Operator's Manual

A3 Series

HiTech

About this manual

This operator's manual is for Valtra A3 Series tractors. The A3 models are A83 h and A93 h.

The manual is meant for agricultural tractors only. If the tractor is used for other applications, it is the owner's responsibility to ensure compliance with local regulations. In this case, always contact your dealer first.

The purpose of this manual is to enable the owner and operator to use the tractor in a proper manner. Providing that the instructions are followed carefully, the tractor will provide years of service in the tradition of Valtra.

WARNING: Before using the tractor, read and understand all the instructions in this manual.They must then be strictly followed when operating and maintaining the tractor.

IMPORTANT: When using the tractor, always follow all valid laws and regulations even if they are not specifically pointed out in this manual.

The manual contains detailed instructions for operating, servicing and maintaining the tractor.

Alternative equipment in the manual refers to equipment that can be selected when ordering the tractor.

Extra equipment refers to equipment which can be bought and installed on the tractor later.

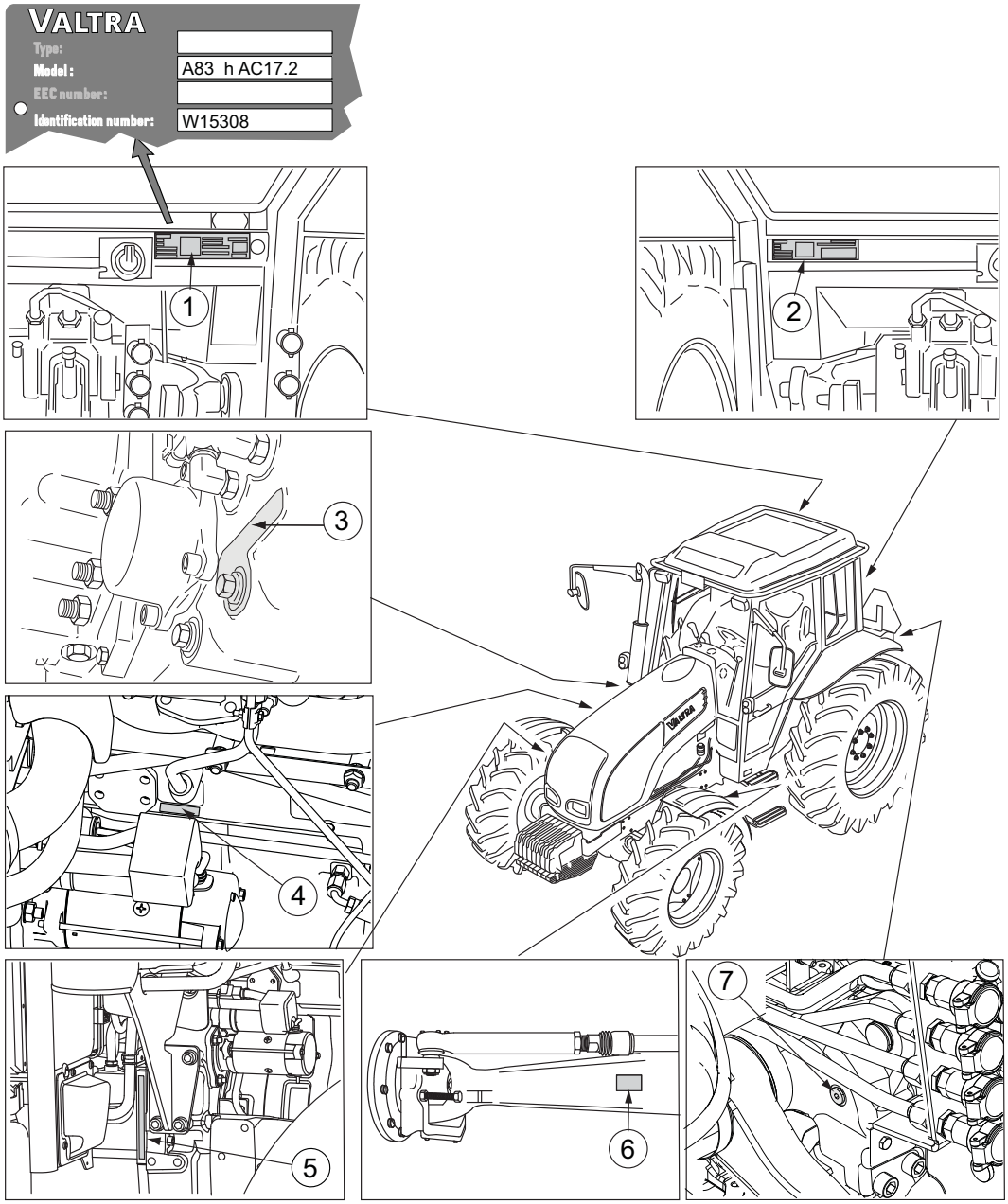
Due to the continual development of the products, the content of this manual may not always correspond to the new product. Therefore, we retain the right to make alterations without prior notification.

Maintenance, repairs and adjustments which are not described in this manual require special tools and exact technical data. For such work contact your dealer who has specially trained personnel to help you.

Valtra Inc.

Tractor serial numbers

When ordering spare parts or service, give the model indication and serial numbers and, in some cases, the engine, front axle, cab and transmission numbers.



1. Type plate EEC
   - Model = model indication used by service/spare part department
   - Identification number = tractor serial number
2. Cab number
3. Transmission Identification number
4. Engine number
5. Tractor serial number
6. Front axle number
7. Power take-off identification number

Contents

1 Safety precautions

Always follow the safety precautions given when working with the tractor.

The regulations given do not release the operator from statutory and other national regulations as regards traffic safety and occupational health and safety.

In addition to the precautions given in this manual, always follow the safety regulations applicable to different types of working sites and existing road traffic laws.

1.1 Hazard statements

Five symbols are used in the documentation.

DANGER: Indicates an imminently hazardous situation that, if not avoided, results in death or very serious injury.

WARNING: Indicates a potentially hazardous situation that, if not avoided, could result in death or serious injury.

CAUTION: Indicates a potentially hazardous situation that, if not avoided, may result in minor injury.

IMPORTANT: Indicates special instructions or procedures which, if not strictly observed, could result in damage to, or destruction of the machine, process or its surroundings.

NOTE: Indicates points of particular interest for more efficient and convenient repair or operation.

1.2 Safety rules

1.2.1 Replacing safety and information signs

Replacement signs are available from your dealer in the event of loss or damage.

- **Replace any danger, warning, caution or instruction signs that are not readable or are missing.**

WARNING: Do not remove or obscure danger, warning, caution or instruction signs.

1.2.2 Maintaining hardware safety

To ensure maximum safety for the operator, maintain tractor hardware safety.

The owner is responsible for repairing any damage or wear which might endanger the safety of the tractor.

- **Cab**

  Damages on the cab must be repaired without delay to ensure the cab's protective capability.

  WARNING: If damage occurs to the cab, replace all parts affected with new ones. Do not attempt any repair work (welding, drilling, cutting, or grinding) without first consulting the manufacturer.

- **Tractor construction**

  Do not change the tractor construction, such as maximum driving speed or maximum power.

  The tractor is type approved to comply with construction and use regulations. Any changes to the tractor construction may reduce safety and durability and affect the warranty terms.

- **Brakes**
  - Always check that the brakes are working before driving.
  - Lock the brake pedals together whenever individual wheel brakes are not required and always when driving on the road.
  - Extensive repairs to the braking system should be undertaken only by an authorised Valtra workshop.
  - When implements or ballast weights are front-end mounted, the rear axle loading is decreased:
    - Check that the rear brakes are still effective.
    - Use appropriate ballast weights at rear as required.

- **Cleaning**

  Keep the tractor clean to minimise risk of fire.

- **Lights**
  - Make sure that lights and reflectors are clean and in working order.
  - Make sure that the headlights are correctly adjusted.

- **Steps**

  Keep the steps clean. Dirty steps can lead to falls and personal injury.

- **Quick couplings**

  DANGER: Clean the quick couplings and ball joints before attaching an implement. There is risk that the implement is not attached properly.

- **Maintenance**
  - Follow the maintenance instructions and safety precautions applicable to the tractor.
  - Stop the engine and lower the implement before carrying out any maintenance work on the tractor or implement.
  - Support the tractor from the correct support points on the frame and use suitable blocks or stands when carrying out maintenance tasks that require supporting the tractor.

1.2.3 Using tractor safety features

The tractor has several features that contribute to the operator's safety.

- **Steering wheel and safety handles**

  WARNING: Hold on to the steering wheel or safety handles in the cab if the tractor tips over. Never try to jump out.

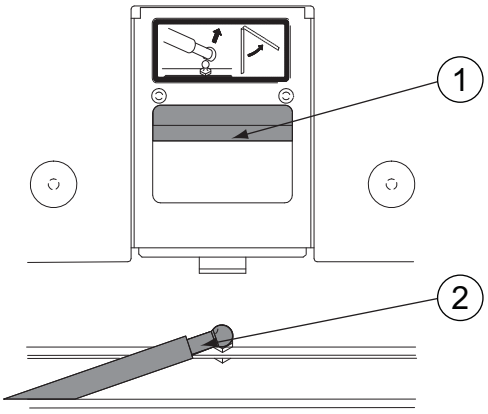
- **Safety belt**

  Always use the safety belt when using the tractor.

- **Emergency exits**

  Familiarise yourself with the four emergency exits of the tractor cab, that is, the doors, the rear window and the roof hatch (extra equipment).

- **Roof hatch (extra equipment)**



1. Handle
2. Gas spring

  - Open the hatch by pushing the handle forward and pushing the hatch upward.
  - To open the hatch fully (for emergency exit), detach the upper end of the gas spring from its fastener and push the hatch fully open.

  WARNING: When driving on ice, keep the roof hatch open.

1.2.4 Safe operation

1.2.4.1 Following safe operating practices

To operate the tractor safely, follow all the safety precautions and instructions.

- **Avoid operating the tractor near ditches, embankments and holes.**
- **Stay off slopes too steep for safe operation.**
- **When using chemicals, carefully follow the chemical manufacturer's instructions for use, storage and disposal.**

  Also follow the chemical application equipment manufacturer's instructions.
- **Protect yourself against motor noise.**

  Use hearing protectors to avoid noise injuries when you are working outside the cab near the engine.
- **Avoid carbon monoxide poisoning.**

  WARNING: To avoid carbon monoxide poisoning, do not start the engine or run it indoors with the doors closed unless the exhaust is vented to the outside.
- **Restarting after engine stop**
  - If the engine has stalled, for example due to too heavy loading, turn the ignition key to the STOP position.
  - Restart the engine.

    Keep an eye on the indicator lights on the instrument panel.
- **Front loader**
  - Ensure that no one is in the working area when you are working with a front loader.
  - Lower the front loader to the down position before leaving the tractor.
  - Observe any special instructions issued by the loader manufacturer.

  WARNING: The risk of overturn increases as the loader is raised. Be extra careful on slopes when operating the loader. Always carry the loader as low as practical for the conditions.

  WARNING: Always look at the implement. Objects can fall or roll backwards onto the driver when the loader is raised. Only lift loads which can be contained in, and are intended for, the specific implement.
- **Differential lock**

  Use the differential lock only when running on loose or slippery ground.

- **Overturning**
  - Always consider the way in which the tractor is to be used and the fact that the centre of gravity of the tractor/implement assembly changes according to the load being transported or towed.
  - Adapt the tractor speed according to visibility, weather conditions and the type of terrain.

  WARNING: The instructions concerning overturning in this manual are not exhaustive.

- **Hydraulic/fuel pressure**

  Do not attempt to locate a leak in the hydraulic system or attempt to close a leak using any part of your body.

  CAUTION: Oil/fuel under high pressure easily penetrates through clothing and skin and can cause serious injury.

- **Hot surfaces**

  CAUTION: Be careful of hot surfaces during operation and service work, in particular the engine and hydraulics components.

- **Falling Object Protection Structure (FOPS)**

  DANGER: The cab structure is not designed for protection against falling objects (no FOPS).

- **Operator Protection Structure (OPS)**

  DANGER: Protection against penetrating objects is not provided (no OPS available).

- **Hazardous substances EN 15695-1:2009**

  DANGER: The cab is classified as category 1 according to the draft of EN15695-1:2009. Protection against dust or hazardous substances (agricultural chemicals, etc.) is not provided. Personal protective equipment must be used according to the chemical manufacturer's recommendations.

- **Forest work**
  - When working in forest, pay special attention to safety issues. The specific dangers related to forest work are overturning, falling objects and penetrating objects.

1.2.4.2 Getting into and out of the cab

When getting into and out of the cab, pay special attention to safety issues.

- **Always use three-point contact with the tractor and face the tractor when getting in and out.**
- **Use handrails, grab handles and steps when getting in and out.**
- **Do not use the control levers as a handhold.**
- **Do not step on pedals when getting in and out.**

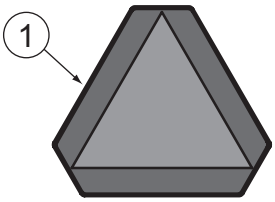
- **Never attempt to get into or out from a moving tractor.**
- **Never jump off a tractor.**

1.2.4.3 Driving on public roads

When driving the tractor on public roads, pay special attention to the safety issues.

- **Before driving**
  - **Check that the tractor is safe for driving on the road.**
  - **Adjust the rear view mirrors to give the correct viewing angle.**
  - **Lock the check links with pins when transporting implements using three-point linkage.**
- **When driving the tractor on public roads**

  WARNING: Do not transport anything on the auxiliary hydraulic valves while driving on the road. The load, trailer link steering and such have to be locked (for example mechanically).
  - **Use the slow moving vehicle emblem on the rear end of the tractor if allowed by law.**



1. Slow moving vehicle emblem

1.2.4.4 Controlling the driving speed

Adjust the driving speed to suit the driving surface, visibility and load.

IMPORTANT: Do not alter the maximum driving speed of the tractor. The maximum reverse driving speed is 20 km/h.

- **Avoid any sudden increase or reduction (braking) in the driving speed.**
- **Avoid tight turns at high driving speed.**
- **When driving the tractor with an attached implement which centre of gravity is far from the tractor, the tractor may sway considerably during cornering.**

  If care is not taken, the tractor may tip over or the load may be displaced.

1.2.4.5 Driving downhill

Be careful when driving downhill.

- **Check the brakes often.**

- **Change to a lower gear before driving down a steep incline.**

  IMPORTANT: Do not brake continuously as the brakes may overheat.

  IMPORTANT: Do not let the engine overrun to avoid damage to the engine.

  NOTE: If the speed is too high, a speed warning is shown on the instrument panel display and a buzzer goes off.

1.2.4.6 Operating with implements

Read and follow the instructions to avoid unnecessary risks when operating with implements and attachments.

WARNING: Always follow carefully the instructions given in the implement's user documentation. It is not allowed to use an implement without reading and understanding all the precautions and regulations.

WARNING: Before entering between the tractor and the implement, prevent the tractor from moving by applying the parking brake or blocking the wheels. There is risk of accidents if the tractor or implement should move.

WARNING: Implements attached to the linkage or the auxiliary hydraulic system must be lowered to the ground while parking and during maintenance.

WARNING: When installing an implement, air in hydraulic hoses and cylinders can cause erratic operation.Run the engine at low speed and make slow movements with the joystick to purge any air from the hydraulic system.

WARNING: When installing an implement, keep hands and feet away from moving components.Do not use your fingers to check the alignment of holes or pins — use a mandrel or a steel rod.

WARNING: When disconnecting, the implement may fall downwards.

IMPORTANT: When attaching a trailer or implement, be sure not to exceed the maximum weight of the rear axle. See the technical specifications in this manual for the maximum permissible axle loading.

- **Make sure to allow sufficient clearance for turning.**

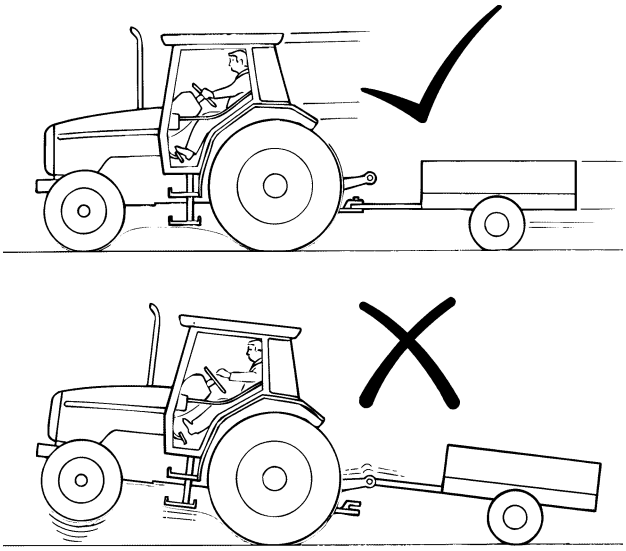
  Three-point hitch and side-mounted implements make a much larger arc when turning than towed equipment. Use only Valtra approved attachments and implements.

- **Familiarise yourself with the working area and terrain.**

  Pay attention to vertical clearance and limitations that arise due to the increased reach.

- **Pull only from the approved drawbar.**

  Towing or attaching to other locations may cause the tractor to overturn.



1.2.4.7 Running with power take-off driven implements or machines

Read and follow the given instructions to use power take-off (PTO) driven implements and machines safely.

DANGER: Serious accidents may occur due to failure to use the prescribed safety devices.

- **Use the prescribed safety devices and ensure that they are in good condition.**
- **Follow the directions given by the implement or machine manufacturer.**

1.2.4.8 Using ballast weights

Use ballast weights according to the instructions when needed.

WARNING: When driving on the road, at least 20% of the gross weight of the tractor must be on the front axle. When lifting an implement, the weight on the front end of the tractor is reduced, and the steering ability of the tractor is impaired or sometimes lost.

IMPORTANT: When using salt liquid as ballast weight in the wheels, the manufacturer does not take the responsibility for the damages caused by salt.

- **Use sufficient ballast weights.**
- **Mount ballast weights only at the points intended for this purpose.**

1.2.4.9 Towing

Read and follow the given instructions to tow a trailer or an implement safely.

WARNING: When the tractor is towing a trailer, the brake pedals must be locked together. The brakes are not to be used individually for steering.

WARNING: When using a trailer, make sure that the hitch latch is locked.

WARNING: When using a trailer, always use the trailer brakes if required by law.

WARNING: Be sure no one is standing between tractor and implement.

IMPORTANT: When attaching a trailer or implement, be sure not to exceed the maximum weight of the rear axle. See the technical specifications in this manual for the maximum permissible axle loading.

IMPORTANT: When attaching a trailer or implement, be sure not to exceed the maximum load of the tyre type. See the technical specifications for maximum rear axle tyre loadings.

- **Couple a trailer to the drawbar using an approved trailer coupling.**
- **Always lower a loaded drawbar with the hydraulic lift.**
- **Check that trailer brakes are operating properly and observe any special instructions issued by the trailer manufacturer.**
- **Secure the trailer load properly.**

WARNING: On tractors with trailers, the load must be properly secured. The load must not obstruct the operator's vision, or cover lights and reflectors. Loads which project more than 1 m behind the vehicle train must be suitably marked. During daytime, this should be done with a flag, and during darkness, with a red light and a reflector arrangement.

1.2.4.10 Ensuring personal safety of other people

Avoid hazards for other people when using the tractor.

DANGER: Do not allow children in the cab or near the tractor or an attached implement while the engine is running.

DANGER: If the tractor engine is running, do not leave anybody in the cab without supervision, as the push buttons are easily operated. Always apply the parking brake.

- Stop the engine and lower the implement to the ground when leaving the tractor.
- Do not let passengers ride in the tractor unless it is provided with a special seat.

  Other personal transport, for example on front-mounted loaders, is not permissible.
- Do not let passengers ride on the platform inside the tractor.
- Never lend the tractor to a person who is not used to driving it.

  DANGER: You may be held responsible for any resulting accidents.
- Do not allow children, untrained or unqualified persons to operate your tractor.

  They could injure themselves or someone else.

1.2.4.11 Fire hazards

WARNING: Open fire, smoking and sparks are prohibited near the fuel system and batteries. Especially when charging batteries, explosive gases are present.

1.2.4.12 Handling viton seals subjected to high temperatures

At temperatures over 300°C, the viton seals of the engine produce highly corrosive hydrofluoric acid.

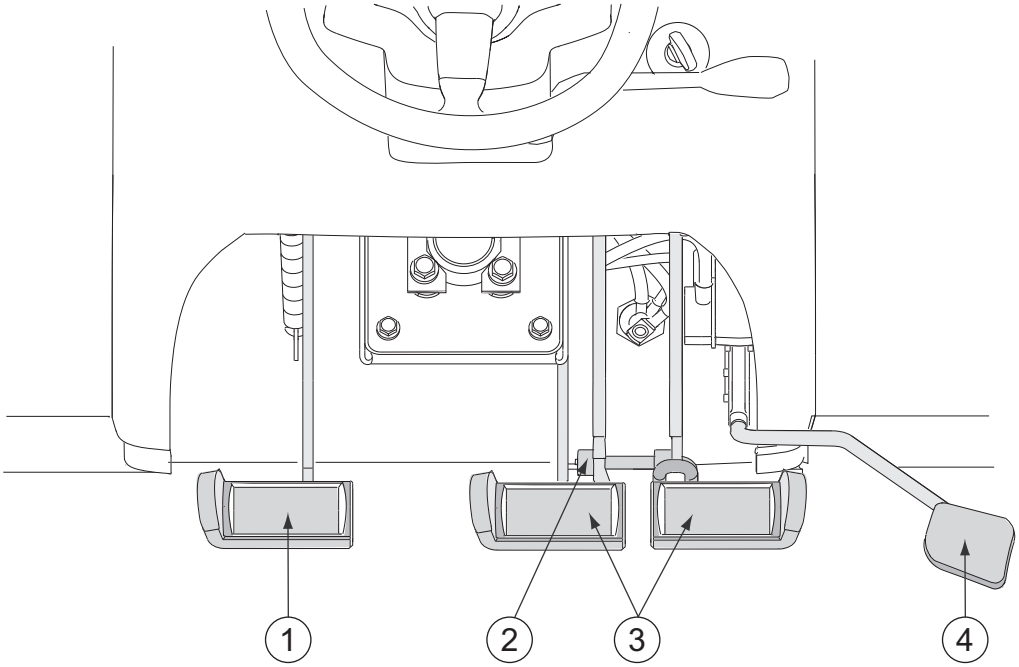
- Do not touch viton seals subjected to abnormally high temperatures with your bare hands.

  Use neoprene rubber or heavy duty gloves and safety glasses when decontaminating.
- Wash seals and the contaminated area with 10% calcium hydroxide or other alkali solution.
- Put all the removed material in sealed plastic bags and deliver them to the point stated by the authorities concerned.

  WARNING: Never burn viton seals.

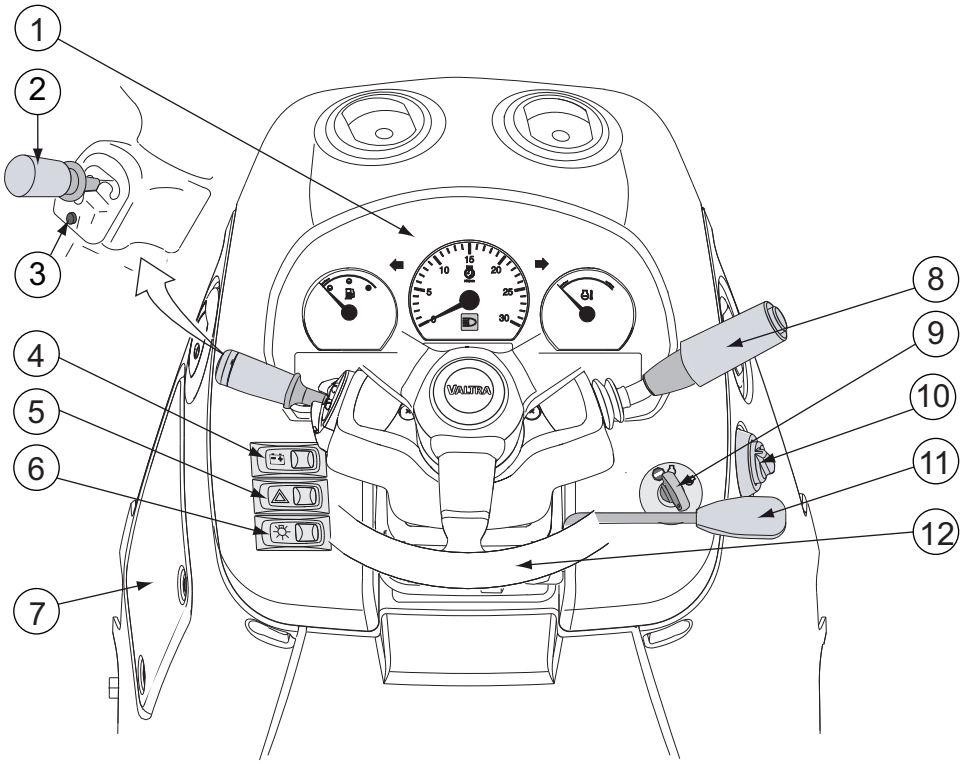
2 Instruments and controls

2.1 Pedals



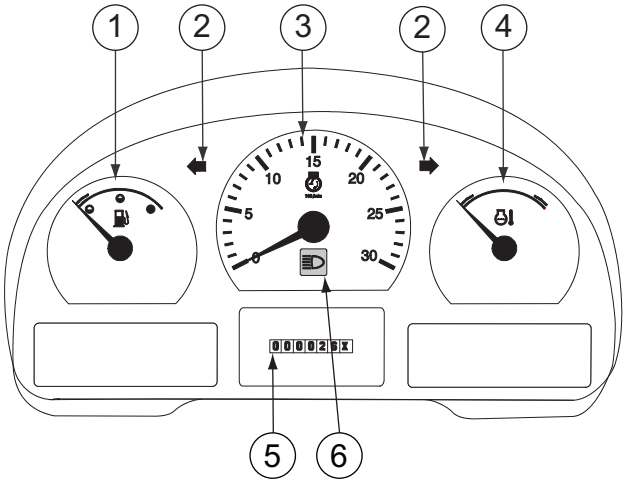
1. Clutch pedal
2. Latch for brake pedals
3. Brake pedals
4. Accelerator pedal

2.2 Dashboard



1. Instrument panel
2. Power shuttle lever
3. Preprogramming push button
4. Main switch (extra equipment)
5. Hazard warning flasher switch
6. Light switch
7. Electric centre
8. Multifunctional lever
9. Ignition switch
10. Heater adjustment knob
11. Lever for adjusting steering wheel position
12. Steering wheel

2.2.1 Infoline instrument panel



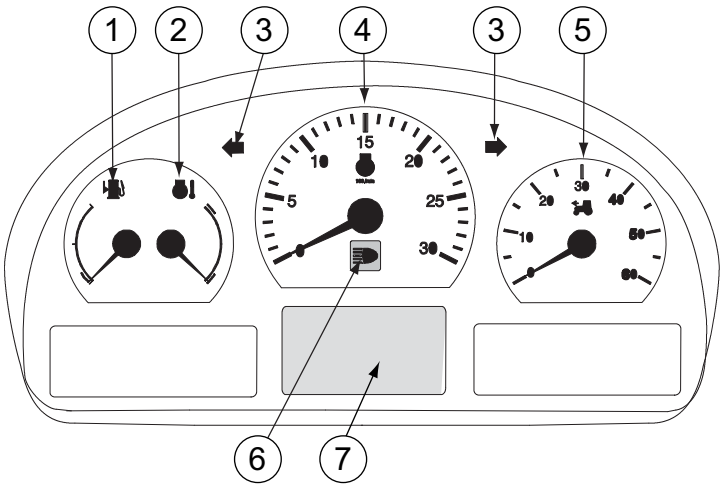
1. Fuel gauge
2. Indicator lights for direction indicator
3. Tachometer
4. Coolant thermometer
5. Operating hour meter
6. Indicator light for the main beam

The fuel gauge shows the amount of fuel left in the tank.

The coolant thermometer indicates the engine temperature. The zone between blue (cold) and red (hot) is the normal operating temperature.

2.2.2 Proline instrument panel

The operator receives information from the gauges, coolant thermometer, tachometer, speedometer and indicator lights. All this can be seen on the Proline instrument panel. The Proline instrument panel is an alternative equipment.



1. Fuel gauge
2. Coolant thermometer
3. Indicator lights for direction indicator
4. Tachometer
5. Speedometer
6. Indicator light for the main beam
7. Proline instrument panel display

The fuel gauge shows the amount of fuel left in the tank.

The coolant thermometer indicates the engine temperature. The zone between blue (cold) and red (hot) is the normal operating temperature.

2.2.2.1 Symbols on the Proline instrument panel display

The Proline instrument panel display has fixed views and views that can be selected by the operator.

Fixed view symbols

The fixed views are the two functions shown on the bottom row of the display:

Symbol	Function
	Operating hours (hhhh.h)
	Clock (hh:mm)

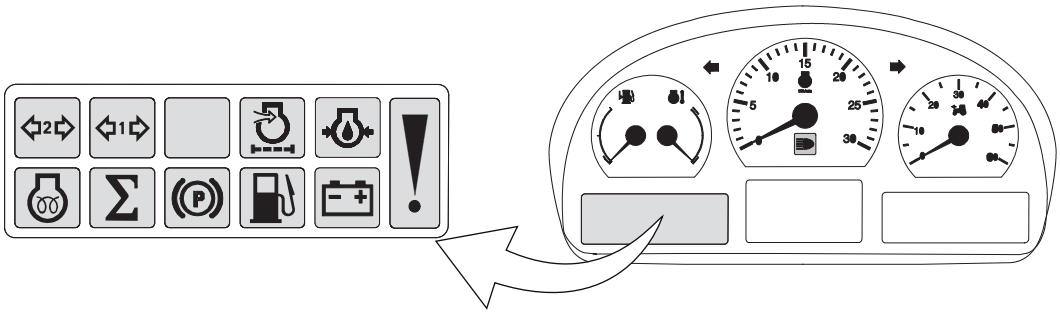
Selectable view symbols

The selectable views are the functions shown on the top and centre row of the display:

Symbol	Function
	Working time (h:mm)
cruise RPM cruise KMH	Cruise control
km/h/mph	Driving speed (km/h/mph)
R	Rear power take-off (PTO) speed (rpm)
Table continued on next page	

Symbol	Function
F	Front power take-off (PTO) speed (rpm)
min⁻¹	Engine speed (rpm)
l/ha	Immediate fuel consumption (ha, acre)
Avg l/ha	Average fuel consumption (ha, acre)
l/h	Immediate fuel consumption
Avg l/h	Average fuel consumption
	Fuel consumption
AC R	Lower link position (%, 0-100)
AC F	Lifting link position of front linkage (%, 0-100)
	Gearbox temperature (C/F)
	Travel distance (m/km/miles)
	Square area (ha)
	Periodical maintenance

2.2.3 Indicator lights on the left side of the display

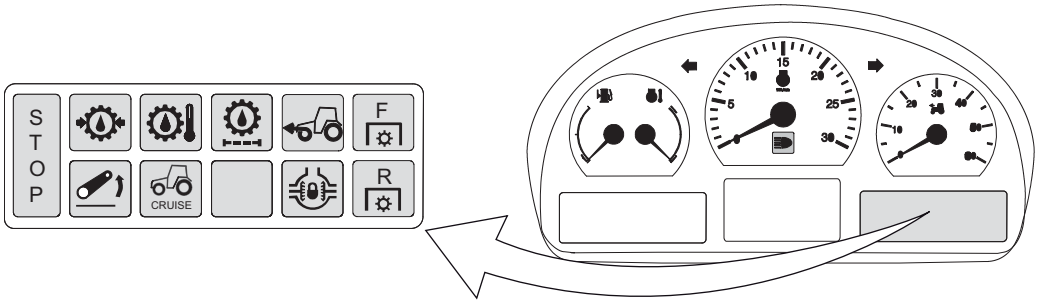


Indicator light	Indication
2	Direction indicator light for second trailer (green). If one of the bulbs on the combination has failed, this light is not lit.
1	Direction indicator light for first trailer (green). If one of the bulbs on the combination has failed, this light is not lit.
	Engine air cleaner clogging indicator light.
	Engine oil pressure light

Table continued on next page

Indicator light	Indication
	The exclamation mark is lit together with other indicator lights (yellow).
	Glow indicator light The light (yellow) is lit when the ignition key is in position  and the engine is cold.
	Σ-indicator light is used as a service code indicator light (flashing)
	Parking brake indicator light The light (red) is lit to indicate that the power shuttle lever is in the parking brake position.
	Low fuel level indicator light The light is lit (yellow) and a buzzer sounds once to indicate that about 50 litres of fuel is left.
	Battery charging indicator light

2.2.4 Indicator lights on the right side of the display



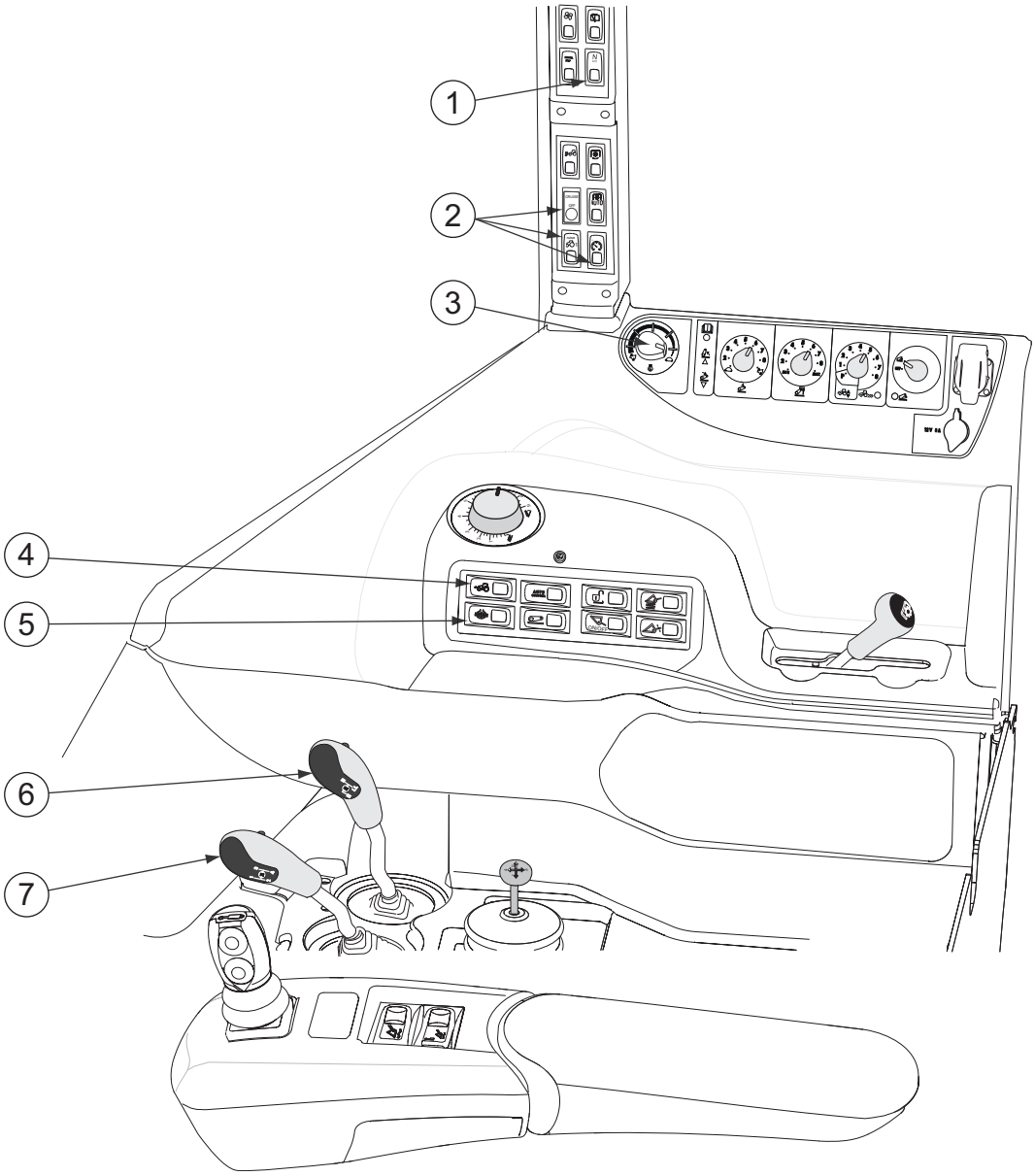
Indicator light	Indication
	STOP indicator light (red)
	Gearbox oil pressure light
	Gearbox oil temperature light
	Pressure oil filter clogging indicator light
	Four-wheel drive (4WD) indicator light The light is lit (yellow) to indicate that 4WD is engaged.

Table continued on next page

Indicator light	Indication
	Front power take-off (PTO) indicator light The light (yellow) is continuously on and indicates that the front PTO (extra equipment) is engaged.
	Rear linkage indicator light The light is on (yellow) to indicate that the lift/stop/lower switch is in lift (transport) position.
	Cruise control indicator light The light is on (yellow) to indicate that cruise control is engaged (constant driving speed/ constant engine speed chosen).
	Differential lock indicator light The light is lit (yellow) to indicate that the differential lock is engaged.
	Rear PTO indicator light The light blinks (yellow) when the rear PTO has been activated and is ready to operate. The light is on continuously when the rear PTO is engaged.

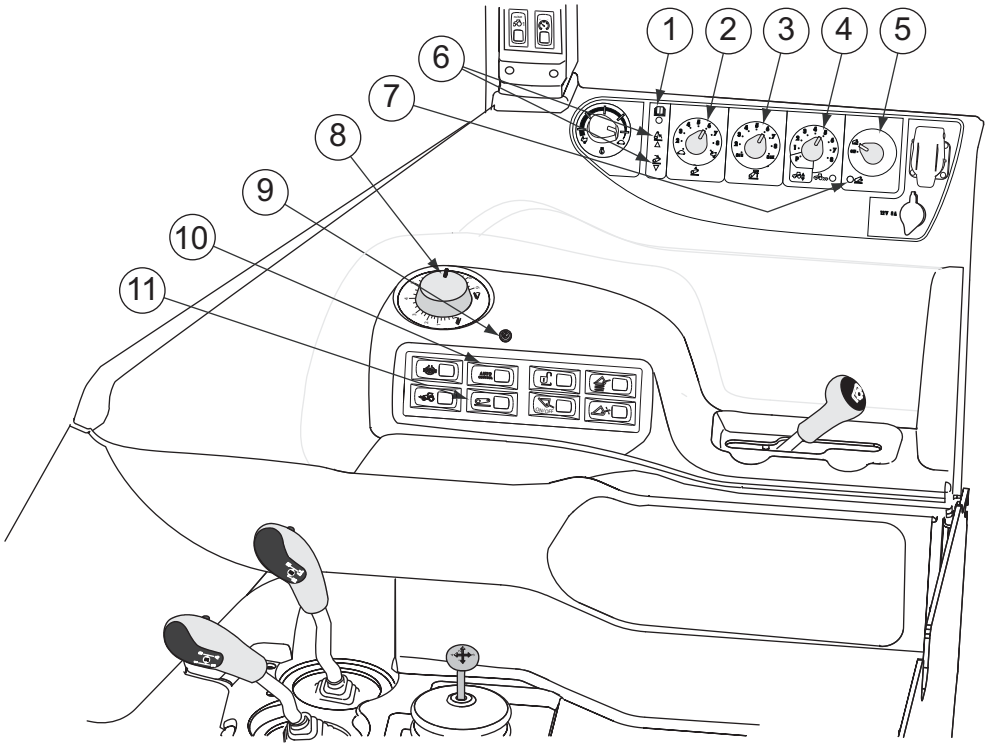
2.3 Controls on the right-hand side

2.3.1 Driving controls



1. Switch for automatic traction control
2. Switches for cruise control (extra equipment)
3. Hand throttle
4. Switch for four-wheel drive (4WD)
5. Switch for differential lock
6. Range gear lever
7. Speed gear lever

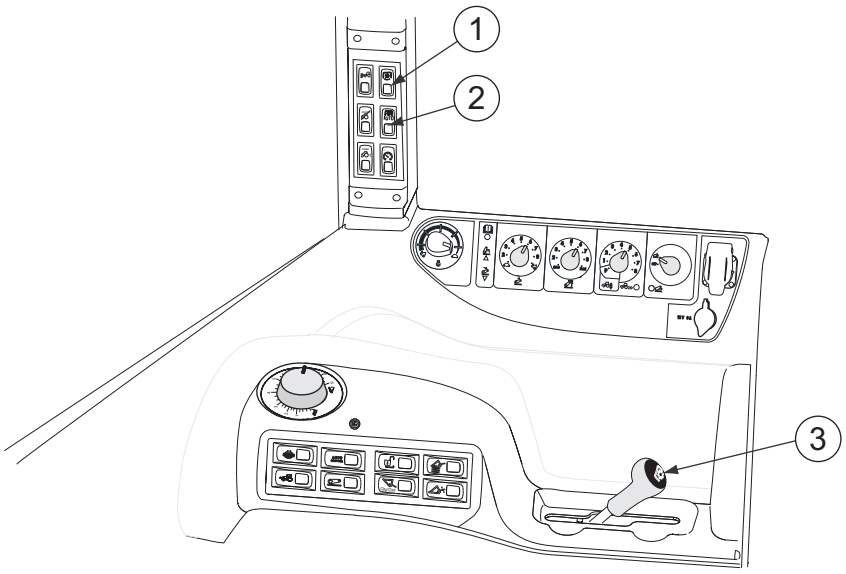
2.3.2 Linkage



1. Diagnose light
2. Lowering speed selector
3. Lifting height selector
4. Draft control selector
5. Drive balance control
6. Lift/lower indicator lights
7. Drive balance control light
8. Position control knob
9. Passing switch for position control knob
10. Lift/stop/lower switch
11. Lift/lower switch

2.3.3 Power take-off

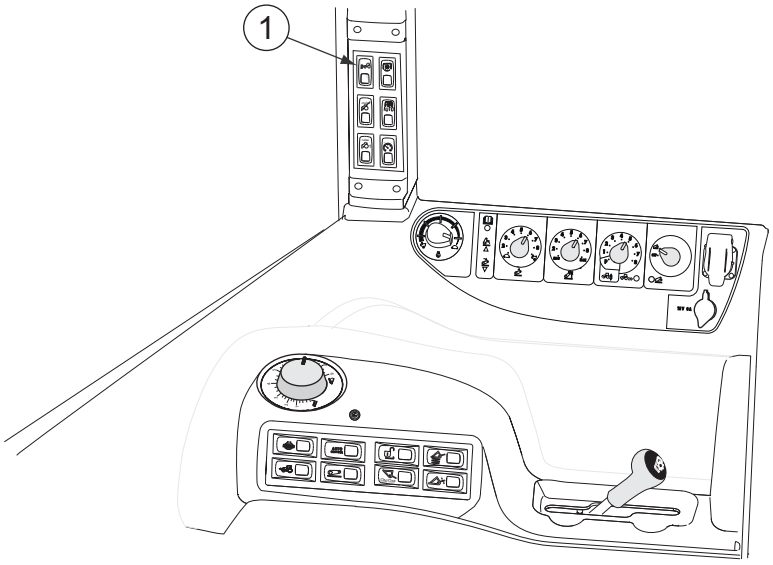
Rear power take-off



1. Switch for rear power take-off (PTO)
   The rear PTO push buttons on the mudguards are extra equipment.
2. Switch for the rear PTO automatic stop (extra equipment)
3. Speed control lever for the rear PTO

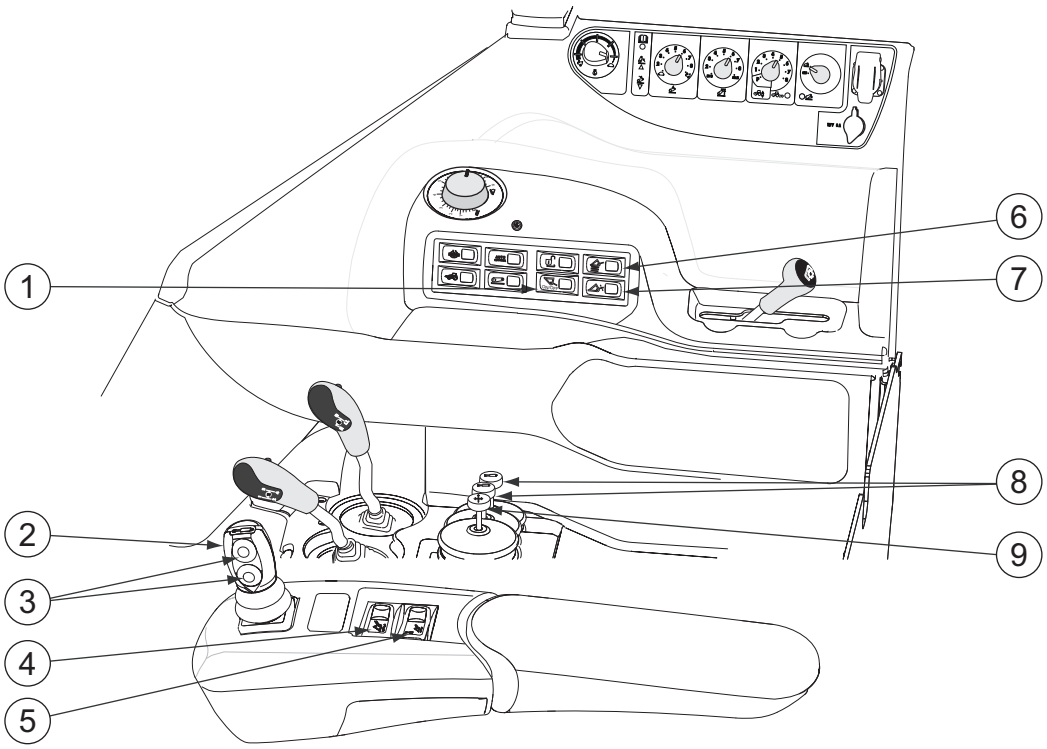
Front power take-off

Front power take-off (PTO) is extra equipment.



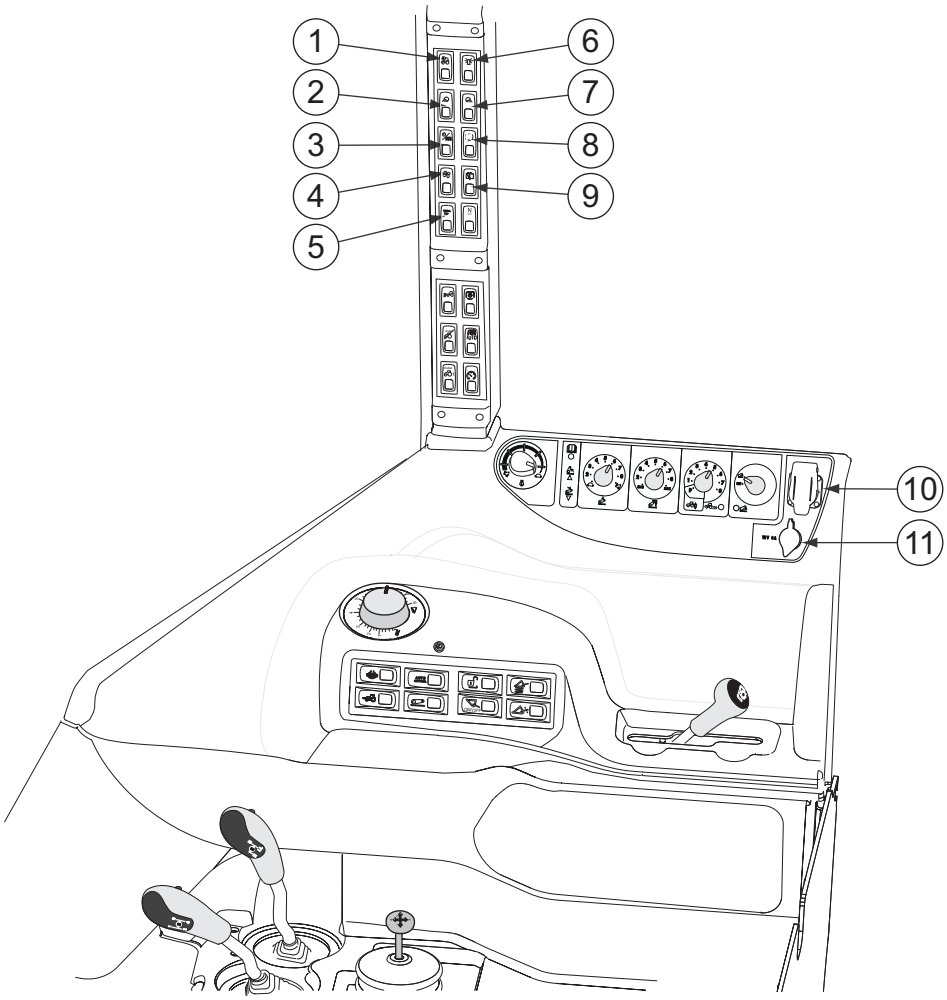
1. Switch for front PTO

2.3.4 Auxiliary hydraulics



1. Front loader hydraulics On/Off switch
   The armrest with front loader hydraulics controls is extra equipment.
2. Joystick
3. Joystick push buttons
4. Switch for continuous floating position
5. Switch for floating position activation
6. Switch for Softdrive (extra equipment)
7. Switch for equipment locking (extra equipment)
8. Control levers for the auxiliary hydraulics rear valves 3 and 4 (extra equipment)
9. Control lever for the auxiliary hydraulics rear valves 1 and 2

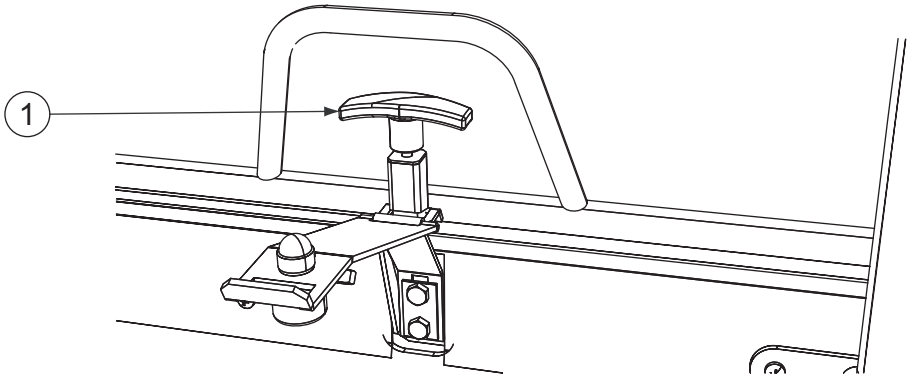
2.3.5 Other controls



1. Switch for upper headlights (extra equipment)
2. Switch for front working lights (extra equipment)
3. Proline instrument panel display change-over switch (extra equipment)
4. Switch for heater fan
5. Switch for control stop (extra equipment)
6. Switch for rotating warning light (extra equipment)
7. Switch for rear working lights
8. Proline instrument panel display setting switch (extra equipment)
9. Switch for rear window wiper and washer (extra equipment)
10. Three-pin power socket
11. Two-pin power socket (extra equipment)

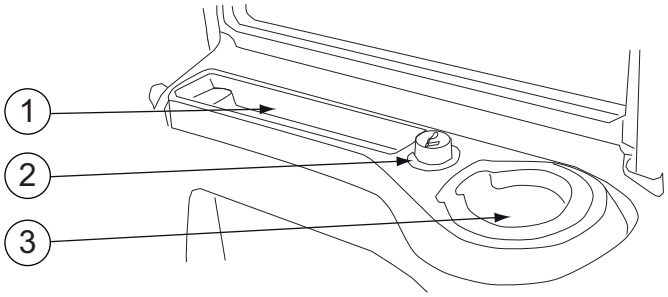
2.4 Controls on the rear side

2.4.1 Rear window opening device



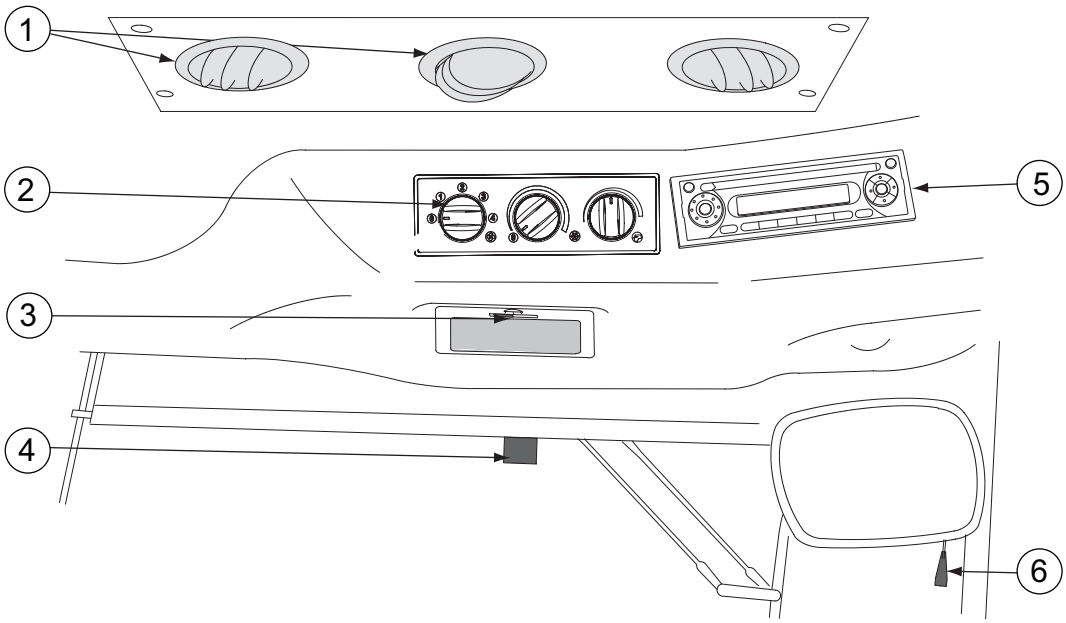
1. Rear window opening device

2.5 Controls on the left-hand side



1. Storage compartment
2. Lighter
3. Cup holder

2.6 Controls on the front roof console

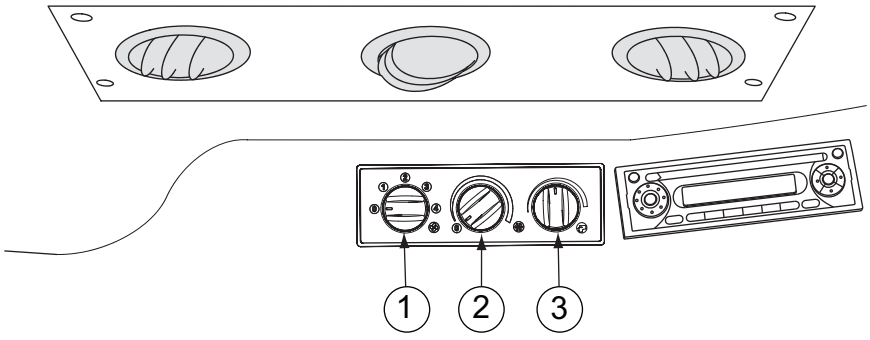


1. Ventilation nozzles (extra equipment)
2. Fan control knob (extra equipment)
3. Cab light
4. Sun visor down
5. Radio (extra equipment)
6. Sun visor up

2.7 Air conditioning controls

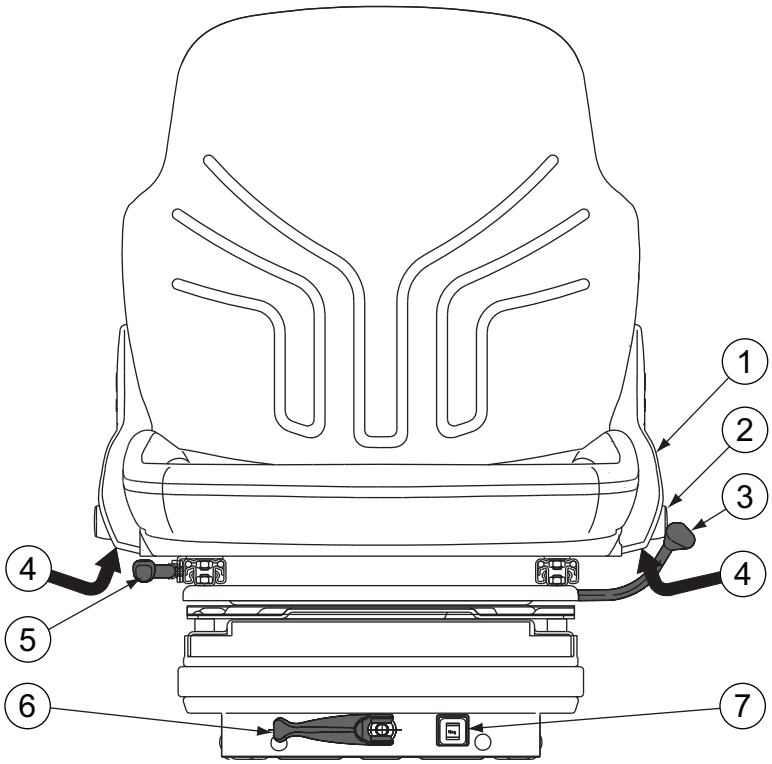
2.7.1 Manual air conditioning controls

The manual air conditioning system is extra equipment.



1. Fan control knob
2. Air conditioning control knob
3. Recirculation control knob

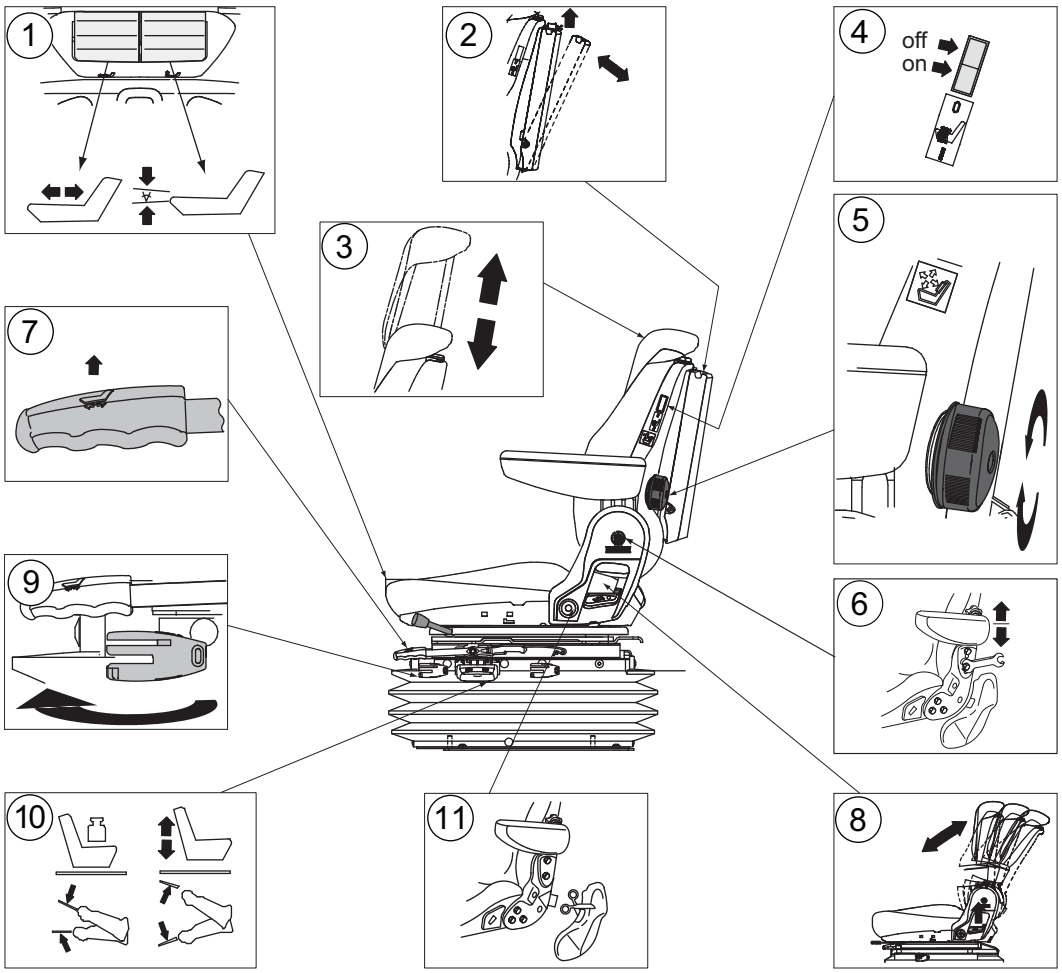
2.8 Driver's seat



1. Backrest inclination adjustment
2. Seat belt anchor point
3. Seat turning lock/release
4. Height adjustment
5. Forward/backward adjustment
6. Suspension adjustment
7. Operator weight display

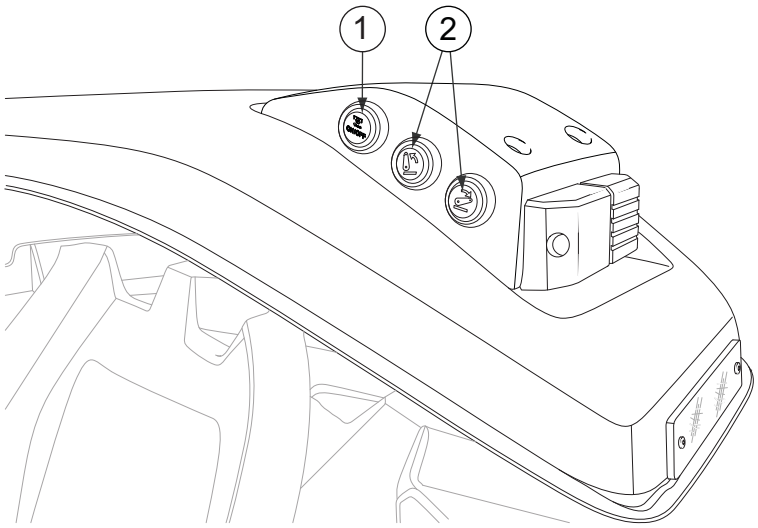
2.9 Air suspended driver's seat

Air suspended driver's seat is extra equipment.



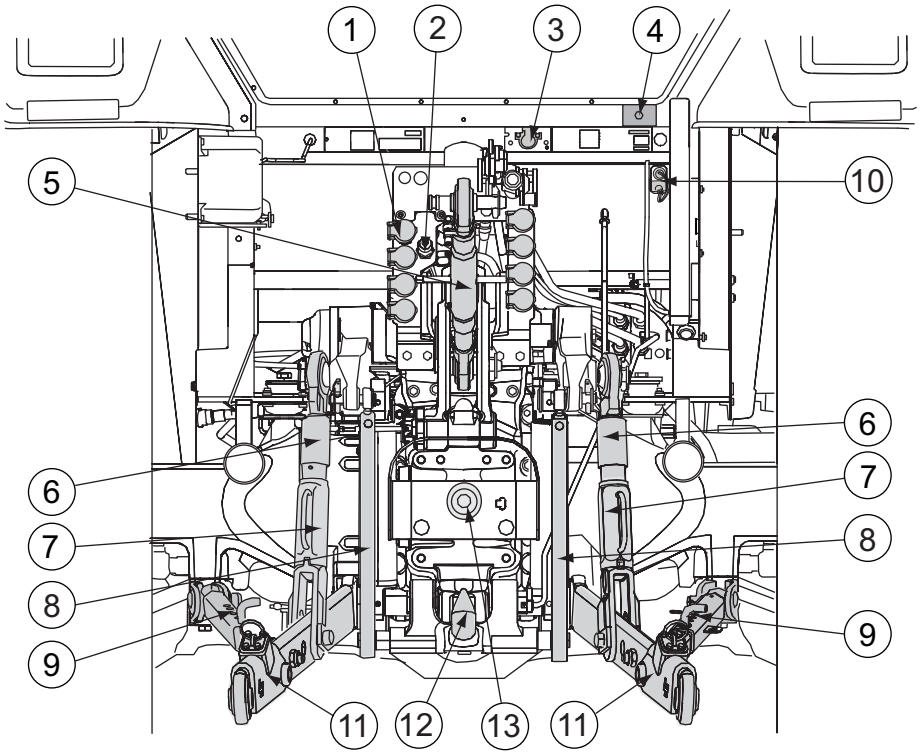
1. Seat depth and cushion angle adjustment
2. Storage compartment for manuals
3. Headrest height adjustment and removal
4. Seat heating
5. Lumbar support adjustment
6. Armrest adjustment
7. Forward/backward adjustment
8. Backrest inclination adjustment
9. Longitudinal suspension adjustment
10. Height and vertical suspension adjustment
11. Seat belt anchor point

2.10 Controls on the rear mudguard



1. Rear power take-off on/off push button (extra equipment)
2. Lift/lower push buttons

2.11 Rear controls and connections outside the cab



1. Quick-action couplings, auxiliary hydraulics
2. Auxiliary hydraulic system return coupling
3. Trailer socket
4. Inlet, remote control cables
5. Top link
6. Lifting links
7. Levelling gear
8. Pick-up hitch lifting links (extra equipment together with the pick-up hitch)
9. Check links
10. Emergency stop plug for rear power take-off (PTO)
11. Lower links
12. Pick-up hitch (extra equipment)
13. PTO shaft

The pick-up hitch is extra equipment with many alternatives.

3 Operation

3.1 Running the tractor in

The tractor is run in during the 50 first hours of use. Running the tractor in correctly gives the tractor a longer service life and makes it more economical.

Before you start driving, make sure that:

- You understand all the instruments and the functions of the controls.
- You have read the safety precautions.

IMPORTANT: Check that all bolts and nuts, for example in the wheels and exhaust system, are properly tightened.

IMPORTANT: Carry out the daily maintenance before you drive the tractor for the first time each day.

When running the tractor in:

- **Drive smoothly and vary the loading.**
- **Do not race the engine.**
- **Do not run the engine at maximum speed.**
- **Do not pull a heavy load at low engine speed.**
- **Avoid driving with the same gear engaged and at the same engine speed for a long period at a time.**

Check all instruments immediately after the engine has started. Keep an eye on the instruments while driving.

3.2 Preparing for use

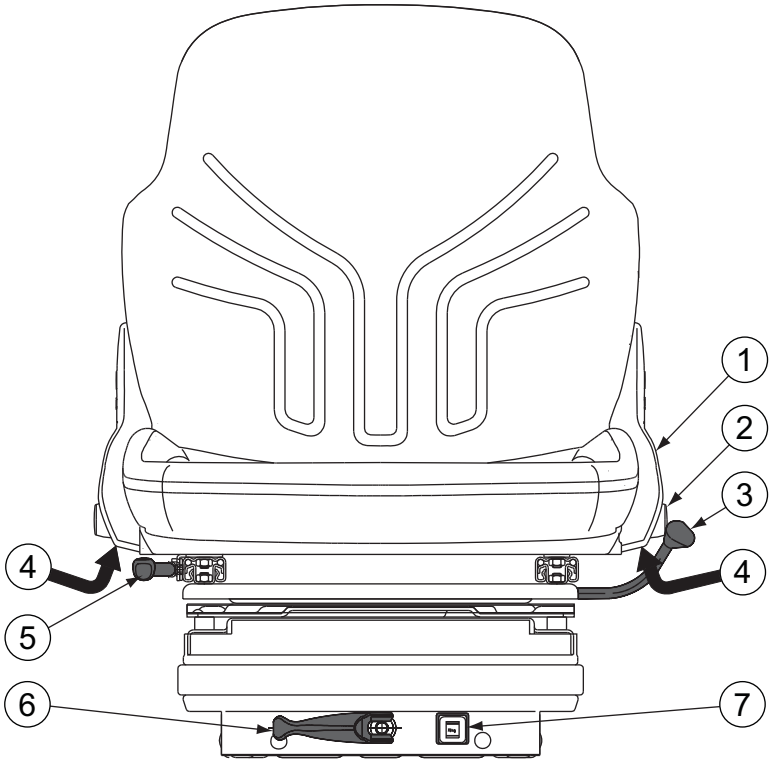
Before you start using the tractor, read this manual thoroughly.

- **Make sure that the tractor is handled and maintained in the correct way to ensure reliability and provide economical operation.**
- **Follow the maintenance program carefully and include the daily maintenance in your normal routine.**
- **Only use genuine Valtra spare parts for optimum performance.**

3.2.1 Adjusting the driver's seat

You can adjust the driver's seat according to your height and weight. With these adjustments you can minimize the exposure to vibration, obtain the best support for your lower back and get the most comfortable driving position. Note that you may need to change the adjustments according to work conditions or the components you are using such as the tyre type.

CAUTION: Do not attempt to adjust the seat while driving. There is an increased risk of loss of control.



1. Backrest inclination adjustment
2. Seat belt anchor point
3. Seat turning lock/release
4. Height adjustment
5. Forward/backward adjustment
6. Suspension adjustment
7. Operator weight display

- **Turn the seat.**
  - **Pull the locking lever upwards to release the lock.**
  - **Turn the seat either clockwise or anti-clockwise to the desired position.**
- **Adjust the seat forwards or backwards.**
  - **Pull up the forward/backward adjustment lever.**
  - **Move the seat to the desired position.**
- **Adjust the suspension.**

  The operator weight display shows the settings for operators of different weights.
  - To increase the suspension, turn the suspension adjustment lever clockwise.
  - To decrease the suspension, turn the suspension adjustment lever anti-clockwise.

- **Adjust the height of the seat.**

  You can lift the seat from the basic position to two higher positions.
  - To lift the seat, pull it slowly upwards until you hear a click.
  - To lower the seat, pull it up to the top position and then let it to drop to the desired position.

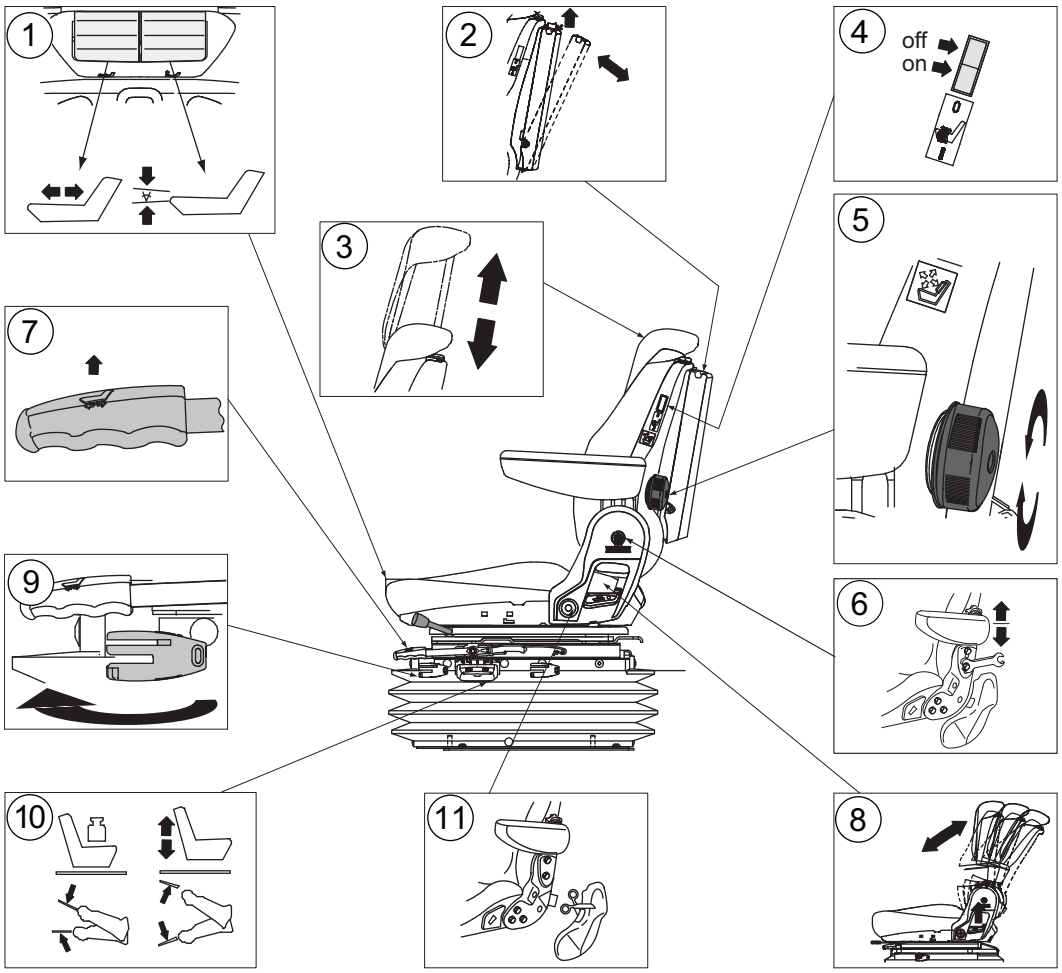
- **Fasten the seat belt to the anchor point on the seat.**

- **Adjust the backrest inclination.**
  - **Pull up the backrest inclination adjustment lever.**
  - **Set the backrest to the desired position.**

3.2.2 Adjusting the air-suspended driver's seat

You can adjust the air-suspended driver's seat according to your height and weight. With these adjustments you can minimize the exposure to vibration, obtain the best support for your lower back and get the most comfortable driving position. Note that you may need to change the adjustments according to work conditions or the components you are using such as the tyre type. The air-suspended driver's seat is extra equipment.

CAUTION: Do not attempt to adjust the seat while driving. There is an increased risk of loss of control.



1. Seat depth and cushion angle adjustment
2. Storage compartment for manuals
3. Headrest height adjustment and removal
4. Seat heating
5. Lumbar support adjustment
6. Armrest adjustment
7. Forward/backward adjustment
8. Backrest inclination adjustment
9. Longitudinal suspension adjustment
10. Height and vertical suspension adjustment
11. Seat belt anchor point

- **Adjust the seat depth and cushion angle.**
  - **To adjust the seat depth, pull up the right handle in the seat front.**
  - **To adjust the seat cushion angle, pull up the left handle in the seat front.**
- **Turn the seat.**
- **Adjust the seat forwards or backwards.**
  - **Pull the forward/backward adjustment lever upwards.**
  - **Move the seat forwards or backwards to the desired position.**

- **Turn the longitudinal suspension on or off.**
  - **To turn on the longitudinal suspension, turn the lever to the rear position.**
  - **To turn off the longitudinal suspension, turn the lever clockwise 180° to the front position.**

- **Adjust the suspension according to the operator weight.**
  - **Pull the suspension adjustment lever until the compressor starts.**

    The compressor runs and the suspension adjusts automatically according to the operator's weight.

    If the operator is lighter than the previous operator, the compressor runs momentarily, the excess pressure is released, and the seat lowers.

    The suspension setting remains stored in the seat memory even if the tractor is switched off.

    The seat suspension travel is 100 mm (± 50 mm) regardless of the starting height. The suspension area is limited to 100 mm for safety reasons.

- **Adjust the height of the seat.**

  The seat has a stepless height adjustment range of 80 mm (±40 mm from the seat middle position).
  - **Lift the seat by pulling the height adjustment lever upwards until the desired height is reached (the compressor runs continuously).**

    When the lever is released, the compressor stops and the seat stays at that height. If you set the seat too high so that the room for upward movement is less than 50 mm, the seat lowers automatically to the highest permissible position.
  - **Lower the seat by pressing the height adjustment lever downwards until the desired height is reached.**

    If you set the seat too low so that the 50 mm downward suspension is not possible, the seat automatically rises to the lowest limit the next time you touch the lever.

    If you sit very still on the seat during the adjustment, the seat may rise to the previous height in the memory.

  When the seat is locked at a new height, you hear a faint click.

- **Fasten the seat belt to the anchor points on the seat.**

- **Adjust the backrest inclination.**
  - **Pull the backrest inclination lever up.**
  - **Set the backrest to the desired position.**

- **Adjust the armrest.**
  - **Remove the cover.**
  - **Change the armrest position in the mounting slot.**

- **Adjust the lumbar support.**

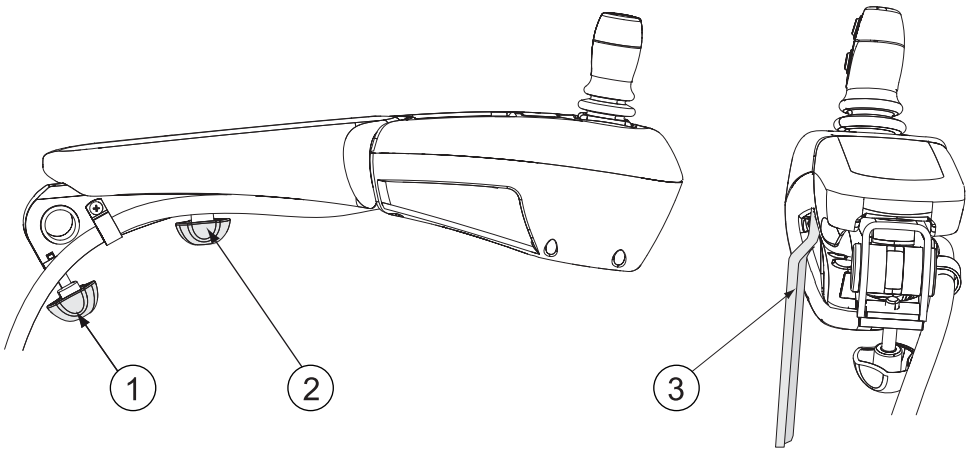
  Turn the knob clockwise or anti-clockwise to adjust the lumbar support. The height and depth are adjusted at the same time.

- **Turn the seat heating on or off.**

- **Adjust the headrest height by lifting or lowering it.**

- **Remove the headrest by pulling it upwards.**

3.2.3 Adjusting the armrest

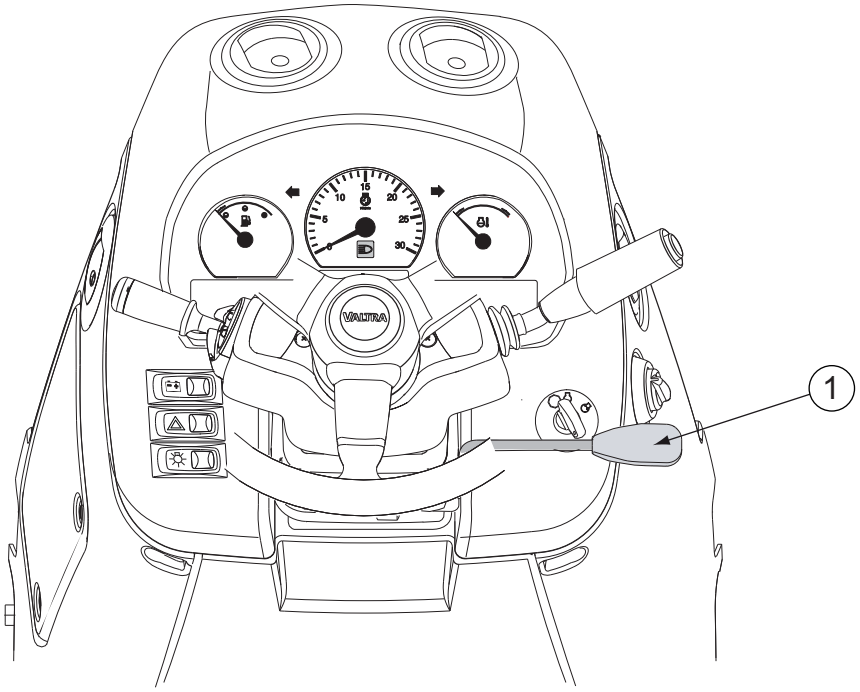


1. Declination adjustment screw
2. Length adjustment screw
3. Bracket

- Adjust the armrest inclination.
  - Turn the declination adjustment screw clockwise to lift up the armrest.
  - Turn the declination adjustment screw anti-clockwise to lower the armrest.
- Raise the armrest to the upright position by lifting the front edge.
- Adjust the length of the armrest.
  - Loosen the length adjustment screw.
  - Adjust the length of the armrest.
  - Tighten the length adjustment screw.
- Adjust the armrest laterally by moving the end part sideways.
- Adjust the vertical position of the armrest by moving the bracket to other mounting holes.

3.2.4 Adjusting the steering wheel

CAUTION: Do not adjust the steering wheel position while driving.

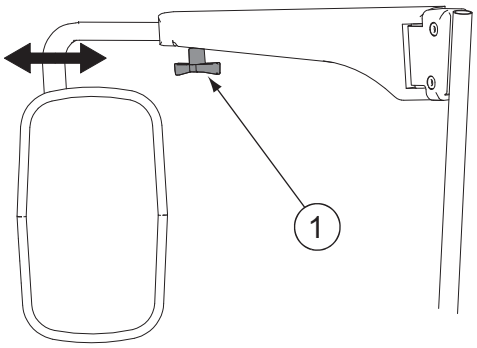


1. Steering wheel adjustment lever

- **Adjust the steering wheel position.**
  - **Pull the steering wheel adjustment lever.**
  - **Adjust the steering wheel position.**
  - **Release the steering wheel adjustment lever after adjustment.**
- **Set the steering wheel inclination.**
  - **Push the steering wheel adjustment lever.**
  - **Move the steering wheel up or down to the wanted steering wheel inclination.**
  - **Release the steering wheel adjustment lever to lock the steering wheel inclination.**

3.2.5 Adjusting mirrors

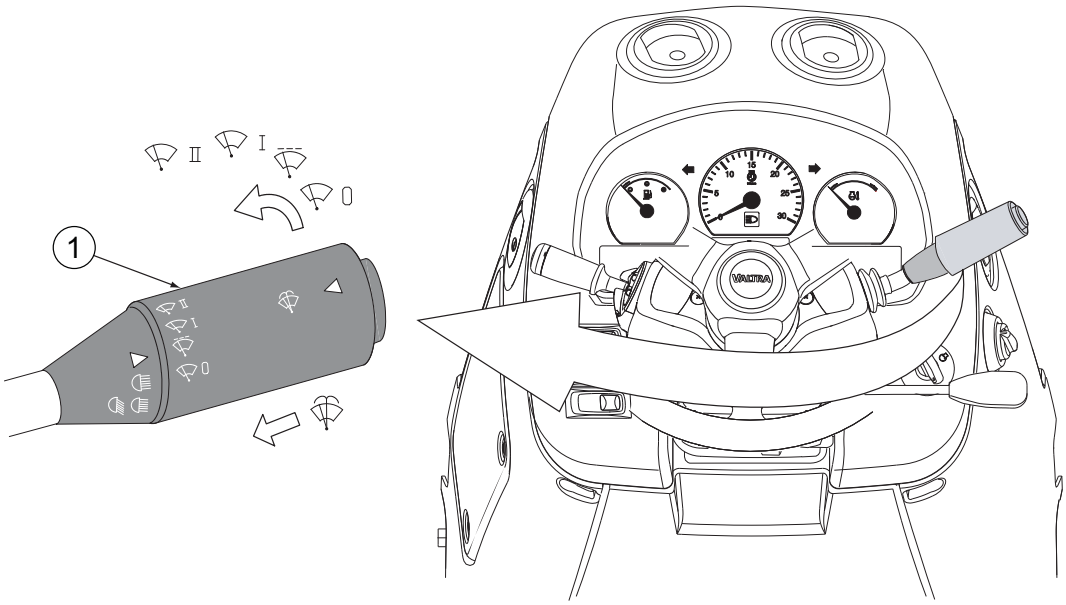
You can adjust the position of the mirrors manually.



1. Locking device of the mirror support

1. **Loosen the locking device of the mirror support.**
2. **Adjust the mirror position.**
3. **Tighten the locking device.**

3.2.6 Using the windscreen wiper and washer



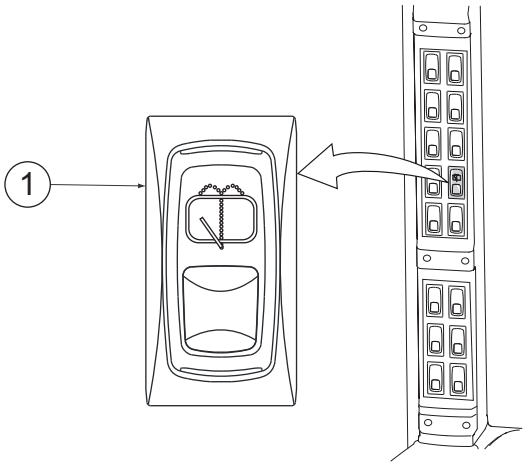
1. Multifunctional lever

- **To use the windscreen wiper, turn the multifunctional lever.**

  The wiper has a drizzle position and two speeds.
  NOTE: If the tractor is equipped with opening windscreen the wiper has a drizzle position and one speed.

- **To use the windscreen washer, push the control lever inwards.**

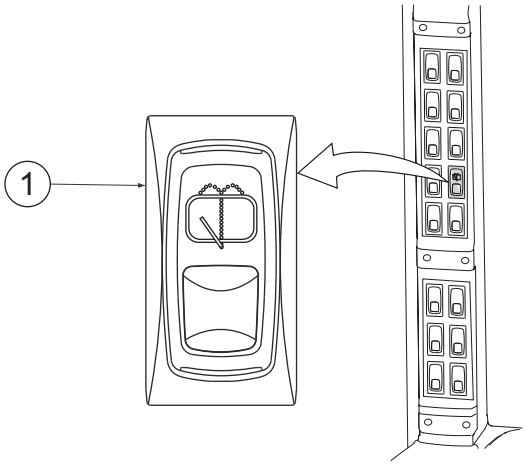
3.2.7 Using the rear window wiper



1. Switch for the rear window wiper and washer

- **To turn on the rear window wiper, press the rear window wiper and washer switch to the centre position.**
- **To turn off the rear window wiper, press down the side opposite to the symbol of the rear window wiper and washer switch.**

3.2.8 Using the rear window washer

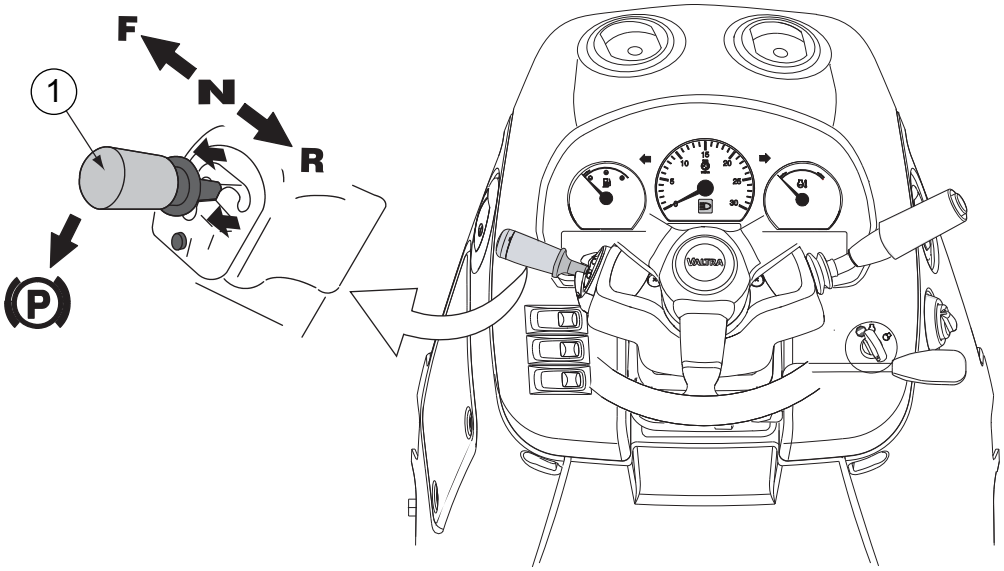


1. Switch for the rear window wiper and washer

- **To use the rear window washer, press down the symbol side of the rear window wiper and washer switch (spring returned).**
- **To turn off the rear window washer, release the rear window wiper and washer switch.**

3.2.9 Power shuttle lever

With the power shuttle lever you can change the driving direction and apply the parking brake.



1. Power shuttle lever
   - F (front position) = forward driving direction
   - N (centre position) = neutral
   - R (rear position) = reverse driving direction
   - P = parking brake position

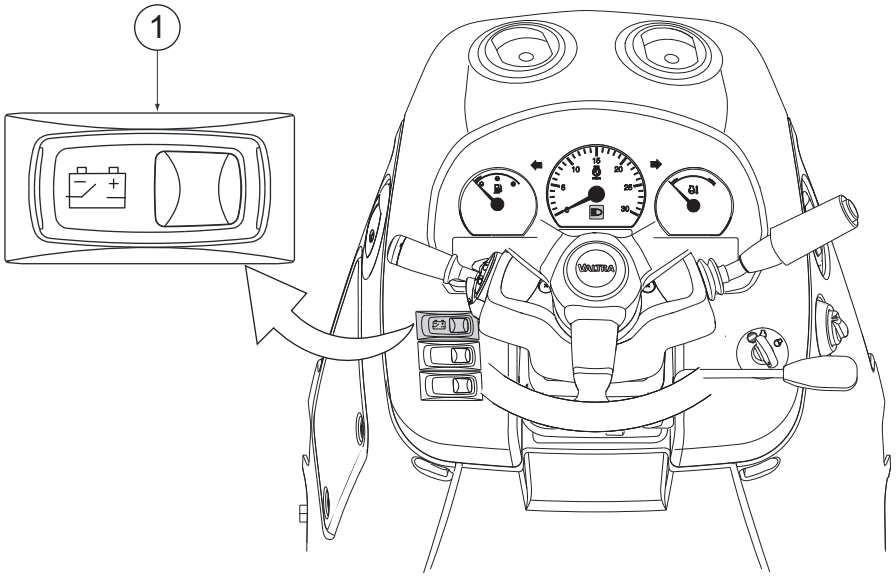
With the power shuttle, you can change the driving direction without using the clutch pedal. However, traditional use of the clutch pedal is still possible when changing direction, just make sure that you press the pedal fully down before moving the power shuttle lever.

- With the power shuttle lever in the centre position, the parking brake can be applied.
- When applying the parking brake, the four-wheel drive (4WD) is engaged and all wheels brake.
- When the power is turned off, the parking brake is automatically applied independently of the power shuttle lever position.

3.2.10 Using the main switch

The main switch is extra equipment.

IMPORTANT: Do not switch off the main power before you have turned the ignition key to the STOP position.



1. Main switch, extra equipment

The main switch is spring returned on both sides.

- **To switch on the main power, press the symbol side of the main switch.**
- **To switch off the main power, press the side of the main switch opposite to the symbol.**
  When the main power is switched off, power is supplied only to the radio and instrumentation.

3.2.11 Control stop

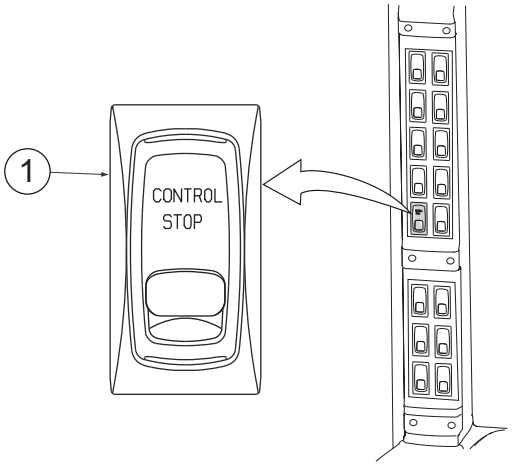
The control stop is used when the tractor is running an implement in stationary mode (for example a compressor or pump) and the operator is not in the cab. Using the control stop reduces the risk of more serious damage to the engine or in the transmission. The control stop is extra equipment.

NOTE: When starting the engine, the control stop must be disengaged. Otherwise the engine does not start.

NOTE: Do not use the control stop when driving. The control stop automatically stops the engine if the stop light is lit.

IMPORTANT: If the control stop stops the engine, the fault must be found and repaired before the engine is started again.

3.2.12 Using the control stop



1. Control stop switch

- **To activate the control stop, press down the symbol side of the control stop switch.**

  Release the locking device by pushing it towards the middle of the switch.

- **To deactivate the control stop, press down the side of the control stop switch opposite to the symbol.**

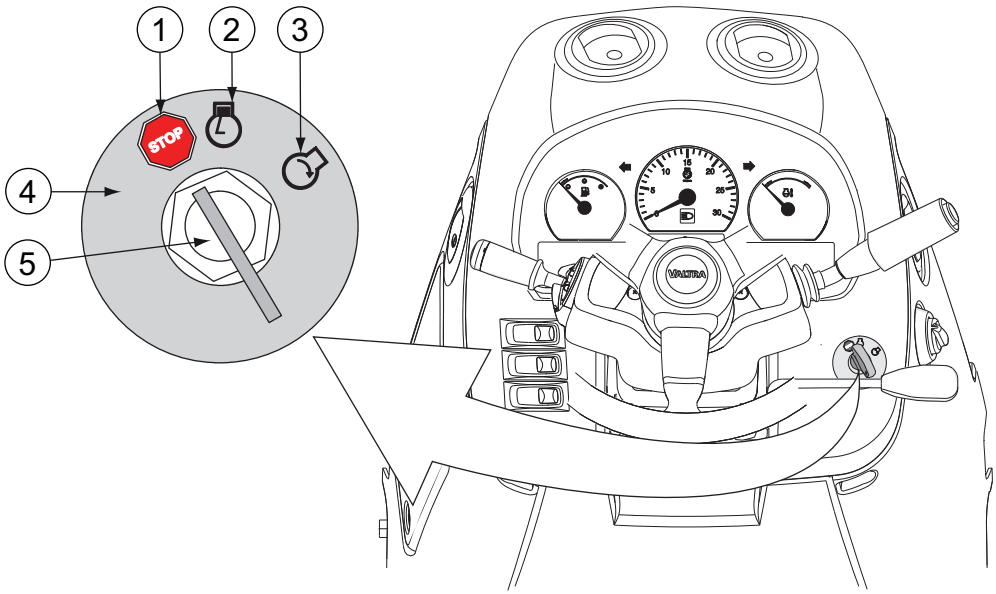
3.2.13 Using the ignition switch

WARNING: Do not turn the ignition key to the STOP position when driving. When the power is off, the parking brake applies and all wheels lock.

WARNING: If the engine stops while the tractor is moving (for example, the fuel has run out), do not press the clutch pedal down. When the tractor is moving and the transmission is engaged, the engine is running and there is pressure in the system. When the clutch pedal is pressed down, hydraulic pump does not run and there is no hydraulic pressure in the system. If you press down the clutch pedal, the steering deactivates and the parking brake engages.

WARNING: Do not keep extra keys on the same bunch with the ignition key.It is possible that your knee touches them and turns the power off.

The ignition switch has three positions: stop, power on and start.



1. STOP position
2. Power on position
3. Start position
4. Ignition switch
5. Ignition key

- **To turn on the power, turn the ignition key from the STOP position to the power on position.**

  In cold conditions, when the engine is cold, the glow indicator light on the Proline instrument panel is lit. When the ignition key is in this position, electrical equipment can be used.

- **To start the engine, turn the ignition key from the power on position to the start position after the glow indicator light on the Proline instrument panel has gone out.**

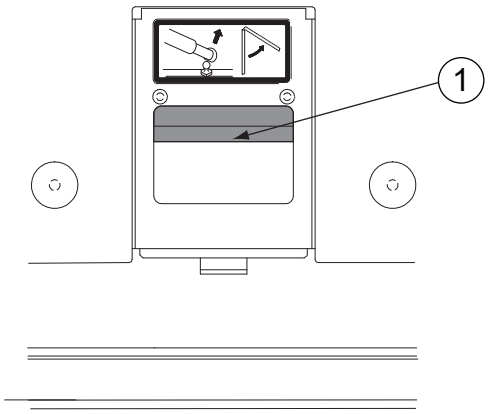
- **To turn off the power, turn the ignition key to the STOP position.**

  STOP position 

  - The STOP position of the ignition switch can be used as an emergency stop. The tractor and several movements of the implements can be stopped if a fault occurs by turning the ignition key to the STOP position. This will make the engine stop, all the wheels lock, the transmission disengage and the movement of the linkage stop.

    WARNING: Do not turn off the power when the tractor is moving. Turning off the power engages the parking brake immediately. There is danger of skidding and loss of control.

3.2.14 Using the roof hatch



1. Handle

1. • Open the hatch by pushing the handle forward and pushing the hatch upward.
   • Close the hatch by pushing the handle forward and pulling the hatch downward.

3.3 Starting the tractor

3.3.1 Starting under normal conditions

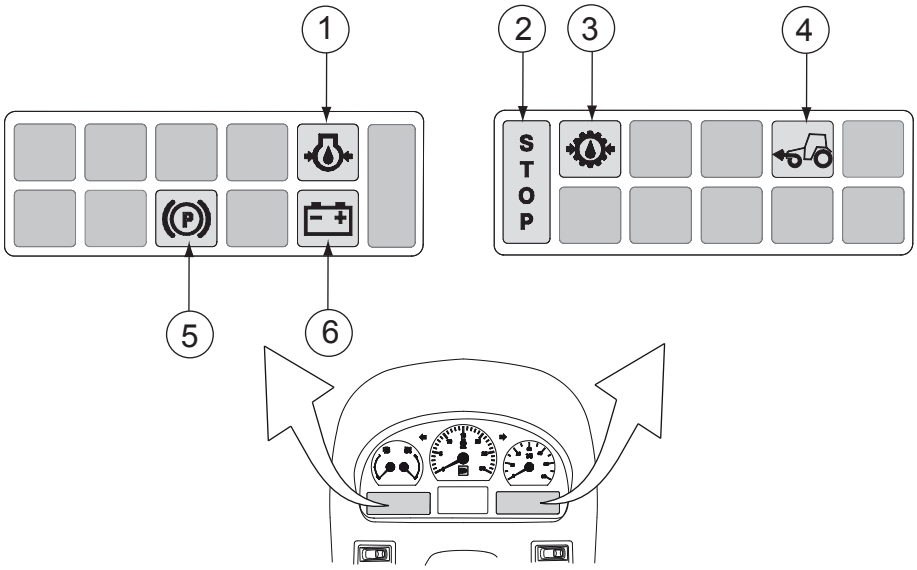
WARNING: Never run the tractor in an enclosed building except with the exhaust vented to the outside.

WARNING: Never start the engine unless you are seated on the driver's seat.

CAUTION: Do not use starting aerosols. Due to the automatic glowing, there is a risk of explosion.

IMPORTANT: If the engine fails to start on the first try, wait until the engine has stopped completely before trying again.

When the power is turned on, all indicator lights in use are lit momentarily. The following indicator lights remain on until the engine is started and the systems operate normally:



1. Engine oil pressure
2. Stop light (is flashing)
3. Gearbox oil pressure
4. Four-wheel drive
5. Parking brake
6. Battery charging

1. **Check that the power shuttle lever is in the parking brake position.**
2. **Turn the hand throttle knob to the low idling position.**
3. **If the tractor has a main switch (extra equipment), switch it on.**
4. **Ensure that the control stop (extra equipment) is deactivated.**
5. **Turn the ignition key to the power on position** .
6. **Wait until the glow indicator light** **on the instrument panel has gone out.**
7. **Turn the ignition key to the starting position** .
   - When the engine starts to fire up, keep the ignition key in the starting position until the engine has started.
   - If the engine fails to start within 10 seconds, stop starting and try again.
8. **Release the ignition key when the engine starts.**

   When the engine starts, the following indicator lights go out:
   - Engine oil pressure
   - Gearbox oil pressure
   - Stop light
   - Battery charging

After starting a cold engine, the glow indicator light can light up again. The afterglow reduces white smoke and keeps the cold engine running smoothly.

3.3.2 Starting under cold conditions

To ensure a successful start under cold conditions, use the engine heater and follow the instructions given.

IMPORTANT: Always use the engine heater when the temperature is below 0°C.

IMPORTANT: If you are driving the tractor for a short distance only, make sure that the battery is charged enough to ensure starting.

NOTE: Use of the engine heater reduces the wear on the engine.

- **When cold starting the engine, turn off all unnecessary equipment that uses electrical power.**
- **Keep the battery in a warm place when it is not in use.**

  Starting the tractor under very cold conditions is easier if the battery is kept in a warm place when it is not in use.
- **Use the engine heater to ensure a successful start under cold conditions.**

  Warming up the engine for 2–3 hours before starting is sufficient.
  When the engine heater is activated, you can hear a hissing sound.
- **If you start the engine under very cold conditions, keep the ignition key in the starting position until the engine has started.**

  IMPORTANT: Do not keep the ignition key in the starting position for more than 30 seconds at a time.
- **If the temperature is below 0°C, first, warm up the engine and hydraulics oil for a while at low engine speed.**

  Allow the engine to run for a few minutes before starting to drive or engaging the power take-off.
- **Never race a cold engine.**

  Run the engine with a light load until it has reached its normal operating temperature.

3.3.3 Starting with an auxiliary battery

You can start the engine with an auxiliary battery (jump starting).

WARNING: A fully charged battery connected directly to a dead battery can cause a current surge capable of causing the batteries to explode.

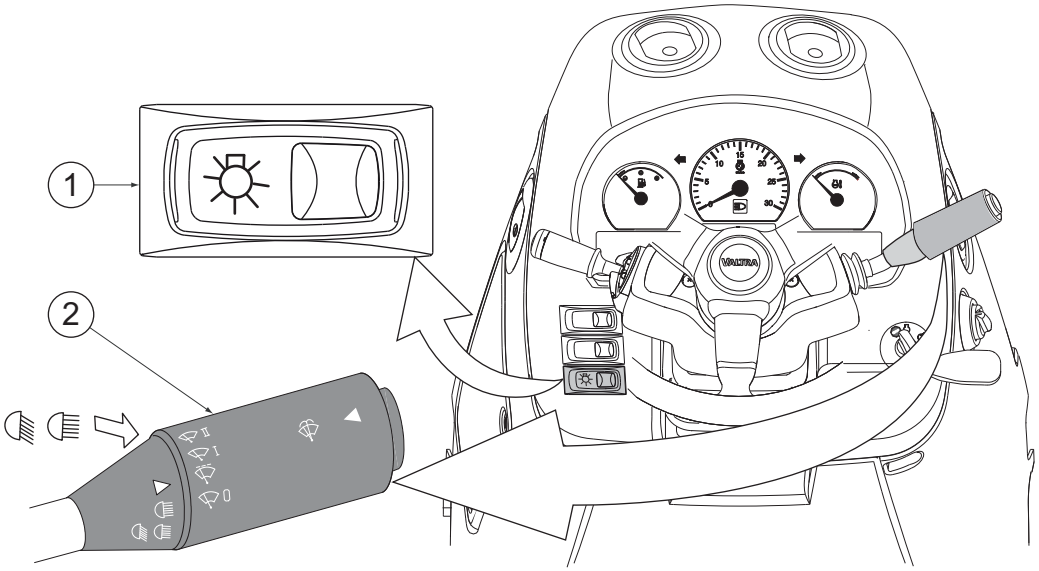
IMPORTANT: Never try to start the engine by short-circuiting leads.

1. **Check that the auxiliary battery has the same voltage as the standard battery.**
2. **Open the battery plugs to avoid risk of explosion.**

3. Connect the (+) terminal of the auxiliary battery to the (+) terminal on the tractor battery.
4. Connect the other jump lead from the (-) terminal of the auxiliary battery to the attaching bolt of the battery ground wire or some other convenient ground (not to the battery terminal).
5. Start the engine.
6. When the engine has started, disconnect the jump leads in the following order:
   - Disconnect the jump lead between the ground and the (-) terminal of the auxiliary battery.
   - Remove the jump lead between the (+) terminals.

3.4 Using lights

3.4.1 Using headlights



1. Light switch
2. Multifunctional lever

- **To switch on the parking lights, turn the light switch to the centre position.**

  When the switch is in this position, the working lights can also be switched on.

- **To switch on the headlights, press down the symbol side of the light switch.**

  When the light switch is in this position, the main beams can be switched on by the multifunctional lever.

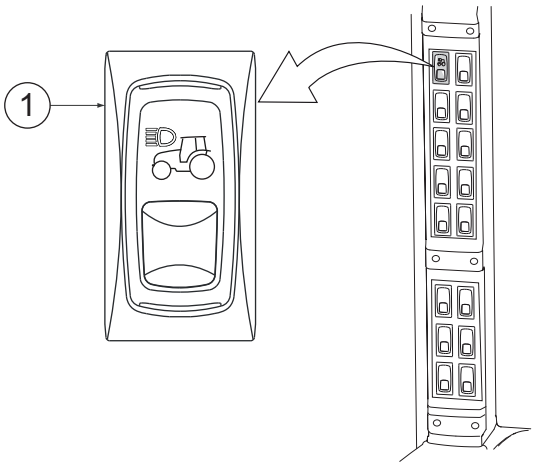
  NOTE: If the power is turned off when the headlights or parking lights are on, the buzzer goes on. If lights are turned on when the power is off, the buzzer does not go on.

- **To turn on the main beams, pull the multifunctional lever towards yourself.**
- **To use the headlight flasher, move the multifunctional lever towards yourself when the headlights are on.**

- **To switch off the headlights, press down the side of the light switch opposite to the symbol.**

3.4.2 Using upper headlights

The upper headlights are extra equipment.



1. Upper headlight switch

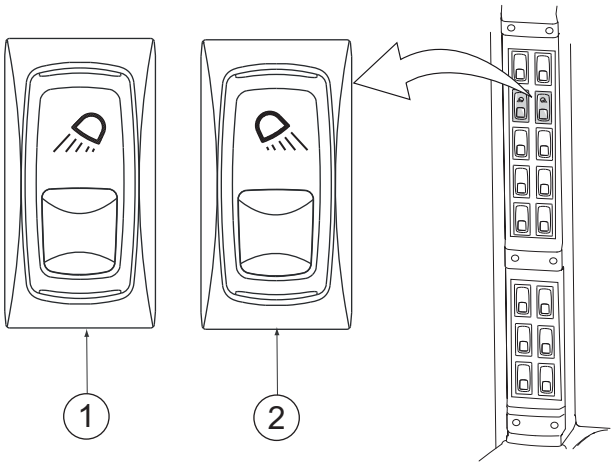
1. **Press the symbol side of the switch to switch on the upper headlights.**

   When the upper headlights are on, the front lower headlights are off, and vice versa.

2. **Press the side of the switch opposite to the symbol to switch off the upper headlights.**

3.4.3 Using working lights

The parking lights must be switched on before the front or rear working lights work.



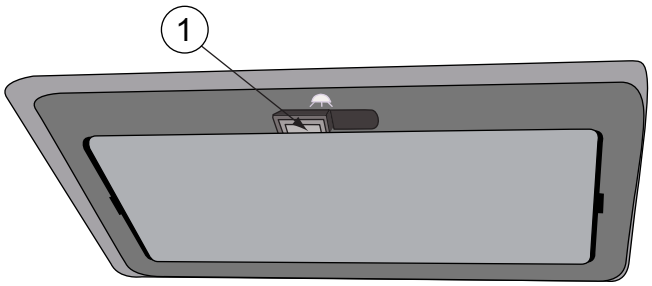
1. Switch for front working lights
2. Switch for rear working lights

- **To use the lights, press down the symbol side of the switch.**

- **To turn off the lights, press down the side of the switch opposite to the symbol.**

3.4.4 Using the cab light

The tractor is equipped with a cab light which can be used manually or set to work automatically.



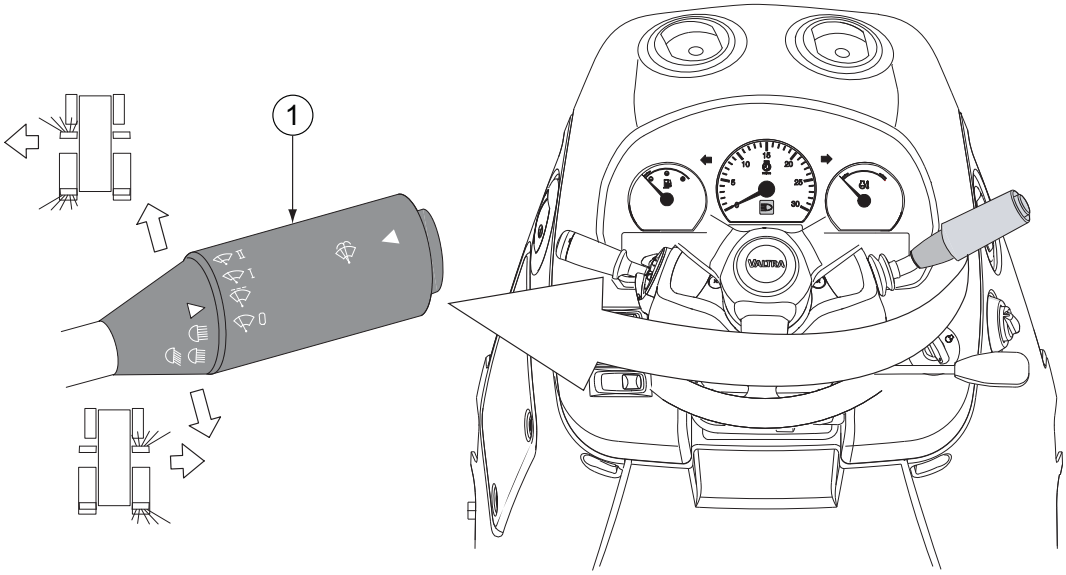
1. Cab light switch

The cab light switch has three positions: on/automatic/off.

- **To turn on the cab lights, push the switch to the on position.**
- **To activate the automatic mode, push the switch to the centre position.**
  - When the door is opened, both the step and cab lights are lit.
- **To turn off the cab lights, push the switch to the off position.**

3.5 Using notification devices

3.5.1 Using the direction indicators

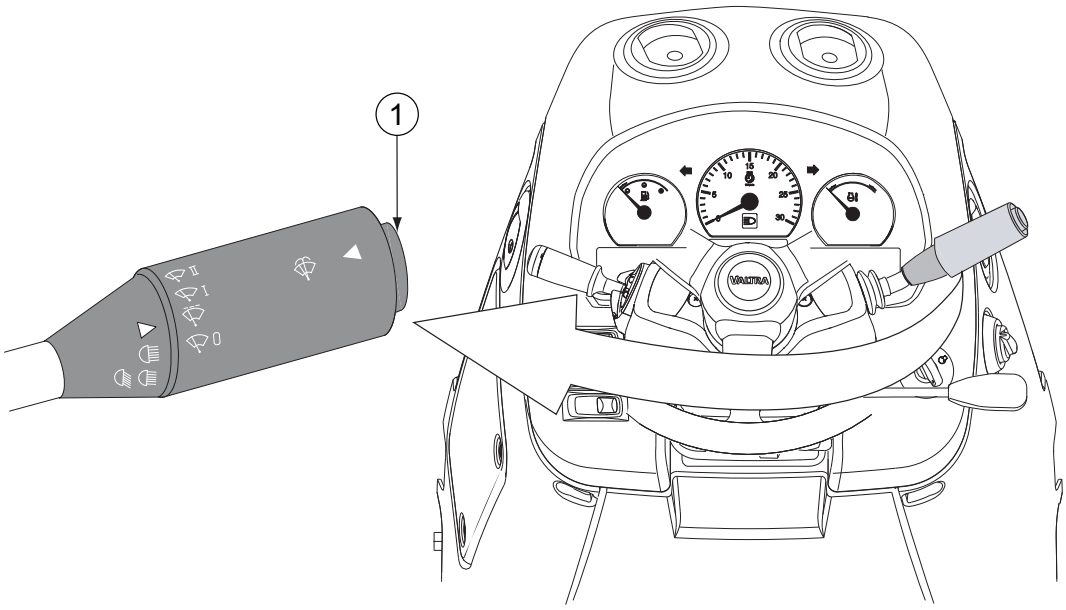


1. Multifunctional lever

- **To switch on the left-hand side direction indicators, move the multifunctional lever to the front position.**

- To switch on the right-hand side direction indicators, move the multifunctional lever to the rear position.

3.5.2 Using the horn

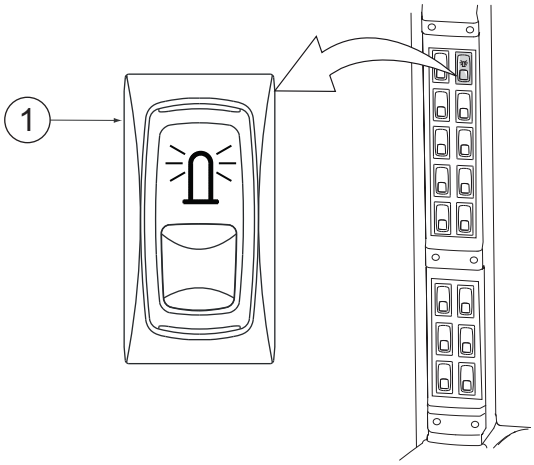


1. Horn button

- To sound the horn, push the horn button.

3.5.3 Using the rotating warning light

Rotating warning light is an extra equipment.

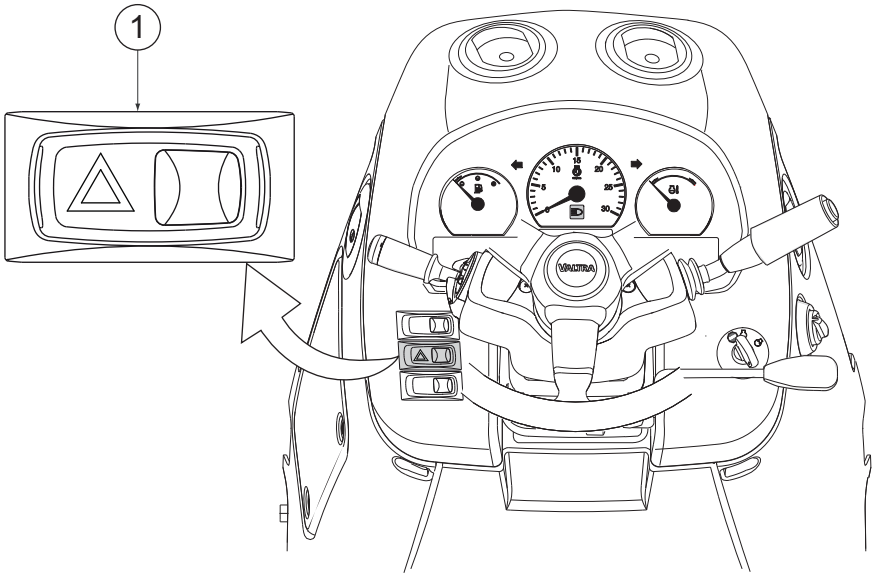


1. Rotating warning light switch

- To switch on the rotating warning light, press the symbol side of the switch.
- To switch off the rotating warning light, press the side of the switch opposite to the symbol.

3.5.4 Using hazard warning flashers

All four direction indicators can be switched on to warn of a hazardous situation.

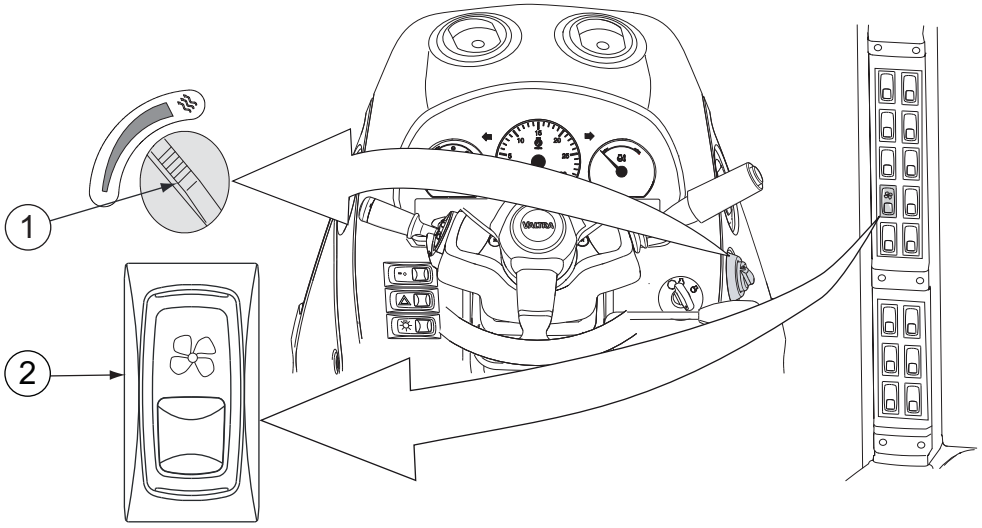


1. Switch for hazard warning flashers

1. **To make all four direction indicators blink, press down the symbol side of the switch.**
2. **To stop the blinking of the direction indicators, press down the side of the switch opposite to the symbol.**

3.6 Heating and ventilation

3.6.1 Using the heater

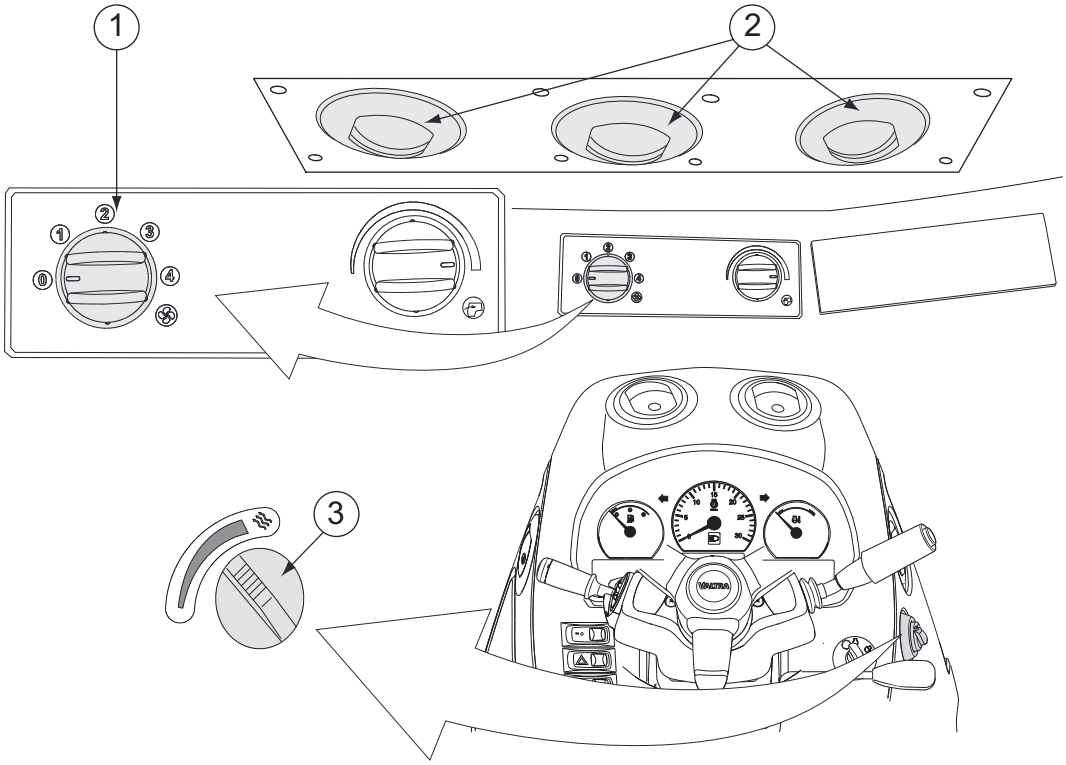


1. Temperature control knob
2. Switch for heater fan

- To increase the temperature, turn the temperature control knob clockwise.
- To decrease the heat, turn the temperature control knob anticlockwise.
- To blow air into the cab, use the heater fan switch.
  - To turn on the heater fan, press the switch to the centre position (speed 1).
  - To increase the speed of the heater fan, press down the symbol side of the switch (speed 2).
  - To turn off the heater fan, press down the side of the switch opposite to the symbol.

3.6.2 Using the extra heater

Extra heater is extra equipment.

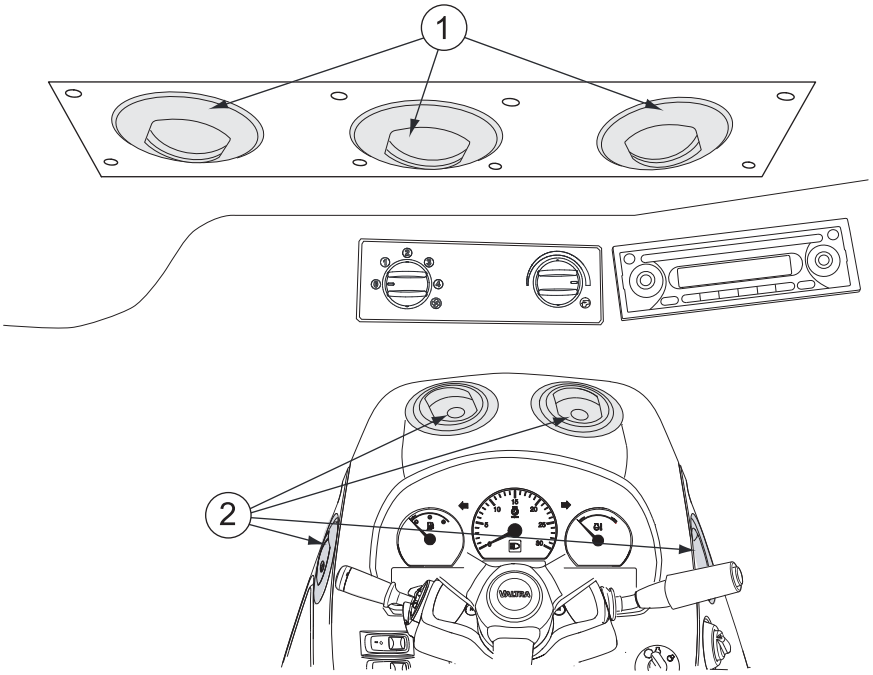


1. Roof fan control knob
2. Ventilation nozzles
3. Temperature control knob

- To regulate the speed of the roof fan, turn the roof fan control knob.

  The roof fan has four speeds. It blows air through the ventilation nozzles on the roof console.
- To increase the temperature, turn the temperature control knob anticlockwise.
- To decrease the heat, turn the temperature control knob clockwise.

3.6.3 Controlling ventilation nozzles



1. Roof ventilation nozzles
2. Dashboard ventilation nozzles

Roof ventilation nozzles are part of the extra heater (extra equipment).

- **To change the air flow direction, turn the ventilation nozzles to the desired direction.**
- **To clear the window surfaces of ice or condensation, turn the nozzles towards the window.**

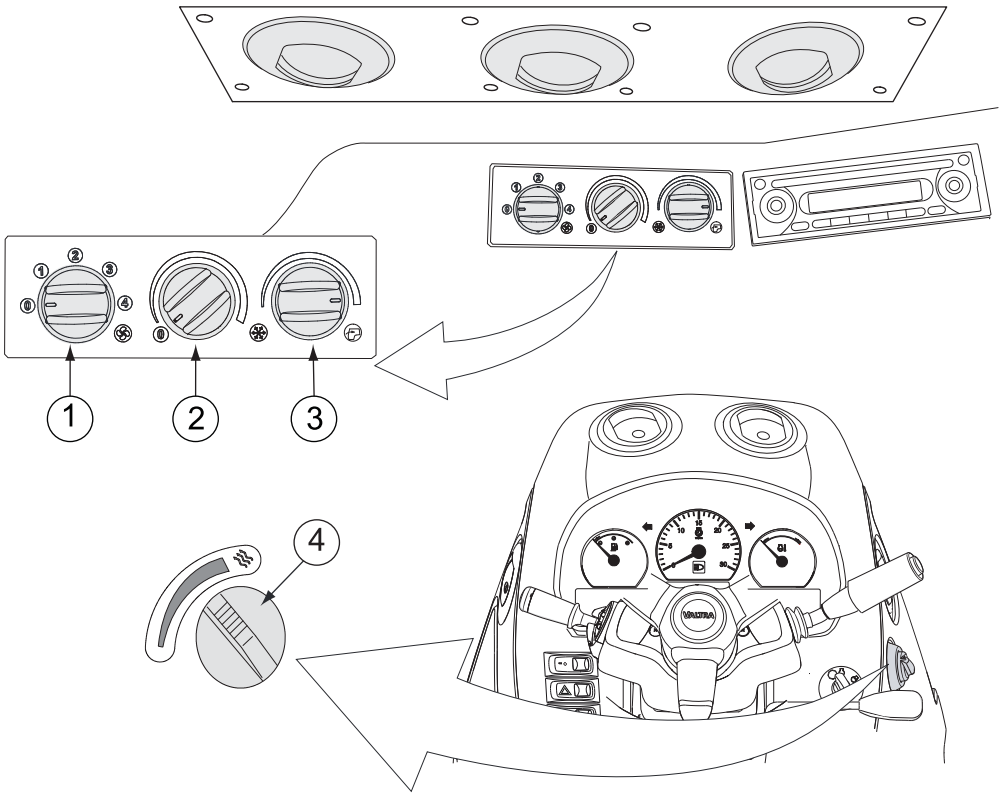
3.6.4 Using the manual air conditioning

The manual air conditioning system is extra equipment.

IMPORTANT: Use the air conditioning regularly to prevent seizing of the compressor.

NOTE: Use the air conditioning for a few minutes at least once a month.

NOTE: When the air conditioning system is in use, the cab doors and windows must be closed.



1. Fan control knob
2. Air conditioning control knob
3. Recirculation control knob
4. Temperature control knob

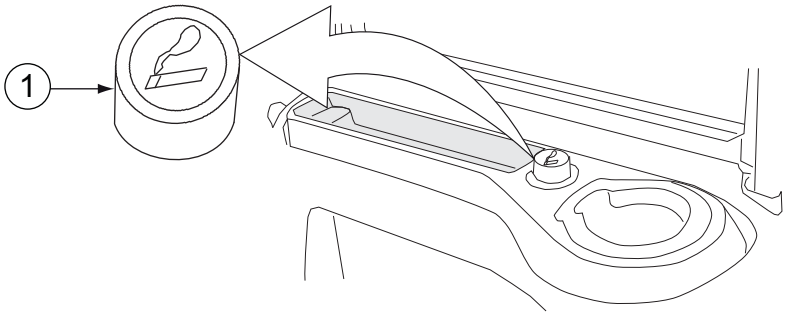
1. **Turn the temperature control knob clockwise to the extreme position.**
2. **When the engine is running, turn the air conditioning control knob clockwise towards cold to the extreme position.**
3. **Turn the fan control knob to position 4.**
4. **When the desired cab temperature has been reached, adjust the air conditioning control knob to maintain a comfortable temperature.**
5. **Reduce the fan speed to obtain a comfortable temperature.**

   NOTE: To increase the efficiency of the air conditioning, keep the air recirculation open.

3.7 Power outlets

3.7.1 Lighter

The lighter is extra equipment. The lighter socket can be used also as an electric power output.

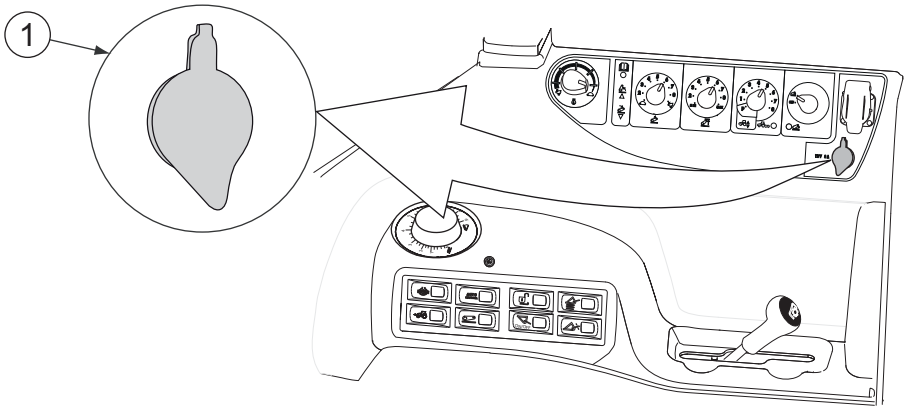


1. Lighter

The lighter socket provides an output of 12 V DC; 10 A at a maximum.

3.7.2 Two-pin power socket

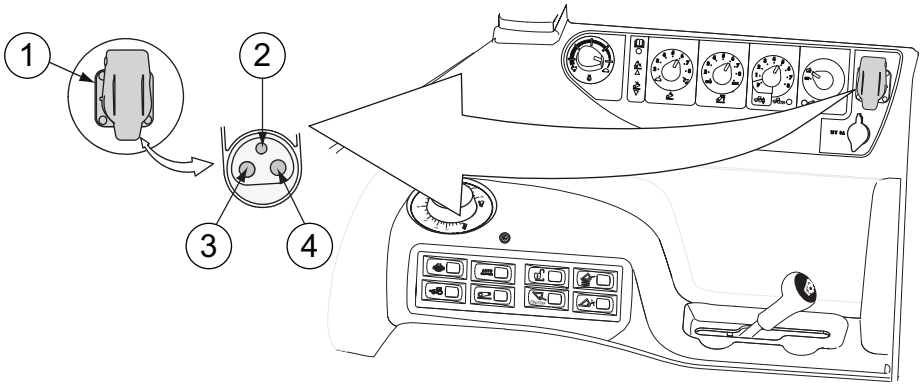
The two-pin power socket is extra equipment. It can be used for electrical equipment.



1. Two-pin power socket

The two-pin power socket provides an output of 12 V DC; 8 A at a maximum.

3.7.3 Three-pin power socket

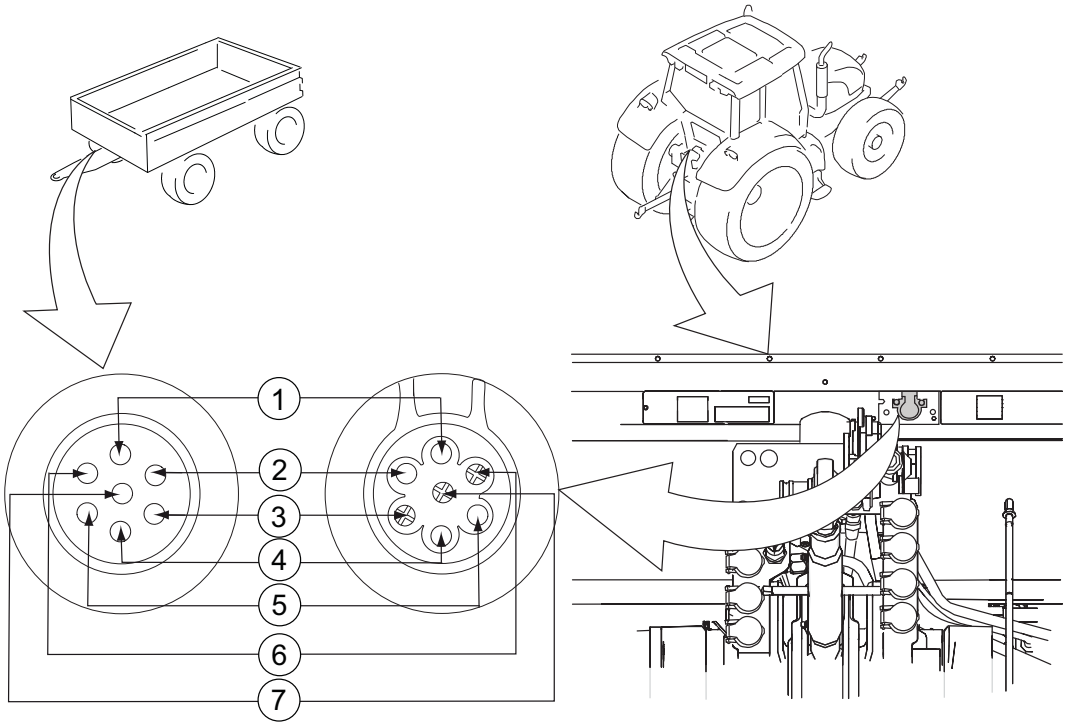


1. Three-pin power socket
2. 5 A
3. 25 A
4. Ground

The direct current is supplied through the power socket for different regulating elements, implements etc. 5 A is available through the ignition switch and 25 A direct from the battery. The current supply of the 25 A pin can be switched off only in tractors equipped with a main switch (extra equipment).

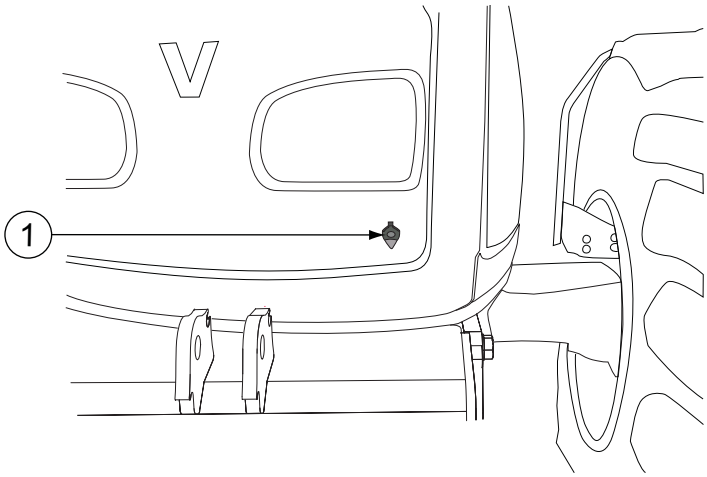
3.7.4 Trailer socket

Current from the tractor to the trailer is supplied through the trailer socket.



1. Direction indicator left (yellow)
2. Brake light (red)
3. Parking light right (brown)
4. Direction indicator right (green)
5. Ground (white)
6. Ignition switch current, max. 10 A (blue)
7. Parking light left (black)

3.7.5 Two-pin power socket on the bonnet



1. Two-pin power socket

The socket provides an output of 12 V DC; 8 A at a maximum. The power socket is activated when the parking lights are on.

3.8 Driving the tractor

3.8.1 Steering

NOTE: When the engine is not running, the steering is not power assisted.

CAUTION: If a malfunction occurs in the steering system, stop the tractor and correct the malfunction before restarting.

3.8.2 Power shuttle

You can change the driving direction smoothly with the power shuttle lever. The engagement of the power shuttle is automatic.

You can request a driving direction change with the power shuttle lever at any driving speed, but the transmission starts to engage the new driving direction only when the speed is below 10 km/h. If you return the power shuttle lever to the original direction when the driving speed is still over 10 km/h, the traction engages immediately.

The operator detector prevents the shuttle engagement if you are not on the seat.

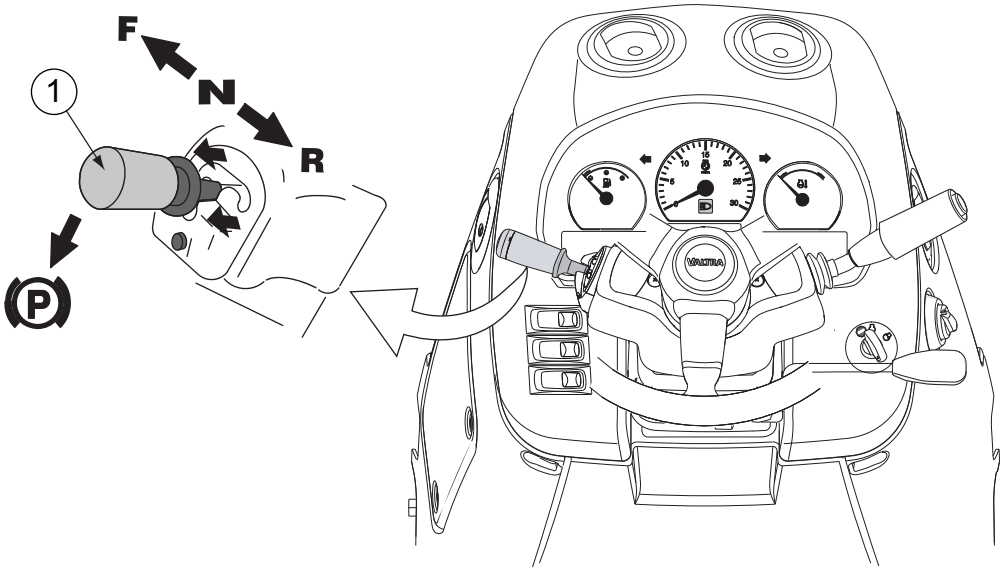
- When the driving speed is below 5 km/h:

  If you leave the seat for more than two seconds and the clutch pedal is not pressed down more than 10%, the shuttle disengages. The direction stays selected but the tractor does not move until you sit on the seat and move the power shuttle lever to the parking brake position (P) and then to the desired direction.
- When the driving speed is over 5 km/h:

  If you leave the seat, the shuttle stays engaged.

  DANGER: Do not leave the seat when the tractor is moving.

3.8.3 Using the power shuttle lever



1. Power shuttle lever
   - F (front position) = forward driving direction
   - N (centre position) = neutral
   - R (rear position) = reverse driving direction
   - P = parking brake position

- **Disengage or engage the parking brake.**
  - To disengage the parking brake, pull out the collar round the power shuttle lever and move the power shuttle lever to the neutral (N) position.
  - To engage the parking brake, pull out the collar round the power shuttle lever and move the power shuttle lever to the parking brake (P) position.

- **Select the desired driving direction.**

  Move the power shuttle lever to the forward (F) or reverse (R) driving direction. Change the driving direction at lower driving speeds with high load so that there is less stress on the power transmission.

3.8.4 Using the parking brake

You can use the parking brake by changing the position of the power shuttle lever.

CAUTION: Do not use the parking brake when driving because it locks all the wheels. The parking brake engagement speed is limited to 2 km/h.

WARNING: Always apply the parking brake when parking the tractor.

WARNING: Before entering between the tractor and the implement, prevent the tractor from moving by applying the parking brake or

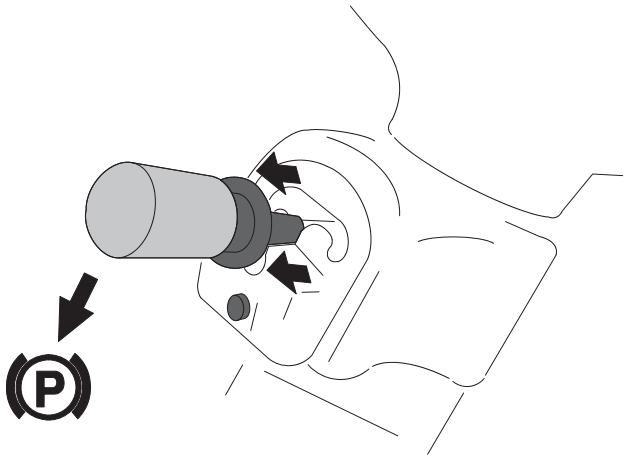
blocking the wheels. There is risk of accidents if the tractor or implement should move.

WARNING: The STOP indicator light STOP starts flashing if the parking brake cable breaks or the adjustment is wrong. Repair the fault or adjust the cable before continuing driving.

WARNING: The parking brake does not engage at driving speeds over 2 km/h. If you move the power shuttle lever to the P position at higher driving speeds, the parking brake indicator light (P) on the instrument panel flashes until the speed drops below the limit. If the tractor is equipped with Proline instrument panel (alternative equipment), the buzzer also alarms intermittently until the speed drops below the limit. Always ensure that the parking brake is actually engaged before leaving the tractor.

WARNING: In turbine clutch models, always apply the parking brake or block the wheels when parking. The transmission in these models does not brake.

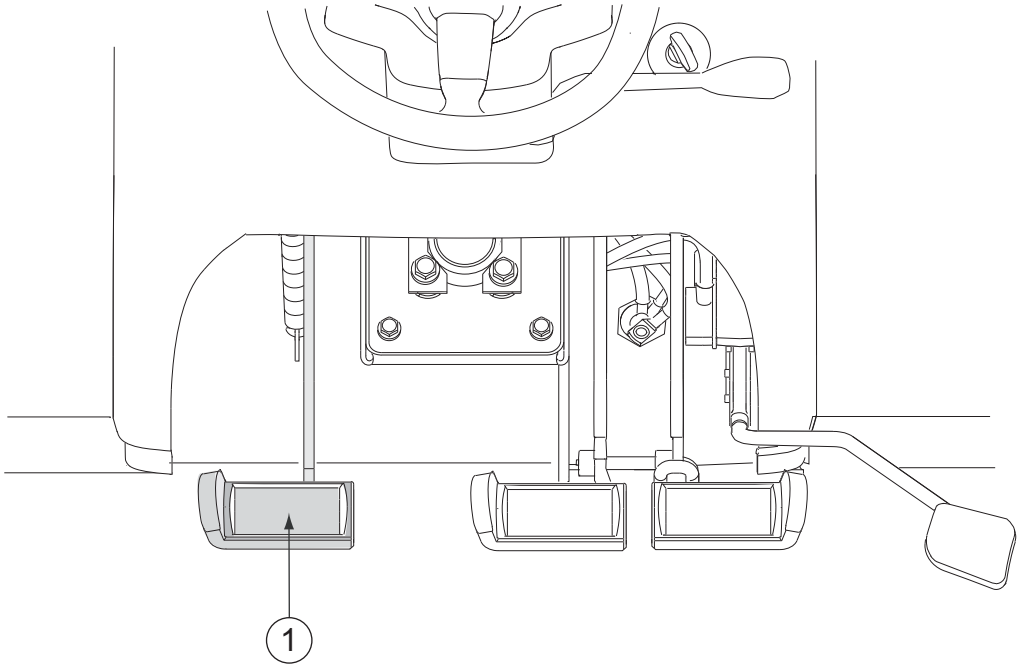
1. Stop the tractor completely.
2. Pull up the collar round the power shuttle lever, and move the lever to the parking brake (P) position.



When the parking brake is on, four-wheel drive (4WD) is engaged and all wheels brake.

3. To release the parking brake, pull up the collar, and move the power shuttle lever away from the parking brake (P) position.

3.8.5 Using the clutch pedal



1. Clutch pedal

1. **Press the clutch pedal to release the traction.**
2. **Let the clutch pedal up gradually.**

   IMPORTANT: Never rest your foot on the clutch pedal while driving.

   IMPORTANT: Do not allow the clutch to slip more than necessary when moving off.

3. **Do not fully press the clutch pedal if you want the tractor to move very slowly.**

   You can use this feature when attaching implements.

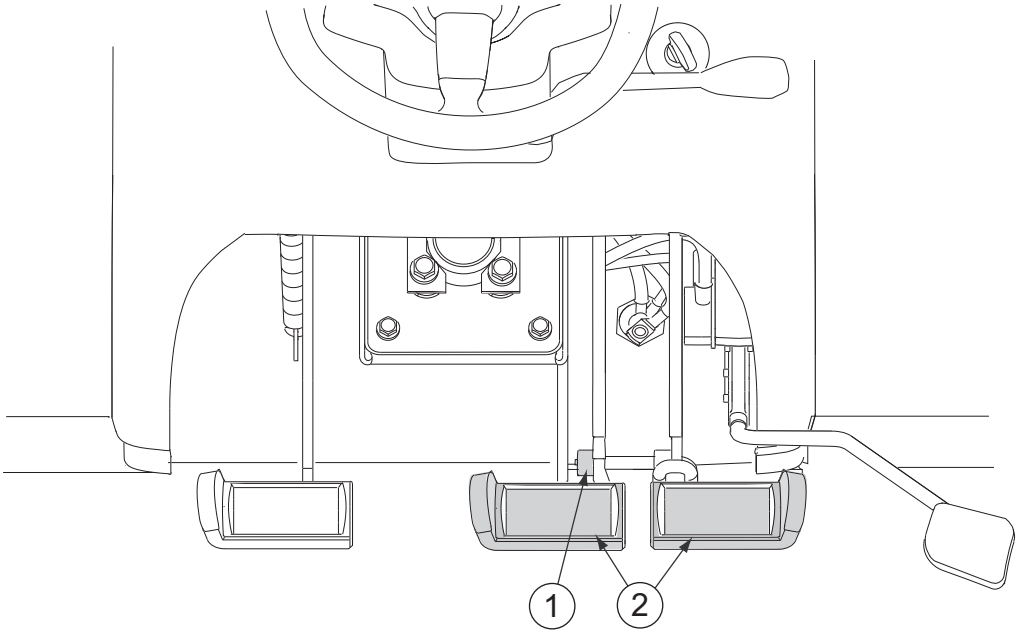
   NOTE: When using the clutch to move the tractor very slowly, the coupling point of the clutch may change and the clutch engages sooner.

WARNING: Do not descend slopes with the clutch pedal pressed down.

WARNING: In turbine clutch models, always apply the parking brake or block the wheels when parking. The transmission in these models does not brake.

3.8.6 Braking

You can use the brake pedals differently in various working situations.



1. Latch for brake pedals
2. Brake pedals

The tractor has two brake pedals which apply separately to the right and to the left side rear wheels. All four wheels are braking when pressing both brake pedals. The pedals can be locked together with a latch to brake evenly with all four wheels.

WARNING: The brake pedals must always be latched together when driving on the road.

CAUTION: If functional problems occur in the braking system, stop the tractor and rectify the fault before continuing.

- **To brake evenly with four wheels, press down the both brake pedals.**
- **To intensify steering by braking when turning on the field, press down the brake pedal on the inner curve side.**

3.8.7 Starting to drive

1. **Start the engine.**
2. **Press down the brake pedals to keep the tractor stationary.**

3. **Select the speed range.**

   Select a speed range which:

   - gives the optimum fuel consumption without overloading the engine and the transmission.
   - allows the engine to operate comfortably at about 75% of its maximum power.

   IMPORTANT: Use the creeper gear for slow driving speeds only. Do not use it for bigger drafting force.

4. **Select the speed gear.**

5. **Move the power shuttle lever either to drive forward or reverse.**

6. **Release the brake pedals.**

   The tractor starts to move in the selected direction. Keep an eye on the indicator lamps and gauges while driving.

7. **Adjust the driving speed with the accelerator pedal or the hand throttle.**

   Keep an eye on the indicator lights and gauges while driving.

WARNING: Do not turn the ignition key to the STOP position when driving. When the power is off, the parking brake applies and all wheels lock.

NOTE: If the engine stops when driving, for example due to overload, you must turn the ignition key to the STOP position before starting again.

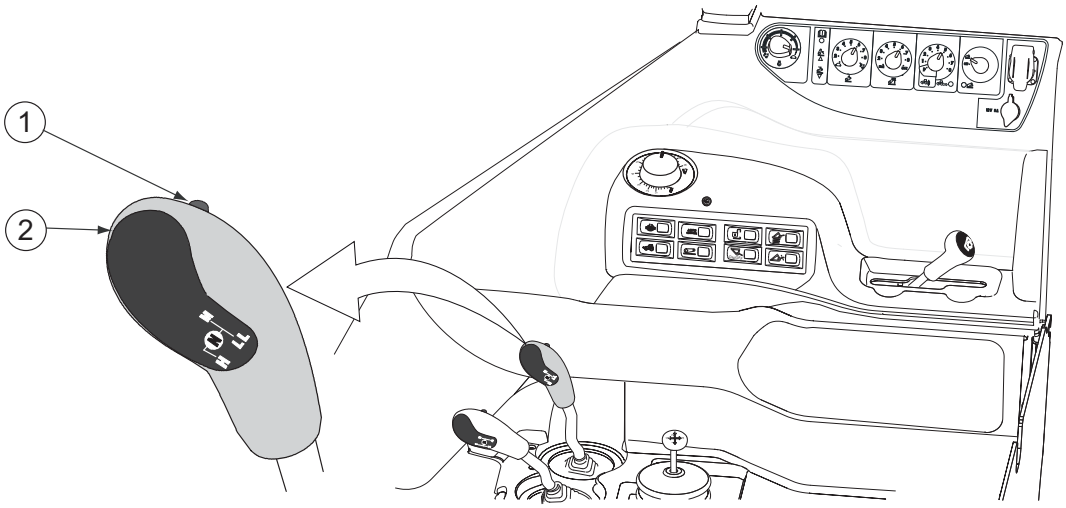
3.8.8 Transmission system

The tractor transmission system has four speed gears and three range gears. These together give the tractor 12 forward and 12 reverse gears.

The range gears are named LL, M and H. The range gear LL is called creeper range gear. The actual driving speeds achieved depend on the engine speed and the tyres. The following table includes approximate driving speeds for each speed range with engine speed of 1400–2200 rpm.

Speed range	Driving speed
LL	0.6 - 2.7 km/h
M	2.2 - 10.8 km/h
H	7.8 - 37.5 km/h

3.8.8.1 Selecting the range gear



1. HiShift push button
2. Range gear lever

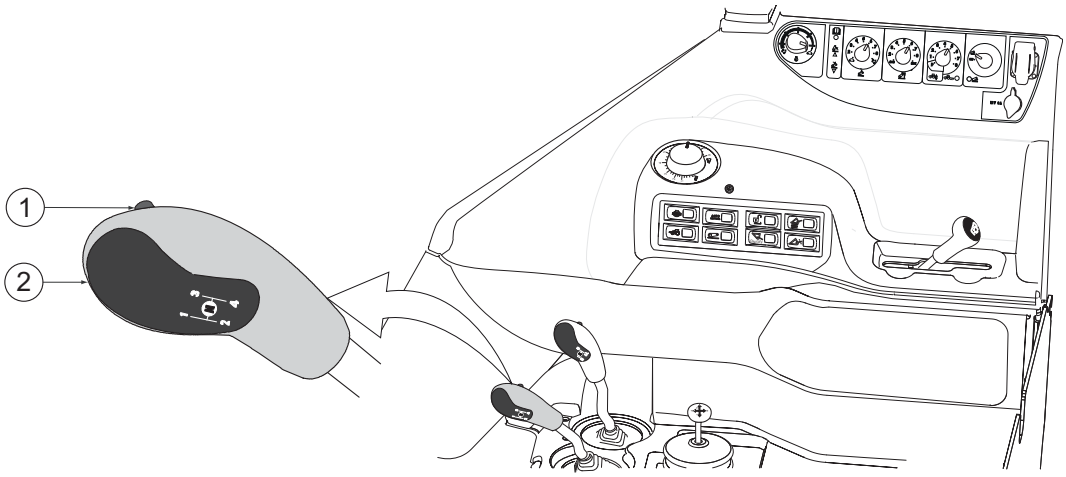
NOTE: Use the speed gear lever, not the range gear lever, to set the transmission to neutral when the engine is running.

1. **Press down the clutch pedal or the HiShift push button.**
2. **Choose the wanted range gear with the range gear lever.**

   When engaging the creeper range (LL) the tractor must be stationary.
   IMPORTANT: Use the creeper gear for slow driving speeds only. Do not use it for bigger drafting force.
3. **Release the clutch pedal or the HiShift push button.**

3.8.8.2 Selecting the speed gear

The speed gears can be used in all three speed ranges and also in the forward and reverse gears.



1. HiShift push button
2. Speed gear lever

NOTE: Use the speed gear lever, not the range gear lever, to set the transmission to neutral when the engine is running.

1. **Press down the clutch pedal or the HiShift push button.**
2. **Choose the wanted speed gear with the speed gear lever.**
3. **Release the clutch pedal or the HiShift push button.**

3.8.9 Parking the tractor

1. **Stop the tractor.**
2. **Apply the parking brake.**
3. **Lower the implements.**

   In cold conditions, lower the links without implements as well.
4. **Move all auxiliary hydraulic control levers to the centre position.**
5. **Reduce the engine speed to idling.**

   IMPORTANT: Before stopping the engine, allow the engine temperature to stabilise for at least two minutes.
6. **Shut down the engine by turning the ignition key to the STOP position.**
7. **Fill up the fuel tank.**

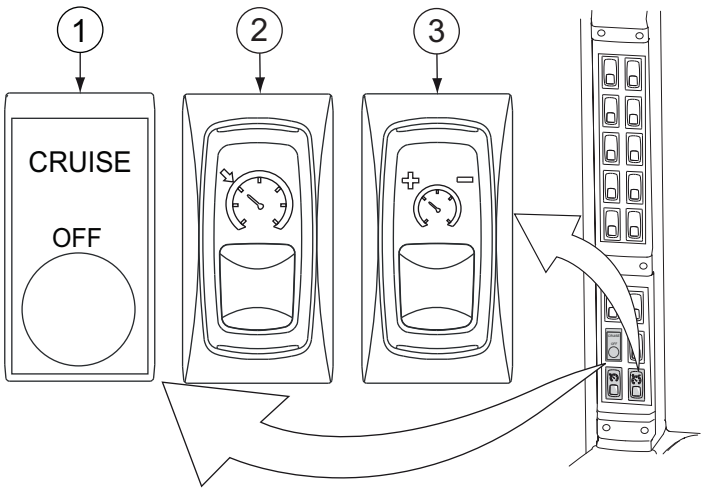
   In order to minimise water condensation, fill up the tank when finishing work for the day.

3.8.10 Cruise control

The cruise control is extra equipment. With the cruise control function the operator can choose either a constant driving speed or a constant engine speed.

When the cruise control is on, the indicator light is lit on the instrument panel and the Proline instrument panel (alternative equipment) display shows the status of the cruise control. Cruise control does not operate simultaneously with automatic traction control.

3.8.10.1 Cruise control switches



1. Cruise control off button
2. Cruise control setting switch
3. Cruise control increasing/decreasing switch

Cruise control off button

With the cruise control off button, you can deactivate the cruise control.

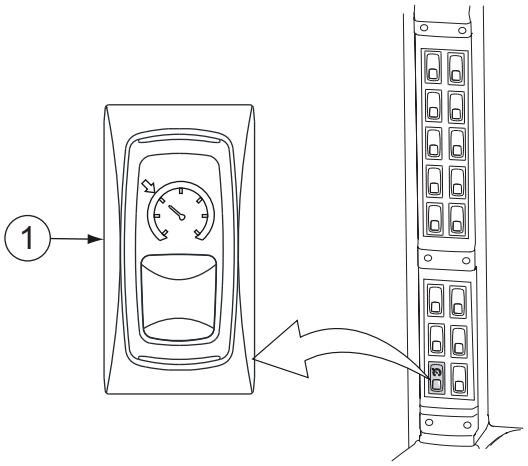
Cruise control setting switch

With the cruise control setting switch, you can set or activate either the constant driving speed or the constant engine speed.

Cruise control increasing/decreasing switch

With the cruise control increasing/decreasing switch, you can increase or decrease the cruise control. The switch is spring returned.

3.8.10.2 Programming the driving speed cruise control



1. Cruise control setting switch

1. **Set the driving speed.**

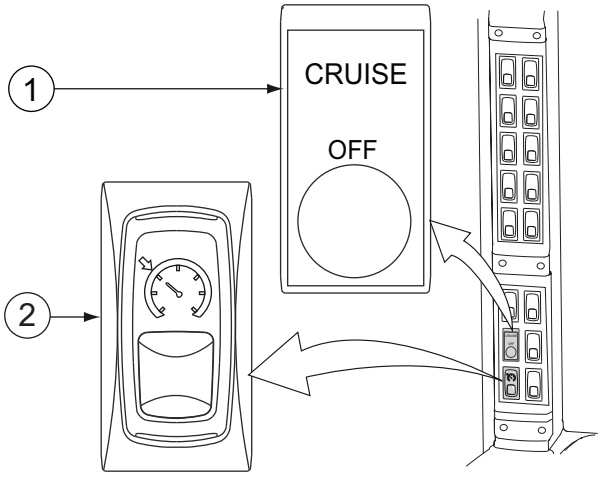
   Use the accelerator pedal or the hand throttle to set the wanted driving speed value.

2. **Press the symbol side of the cruise control setting switch for more than 2 seconds.**
   The cruise control indicator light blinks on the instrument panel indicating that the setting value can be stored in the memory.

3. **To store the value, release the switch.**
   The indicator light is continuously lit and the programmed driving speed cruise control is activated.
   NOTE: If the engine speed cruise control is active, the driving speed cruise control does not activate.

3.8.10.3 Activating and deactivating the driving speed cruise control

WARNING: Note the function of the hand throttle before deactivating the cruise control. Adjust the position of the hand throttle if needed.



1. Cruise control OFF button
2. Cruise control setting switch

- **To activate driving speed cruise control, press the symbol side of the cruise control setting switch.**

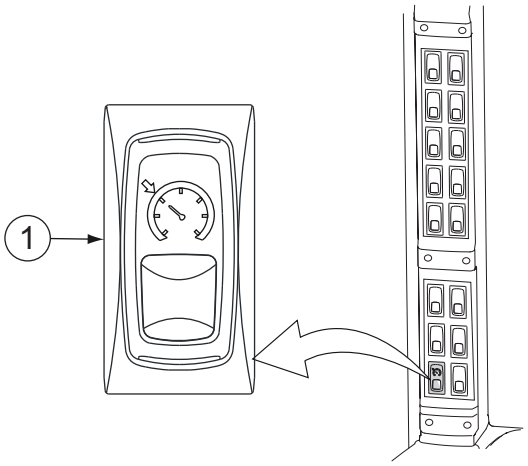
  NOTE: To activate the driving speed cruise control driving speed must be over 1 km/h. If the driving speed reduces under 1 km/h the driving speed cruise control deactivates.

  The last setting stored to the requested memory slot comes into effect. The tractor maintains the selected constant driving speed if possible.

- **To deactivate the driving speed cruise control, press/move one of the following:**
  - Clutch pedal
  - Both brake pedals
  - Cruise control OFF button
  - Power shuttle lever

NOTE: When the HiShift push button is pressed (when shifting the speed range), traction is lost but the driving speed cruise control remains. When releasing the HiShift push button, the traction engages and the speed set by the driving speed cruise control is regained.

3.8.10.4 Programming the engine speed cruise control



1. Cruise control setting switch

1. **Set the engine speed.**

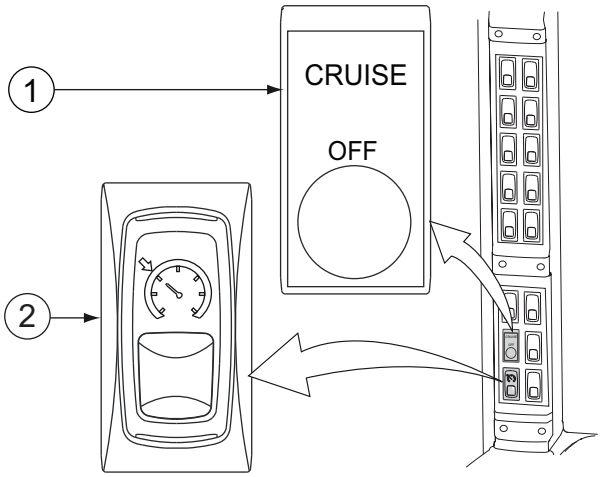
   Use the accelerator pedal or the hand throttle to set the desired engine speed value.

2. **Press the side opposite to the symbol of the cruise control setting switch for more than 2 seconds.**
   The cruise control indicator light blinks on the instrument panel indicating that the setting value can be stored in the memory.

3. **To store the value, release the switch.**

   The indicator light is continuously lit and the programmed engine speed cruise control is activated.
   NOTE: If the driving speed cruise control is active, the engine speed cruise control does not activate.

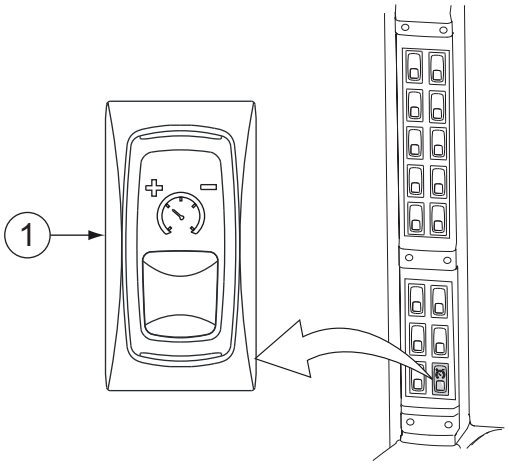
3.8.10.5 Activating and deactivating the engine speed cruise control



1. Cruise control OFF button
2. Cruise control setting switch

- **To activate the engine speed cruise control, press the side opposite to the symbol of the cruise control setting switch.**
- **To deactivate the engine speed cruise control, press the cruise control off button.**
  When the cruise control function has been turned off, the engine speed returns to the speed set by the hand throttle if it is greater than the one set with the accelerator pedal.

3.8.10.6 Decreasing the cruise control setting



1. Cruise control increasing/decreasing switch

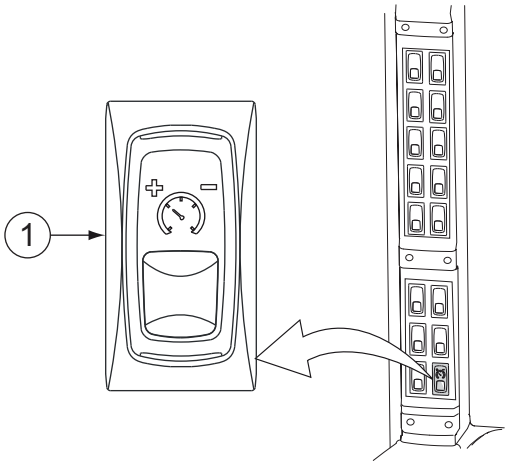
1. **Press the side opposite to the symbol on the cruise control increasing/ decreasing switch to lower the driving speed or the engine speed.**

   The cruise control setting decreases according to the following table.

Driving speed	1...10 km/h	10...15 km/h	>15 km/h
Engine speed cruise control (short press (less than 2 seconds))	50 rpm	50 rpm	50 rpm
Engine speed cruise control (continuous press (over 2 seconds))	10 rpm	10 rpm	10 rpm
Driving speed cruise control (short press (less than 2 seconds))	0.1 km/h	0.2 km/h	1 km/h
Driving speed cruise control (continuous press (over 2 seconds))	0.1 km/h	0.1 km/h	0.1 km/h

2. **Release the switch.**
   The new setting is activated and is stored in the memory.

3.8.10.7 Increasing the cruise control setting



1. Cruise control increasing/decreasing switch

1. **Press the symbol side of the cruise control increasing/decreasing switch to increase the driving speed or the engine speed.**

   The cruise control setting increases according to the following table.

Driving speed	1...10 km/h	10...15 km/h	>15 km/h
Engine speed cruise control (short press (less than 2 seconds))	50 rpm	50 rpm	50 rpm
Engine speed cruise control (continuous press (over 2 seconds))	10 rpm	10 rpm	10 rpm
Driving speed cruise control (short press (less than 2 seconds))	0.1 km/h	0.2 km/h	1 km/h
Driving speed cruise control (continuous press (over 2 seconds))	0.1 km/h	0.1 km/h	0.1 km/h

2. **Release the switch.**
   The new setting is activated and is stored in the memory.

NOTE: You can increase the engine speed with the hand throttle lever or accelerator pedal when the cruise control function is on.

3.8.11 Automatic traction control

Automatic traction control is useful in traffic and for example on jobs where you have to stop the tractor and at the same time use power take-off (PTO).

When using the automatic traction control the traction is controlled with the accelerator pedal, hand throttle or brake pedal. In many working conditions, for example hydraulic implements can be used at low engine speeds when the traction control is engaged.

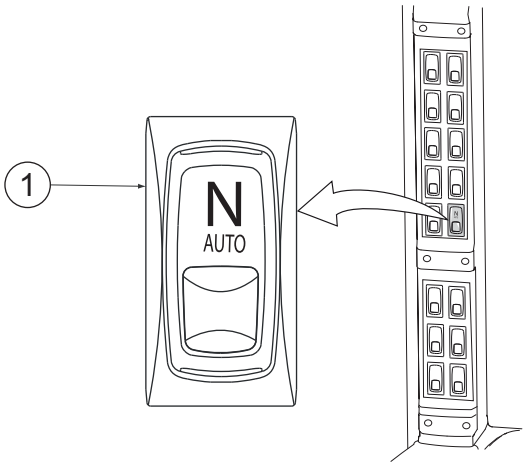
Automatic traction control has four functions: standby, engaged, disengaged and OFF.

Function	Conditions
Standby	The automatic traction control is engaged in standby mode (but not in function), when the following conditions are fulfilled at the same time: • Symbol side of the automatic traction control switch pressed down and released • The tractor is stationary • The engine speed is under 1 020 rpm • Clutch pedal is pressed down or power shuttle lever is in N or P position.
Engaged	The traction engages when the following conditions are fulfilled at the same time: • The driving direction is selected. • The brake pedal is not pressed. • The engine speed is over 1 020 rpm. • The accelerator pedal is pressed sufficiently.
Disengaged	The traction disengages in the following situations: • The driving speed is under 12 km/h AND • The engine speed is under 980 rpm AND • The accelerator pedal is almost up. or • One of the brake pedals is pressed down when the driving speed is under 12 km/h.
OFF	• The side of the automatic traction control switch opposite to the symbol pressed down.

When the automatic traction control is on, the driving direction can be changed.

3.8.12 Using the automatic traction control

Automatic traction control is used to automatically engage and disengage the traction.



1. Automatic traction control switch

1. **Apply the parking brake.**
2. **Press the symbol side of the automatic traction control switch and release it.**

   The automatic traction control is engaged in standby mode (but not in function).
3. **Select the driving direction.**

   The selected direction does not engage.
4. **Raise the engine speed to over 1020 rpm to engage the traction.**

   If the clutch pedal is pressed down when the traction engagement starts, the traction engages in accordance with the clutch pedal position.
5. **To release the traction, press the brake pedal or lower the engine speed so that it is under 980 rpm.**

   The traction is always released regardless of the position of the clutch pedal.
6. **To switch off the automatic traction control, press the side of the switch opposite to the symbol.**

   The selected direction does not engage until the power shuttle lever has been moved to the parking brake position and the direction has been engaged again.

After starting the engine, the automatic traction control must be activated again.

3.8.13 Differential lock

The differential lock is used to ensure an even grip for the wheels.

The differential lock has two positions: ON and OFF

Position	Description
ON	The differential lock is always engaged.
OFF	The differential lock is continuously disengaged.

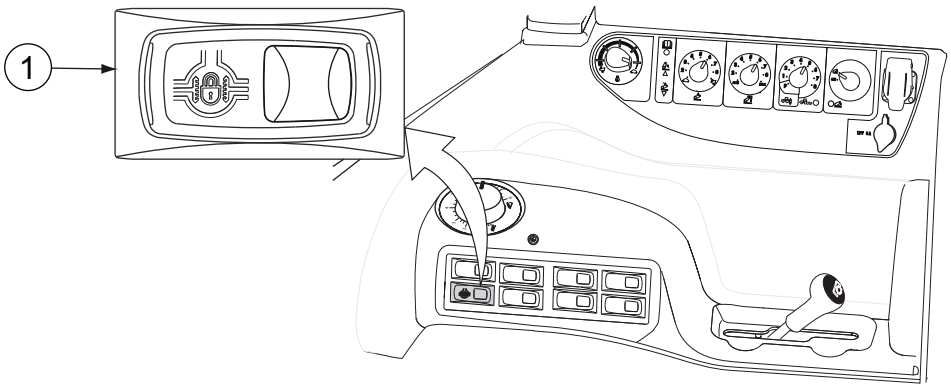
When the differential lock is engaged, the indicator light  is lit on the instrument panel.

3.8.14 Engaging and disengaging the differential lock

You can control the engagement of the differential lock with the differential lock switch. The switch has two positions (ON and OFF).

The tractor must be stationary when engaging or disengaging the differential lock.

If a wheel starts to slip, engage the differential lock. If possible, disengage the lock while driving on public roads.



1. Differential lock switch

- **To engage the differential lock, press down the symbol side of the differential lock switch (ON).**
- **To disengage the differential lock, press down the side of the differential lock switch opposite to the symbol (OFF).**

3.8.15 Four-wheel drive

The four-wheel drive (4WD) has two positions: ON and OFF. Third position (AUTO) is available as extra equipment. The 4WD can be engaged while driving.

Position	Description
ON	The 4WD is always engaged.
AUTO	The 4WD engages: • When the lift/stop/lower switch is in the lower (Autocontrol) position. • When starting to drive, using the power shuttle or changing gears when the driving speed is under 10 km/h. **NOTE**: The lift/stop/lower switch is either in the centre (stop) or lift (transport) position and the driving start automatics activated. The 4WD disengages: • When pressing clutch pedal or HiShift push button. • After 4 seconds of driving (when starting to drive, using the power shuttle or changing gears).
OFF	4WD is disengaged except: • When pressing both brake pedals. • When engaging the parking brake.

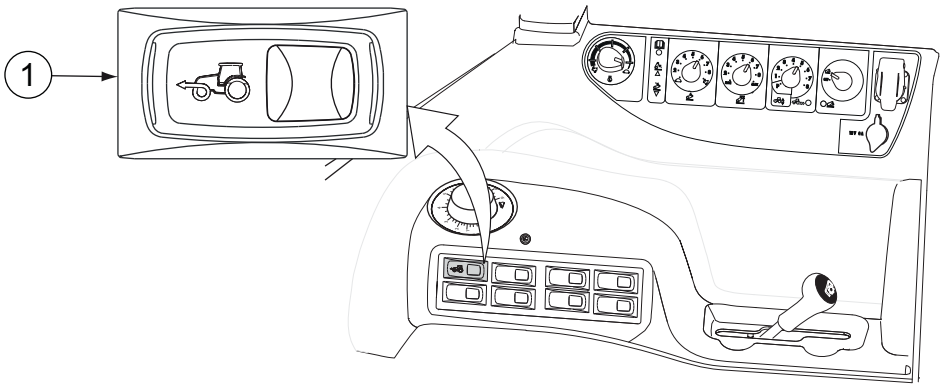
When the 4WD is engaged, the indicator light  on the instrument panel is lit.

If the indicator light on the Proline instrument panel (alternative equipment) flashes in the automatic position, there is an error and the 4WD engages.

3.8.16 Engaging and disengaging the four-wheel drive

You can control the engagement of the four-wheel drive (4WD) with the 4WD switch.

Keep the 4WD disengaged while driving on the road if it is not required. Using the 4WD is not allowed at driving speeds of over 15 km/h if road conditions are good.

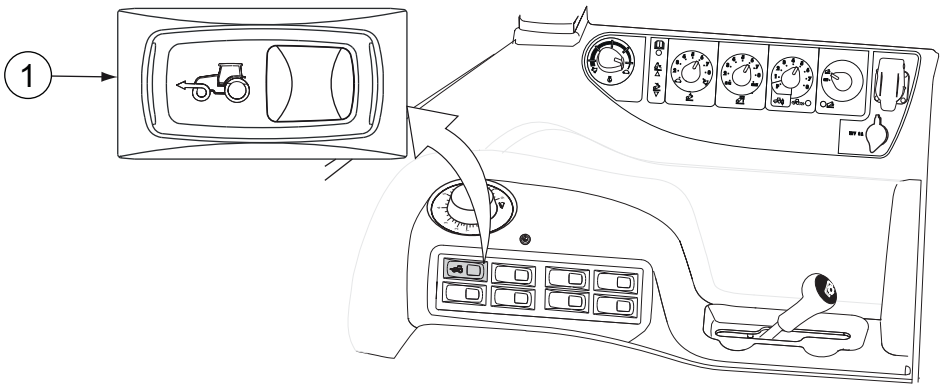


1. 4WD switch

- **To engage the 4WD, press down the symbol side of the 4WD switch (ON).**
- **To disengage the 4WD, press down the side of the 4WD switch opposite to the symbol (OFF).**

3.8.17 Engaging and disengaging the four-wheel drive automatic function

The four-wheel drive (4WD) automatic function is extra equipment.



1. 4WD switch

- **To engage the 4WD automatic function, turn the 4WD switch to the middle position (AUTO).**
- **To disengage the 4WD automatic function, turn 4WD switch away from the middle position.**

3.8.18 Driving start automatics

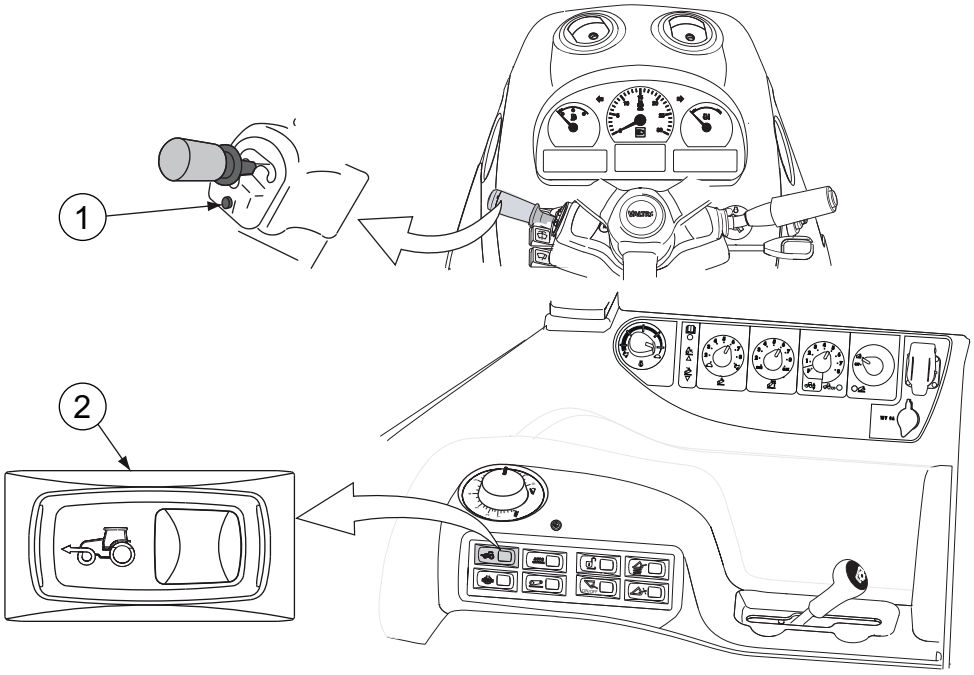
Driving start automatics can be used to prevent the rear wheels from slipping when starting to drive, when using the power shuttle and when the gears are changed.

NOTE: Driving start automatics operates only when the driving speed is under 10 km/h.

When the driving start automatics has been activated the automatics engages four-wheel drive for 4 seconds when starting to drive, when the driving direction is changed or when the gears are changed.

If the clutch pedal or HiShift push button has been pressed while driving, the driving start automatics engages four-wheel drive when releasing the clutch pedal or HiShift push button.

3.8.19 Activating and deactivating the driving start automatics



1. Powershift preprogramming push button
2. 4WD switch

- **Activate the driving start automatics.**
  - **Press down the powershift preprogramming push button.**
  - **Simultaneously press down the symbol side of the 4WD switch**

  The 4WD ON text F< - > R 4WD: ON is shown on a Proline instrument panel display (alternative equipment).
- **Deactivate the driving start automatics.**
  - **Press down the powershift preprogramming push button.**
  - **Simultaneously press down the side opposite to the symbol of the 4WD switch**

  The 4WD OFF text F< - > R 4WD: OFF is shown on a Proline instrument panel display (alternative equipment).

3.8.20 Permitted driving inclinations for driving the tractor on a slope

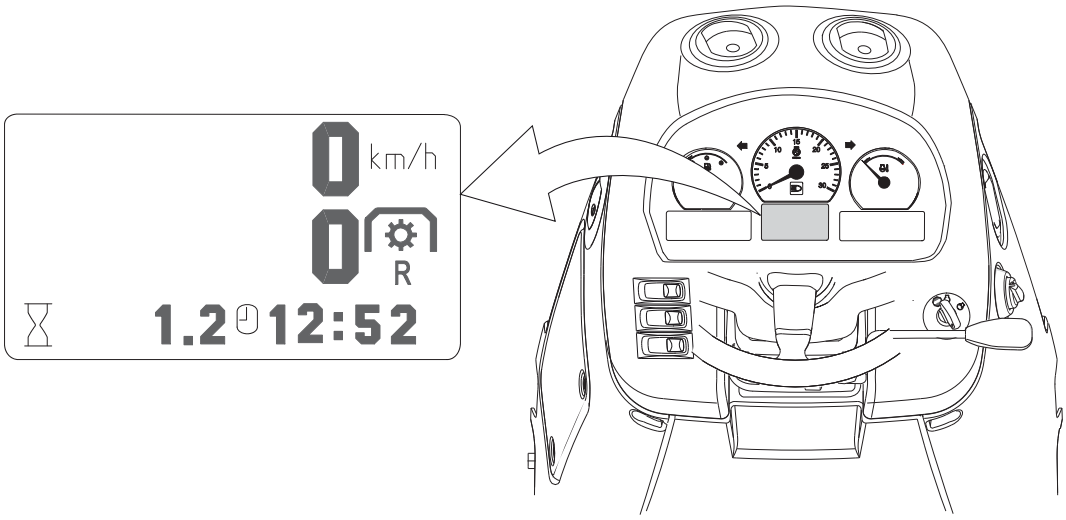
To ensure sufficient lubrication for the transmission and engine, it is essential to follow the maximum driving angles when driving the tractor on a slope.

WARNING: Angles for safe driving should be smaller than stated to avoid the tractor from tipping over.

Up and down slope, with either front or rear end up	28°

3.9 Proline instrument panel display

The Proline instrument panel display shows information about different tractor functions.



The display has three rows with either fixed or selectable views:

- The bottom row view is fixed.
- The operator can select the top and middle row views.

3.9.1 Fixed views

Fixed views show the operating hours and the time.

Fixed views have two functions displayed on the bottom row, the operating hours and the clock.

1. Operating hours
2. Clock

Operating hours

Operating hours are displayed with an accuracy of one decimal place when the power is on.

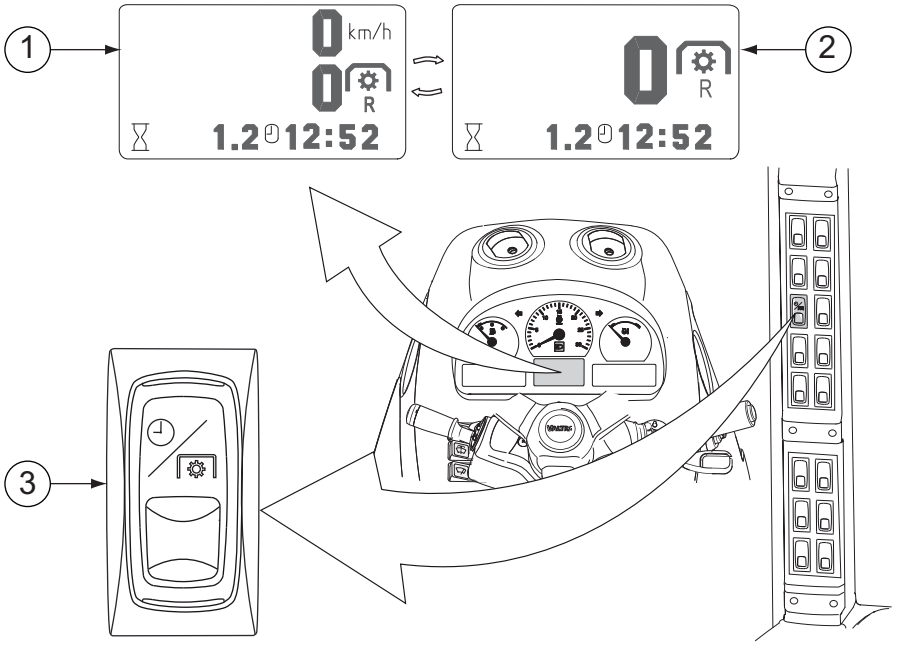
Clock

The clock is displayed on the bottom row, either in 12-hour or 24-hour mode.

You can change the time if it is not correct.

3.9.2 Selecting a view

You can use the top and middle rows of the instrument panel display to show the different functions.



1. Two-row display
2. Enlarged middle row display
3. Proline instrument panel display change-over switch

- **To select a function to display when the two-row display are in use:**
  - Press the symbol side of the display change-over switch to browse for the functions on the top row.
  - Press the side of the display change-over switch opposite to the symbol to browse for the functions on the middle row.

- **To select a function to display when the enlarged middle row display is in use:**
  - Press the symbol side of the display change-over switch to browse for the functions in forward order.
  - Press the side of the display change-over switch opposite to the symbol to browse for the functions in reverse order.

3.9.3 Top and middle row views

The Proline instrument panel display functions are seen on the top or the middle row.

The top row and the middle row have the same functions. Different functions can be displayed at the same time on both rows.

When the power is turned on, the view that was selected last is shown on the display.

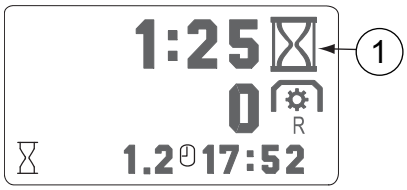
The following functions can be displayed on the top and middle rows of the display:

Symbol	Function
⊠	Working time (h:mm)
cruise RPM cruise KMH	Cruise control
km/h/mph	Driving speed (km/h/mph)
R	Rear power take-off (PTO) speed (rpm)
F	Front power take-off (PTO) speed (rpm)
min⁻¹	Engine speed (rpm)
l/ha	Immediate fuel consumption (ha, acre)
Avg l/ha	Average fuel consumption (ha, acre)
l/h	Immediate fuel consumption
Avg l/h	Average fuel consumption
l	Fuel consumption
AC R	Lower link position (%, 0-100)
AC F	Lifting link position of front linkage (%, 0-100)
	Gearbox temperature (C/F)
	Travel distance (m/km/miles)
	Square area (ha)
	Periodical maintenance

3.9.3.1 Working time view

The working time view shows how much time the tractor has spent on a special task.

The working time ⊠ is shown on the top or middle row of the display.



1. Working time

Working time can, for example, show the time spent on ploughing a certain area.

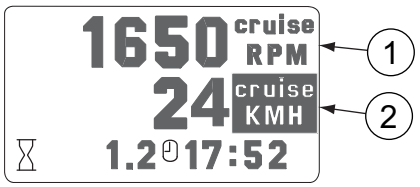
The working time is stored in the memory when the power is turned off.

You can reset the working time counter.

3.9.3.2 Cruise control view

The cruise control controls the rate of motion of the tractor.

The cruise control cruise RPM cruise KMH is shown on the top or middle row of the display.



1. RPM = constant engine speed
2. KMH = constant driving speed (engaged)

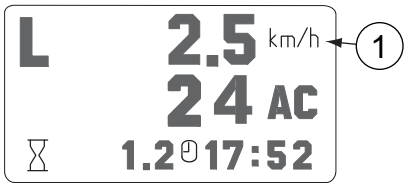
The numerical value in front of the symbol stands for the value of the programmed constant engine speed or driving speed.

When the constant engine speed or driving speed is engaged, the corresponding text shows in white on a dark background, and the cruise indicator light CRUISE is lit on the instrument panel.

3.9.3.3 Driving speed view

The driving speed is displayed in km/h or miles/h.

The driving speed is shown on the top or middle row of the display.



1. Driving speed

The driving speed is displayed as follows:

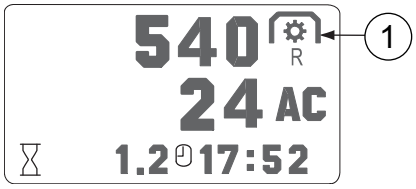
- The letter L shows that the driving speed is under 3 km/h (2 mph).
- Driving speeds of 0–10 km/h (0-10 mph) are shown with an accuracy of one decimal place.
- Driving speeds of 10–15 km/h (10-15 mph) are shown with an accuracy of one decimal place in steps of 0.2 units.
- Driving speeds of over 15 km/h (15 mph) are shown without decimals.

You can change the driving speed unit by changing the unit of length.

3.9.3.4 Rear power take-off speed view

The rear power take-off (PTO) speed is shown in revolutions per minute (rpm).

The rear PTO speed R is shown on the top or middle row of the display.



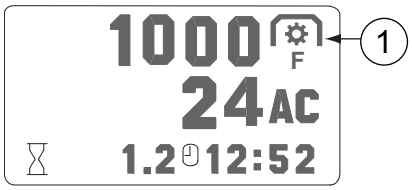
1. Rear power take-off speed

The PTO rotation speed is shown beside the symbol with an accuracy of 10 rpm.

3.9.3.5 Front power take-off speed view

The front power take-off (PTO) speed is shown in revolutions per minute (rpm).

The front PTO speed is shown on the top or middle row of the display.



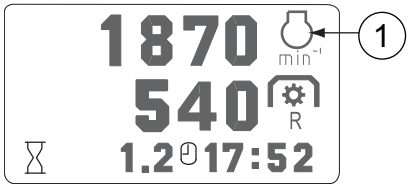
1. Front power take-off speed

The PTO rotation speed is shown beside the symbol with an accuracy of 10 rpm.

3.9.3.6 Engine speed view

The engine speed is displayed in revolutions per minute (rpm).

The engine speed is shown on the top or middle row of the display.



1. Engine speed

The view shows the engine speed with an accuracy of 10 rpm.

3.9.3.7 Fuel consumption views

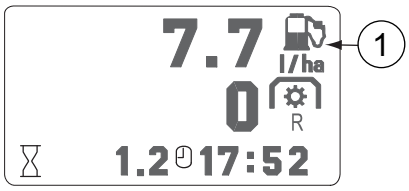
The display shows different kinds of fuel consumption: immediate and average fuel consumption on the area worked, immediate and average fuel consumption in an hour and total fuel consumption.

The fuel consumption is shown on the top or middle row of the display.

You can change the unit of area (ha, acre) by changing the unit of length.

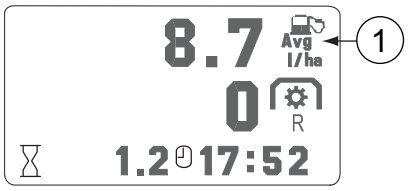
You can select litre, gallon UK or gallon US as the unit of volume.

Immediate fuel consumption on the area worked



1. Immediate fuel consumption on the area worked

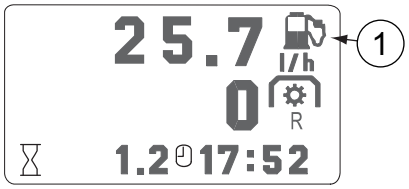
Average fuel consumption on the area worked



1. Average fuel consumption on the area worked

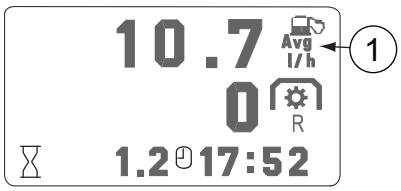
You can reset the fuel consumption information.

Immediate fuel consumption in an hour



1. Immediate fuel consumption in an hour

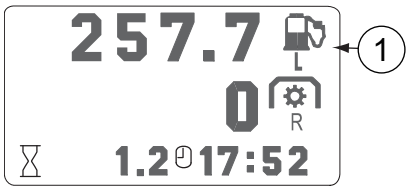
Average fuel consumption in an hour



1. Average fuel consumption in an hour

You can reset the fuel consumption information.

Total fuel consumption



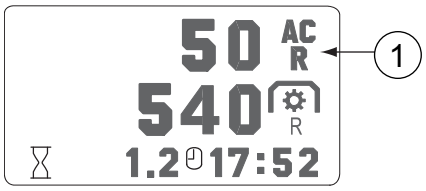
1. Total fuel consumption

You can reset the fuel consumption information.

3.9.3.8 Rear lower links' position view

The view shows the position of the rear lower links.

The position of the rear lower links AC_R is shown on the top or middle row of the display.



1. Position of the rear lower links

The display shows the symbol AC_R and the position of the rear lower links on a percentage scale 0-100:

- 0 = The lower links are in the lowest position.
- 50 = The lower links are in the middle position.
- 100 = The lower links are in the top position.

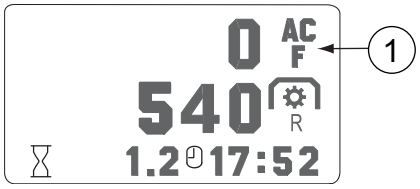
NOTE: The percentage value may not achieve the limit values (0 or 100) even if the linkage is functioning correctly.

3.9.3.9 Front lower links' position view

The view shows the position of the front linkage (extra equipment) lower links on a percentage scale.

Even if the display is activated, the percentage is not changing as the function is not available.

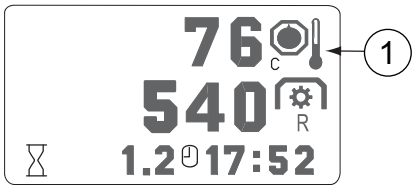
The lower link position of the front linkage AC_F is shown on the top or middle row of the display.



1. Lower links' position of the front linkage

3.9.3.10 Gearbox temperature view

The gearbox temperature is shown on the top or middle row of the display.



1. Gearbox temperature

The gearbox temperature is displayed as follows:

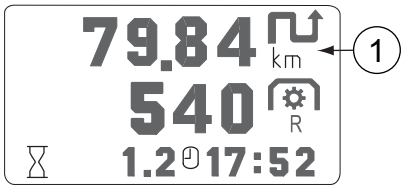
- When the temperature is below +40°C (+104°F), the text "lo" is displayed.
- When the temperature is above +40°C (+104°F), the actual temperature is displayed.
- When the temperature is above +119°C (+246°F), the text "high" is displayed.

NOTE: If the gearbox temperature is continuously above +90°C (+194°F), clean the radiator and check the oil level.

3.9.3.11 Travel distance view

The view shows the travel distance in metres, kilometres, yards or miles. You can also reset the distance reading.

The travel distance is shown on the top or middle row of the display.



1. Travel distance

The travel distance is displayed as follows:

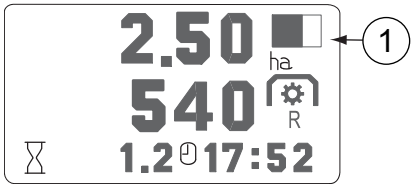
- For distances <1 km (mile), the m (yard) symbol is displayed and the distance is displayed with an accuracy of ±1 m (yard).
- For distances >1 km (mile), but ≤100 km (miles), the display symbol changes to km (miles) and the distance is displayed with an accuracy of ±2 decimals.
- Distances >100 km (miles) are displayed with an accuracy of ±1 decimal.
- The maximum distance displayed is 999.9 km (miles).

You can change the unit of distance (km, miles) by changing the unit of length.

3.9.3.12 Surface area view

The view shows the surface area in hectares or acres.

The surface area is shown on the top or middle row of the display.



1. Surface area

The surface area view shows the amount of area worked. The area reading increases only when the implement is used to work the soil (the linkage is not in the transport position).

The worked area is stored in the memory when the power is turned off.

To change the unit of area (ha, acre), you must change the unit of length.

You can also reset the area reading.

3.9.4 Periodical maintenance view

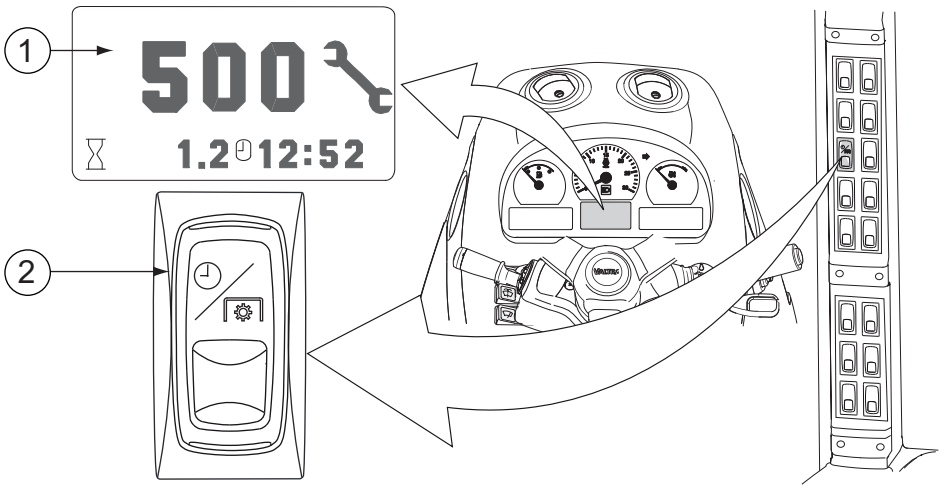
1. Periodical maintenance view

When the tool symbol and periodical maintenance hour number are lit on the display, the appropriate service work has to be carried out by an authorised Valtra workshop.

If this work is not carried out, the tool symbol and periodical maintenance hour number are displayed for 10 seconds whenever the power is turned on.

3.9.4.1 Clearing the periodical maintenance view

When the periodical maintenance has been carried out the periodical maintenance view can be cleared.



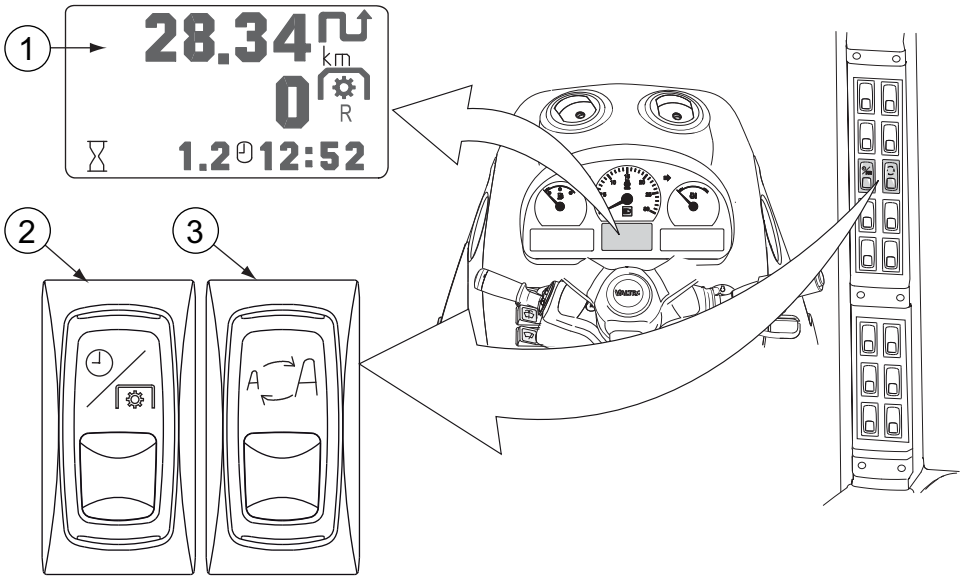
1. Periodical maintenance view
2. Proline instrument panel display change-over switch

- **Press down the Proline instrument panel display change-over switch side opposite to the symbol.**
- **Simultaneously turn the power on.**

The periodical maintenance view has been cleared and will illuminate again when the next service interval has been reached.

3.9.5 Resetting views

You can reset the travel distance, fuel consumption, working time and worked area views. All the readings are reset at the same time.



1. Travel distance
2. Proline instrument panel display change-over switch
3. Proline instrument panel display setting switch

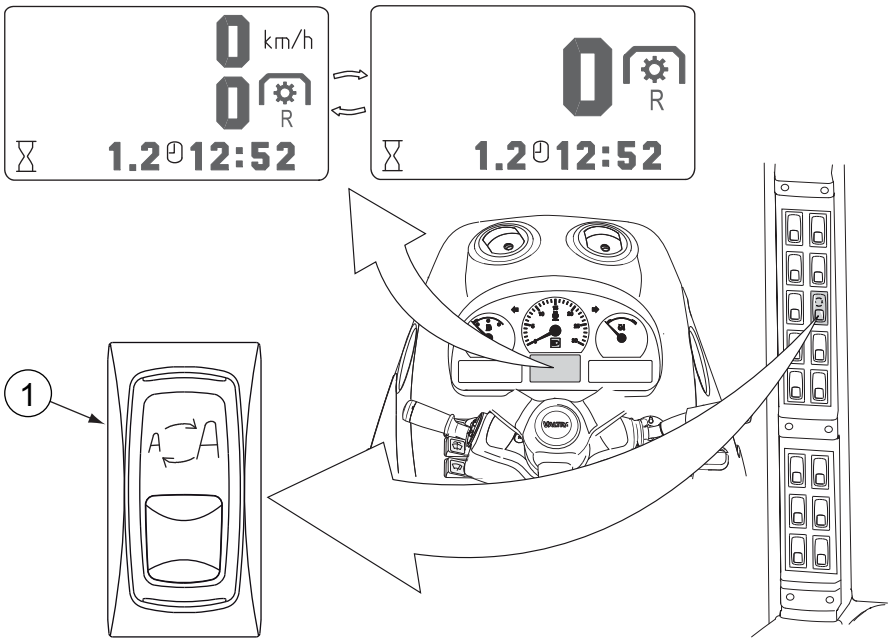
1. **Select the travel distance, fuel consumption, working time or worked area to the Proline instrument panel display.**

   Press the symbol side of the display change-over switch.

2. **Press and hold down the side of the display setting switch opposite to the symbol until the display is reset.**

3.9.6 Enlarging the middle row

You can enlarge any middle row to a height of two rows.



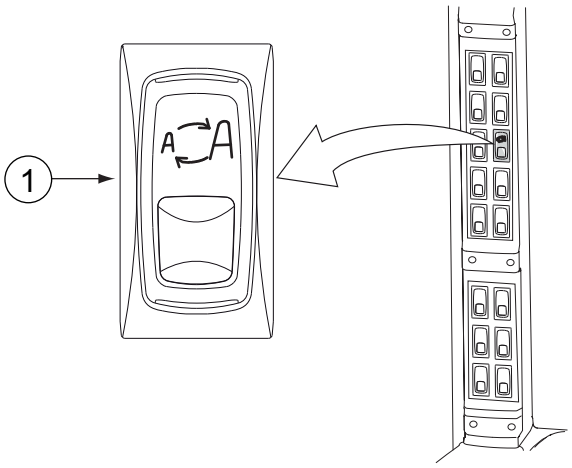
1. Proline instrument panel display setting switch

1. **To enlarge the middle row, press the side of the display setting switch opposite to the symbol.**
   The top row vanishes, and the middle row enlarges to a height of two rows.
2. **Press the switch again to return to the normal view.**

3.9.7 Changing parameters

3.9.7.1 Activating and exiting the setting mode

You must activate the setting mode to change the different settings.



1. Proline instrument panel display setting switch

1. Activate the setting mode.

Press and hold down the symbol side of the display setting switch for more than three seconds.

2. Display the available parameters.

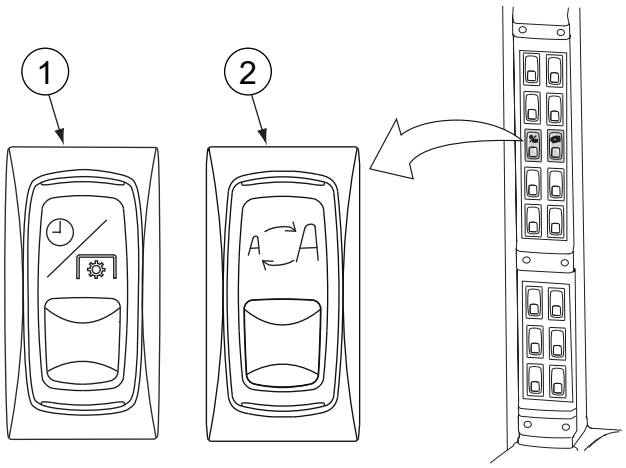
Press the side of the display setting switch opposite to the symbol. The available parameters are presented in the following table.

Parameter	Parameter value
Display backlight level	1–7
Implement width	0–6 500
Hour display	Hours
Minute display	Minutes
Clock mode	12–hour or 24–hour
Speed ratio ppm	Not in use
Direction indicator buzzer status	On or off
Temperature unit	Celsius or Fahrenheit
Length unit	Metric or imperial
Volume unit	Litre or UK gallon or US gallon
Front power take-off speed view	On or off
Front lower links' position view	On or off
Display contrast	80–120

3. Exit the setting mode.

Press and hold down the symbol side of the display setting switch for more than three seconds.

3.9.7.2 Changing the parameter value

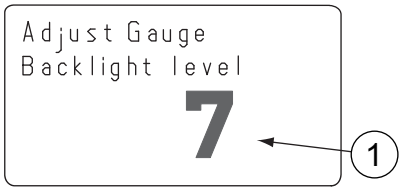


1. Proline instrument panel display change-over switch
2. Proline instrument panel display setting switch

- **Increase a parameter value.**
  - **Press the symbol side of the display change-over switch.**
    The parameter value increases one step at a time.
  - **Press and hold down the symbol side of the display change-over switch.**
    The parameter value increases continuously.
- **Decrease a parameter value.**
  - **Press the side of the display change-over switch opposite to the symbol.**
    The parameter decreases one step at a time.
  - **Press and hold down the side of the display change-over switch opposite to the symbol.**
    The parameter value decreases continuously.
- **Select the next parameter to be changed.**

  Press the side of the display setting switch opposite to the symbol.

3.9.7.3 Setting the display backlight level



1. Backlight level

1. **Activate the backlight level in the setting mode.**
2. **Change the value.**

3.9.7.4 Setting the implement width

1. Implement width

1. **Activate the implement width in the setting mode.**
2. **Change the value.**

3.9.7.5 Changing the hour display

1. Hour display

1. **Activate the hour display in the setting mode.**
   When the hour display is blinking, you can set the hours.
2. **Change the value.**

3.9.7.6 Changing the minute display

1. Minute display

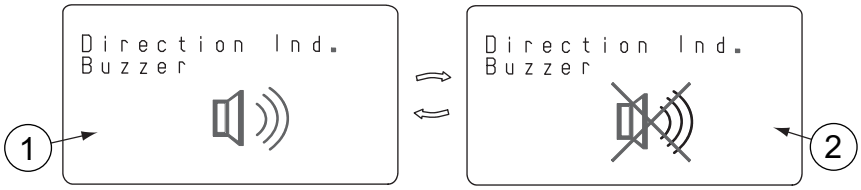
1. **Activate the minute display in the setting mode.**
   When the minute display is blinking, you can set the minutes.
2. **Change the value.**

3.9.7.7 Changing the clock mode

1. Clock mode

1. **Activate the clock mode in the setting mode.**
2. **Change the display to either 12-hour or 24-hour mode.**

3.9.7.8 Activating the direction indicator buzzer



1. Direction indicator buzzer on
2. Direction indicator buzzer off

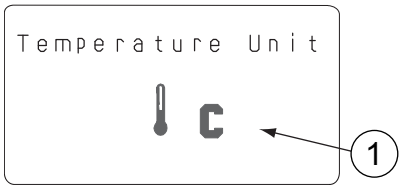
1. **Activate the direction indicator buzzer in the setting mode.**
2. **Change the direction indicator buzzer to either on or off.**

   When the function is on (no cross), the buzzer is activated together with the direction indicator or the hazard warning.

3.9.7.9 Changing the temperature unit

You can change the unit of temperature to be shown in either Celsius (C) or Fahrenheit (F).

NOTE: The units have to be changed separately for the tractor terminal display.



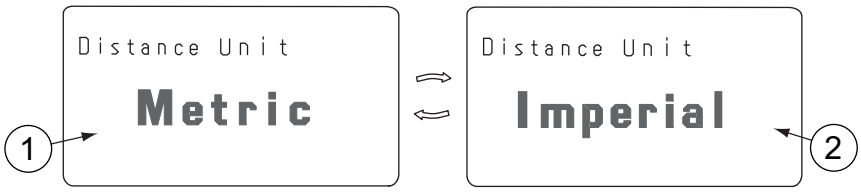
1. Temperature unit

1. **Activate the unit of temperature in the setting mode.**
2. **Change the unit to C or F.**

3.9.7.10 Changing the length unit

You can change the unit of length to be shown in either metric or imperial mode.

NOTE: The units have to be changed separately for the tractor terminal display.



1. Metric units
2. Imperial units

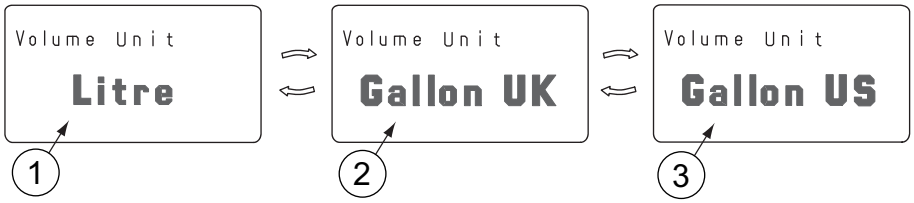
1. **Activate the unit of length in the setting mode.**
2. **Change the unit to either metric or imperial mode.**

   When the unit of length is changed between metric and imperial, the following units also change:

Unit	Metric	Imperial
Driving speed	km/h	mph
Distance	km, m	miles, yard
Surface area	ha	acre
Implement width	cm	inch

3.9.7.11 Changing the volume unit

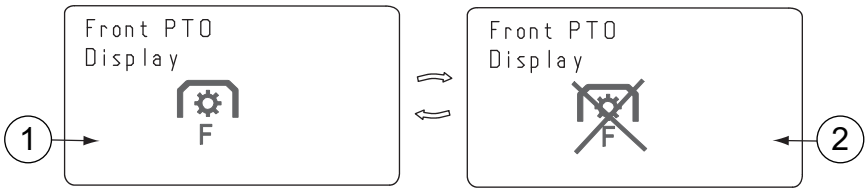
You can change the unit of volume to be shown in either litre, gallon UK or gallon US mode.



1. Litre
2. Gallon UK
3. Gallon US

1. **Activate the unit of volume in the setting mode.**
2. **Change the unit to either litre, gallon UK or gallon US.**

3.9.7.12 Activating and deactivating the front power take-off speed view

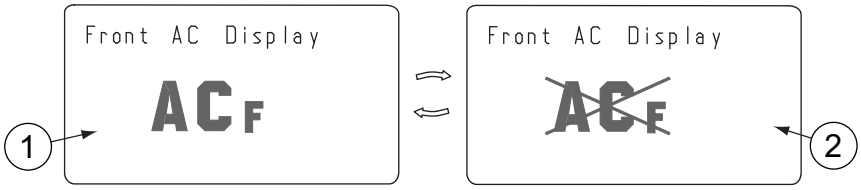


1. Front PTO speed view on
2. Front PTO speed view off

1. **Activate the front PTO speed view in the setting mode.**
2. **Activate or deactivate the front PTO speed view.**

   This function activates the front PTO speed view if the tractor is retrofit with front PTO.

3.9.7.13 Activating and deactivating the front lower links' position view

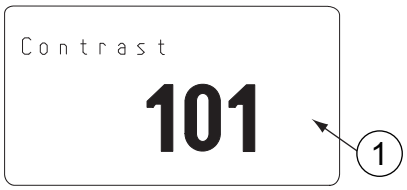


1. Front lower links' position view activated
2. Front lower links' position view deactivated

1. **Activate the front lower links' position view setting in the setting mode.**
2. **Activate or deactivate the view.**

   This function activates the front lower links' position view if the tractor is retrofit with front linkage.

3.9.7.14 Adjusting the display contrast

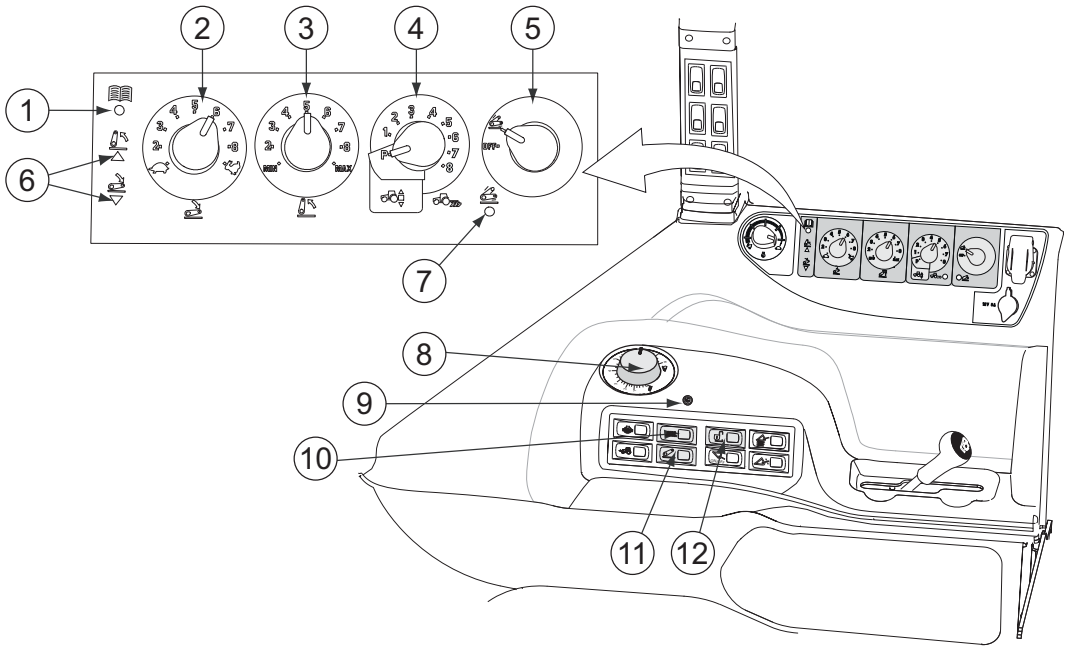


1. Display contrast

1. **Activate the display contrast in the setting mode.**
2. **Adjust the display contrast.**

   The minimum contrast value is 80 and the maximum value is 120.

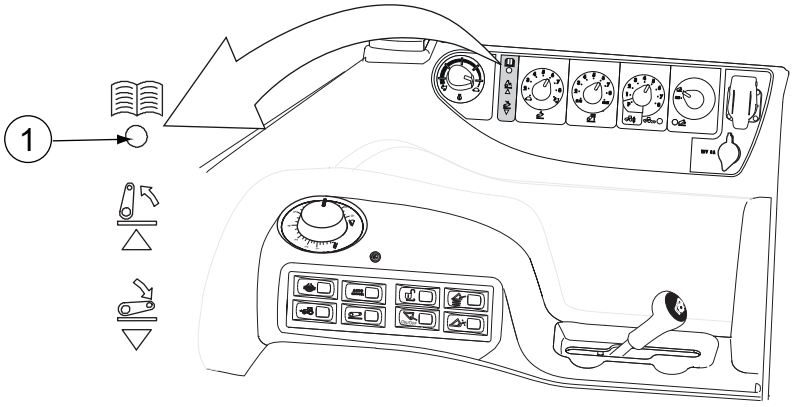
3.10 Rear linkage



1. Diagnose light
2. Lowering speed selector
3. Lifting height selector
4. Draft control selector
5. Drive balance control
6. Lift/lower indicator lights
7. Drive balance control light
8. Position control knob
9. Passing switch for position control knob
10. Lift/stop/lower switch
11. Lift/lower switch

3.10.1 Diagnose light

When the tractor power is turned on, the diagnose light is lit for a moment, goes out and is lit again. The lit diagnose light indicates that the linkage has not been activated.

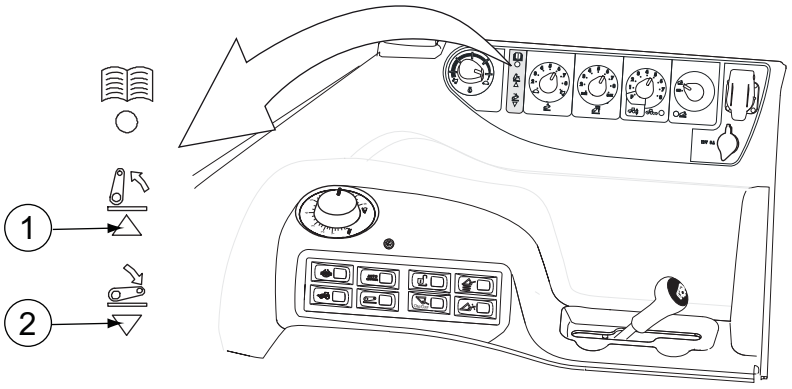


1. Diagnose light

IMPORTANT: Contact your dealer if the diagnostic light is flashing. This means that there is a system failure.

3.10.2 Lift/lower indicator lights

The indicator lights indicate when the lower links are moving.



1. Lift indicator light
2. Lower indicator light

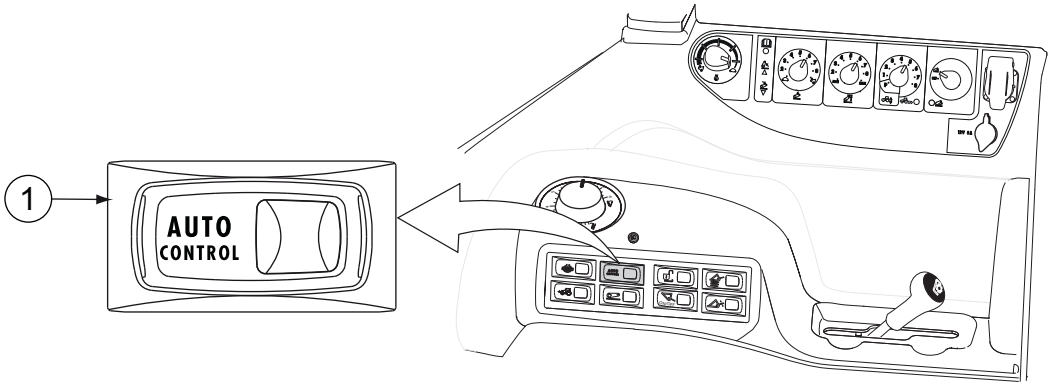
Lit indicator light indicates that the rear linkage is being used.

- The lift indicator (red) is lit when the lower links are lifting.
- The lower indicator (green) is lit when the links are lowering. The lower indicator light is lit also when rear linkage is set to floating position.

3.10.3 Activating the linkage

You can activate the linkage with the lift/stop/lower switch.

The linkage has to be activated every time the power has been turned on or when the lift/lower switch or lift/lower push buttons has been used.



1. Lift/stop/lower switch

1. **Press the lift/stop/lower switch rapidly two times to either of its extreme positions.**

   Linkage activation requires two rapid presses of the lift/stop/lower switch for safety. Depending on the current position of the linkage, the latter of the presses defines the direction of the linkage movement to be activated.

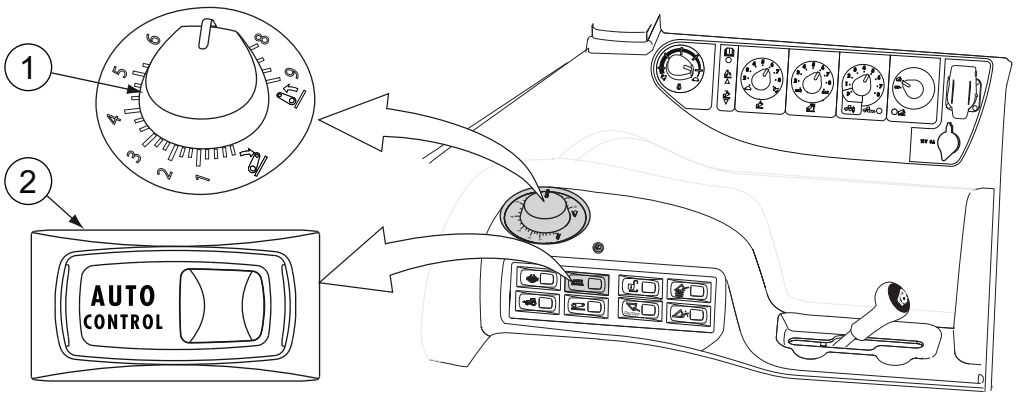
   The diagnose light goes out and the lower links move to the preset position. The first movement is done by reduced speed.

   NOTE: The linkage movement can be stopped by pressing the lift/stop/lower switch to the centre (stop) position.

2. **To increase the speed to normal, change the position of the lift/stop/lower switch again.**

3.10.4 Using the lift/stop/lower switch

The lift/stop/lower switch has three positions.



1. Position control knob
2. Lift/stop/lower switch

- **Press down the symbol side of the lift/stop/lower switch.**
  The lower links are moved to the height set by the position control knob. This is called the Autocontrol position.

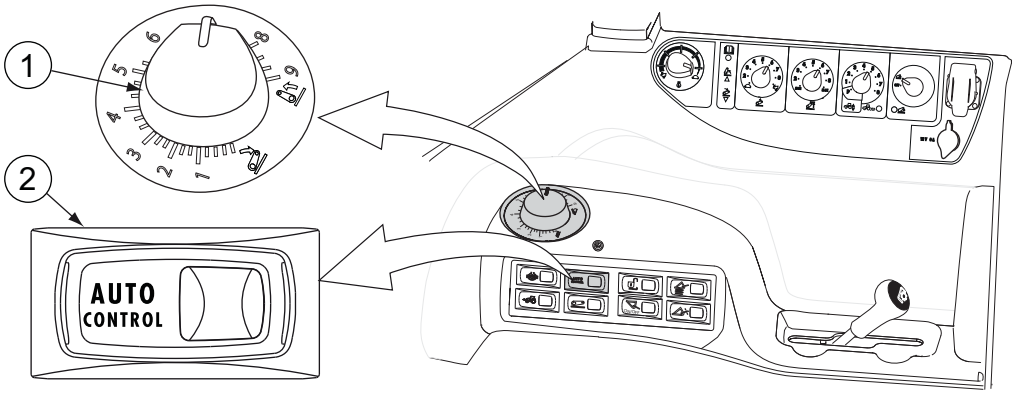
- **Press down the side of the lift/stop/lower switch opposite to the symbol.**
  The lower links are moved to the height set by the lifting height selector. This is called the transport position.
- **To stop the lower links, set the lift/stop/lower switch to the centre position.**

  This is called the stop position.

3.10.5 Using the position control knob

You can use the position control knob to lift or lower the lower links. The knob allows continuous control of the lower links position. It sets the position of the lower links when the lift/stop/lower switch is in the lower (Autocontrol) position.

NOTE: The position of the lower links can be displayed on the instrument panel display in the rear lower links' position view.

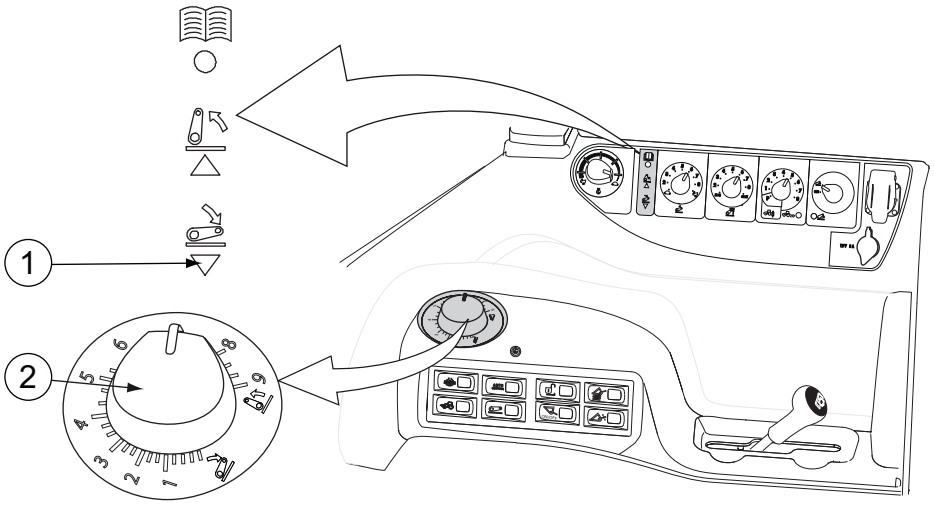


1. Position control knob
2. Lift/stop/lower switch

- **To lift the lower links, turn the knob clockwise.**
- **To lower the lower links, turn the knob anti-clockwise.**

3.10.6 Using the linkage floating position

You can use the floating position when working with certain types of implements which have to follow the ground surface. Such implements are, for example, sowing machines and rollers.



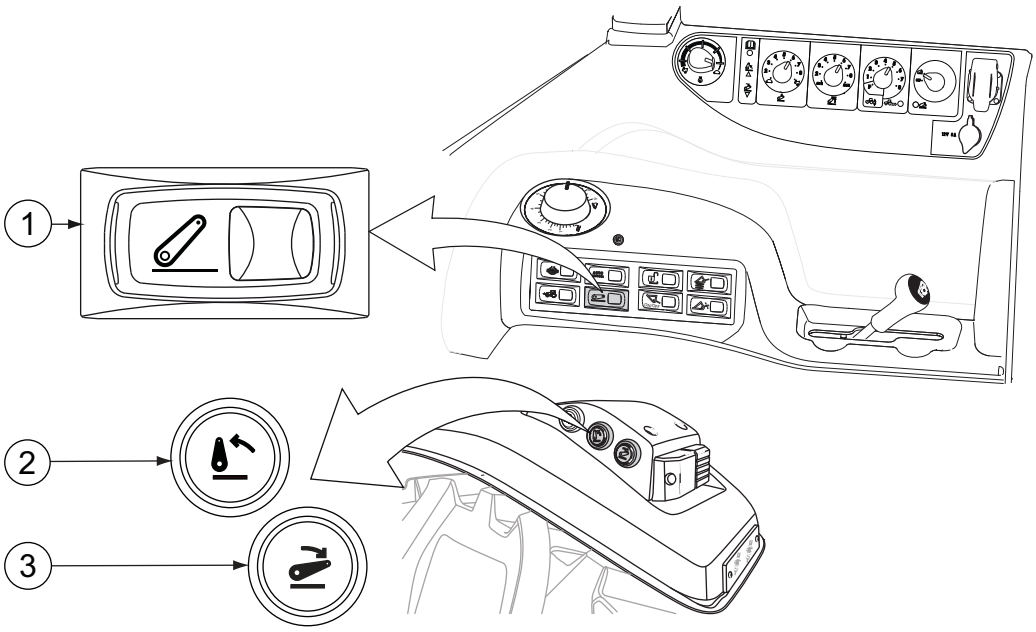
1. Lower indicator light
2. Position control knob

IMPORTANT: Use the floating position when working with implements following the ground surface, otherwise the implement may be damaged.

- **To activate the floating position, turn the position control knob anti-clockwise to its extreme position (0).**
  The lower links can now move freely up and down following the movements of the implement. The lower indicator light is lit continuously.
- **To deactivate the floating position, turn the position control knob clockwise.**

  The floating stops when the position control knob is moved approximately to position 1.

3.10.7 Using the lift/lower switch and lift/lower push buttons



1. Lift/lower switch
2. Lift push button
3. Lower push button

- **To lift the linkage, press the symbol side of the lift/lower switch or the lift push button.**

  The longer the lift/lower switch or the lift push button is pressed the faster the linkage lifts.

- **To lower the linkage, press the lift/lower switch side opposite to the symbol or the lower push button.**

  The longer the lift/lower switch or the lower push button is pressed the faster the linkage lowers.

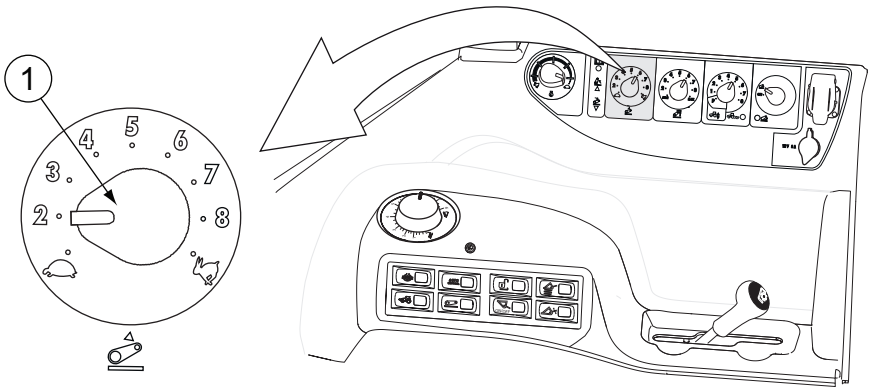
- **To stop the movement of the linkage, release the lift/lower switch to the centre position or release the mudguard push button.**

  The linkage has to be activated again every time the lift/lower switch has been used.

3.10.8 Setting the lowering speed

The needed lowering speed depends on the type of implement used. A slow lowering speed must be used with heavy and sensitive implements. The setting does not affect the raising speed.

The lowering speed is independent of the load.



1. Lowering speed selector

- **To increase the lowering speed, turn the knob clockwise.**

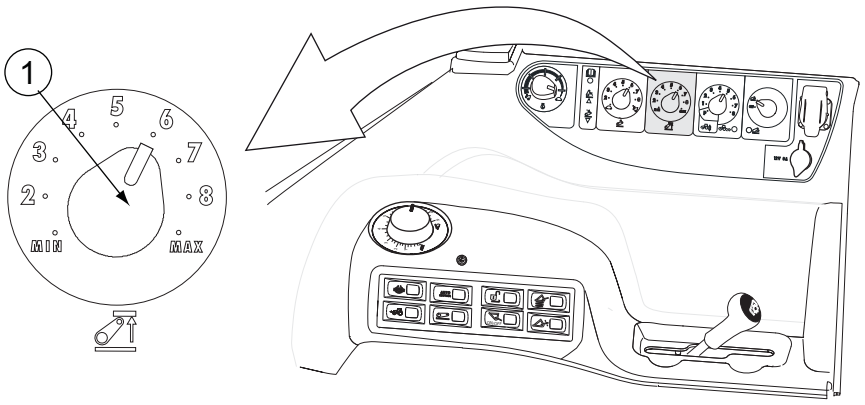
  Nine different levels are available.

- **To decrease the lowering speed, turn the knob anti-clockwise.**

3.10.9 Limiting the lifting height

The height limit is a useful feature, for example, when there is a risk that the implement could hit the cab or when using the power take-off (PTO) driven implements to prevent the PTO shaft from being damaged.

IMPORTANT: The lifting height limitation must be used when using power take-off (PTO) powered implements to prevent the PTO shaft from being damaged.



1. Lifting height selector

- **Use the lifting height selector to limit the lower links lifting height.**

  The lifting height can be limited to 9 different positions with the lifting height selector. The Max position is the uppermost position to which the lower links can be lifted.
  The lifting height selector limits the lifting height when either the position control knob or the lift/stop/lower switch is used.

  CAUTION: The lifting height selector does not limit the lifting height when the lift/lower push buttons are used.

3.10.10 Draft control

You can use the draft control when working with implements that operate below the surface of the ground. Such implements are, for example, ploughs and cultivators.

NOTE: Adjust the ploughing depth with the position control knob.

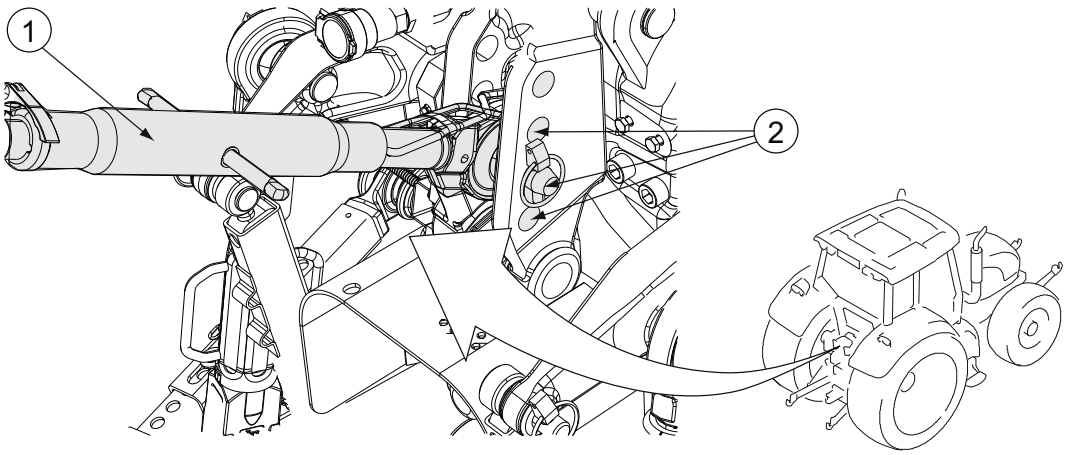
NOTE: It is recommended to keep the draft control disengaged (in position P) if it is not needed and always when the implement is lifted by the control knob.

The draft control has eight levels which define to what extent the draft force affects the working depth, where

- 1 = small influence
- 8 = very large influence

Position 5 is normally used for ploughing. If larger draft control is required, position 6 can be used instead, and the ploughing depth is not significantly affected.

Further the top link can be attached to 3 different holes, which give 24 different sensitivity settings.



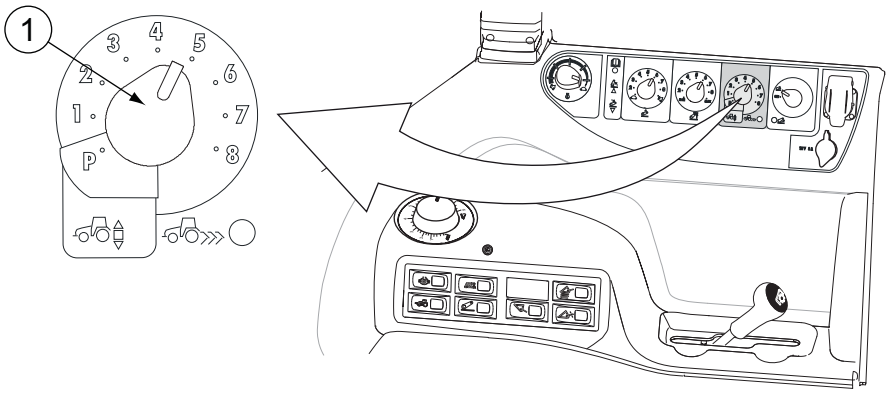
1. Top link
2. Top link fixing points

When the draft control is operating, the rear linkage tries to maintain the position set by the position control knob. If the pulling resistance increases, the rear

linkage raises the implement and some of the weight is transferred to the rear wheels. Thus, the driving wheels maintain the maximum traction.

NOTE: The position of the lower links can be displayed on the instrument panel display in the rear lower links' position view.

3.10.11 Activating and deactivating the draft control



1. Draft control selector

- **To activate the draft control, turn the draft control selector from position P to one of the eight levels.**
- **To deactivate the draft control, turn the selector to position P.**

  Turning the selector to the base position P ensures that the linkage is controlled accurately by the position control knob.

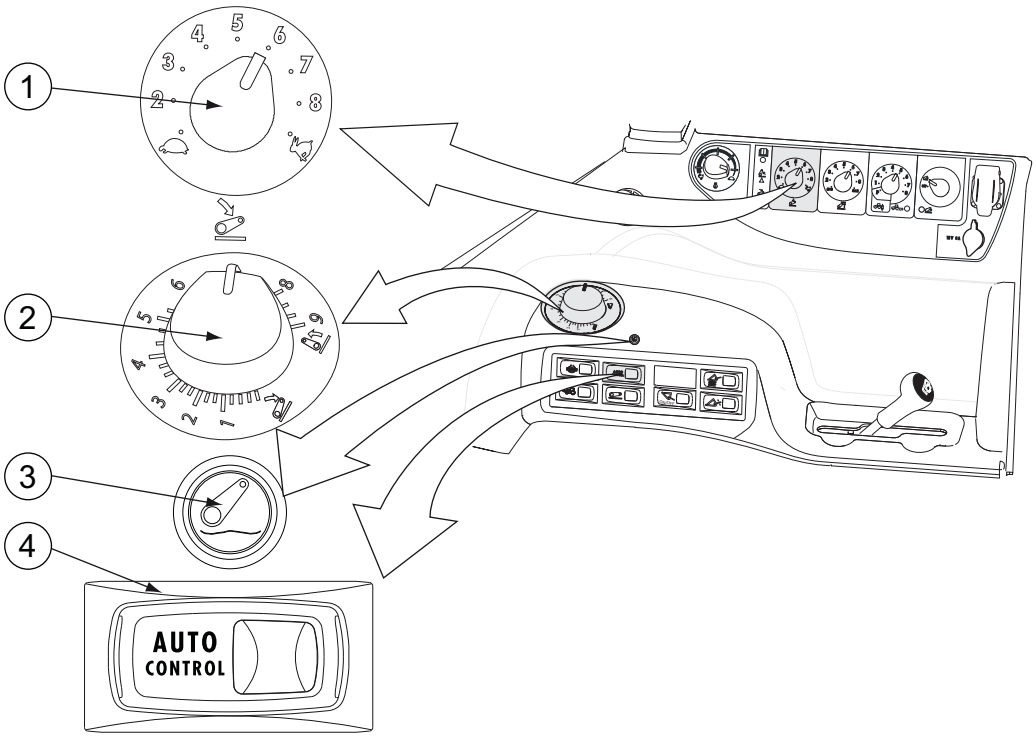
3.10.12 Passing the position set by the position control knob

Use the passing switch for the position control knob when you temporarily need the lower links to pass the lower limit set by the control knob. This feature is useful for example when ploughing.

The passing switch for the position control knob allows a quicker entry of the plough to the correct depth in the beginning and a better maintenance of the depth at the end.

The passing switch for position control knob is spring returned and operates when the lift/stop/lower switch is in the lower (Autocontrol) position.

When using the passing switch for position control knob, the lowering speed set by the lowering speed selector is used.



1. Lowering speed selector
2. Position control knob
3. Passing switch for position control knob
4. Lift/stop/lower switch

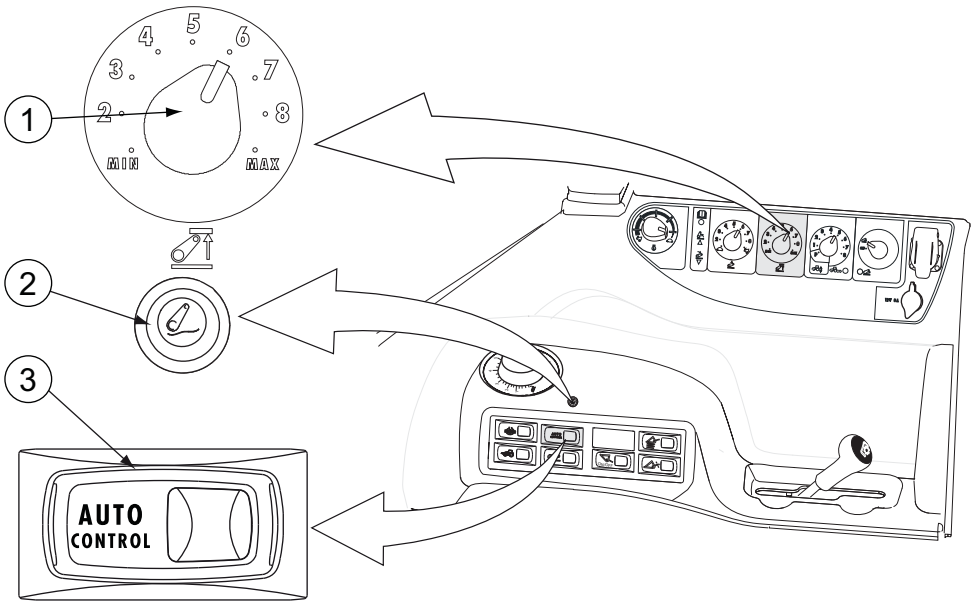
1. **Set the lift/stop/lower switch to the lower (Autocontrol) position.**
2. **Press down the passing switch for position control knob.**
   The lower links pass the limit set by the position control knob.
3. **Release the passing switch for position control knob.**

   The lower links return to the value set by the position control knob.

3.10.13 Passing the height set by the lifting height selector

Use the passing switch for the position control knob when you temporarily need the lower links to pass the MAX position set by the lifting height selector. This feature is useful, for example, when disconnecting the pick-up hitch or to make sure that the pick-up hitch latches when connecting a trailer to the tractor.

The passing switch for the position control knob is spring returned and operates when the lift/stop/lower switch is in the lift (transport) position and the lifting selector is in the MAX position.



1. Lifting height selector
2. Passing switch for position control knob
3. Lift/stop/lower switch

1. **Turn the lifting height selector to the MAX position.**
2. **Set the lift/stop/lower switch to the lift (transport) position.**
3. **Press down the passing switch for position control knob.**
   The lower links pass the limit set by the lifting height selector.
4. **Release the passing switch for position control knob.**

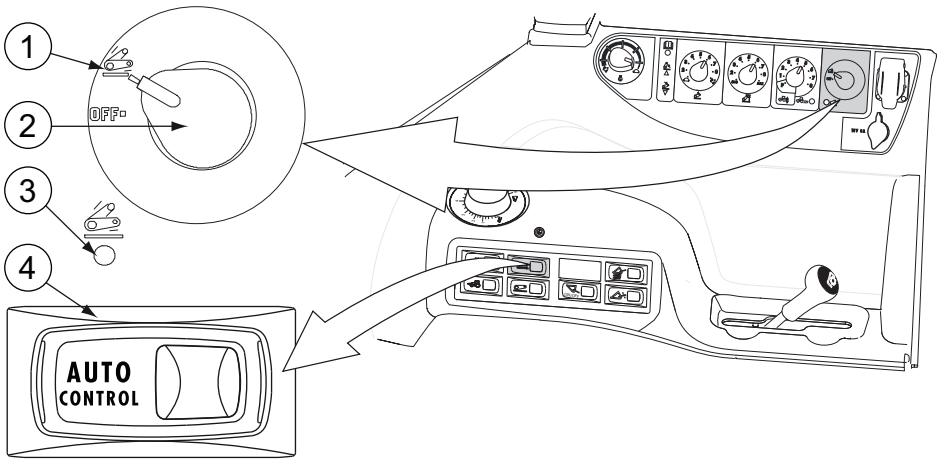
   The lower links return to the value set by the lifting height selector.

3.10.14 Using the drive balance control

The control system makes driving the tractor more even and stable. The drive balance control can also be used in the field.

The drive balance control system is used for balancing the tractor when transporting heavy implements on the linkage. The linkage lowers and lifts slightly, if needed. When the drive balance control is in use the transport height is a bit lower than the one set by the lifting height selector and can vary a bit.

The drive balance control operates only with the transport mode, that is, when the lift/stop/lower switch is in the lift (transport) position.



1. Drive balance position
2. Drive balance control selector
3. Drive balance control light
4. Lift/stop/lower switch

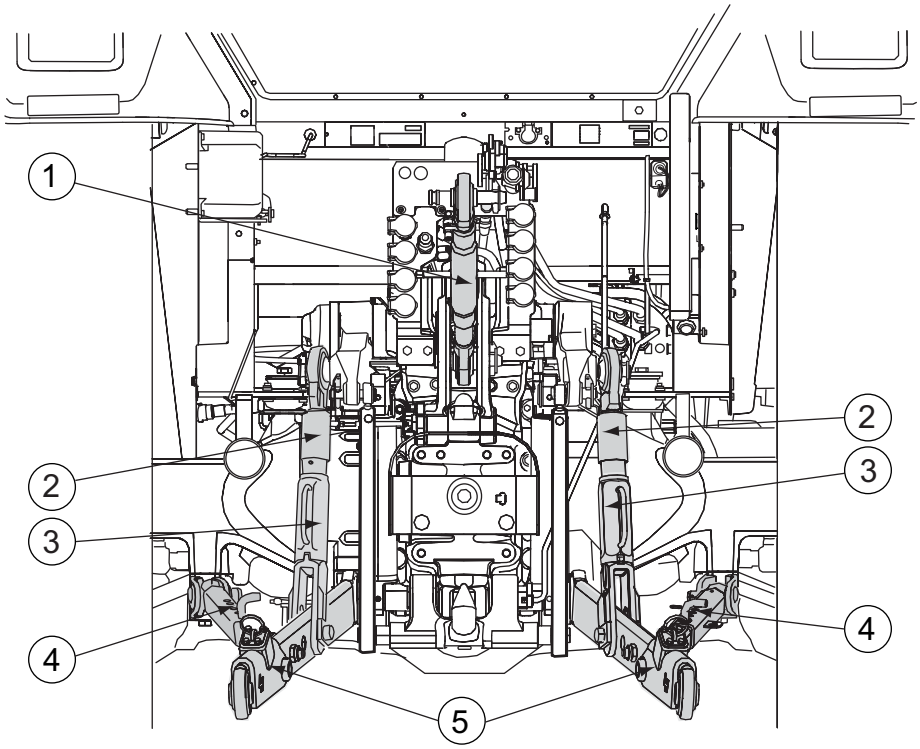
1. **To activate the drive balance control, turn the drive balance control selector to the drive balance position.**

   The drive balance control light is lit when the balance control is activated.

2. **Set the lift/stop/lower switch to the lift (transport) position.**

3. **To deactivate the drive balance control, turn the drive balance control selector to the Off position.**

3.11 Three-point linkage



1. Top link
2. Lifting link
3. Levelling gear
4. Check links
5. Lower links

The tractors are supplied with category 2 telescopic lower links. Ball hitch lower links are extra equipment.

WARNING: Ensure that the telescopic lower links lock correctly when implement is fitted.

WARNING: Ensure that the ball hitch lower link hooks (extra equipment) latch correctly.

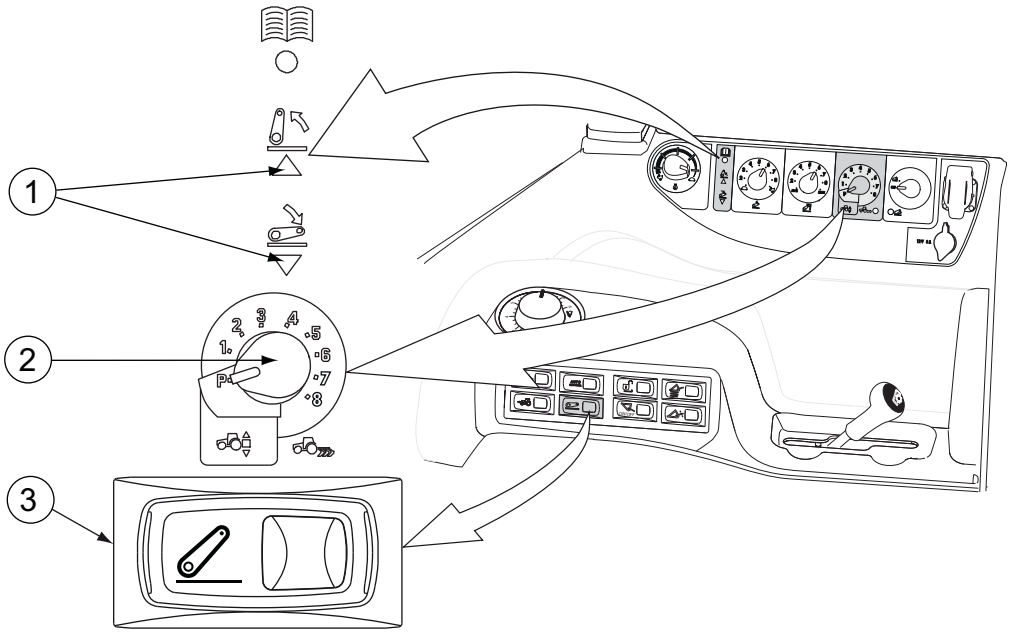
The top link has three different attaching holes on the tractor. Thus, it is possible to get different lifting geometry for different implements. When the top link is in the lowest hole, the implement inclines forward. The uppermost hole gives almost horizontal lifting movement.

3.11.1 Attaching implements

DANGER: Always use the lift/lower switch when attaching or releasing implements.

WARNING: When attaching or releasing an implement, support the implement to prevent it from falling.

IMPORTANT: When using the hydraulic top link, ensure that it operates normally when you are attaching an implement.



1. Lift/lower indicator lights
2. Draft control selector
3. Lift/lower switch

1. **Turn the draft control selector to position P.**

DANGER: Before attaching or releasing an implement, turn the draft control selector to position P. In draft control positions, even a small turn of the position control knob may cause an unexpected linkage movement.

2. **Press the lift/lower switch to lift or lower the lower links.**

   You can use the lift/lower push buttons on the mudguards also to lift or lower the lower links.
   The lower links lift as long as you press the symbol side of the lift/lower switch and lower as long as you press the switch side opposite to the symbol side of the lift/lower switch.

   DANGER: When attaching or releasing implements, always stand outside the implement and beside the tractor. Never stand on the implement or between the implement and the tractor.

   WARNING: The linkage movement speed increases when the lift/lower switch is pressed for a longer time.

3. **Connect the implement.**

   DANGER: The implement has to be mechanically connected to the tractor (the lower links and the top link) before connecting the quick-action couplings.

   IMPORTANT: Make sure that the implement is correctly attached and that it does not hit the other parts of the tractor when lifted to the selected transport height.

   Check links must be locked with pins when transporting implements that are carried by the three-point linkage.

   DANGER: Make sure that at least 20% of the total combination weight rests on the front wheels. When needed, use a sufficient number of front ballast weights.

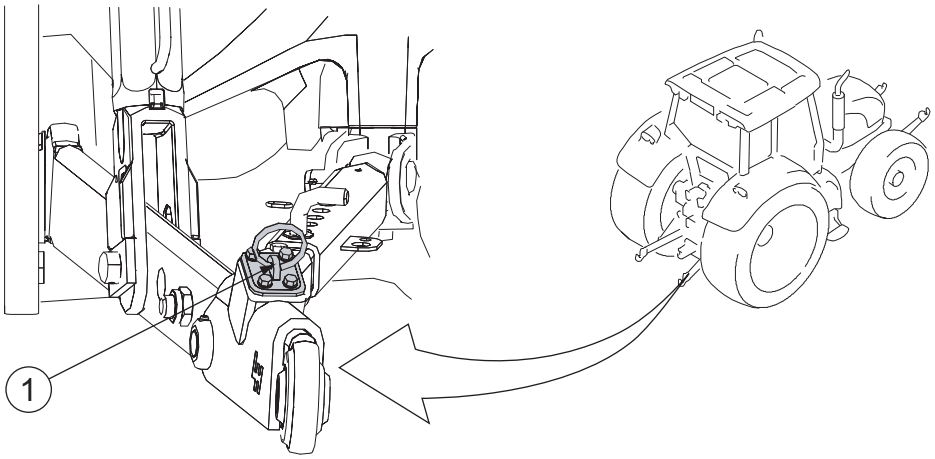
4. **Follow the implement manufacturer's instructions.**

   Correct adjustment of harrows, ploughs and cultivators reduces the required tractor power. An incorrectly adjusted plough, for instance, creates a badly shaped furrow, tends to twist the tractor away from the travelling direction, increases fuel consumption and wastes power due to wheel slip.

5. **Activate the linkage with the lift/stop/lower switch.**

   After using the lift/lower switch, you have to activate the linkage again.

3.11.2 Using telescopic lower links



1. Locking latch

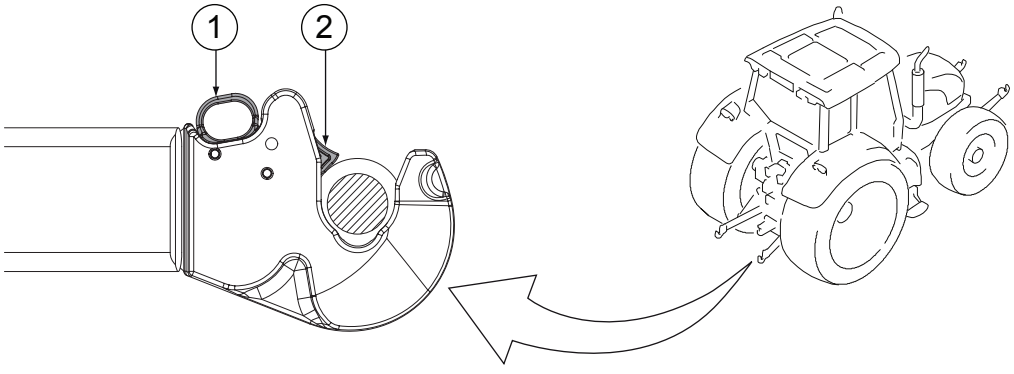
- **To connect the implement:**
  - **Pull the locking latch up and forward to activate the floating position.**
  - **Connect the implement.**
  - **Pull the lever backward to deactivate the floating position.**

  WARNING: After connecting the implement, release the lock by pulling the lever backward to ensure that telescopic lower links lock when implement is lifted up.

- **To disconnect the implement:**
  - **Pull the locking latch up and forward to activate the floating position.**
  - **Lower the implement and move the tractor forward a few centimetres.**
  - **Disconnect the implement.**

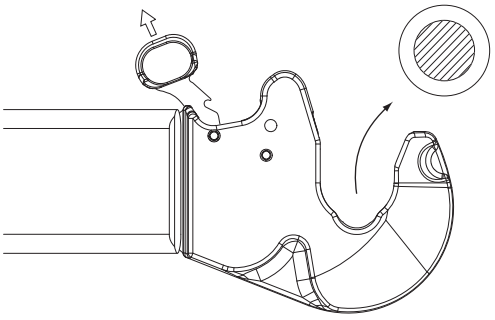
3.11.3 Using quick couplings for lower links

The ball hitch lower links are extra equipment.

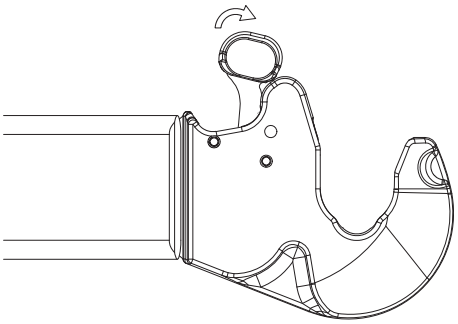


1. Lever
2. Clamp

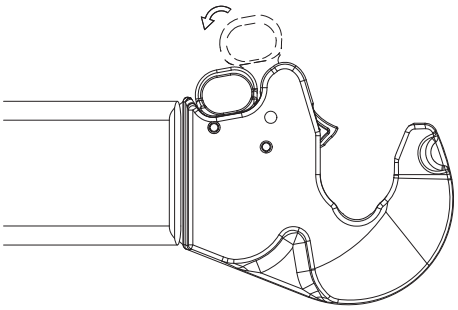
1. **Pull the lever to release the implement.**



2. **You can leave the lock open by pulling the lever backwards (for example when demounting an implement).**



3. **Release the lock by pulling the lever forward.**



The ball joints lock automatically when attaching the implement.

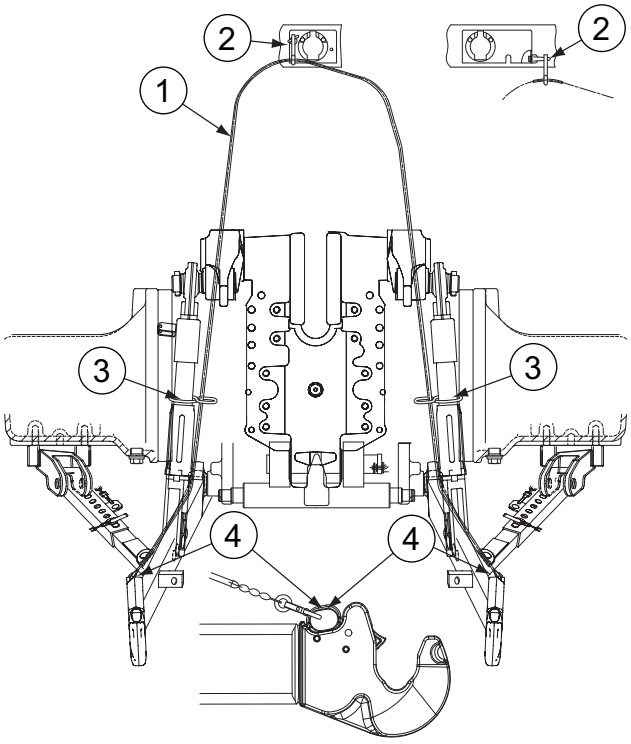
In the locked position the clamp is in view and the lever is in the lower position.

DANGER: Clean the quick couplings and ball joints before attaching an implement. There is risk that the implement is not attached properly.

The quick couplings can be controlled in the cab using a release cable (extra equipment).

3.11.3.1 Setting the release cable for lower link quick couplings

Release cable for lower link quick couplings is extra equipment. To be able to unlatch the hook type ends from the cab, the release cable must be attached via the holes on the three-point linkage unit.

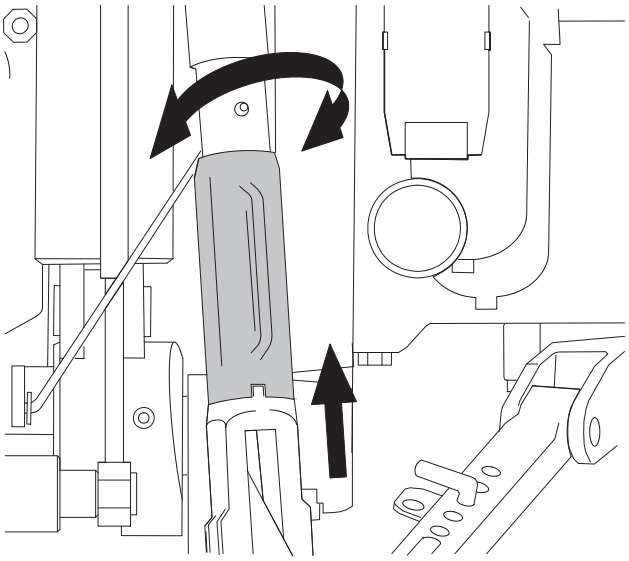


1. Release cable
2. Socket bracket
3. Loop on the lifting link
4. Quick coupling lock

1. **Fasten the release cable to the socket bracket on the cab rear wall.**
2. **Pass the release cable through the loop on the lifting link.**
3. **Fasten the release cable to the quick coupling lock.**

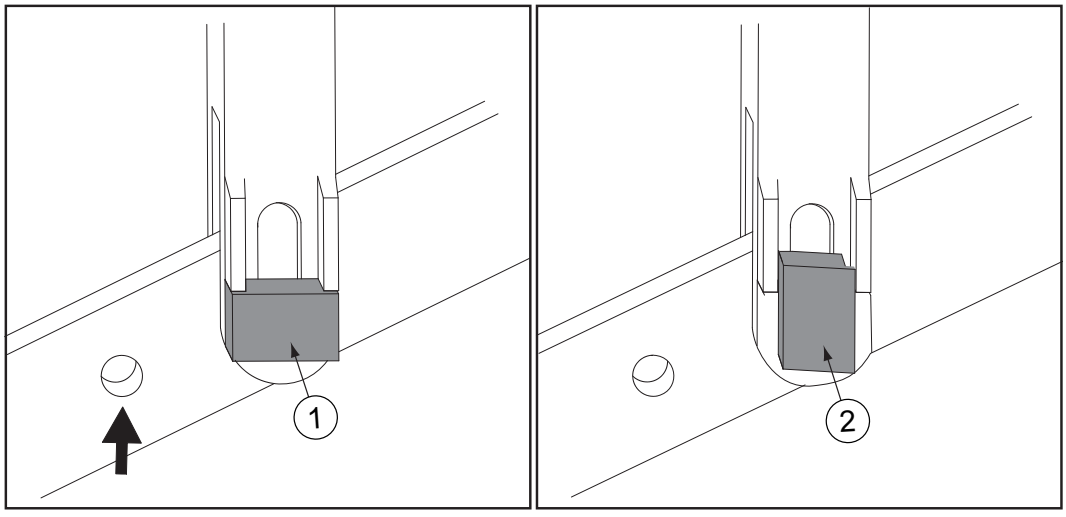
3.11.4 Adjusting lifting links

IMPORTANT: When adjusting the lifting links, make sure that they do not hit the tractor.



1. **Adjust the linkage in to the position that there is no load on the lifting links.**
2. **Lift up the levelling screws and turn them in the required direction to adjust the length of the lifting links.**
3. **Lower the levelling screws back to the locked position after adjustment.**

3.11.5 Adjusting lower links



1. Carrier pin position providing fixed position of lower links
2. Carrier pin position allowing slight vertical movement of lower links

1. **Remove the lock pin and pull out the carrier pin.**

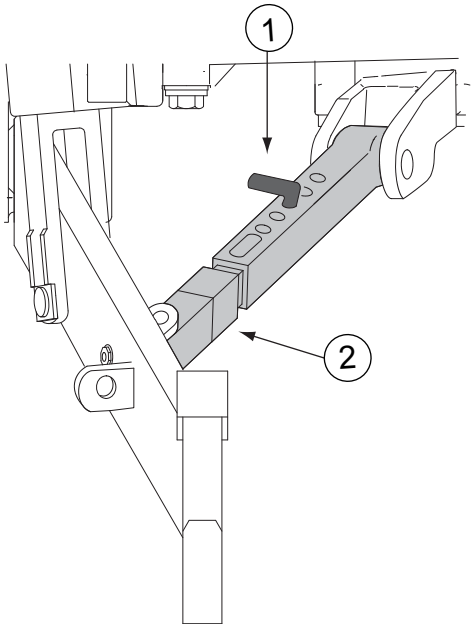
2. **Attach the lifting links to the lower links.**

   Different holes give different lifting ranges and lifting power for the lower links.

   You can attach the carrier pin to the lower links in two different positions. One provides a fixed position and the other allows a slight vertical movement of the lower links.

3.11.6 Adjusting the check links' length

Use the check links to limit the distance between the lower links.



1. Attaching pin
2. Limiter sleeves

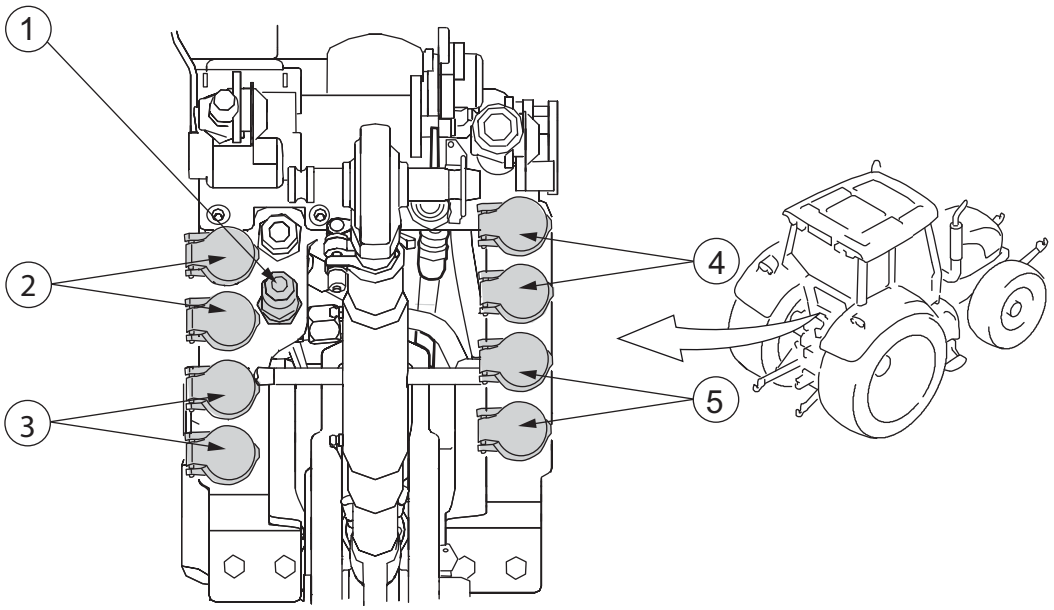
1. **To obtain different lateral distances between the lower links, change the position of the check link attaching pin.**

   If the pins are fitted in the long holes, the lower links have a floating position in the lateral direction.

2. **If necessary, detach the limiter sleeves.**

   Check that links with wide tyres and narrow track widths are equipped with limiter sleeves so that the lower links do not come into contact with the tyres.

3.12 Auxiliary hydraulics



1. Return coupling
2. Rear valve 2
3. Rear valve 1
4. Rear valve 4 (extra equipment)
5. Rear valve 3 (extra equipment)

All the auxiliary hydraulics standard and extra equipment rear valves are mechanically controlled.

The tractor is equipped with two valves with control lever as standard on the rear side.

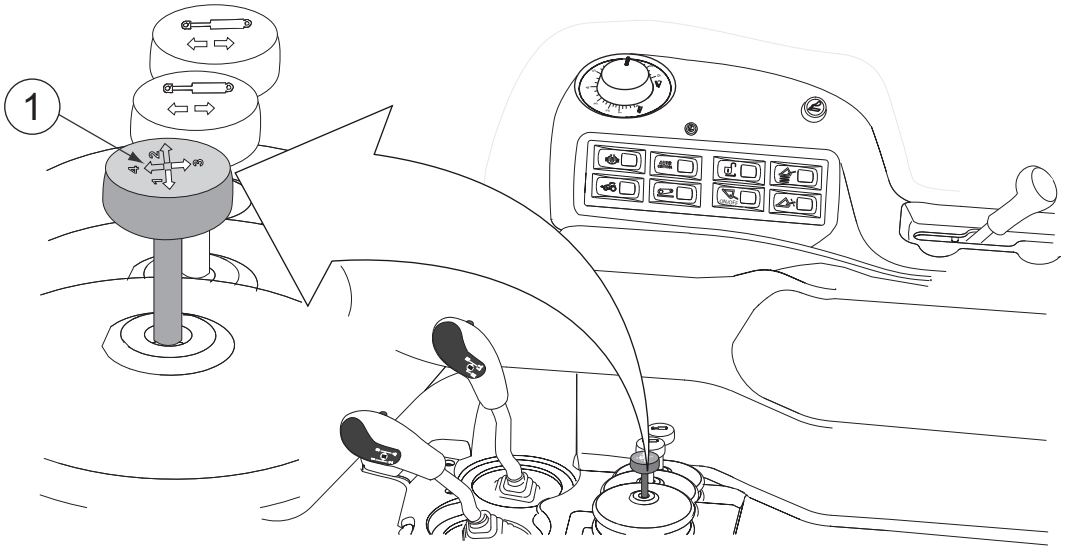
The tractor is equipped with an auxiliary hydraulic return coupling (1/2 inch).

Tractor can be equipped with two extra equipment valves with control lever on the rear side. The following valves are available:

Valve	Positions
2/1-acting	Out - hold - in
2 acting	Out - floating - in
2 acting	Out - hold - in - floating
2 acting	Out - hold - in - position lock

As extra equipment two electrically controlled adjustable valves for the front loader use can be fitted to the front side.

3.12.1 Controlling the auxiliary hydraulics rear valves 1 and 2



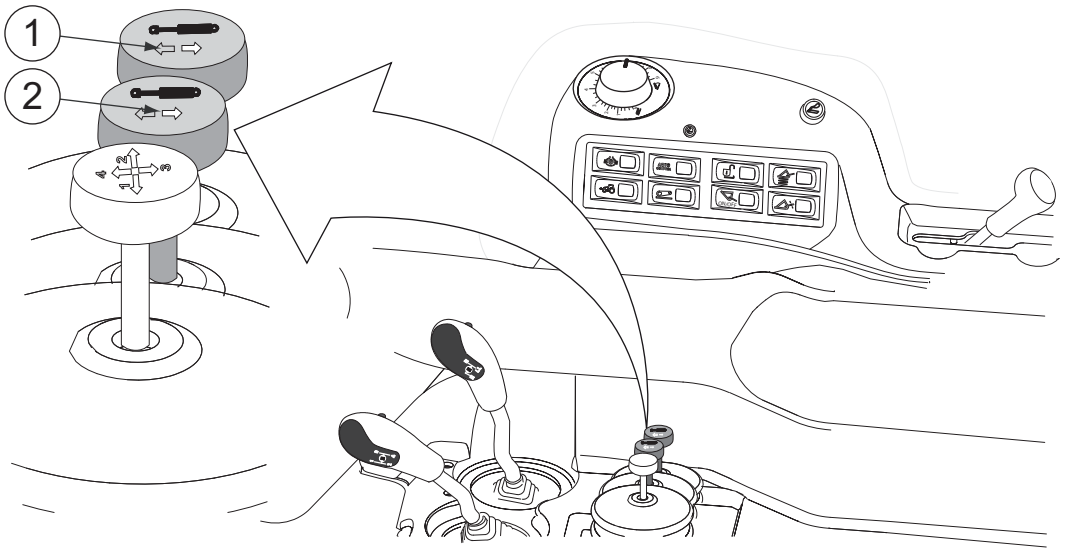
1. Control lever for the auxiliary hydraulics rear valves 1 and 2

The outside valve is controlled by moving the control lever for the auxiliary hydraulics rear valves 1 and 2 back and forth. The inside valve is controlled by moving the control lever right and left.

- **To use the lifting function, pull the control lever backwards or move it to the left.**
- **To use the lowering function, push the control lever forward or move it to the right.**

3.12.2 Controlling the auxiliary hydraulics rear valves 3 and 4

Auxiliary hydraulics rear valves 3 and 4 are extra equipment. You can control the auxiliary hydraulics rear valves 3 and 4 with the control levers.



1. Control lever for the auxiliary hydraulics rear valve 4
2. Control lever for the auxiliary hydraulics rear valve 3

- **To use the lifting function, pull the control lever for the auxiliary hydraulics rear valve 3 or the control lever for the auxiliary hydraulics rear valve 4 backwards.**
- **To use the lowering function, push the control lever for the auxiliary hydraulics rear valve 3 or the control lever for the auxiliary hydraulics rear valve 4 forward.**
- **To use the position lock:**

  To use the position lock the tractor needs to be equipped with the valve that has position lock.
  - **Push the control lever for the auxiliary hydraulics rear valve 3 or the control lever for the auxiliary hydraulics rear valve 4 to the extreme position to activate the position lock.**

    Push the control lever for the auxiliary hydraulics rear valve 3 or the control lever for the auxiliary hydraulics rear valve 4 past the maximum flow point with increased force to lock it in the extreme position.
  - **Return the control lever for the auxiliary hydraulics rear valve 3 or the control lever for the auxiliary hydraulics rear valve 4 manually to the middle position to deactivate the position lock.**

- **To use the floating position:**

  To use the floating position the tractor needs to be equipped with the valve that has floating position.
  If the tractor is equipped with the valve where the floating position is at the extreme position of the lever:
  - **Push the control lever for the auxiliary hydraulics rear valve 3 or the control lever for the auxiliary hydraulics rear valve 4 to the extreme position to activate the floating position.**

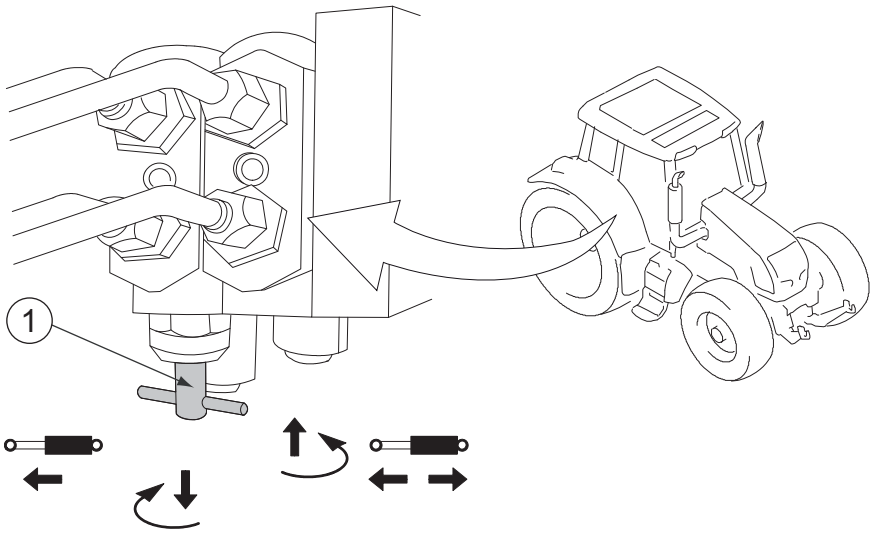
    Push the control lever for the auxiliary hydraulics rear valve 3 or the control lever for the auxiliary hydraulics rear valve 4 past the maximum flow point with increased force to lock it in the extreme position.
  - **Return the control lever for the auxiliary hydraulics rear valve 3 or the control lever for the auxiliary hydraulics rear valve 4 manually to the middle position to deactivate the floating position.**

  If the tractor is equipped with the valve where the floating position is at the middle position of the lever (valve for a hydraulic motor):
  - **Push the control lever for the auxiliary hydraulics rear valve 3 or the control lever for the auxiliary hydraulics rear valve 4 in the middle position to activate the floating position.**

    Both valve ports are connected to the tank.
  - **Move the control lever for the auxiliary hydraulics rear valve 3 or the control lever for the auxiliary hydraulics rear valve 4 manually away from the middle position if you need hydraulic pressure.**

3.12.3 Setting valves for single-action or double-action

You can set a valve either for single-action or double-action if the valve has a valve adjustment knob. The valve adjustment knob is located under the valve.



1. Valve adjustment knob

- **Turn the valve adjustment knob up to set the valve for double-action.**
- **Turn the valve adjustment knob down to set the valve for single-action.**

3.12.4 Using quick-action couplings

1. **Release the load from the auxiliary hydraulics (especially from the hydraulic cylinders).**
2. **Stop the flow through the auxiliary hydraulics valves.**
3. **Activate the floating positions in the needed valve ports on the minus (-) side.**

   The valves go to floating position, and the pressure exhausts from the quick-action couplings.
4. **Stop the engine.**
5. **Attach or release the quick-action couplings.**

   DANGER: When connecting auxiliary cylinders and hydraulic motors, ensure that the hoses are attached to the correct couplings. If you attache the hoses incorrectly, the functions are reversed.

   IMPORTANT: Use only couplings that comply to the standards.

   IMPORTANT: Clean the quick-action couplings thoroughly before attaching any auxiliary hydraulic equipment. The caps on the couplings must be fitted when the auxiliary equipment is not attached.

   NOTE: When attaching implements to the auxiliary hydraulics, connect the return coupling of the implement to the return coupling of the tractor.

   NOTE: Make sure that the quick coupling does not leak after disconnecting the hose.
6. **Start the engine.**

   WARNING: Do not transport anything on the auxiliary hydraulic valves while driving on the road. The load, trailer link steering and such have to be locked (for example mechanically).

3.12.5 Connecting an external hydraulic motor to the auxiliary hydraulics

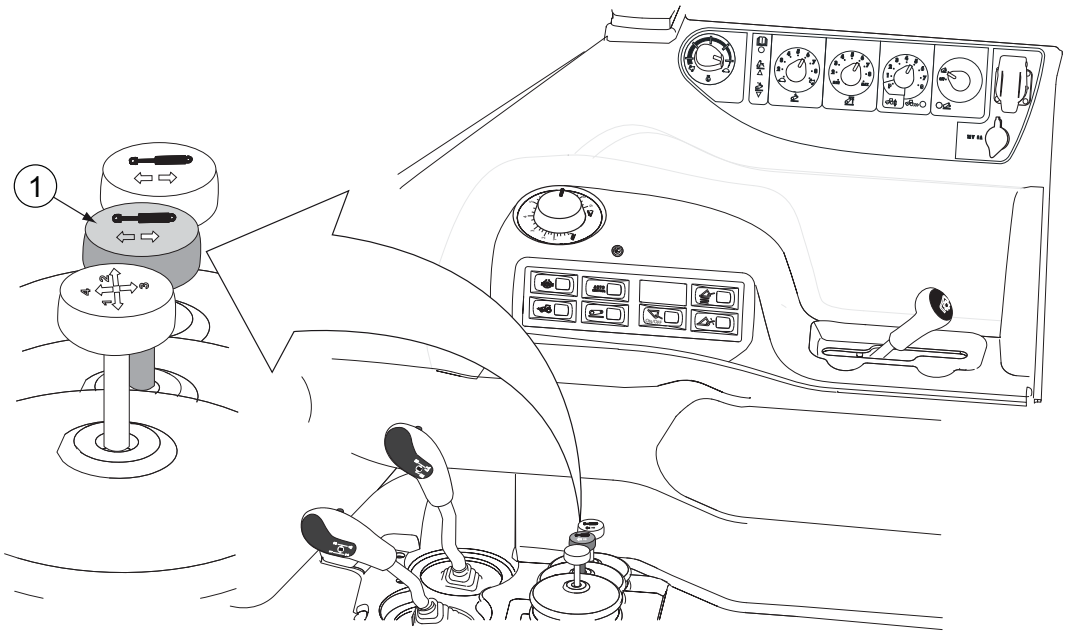
You can attach a hydraulic motor to the tractor auxiliary hydraulics. The motor can be rotated in one or both directions.

- **To rotate the hydraulic motor in only one direction:**
  - **Attach the return coupling to the tractor return coupling without the shock valve.**
- **To rotate the hydraulic motor in both directions (if you are attaching the couplings to both +/- ports):**
  - **Mount the separate shock valves to the hydraulic motor if they are not already standards in the hydraulic motor.**

NOTE: Pay attention to the hydraulics oil temperature, because high temperatures are bad for the lubrication and can damage the hydraulic pump or the hydraulic motor. The recommended working temperature is below 80°C and the maximum limit is 93°C. Stop the engine if the maximum temperature is reached. You can follow the hydraulics oil temperature on the Proline instrument panel (alternative equipment) display.

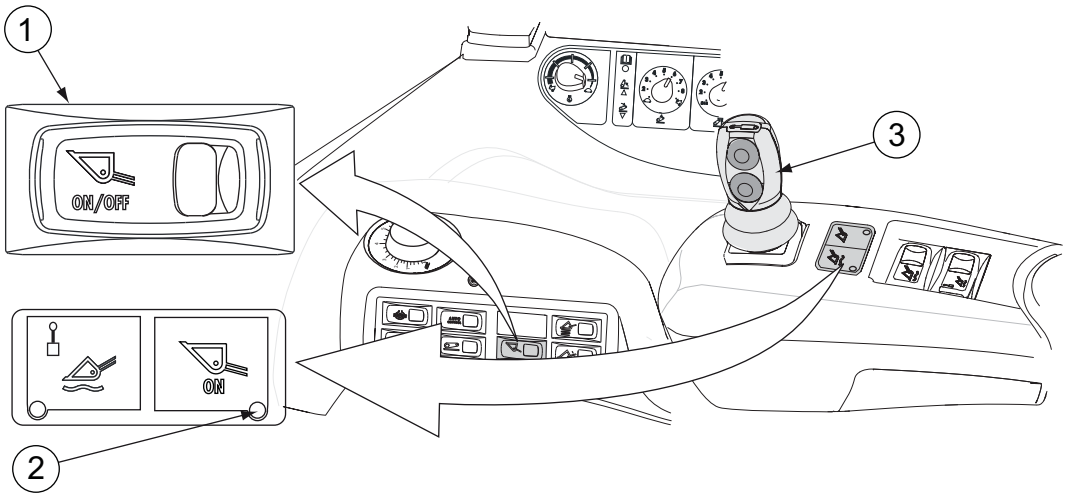
3.13 Using the front linkage

You can control the front linkage by the control lever for auxiliary hydraulics rear valve 3.



1. Control lever for auxiliary hydraulics rear valve 3

If the front linkage is connected to the auxiliary hydraulics front valves, you can control it by the joystick on the armrest.



1. Front loader hydraulics on/off switch
2. Front loader hydraulics indicator light
3. Joystick

- **If the front linkage is connected to the auxiliary hydraulics front valves, activate the front valve hydraulics by pressing the symbol side of the front loader hydraulics on/off switch.**

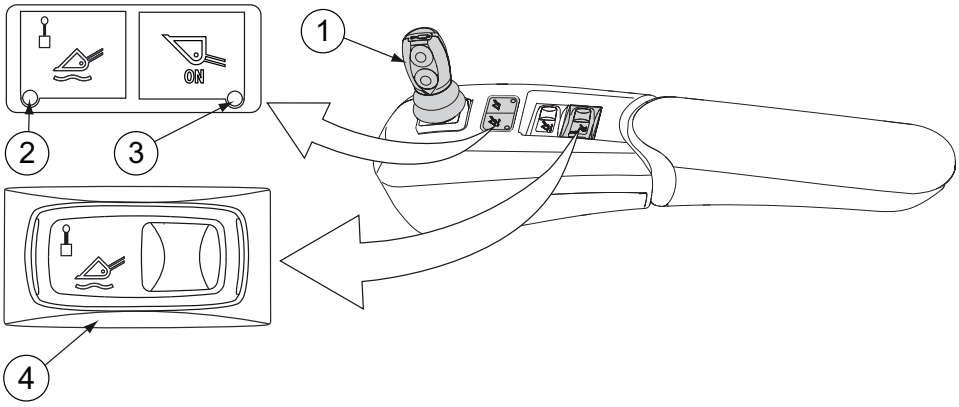
- **To raise the front linkage:**
  - **Pull the control lever for auxiliary hydraulics rear valve 3 rearwards.**

  OR:
  - **Pull the joystick rearwards.**
- **To lower the front linkage:**
  - **Push the control lever for auxiliary hydraulics rear valve 3 forwards.**

  OR:
  - **Push the joystick forwards.**
- **If the implement follows the ground, use the floating position to carefully lower down the implement:**

  IMPORTANT: Always use the floating position for implements following the ground contour. Otherwise there is a risk that the implement may get damaged or the traction for the front wheels may be lost.
  - **Set the front linkage to the floating position by briefly pushing (less than one second) the control lever for auxiliary hydraulics rear valve 3 into the forward position.**

  OR:
  - **Activate the auxiliary hydraulics front valve floating position by pressing the symbol side of the floating position activation switch.**



1. Joystick
2. Floating position indicator light
3. Front loader hydraulics indicator light
4. Floating position activation switch

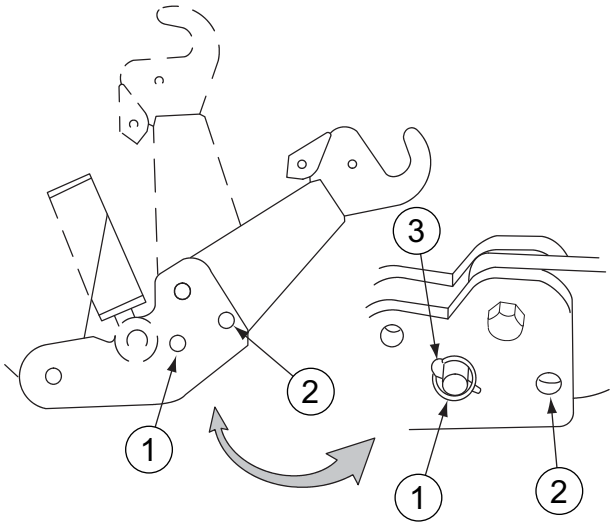
  - **Press down the lower push button on the joystick and simultaneously move the joystick forward or rearward.**
    When the floating position is in use the floating position indicator light is lit.

3.13.1 Setting front linkage lifting link positions

You can set the lifting links to different positions by attaching the fastening pins to different holes and by turning the arms up or down.

WARNING: When you drive on public roads and there is no implement on the front linkage, the lifting links have to be folded up.

IMPORTANT: When using the front loader, the front linkage lifting links must be folded to the transport position.



1. Fastening hole for working position
2. Fastening hole for floating or transport position
3. Locking pin

Lifting link position	Fastening pin location
Working	Fastening pins are in holes 1.
Floating	Fastening pins are in holes 2.
Transport	Lifting links are folded up and fastening pins are in holes 2.

- **Check that the locking pins of the fastening pins are in their positions when the lifting links are mounted.**
- **When driving on public roads, with or without an implement, always lift the front linkage fully up.**
- **When you drive on public roads and there is an implement on the front linkage covering the headlights, the upper headlights (extra equipment) have to be switched on.**

3.14 Using the Valtra front loader

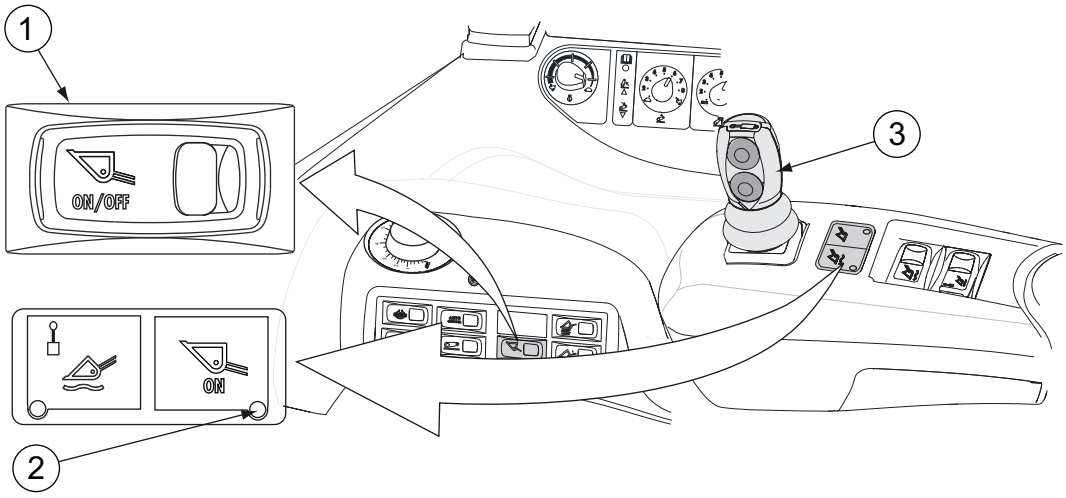
WARNING: Check that all screws are tightened before using the front loader.

WARNING: Always look at the implement. Objects can fall or roll backwards onto the driver when the loader is raised. Only lift loads which can be contained in, and are intended for, the specific implement.

WARNING: The risk of overturn increases as the loader is raised. Be extra careful on slopes when operating the loader. Always carry the loader as low as practical for the conditions.

NOTE: Install the Valtra front loader according to the instructions in the Valtra loader Operator's Manual. If you want to install any other front loader, contact your local technical support.

The Valtra front loader is extra equipment.



1. Front loader hydraulics on/off switch
2. Front loader hydraulics indicator light
3. Joystick

- **Activate the front loader hydraulics by pressing the symbol side of the front loader hydraulics on/off switch.**

  Release the locking device by pushing it towards the middle of the switch. The front loader hydraulics indicator light is lit.

- **To raise the front loader, pull the joystick rearwards.**
- **To lower the front loader, push the joystick forwards.**
- **To control the front loader tilt, move the joystick sideways.**
  - To tilt the loader rearwards, pull the joystick towards yourself.
  - To tilt the loader forwards, push the joystick away from yourself.
- **To control the left quick couplings on the front part of the loader (extra equipment), press the lower contact button.**

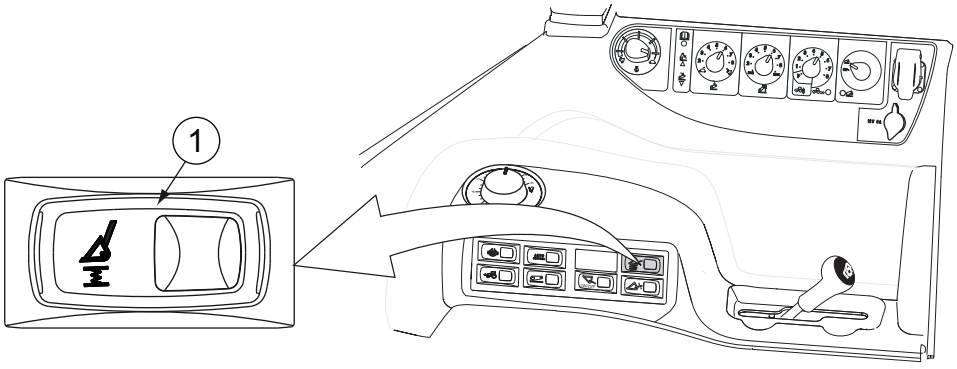
  By pressing the button and simultaneously turning the joystick sideways towards yourself, the pressure is in the red connectors. By turning the joystick away from yourself, the pressure is in the blue connectors.

- **To control the right quick couplings on the front part of the loader (extra equipment), press the upper contact button.**

  By pressing the button and simultaneously turning the joystick sideways towards yourself, the pressure is in the red connectors. By turning the joystick away from yourself, the pressure is in the blue connectors.

3.14.1 Softdrive

The Softdrive function is extra equipment.



1. Switch for Softdrive

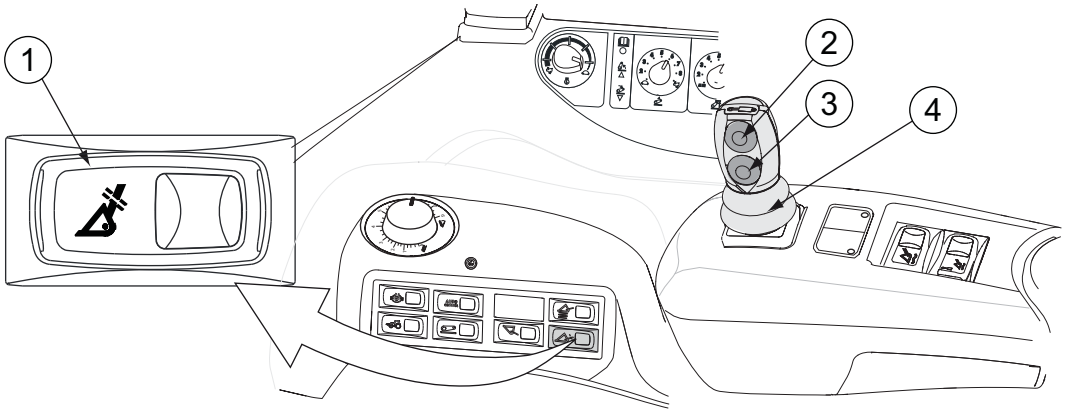
With the Softdrive function, you can connect the pressure accumulators to the cylinder circuits of the loader barrier. This means that when you drive, the pressure accumulators even out the pressure peaks coming from the load on the loader. This makes driving smoother and the stress on the loader and tractor is reduced.

You can keep Softdrive connected during most working activities. It is recommended that you disconnect Softdrive only if special precision is required.

The switch for Softdrive has two positions:

- When the symbol side is pressed down, the Softdrive function is on.
- When the side opposite to the symbol is pressed down, the Softdrive function is off.

3.14.2 Locking the equipment



1. Equipment locking switch
2. Upper contact button
3. Lower contact button
4. Joystick

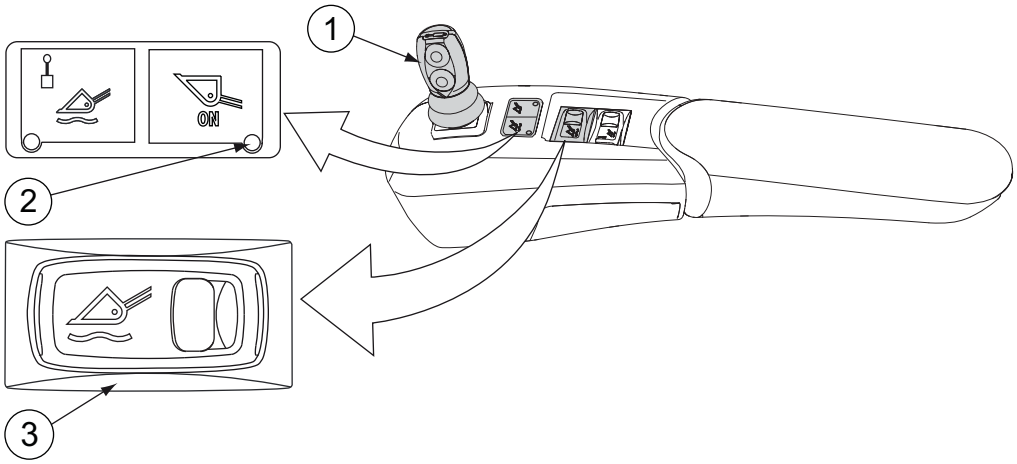
- **To lock the equipment to the loader frame:**
  - **Simultaneously press the symbol side of the equipment locking switch and the upper contact button and move the joystick to the left.**
- **To release the equipment from the loader frame:**
  - **Simultaneously press the symbol side of the equipment locking switch and the upper contact button and move the joystick to the right.**

3.14.3 Using the continuous floating position

Continuous floating position is useful for example when using sweeping implement or area plough. When using continuous floating position the joystick push buttons are for use of the extra valves and equipment locking.

The continuous floating position has to be activated every time the power has been turned on.

WARNING: Keep the floating position deactivated when it is not needed.



1. Joystick
2. Front loader hydraulics indicator light
3. Continuous floating position activation switch

1. **Activate the front loader hydraulics.**

   The front loader hydraulics indicator light is lit.

2. **Activate the continuous floating position.**
   - **Press the symbol side of the continuous floating position activation switch.**

     Release the locking device by pushing it towards the middle of the switch.
   - **Simultaneously move the joystick forward or rearward.**

     The floating position is always on even when the joystick and push buttons on the joystick are used.

     IMPORTANT: Always use the floating position for implements following the ground contour. Otherwise there is a risk that the implement may get damaged or the traction for the front wheels may be lost.

3. **Deactivate the continuous floating position:**
   - Press the continuous floating position activation switch side opposite to the symbol.
   - Press the front loader hydraulics on/off switch side opposite to the symbol.
   - Turn the ignition key to the stop position.
   - Press the upper push button on the joystick (when the symbol side of the floating position activation switch is pressed down)

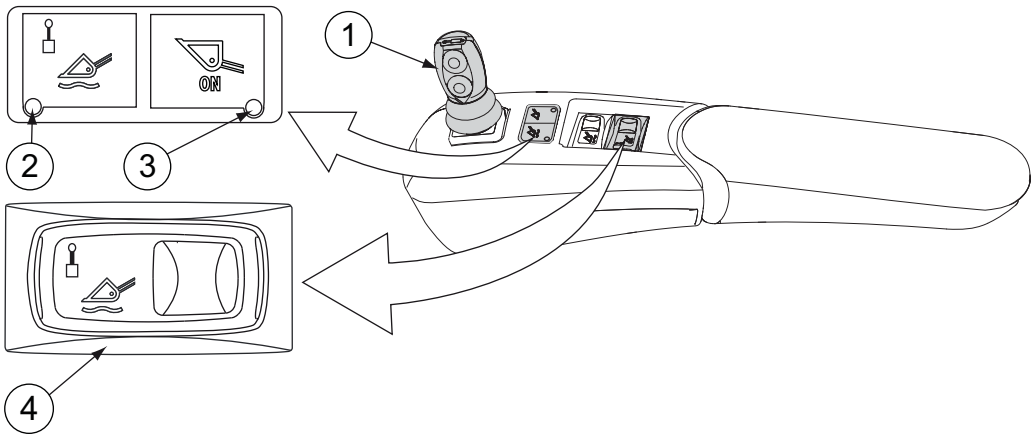
     NOTE: If both the front loader hydraulics on/off switch and the floating position activation switch are symbol side pressed down, the floating position can be controlled ON and OFF with the joystick push buttons.

3.14.4 Using the floating position with joystick buttons

You can use the floating position when working with certain types of implements which have to follow the ground surface. Such implements are, for example, sowing machines and rollers.

The floating position has to be activated every time the power has been turned on.

WARNING: Keep the floating position deactivated when it is not needed.



1. Joystick
2. Floating position indicator light
3. Front loader hydraulics indicator light
4. Floating position activation switch

1. **Activate the auxiliary hydraulics.**

   The front loader hydraulics indicator light is lit.

2. **Activate the floating position by pressing the symbol side of the floating position activation switch.**

   The floating position is activated but not in use.
   When the floating position is activated with the floating position activation switch, the push buttons on the joystick can only be used for controlling the floating position.

3. **Turn on the floating position.**
   - **Press down the lower push button on the joystick.**
   - **Simultaneously move the joystick forward or rearward.**

   When the floating position is in use the floating position indicator light is lit.

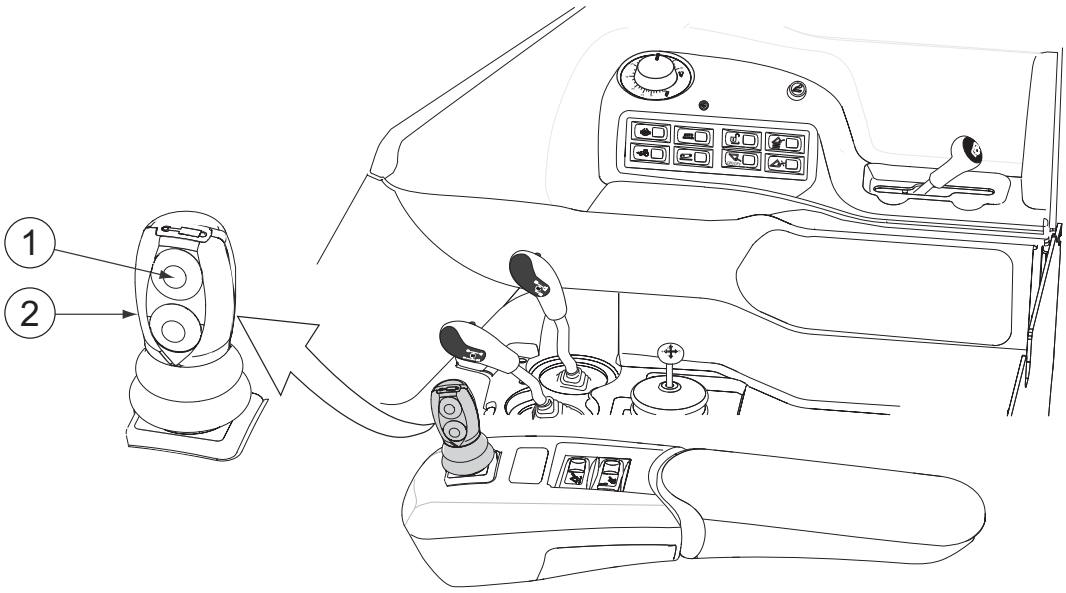
   IMPORTANT: Always use the floating position for implements following the ground contour. Otherwise there is a risk that the implement may get damaged or the traction for the front wheels may be lost.

4. **Turn off the floating position:**
   - Press the upper push button on the joystick.
   - Press the floating position activation switch side opposite to the symbol.
   - Press the front loader hydraulics on/off switch side opposite to the symbol.
   - Turn the ignition key to the stop position.

NOTE: If both the front loader hydraulics on/off switch and the floating position activation switch are symbol side pressed down, the floating position can be controlled ON and OFF with the joystick push buttons.

3.14.5 Controlling the extra cylinder with the change valve

You can open and close for example the press for bales using the change valve.



1. Upper contact button
2. Joystick

- **To close, simultaneously press the upper contact button and move the joystick to the left.**
- **To open, simultaneously press the upper contact button and move the joystick to the right.**

3.15 Power take-off

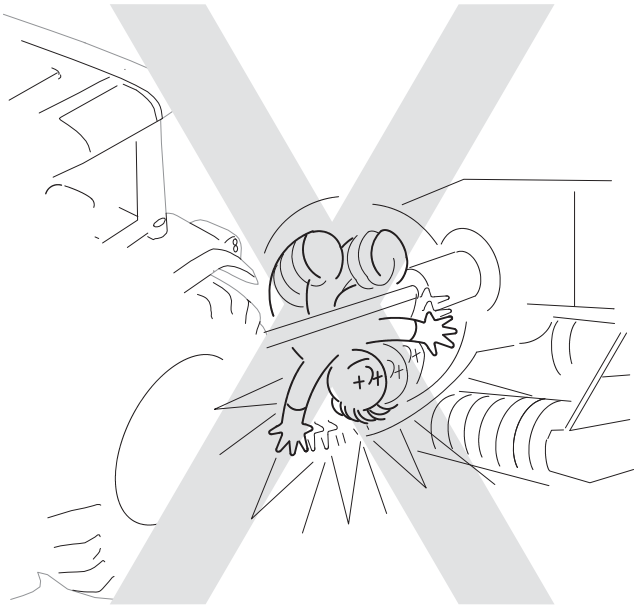
3.15.1 Attaching implements to the power take-off

Before attaching implements to the tractor power take-off (PTO), make sure the implement is designed for the used PTO speed (540 rpm or 1 000 rpm).

CAUTION: Observe all safety precautions in any operation involving implements driven by the power take-off (PTO).

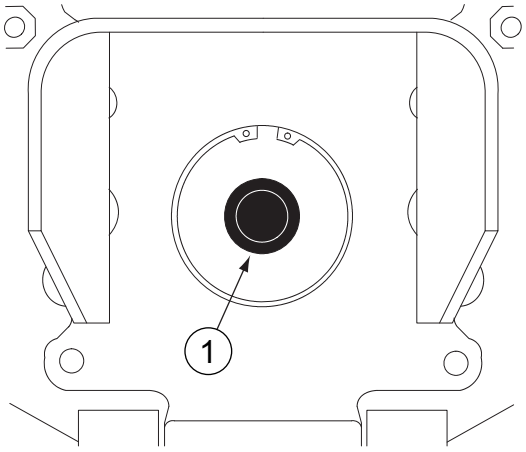
WARNING: Stop the engine and disengage the power take-off (PTO) before attaching any implement to the tractor. Check that the implement's working area is clear before engaging the PTO.

WARNING: When a power take-off (PTO) driven implement is being used, no personnel are allowed near the PTO drive shaft. Service work on the PTO drive shaft should be carried out only with the PTO disengaged, the engine stopped and the ignition key removed from the ignition switch.



WARNING: After the power take-off (PTO) is disengaged, the implement continues to rotate for some time (regardless of braking). Do not approach the implement until it has stopped completely.

WARNING: The cover over the power take-off (PTO) drive shaft end should always be attached when the PTO is not in use.



1. Cover

IMPORTANT: Make sure that the angles of the joint of the joint shaft are not exceeded.

IMPORTANT: Do not exceed the maximum output durability of the PTO pin.

WARNING: If the tractor engine stops for example due to overloading when using the PTO, turn the power off before restarting. This prevents an unintentional engagement of the PTO.

- **Make sure that the length of the PTO drive shaft is correct for the PTO-driven implements to be used.**

  The shaft must be able to work at full deflection vertically and horizontally.
  IMPORTANT: A shaft that is too long can cause damage.

- **Install the PTO drive shaft according to the manufacturer's instructions.**

  DANGER: When fastening the power take-off (PTO) drive shaft between the tractor and the implement, check that its guard is undamaged.Attach the guard to a stationary part of the tractor frame or implement.

- **Attach the PTO-driven implement to the tractor.**

  IMPORTANT: Attach the implement to the tractor before connecting the power take-off (PTO) drive shaft between the tractor and the implement. Otherwise the implement can start to rotate with the PTO drive shaft.

- **Engage the PTO at a low engine speed to protect the PTO.**

- **In freezing weather, ensure that the transmission oil and hydraulic oil are warm before engaging the PTO.**

  Before engaging the PTO in freezing weather:

  - let the engine run for a few minutes to warm up the transmission oil
  - let the engine and hydraulics warm up for a little while at low engine revs. To speed up the warming of the hydraulic system, adjust the engine speed to 1 500 rpm and keep the steering wheel turned to the extreme position. In this situation, the pressure should be approximately 150 bar.

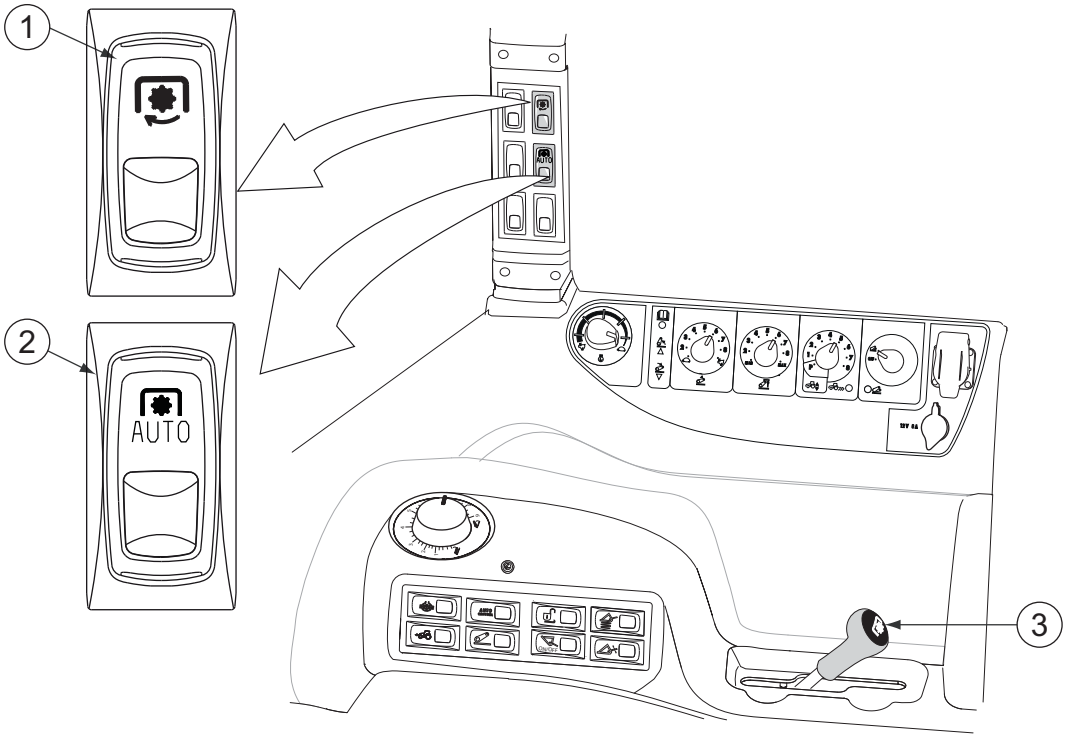
- **When engaging the PTO, wait approximately 5 seconds until the clutch of the PTO shaft is totally engaged before loading it.**

3.15.2 Rear power take-off

You can use power take-off (PTO) to transmit power from the tractor to an implement.

The PTO shaft is a splined driveshaft that is easily connected and disconnected.

The rear power take-off controls are the following:



1. Switch for rear PTO
2. Switch for rear PTO automatic stop (extra equipment)
3. Speed control lever for the rear PTO

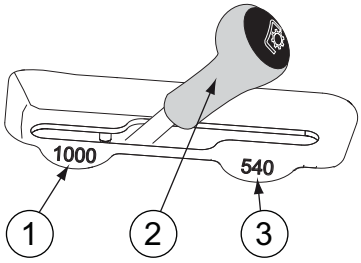
The rear PTO on/off push button on the rear mudguard is extra equipment:

1. Rear PTO on/off push button (extra equipment)

3.15.2.1 Activating rear power take-off

Before you can start the rear power take-off, you have to activate one of the rear PTO speed ranges available on your tractor.

IMPORTANT: Do not exceed the maximum PTO speed of the implement defined by the implement manufacturer.



1. Rear PTO speed 1000
2. Speed control lever for the rear PTO
3. Rear PTO speed 540

- **Select the PTO speed with the control lever.**

  The tractor has one of the following PTO speed range alternatives:

PTO speed ranges	Lever position	Function
540/1 000	540	PTO 540 activated
	Centre	PTO deactivated
	1000	PTO 1000 activated
540/540E	540	PTO 540 activated
	Centre	PTO deactivated
	540E	PTO 540E activated

  IMPORTANT: When using the speed 540E, the shaft speed of 540 rpm is achieved with an engine speed of 1 539 rpm. If the engine speed is accelerated, the power take-off (PTO) shaft speed can rise up to 800 rpm.

  IMPORTANT: Do not exceed the maximum PTO speed of the implement defined by the implement manufacturer.

  The indicator light 

 flashes on the instrument panel when the rear PTO has been activated. The light is lit continuously when the rear PTO is engaged.

3.15.2.2 Starting rear power take-off

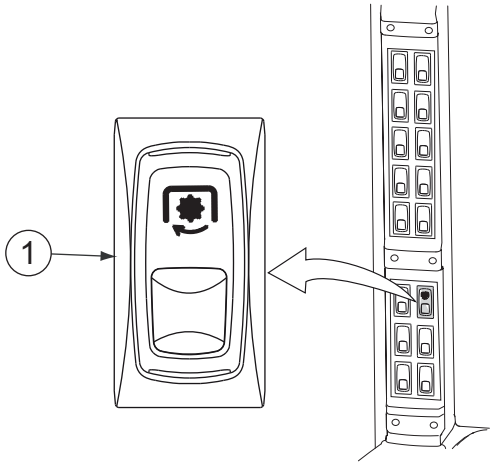
You can start the power take-off (PTO) after you have activated the PTO by selecting the PTO speed with the speed control lever.

You can start the rear PTO in two ways:

- By using the PTO switch. The PTO switch is spring-returned and has three positions: start/standby/off.
- By using the rear PTO on/off push button (extra equipment) on the rear mudguard.

- **To start the rear PTO with the PTO switch:**
  - **Activate the standby mode by setting the rear PTO switch to the standby (centre) position.**
  - **Start the rear PTO by pressing down the symbol side of the PTO switch and releasing it.**

    The indicator light on the instrument panel is lit.



1. Switch for rear PTO

- **To start the rear PTO with the rear PTO on/off push button (extra equipment):**

1. Rear PTO on/off push button

- **Set the rear PTO switch to the standby position (centre) before leaving the tractor.**
- **Press the rear PTO on/off push button continuously for at least 3 seconds.**

  The PTO starting begins after 0.5 seconds. If the pressing is interrupted during these 3 seconds, the PTO stops.

3.15.2.3 Stopping rear power take-off temporarily

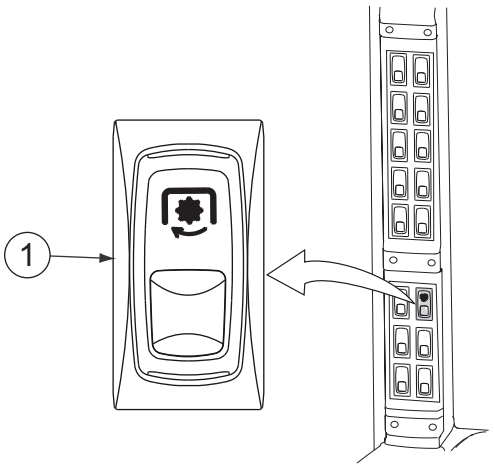
You can stop the rear power take-off (PTO) temporarily in the following ways:

- By using the rear PTO switch.
- By using the rear PTO speed control lever.
- By using the rear PTO on/off push button (extra equipment) on the rear mudguard.

WARNING: When you do not need the power take-off (PTO), keep the PTO switch in off position.

WARNING: Use the power take-off (PTO) speed control lever for the actual disengagement and engagement of the PTO. For example, when leaving the cab, move the lever to the centre position, except when using the PTO on/off push button on the mudguard (extra equipment).

- **Press down the symbol side of the PTO switch and release it.**



1. Switch for rear PTO

- **Push the PTO speed control lever towards the side panel to disengage the PTO.**

  This is useful when you must stop the PTO fast, for example in an emergency.

- **Press the rear PTO on/off push button on the rear mudguard once.**

  After this, the rear PTO on/off push button operates as a start button when pressed for more than 3 seconds.

The indicator light 

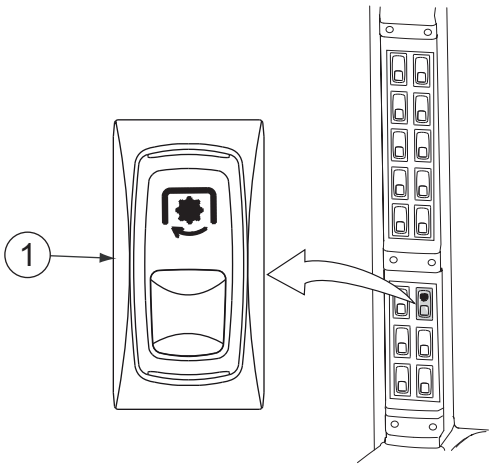
on the instrument panel flashes indicating that the PTO speed control lever is engaged. Using the PTO switch, the disengagement is only temporary.

3.15.2.4 Deactivating rear power take-off

WARNING: When you do not need the power take-off (PTO), keep the PTO switch in off position.

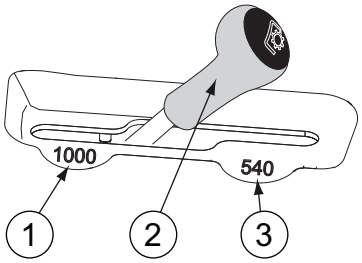
WARNING: Use the power take-off (PTO) speed control lever for the actual disengagement and engagement of the PTO. For example, when leaving the cab, move the lever to the centre position, except when using the PTO on/off push button on the mudguard (extra equipment).

- **Press down the side of the rear PTO switch opposite to the symbol.**



1. Switch for rear PTO

- **Move the PTO speed control lever to the centre position (PTO deactivated).**



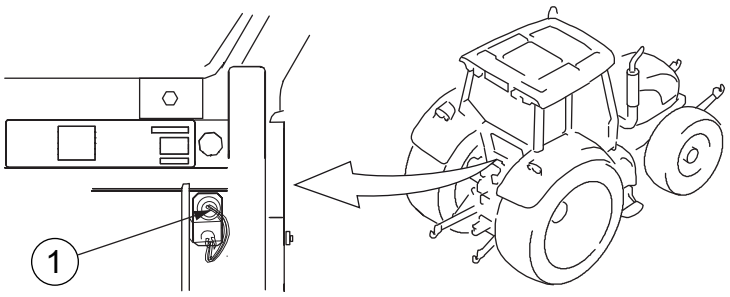
1. Rear PTO speed 1000
2. Speed control lever for the rear PTO in centre position (PTO deactivated)
3. Rear PTO speed 540

The rear PTO is deactivated, and the indicator light on the instrument panel goes off.

3.15.2.5 Stopping the rear power take-off in emergency

In case of emergency, you can stop the rear PTO either by the speed control lever for rear power take-off (PTO) or by the PTO emergency stop socket on the rear wall outside the cab.

Before you start operating PTO-driven implements from outside the cab, make sure you have the PTO emergency stop socket within reach. If you cannot reach the PTO emergency stop socket from your operating position, it is recommended that you attach a wire to the socket by which you can pull it out from distance.

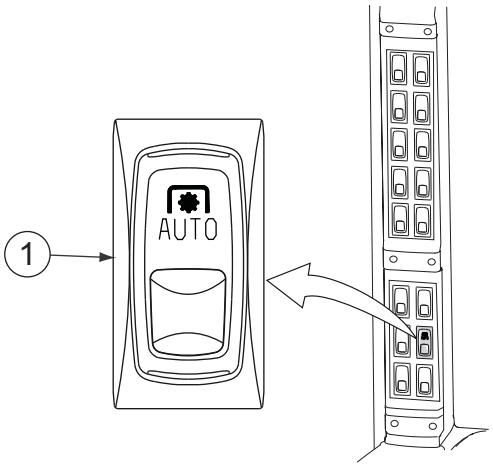


1. PTO emergency stop socket

- To stop the PTO from inside the cab, push the speed control lever for rear power take-off (PTO) towards the side panel to deactivate the PTO.
- To restart the PTO:
  - Activate the PTO speed range by the speed control lever for rear PTO.
  - Start the PTO by the rear PTO switch.
- To stop the PTO from outside the cab, pull out the PTO emergency stop socket.
- To restart the PTO after stopping it from the PTO emergency stop socket:
  - Plug in the PTO emergency stop socket.
  - Stop the tractor and turn off the power.
  - Turn on the power and restart the tractor.
  - Restart the PTO.

3.15.2.6 Using the rear power take-off automatic stop

The rear power take-off (PTO) automatic stop is useful in headland turns, for example, where the implement needs to be raised temporarily and then lowered back again. The rear PTO automatic stop is extra equipment.

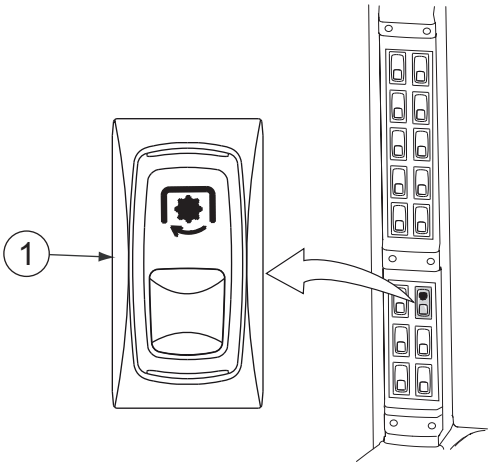


1. Switch for the rear PTO automatic stop

- **To activate the PTO automatic stop, press the symbol side of the rear PTO automatic stop switch down to the AUTO position.**

  The PTO disengages when the linkage is raised into the transport position and the 3 second delay time has passed. The PTO does not re-engage even though the linkage is lowered.

  NOTE: Start the power take-off (PTO) after an automatic stop.



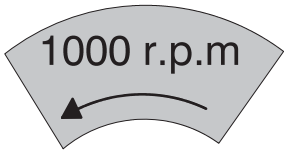
1. Switch for rear PTO

- **You can restart the PTO by pressing the symbol side of the PTO switch to the start position.**
- **To deactivate the PTO automatic stop, press down the side of the rear PTO automatic stop switch opposite to the symbol.**

3.15.3 Front power take-off

Front power take-off (PTO) is only available with front linkage (extra equipment).

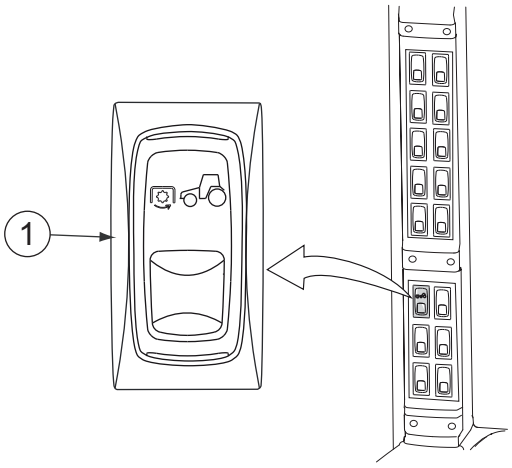
The front PTO shaft has a diameter of 35 mm with 6 splines.



IMPORTANT: The front power take-off (PTO) shaft's nominal rotating speed is 1 000 rpm and the rotating direction is to the left viewed from the front. Check that the implement is compatible before attaching.

3.15.3.1 Using the front power take-off

Front power take-off (PTO) is only available with front linkage.



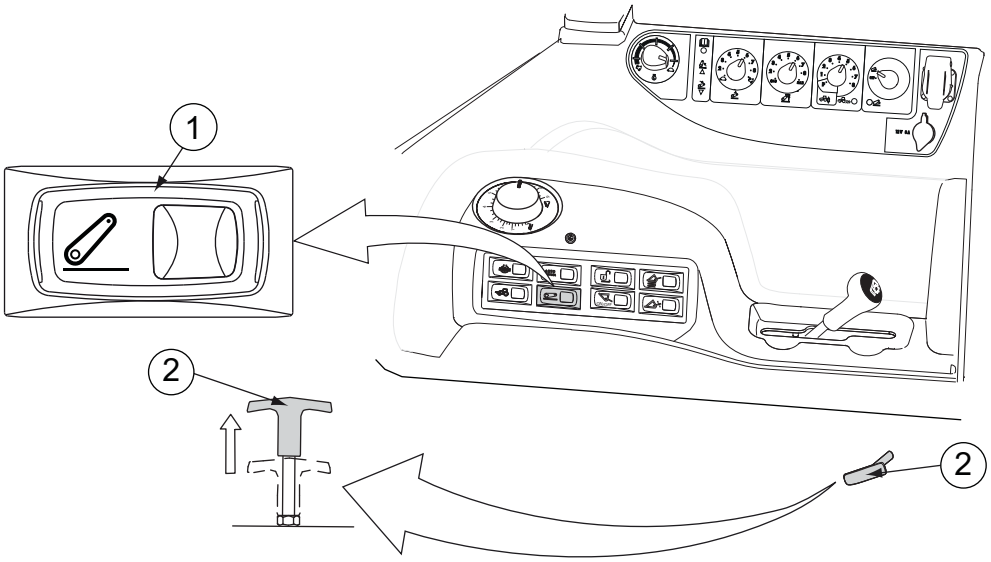
1. Front PTO switch

- **Turn on the front PTO by pressing the symbol side of the front PTO switch.**
- **Turn off the front PTO by pressing the side of the front PTO switch opposite to the symbol.**

3.16 Towing devices

3.16.1 Pick-up hitch

3.16.1.1 Unlatching the pick-up hitch



1. Lift/lower switch
2. Hitch latch lever

1. **Press the symbol side of the lift/lower switch to fully raise the linkage.**

2. **Pull the hitch latch lever to unlatch the hitch.**

   Keep the lever pulled up.

3. **Press the switch side opposite to the symbol side of the lift/lower switch to lower the linkage.**

4. **Release the hitch latch lever.**

3.16.1.2 Latching the pick-up hitch

WARNING: When attaching any implements, check that the drawbar eye engages the trailer hook correctly.

WARNING: Do not exceed the maximum tyre loadings when attaching towing devices.Check axle tyre loadings given in technical specifications in this manual.

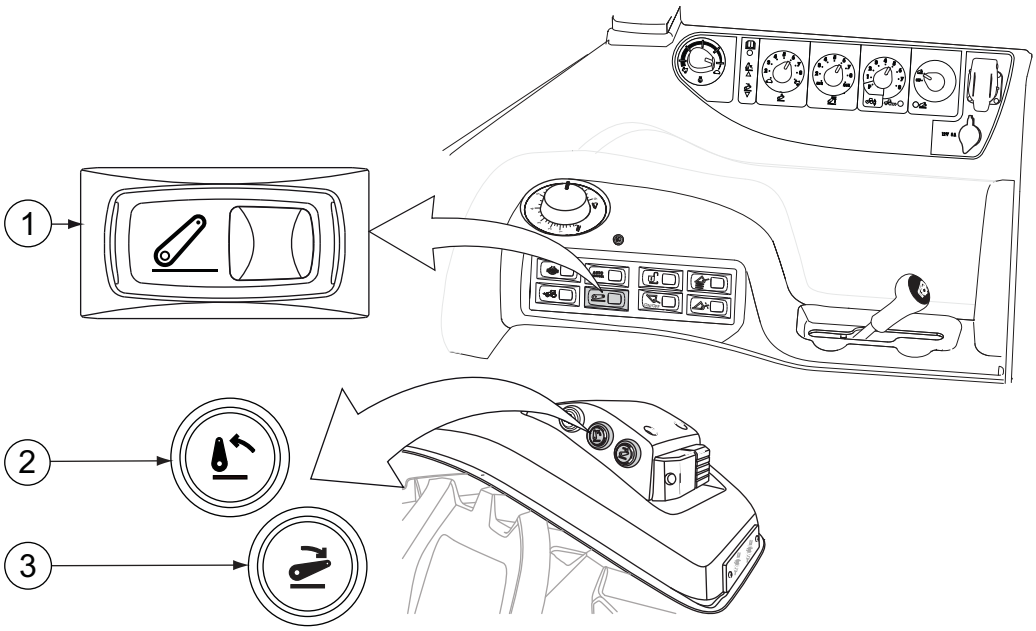
WARNING: Make sure that the maximum permissible towable mass is not exceeded.Check tractor identification plate for permissible towable mass. Follow valid laws and regulations.

WARNING: Attach trailed single-axle vehicles to the pick-up hitch. When driving with the trailer on a horizontal slope, the drawbar eye must be of the rotating type to prevent breakage.

DANGER: Make sure that at least 20% of the total combination weight rests on the front wheels. When needed, use a sufficient number of front ballast weights.

IMPORTANT: Use only drawbar eyes which comply with the regulations and are undamaged. When using other than allowed drawbar eyes, the warranty lapses and the responsibility of the manufacturer is no longer valid.

IMPORTANT: When attaching a trailer or implement, be sure not to exceed the maximum weight of the rear axle. See the technical specifications in this manual for the maximum permissible axle loading.



1. Lift/lower switch
2. Lift push button
3. Lower push button

1. **Reverse the tractor up to the trailer/implement.**
2. **Align the pick-up hitch hook or drawbar pin to the eye of the trailer/implement beam.**
3. **Press the symbol side of the lift/lower switch to raise the linkage fully up until the hitch latches.**

   You can hear a click.
4. **Lower the linkage slightly.**

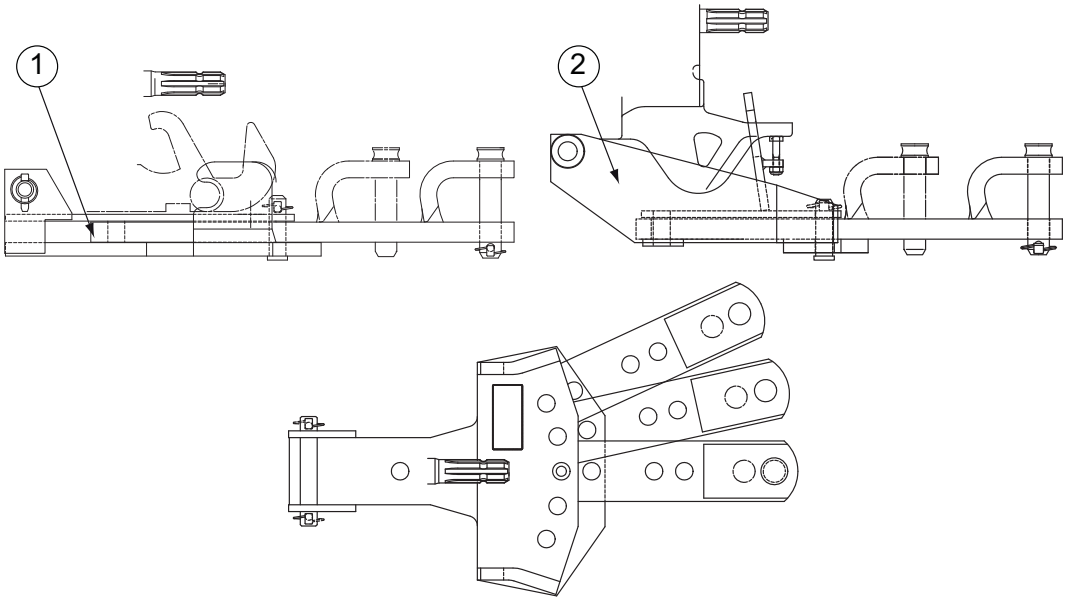
   WARNING: When using a trailer, make sure that the hitch latch is locked.

   Press the side opposite to the symbol of the lift/lower switch to lower the linkage slightly.Ensure that the hitch is supported by the latch and does not lower with the linkage.
5. **Check the linkage position.**

   IMPORTANT: Adjust the linkage so that it does not hit the towed device or power take-off shaft at any circumstance.

3.16.2 Agricultural drawbar devices

An agricultural drawbar is extra equipment. There are two different agricultural drawbar devices available: one model used together with pick-up hitch (mounted below pick-up hitch frame) and another model which is used without the pick-up hitch (mounted directly to transmission).



1. Agricultural drawbar device with pick-up hitch
2. Agricultural drawbar device without pick-up hitch

The agricultural drawbar is used for towing implements where only part of the implement weight is on the drawbar, for example balers. The maximum weight of a drawbar implement is 5000 kg.

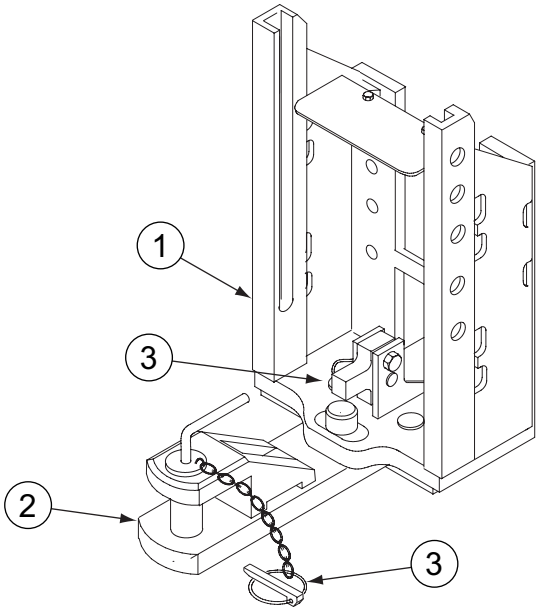
Agricultural towing device:

- Adjustable to four different distances from the power take-off (PTO) shaft.
- In all positions, the drawbar can also be adjusted ±12.5° and ±25° laterally.

3.16.3 Towing device frames

The towing device frame options available are: towing device frame (used without pick-up hitch or agricultural drawbar), short towing device frame (used with pick-up hitch or agricultural drawbar) and towing device frame with fixed Piton-Fix pin and with drawbar, and towing device frame with fixed 80 mm ball coupling with drawbar.

WARNING: According to law, the operator has to ensure that all relevant precautions are taken (lockings secured etc.).



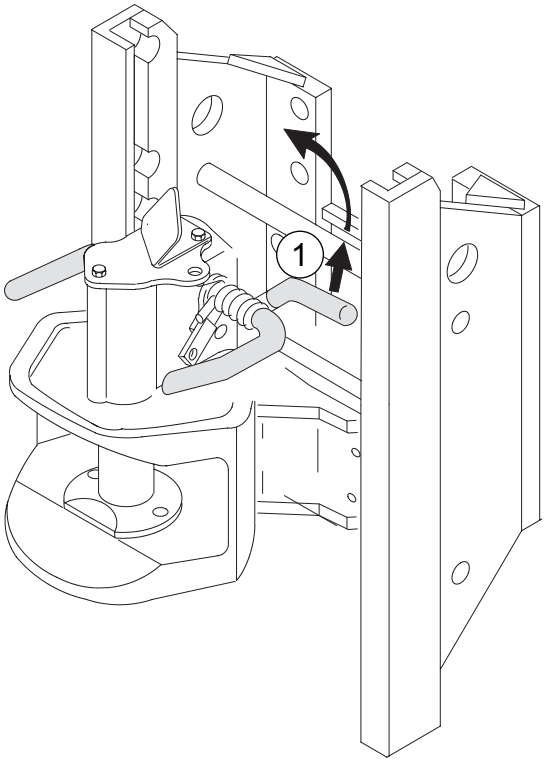
1. Towing device frame with a fixed Piton-Fix pin
2. Agricultural drawbar
3. Locking

Locking to the trailer must be secured.

3.16.3.1 Adjusting the jaw height

The height of mechanical and automatic jaws is adjusted in the same way.

WARNING: You cannot change the jaw height if the lever is broken or dirty. The jaw must be locked and secured every time the height is changed.



1. Lever

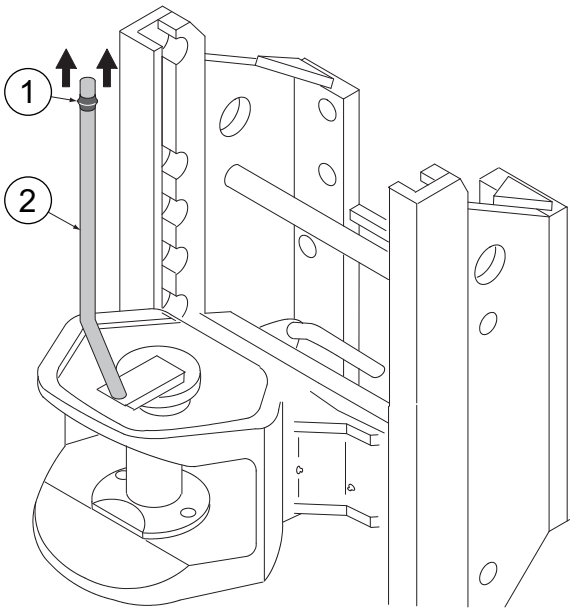
1. **Pull the lever upwards and turn it to the left.**
2. **Move the jaw into the wanted height.**
3. **Release the lever.**

   The locking pins lock the lever into the correct position with the help of the returning springs.

You can also lift the jaw away from the frame by using the same lever.

3.16.3.2 Attaching to the mechanical jaw

You can attach a trailer to the mechanical jaw using the coupling lever.



1. Ring
2. Coupling lever

- **Pull up the ring at the top of the coupling lever to lift up the towing pin.**

WARNING: After attaching the trailer, check that the pulling pin is completely down and locked.

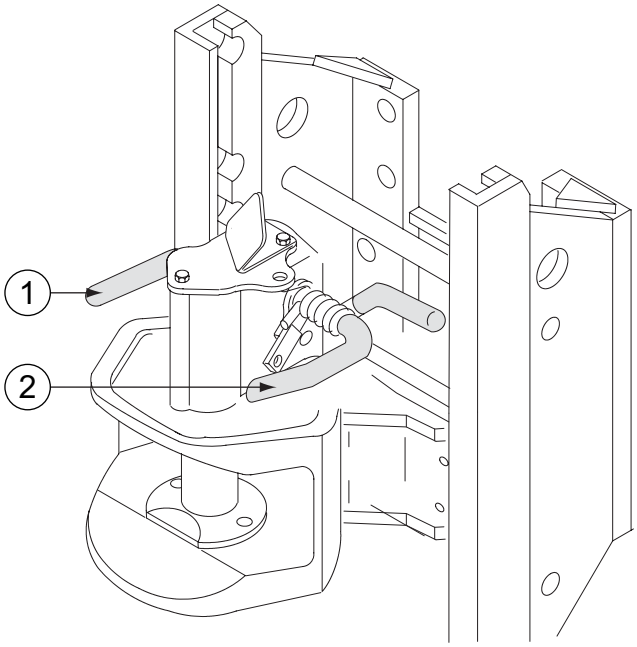
WARNING: When using jaws where the towing pin is equipped with a locking pin, make sure that the locking pin is locked when attaching the trailer.

3.16.3.3 Attaching to the automatic jaw

You can attach a trailer to the automatic jaw using the opening and locking levers.

Use a solid drawbar because of the rotating jaw.

IMPORTANT: Use only drawbar eyes which comply with the regulations and are undamaged. When using other than the allowed drawbar eyes, the warranty lapses and the responsibility of the manufacturer is no more valid.



1. Towing pin locking lever
2. Towing pin opening lever

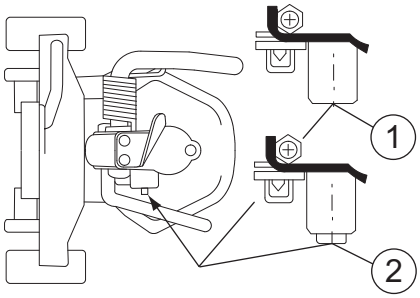
1. Lift the towing pin up.

To lift the pin, turn the opening lever to the upper position.

2. Attach the trailer to the coupling.

When the draw eye reaches the bottom of the draw gap, the towing pin automatically goes down. You can also lower the towing pin by pushing the lowering lever downwards.

3. Check that the towing pin is locked.

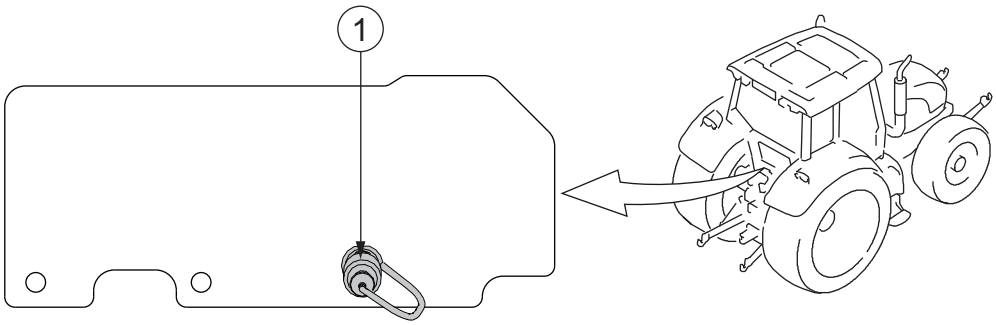


1. Towing pin not locked
2. Towing pin locked

WARNING: The drawbar pin is locked in the down position when the security knob is out. When attaching the trailer, the drawbar locking pin must be secured.

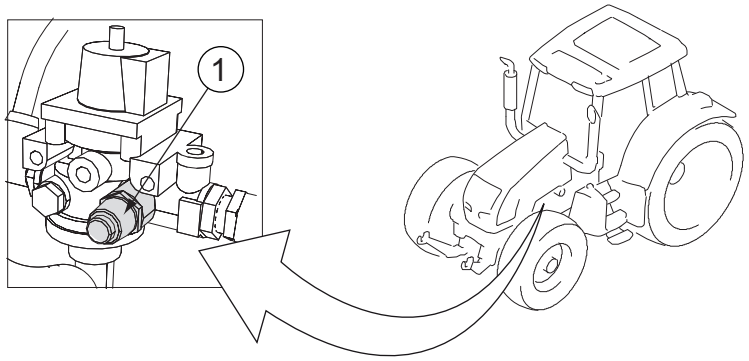
3.17 Air pressure system

You can get pressurised air (8 bar) for external purposes, for example for filling tyres, from the air pressure system (extra equipment).



1. Pressurised air quick coupling

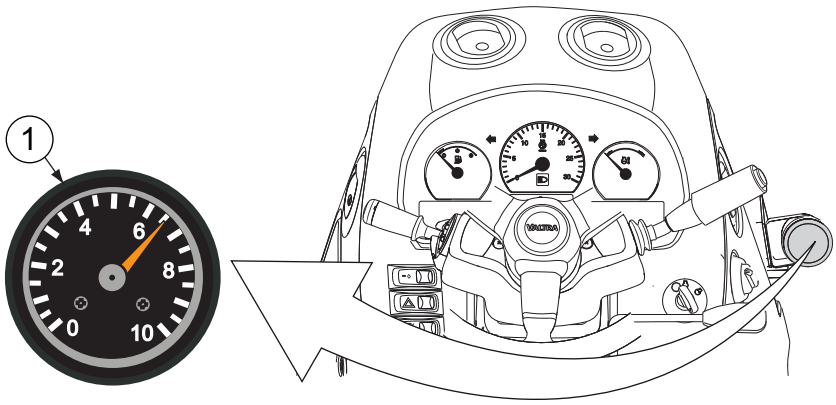
The air pressure coupling is located on the left side of the tractor beside the pressure container. Through this coupling, you can also fill the system with outside compressed air, for example, when the compressor of the tractor is broken. In this case, the coupling must not be turned as far as it goes.



1. Air pressure coupling

IMPORTANT: Do not weld or drill the pressure container.

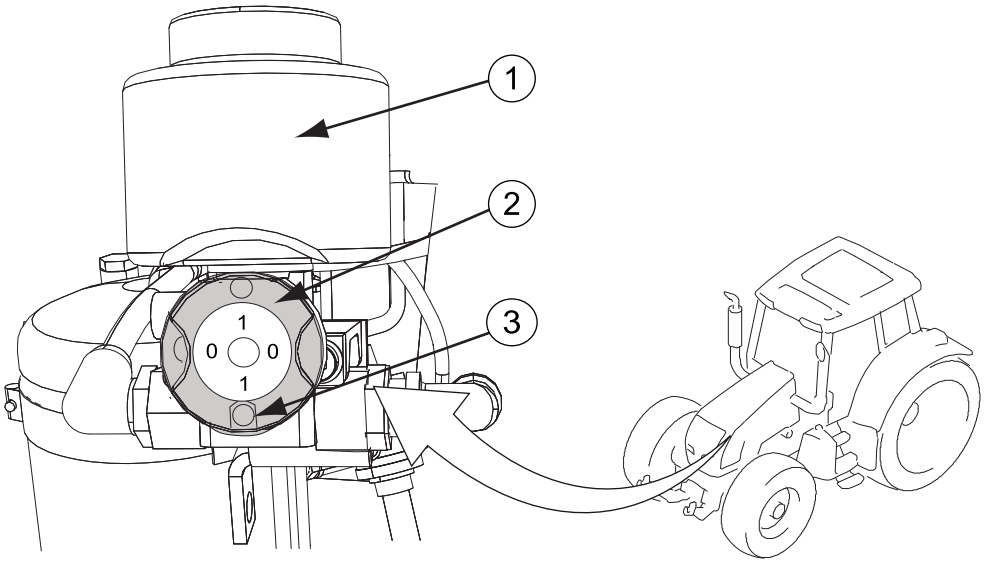
The pressure regulator is provided with a built-in pressure relief valve, which operates if the pressure rises to 12-14 bar. For example, a broken pressure regulator valve or a frozen or blocked filter can cause this situation.



1. Air pressure system pressure gauge

WARNING: The pressure of the air pressure system must be at its maximum, about 7-8 bar, before driving a tractor with a trailer equipped with air pressure brakes.

When the ambient temperature is below +5°C, the antifreeze container must be filled with antifreeze liquid containing lubricant. The liquid streaming valve has to be in the open position. The container and streaming valve are situated on the top of the left axle housing.



1. Antifreeze container
2. Liquid streaming valve
3. Open position

3.18 Trailer

Several factors affect the compatibility of a trailer.

The type of trailer that can be connected to the tractor depends, among other things, on:

- The braking power of the tractor.
- Whether the trailer has brakes.
- How much of the trailer weight is on the hitch.
- Whether the trailer has one or more axles.

The total trailer weight is the load added to the empty trailer weight.

When loading the hitch, at least 20% of the tractor weight has to be on the front wheels.

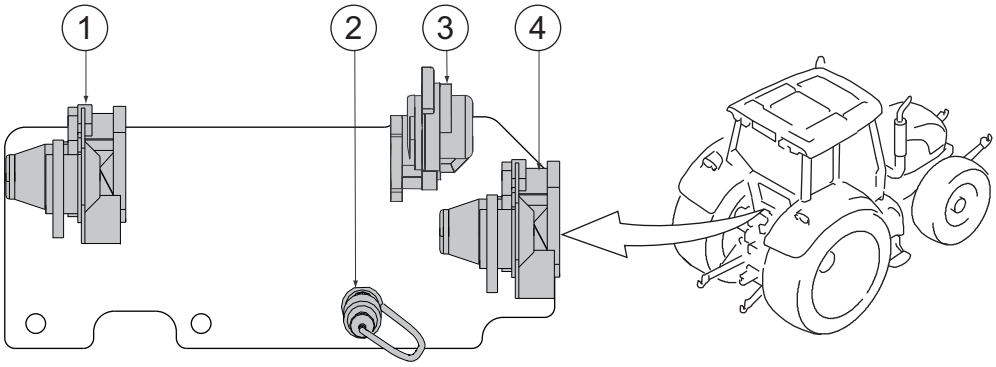
The maximum allowed wheel or hitch loading must not be exceeded.

WARNING: If the pick-up hitch is worn out or otherwise damaged so that the drawbar eye can come off the pick-up hitch, the hook must be replaced.

3.18.1 Trailer air pressure brakes

When towing a trailer, you can increase the braking power with trailer air pressure brakes.

The trailer air pressure brake system (extra equipment) is controlled by the tractor brakes. The trailer brakes operate also when using the parking brake.



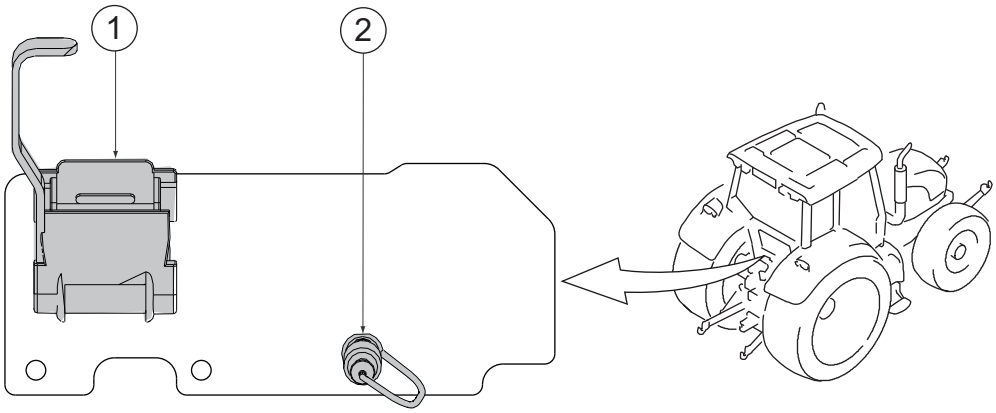
1. Brake line coupling with yellow cover
2. Pressurised air quick coupling
3. Brake line coupling with black cover
4. Container line coupling with red cover

On a two-hose system, the trailer is connected to two couplings:

- Container line with a red cover
- Brake line coupling with a yellow cover

On one-hose systems, the trailer is connected to the brake line coupling with a black cover.

The Duo-Matic system has only one coupling to connect.



1. Trailer coupling Duo-Matic
2. Pressurised air quick coupling

WARNING: When the tractor is towing a trailer, lock the brake pedals together when driving on the road. When pressing one brake pedal only, the brake action of the trailer is smaller.

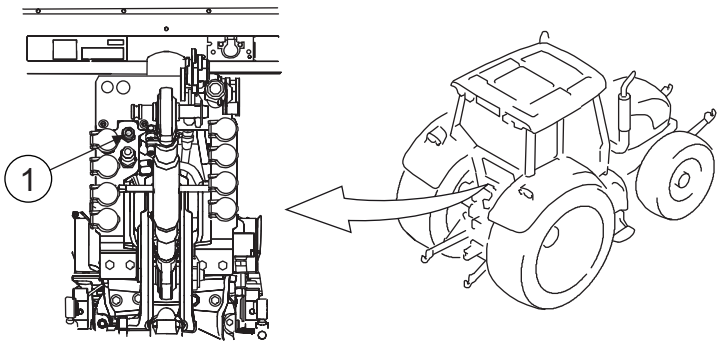
WARNING: The pressure of the air pressure system must be at its maximum, about 7-8 bar, before driving a tractor with a trailer equipped with air pressure brakes.

When the trailer couplings are not in use, they must be covered.

3.18.2 Trailer fluid brake valve

The trailer fluid brake valve (extra equipment) operates with the pressure of the tractor hydraulics, controlled by the tractor brakes.

The trailer brakes are connected to the tractor with a quick-action coupling at the rear part of the tractor.



1. Quick-action coupling for the trailer brakes (ISO 5676)

WARNING: When the tractor is towing a trailer, the brake pedals must be locked together. The trailer brakes do not operate if only one of the brake pedals is pressed.

WARNING: The trailer brakes do not work when using the parking brake.

WARNING: When the engine is not running, the trailer brakes do not work.

4 Maintenance

The tractor must be maintained regularly. Correct maintenance at the right time is essential to ensure reliable operation of the tractor.

Maintenance costs are small compared to repair costs resulting from lack of maintenance. The most important measures are those you carry out yourself, including lubrication and various checks and adjustments.

4.1 Maintenance schedule

You can choose the maintenance schedule according to the yearly running hours of the tractor.

Periodical maintenance

Periodical maintenance schedule is recommended for all tractors and specially for tractors, which have more than 1000 running hours in a year. The maintenance tasks are carried out according to the periodical maintenance chart. The periodical maintenance from 50 hours onwards can also be ordered from the authorised workshop. In that case the periodical maintenance is carried out by Valtra authorised and trained service personnel.

Yearly maintenance

The yearly maintenance schedule is suitable for tractors which have under 1000 running hours in a year. The schedule should be carried out by an authorised workshop but the operator has to carry out the normal daily and weekly service routines according to the periodical maintenance chart.

4.2 Service inspection

A service inspection is required for all new tractors after 50 running hours.

The service inspection is mandatory in order to retain the guarantee. The service is performed by your local dealer.

NOTE: The tractor is inspected according to the manufacturer's instructions before it is handed over to a customer.

Engine

The inspection of the engine contains the following services:

- Change of engine oil and filter
- Change of fuel system prefilter
- Change of fuel filter

Power transmission

The inspection of the power transmission contains the following services:

- Change of return filter
- Change of low pressure filter and high pressure filter

Front axle and steering system

The inspection of the front axle and steering system contains the following services:

- Change of oil in differential
- Change of oil in hubs

Other points

The inspection contains the following services as well:

- Lubrication according to maintenance chart
- Road test of the tractor

  During the road test all the functions of the controls and instruments are checked. After the road test, the oil leaks, coolant level and fuel system are checked.

4.3 Performing maintenance tasks

Follow these instructions when maintaining.

- Test drive the tractor and test that all instruments and controls are working properly.
- Always stop the engine before starting the work.
- Park the tractor on level ground, especially when doing oil checks.
- Apply the parking brake to ensure that the tractor cannot move.

  NOTE: If the ground is uneven, block the wheels.

- Wash down the tractor so that the service work can be done easily and quicker.

Observe that if the tractor has extra equipment like towing device, air conditioning, air pressure brakes and so on, the periodical maintenance and checks for them must also be carried out.

Follow the instructions concerning general service tasks:

- **Observe the utmost cleanliness in all maintenance work.**

  Thoroughly wipe off filler caps and plugs as well as surrounding parts of the tractor before filling up with fuel or oil.

  CAUTION: Keep the engine surface clean in order to avoid the risk of fire.

- **Check the oil level.**

  Be sure that the motor and oil have cooled down before checking the oil level. The oil must have run down to the bottom of the oil sump before the operation.

- **When changing the oil and filters, check their appearance.**

  Large amounts of dirt (for example heavily clogged filters) can point to a fault which could cause extensive and costly repairs if not corrected in time.

  WARNING: When changing the oil, notice that the oil can be very hot when it drains from the tractor.

  WARNING: Avoid touching the exhaust manifold, turbocharger and other hot parts of the engine.

- **Use proper gloves and other protection for the noxious chemicals.**

  Fuel, lubricating oil and coolant cause irritation to the skin if they are in contact with it for long periods.

- **Dispose the waste oil, liquid waste, oil filters and batteries properly and handle them carefully.**

NOTE: After completion of service work, reinstall all shields and covers.

4.3.1 Cleaning the tractor

Clean the tractor regularly.

Turn the ignition key to the STOP position before washing.

NOTE: Protect the environment by following the environmental regulations. The washing place must have a separator outlet when using detergents.

It is best to wash the new tractor for the first time a week after the start-up. Avoid rubbing the surface of the tractor too hard during the first months.

NOTE: Do not wax the paint work of the new tractor before the initial washing.

- **Wash the tractor using a pressure washer.**

  Keep the nozzle of the pressure washer at least 30 cm from the sealing points and paint work. The temperature of the washing water must not be higher than 50°C.

  NOTE: Do not use special nozzles, such as turbo nozzles, when washing. Follow the instructions of the pressure washer manufacturer.

- **Do not let the water get into the cab air filter when washing the cab sides.**

  The cab air filter is in the side plate of the roof, usually on the left.

- **Do not wash the inside of the cab with a pressure washer or running water.**

- **Do not point the pressure washer towards electrical equipment, electrical connectors, lead-through points, bearings, seals and locks.**

  Use lower pressure (6,5 MPa / 65 bar) and point the water diagonally to the above points. Do not point the pressure washer towards the radar sensor (minimum distance 1 m and maximum pressure 6,5 MPa / 65 bar).

- **When using a cold grease remover, do not keep the tractor in sunshine.**

  The paint work may get damaged, if the painted surface is hot.

- **Wax the painted surfaces.**

After washing, grease the lubricating points and the joints and lubricate the bearings with oil.

4.3.1.1 Cleaning the engine compartment

Keep the engine surface clean to avoid the risk of fire.

NOTE: Protect the environment by following the environmental regulations. The washing place must have a separator outlet when using detergents.

- **Let the engine cool down for a few minutes before washing.**

  IMPORTANT: To avoid the risk of fire, do not wash the engine when it is hot.

- **Wash the engine carefully using pressure washer.**
  - Use lower pressure, 6.5 MPa / 65 bar.
  - Point the water jet diagonally to the engine.

  NOTE: Do not use special nozzles, such as turbo nozzles, when washing. Follow the instructions of the pressure washer manufacturer.

- **Do not use high pressure to wash the electric and fuel equipment or the radiator.**

  These components can be damaged easily. Wash the delicate engine parts by hand.

- **Let the engine dry up before starting.**

4.3.2 Greasing lubricating points fitted with grease nipples

1. **Always clean the grease nipples before applying the grease gun.**
2. **Apply grease through the nipples until clean grease oozes out (unless otherwise instructed).**

   NOTE: Preferably carry out lubrication with bearing points and joints unloaded and with the bearings in different positions.

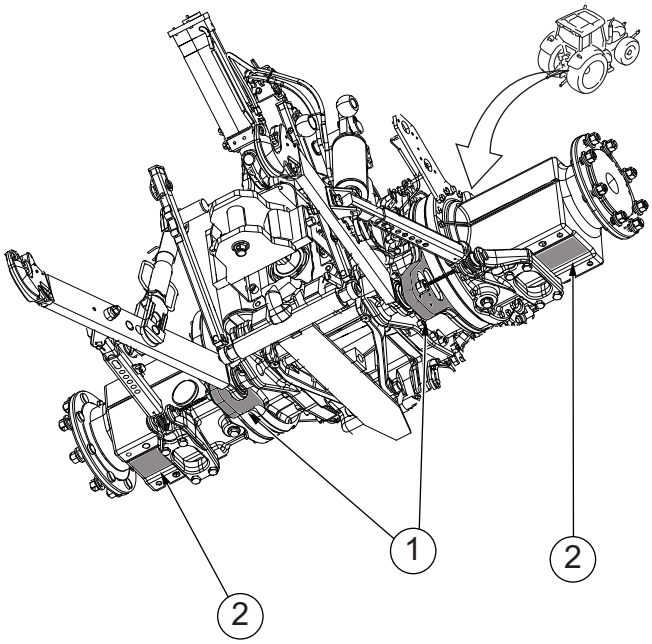
3. **Wipe away superfluous grease which has been pressed out at the lubricating point.**

4.3.3 Supporting the tractor

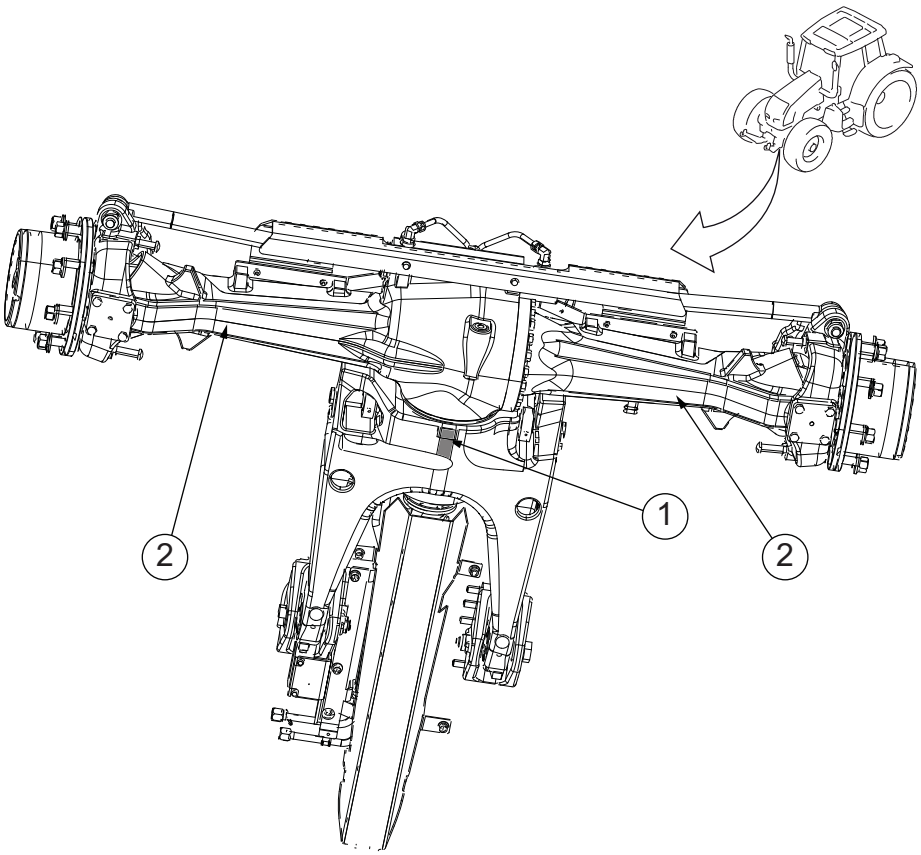
Follow these instructions when supporting the tractor.

- **The tractor must be supported on suitable blocks or stands.**

- **The tractor must be supported from the correct support points on the frame.**



1. Main support point
2. Secondary support point.



1. Main support point
2. Secondary support point.

4.4 Recommended fuel and lubricants

4.4.1 Fuel

Make sure the correct fuel is used.

The properties of light fuel oil that is only intended for heating do not meet the requirements of modern diesel engines, and cannot be used as fuel.

The high pressure pump of the Common Rail system requires the fuel to have sufficient lubricity, because it does not have separate oil lubrication. Adding oil to diesel fuel is forbidden, because it causes carbon build-ups, and if oil is mixed with even a small amount of water it clogs the filter.

Additionally, various fuel quality requirements imposed by taxation and seasonal changes have to be taken into consideration.

4.4.1.1 Quality requirements for engine fuel

The fuel must conform to the EN 590 standard.

Property	Requirement	Test standard
Specific weight +15°C	0.82-0.84 kg/litre	EN ISO 3675:1998 EN ISO 12185
Viscosity +40°C	2.0-4.5 mm^2/s	EN ISO 3104
Sulphur content	max. 350 mg/kg	EN ISO 14596:1998
Cetane number 4737	min. 51	EN ISO 5165:1998
Water content	max. 200 mg/kg	EN ISO 12937:1996
Lubricity/HFRR	max. 460 µm	ISO 12156-1

IMPORTANT: To mix fuel with any admixing material is not allowed.

4.4.1.2 Storing fuel

Fuel has to be stored in a dry and clean environment.

- **Arrange the conditions of storing and distributing fuel so that no water or impurities can enter the storage tanks.**

  The storage tanks must be installed in a slanted position, so that water and impurities are collected at the opposite end of the pump suction pipe. The pump suction pipe must not reach the bottom of the tank.

- **Drain the water periodically from the tank to prevent problems.**

  CAUTION: Do not refuel the tractor at the same time as the storage tank is being refilled.

- **Fill the tank with winter-quality fuel before the cold season.**

4.4.1.3 Biodiesel fuel

The only possible alternative fuel to use is rapeseed methyl ester (RME) biodiesel according to the European norm EN 14214, or the US norm ASTM D6751.

When using biodiesel the engine capacity is almost the same as when using diesel fuel.

IMPORTANT: In common rail fuel injection systems a maximum of 20% dilution of the biodiesel (B20) is allowed.

4.4.2 Grease

Use proper grease for the lubrication points.

NOTE: Always use proper grease. Each lubrication point requires its own type of grease.

NOTE: Avoid repeated skin contact with the grease.

NOTE: Protect nature and take care of empty packages.

4.4.2.1 Universal Grease - NLGI2 universal grease

Use Universal Grease for greasing for example wheel bearings, chassis water pumps, caterpillar rollers.

Universal Grease:

- is a lithium-based universal grease
- is suitable for greasing all heavy machines
- stands a temperature range of -25°C...+130°C

The grease is adhesive, protects against corrosion and resists water and varying temperatures.

4.4.2.2 Calsium LF - NLGI2 calsium grease LF

Use the Calsium LF grease for greasing points exposed to water. Calsium LF is a long-fibre, high-quality, calcium-based universal grease for vehicle use.

Calsium LF:

- is suitable for greasing all heavy machines
- is a long fibre grease
- is red-coloured
- stands a temperature range of -25°C...+80°C

The Calsium LF grease is intended to be used for chassis, water pumps, pins and especially for greasing points exposed to water. The grease is adhesive, protects against corrosion and resists water and varying temperatures.

4.4.2.3 Grease Moly - NLGI2 moly grease

Use Grease Moly for wheel bearings, chassis water pumps, caterpillar rollers et cetera. Grease Moly is a high-quality, lithium-based universal grease for vehicle use.

Grease Moly:

- is a lithium-based universal grease
- is suitable for greasing all heavy machines
- stands a temperature range of -25°C...+130°C

The grease is adhesive, protects against corrosion and resists water and varying temperatures.

Molybdenum sulphide as an additive (1-3%) improves the greasing in places exposed to shock loads.

4.5 Storing the tractor

4.5.1 Storing the tractor for a period shorter than two months

When storing the tractor for a period shorter than two months, check the following items.

- **The tractor has been regularly maintained.**
- **The tractor is clean and has been washed.**
- **The coolant contains enough anti-corrosion liquid.**
- **The fuel tank is full.**
- **The battery is disconnected, cleaned and stored in a cool and dry place where the temperature is even.**
- **The air conditioning is operated for a few minutes at least once a month.**

4.5.2 Storing the tractor for a period longer than two months

When storing the tractor for a period longer than two months, perform the following maintenance.

- **Clean, wash and lubricate the tractor.**
- **Make sure that the coolant contains enough anti-corrosion liquid.**
- **Clean the air cleaner.**
- **Lower the hydraulic lift to its lower position.**
- **Service the fuel tank.**
  - **Empty the tank from fuel.**
  - **Clean the tank.**
  - **Fill the fuel tank with fuel.**
  - **Change the prefilter in the fuel system.**
  - **Change the fuel filter and bleed the fuel system of air.**

- Service the engine.
  - Change the engine oil and oil filter.
  - Run the engine until it is thoroughly warm.
- Disconnect the battery.

  Clean it and store it in a cool and dry place where the temperature is even. Charge the battery every second month.
- Slacken the fan belt.
- Protect exposed parts against corrosion by applying anti-corrosion oil.
- Cover the air induction pipe to the air cleaner and the exhaust pipe.

  Use a plastic bag or similar.
- Operate the air conditioning for a few minutes at least once a month.

4.6 Running the tractor in after storage

4.6.1 Running the tractor in after a storing period shorter than two months

After a storing period shorter than two months you must run the tractor in.

- Check the electrolyte level in the battery and that the battery is fully charged.
- Fit the battery into place.
- Check the oil level in the engine and transmission.
- Check the coolant level in the radiator.
- Carry out the general lubrication.
- Bleed the fuel system, if required.
- Check the pressure of the tyres.
- Start the engine without racing it.
- Test-run the tractor.

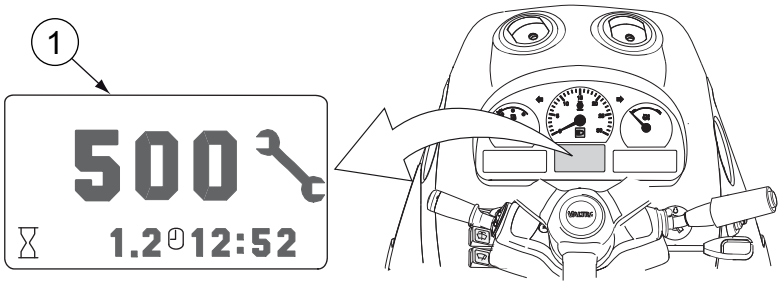
4.6.2 Running the tractor in after a storing period longer than two months

You must run the tractor in after a storing period longer than two months.

- Check the tyre pressures.
- Remove the protective covers.
- Turn the radiator fan carefully forwards and backwards, so that the sealing ring of the coolant pump works loose (it may be stuck to the shaft).
- Wash off any anti-corrosion oil applied to the exterior of the tractor.
- Tighten the belts.
- Check the oil level in the engine and transmission.

- Check the coolant level in the radiator.
- Check the electrolyte level in the battery.
- Bleed the fuel system of air.
- Refit the battery (fully charged).
- Start the engine without racing it.
- Test-run the tractor.

4.7 Periodical maintenance



1. Periodical maintenance view

If the tractor is equipped with Proline instrument panel (alternative equipment), the periodical maintenance view shows when you must perform the tractor service.

NOTE: When the periodical maintenance view is shown on the display, the service work has to be carried out before the view is cleared.

NOTE: Clean the tractor before maintenance.

4.7.1 Periodical maintenance chart

You must follow the service intervals in the periodical maintenance chart.

IMPORTANT: When carrying out service you must follow the service intervals, that is, you must also perform all previously required actions mentioned in the periodical maintenance chart. For example, when doing 2000 hours service you must also do the service required at 1000 hours, 500 hours, weekly and daily.

NOTE: The service intervals shown apply for normal operating conditions but in more severe conditions servicing should be carried out more frequently.

IMPORTANT: When using Biodiesel fuel or working in harsh conditions there might be exceptions in the periodical maintenance.

- The column 10 h shows the tasks that must be carried out daily or every 10 hours.
- The column 50 h shows the tasks that must be carried out weekly or every 50 hours.
- The column 500 h shows the tasks that must be carried out every 500 hours.
- The column 1000 h shows the tasks that must be carried out yearly or every 1000 hours.
- The column 2000 h shows the tasks that must be carried out every other year or every 2000 hours.

Maintenance check point	10 h	50 h	500 h	1000 h	2000 h
Check the engine oil level.	●	●	●	●	●
Check the oil level in the transmission system.	●	●	●	●	●
Check the coolant level.	●	●	●	●	●
Check and clean the radiator fins and engine cover grilles.	●	●	●	●	●
Check for oil and fuel leaks, and hydraulic lines.	●	●	●	●	●
Drain the water from the air pressure system.	●	●	●	●	●
Grease the three-point linkage.		●	●	●	●
Check and grease the pick-up hitch.		●	●	●	●
Check and grease the front linkage.		●	●	●	●
Check the front power take-off.		●	●	●	●
Grease front axle mounting bearings.		●	●	●	●
Check the belts' tightness.		●	●	●	●
Check the fuel system prefilter and sediment bowl.		●	●	●	●
Check the tyre pressure.		●	●	●	●
Check wheel nut tightness.		●	●	●	●
Check the windscreen washer fluid		●	●	●	●
Grease door hinges.			●	●	●
Change the engine oil and filter.			● [1)]	●	●
Check the engine breather pipe			●	●	●
Check the brake fluid level.			●	●	●
Clean the cab air filter.			●	●	●
Clean the extra heater's air filter.			●	●	●
Check the brake pedal free travel.			●	●	●
Check the parking brake.			●	●	●
Change the oil filters of the transmission and hydraulics.			●	●	●
Check the oil level in the front axle differential and hubs.			●	●	●
Change the front power take-off oil and wash the oil filter.			●	●	●
Check the front power take-off rubber couplings.			●	●	●
Grease the rubber surfaces of the trailer quick couplings.			●	●	●
Adjust the engine valves.			● [2)]		
Change the oil in the transmission and clean the suction strainer.				●	●
Change the transmission breather.				●	●
Change the oil in the front axle differential and hubs.				●	●
Change the cab air filter.				●	●
Change the extra heater's air filter.				●	●

Table continued on next page

Maintenance check point	10 h	50 h	500 h	1000 h	2000 h
Change the fuel filter and prefilter.				● 3)	●
Change the engine air filters.				●	●
Clean the cyclone block.				●	●
Grease the flywheel ring gear.				●	●
Check the front wheel toe-in.				●	●
Check the power shuttle operation.				●	●
Tighten the frame nuts and bolts.				● 4)	●
Change the brake fluid.					●
Clean the cooling system.					●
Change the cap of the coolant expansion tank.					●
Check the cab mounting.					●
Maintain the air conditioning.					●

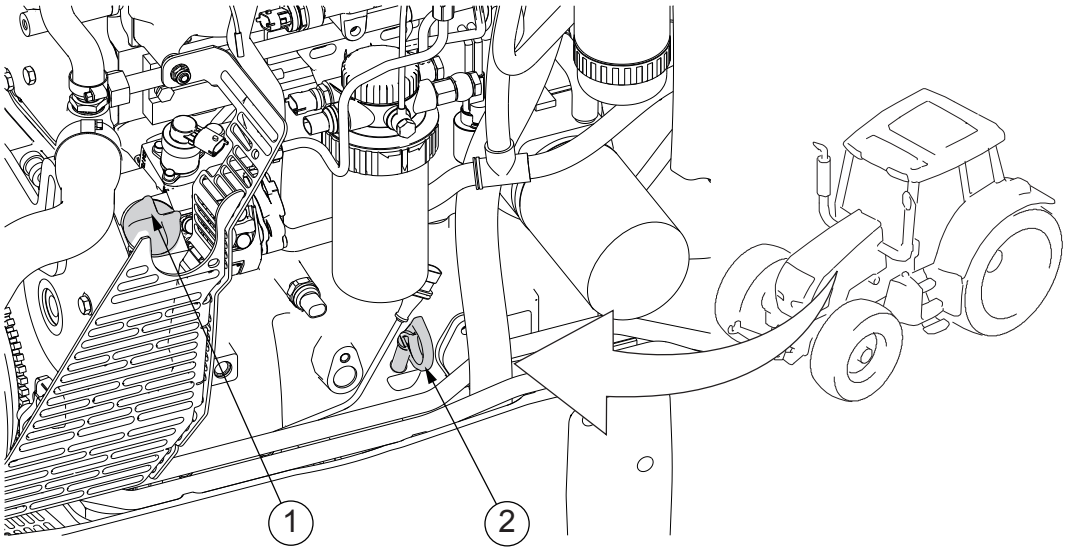
1) In extremely dusty conditions or when using over 5% Biodiesel fuel, change the oil and filters every 250 hours.
2) After the first adjustment, adjust the valves every 1 000 hours.
3) When using over 5% Biodiesel, change the fuel filter and prefilter every 500 hours.
4) If the tractor is fitted with a front loader, tighten the frame nuts and bolts every 500 hours.

4.7.2 Daily maintenance

4.7.2.1 Checking the engine oil level

Check the engine oil level regularly.

The engine oil level must be checked when the oil has cooled off and has had time to run down to the bottom of the oil sump.



1. Oil filler cap
2. Dipstick

1. Stop the engine and let it stand for a few minutes.

2. **Pull out the dipstick.**

   The oil level must be between the maximum and minimum marks on the dipstick.

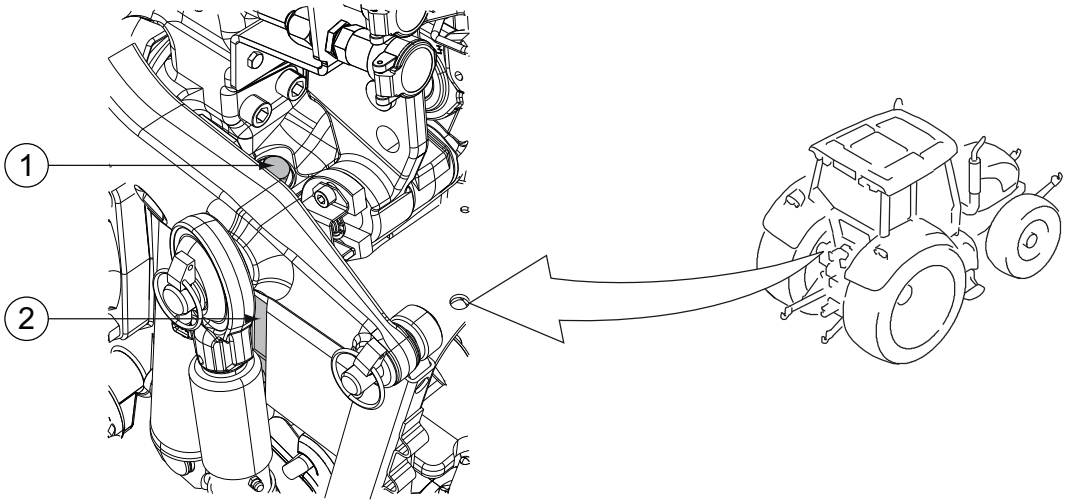
3. **Add oil through the oil filler cap, if necessary.**

4. **Inspect the oil sump and engine for leakage.**

4.7.2.2 Checking the oil level in the transmission system

Check the oil level in the transmission system periodically.

Steering, transmission and hydraulics share the same oil system.



1. Oil filling plug
2. Oil level gauge

1. **Stop the engine and let it stand for a few minutes.**

2. **Check the oil level from the oil level gauge.**

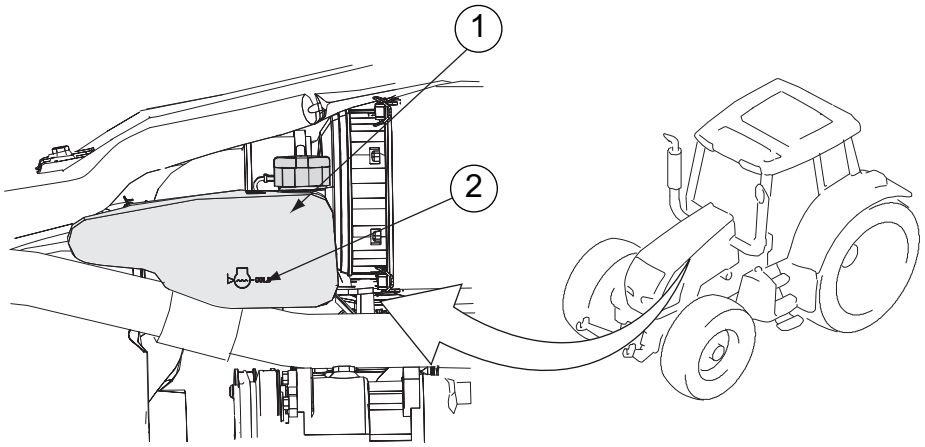
   The oil level must be between minimum and maximum lines.

3. **Add oil if necessary.**

4.7.2.3 Checking the coolant level

Check the coolant level regularly.

NOTE: Drain the cooling system completely every second year and refill it with new coolant.



1. Expansion tank
2. Cold fluid level sign

1. **Stop the engine and let it stand for a few minutes.**

   The checking must be made when the fluid is cold. A hot fluid level is higher than a cold.

2. **Check that the fluid level in the expansion tank is in accordance with the fluid level sign for cold fluid.**

3. **Add more coolant to the tank, if necessary.**

   IMPORTANT: Never use just water as coolant.

   - **Check the freezing point of the coolant.**

     At the beginning of the cold season it is important to measure the freezing point.
   - **If the freezing point is too high, drain off some of the coolant and top up with anti-freeze.**
   - **Run the engine for a while.**

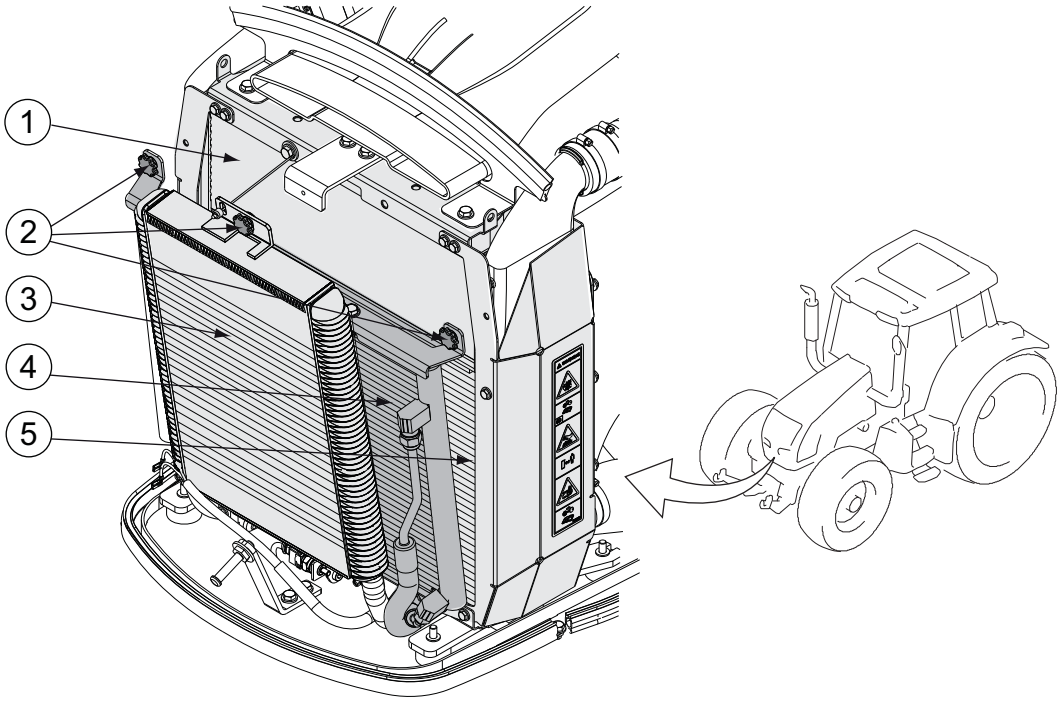
     The anti-freeze must be mixed with the coolant.
   - **Re-check the freezing point of the coolant.**

4. **Inspect the expansion tank for leakage.**

   IMPORTANT: There is a drain hole under the water pump that must not be blocked. If coolant drips out of the hole, the pump seal is damaged and must be replaced. In a new engine some leakage is possible until the pump settles in.

4.7.2.4 Cleaning radiators

Clean all the radiator honeycombs regularly.



1. Engine intake air cooler
2. Locking latches
3. Transmission oil cooler
4. Air conditioning cooler (extra equipment)
5. Engine coolant radiator

1. **Open the engine cover.**

   By opening the locking latches the first coolers turn forward to make the cleaning easier.

2. **Clean the radiators using compressed air or flush them with water.**

   When cleaning, use the air pressure, a water hose (not a pressure washer) or a soft brush. Be careful not to damage the cores.

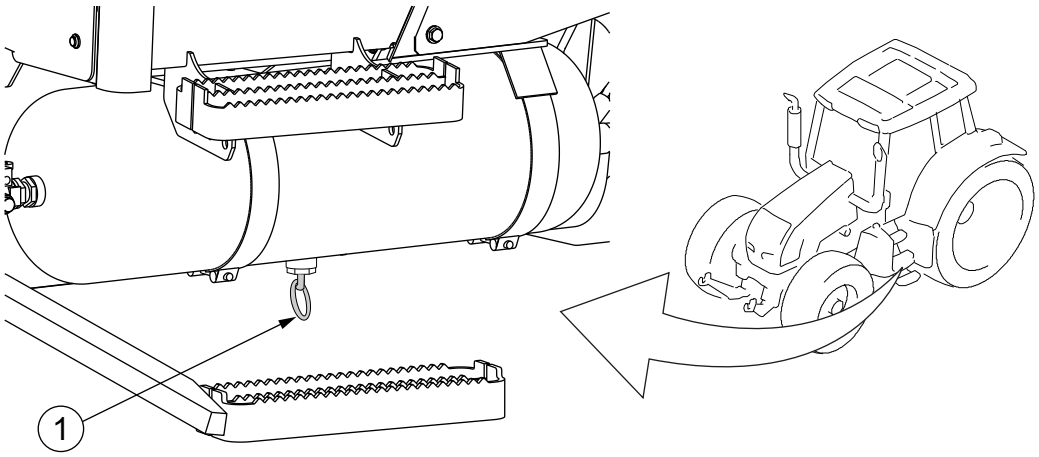
3. **Direct the spray against the air streaming direction.**

4. **Turn and lock all dislocated radiators back to their original position.**

5. **Close the engine cover.**

4.7.2.5 Draining the water from the air pressure system

Drain the water from the air pressure system periodically.



1. Water draining valve spindle

- **Drain the water by pressing or pulling the water draining valve spindle.**

4.7.3 Weekly maintenance

4.7.3.1 Greasing the three-point linkage

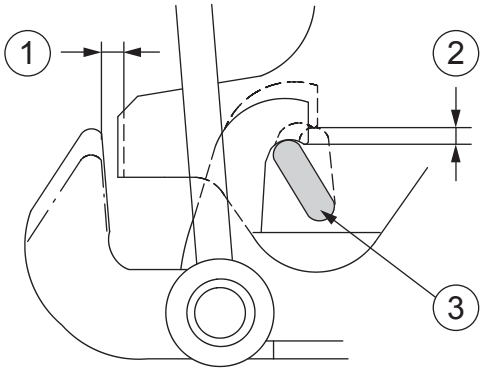
Grease the three-point linkage regularly.

NOTE: Use Universal Grease for greasing.

1. **Grease the levelling screws.**
   There are two grease nipples.
2. **Grease the top link.**
   There are two grease nipples.
3. **Grease the lifting cylinder lower pins.**
   There are two grease nipples.
4. **Grease the lifting cylinder upper pins.**
   There are two grease nipples.

4.7.3.2 Checking the pick-up hitch

Check the pick-up hitch periodically.



1. Distance between the pick-up hitch and mating surface
2. Pick-up hitch movement
3. Locking latch

- **Make sure that the locking latch moves to both extreme positions.**

  When the locking latch is turned upwards the pick-up hitch must move up 5-8 mm.

- **Check the wear of the pick-up hitch.**

  The distance between the pick-up hitch and mating surface must be under 10 mm.

  WARNING: When the pick-up hitch has worn down to 44 mm at the thinnest part, it has to be replaced.

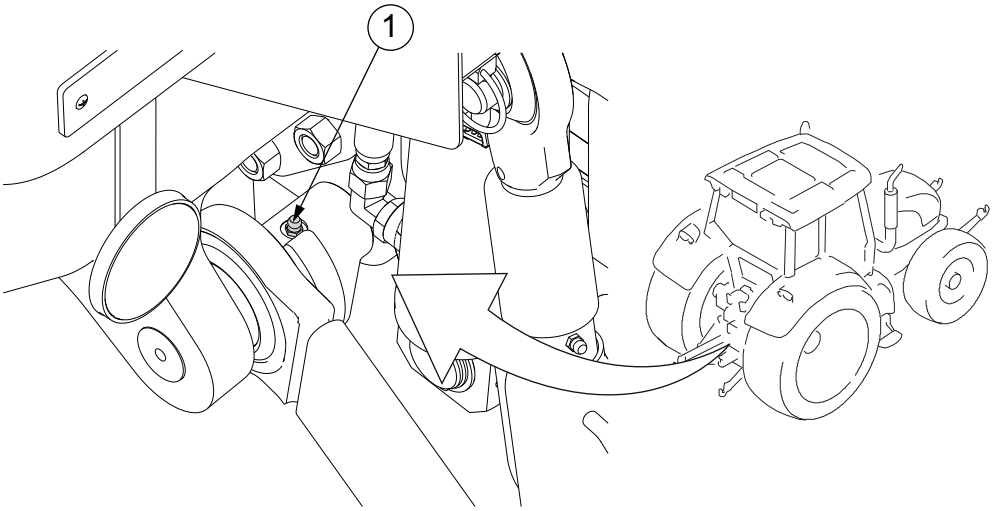
4.7.3.3 Greasing the pick-up hitch

Grease the pick-up hitch periodically.

NOTE: Use Universal Grease for greasing.

- **Apply grease to the grease nipples.**

  There is one grease nipple on both sides.

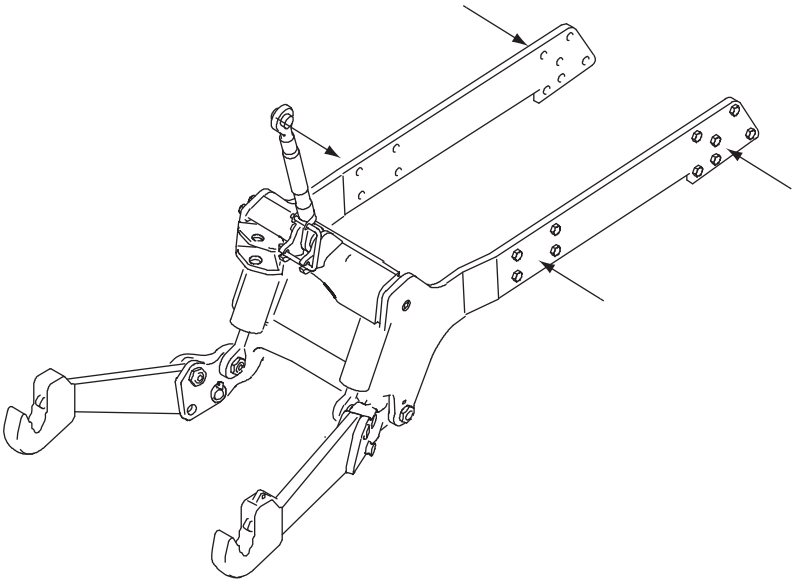


1. Grease nipple

4.7.3.4 Maintaining the front linkage

Check the front linkage periodically.

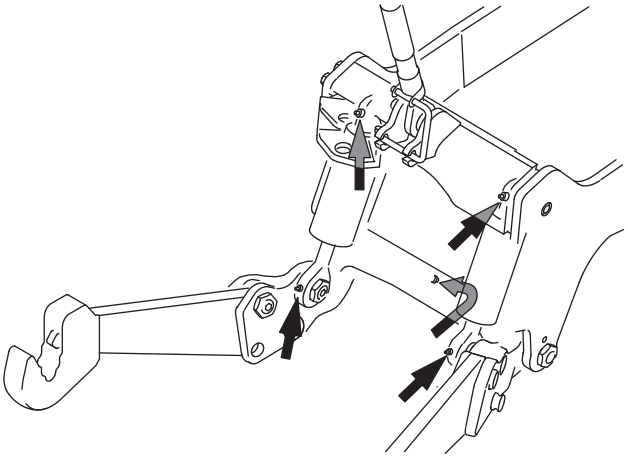
- **Check regularly that all screws and nuts are tight.**



- **Tighten all screws and nuts of the front linkage after the first 15-25 running hours.**
- **Check that the hydraulic connections have no leaks.**

- **Grease the lifting cylinder pins and the lifting links shaft with Valtra Grease Universal every 50 hours.**

  The grease nipple for the lifting links shaft is located on the rear side of the axle.



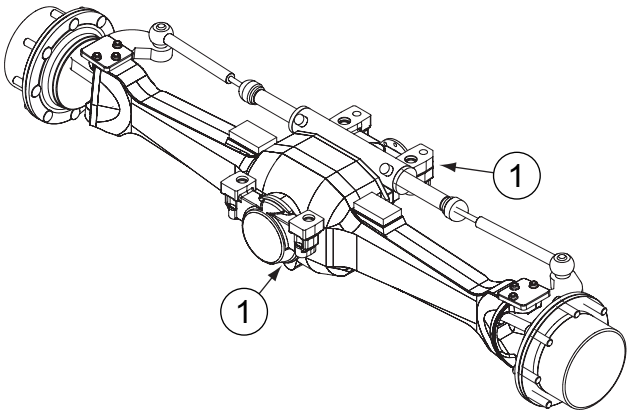
4.7.3.5 Checking the front power take-off

- **Tighten all fixing screws after the first 15-25 running hours.**
- **Check regularly that all fixing screws are tight.**
- **Check that the hydraulic connections have no leaks.**

4.7.3.6 Greasing front axle mounting bearings

You must grease the front axle mounting bearings regularly.

Use Valtra Grease Universal when greasing.



1. Greasing nipples

1. **Lift the front end of the tractor a little.**

   Do not lift from front axle or front weight bracket

2. **Grease the nipples on both bearings.**

   Tilt the axle to make sure that grease goes equally into the bearings.

4.7.3.7 Checking belts' tension

Check the belts' tension regularly.

NOTE: Always keep a spare fan belt handy.

1. **Check the overall condition of the belts.**

   A slack, worn and/or oily belt can cause problems with battery charging and the cooling system.

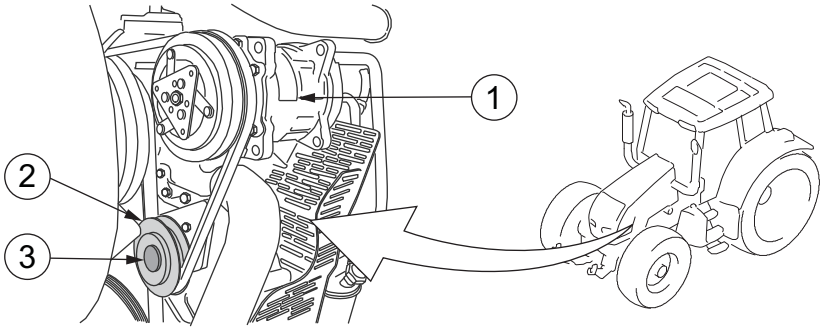
2. **Check the belt tension.**

   The fan/generator belt has an automatic belt tensioner.

3. **Adjust or change the belt, if needed.**

4.7.3.8 Adjusting the air conditioning compressor belt

Adjust the air conditioning compressor belt, if needed.



1. Air conditioning compressor
2. Adjustment belt pulley
3. Belt pulley nut

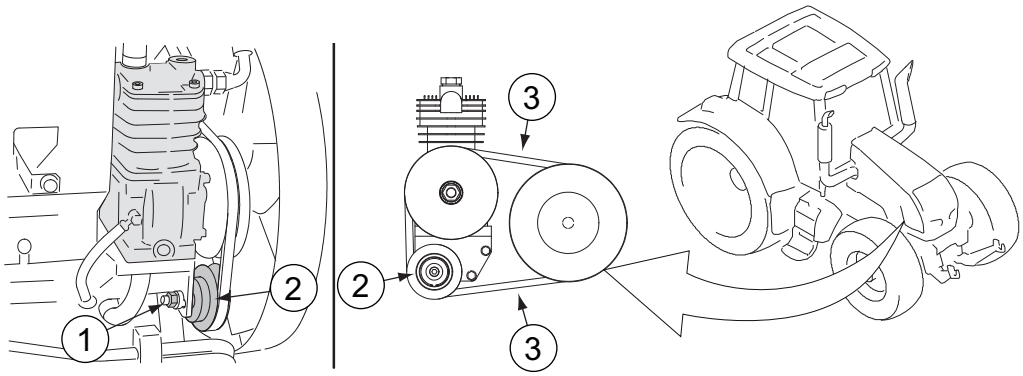
1. **Slacken the belt pulley nut.**
2. **Adjust the belt tension.**

   The belt tension is suitable with a deflection of approx. 10 mm.

3. **Tighten up the belt pulley nut.**

4.7.3.9 Adjusting the air compressor belt

Adjust the air compressor belt, if needed.



1. Adjustment belt pulley
2. Belt pulley nut
3. Deflection (10 mm)

1. **Check the fixing bolts of the air compressor.**
2. **Loosen the belt pulley nut.**
3. **Adjust the belt's tension with the adjustment belt pulley.**
4. **Tighten the belt pulley nut.**
5. **Check the deflection of the belt.**

   The belt tension is suitable with a deflection of approximately 10 mm.

4.7.3.10 Changing the belts

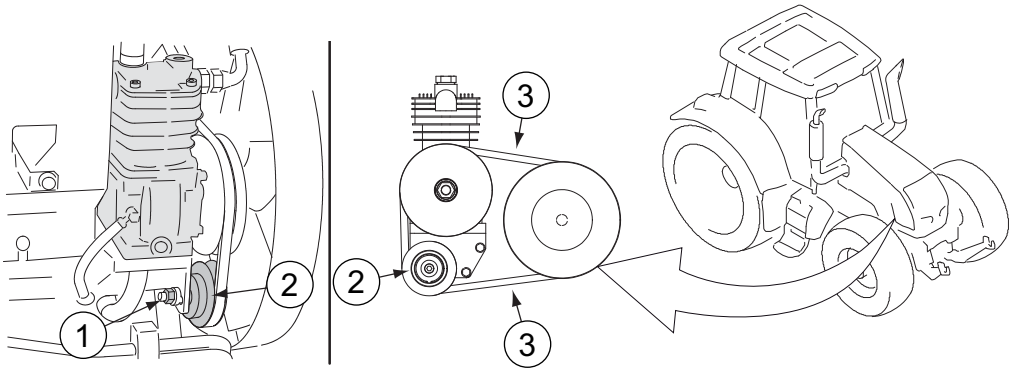
Change the belts, if needed.

For changing the belts, you have to disassemble the belts in the following order:

1. Air compressor belt.
2. Air conditioning compressor belt.
3. Multi-grooved fan belt.

You can change the belts without detaching the fan.

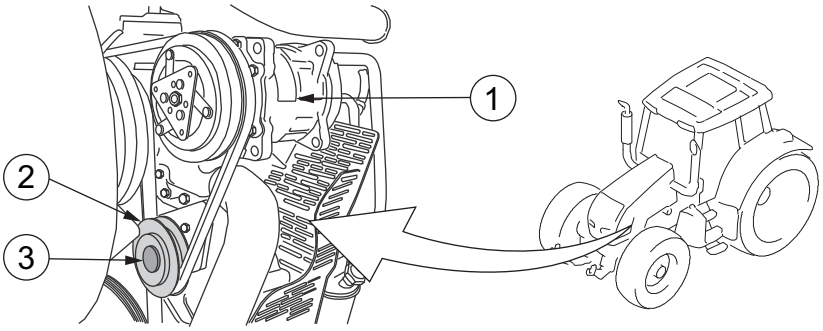
1. **Uninstall the air compressor belt.**



1. Adjustment belt pulley
2. Belt pulley nut
3. Deflection (10 mm)

- **Loosen the belt pulley nut.**
- **Remove the belt.**

2. **Uninstall the air conditioning compressor belt.**

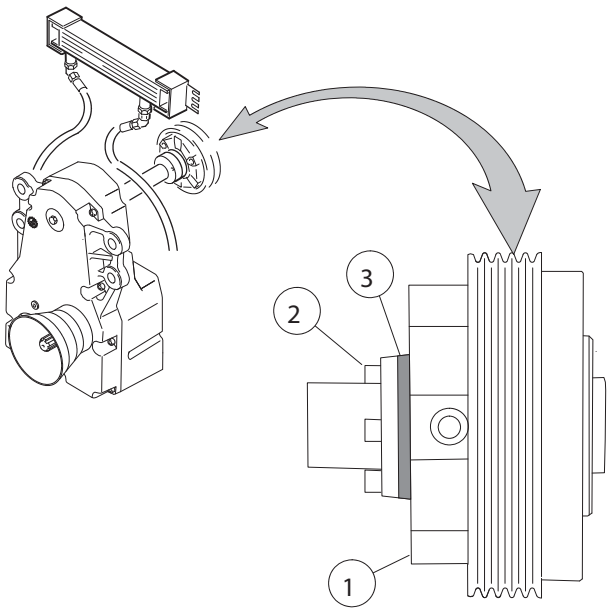


1. Air conditioning compressor
2. Adjustment belt pulley
3. Belt pulley nut

- **Loosen the belt pulley nut.**
- **Remove the air conditioning compressor belt.**

3. **Change the multi-grooved fan belt.**
   - **Open the flange screws.**

     On tractors with front power take-off (PTO), the spacing ring must be removed so that there is enough space to change the belts.

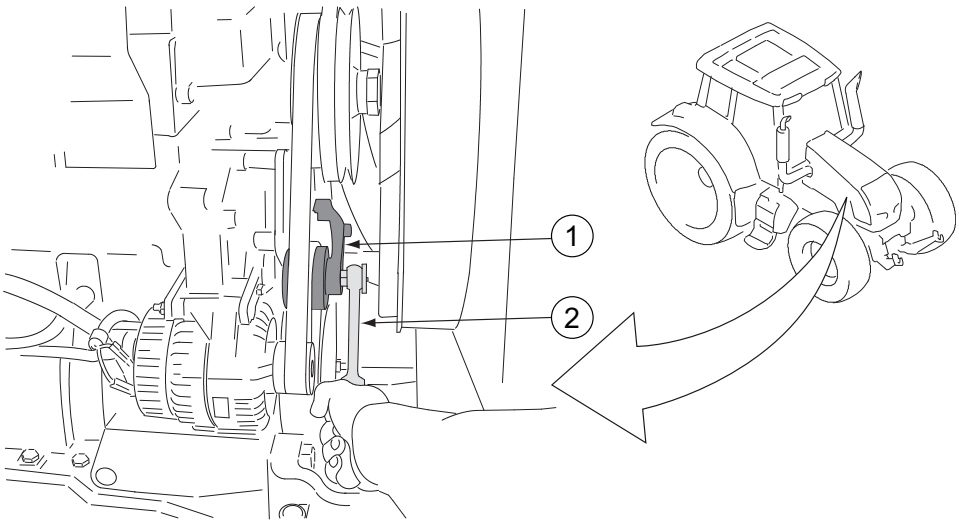


1. Elastic rubber coupling
2. Flange screws
3. Spacing ring

   - **Remove the spacing ring.**

     The spacing ring is tightened between the flange and the elastic rubber coupling.
   - **Loosen the automatic belt tensioner.**

     Use a 1/2" wrench as tool.



1. Automatic belt tensioner
2. 1/2" wrench

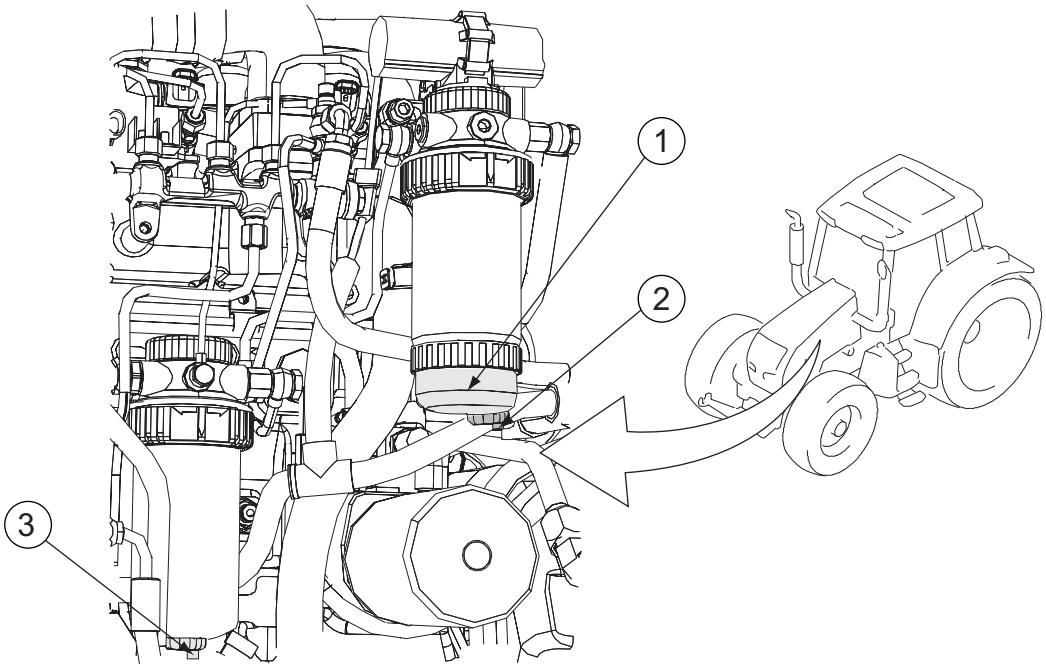
4. **Replace the belts or install new ones in reverse order.**

5. **Check the belts' tension.**

4.7.3.11 Checking the fuel system prefilter and sediment bowl

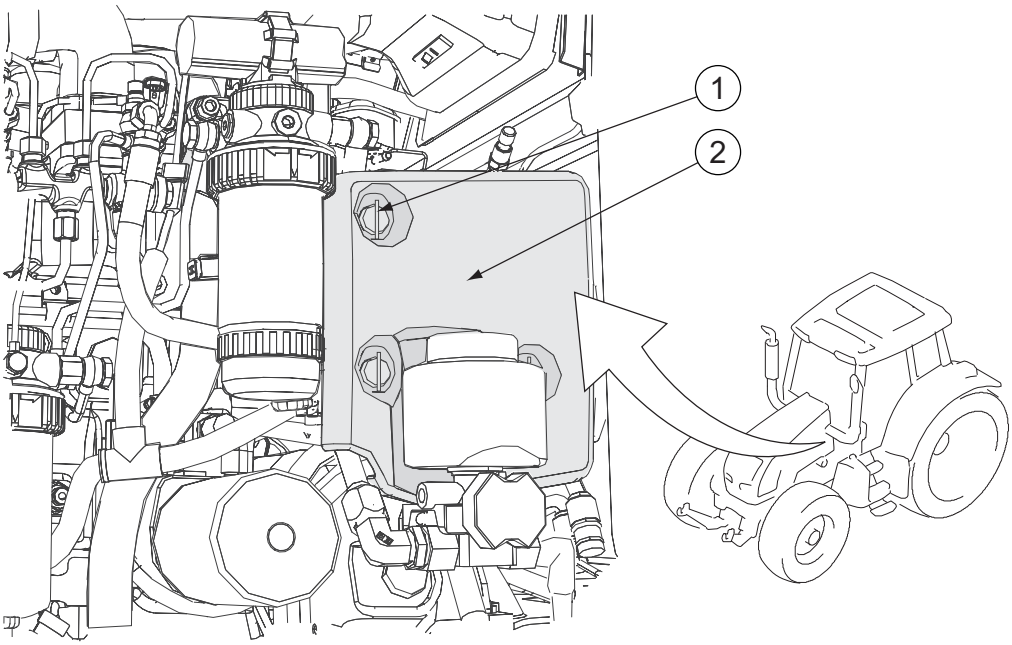
Check the fuel system prefilter and sediment bowl regularly.

IMPORTANT: Water in the injection system destroys the system in a very short time. Always service the water trap and filters according to the specified amount of running hours.



1. Tap at the bottom of the main fuel filter
2. Tap at the bottom of the prefilter
3. Sediment bowl (water trap)

1. **Remove the cover.**



1. Locking latch
2. Cover

Open the locking latches to remove the cover.

2. **Check the cleanliness of the sediment bowl.**

   If there are impurities or water in the sediment bowl, empty the prefilter.

3. **Open the tap at the bottom of the prefilter to empty it.**

4. **Drain the fuel from the prefilter into a container.**

   If there is water in the prefilter, also empty the main fuel filter by opening the tap below it.
   IMPORTANT: Water in the fluid can damage the pump and the nozzles.
   IMPORTANT: Do not drain fuel on the ground!

5. **Close the tap when the filter is empty.**

   Both the main fuel filter and prefilter are emptied in the same way.

6. **If there was water in the filters, clean the fuel tank.**

7. **Bleed the fuel system, if needed.**

   The fuel system must always be bled when the main fuel filter is emptied.
   NOTE: Drain the water traps more often, if required.

8. **Refit the cover.**

4.7.3.12 Checking the tyre pressure

Check the tyre pressure regularly, especially after changing the tyres.

IMPORTANT: Change tyres and wheels at a professional tyre workshop that is equipped to handle this type of work.

- **Check the pressure of the tyres with a pressure gauge.**
- **Add pressure, if needed.**

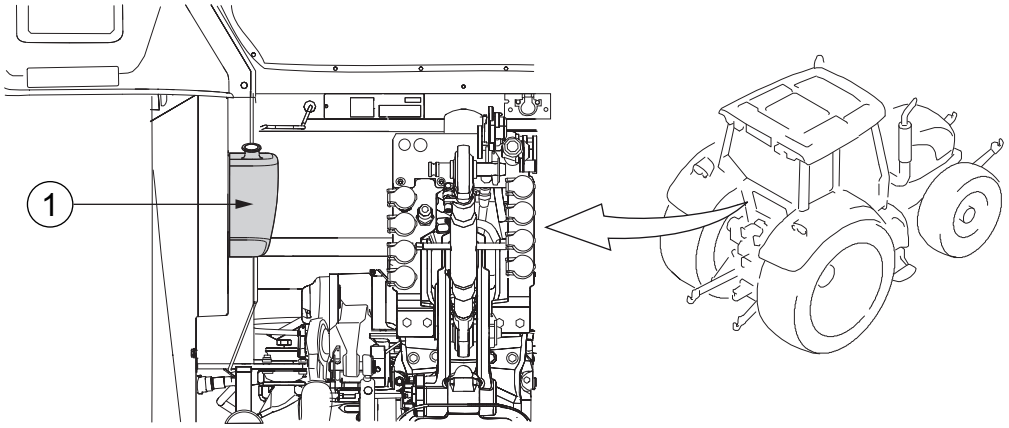
WARNING: Avoid overinflation as excess pressure may cause the tyre to explode.

4.7.3.13 Checking wheel nuts' tightness

Check the wheel nuts' tightness periodically to avoid unnecessary risks.

- **Check the tightness of the wheel nuts.**
- **Check the tightness of the wheel disc/rim bolts.**

4.7.3.14 Windscreen washer fluid reservoir



1. Washer fluid reservoir

The washer fluid reservoir for the front and rear window is common.The rear window washer is extra equipment.

NOTE: Check the amount of fluid weekly. When the temperature is under 0° C, use an anti-freeze agent in the fluid.

4.7.4 Maintenance every 500 hours

4.7.4.1 Greasing door hinges

Grease the door hinges periodically.

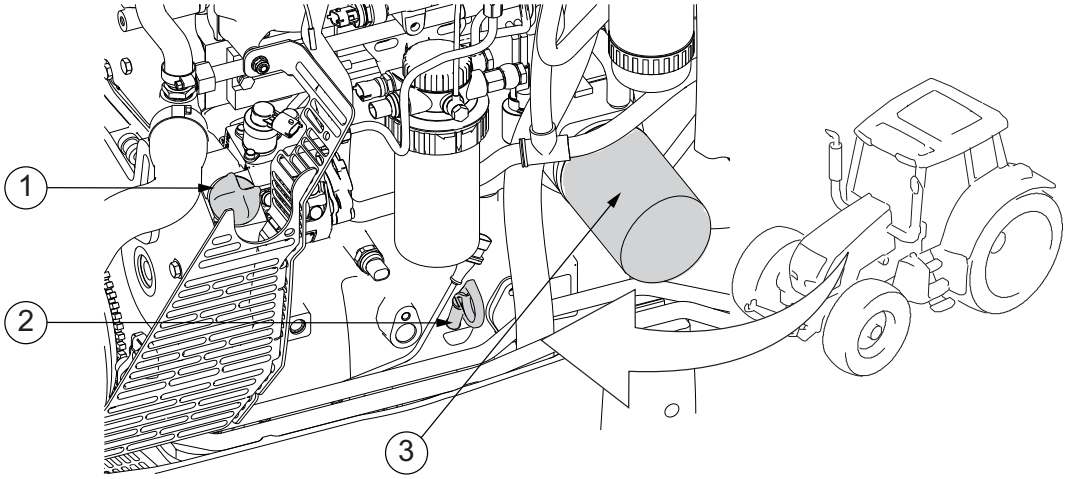
Use Universal Grease for the door hinges.

- **Apply grease in the nipples on the door hinges.**

4.7.4.2 Changing the engine oil and the oil filter

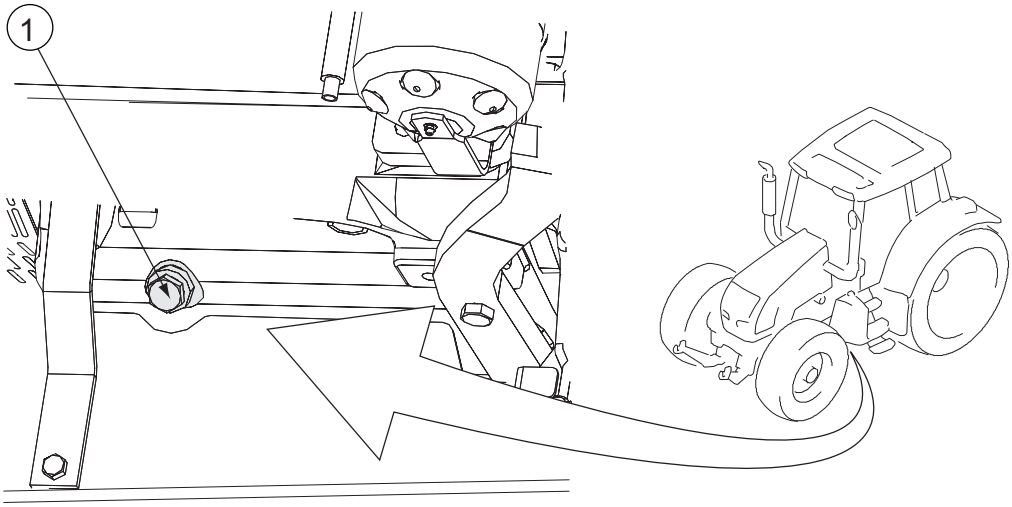
NOTE: In extremely dusty conditions or when using over 5% Biodiesel fuel, the oil and filters must be changed every 250 hours.

NOTE: If the amount of operating hours is low, the oil and filters must be changed at least once a year.



1. Filler hole
2. Dipstick
3. Oil filter

1. **Check that the tractor is standing on level ground.**
2. **Stop the engine and let it stand for a few minutes.**
3. **Remove the drain plug from the engine sump.**

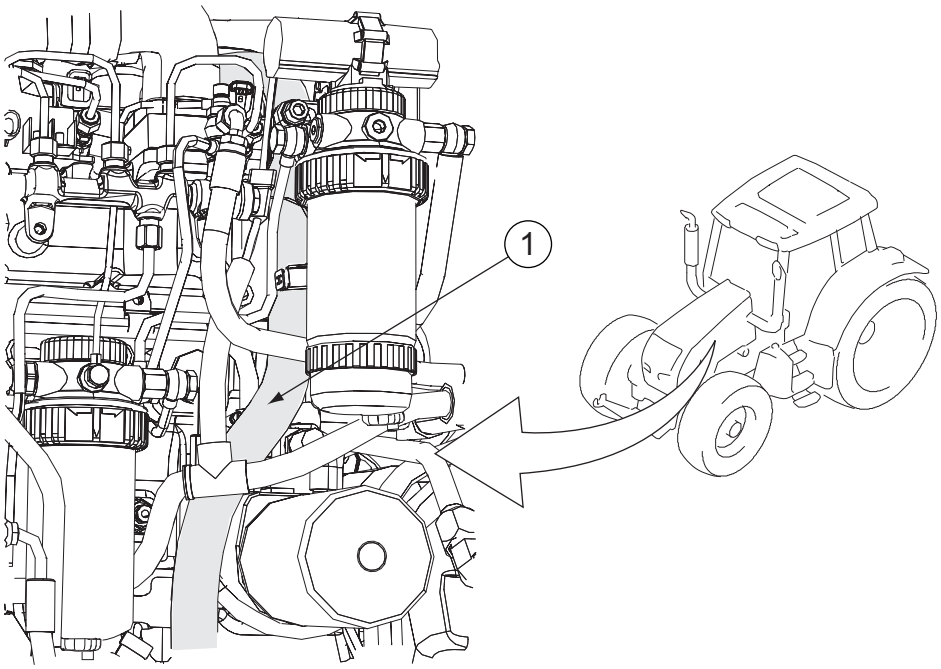


1. Drain plug

4. **Drain the oil from the engine to a separate container.**
   If the engine is warm, the oil runs better.
5. **Clean, refit and tighten the drain plug.**
6. **Release the oil filter.**
7. **Wipe off any oil which has run out onto the chassis.**
8. **Lubricate the new gasket.**
9. **Attach the new filter.**
   Tighten the new filter by hand (not too tight).
10. **Fill the recommended oil in the filler hole.**
11. **Check the oil level from the dipstick.**
    The oil is filled until the upper mark on the dipstick is reached.
12. **Start the engine.**
13. **Run the engine and check for possible leaks.**
14. **Run the engine for a while and check the oil level.**

4.7.4.3 Checking the breather pipe

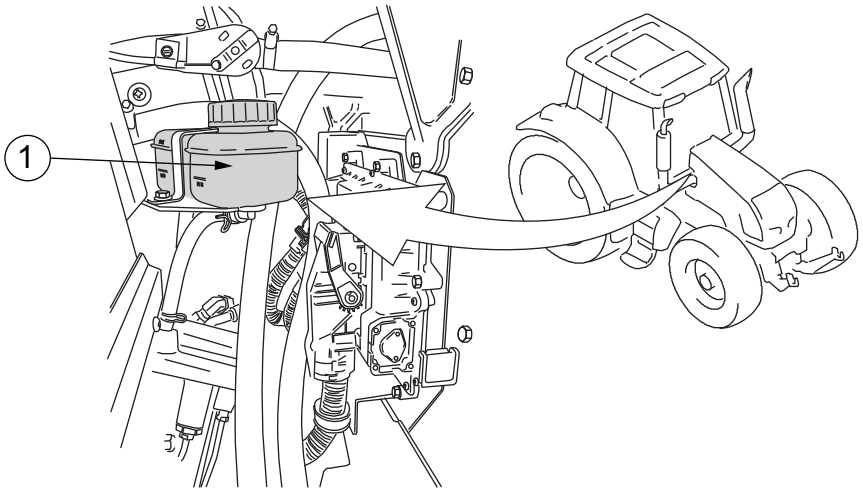
Check the breather pipe periodically.



1. Breather pipe

- **Check that the breather pipe is not blocked.**

4.7.4.4 Checking the brake fluid level



1. Brake fluid reservoir

WARNING: The brake fluid is corrosive and poisonous and must be handled carefully at all times. It also corrodes the paint.

The brake fluid level must be between the maximum and minimum marks.

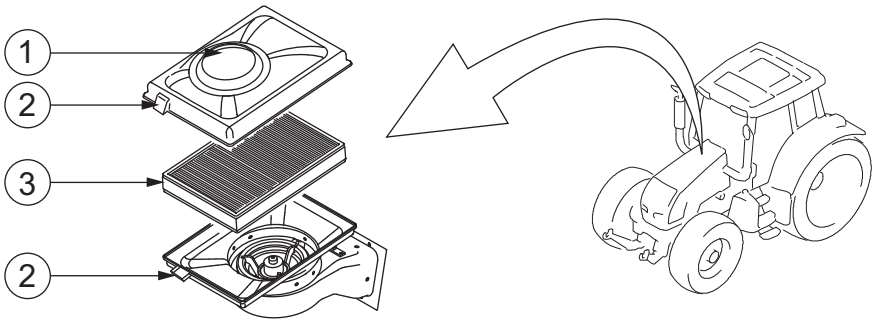
1. **Top up with new brake fluid, if necessary.**

   NOTE: Use recommended fluid only.

   WARNING: Normally there is no need to top up the fluid. If there is a leakage, it must be repaired immediately, before driving. If necessary, contact a Valtra authorised workshop.

4.7.4.5 Cleaning the cab ventilation air filter

WARNING: The air filter element does not remove chemicals from the outside air. Follow the instructions of the pesticide manufacturer.



1. Ventilation air filter housing cover
2. Guide
3. Ventilation air filter

1. **Lift up the ventilation air filter housing cover.**
2. **Remove the ventilation air filter.**
3. **Check the condition of the ventilation air filter.**

   A damaged ventilation air filter must be changed.
4. **Clean the ventilation air filter.**
   - **Knock the ventilation air filter against your palm so that most of the dirt comes off.**
   - **Use a vacuum cleaner to clean the ventilation air filter from the outside in or blow it clean with compressed air from the center outwards.**

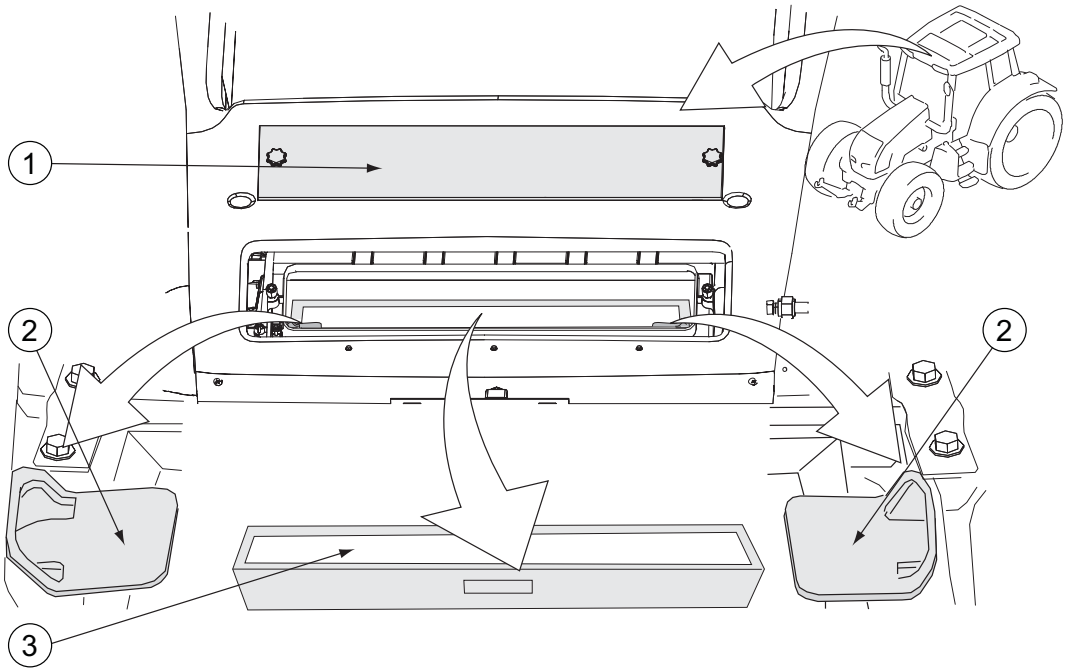
   IMPORTANT: Make sure that the air pressure is not too high.
5. **Refit the ventilation air filter.**

   Fit the guides face to face.
6. **Refit the ventilation air filter housing cover.**

4.7.4.6 Cleaning the extra heater's air filter

Clean the extra heater's air filter periodically.

WARNING: The air filter element does not remove chemicals from the outside air. Follow the instructions of the pesticide manufacturer.



1. Extra heater air filter housing cover
2. Extra heater air filter mounting link
3. Extra heater air filter

1. **Remove the extra heater air filter housing cover.**
   - **Pull the extra heater air filter mounting links up.**
   - **Turn the extra heater air filter mounting links downwards.**
2. **Remove the extra heater air filter.**
3. **Check the condition of the extra heater air filter.**

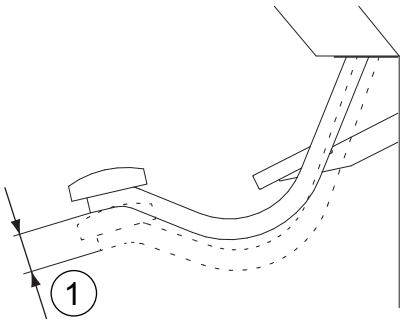
   A damaged extra heater air filter must be changed.
4. **Clean the extra heater air filter.**
   - **Knock the extra heater air filter against your palm so that most of the dirt comes off.**
   - **Use a vacuum cleaner to clean the extra heater air filter from the outside in or blow it clean with compressed air from the center outwards.**

   IMPORTANT: Make sure that the air pressure is not too high.
5. **Refit the extra heater air filter.**

   Check that the arrow points upwards.
6. **Refit the extra heater air filter housing cover.**

4.7.4.7 Checking the brake pedal free travel

Check the brake pedal free travel periodically.



1. Free travel of the pedal

1. **Check the free travel of the brake pedal.**

   The free travel must be 55-65 mm when the pedals are latched together.

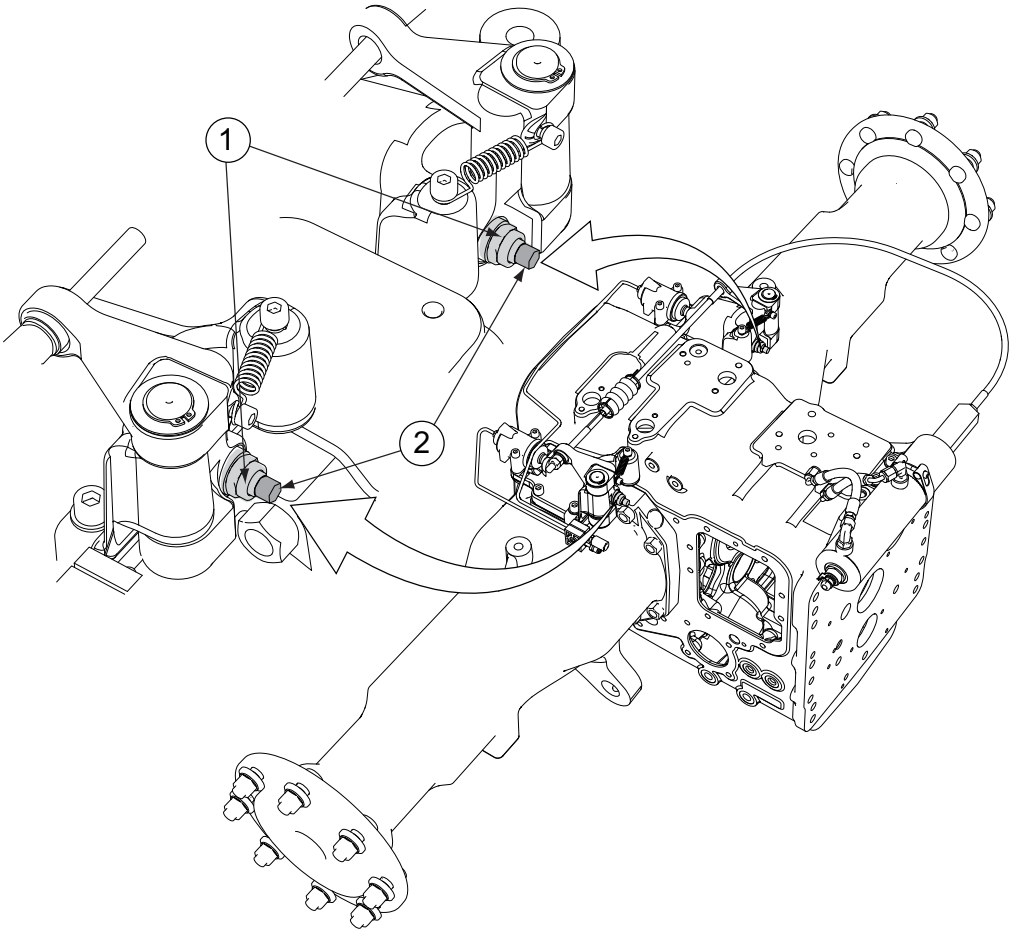
   NOTE: The free travel may be larger if the tractor is equipped with trailer air pressure brakes or trailer fluid brake valve.
2. **Adjust the free travel if necessary.**

4.7.4.8 Adjusting brake pedals' travel

Adjust the travel of brake pedals when needed.

1. **Make sure that the tractor cannot move by itself.**
   - **Raise the rear wheels off the ground.**
   - **Start the tractor.**
   - **Move the power shuttle lever to centre position (N).**

2. **Loosen the parking brake lever adjusting nuts.**



1. Parking brake lever adjusting nut
2. Brake adjusting screw

3. **Tighten the brake adjusting screws.**
   - Adjust the screws with the torque wrench to 15 Nm.
   - Adjust the screws without the torque wrench until the wheels cannot be turned by hand.

4. **Slacken the screws.**
   - If you are tightening the adjusting screws with a torque wrench, slacken them 1.75 turns.
   - If you are tightening the adjusting screws without a torque wrench, slacken them 1 turn.

5. **Check that there is a small clearance between the parking brake lever and the parking brake lever adjusting nut.**

   If not, tighten the adjusting nut until it is wrench tight, then slacken it for 0.5 turn.

6. **Check that the wheels can rotate freely.**

7. **Check the function of both brake pedals individually by driving.**

   Check that the brake action is the same on both wheels while driving with both pedals latched together.

8. **Check that the pedal free travel is the same on both wheels.**

   The pedal free travel must be ca. 55-65 mm.

   NOTE: The free travel may be larger if the tractor is equipped with trailer air pressure brakes or trailer fluid brake valve.

4.7.4.9 Checking the parking brake

Check the parking brake periodically.

1. **Engage the parking brake.**
2. **Check that the brake is functioning.**
3. **Release the parking brake.**
4. **Check that the brakes were released.**
5. **Adjust the parking brake if necessary.**

4.7.4.10 Adjusting the parking brake

The parking brake is adjusted in the factory and readjustment is not necessary unless parts of the brake mechanism have been changed. The parking brake is affected when the driving brakes are adjusted.

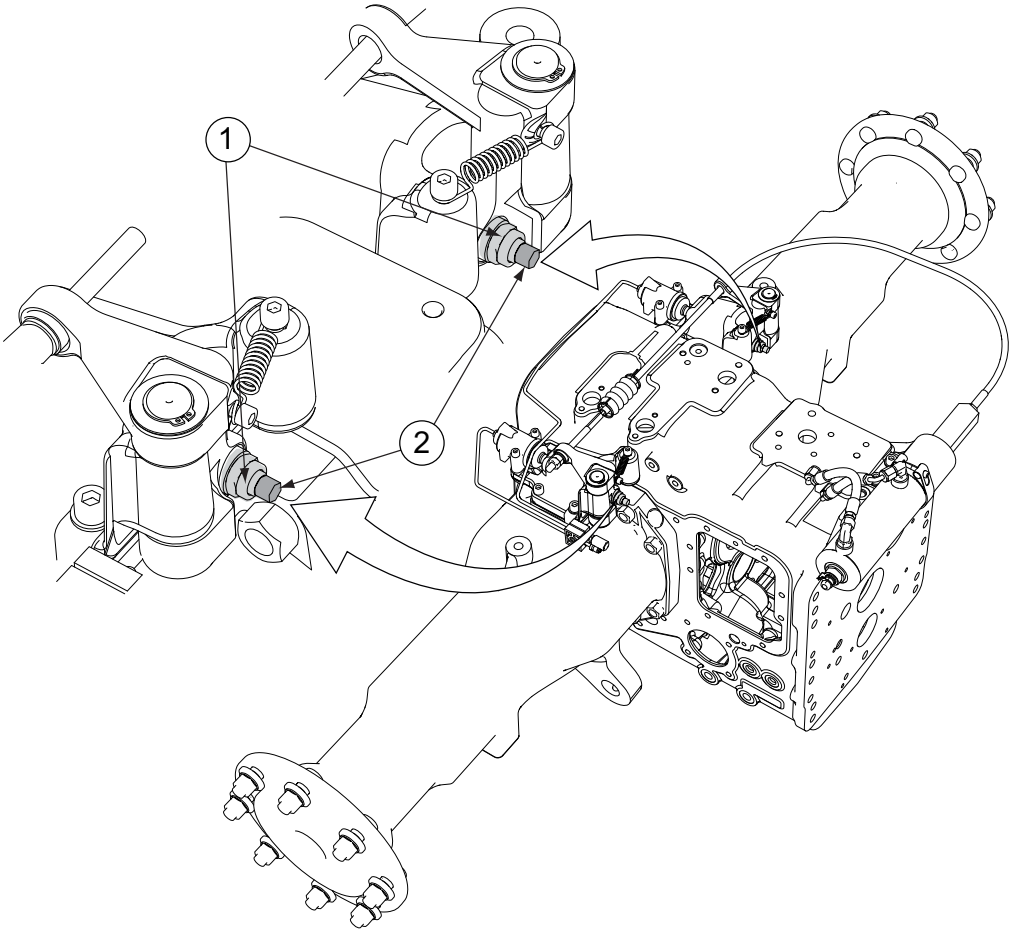
The parking brake is controlled with a spring return pressure cylinder and it is connected to the drive brake mechanism by a cable.

IMPORTANT: Always adjust the driving brakes before adjusting the parking brake.

1. **Start the tractor.**
2. **Fit blocks in front of the front wheels to prevent the tractor from moving.**
3. **Move the power shuttle lever to neutral (centre position).**

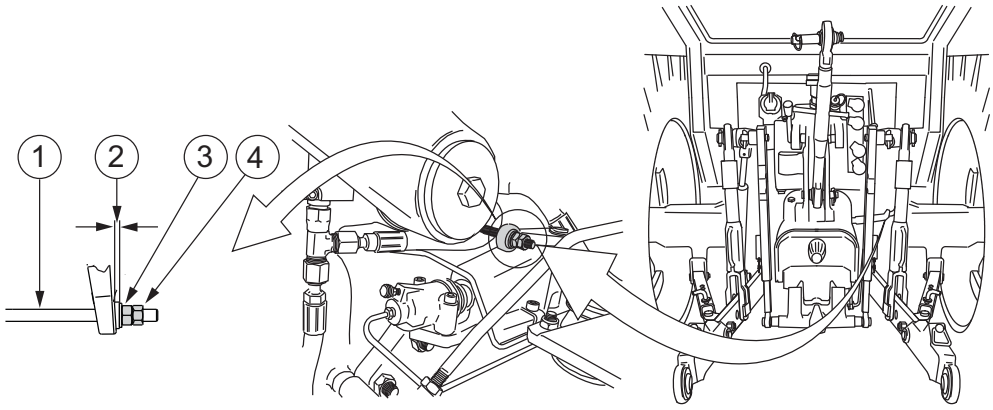
4. **Check that there is a small clearance between the parking brake lever and the parking brake lever adjusting nut.**

   If not, tighten the adjusting nut until it is wrench tight, then slacken it for 0.5 turn.



1. Parking brake lever adjusting nut
2. Brake adjusting screw

5. **Pull the cable clearance to the end of the cable.**



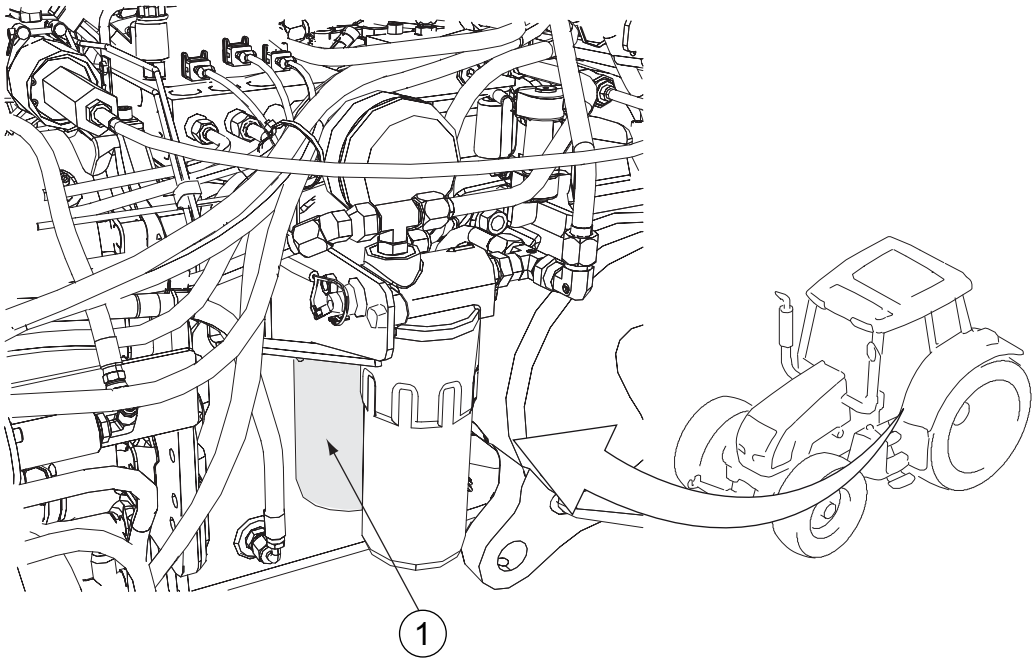
1. Cable
2. Clearance
3. Adjusting nut
4. Locking nut

6. **Open the locking nut.**
7. **Adjust the clearance through the adjusting nut so that it is 1-2 mm.**
8. **Tighten the locking nut.**

IMPORTANT: When mounting the parking brake cable, the cylinder side end has to be mounted according to the tolerances. This should only be carried out by an authorised workshop.

4.7.4.11 Changing transmission oil filters

Change the transmission oil filters regularly.



1. Low pressure filter of the transmission system.

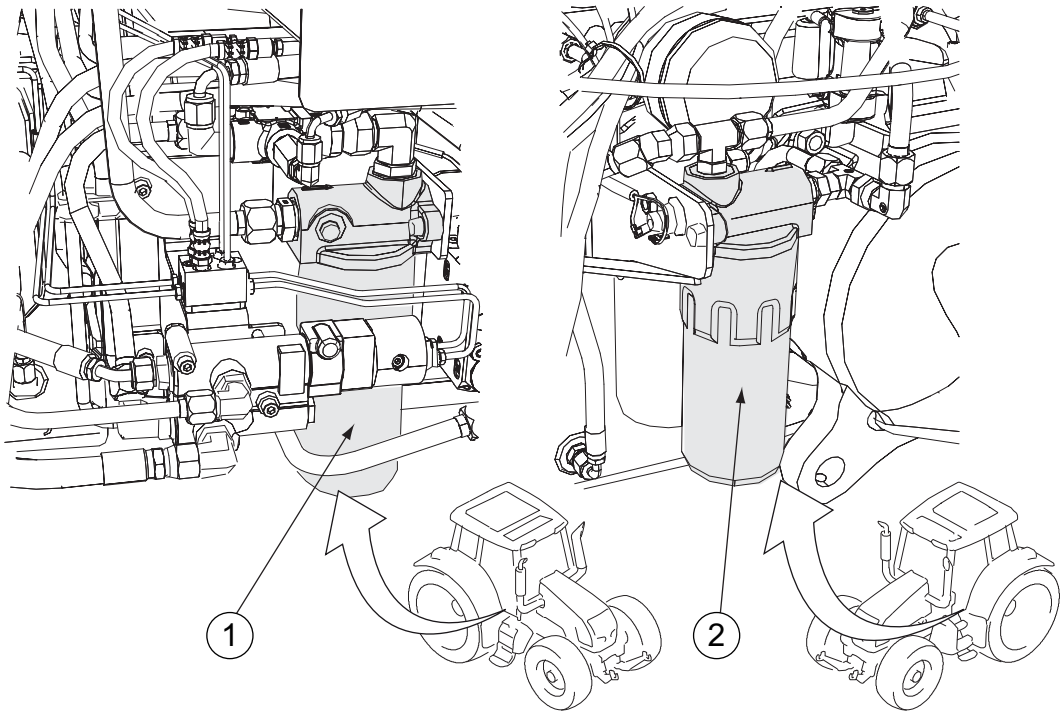
'

1. **Fit a suitable container under the filter.**
2. **Clean the filter housing and the surrounding area.**
3. **Remove the filter housing and the filter element.**
4. **Wash the filter housing in clean diesel fuel.**
5. **Lubricate the seal of the new filter element.**
6. **Fit the new filter into place.**
7. **Refit the filter housing.**

   Tighten the filter housing with a suitable wrench to a torque of 200 Nm.

4.7.4.12 Changing hydraulic system oil filters

Change the hydraulic system oil filters periodically.



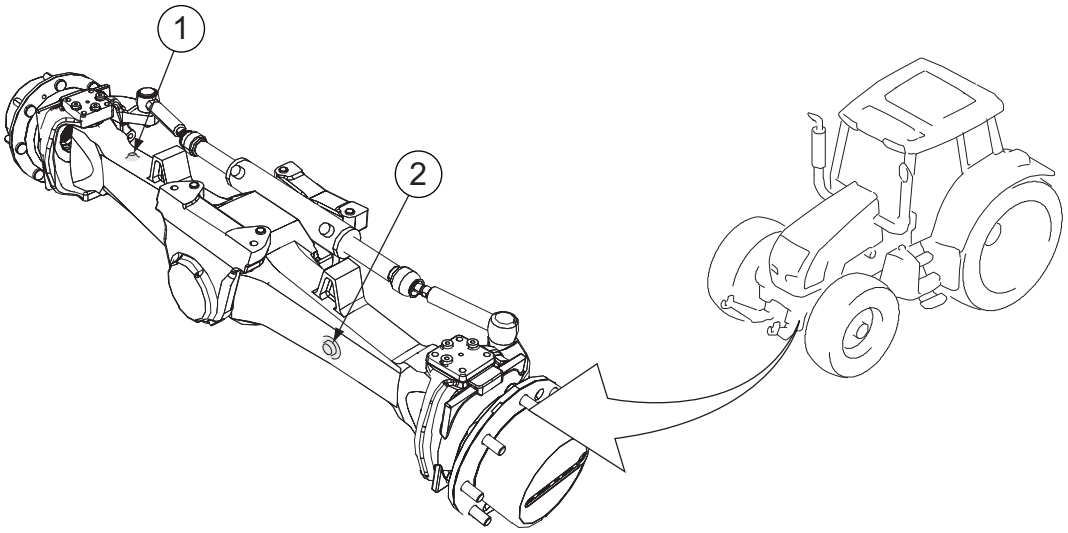
1. Pressure filter of the hydraulic system
2. Return oil filter of the auxiliary hydraulic system

1. **Fit a suitable container under the filter.**
2. **Clean the filter housing and the surrounding area.**
3. **Remove the filter housing and the filter element.**
4. **Wash the filter housing in clean diesel fuel.**
5. **Lubricate the seal of the new filter element.**
6. **Fit the new element into place.**
7. **Refit the filter housing.**

   Tighten the filter housing with a suitable wrench to a torque of 200 Nm.

4.7.4.13 Checking the oil level in the front axle differential

Check the oil level in the front axle differential periodically.

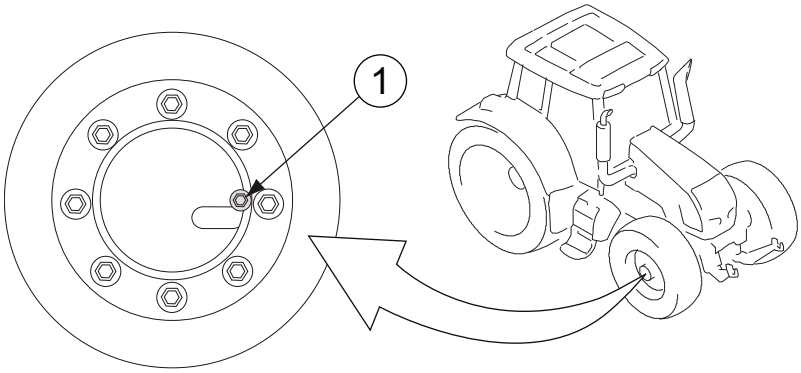


1. Filling plug
2. Inspection hole

1. **Check that the oil is in level with the inspection hole.**
2. **Add more oil if necessary.**

4.7.4.14 Checking the oil level in front axle hubs

Check the oil level in the front axle hubs periodically.

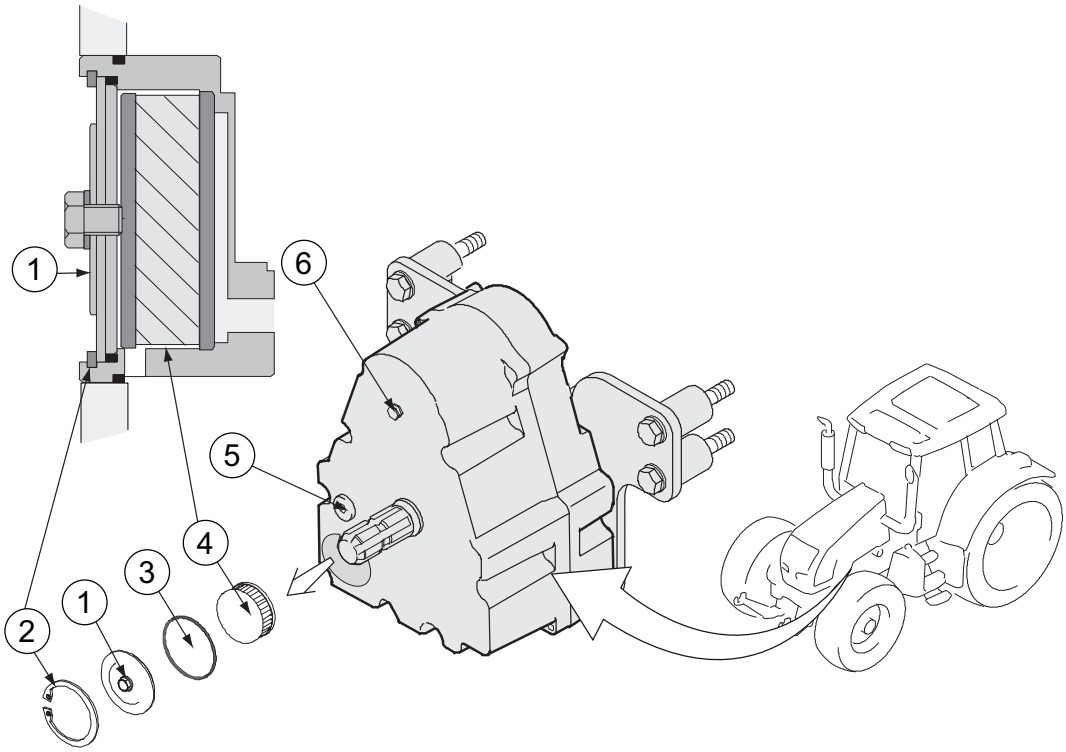


1. Oil surface indicator line

1. **Turn the wheel until the oil surface indicator line is horizontal.**
2. **Check that the oil surface is in level with the hole.**
3. **Add more oil, if necessary.**

4.7.4.15 Changing front PTO housing oil and washing oil filter

Change the oil of the front power take-off (PTO) housing and wash the oil filter regularly.



1. End plate
2. Lock ring
3. O-ring
4. Filter
5. Oil level hole
6. Breather

1. **Release the filter by loosening the lock ring and the end plate.**

   Oil drains through the filter hole.

2. **Clean the strainer with diesel.**

3. **Dry the strainer with compressed air.**

4. **Attach the filter and the parts in the contrary order.**

   Check that the O-ring fits the groove of the end plate.

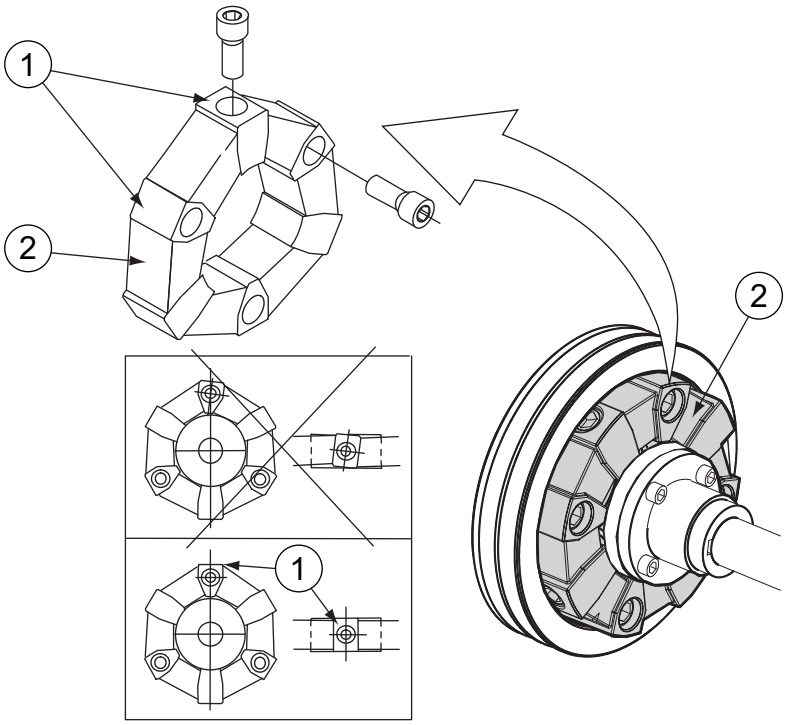
5. **Fill up the housing with oil to the level of the hole.**

   The breather can be loosened for bleeding. Check that the breather is not blocked. When filling, the tractor has to stand on even ground.

6. **Use the front PTO a moment and check oil.**

4.7.4.16 Checking front PTO rubber couplings

Check the front power take-off (PTO) rubber couplings regularly.



1. Rubber clutch pieces
2. Rubber coupling

- **Check the rubber coupling for tears.**
- **Change the rubber coupling when needed.**

  It is recommended to let an authorised workshop change the coupling. If you change the coupling yourself, when mounting the rubber clutch, make sure that the pieces are straight.

4.7.4.17 Checking and greasing the trailer air-pressure brake system

Check and grease the trailer air-pressure brake system regularly.

1. **Grease the rubber surfaces of the trailer quick couplings with Calsium LF grease.**
2. **Check the integrity of the system.**

   The system has to be air tight so that after stopping the engine, the pressure does not decrease more than 0.15 bar during 10 minutes (2%). When needed, repair the leaks.

4.7.4.18 Adjusting engine valves

Contact an authorised Valtra workshop for the engine valve adjustment.

NOTE: The engine valves must be adjusted after 500 operating hours. After the first adjustment, adjust the valves every 1 000 hours.

4.7.5 Maintenance every 1000 hours or yearly

4.7.5.1 Changing oil in the transmission system

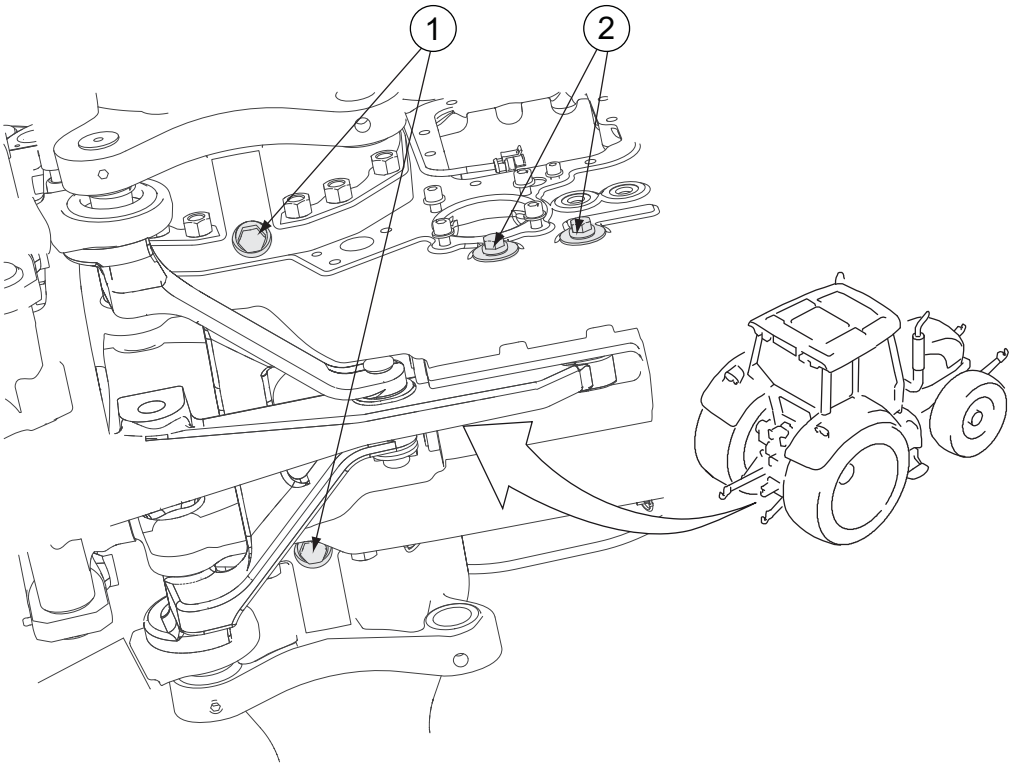
Change the oil in the transmission system periodically.

Transmission and hydraulics share the same oil system.

1. **Run the tractor until the oil in the transmission system is warm.**

   This speeds up the oil drainage and most of the impurities come out with the oil.

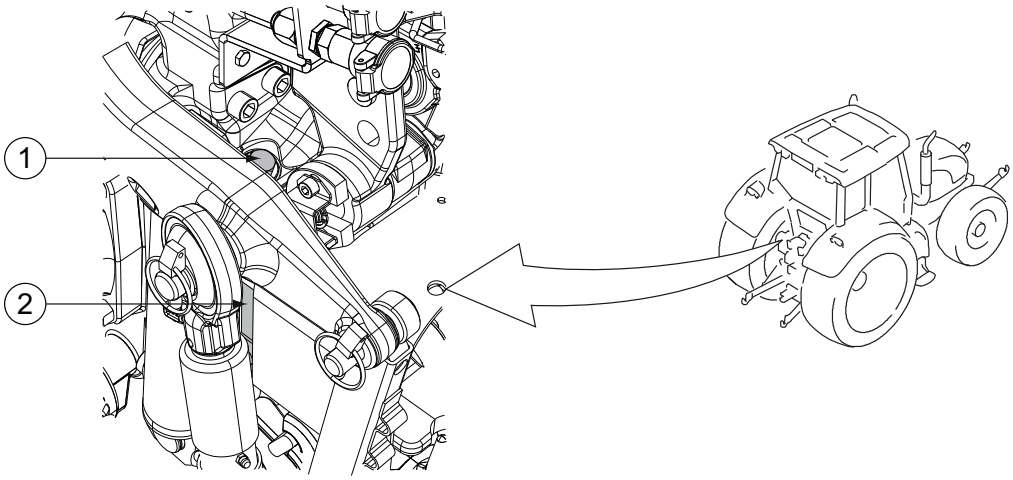
2. **Remove the drain plugs under the gearbox and final drives.**



1. Final drives drain plugs
2. Gearbox drain plug

3. **Drain the oil into a suitable container.**
4. **Clean and refit the plugs.**
5. **Clean the suction strainer.**
6. **Change the transmission and hydraulic system filters.**

7. **Fill the oil through the filler cap.**

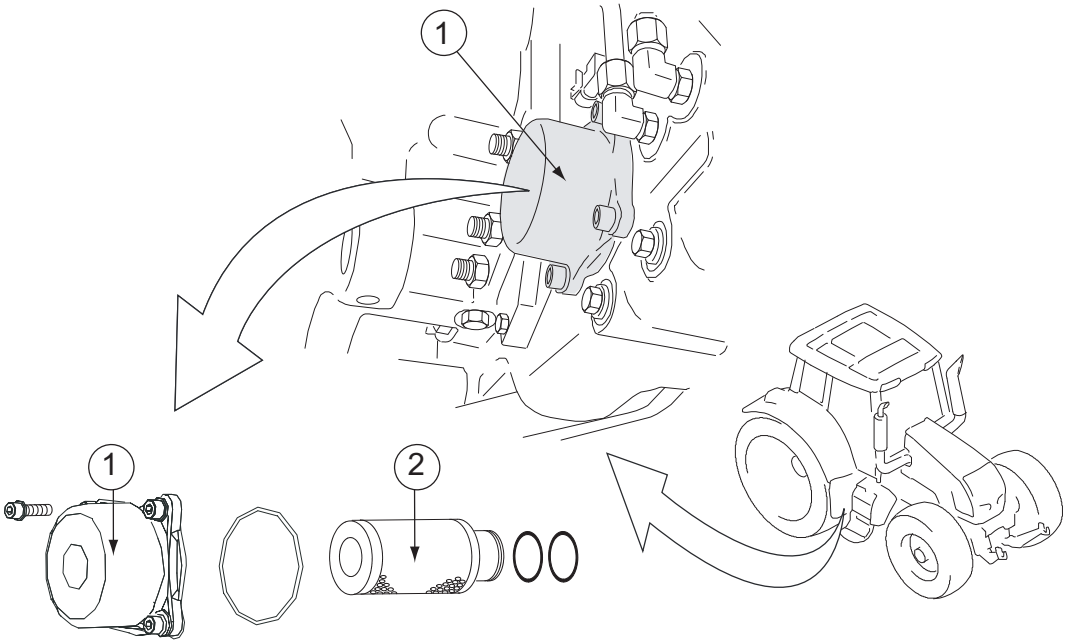


1. Oil filling plug
2. Oil level gauge

8. **Check that the oil level is between the marks.**
9. **Start the engine and check the oil level.**

4.7.5.2 Cleaning the suction strainer

Drain the oil from the transmission.



1. Suction strainer cover
2. Suction strainer

1. **Remove the suction strainer cover.**
2. **Wipe off any oil which has run out on the chassis.**

3. **Clean the suction strainer in diesel fuel.**

   Replace the suction strainer if it is damaged.

4. **Dry the suction strainer with compressed air.**

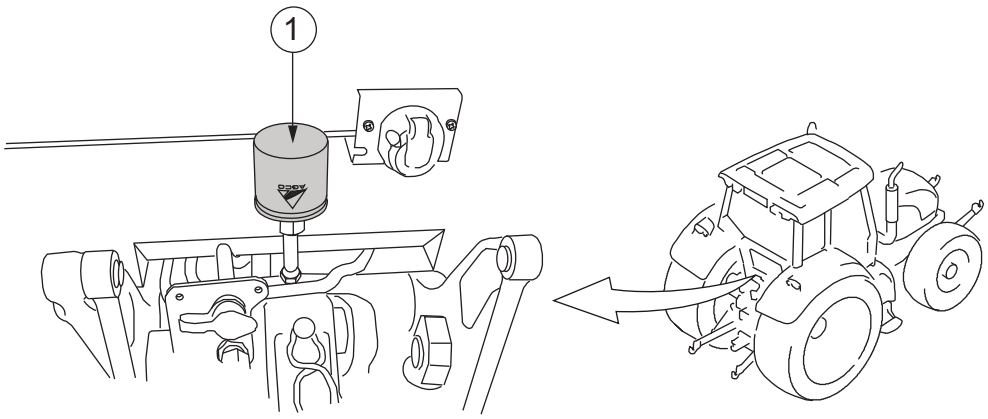
5. **Refit the suction strainer, gaskets and cover.**

Fill the transmission with oil.

4.7.5.3 Changing the transmission breather

Change the transmission breather periodically.

IMPORTANT: If the tractor is used continuously in dusty conditions, the breather must be changed more frequently.

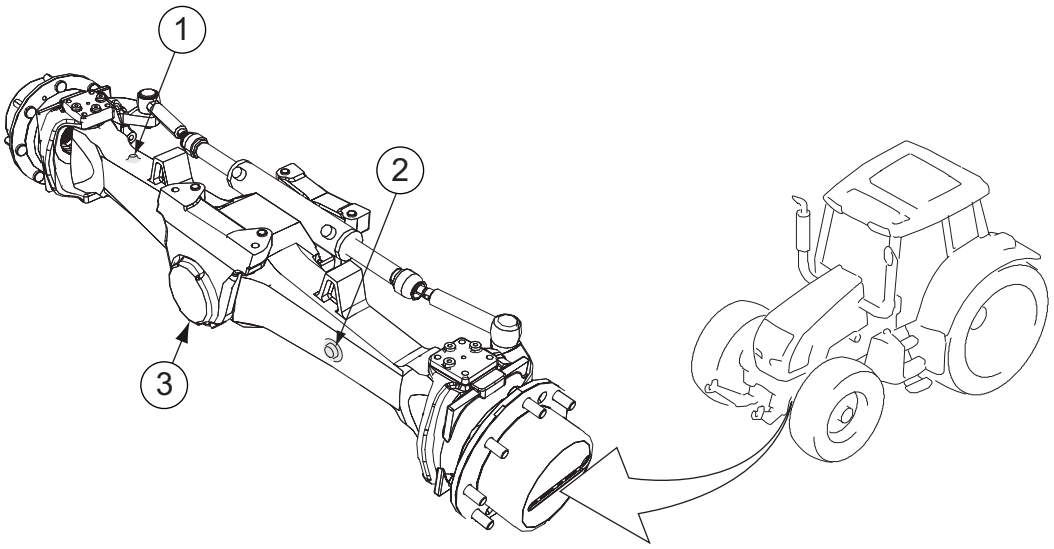


1. Breather

1. **Unscrew the old breather.**
2. **Tighten the breather by hand.**

4.7.5.4 Changing oil in the front axle differential

Change the oil in the front axle differential periodically.

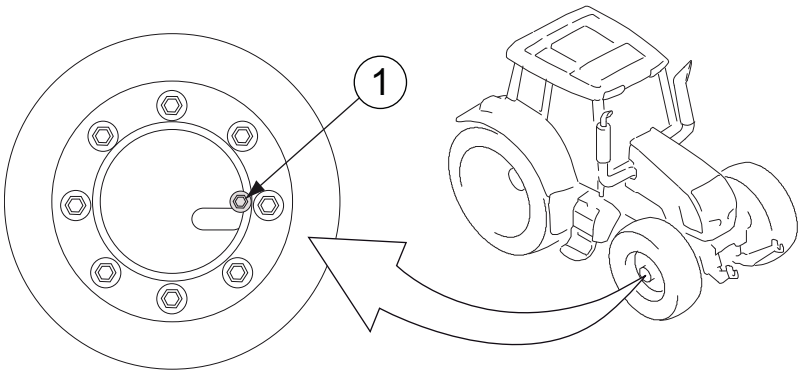


1. Filling plug
2. Inspection hole
3. Drain plug

1. **Unscrew the drain plug.**
2. **Drain the oil into a suitable container.**
3. **Clean the plug and refit it.**
4. **Fill new oil through the filling cap up to the level of the inspection hole.**

4.7.5.5 Changing oil in the front axle hubs

Change oil in the front axle hubs periodically.



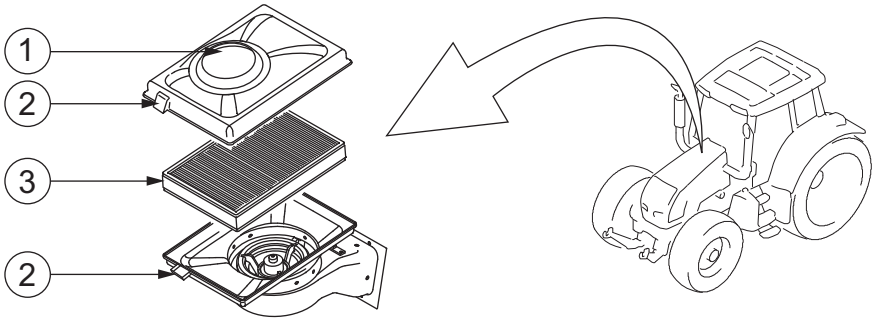
1. Inspection hole

1. **Turn the wheel until the inspection hole is pointing downwards.**
2. **Unscrew the plug and drain the oil into a suitable container.**

3. **Turn the wheel until the line of the inspection hole is horizontal.**
4. **Fill up with oil to the level of the hole.**

4.7.5.6 Changing the cab ventilation air filter

WARNING: The air filter element does not remove chemicals from the outside air. Follow the instructions of the pesticide manufacturer.



1. Ventilation air filter housing cover
2. Guide
3. Ventilation air filter

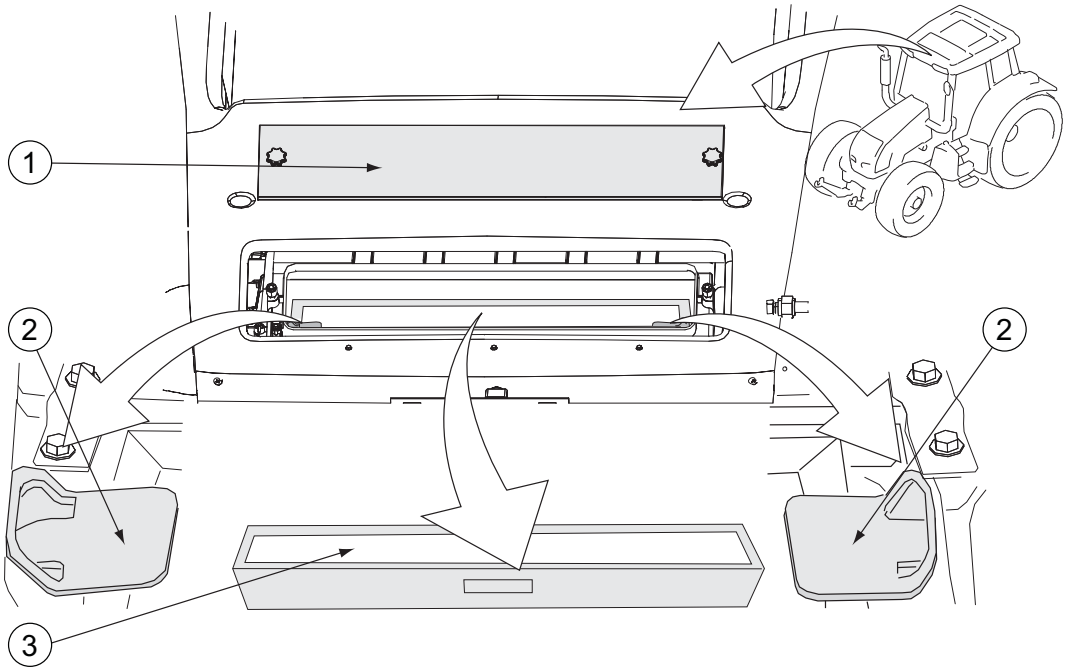
1. **Lift up the ventilation air filter housing cover.**
2. **Remove the ventilation air filter.**
3. **Replace the ventilation air filter with a new one.**

   Fit the guides face to face.
   Change ventilation air filter more often if necessary.
4. **Refit the ventilation air filter housing cover.**

4.7.5.7 Changing the extra heater's air filter

Change the extra heater's air filter periodically.

WARNING: The air filter element does not remove chemicals from the outside air. Follow the instructions of the pesticide manufacturer.



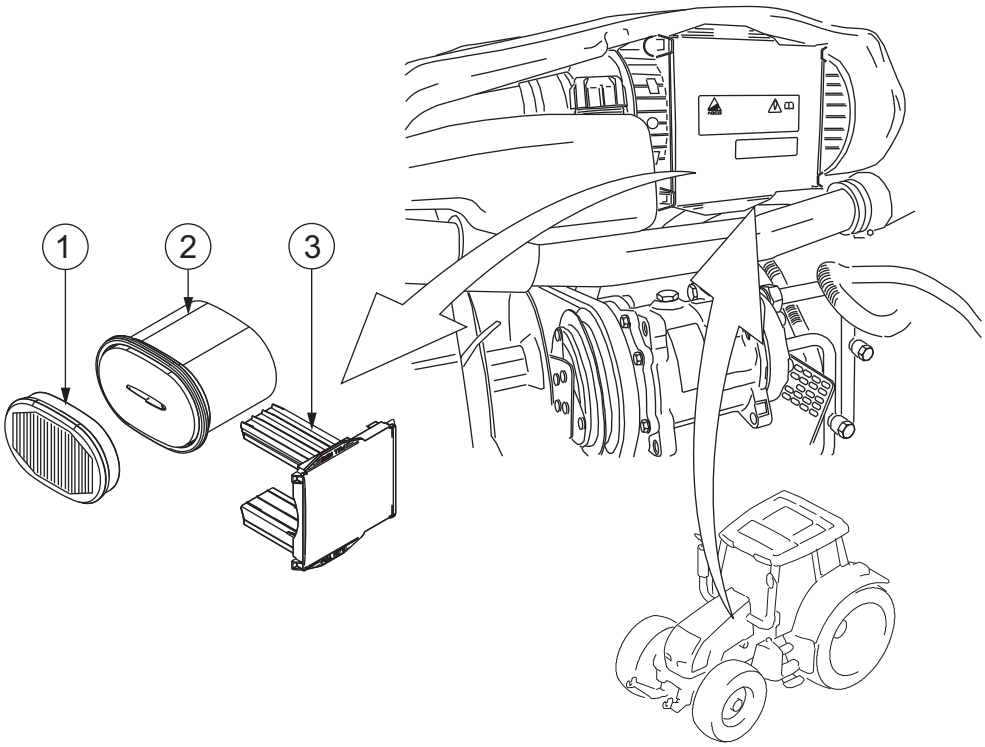
1. Extra heater air filter housing cover
2. Extra heater air filter mounting link
3. Extra heater air filter

1. **Remove the extra heater air filter housing cover.**
   - **Pull the extra heater air filter mounting links up.**
   - **Turn the extra heater air filter mounting links downwards.**
2. **Remove the extra heater air filter.**
3. **Replace the extra heater air filter with a new one.**

   Check that the arrow points upwards.
   Change extra heater air filter more often if necessary.
4. **Refit the extra heater air filter housing cover.**

4.7.5.8 Changing engine air filters

Change the main air filter and safety filter regularly.



1. Safety air filter
2. Main air filter
3. Cover

The safety filter protects the engine if the main air filter gets damaged.

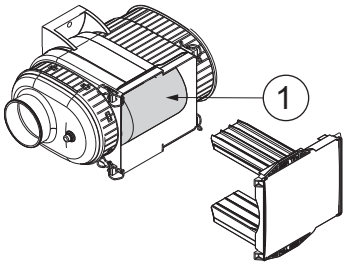
IMPORTANT: Never run the tractor without the safety filter.

NOTE: Do not clean the safety filter. Always change the safety filter according to the maintenance schedule.

NOTE: Unless it is necessary, do not open the cover of the air filter housing.

1. **Open the air filter housing.**

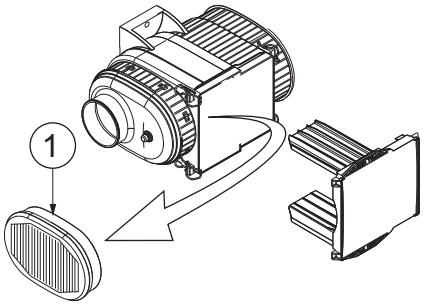
2. **Take out the main filter.**



1. Main air filter

3. **Remove the safety filter.**

IMPORTANT: Take the utmost care when removing the safety filter so that no dirt enters the induction pipe.



1. Safety air filter

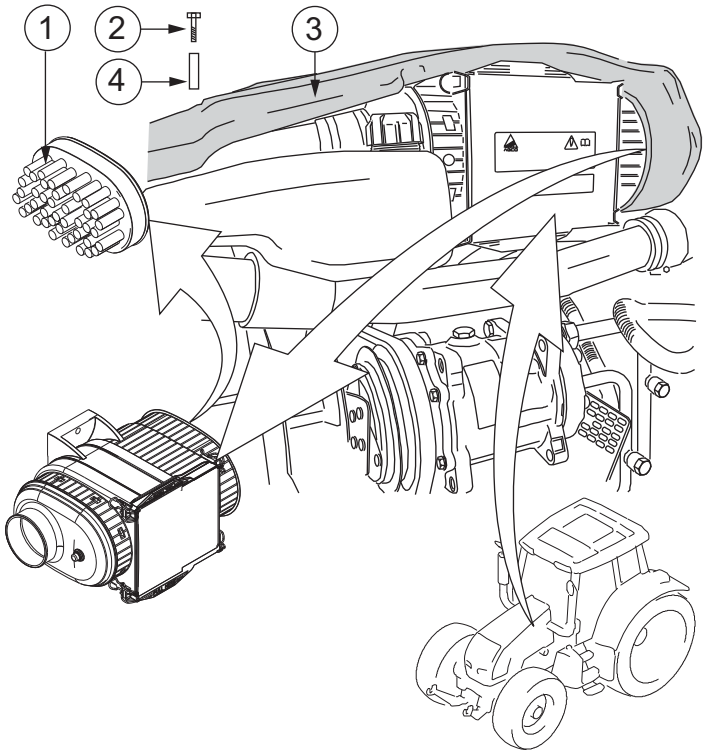
4. **Check that the seals of the filters are in good condition.**
5. **Check that the sealing surfaces of the air filter housing are clean.**
6. **Fit the new safety filter back in place.**

   Make sure that it is correctly positioned in the housing.
7. **Fit the new main filter in place.**

   Make sure that it is correctly positioned in the housing.
8. **Fasten the cover of the air filter housing.**
9. **Clean the cyclone block**

4.7.5.9 Cleaning the cyclone block

IMPORTANT: Do not use hard or sharp tools in order to avoid damaging the cyclone cells.



1. Cyclone
2. Bolt
3. Air intake box
4. Bush

1. **Loosen the bolts of the air intake box.**
2. **Remove the air intake box.**
3. **Remove the cyclone.**
4. **Remove foreign bodies and dust deposits from the cyclone block and from the air intake box.**

   Use for example a brush.
5. **Loosen stubborn dust deposits on the cyclone block.**

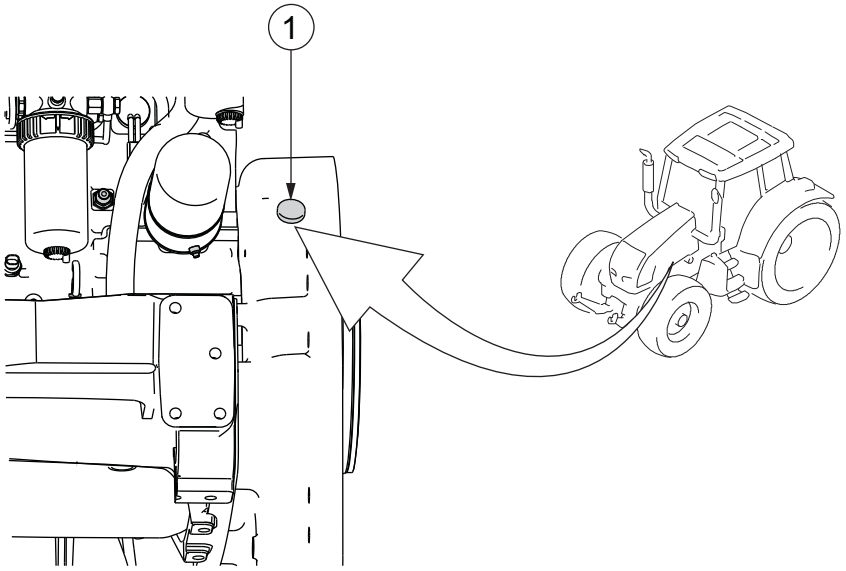
   Use an appropriate cleaning agent that soaks the dust and flush it away carefully with a water jet.
6. **Blow-dry the cyclone block to prevent more dust from adhering.**
7. **Insert the cyclone into the housing.**

8. **Refit the air intake box and tighten the bolts.**

   Remember to refit the bushes.
   The correct tightening torque is 6 Nm.

4.7.5.10 Greasing the flywheel ring gear

Grease the flywheel ring gear periodically.



1. Shield plug of the grease hole

1. **Remove the shield plug of the grease hole on the clutch housing.**

   The grease hole is located on the left-hand side of the clutch housing.

2. **Apply a little grease to a few points on the ring gear with a grease gun.**

   The grease spreads around the gear when the gear is used.
   NOTE: Use Grease Moly.

4.7.5.11 Checking the front wheel toe-in

Check the front wheel toe-in periodically.

1. **Make a vertical mark on both front tyres in the middle of the tread in level with the hubs.**
2. **Measure the distance between the marks.**
3. **Roll the tractor forwards so that the marks again come in level with the hubs, this time at the rear edge.**
4. **Measure the distance between the marks again.**

   The measurement must be 0-2 mm larger at the rear edge.

5. **Adjust the toe-in if necessary.**

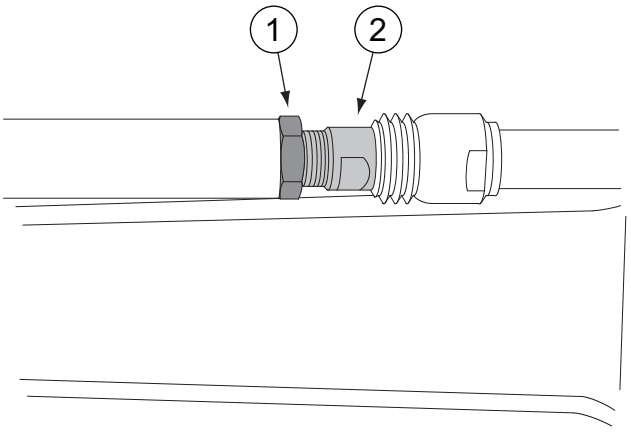
4.7.5.12 Adjusting toe-in of front wheels

Adjust the toe-in of the front wheels if needed.

Before you adjust the toe-in, check that there is no free play in the ball joints of the steering arms and tie rod.

NOTE: In order not to limit the steering movement, both tie rods must be adjusted.

1. **Centre the wheels.**
2. **Loosen the tie rod locking nut.**



1. Locking nut
2. Adjustment screw

3. **Turn the adjustment screw in the right direction.**
4. **Measure both tie rods.**

   IMPORTANT: Both tie rods must be of the same length after the adjustment.
5. **Tighten the locking nut when the correct distance has been achieved.**
6. **Check the toe-in.**

4.7.5.13 Checking the power shuttle operation

Contact an authorised Valtra workshop for checking of the power shuttle operation.

NOTE: Checking of the power shuttle operation must be done after 1 000 operating hours.

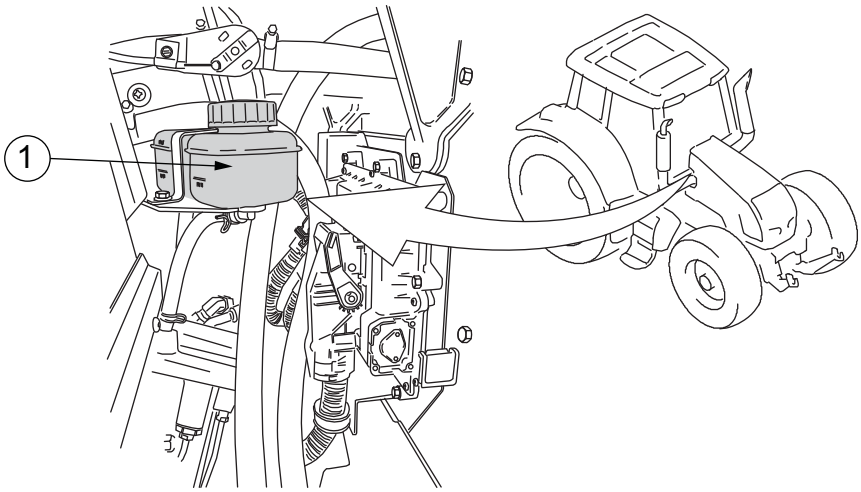
4.7.5.14 Tightening frame nuts and bolts

Tighten the frame nuts and bolts periodically.

4.7.6 Maintenance every 2000 hours or every other year

4.7.6.1 Changing the brake fluid

It is recommended to change the brake fluid every second year or after 2000 hours of operation.



1. Brake fluid reservoir

WARNING: The brake fluid is corrosive and poisonous and must be handled carefully at all times. It also corrodes the paint.

1. **Empty the brake fluid reservoir.**
2. **Open the bleeding nipples.**

   Place hoses from the nipples to a container.
3. **If the tractor is equipped with a trailer brake valve (extra equipment) and/or air pressure brakes (extra equipment), open also their bleeding nipples.**

   Place hoses from the nipples to a container.
4. **Pump the brake pedal until all brake fluid in the pipes and cylinders has run out.**
5. **Fill the brake system with new brake fluid.**
6. **Bleed the brake system of air.**

4.7.6.2 Bleeding the brake system

The brake system has to be bled every two years when changing the oil of the brake circuits, or if the connections have been opened when repairing.

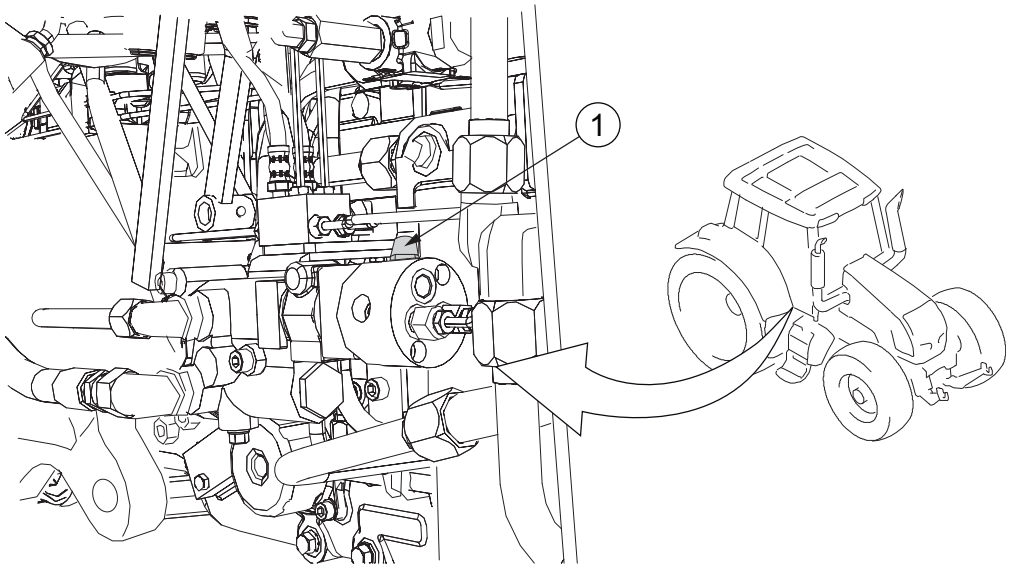
The brake pedals must not be latched together when bleeding. The procedure for bleeding the brake system is the same for the both brake pedals.

The following brake system components must be bled:

- trailer brake valve (extra equipment)
- air pressure brakes (extra equipment)

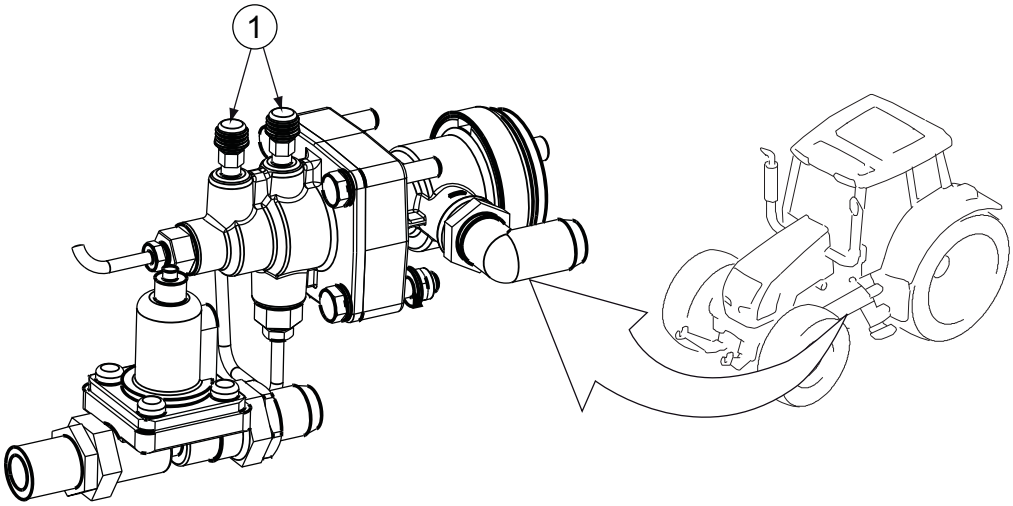
The brakes are bled from the lowest bleeding nipple in the following order:

1. Trailer fluid brake valve



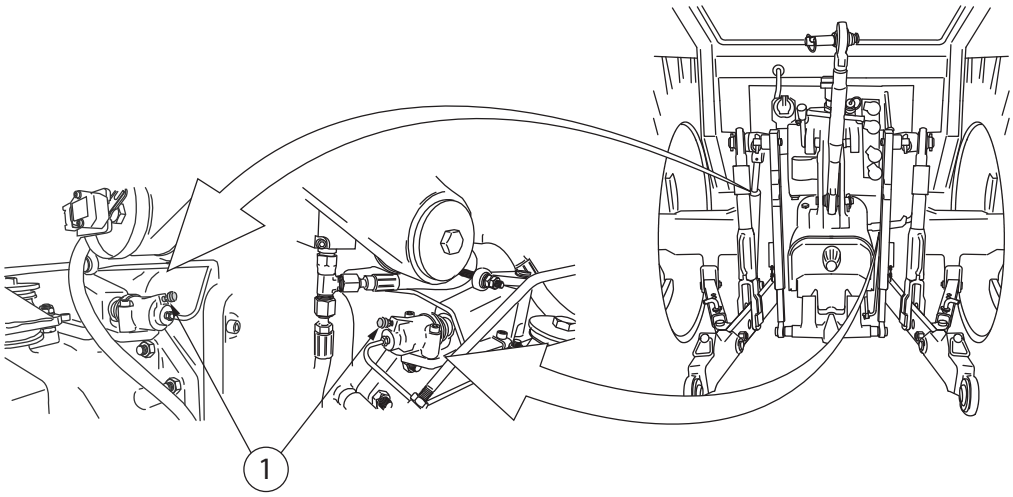
1. Trailer fluid brake valve bleeding nipple

2. Trailer air pressure brakes



1. Trailer air pressure brakes' bleeding nipples

3. Tractor brakes



1. Tractor brakes' bleeding nipples

NOTE: Check that the brake fluid reservoir is full before starting to bleed the system.

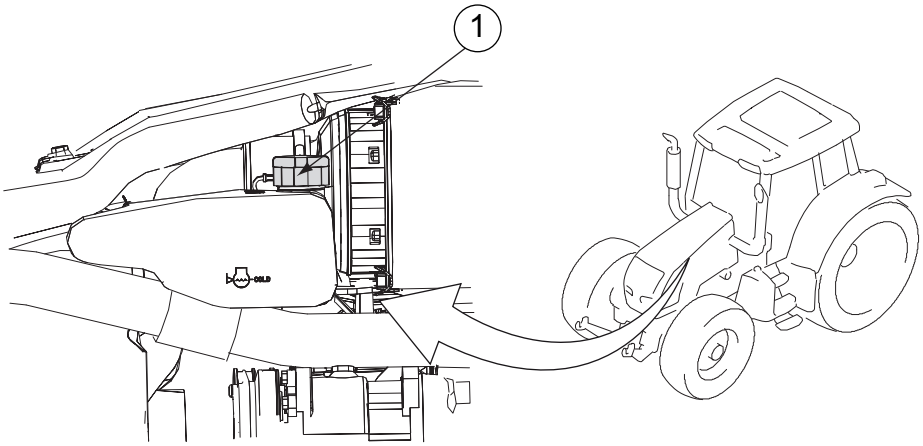
1. **To build up pressure in the system, pump several times on the brake pedal.**
2. **Press down the brake pedal and simultaneously open the bleeding nipple on the brake which is being actuated by the pedal.**
3. **Press down the brake pedal fully and close the nipple.**
4. **Release the brake pedal slowly.**
5. **Repeat pumping the brake pedal until the brake fluid which runs out of the bleeding nipple is completely free from air.**
6. **Check the brake fluid amount in the reservoir and top the reservoir, if needed.**

4.7.6.3 Cleaning the cooling system

If problems occur with the cooling system, it can be a sign that the whole system needs to be thoroughly cleaned.

1. **Stop the engine.**
2. **Open the cap of the expansion tank.**

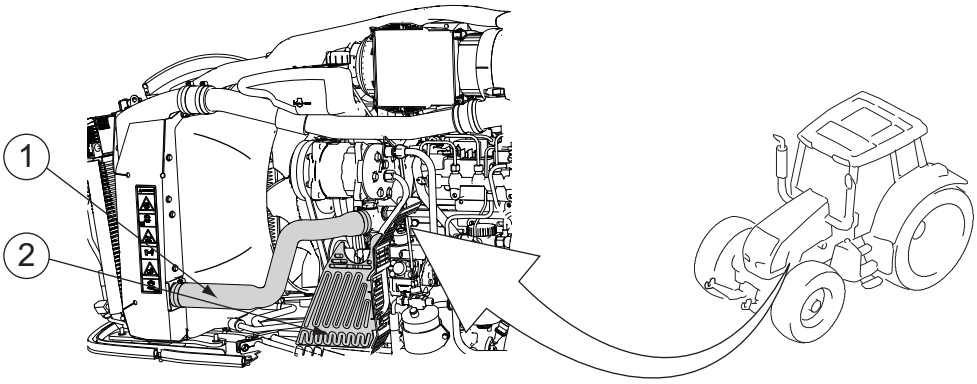
CAUTION: Open the expansion tank cap carefully. When running the tractor the expansion tank has an overpressure of 1.0 bar.



1. Expansion tank cap

3. **Loosen the upper end of the lower water hose.**

Remove the finger shield if necessary.

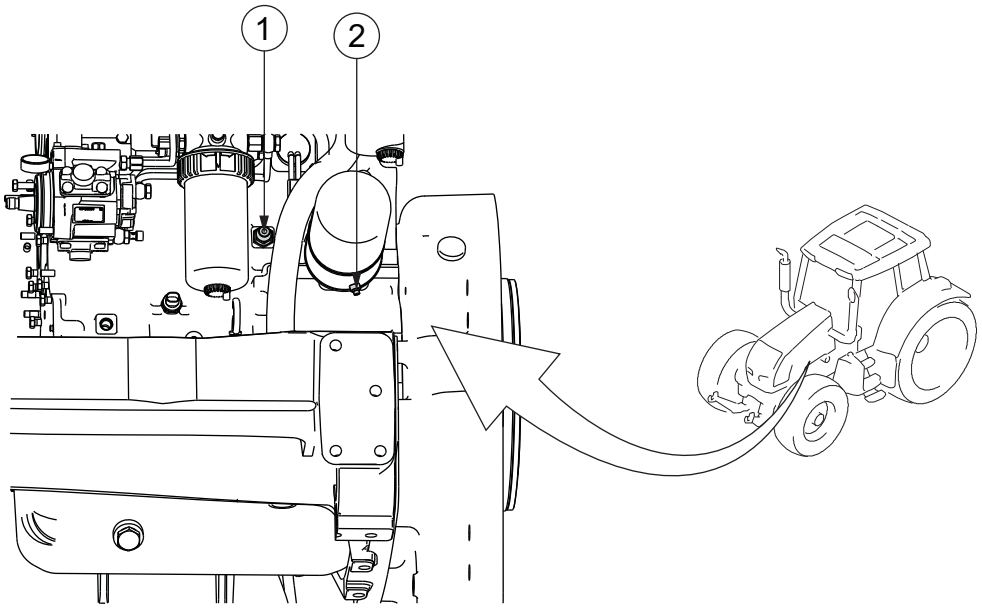


1. Lower water hose
2. Finger shield

4. **Loosen the lower end of the lower water hose.**
5. **Bend the hose to the side and drain the fluid in to a container.**

IMPORTANT: Do not drain coolant on the ground!

6. **Open the drain cocks on the cylinder block and oil cooler.**

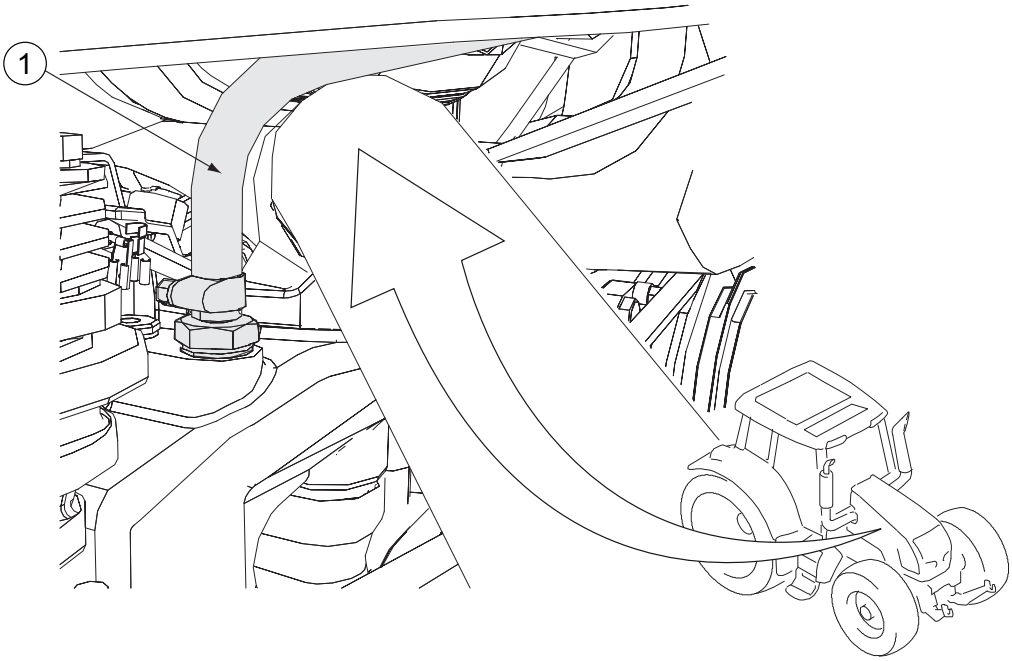


1. Drain cock on the cylinder block
2. Drain cock on the oil cooler

7. **Turn the temperature control knob clockwise to the extreme position.**
8. **Drain the fluid into a container.**
9. **Drain the water pump by cranking the engine a few revisions with the drain plugs removed.**
10. **Clean the cooling system with a special cleaning agent available from your dealer.**

    Follow the manufacturer's instructions.
11. **Close the drain cock on the cylinder block.**
12. **Refit the lower water hose.**
13. **Close the drain plug of the cylinder group.**

14. **Loosen the hose placed between the thermostat housing and expansion tank.**



1. Hose

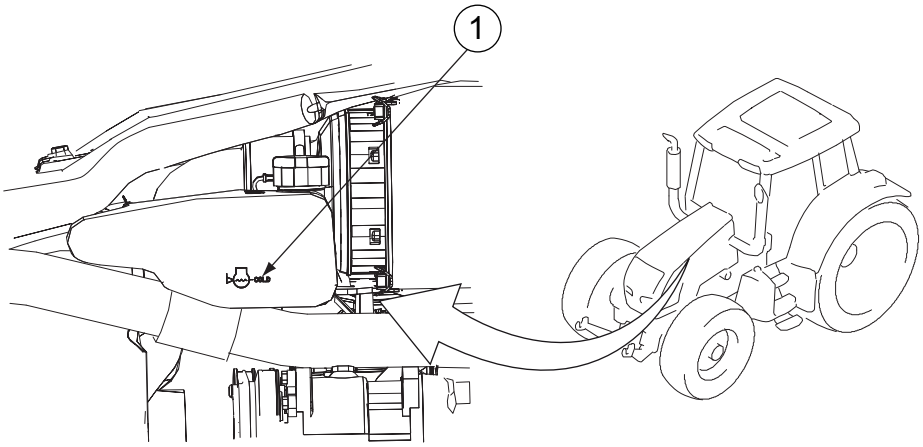
15. **Check that the restrictor hole in the union is open.**

    The restrictor hole diameter is about 2 mm.

16. **Refasten the hose.**

17. **Fill the system to the fluid level mark on the expansion tank.**

    Mix the anti-freeze and water according to the manufacturer's instructions.



1. Fluid level mark

NOTE: Always use a recommended coolant.

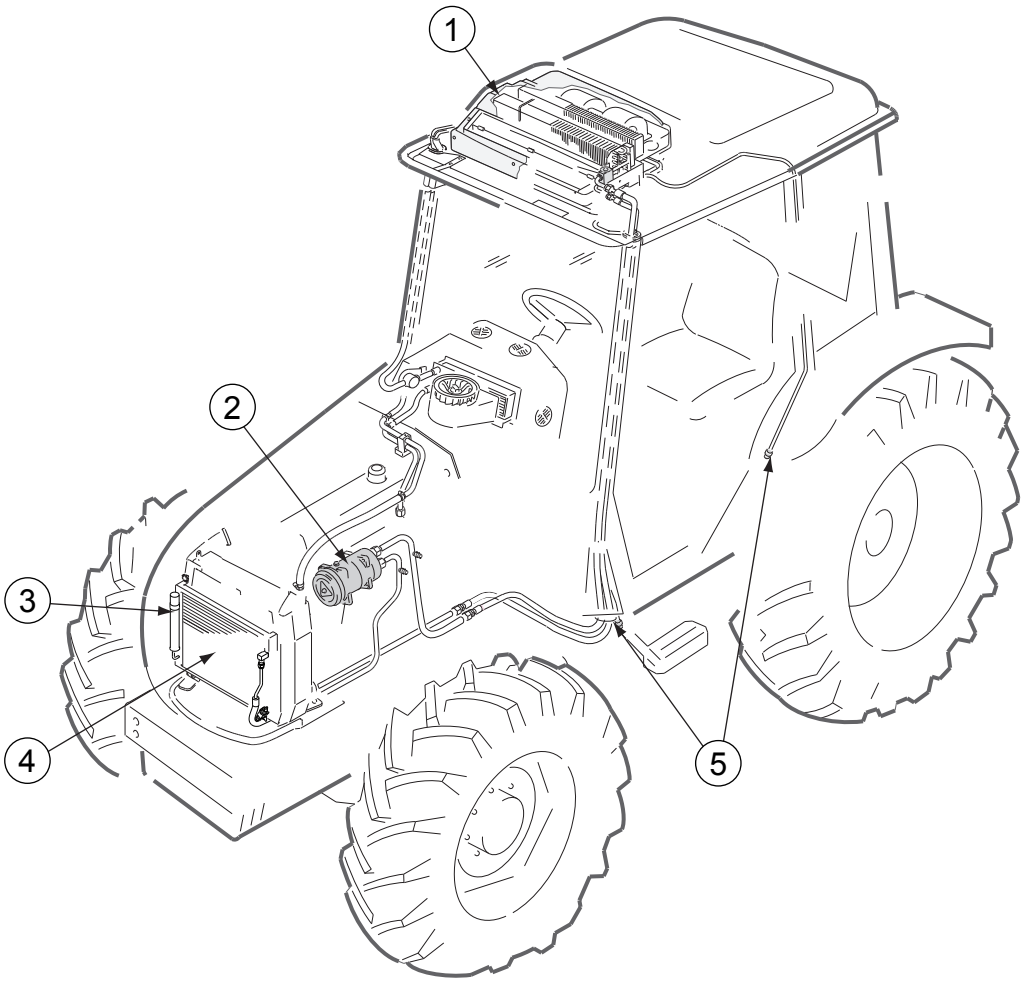
IMPORTANT: Never fill up with cold fluid while the engine is warm.

IMPORTANT: Do not use plain water as coolant.

After changing the fluid, run the engine for a while and check the level of the fluid.

4.7.6.4 Maintaining the air conditioning

Maintain the air conditioning regularly.



1. Condenser
2. Compressor
3. Dryer
4. Evaporator
5. Outlet pipe of the condensation pipe

IMPORTANT: If the air conditioning system has not been used for a while, free the compressor before starting the engine by rotating the pulley nut with a wrench.

CAUTION: Do not attempt to remove any part of the air conditioning system.

NOTE: Make sure that the compressor starts. At low temperatures, the thermostat prevents the compressor from starting.

- **Do not attempt to repair the air conditioning system.**

  Contact an authorised Valtra workshop if problems occur.

- **Clean the condenser at regular intervals to remove dust, insects and other particles.**
- **Check that there are no leaks in the condenser, evaporator, hoses and couplings.**
- **Check the cleanliness of the outlet pipe of the condensation pipe.**
- **Avoid contact with the refrigerant.**

  WARNING:
  If a refrigerant ends up in your eyes, contact a doctor immediately. Do not weld near the air conditioning system as poisonous gas may be released. The maximum permissible environmental temperature for the refrigerant pipes is 80°C.

- **If the air conditioning is not functioning properly, contact an authorised Valtra workshop for checking of the system.**

4.8 Checks and adjustments

4.8.1 Changing tyres

WARNING: When welding the discs, the tyre must be removed from the rim/disc. There is a danger of explosion.

When selecting tyres, always contact your dealer to ensure the correct transmission ratio for four-wheel drive (4WD).

1. **Get the tyres changed.**

   IMPORTANT: Change tyres and wheels at a professional tyre workshop that is equipped to handle this type of work.

2. **Check the tyre pressures.**
3. **Tighten the wheel nuts after a few hours of driving.**

4.8.2 Track widths

The track width is measured between the middle of the tyres. If needed, adjust the track widths.

IMPORTANT: The maximum allowed width of the tractor is 2550 mm (if larger width is not nationally allowed).

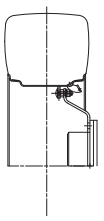
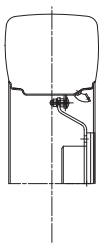
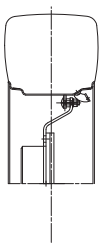
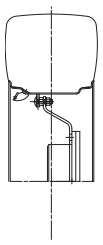
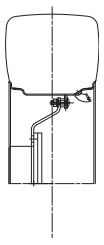
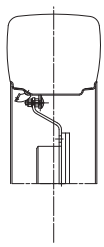
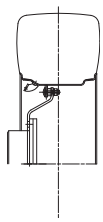
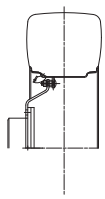
The distance between the mudguards is 924 mm at the rear.

In many work applications, it is advisable to adjust the track widths so that the track made by the front tyres is covered by the track made by the rear tyres.

When using narrow track widths for the rear axle, check that the lower links do not touch the tyres. When required, lock the side regulators.

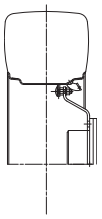
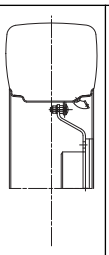
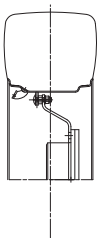
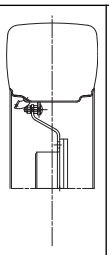
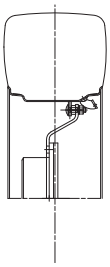
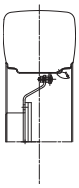
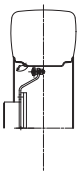
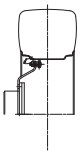
IMPORTANT: According to EU directives the smallest allowed distance between the tyre and the cab is 40 mm.

4.8.2.1 Front axle track widths

								
12.4R24	1 815	1 724	1 615	1 612 [1)]	1 524	1 521	1 412	1 321
13.6R24, 14.9R24, 320/85R24, 340/85R24, 380/70R24, 380/85R24, 420/70R24, 420/70R24 440/65R24	1 815	1 724 [1)]	1 615	1 612	1 524	1 521	1 412	1 321

1) Standard track width

4.8.2.2 Rear axle track widths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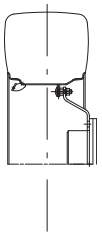
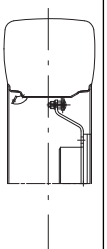
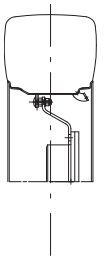
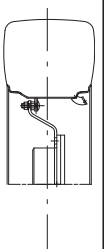
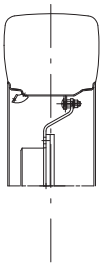
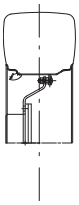
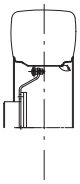
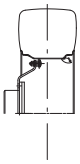
18.4R30		2 014	1 902	1 811	1 705	1 614 [1)]	1 502	
16.9R34, 18.4R34, 420/85R34	2 107	2 014	1 904	1 811	1 707 [1)]	1 614	1 504	
460/85R34, 480/70R34		2 014	1 904	1 811	1 707 [1)]	1 614	1 504	
520/70R34, 540/65R34		2 014	1 904	1 811	1 707 [1)]	1 614		
								
13.6R38, 340/85R38	2 111	2 014	1 908	1 811	1 707 [1)]	1 614	1 508	1 411

1) Standard track width

4.8.3 Using chains

Chains can be used on the front wheels only when they are also used on the rear wheels.

- **Make sure that the chains are correctly tightened to avoid damaging the mudguards.**

4.8.4 Using twin-mounted wheels

Twin-mounted wheels can be used for decreasing the surface pressure, but not for obtaining better side support.

1. **Multiply the loading by 1.76 of the permissible load on one wheel.**

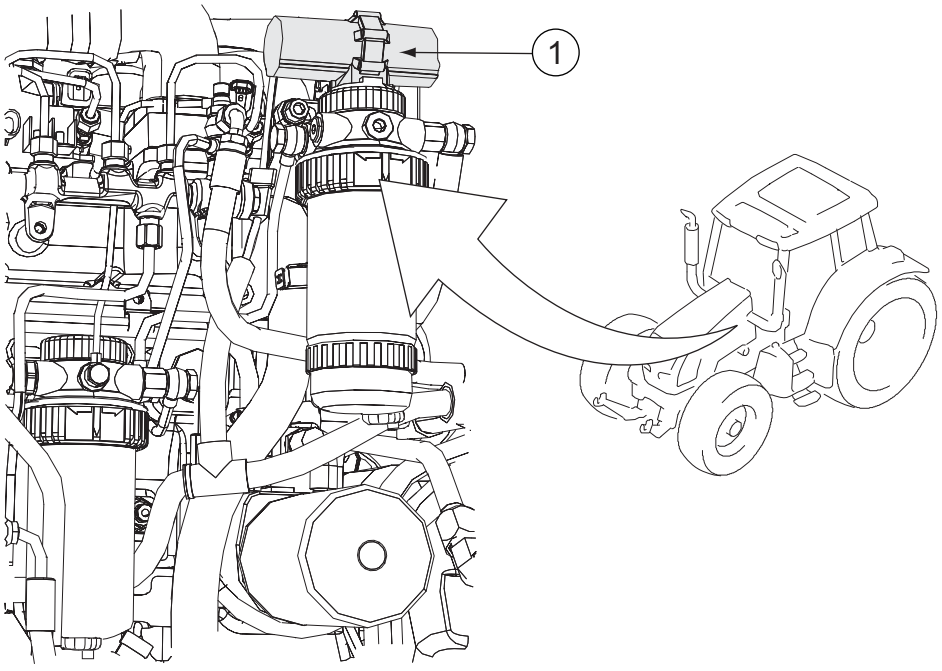
   IMPORTANT: Do not exceed the maximum permitted axle loading even if the tyres allow a heavier load.

2. **If dual/extension wheels are used, check that the tyre size does not exceed the permissible tyre values.**
3. **Adjust the track width of the inner wheels to the minimum value.**
4. **Adjust the turning angle, if necessary.**

4.8.5 Engine

4.8.5.1 Bleeding the fuel system

The fuel system bleeds air automatically. Allow air to bleed from the fuel system every time the system has been opened or fuel has run out during driving.



1. Electric feed pump

WARNING: The fuel system connectors are not allowed to be opened when the engine is running and not for 30 seconds after switching off the engine. The pressure in the engines can be over 1 000 bar. If the jet of the high pressure fuel comes in contact with your skin, the fuel penetrates the skin and causes serious injuries. Contact your doctor immediately.

WARNING: Only an authorised person is allowed to repair the fuel system.

1. **Hold the ignition key in the power on position**  .

   Wait for 30 seconds.The fuel feed pump is rotating and air is bled from the low pressure fuel system.

   The feed pump stops after one minute if the engine is not started.

2. **Start the engine.**

   Turn the ignition key to the starting position  for ten seconds.

   NOTE: The high pressure circuit bleeds only when the high pressure pump is rotating.

3. **If the engine fails to start, move the ignition key to the STOP position and start the bleeding procedure again.**

4.8.6 Electrical system

4.8.6.1 Safety precautions for the electrical system

Follow the safety precautions for the electrical system.

IMPORTANT: Disconnect the negative battery lead before removing the alternator.

IMPORTANT: Never open the charging circuit while the engine is running.

IMPORTANT: Disconnect the negative lead of the battery first and connect it last.

IMPORTANT: Remove the battery caps during charging to prevent the build up of explosive gases in the battery.

IMPORTANT: Always connect the battery with the correct polarity.

IMPORTANT: Do not connect any additional electrical equipment, as this may damage components of the existing electrical system.

IMPORTANT: All electronic equipment is sensitive to electrostatic discharge (ESD). Take all necessary measures to minimize or eliminate the risk of equipment being damaged by ESD.

4.8.6.2 Checking the battery

Check and clean the battery on a regular basis.

DANGER: Avoid sparks or naked flames near the battery. The battery gives off an explosive hydrogen gas! The battery electrolyte is corrosive.

- **Check that the fan belts are correctly tightened.**
- **Keep the battery clean.**

  Wash it with lukewarm water after removal from the tractor.
  IMPORTANT: Always disconnect the negative lead before washing.
- **Clean the pole studs, the cable terminals and the battery retainer thoroughly.**

  Wash off oxidised spots with water. Wipe the outside of the battery when it is clean, and coat the pole studs and the cable terminals with petroleum jelly.
- **Refit the battery.**

  IMPORTANT: Always connect the positive lead first.

4.8.6.3 Alternator

The tractor has a negative-grounded alternator which can easily be damaged if incorrect connections are made in the electrical system.

Connection of the battery with wrong polarity can burn out the alternator or rectifier. The electrical charging circuit must not be broken when the engine is running.

4.8.6.4 Protecting the electrical system before welding

Before repairing the tractor by arc welding, protect the electrical system from damaging.

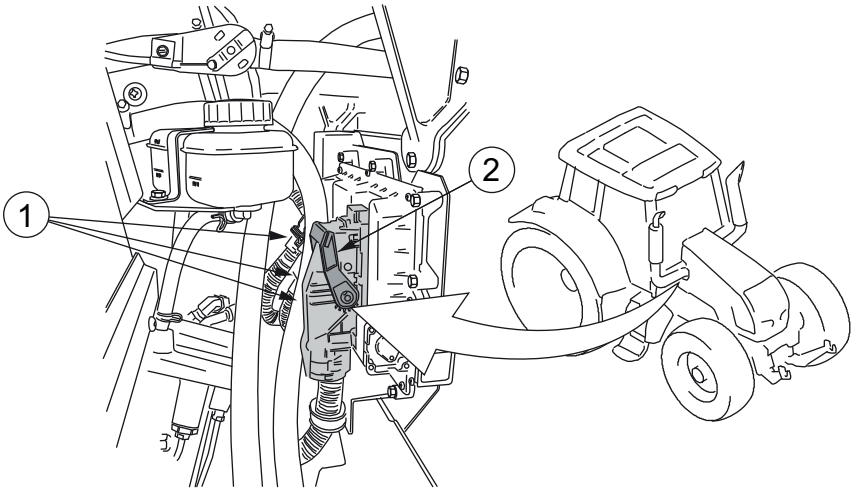
1. **Disconnect the battery leads.**

   Disconnect the negative lead first.
2. **Disconnect the alternator wiring.**

   IMPORTANT: Never run the engine with the alternator disconnected.
3. **Remove the engine control unit cover.**

4. **Disconnect the engine control unit connectors.**

   Open the connector locking device to disconnect the connectors.



1. Connectors
2. Connector locking device

When reconnecting, turn the locking device back to the locking position.

4.8.6.5 Fuses and relays

The electric centre is positioned on the left side of the dashboard. The relays related to the specific fuses are located in the fuse boxes. Other relays are placed outside the electric centre.

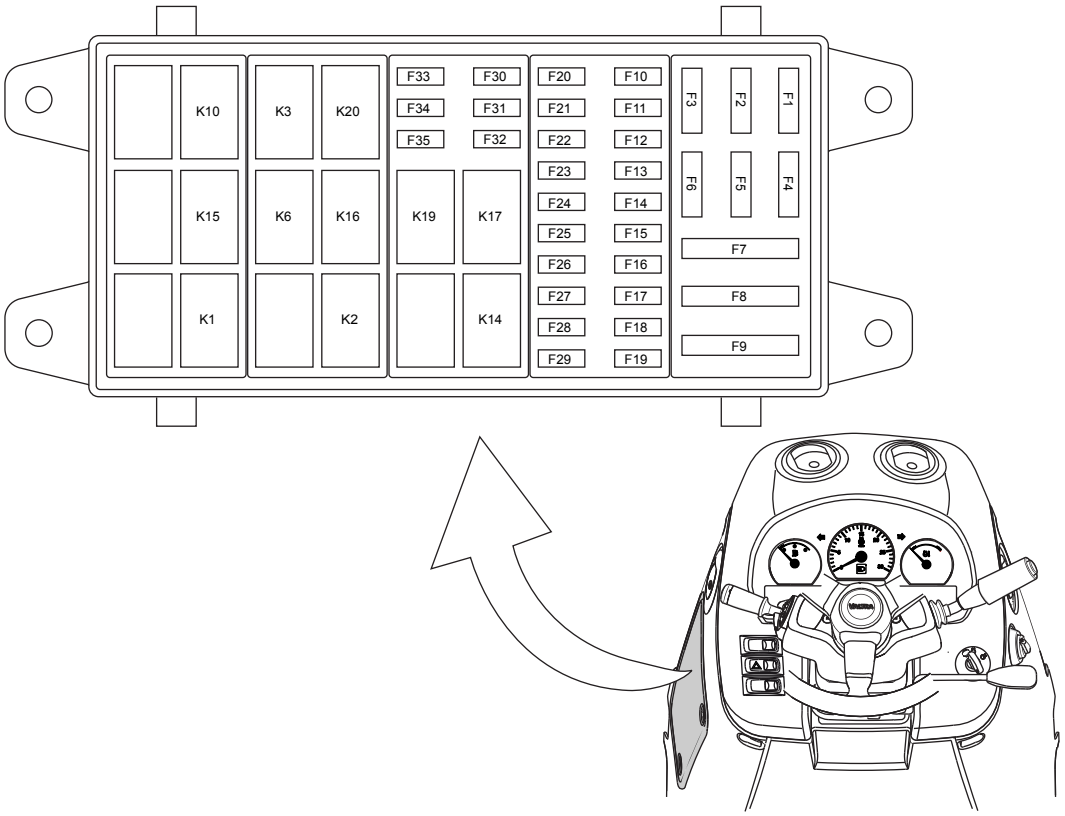
The electric centre must always be kept clean. If a fuse blows, the fault must be traced and remedied.

IMPORTANT: Fuses must not be replaced with new ones of higher rating as this may damage the electrical equipment.

Power for extra equipment can also be taken from the spare fuses or unused extra equipment fuses. A current source can be connected from the main current pole of the starter motor (the current is then switched off with the main switch (extra equipment)) through the new fuse.

4.8.6.6 Fuses and relays in the electric centre

The fuse diagram is placed inside the fuse box. There is space for spare fuses.



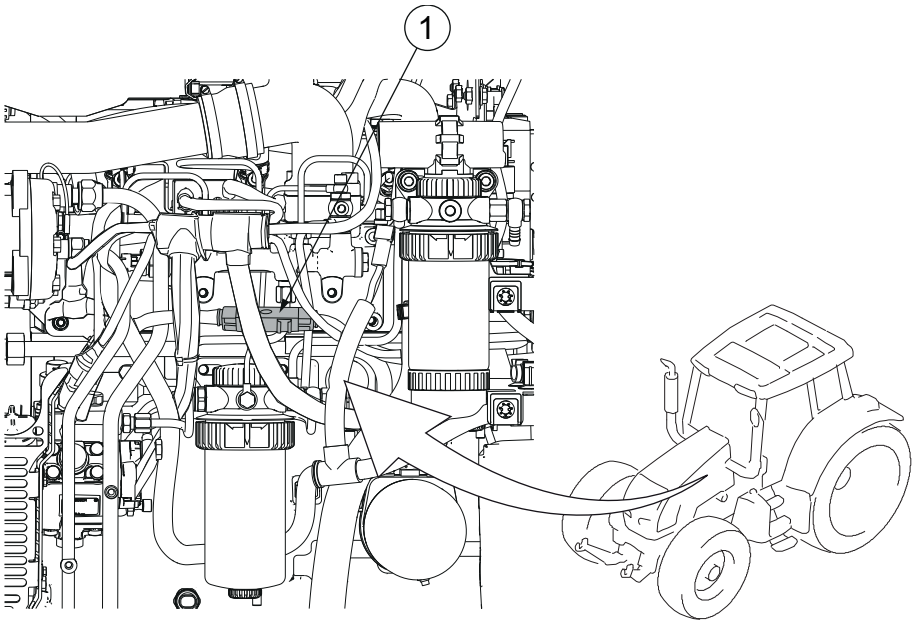
Fuse	Nominal current	Description
F1	20 A	Air conditioning, roof fan
F2	10 A	Rear window wiper and washer
F3	20 A	Parking light control, headlight flasher
F4	25 A	Three-pin power socket
F5	15 A	Rotating warning light
F6	20 A	Transmission controller (TC1)
F7	20 A	Front working lights
F8	20 A	Headlights and main beams (first)
F9	20 A	Rear working lights
F10	10 A	Hazard warning flashers
F11	10 A	Ignition switch, main switch
F12	10 A	Lighter, cab light, diagnostics connector
F13	10 A	Air conditioning compressor
F14	10 A	Fuel pump
F15	10 A	Brake lights
F16	10 A	Hazard warning flashers, light buzzer
F17	5 A	Three-pin power socket, diagnostics connector

Table continued on next page

Fuse	Nominal current	Description
F18	10 A	Armrest (front valves)
F19	5 A	Radio
F20	15 A	Seat (heating and suspension)
F21	10 A	Front power take-off
F22		Reserve
F23	10 A	Transmission controller (TC1), hydraulics, reverse buzzer
F24	5 A	Instrumentation, fuel sensor
F25	10 A	Floor fan
F26	5 A	Parking brake ensure, power shuttle lever
F27	10 A	DIN connector, two-pin power socket, trailer socket
F28		Reserve
F29	15 A	Windscreen wiper and washer, horn
F30	5 A	Memory current for radio, instrument panel, main switch and light buzzer (Proline)
F31	10 A	Parking lights, illumination, light buzzer (Infoline)
F32	10 A	Left parking lights
F33	10 A	Right parking lights
F34	15 A	Main beams (second)
F35	15 A	Headlights (second)

Relay	Description
K1	Brake lights
K2	Parking brake ensure
K3	Clutch compressor
K6	Fuel pump
K10	Main switch
K14	Ignition switch
K15	Parking lights
K16	Front working lights
K17	Ignition switch
K19	Ignition switch
K20	Rear working lights

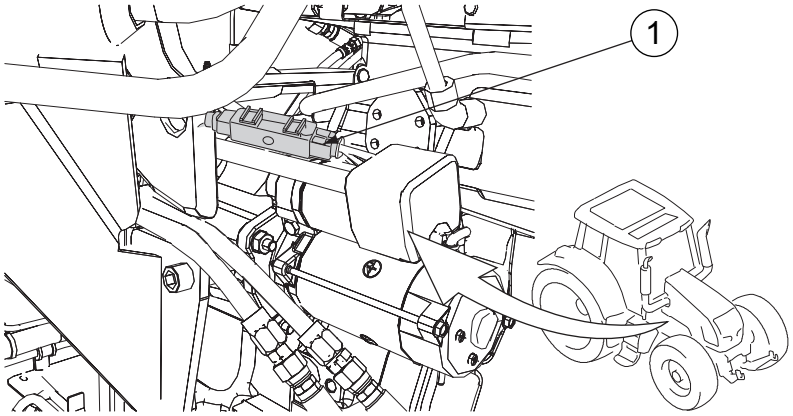
4.8.6.7 Engine induction air preheater fuse



1. Fuse case

Fuse	Nominal current	Description
F53	250 A	Electric preheating of engine induction air

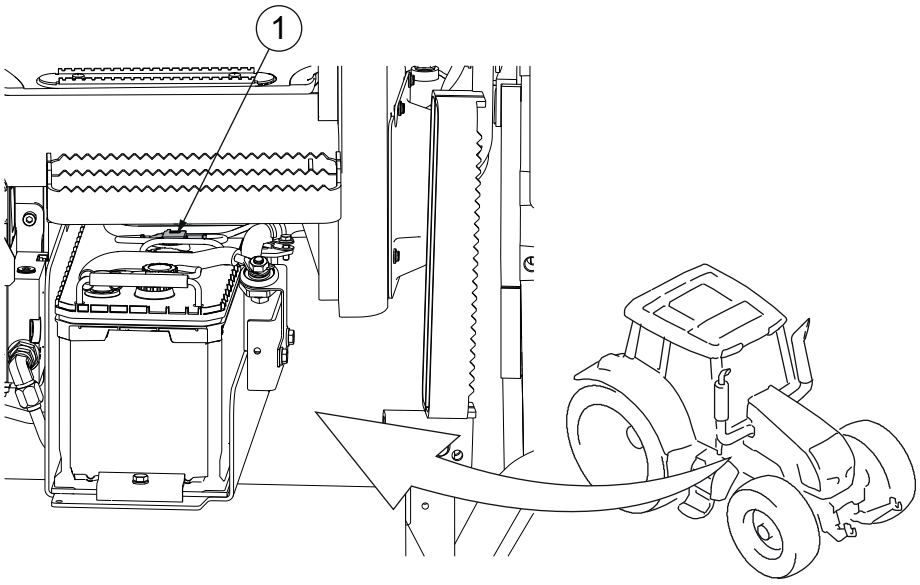
4.8.6.8 Cab power supply fuse



1. Fuse case

Fuse	Nominal current	Description
F52	125 A	Cab power supply

4.8.6.9 Engine control unit fuse



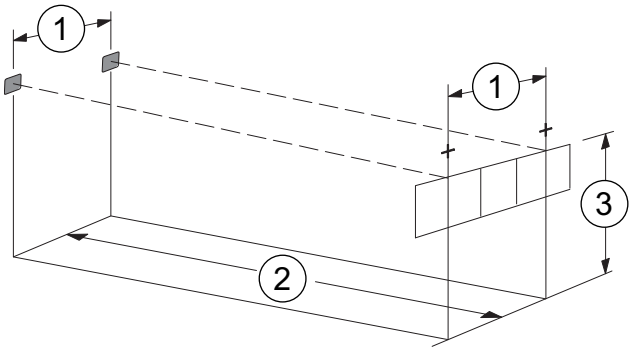
1. Fuse case

Fuse	Nominal current	Description
F2M	30 A	Engine control unit

4.8.6.10 Adjusting headlights

It is important that the headlights are correctly adjusted when running on public roads.

Before you adjust the headlights, make sure that the tractor load is normal and tyre pressure is correct.



1. Distance between headlight centres
2. 5 m (tractor distance from the wall)
3. Height of headlights above ground minus 50 mm

Headlight adjustment can be carried out quickly and accurately by using an optical headlight adjusting unit. If no optical instrument is available, the adjustment can be done as follows:

1. **Turn on the dipped lights.**

2. **Measure that the cut-off edge of the light pattern comes at height of headlights above ground minus 50 mm when the tractor is 5 m from the wall.**
3. **Turn the full beam lights on.**
4. **Measure that the distance between headlight centres matches the distance measured on the wall.**
5. **Adjust the lights using the headlight adjusting screws.**

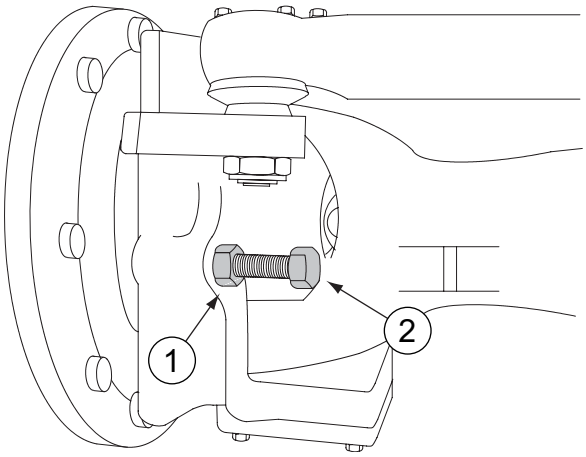
If the tractor has raised full/dipped beam headlights (on the top part of the cab), the lights have to be adjusted so that the light pattern shines on the mark where the ground is even and the distance is 30 m.

4.8.7 Steering system

4.8.7.1 Adjusting the steering angle

IMPORTANT: When altering the track width or when fitting a front loader, always make sure that the front wheels have free movement to full lock in both directions and that the front axle and the wheels can turn fully. If necessary, adjust the steering lock stop screws on the powered front axle.

1. **Slacken the locking nut.**



1. Locking nut
2. Adjusting screw

2. **Adjust the adjusting screw.**

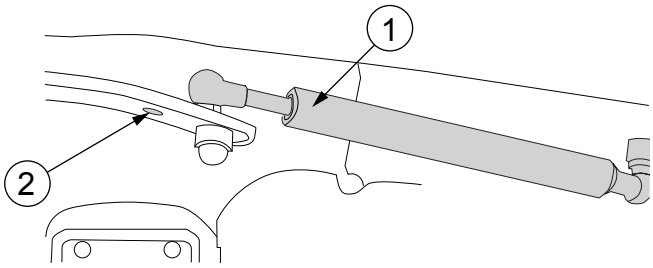
   IMPORTANT: Adjust the adjusting screws on both sides to the same length so that the turning angle is the same on both sides.

3. **Tighten the locking nut.**

4.8.8 Cab and shields

4.8.8.1 Limiting the door opening

Limit the door opening when on twin wheels.



1. Gas spring
2. Fastening holes

- **Check that the door does not come in contact with the wheels when mounting twin wheels.**
- **Change the gas spring to another hole if needed.**

4.8.8.2 Checking and adjusting front mudguards

Check and adjust the front mudguards if needed.

- **After transportation, check and adjust the front mudguards for maximum turning angle.**
- **If necessary, move them to the right width so that the mudguards do not touch the tractor chassis.**

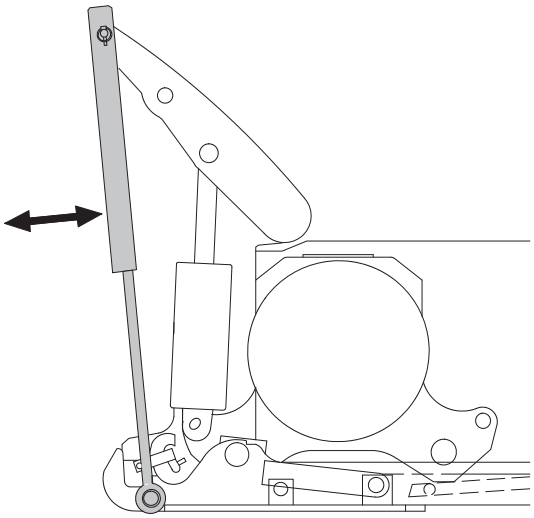
  The minimum distance of the mudguards frame from the tyres is 40 mm sideways and 60 mm vertically.

4.8.9 Hydraulic system

4.8.9.1 Adjusting lifting links of the pick-up hitch

Adjust the lifting links of the pick-up hitch if needed.

The lifting height selector must be in the maximum position when the towing hook is unloaded.



The lifting links must always have a certain amount of clearance when the rear linkage is in its upper position. However, they must be adjusted in such a way that the pick-up hitch is securely locked by the pawl, even when the towing hook is loaded.

1. **Raise the rear linkage to its upper position.**

   Do not use the lift/lower switch.

2. **Check the adjustment by moving the lifting links manually.**

   The adjustment is correct when the links move loosely. When the linkage is lowered, the towing hook is locked positively by the pawl.

3. **Make sure that the spring returns the pawl completely.**

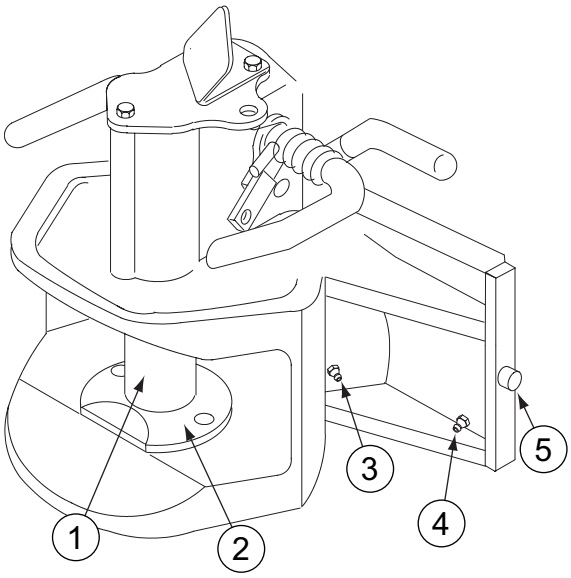
4. **If necessary, adjust the length of the links by removing the cotter at the upper end of the links and turning them until the correct length is obtained.**

5. **Check that both lifting links are of the same length after the adjustment.**

The lifting links can be tight when the lift/lower switch is used for lifting. Correctly adjusted, the lifting links ensure that the rear linkage can be raised to its uppermost position. The pick-up hitch is locked when the linkage is lowered to the point where the hitch rests on the pawl. This prevents unnecessary loading on the hydraulic pump and overheating of the oil.

4.8.9.2 Maintaining the automatic jaw of the wagon towing device

Maintain the automatic jaw of the wagon towing device regularly.



1. Main pin
2. Control unit of the puller pin
3. Nipple 1
4. Nipple 2
5. Locking pin (2 pcs)

- **Regularly clean the main pin, control unit of the puller pin and locking pins.**

  Do not use pressure wash when cleaning the main pin.

- **Grease nipple 1 regularly with Valtra Calsium LF grease.**
  - **Turn the jaw from left to right at least 90º after greasing.**

    This ensures that the grease spreads evenly to the desired surfaces.

  IMPORTANT: If the jaw is rusty, for example due to the fertiliser, do not use a rust-loosening agent for removing the rust but take it to an authorised Valtra workshop.

- **Grease nipple 2 with Valtra Calsium LF grease if necessary or at least every 1000 hours.**

5 Faults and remedial actions

5.1 Handling error situations

Indicator lights guide you in error situations.

- **Take notice of the indicator lights on the instrument panel and act accordingly.**

The STOP indicator light starts flashing.	• Stop the tractor and the engine immediately. • Continue only in an emergency, for example, to move the tractor to the roadside.

NOTE: The tractor has a function which delays the activation of the parking brake when the engine is stopped. The function activates if:

- The engine speed stays below 400 rpm for longer than one second, but the engine remains running.

and

- The driving speed exceeds 5 km/h.

In this case, the tractor does not move and no service codes are shown on the display. To continue driving, you have to stop and restart the engine.

5.2 Errors indicated by the indicator lights

Indicator light	Indication
	Direction indicator light for second trailer. If one of the bulbs on the combination has failed, this light is not lit.
	Direction indicator light for first trailer. If one of the bulbs on the combination has failed, this light is not lit.
	Engine air cleaner clogging indicator light. The light is lit when the engine is running and a buzzer sounds once to indicate that the engine air filter is clogged and needs to be serviced.
	Engine oil pressure light The light is lit when the engine is running, a buzzer sounds continuously and the STOP indicator light flashes to indicate that the oil pressure is too low.
	Σ-indicator light is used as a service code indicator light (flashing)
	Parking brake indicator light If the light is lit and the STOP light is flashing, the parking brake cable is broken or incorrectly adjusted.
	Battery charging indicator light The light is lit and a buzzer sounds once when battery charging is not ongoing. **IMPORTANT**: A charging failure must be fixed immediately. When the voltage is reduced, the electric valves may reduce the oil pressure for the multi-disc clutches and cause clutch slippage which may damage the clutch discs.

Table continued on next page

Indicator light	Indication
	STOP indicator light **IMPORTANT**: If the STOP light starts flashing, stop the tractor and engine immediately. You can continue driving only in an emergency, for example to move the tractor to the roadside. The STOP light flashes to indicate a serious fault, for example: •  Engine oil pressure is too low •  Gearbox oil pressure is too low •  Parking brake cable is broken or incorrectly adjusted • Engine temperature is too high (gauge).
	Gearbox oil pressure light The light is lit and the STOP indicator light flashes to indicate that the gearbox oil pressure is too low.
	Gearbox oil temperature light The light is lit and the STOP indicator light flashes to indicate that the gearbox oil temperature is too high. The gearbox oil temperature can be shown on the Proline instrument panel display.
	Pressure oil filter clogging indicator light The light is lit and a buzzer sounds once when the engine is running and the oil temperature is over 20 °C. This indicates that the pressure filter(s) of the hydraulic or transmission system requires service. **NOTE**: The light may come on if the tractor is started when it is very cold.

5.2.1 Cleaning the main engine air filter

You can clean the main engine air filter with compressed air.

IMPORTANT: After that it must be replaced.

NOTE: Change the main engine air filter if you discover any holes or other defects.

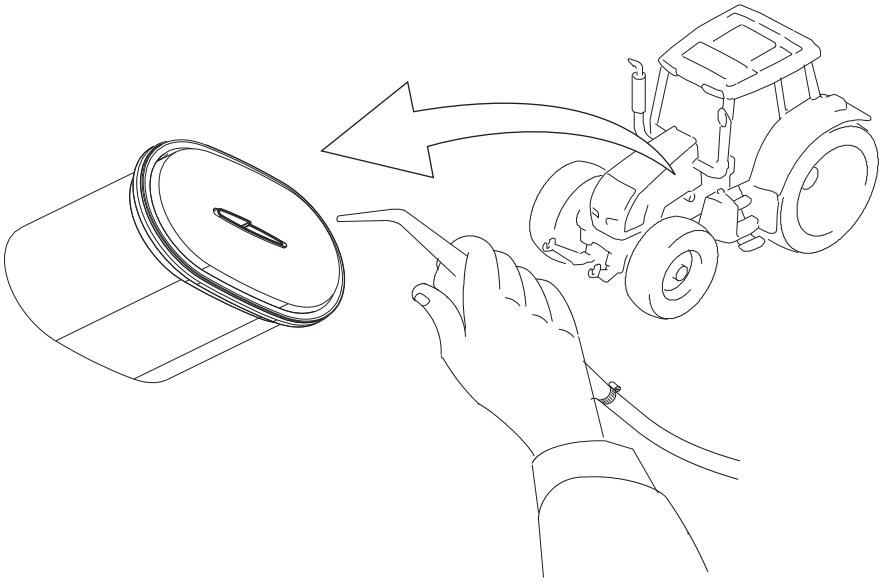
IMPORTANT: Do not open the cover of the air cleaner housing unnecessarily. During maintenance, check that the cover of the housing, pipes and unions are in good condition.

IMPORTANT: The safety filter behind the main engine air filter must not be cleaned but must always be changed according to the maintenance schedule. The purpose of the safety filter is to prevent damage to the engine if the main engine air filter fails.

1. **Stop the engine.**
2. **Take out the main engine air filter from the air filter housing.**

3. **Direct the air flow from the rear side of the main engine air filter forward in the air direction.**

   Use clean and dry compressed air with a maximum pressure of 500 kPa.
   IMPORTANT: Do not hold the nozzle closer than 3-5 cm from the main engine air filter.



4. **Direct the air flow from the front side of the main engine air filter and after that from the rear side.**
5. **Check the inside of the air cleaner housing and the inlet pipe.**

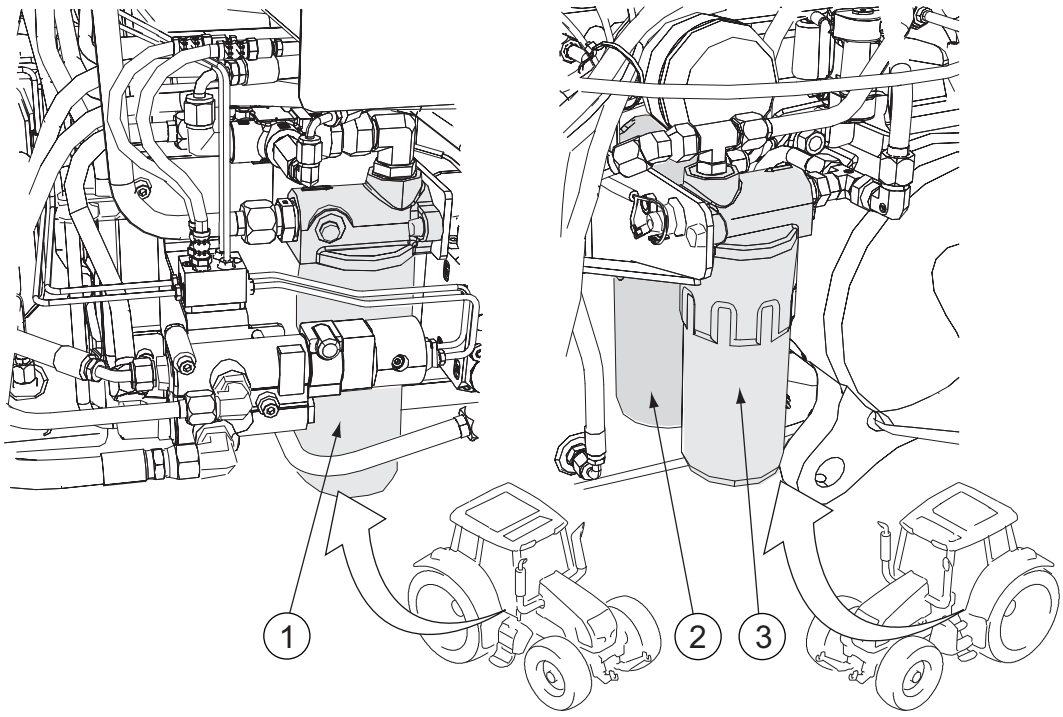
   Dirt on these parts indicates that the filter element is defective or has not been fitted properly.
6. **Check the main engine air filter and its sealing surfaces using a flashlight.**
7. **Fit the main engine air filter back in the air filter housing.**

5.2.2 Identifying a blocked transmission or hydraulic system filter

When the pressure oil filter clogging indicator light  is lit the filter of the transmission or hydraulic system is blocked.

If the indicator light is lit when the oil has been warmed, one of the pressure filters or the return oil filter is blocked. If the indicator light is lit when using auxiliary hydraulics, it is probably only the hydraulic return filter which is blocked.

NOTE: All filters are identical.



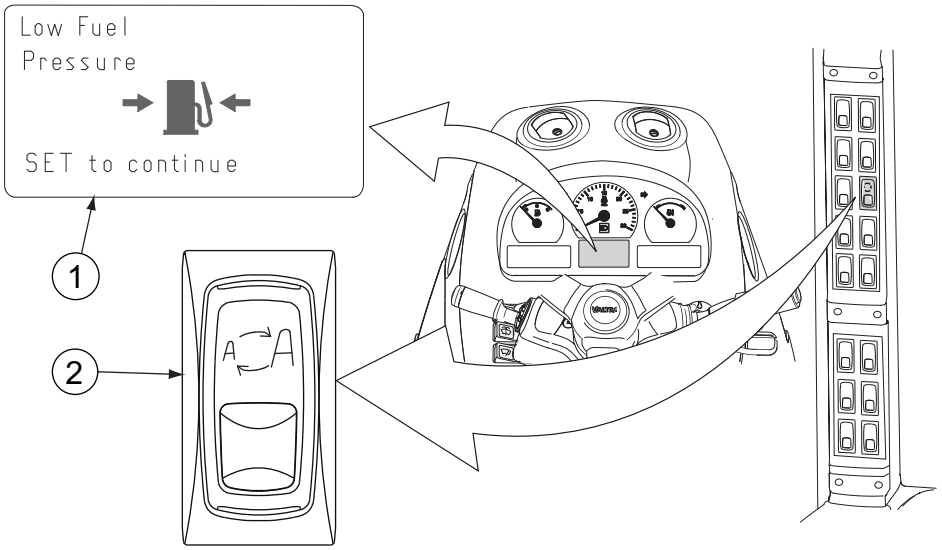
1. Pressure filter of the hydraulic system
2. Low pressure filter of the transmission system
3. Return oil filter of the auxiliary hydraulic system

1. **Release the pressure sensor wires of the auxiliary hydraulics return oil filter.**
2. **Run the engine.**
3. **Check if the pressure oil filter clogging indicator light is lit.**

   If the indicator light does not come on, the fault is in the return oil filter.
4. **Change the return oil filter if the blocking is caused by this filter.**
5. **Change the hydraulic system pressure filter and the transmission system low pressure filter if the indicator light still comes on.**

5.3 Warning symbols on the Proline instrument panel display

5.3.1 Low fuel pressure warning

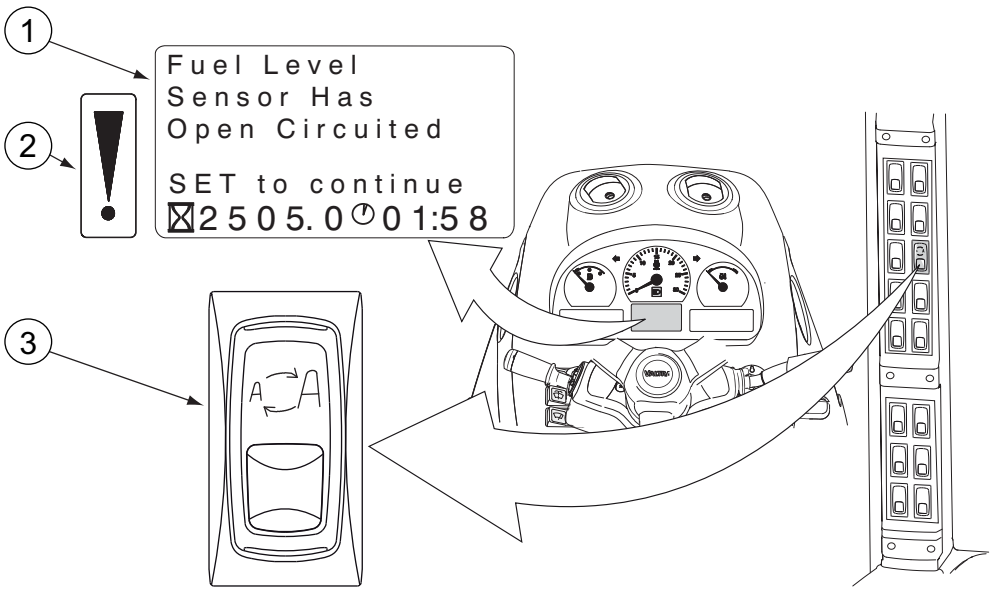


1. Instrument panel display
2. Proline instrument panel display setting switch

This message gives information about the pressure drop of the fuel before the running faults appear.

To clear the display, press the side of the Proline instrument panel display setting switch opposite to the symbol.

5.3.2 Fuel level sensor open circuit warning

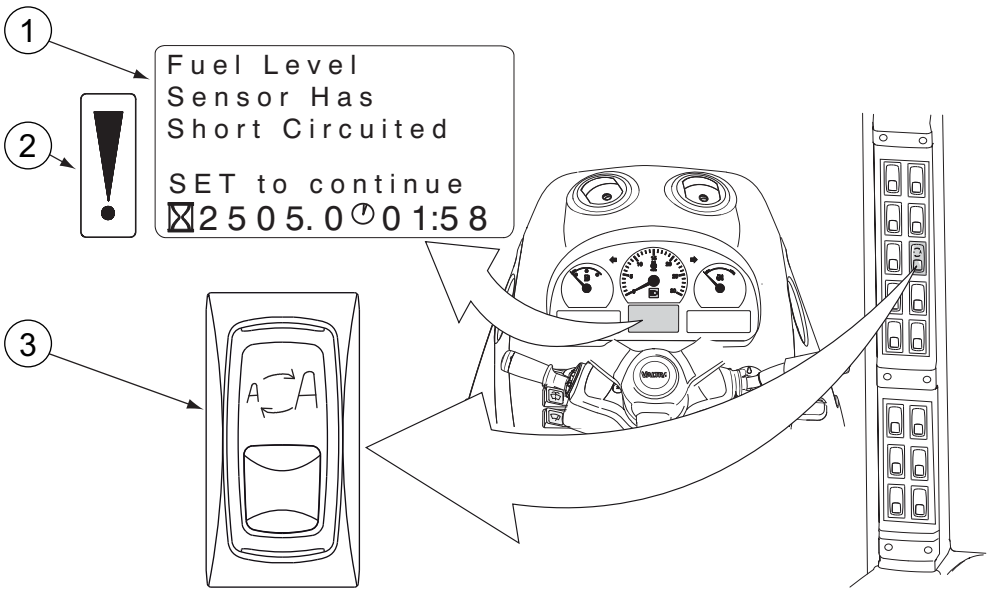


1. Instrument panel display
2. Exclamation mark
3. Proline instrument panel display setting switch

When the fuel level sensor open circuit warning appears on the instrument panel display, the exclamation mark is lit also. If the warning appears on the display, contact an authorised Valtra workshop.

To clear the display, press the side of the Proline instrument panel display setting switch opposite to the symbol.

5.3.3 Fuel level sensor short circuit warning



1. Instrument panel display
2. Exclamation mark
3. Proline instrument panel display setting switch

When the fuel level sensor short circuit warning appears on the instrument panel display, the exclamation mark is lit also. If the warning appears on the display, contact an authorised Valtra workshop.

To clear the display, press the side of the Proline instrument panel display setting switch opposite to the symbol.

5.4 Steering system malfunctions

CAUTION: If a malfunction occurs in the steering system, stop the tractor and correct the malfunction before restarting.

If the oil supply from the hydraulic pump fails for any reason, the tractor can still be steered with the steering wheel. In this case the steering valve acts as a pump and provides oil pressure for the steering cylinder. The steering is heavy to use and it operates slowly.

5.5 Towing the tractor

5.5.1 Towing the tractor when the engine is running

1. **Set the range gear lever to the neutral position.**
2. **Set the speed gear lever to the position 4.**
3. **Set the power shuttle lever to neutral (N) position.**
4. **Tow the tractor**

   The maximum allowed towing speed is 10 km/h.

5.5.2 Towing the tractor when the engine is not running

IMPORTANT: Avoid towing when the engine is not running, because the gearbox lubrication does not function.

1. **Set the range gear lever to the neutral position.**
2. **Set the speed gear lever to the position 4.**
3. **Release the parking brake.**

   Use suitable tools, for example a 17 mm wrench, for releasing the parking brake.

4. **Tow the tractor.**

   The maximum towing speed is 10 km/h.

6 Technical specifications

6.1 Dimensions

With front tyres	14.9R24
With rear tyres	18.4R34
Length (mm)	4 162
Width (mm)	2 175
Height to the roof (mm) [1)]	2 708
Height to the exhaust pipe (mm)	2 543
Wheel base (mm)	2 388
Front axle ground clearance (mm)	478
Rear axle ground clearance (mm)	482

1) The height is 156 mm lower if the tractor is equipped with low roof cab (alternative equipment).

6.2 Weights

With tyres	18.4R34, 14.9R24
Total weight with full fuel tank and without ballast weights (kg)	3 750
Front axle weight (kg)	1 400 (37%)
Rear axle weight (kg)	2 350 (63%)

6.3 Maximum permissible axle loading

The data is valid for tractors driving at maximum speed with standard track widths and regardless of tyre limitations.

	Maximum speed (km/h)	Maximum axle loading (kg)
Front	40	3 100
	8	3 500
Rear	40	4 500
Total weight	40	7 000

6.4 Tyres

Rear	Front	Fixed disc
16.9R30	12.4R24	
18.4R30	13.6R24	
420/85R30	320/85R24	
420/85R34	340/85R24	
420/85R34	13.6R24	
460/85R34	380/85R24	
18.4R34	14.9R24	
480/70R34	380/70R24	
520/70R34	420/70R24	

Table continued on next page

Rear	Front	Fixed disc
540/65R34	440/65R24	
340/85R38	340/85R24	
13.6R38	13.6R24	
380/80R38	13.6R24	
440/80R34	360/80R24	x
16.9-34/8	13.6-24/8	x
16.9-34/14	13.6-24/10	x

6.4.1 Wheel nuts tightening torque

Wheel nuts	Tightening torque (Nm)
Front	450
Rear	450
Rim - wheel disc (front and rear)	210

6.4.2 Wheel stud dimensions

	Front axle	Rear axle
Stud dimension	M20x1.5	M20x1.5
Number of studs per side	8	8

6.4.3 Front axle tyre loadings and pressures

Tyre	Maximum load/axle - Two wheels/ axle (kg)	Pressure (bar)
12.4R24	2 720	1.6
13.6R24	2 900	1.6
320/85R24	3 500	2.4
340/85R24	3 300	1.6
13.6R24	3 600	1.6
380/85R24	3 900	1.6
14.9R24	3 400	1.6
380/70R24	3 300	1.6
420/70R24	3 800	1.6
440/65R24	3 600	1.6
360/80R24	5 450	3.2
13.6-24/8	3 090	2.0
13.6-24/10	3 600	2.5

6.4.4 Rear axle tyre loadings and pressures

Tyre	Maximum load/axle - Two wheels/ axle (kg)	Pressure (bar)
16.9R30	4 600	1.6
18.4R30	5 300	1.6
420/85R30	5 000	1.6
420/85R34	5 300	1.6
460/85R34	6 150	1.6
Table continued on next page		

Tyre	Maximum load/axle - Two wheels/ axle (kg)	Pressure (bar)
18.4R34	5 600	1.6
480/70R34	5 450	1.6
520/70R34	6 300	1.6
540/65R34	5 800	1.6
340/85R38 [1)]	4 120	1.6
13.6R38 [1)]	3 600	1.6
380/80R38	4 600	1.6
440/80R34	8 750	3.2
16.9-34/8	4 860	1.7
16.9-34/14	6 000	2.6

1) Note that this tyre type restricts the maximum rear axle load.

6.5 Spacing for wheel discs

Front (mm)	1 580
Rear (mm)	1 750

6.6 Track widths

6.6.1 Rear track widths

Tyres, adjustable discs	Track widths (mm)
16.9R30	2 105, 2 014, 1 902, 1 811, 1 705, 1 614 [1)], 1 502
18.4R30	2 014, 1 902, 1 811, 1 705, 1 614 [1)], 1 502
16.9R34, 18.4R34, 420/85R34	2 107, 2 014, 1 904, 1 811, 1 707 [1)], 1 614, 1 504
460/85R34, 480/70R34	2 014, 1 904, 1 811, 1 707 [1)], 1 614, 1 504
520/70R34, 540/65R34	2 014, 1 904, 1 811, 1 707 [1)], 1 614
13.6R38, 340/85R38	2 111, 2 014, 1 908, 1 811, 1 711 [1)], 1 614, 1 508, 1 411

1) Standard track width

Tyres, fixed discs	Track widths (mm)
440/80R34, 16.9-34/14	1 650, 1 850 [1)]

1) Standard track width

6.6.2 Front track widths

Tyres	Track widths (mm)
12.4R24	1 321, 1 412, 1 521, 1 524, 1 612 [1)], 1 615, 1 724, 1 815
13.6R24, 14.9R24, 320/85R24, 340/85R24, 380/70R24, 380/85R24, 420/70R24, 420/70R24, 440/65R24	1 321, 1 412, 1 521, 1 524, 1 612, 1 615, 1 724 [1)], 1 815

1) Standard track width

6.7 Engine

Model	A83 h	A93 h
Designation	33 CTA	33 CTA
Type	Four stroke direct injection diesel engine with Common Rail	
Turbocharged and intercooling	yes	yes
Number of cylinders	3	3
Max. output, kW/(hp)/rpm (ISO 14396)	67.5/(92)/2 100	76/(103)/2 100
Max. Torque, Nm/rpm (ISO 14396)	325/1 500	370/1 500
Max. no load speed, rpm	2 470	2 470
Low idling speed, rpm	850	850

6.7.1 Engine lubrication system

Oil pump	
Type	Gear pump, strainer on the suction side and replaceable filter on the pressure side
Oil pressure at idling speed (min)	100 kPa (1 bar)
Oil pressure at normal working speed	250-400 kPa (2.5-4 bar)

Oil filter	
Type	Disposable type filter element

Oil type	
Valtra grade	Valtra Engine CR
SAE grade	10W-40: -25°C...+40°C
API grade	CI-4 (ACEA E7)

Oil volume	
When changing with filter	7.5 litres

6.7.2 Fuel system

Fuel	
Type	Diesel fuel which conforms to EN 590 norm
Feed pump	Electric pump
Tank	90 litres

Injection system	
Common rail injection	High pressure pump with electric injection control

6.7.3 Air cleaner

Air cleaner	Two-stage, dry element, with blockage indicator
Pre-cleaner system	Ejector

6.7.4 Cooling system

Pump	Centrifugal
Radiator	Pressurised with expansion tank regulated by pressure cap
Thermostat	83°C
Fan	The belt-driven fan is controlled by the engine's control module for precise fan speed modulation
Coolant	Water and antifreeze agent (standard ASTM D 3306 or BS 6580:1992)
Coolant volume	19 litres

6.8 Electrical system

Ground	Negative
Voltage	12 V
Battery	130 Ah
Alternator	120 A
Starter motor	4.2 kW
Electric resistor (engine induction air)	1.2 kW

Fuses	
Electric centre	39 fuses The nominal current rating of the fuses is 5–30 A.
Electric preheating of engine induction air	250 A
Cab power supply	125 A

Bulbs	
Headlights	60/55 W-H4
Front position (side) lamps	5 W
Rear/brake lights	5/21 W
Direction indicators	21 W
Working lights	55 W-H3
Instrument panel background lights and warning lights	2 W -- 1.2 W
Cab lights	5 W

Power sockets	
Two-pin power socket	ISO 4165
Three-pin power socket	ISO/TR 12369
Trailer socket	ISO 1724

6.9 Power transmission

6.9.1 Power shuttle

Type	Planetary-type gear drives 2 wet multi-disc clutches
Wet multi-disc clutches	1 for forward driving 1 for reverse driving Clutches operate also as a driving clutch for current driving direction.

6.9.2 Clutch

Multi-disc clutch operation	Controlled by oil pressure Activated by pressing the HiShift push button or the clutch pedal
Disc numbers, forward/reverse driving	6 pcs/6 pcs
Friction area, forward/reverse driving	1 161 cm^2/1 161 cm^2

6.9.3 Gearbox

Gear type	Helical gears
Synchronisation	Fully synchronised except creeper gear
Speed ranges	• H = high speed range • M = medium speed range • LL = creeper speed range
Forward gears	12
Reverse gears	12

Oil type	
Valtra grade	Valtra Transmission XT60 (classification: Valtra G2-08)
API grade	GL-4

Oil volume	
When changing with filter:	Max. 43 litres

6.9.4 Rear axle differential lock

Type	Mechanical
Control	Electro-hydraulic

6.9.5 Rear power take-off

6.9.5.1 Rear power take-off alternatives

Power take-off (PTO) alternatives
540 + 1000
540 + 540E

6.9.5.2 Rear power take-off ratios

Rear power take-off (PTO) ratios	540 rpm at engine speed 1 874 rpm
	1 000 rpm at engine speed 2 083 rpm
	540 E = 540 rpm at engine speed 1 530 rpm

6.9.5.3 Rear power take-off shafts

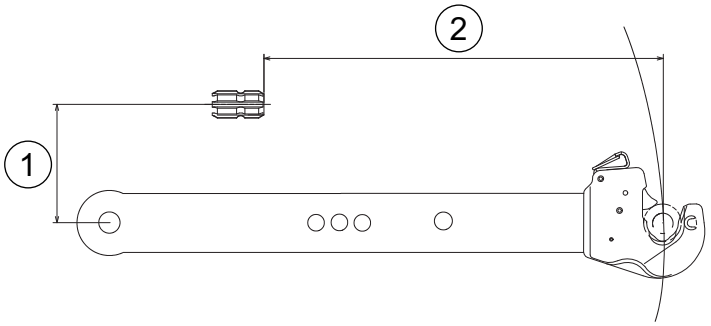
As standard tractor is equipped with one power take-off shaft. Additional shafts are extra equipment.

Splines	Standard	Shaft diameter (mm)
6 splines [1)]	ISO 500	35
21 splines	ISO 500	35

1) Standard

6.9.5.4 Lower link end distance from rear power take-off shaft

The length of the lower links (mm)	Power take-off (PTO) shaft (T measure, mm)	
	6 splines	21 splines
980	683	683



1. 193 mm
2. T measure

6.9.5.5 Maximum power take-off output

The table shows the maximum power take-off (PTO) output at PTO speed of 1 000 rpm and engine speed of 2 080 rpm.

A83 h	A93 h
49 kW	55 kW

6.9.6 Front power take-off

Oil type	Oil volume (litres)
Shell Donax TX	2

6.9.6.1 Front power take-off ratios

Front power take-off (PTO) ratio	1 000 rpm at engine speed 2 000 rpm

6.9.6.2 Front power take-off shafts

Splines	Standard	Shaft diameter (mm)
6	ISO 500	35

6.10 Brake system

Operation	• Multi-disc type brakes running in oil • Two brake cylinders • Separate brake fluid
Number of brake discs	4 pcs/side
Brake friction area	2 950 cm^2/org.
Brake pedal free travel	60 mm

Parking brake	
Operation	• Electro-hydraulically controlled with power shuttle lever • Driving brakes engaging with spring, disengaging with hydraulic pressure • When the engine is not running, the parking brake is automatically applied

Hydraulic brake valve for trailer brakes (extra equipment)	
Operation	• Operated with the pressure of the tractor hydraulics, controlled by the braking pressure • Trailer brake connection to the tractor with quick-action coupling

Air pressure brakes for trailer (extra equipment)	
Operation	• Operated with air pressure system, controlled by the braking pressure • Trailer brake connection to the tractor with quick-action coupling

6.11 Steering system

Type	• Hydrostatic • Oil supply from the transmission hydraulic pump via the priority valve • Adjustable, telescopic steering column • Central frame, one double action steering cylinder
Maximum working pressure	9 MPa (90 bar)
Shock valve opening pressure	14 MPa (140 bar)
Steering valve revolution volume	100 cm^3
Steering pump capacity	55 l/min at engine speed 2 200 rpm
Steering speed	Over 2 rounds/sec. at idling speed
Steering wheel rotation	4.5 turns

6.11.1 Front axle

Axle type	Hi-lock, agricultural axle
Control, on/off	Electro-hydraulically controlled multi-disc clutch
Differential lock	Electro-hydraulically controlled multi-disc differential brake, simultaneously controlled with rear axle differential lock
Steering arc, adjustable	max 55°
Axle turning	13.5°
Caster	0°
King pin inclination (KPI)	5°
Table continued on next page	

Camber	1°
Toe-in (mm)	0–2
Flange distance (mm)	1 580

Ratio	
Differential	2.625
Planetary gears	6.000
Total	15.75
Front axle/rear axle	1.343

Oil type			
	Valtra grade	SAE grade	API grade
Differential	Valtra Axle LS	80W-90	GL-5
Hub reduction gears	Valtra Axle or Valtra Axle LS		

Oil volume when changing with filter		
Axle type	**Differential (litres)**	**Hub reduction gears (litres)**
Agricultural front axle	6.5	2 x 1

6.11.2 Turning circle radius

Minimum turning circle radius (m)	4.8

6.12 Cab and shields

6.12.1 Cab filter capacity

Standard filter (dop test, 300 m^3)	> Ø 0.2 µm 10% > Ø 1 µm 20% > Ø 5 µm 90% > Ø 8 µm 100%
Active coal filter, cab (dop test, 200 m^3) [1)]	> Ø 2 µm 100% from gases > 98%

1) **WARNING: Use personal protective equipment recommended by the pesticide manufacturer.**

6.12.2 Windscreen washer

Windscreen washer reservoir	
Fluid type	Washer fluid
Capacity	5 litres

6.12.3 Air conditioning system

Refrigerant type	Amount
R134a	1 100 g, 20°C

6.12.4 Noise level

	Minimum (dB)	Maximum (dB)
Windows shut	79	80

6.12.5 Exposure to vibration

The level of exposure to vibration and shock is dependent on several issues, such as work tasks, tyre types, work conditions, and implements. Always plan your work so that the exposure is minimized. On extreme conditions, keep warm and dry, and try to take short breaks.

6.13 Hydraulic system

6.13.1 Low pressure circuit

Pump capacity	23 litres/min at engine speed 2 270 rpm
Maximum pressure	1.8 MPa (18 bar)
Oil supply for the following functions:	• Power shuttle • Powered front axle • Differential lock • Parking brake • Power take-off • Transmission and power take-off lubrication

6.13.2 High pressure circuit

Pump capacity	52 l/min at engine speed 2 270 rpm
Maximum pressure	20.5 MPa (205 bar)
Oil supply for the functions:	• Steering (prioritised) • Working hydraulics • Hydraulic lift • Trailer brake valve (extra equipment)
Available oil volume for auxiliary hydraulics	min. 18 litres and max. 24 litres

6.13.3 Auxiliary hydraulics

6.13.3.1 Valves for auxiliary hydraulics

Rear, standard	Two valves with common control lever

Rear, extra equipment	• two valves can be selected from the following list
	  • 2/1 acting (Out - hold - in)
	  • 2 acting (Out - floating - in)
	  • 2 acting (Out - hold - in - floating)
	  • 2 acting (Out - hold - in - position lock)
	• a trailer brake valve

Front, extra equipment	• two electrically controlled adjustable valves for using the front loader or front linkage

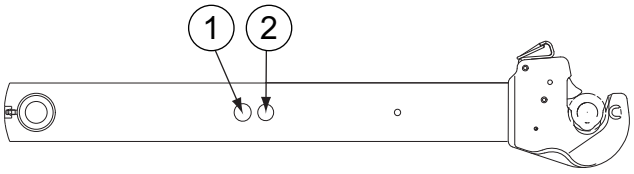
6.13.3.2 Counter pressure when using the return connection for auxiliary hydraulics

Flow, temperature	Return connection counter pressure (1/2 inch connection)
50 l/min, 50°C	7 bar

6.13.4 Rear linkage

Maximum lifting force	Lifting cylinder ø	Lower link type	The length of the lower links
33 kN	60 mm	Category 2, telescopic lower links (Ball-Hitch lower links available as extra equipment)	980 mm

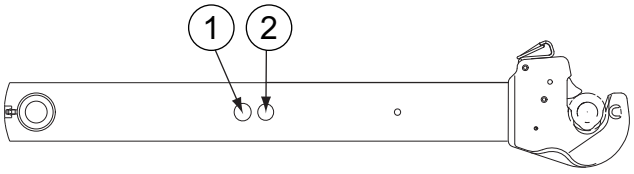
6.13.4.1 Maximum lifting force on the whole lifting area



Lifting link's fastening point	Lifting force (kN)
1	30
2	33

6.13.4.2 Lifting range at the end of the lower links

The length of the lower links is 980 mm.



Lifting link's fastening point	Lifting range, mm
1	775
2	675

6.13.5 Front linkage

Maximum lifting force	28 kN
Number of lifting cylinders	2
Diameter of the lifting cylinders	80 mm
Lifting range at the end of the lifting links	665 mm
Quick coupling hooks	Category 3/2

6.13.6 Trailer hitches and towing devices

6.13.6.1 Pick-up hitch

Maximum permissible vertical loading	30 kN [1]
Pick-up hitch height from the ground (lowest position and tyres 18.4R34)	150 mm
Maximum permissible towable mass	16 000 kg

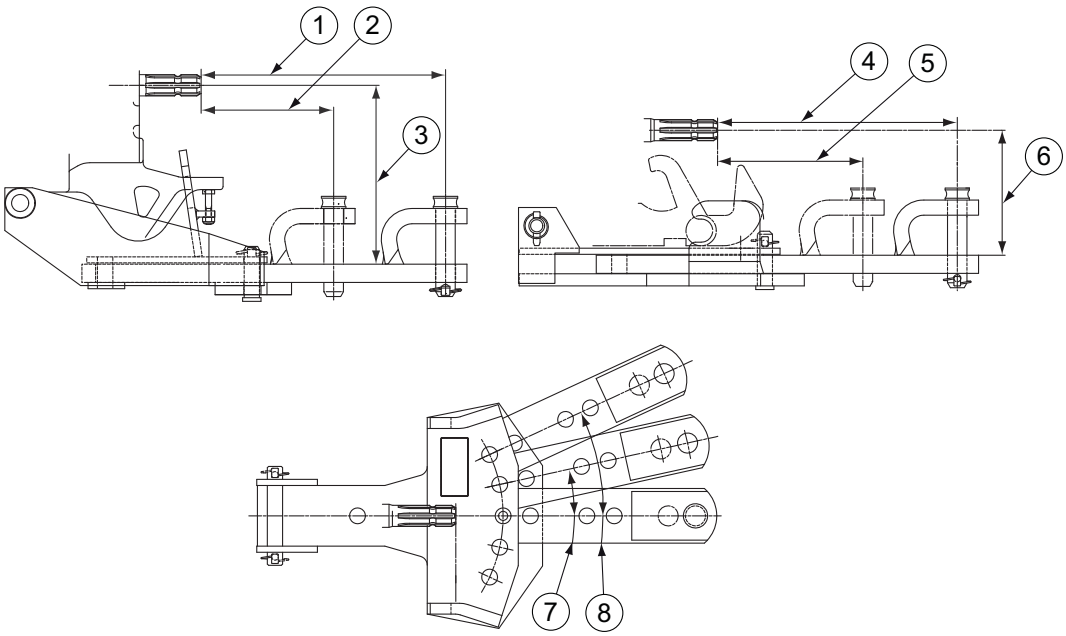
[1] The maximum axle loading must not be exceeded

6.13.6.2 Agricultural towing device

There are two models of the drawbar:

- with pick-up hitch
- fixed without pick-up hitch.

The horizontal distances of the pulling point from the power take-off (PTO) shaft and the corresponding maximum vertical loadings are pointed out in the following figure:



1. 355 mm, 10 kN / 400 mm, 8.5 kN
2. 217 mm, 25 kN / 257 mm, 15 kN
3. 293 mm
4. 350 mm, 10 kN / 395 mm, 8.5 kN
5. 212 mm, 25 kN / 252 mm, 15 kN
6. 310 mm
7. Lateral turning radius ±12.5 °
8. Lateral turning radius ±25 °

Maximum permissible towable mass: 5 000 kg

6.13.6.3 Towing device frames

Max. permissible total weight for the tractor with all jaws	5 500 kg
Max. permissible vertical loading for a trailer hitch with all jaws	1 250 kg
Wagon towing device frame with a fixed hitch (Piton Fix), max. permissible vertical loading	2 000 kg
Towing device frame drawbar, max. permissible vertical loading	1 800 kg
Automatic jaw, main pin diameter	31 or 38 mm
Mechanical jaw, main pin diameter	31.5 mm
Drawbar standard	DIN 74054 or DIN 11026

6.13.6.4 Drawbar eye

Drawbar eye standard	ISO 5692-1 or ISO 20019

Alphabetical index

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