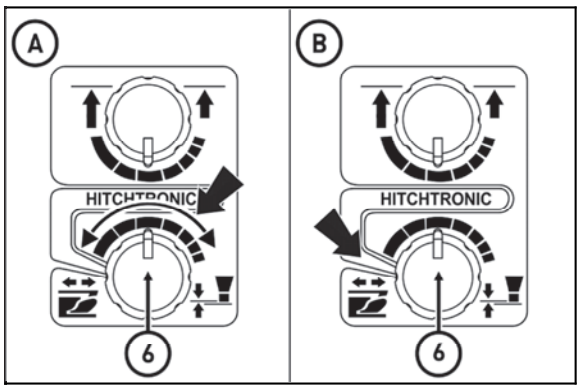
**Free position**
For permanent work with free hydraulic system, e.g. during work with a plough with a support wheel the position of the control (4) under the indication (A) and the position of the control (6) at the positional control symbol is used.




PGPPN072

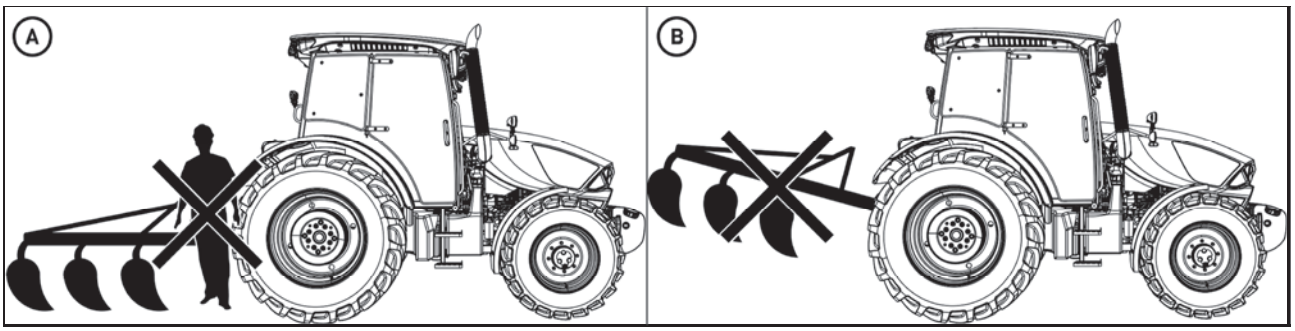
**Setting the control of three-point hitch**
Electrohydraulics enables two ways of three-point hitch control.
A. Manual control setting - control (6) is set in the range see arrow
B. Automatic control - control (6) is set in HitchTronic (AHC) position see arrow

Automatic control can be at any time exchanged for manual and the other way round by a control (6).




PGPPN052

**Safety principles of working with the three-point hitch**

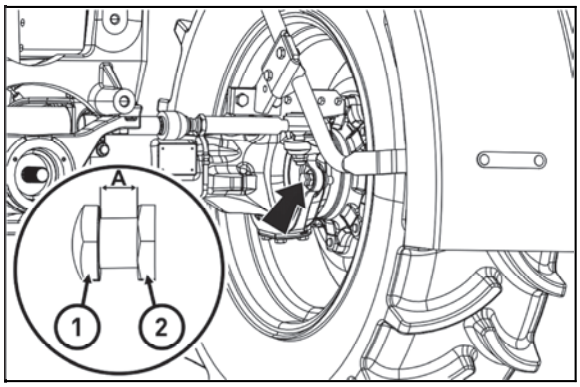



*PCLPN086*

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

# WHEEL TREAD CHANGE

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

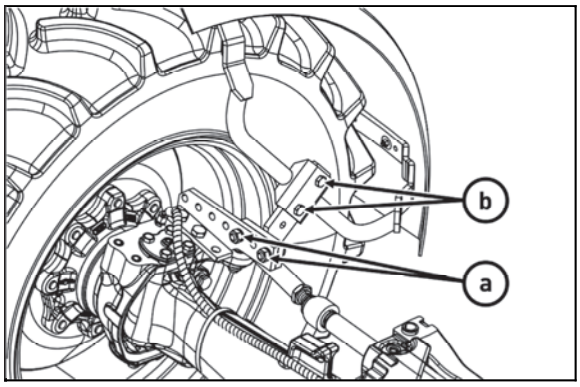


PGPPN099

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

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

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



PGPPN097

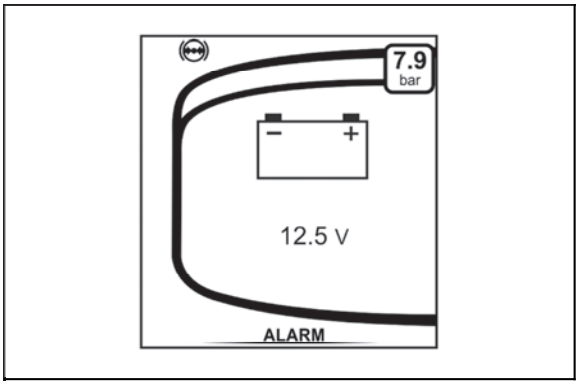
**Alternator maintenance**

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

**Electric installation overload**

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

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




*P18N005*

**Fuels, coolants and lubricants used - amounts**

| Destination | Volume in liters |
|---|---|
| Coolant | 21 |
| Engine oil | 10 |
| Hydrostatic steering oil | 2,5 |
| Front drive axle housing oil | 5,5 |
| Oil for planetary reducers of front drive axle equipped with brakes | 2x1,7 |
| Portal oil | 2x1,9 |
| Transmission and transaxle oil | 70 * |
| Front PTO transmission oil | 2,7 |
| Fuel | 180 |
| Air conditioning filling | 0,9 kg |

* - When working on a slope, the tractor must be filled with additional 7 liters of oil. This also applies in the case of aggregation with machines connected to the external hydraulic circuit.

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

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

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

**Oil in the gearbox and final drivehousing**
Oil for gearing mechanisms of tractors **ZETOR EXTRA 10W30 STOU**

**Oil in the rear axle gantries**
Oil for gearing mechanisms of tractors **ZETOR EXTRA 10W30 STOU**

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

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

**Specification of oils for Zetor engines equipped by diesel particle filter**

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

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

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

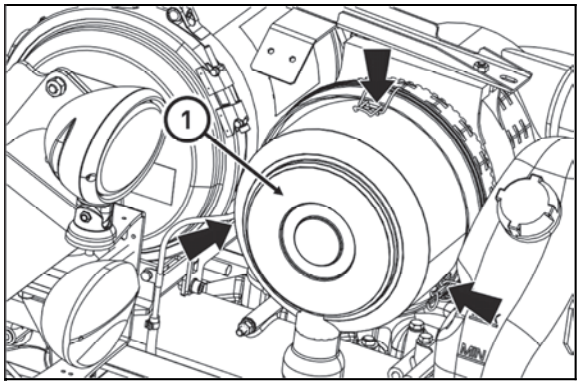
**Maintenance instruction of dry air filter**
Maintenance of the dry air cleaner includes the following activities:

1. Inspection of suction line (joint tightness, hose damage)
2. Checking the main filter cartridge (clogging, damage)
3. Checking the securing filter cartridge

***Replace damaged parts***

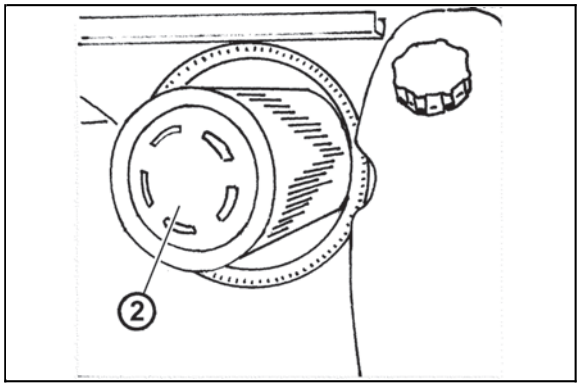
**Air cleaner disassembly**
Disassemble the air cleaner according to the following

1. lift the front hood
2. release the air cleaner cover clips (indicated by arrows)
3. remove the cover of the cleaner (1)




*PGPPN148*

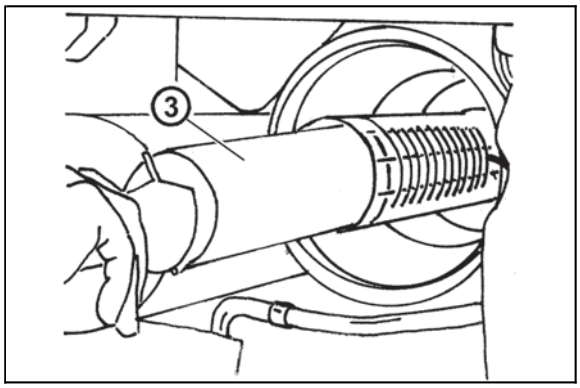
**Main air filter element regeneration**
Draw the main dry cleaner cartridge(2)
Wipe the plastic cover of the filter using a suitable cloth.
If the main cartridge is not damaged (no dust on the inside of the cartridge), perform the regeneration by blowing with the compressed air from the inside of the liner.
The cartridge is to be replaced once a year or after 500 engine hours.
In case of damage to the main filter cartridge, replace the both filter cartridges.




*G713*

**Replacing dry filter locking element**
pull out the securing dry cleaner cartridge (3)

***The securing cartridge can not be regenerated. It must always be replaced in following cases:***
***- if the main cartridge is damaged (if the dust is on the securing cartridge)***
***- always after 1 000 engine hours worked or every two years, whichever comes first***



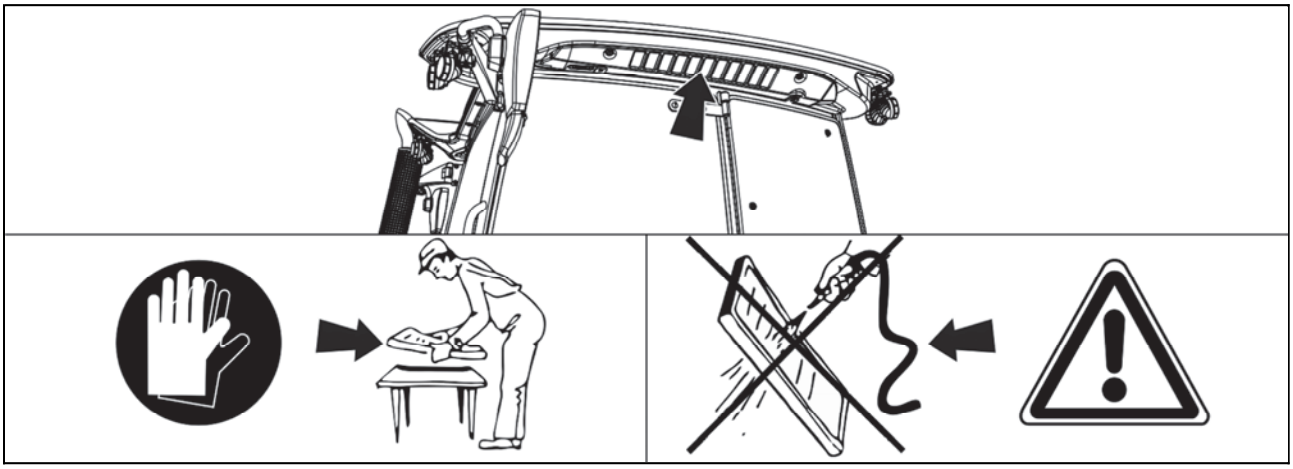

*G714*

**Air filter with active carbon**

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

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

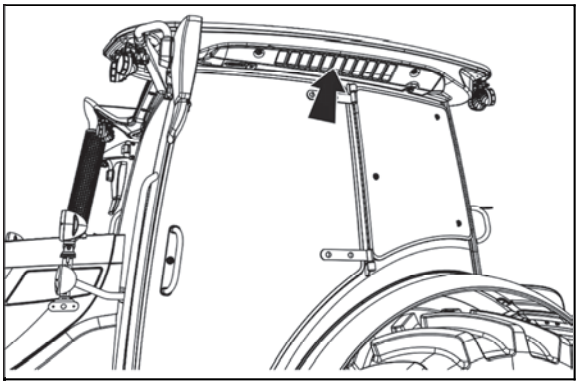
***Replace the active carbon filter every 200 hours or 36 months (the production date is printed on the filter). If you feel the smell of pesticides in the cab, replace the filter immediately and have the cab sealing checked. Used filters must be disposed of in specialized collection centres.***



*PGPPN003*

**Carbon filter installation instructions**

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



*PGPPN004*

# MAIN TECHNICAL PARAMETERS

**Technical data of engines**

| Tractor type | | HS 80 | HS 90 | HS 100 | HS 110 | HS 120 |
|---|---|---|---|---|---|---|
| Engine type | | 1106 | 1206 | 1006 | 1306 | 1406 |
| Engine type | | diesel, four-stroke with direct fuel injection, turbocharged | | | | |
| Engine design | | straight, standing, water cooled | | | | |
| Number of Cylinders | | 4 | | | | |
| Cylinders displacement | $cm^3$ | 4156 | | | | |
| Bore x Stroke | mm | 105x120 | | | | |
| Rated speed | rpm | 2200 | | | | |
| Injection order | | 1-3-4-2 | | | | |
| Compression ratio | | 17.8 | | | | |
| Max. overrun speed | rpm | 2460 | | | | |
| Idle speed | rpm | 800 ± 25 | | | | |
| Net power at rated speeds measured. according to ISO14396 | kW | 55.6 | 64.4 | 70.4 | 78.4 | 86.2 |
| Specific fuel consumption at given performance | g / kWh | 216 | 258 | 240 | 238 | 238 |
| Specific fuel consumption at maximum torque | g / kWh | 216 | 214 | 213 | 212 | 211 |
| Max. torque (Mt) at 1480 rpm ISO14396 | Nm | 315.8 | 369.7 | 428.7 | 461.3 | 493 |
| Mt elevation ECE R24 | % | 37.4 | 38.2 | 46.2 | 40.3 | 37 |
| Engine lubrication | | pressure with gear pump | | | | |
| Maximum oil consumption after 100 Mth of engine run-in | g / kWh | 0.5 | | | | |
| Oil pressure at rated engine speed and oil temperature 80 ° C | MPa | 0.2 - 0.5 | 0.2 - 0.5 | 0.2 - 0.5 | 0.2 - 0.5 | 0.2 - 0.5 |
| Minimum oil pressure at 750 rpm engine speed and 80 ° C oil temperature | MPa | 0.08 | | | | |
| Coolant max temperature | °C | 110 | | | | |
| Valvetrain type | | OHV | | | | |
| Injection advance angle | ° | 11+/- 1.5 | 11+/- 1.5 | 11+/- 1.5 | 11+/- 1.5 | 11+/- 1.5 |
| Valve clearance for cold engine<br>- suction<br>- exhaust | <br>mm<br>mm | <br>0.3 ± 0.05<br>0.4 ± 0.05 | | | | |

# MAIN TECHNICAL PARAMETERS

**Rear carried machine or front and rear carried combination**

**1. Calculation of the minimum front axle load $G_{V\ min}$**

The calculated value of the minimum front axle load should be recorded in the table.

$$G_{V\,min} = \frac{G_H \bullet (c+d) - T_V \bullet b + 0{,}2 \bullet T_L \bullet b}{a + b}$$

**2. Calculation of the minimum rear axle load $G_{H\ min}$**

The calculated value of the minimum rear axle load should be recorded in the table.

$$G_{V\,min} = \frac{G_V \bullet a - T_H \bullet b + 0{,}45 \bullet T_L \bullet b}{b + c + d}$$

**Front carried machine**

**4. Calculation of the real total load $G_{tat}$**

If the necessary rear axle load cannot be reached with the rear attached machine ($G_H$), the weight of the rear carried machine must be increased to the minimum allowed load.

The real values and allowed values specified in the instructions for use of the tractor designed for the total load should be recorded in the table.

$$G_{tat} = G_V + T_L + G_H$$

**3. Calculation of the real front axle load $T_{v\ tat}$**

If the necessary front axle load cannot be reached with the front attached machine ($G_V$), the weight of the front carried machine must be increased to the minimum allowed load.

The real values and allowed values specified in the instructions for use of the tractor designed for the front axle should be recorded in the table.

$$T_{V\,tat} = \frac{G_V \bullet (a + b) + T_V \bullet b - G_H \bullet (c + d)}{b}$$

**5. Calculation of the real rear axle load $T_{h\ tat}$**

The real values and allowed values specified in the instructions for use of the tractor valid for the rear axle load should be recorded in the table.

$$T_{H\,tat} = G_{tat} - T_{V\,tat}$$

**6. Load-bearing capacity of tyres**

The calculation of the double value (two tyres) of the allowed tyre load (see, e.g., documents for tyre manufacturers) should be recorded in the table.