



Operator's Manual

T2 Series

Versu

About this manual

This operator's manual is for Valtra T2 Series Versu tractors. The T2 Versu models are T132 V, T152 V, T162e V, T172 V, T182 V and T202 V.

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.

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.

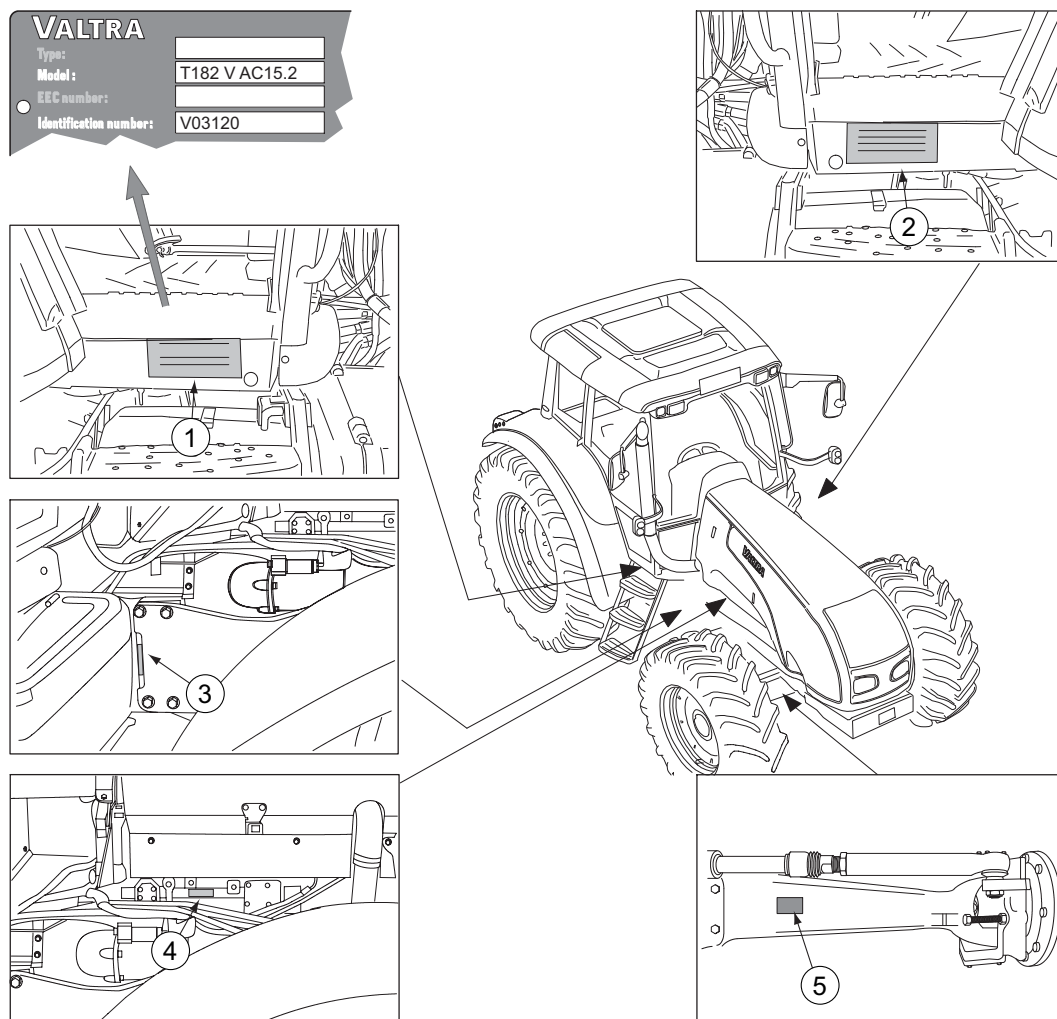
Due to the continual development of the products, the content of this manual may not always correspond to the new product. Therefore, we retain the right to make alterations without prior notification.

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. Tractor serial number

4. Engine number

5. Front axle number

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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.

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.

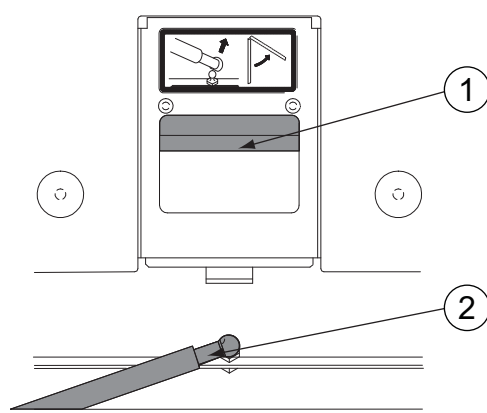
- **Safety belt (extra equipment)**

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.

- **Protect yourself against motor noise.**

Use hearing protectors to avoid noise injuries when you are working outside the cab near the engine.

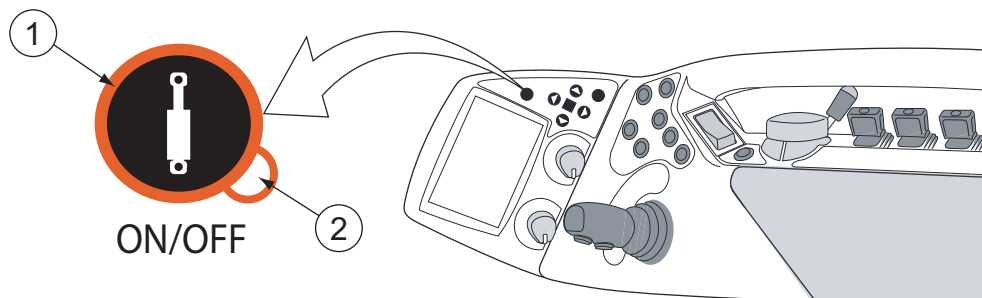
1. Safety precautions

- 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.

- Note the function of the auxiliary hydraulics on/off push button.



1. Auxiliary hydraulics on/off push button
2. Indicator light

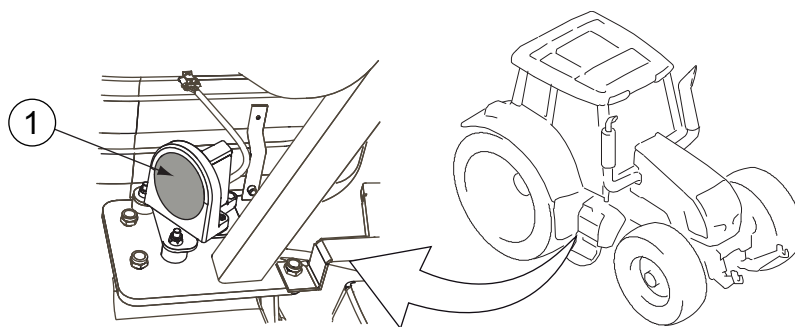
Pressing the auxiliary hydraulics on/off push button turns off or on all the functions of the auxiliary hydraulics. The button has no effect on the function of the ON/OFF valves or the rear linkage.

When the indicator light is not lit, the auxiliary hydraulics is deactivated.



DANGER: To prevent accidental auxiliary hydraulics control movements, always turn off the auxiliary hydraulics during road driving and during work if you do not need it.

- **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.
- **Do not go under the tractor.**



1. Radar



WARNING: Do not go under the tractor until the ignition key has been turned to the STOP position. The tractor is equipped with radar which presents a hazard to your eyes.

- Front loader



WARNING: The programmable features of the joystick or other controls **MUST NOT** be used to operate a loader. In order to prevent involuntary loader motion, the loader joystick controller must be of a self-neutralising type. When the operator releases his grip on the joystick, the joystick must return to a non-operational neutral position - except for float detent position in the loader lower direction.

- 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.

- Differential lock

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

- 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.

1.2.4.2 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.



1.2.4.3 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.

1.2.4.4 Driving downhill

Be careful when driving downhill.

- **Do not drive with the power shuttle in neutral or the clutch pedal pressed down.**
- **Do not press the HiShift push button.**
- **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.

1.2.4.5 Operating with implements

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



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 during maintenance.

1.2.4.6 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.

1.2.4.7 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.

1.2.4.8 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. The trailer brakes are recommended to be used in 50 km/h models also in those countries where it is not required by law.

- 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.

1.2.4.9 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.

1.2.4.10 Fire hazards



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

1.2.4.11 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.

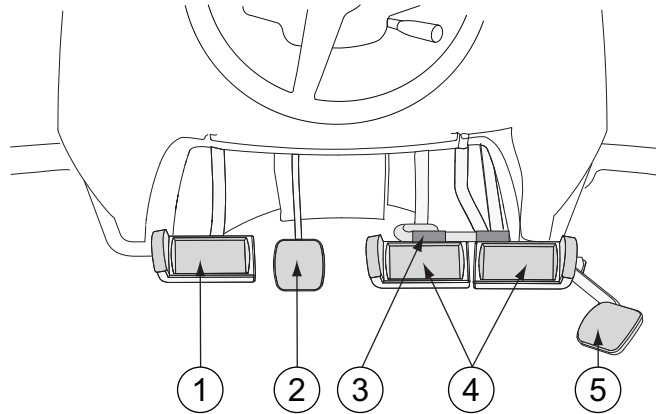


WARNING: Never burn viton seals.

2 Instruments and controls

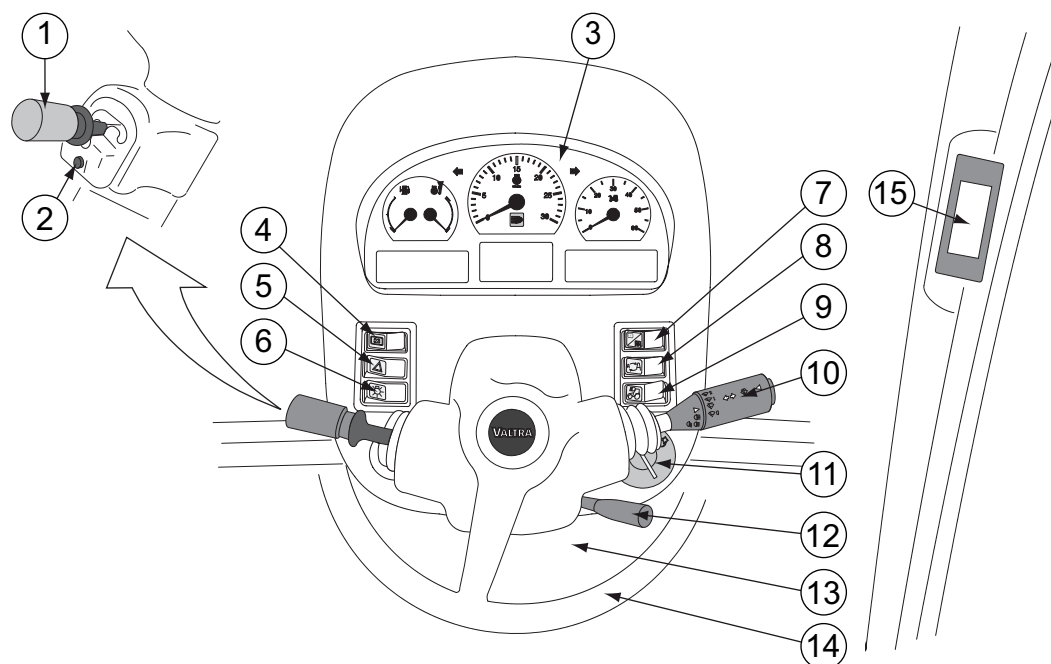
2.1 Pedals

The tractor pedals are positioned as follows:



1. Clutch pedal
2. Locking pedal for steering wheel inclination
3. Latch for brake pedals
4. Brake pedals
5. Accelerator pedal

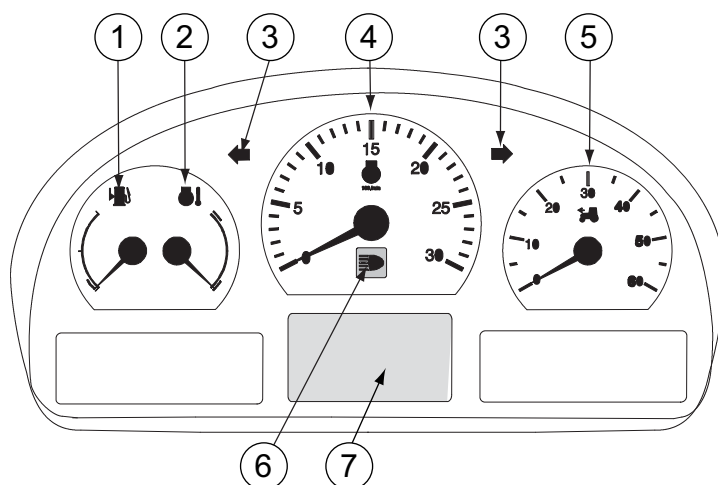
2.2 Dashboard



1. Power shuttle lever
2. Powershift preprogramming push button
3. Proline instrument panel
4. Main switch (extra equipment)
5. Hazard warning flasher switch
6. Light switch
7. Proline instrument panel display change-over switch
8. Proline instrument panel display setting switch
9. Upper headlights (extra equipment)
10. Multifunctional lever
11. Ignition switch
12. Lever for adjusting steering wheel position
13. Electric centre, lower part of the dashboard
14. Steering wheel
15. A-pillar display

2.2.1 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.



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 Symbols on the Proline instrument panel display

The Proline instrument panel display have 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

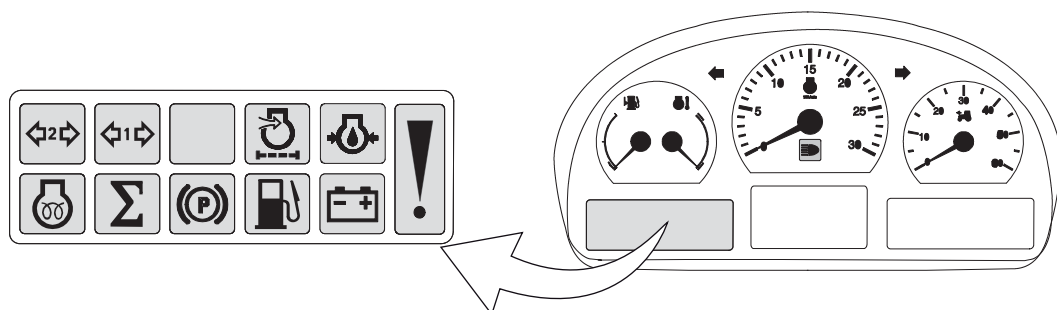
The selectable views are the functions shown on the top and centre row of the display:

Symbol	Function
	Working time (h:mm)
cruise RPM	Cruise control
km/h/mph	Driving speed (km/h/mph)
	Wheel slip (% , 0-100)
Table continued on next page	

2. Instruments and controls

Symbol	Function
	Rear power take-off (PTO) speed (rpm)
	Front power take-off (PTO) speed (rpm)
	Engine speed (rpm)
	Immediate fuel consumption (ha, acre)
	Average fuel consumption (ha, acre)
	Immediate fuel consumption
	Average fuel consumption
	Fuel consumption
AC_R	Lower link position (%; 0-100)
AC_F	Lifting link position of front linkage (%; 0-100)
Σ	Sigma power (%; 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














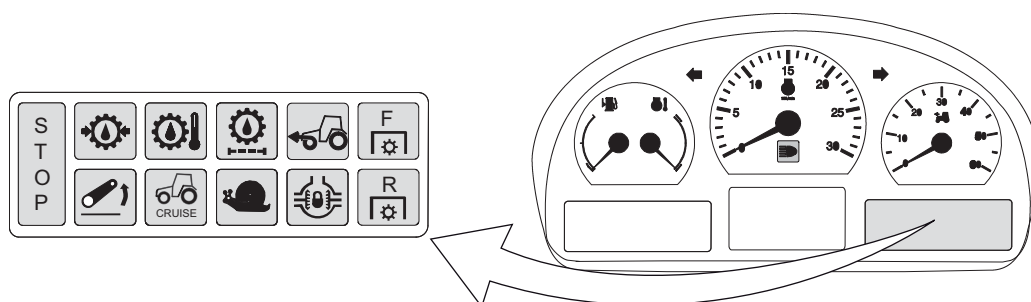
Indicator light	Indication
	Direction indicator light for second trailer (green). If one of the bulbs on the combination has failed, this light is not lit.
	Direction indicator light for first trailer (green). If one of the bulbs on the combination has failed, this light is not lit.
	Engine air cleaner 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 (on models T182 V and T202 V) The light is lit continuously (yellow) when the tractor is operating in the higher power range and using PTO.
	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

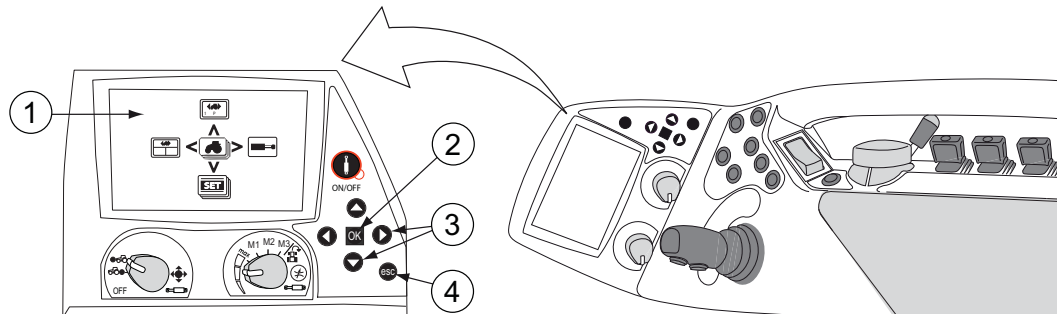
2. Instruments and controls

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 position.
	Cruise control indicator light The light is on (yellow) to indicate that cruise control is engaged (constant driving speed/ constant engine speed chosen).
	Creep speed range indicator light The light flashes (yellow) when the creep gear is engaging.
	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

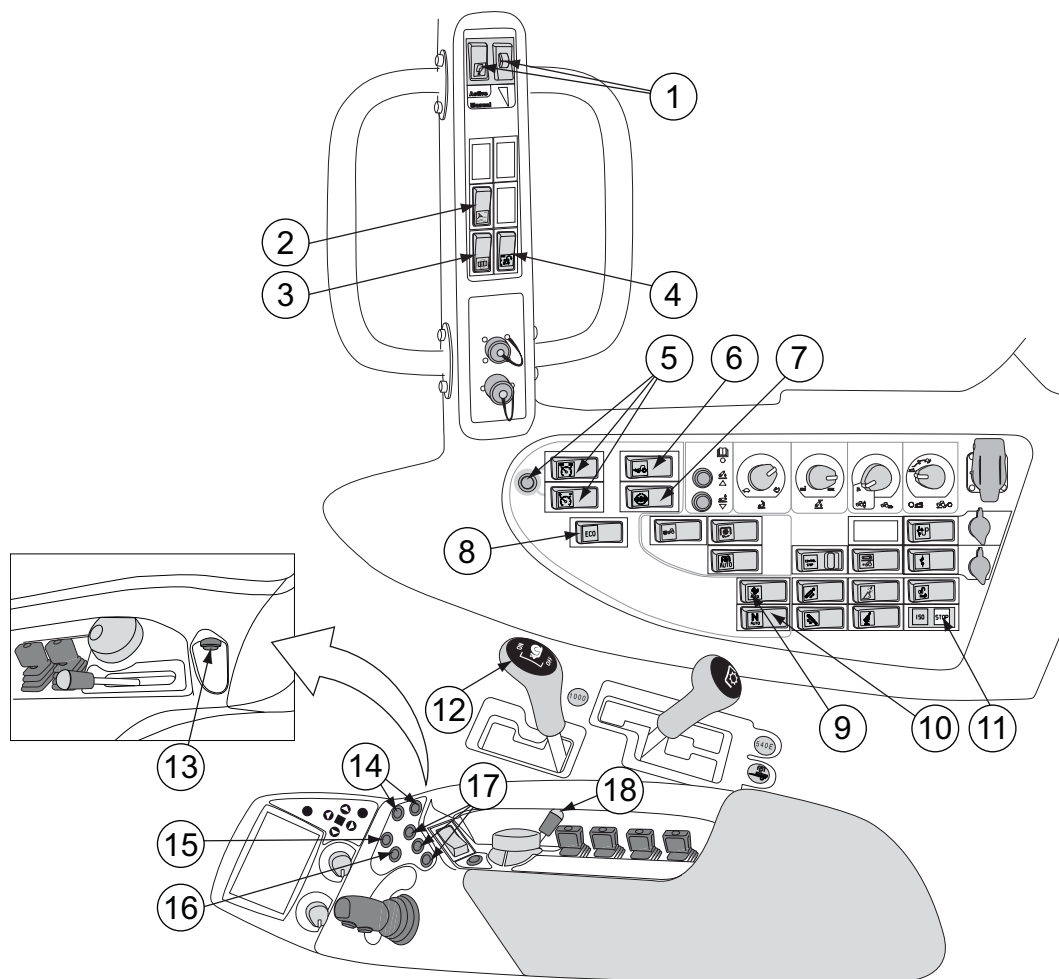
2.3.1 Tractor terminal

The tractor terminal contains the following components.



1. Tractor terminal display
2. OK button
3. Arrow buttons
4. ESC button

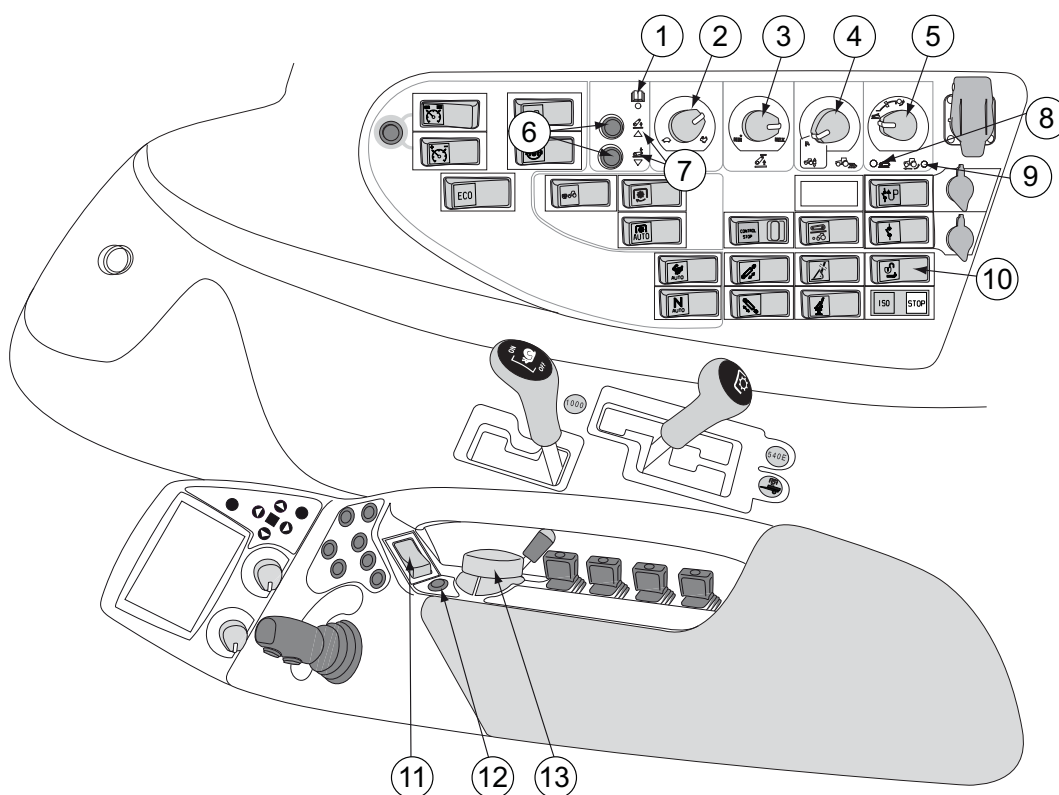
2.3.2 Driving controls



1. AutoComfort cabin suspension system (extra equipment)
2. Activation switch for Auto-Guide (extra equipment)
3. Change switch for A-pillar display views
4. Activation/recording switch for U-Pilot
5. Switches for cruise control
6. Switch for four-wheel drive (4WD)
7. Switch for differential lock
8. Engine speed range selector (ECO), only on model T162e V
9. Switch for shifting automatics
10. Switch for automatic traction control
11. STOP indicator light (red)
12. Lever for creeper speed range
13. HiShift push button
14. Push buttons for Powershift operation
15. Engage/pause button for U-pilot
16. Stop button for U-pilot
17. Push buttons for cruise control
18. Hand throttle

2.3.3 Linkage

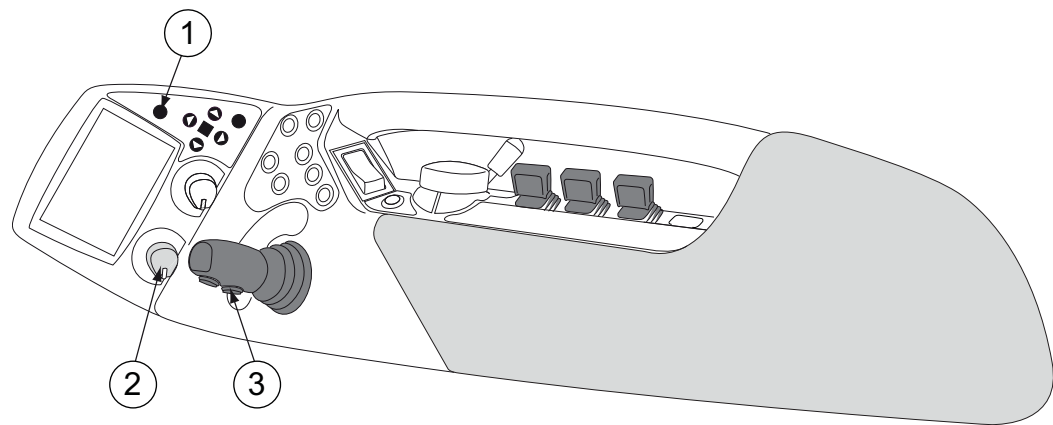
Rear linkage



1. Diagnose light
2. Lowering speed selector
3. Lifting height selector
4. Draft control selector
5. Drive balance control, including slip control system
6. Lift/lower push buttons
7. Lift/lower indicator lights
8. Drive balance control light
9. Slip control light
10. Switch for trailer hitch latch hydraulic releasing (extra equipment)
11. Lift/stop/lower switch
12. Passing switch for position control knob
13. Position control knob

Front linkage

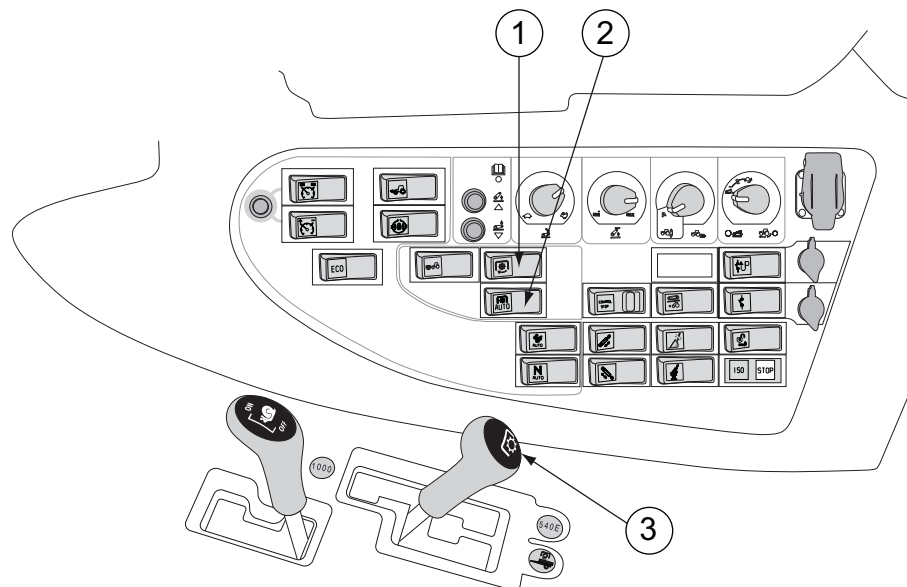
Front linkage is extra equipment.



1. Auxiliary hydraulics on/off push button
2. Joystick functions selector
3. Joystick (controls the front linkage when the selector switch is turned to front position)

2.3.4 Power take-off

Rear power take-off

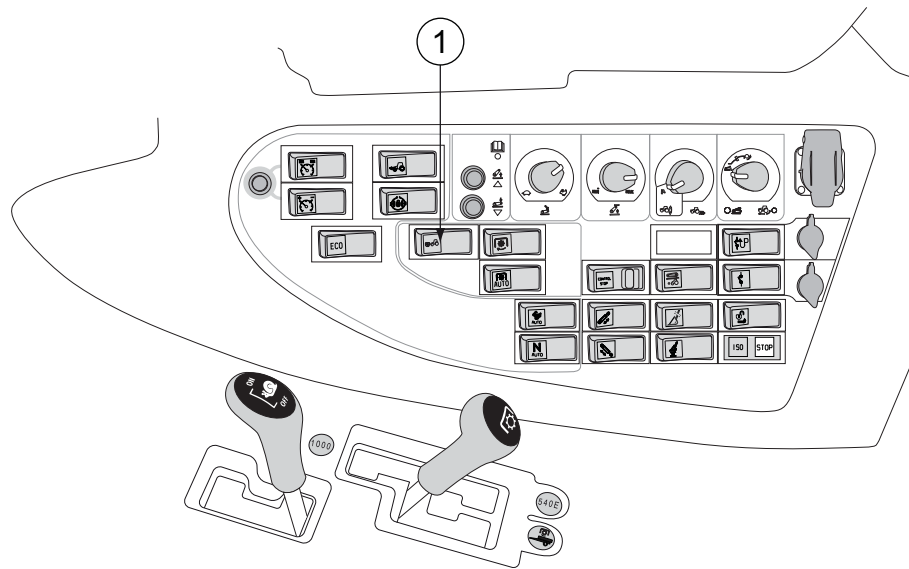


1. Switch for rear PTO
The rear PTO push buttons on the mudguards are extra equipment.
2. Switch for rear PTO automatics
3. Speed control lever for the rear PTO

Front power take-off

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

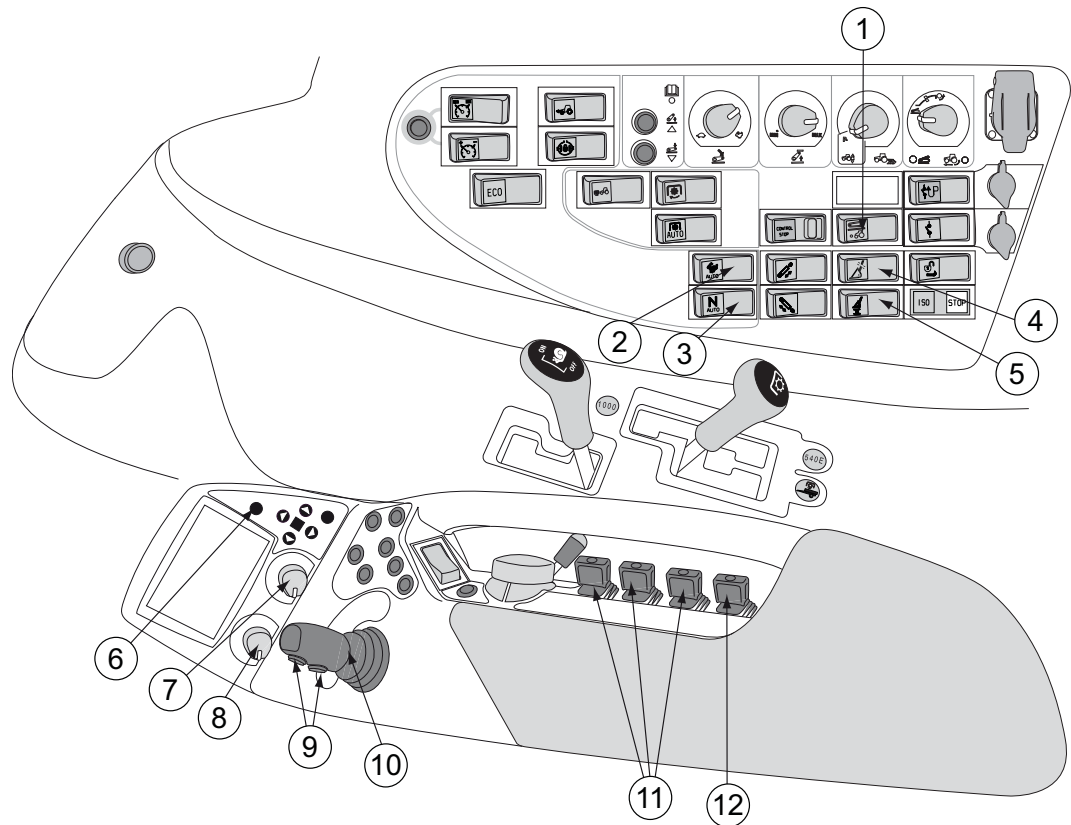
2. Instruments and controls



1. Switch for front PTO

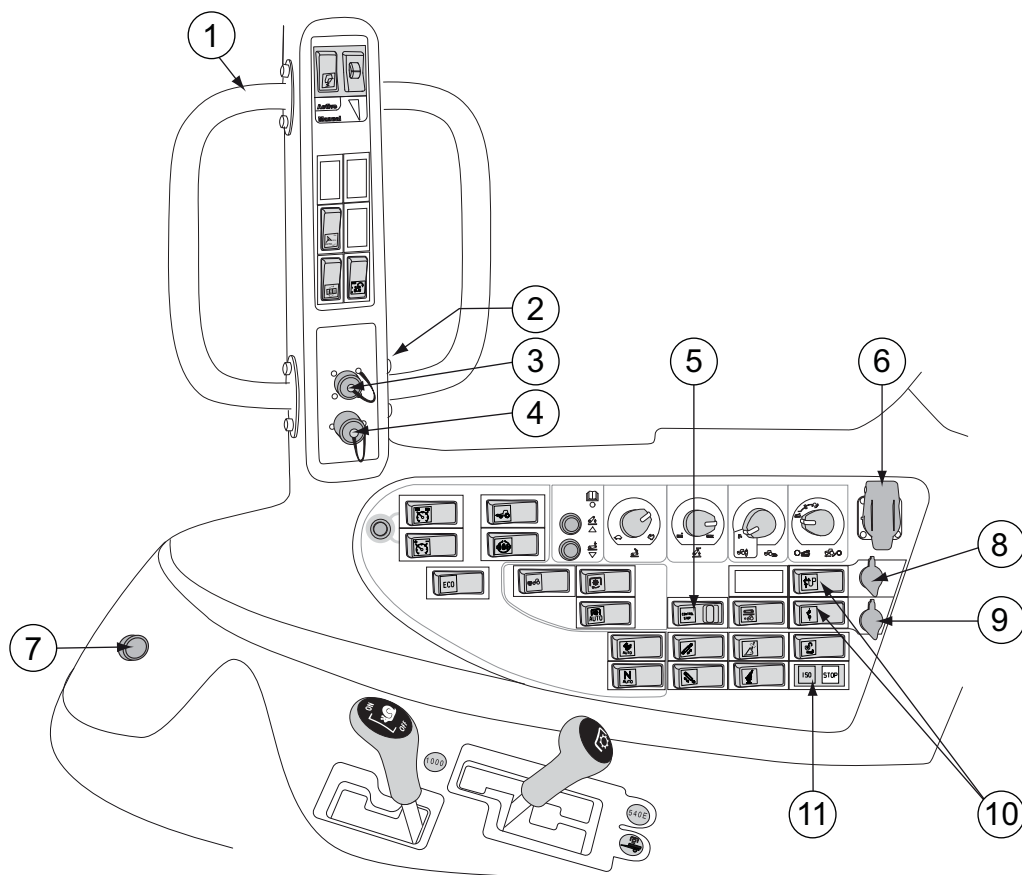
2.3.5 Auxiliary hydraulics

The following instruments and controls are used to control the auxiliary hydraulics.



1. Change-over switch for front linkage/front loader (extra equipment)
2. Switch for rear on/off valve 1
3. Switch for rear on/off valve 2 (extra equipment)
4. Release switch for equipment locking (extra equipment)
5. Switch for Softdrive (extra equipment)
6. Auxiliary hydraulics on/off push button
7. Selector for the predefined factory/user settings
8. Joystick functions selector
9. Joystick push buttons
10. Joystick
11. Control levers for the rear valves 3, 4 and 5 (extra equipment)
12. Control lever for the third front valve (extra equipment)

2.3.6 Other controls

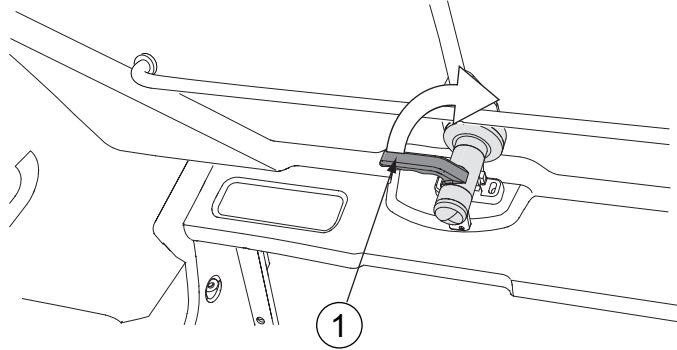


1. Mounting brackets (extra equipment)
2. ISOBUS bus extension connectors (behind the cover, extra equipment)
3. ISOBUS terminal connection (extra equipment)
4. Implement signal connection (extra equipment)
5. Control stop switch (extra equipment)
6. 3-pin power socket
7. Lighter/power outlet
8. 2-pin power socket (can be controlled by U-Pilot)
9. 2-pin power socket
10. Power switches for 2-pin power sockets
11. Indicator light for implement/ISOBUS signal connection

2.4 Controls on the rear side

2.4.1 Rear window opening device

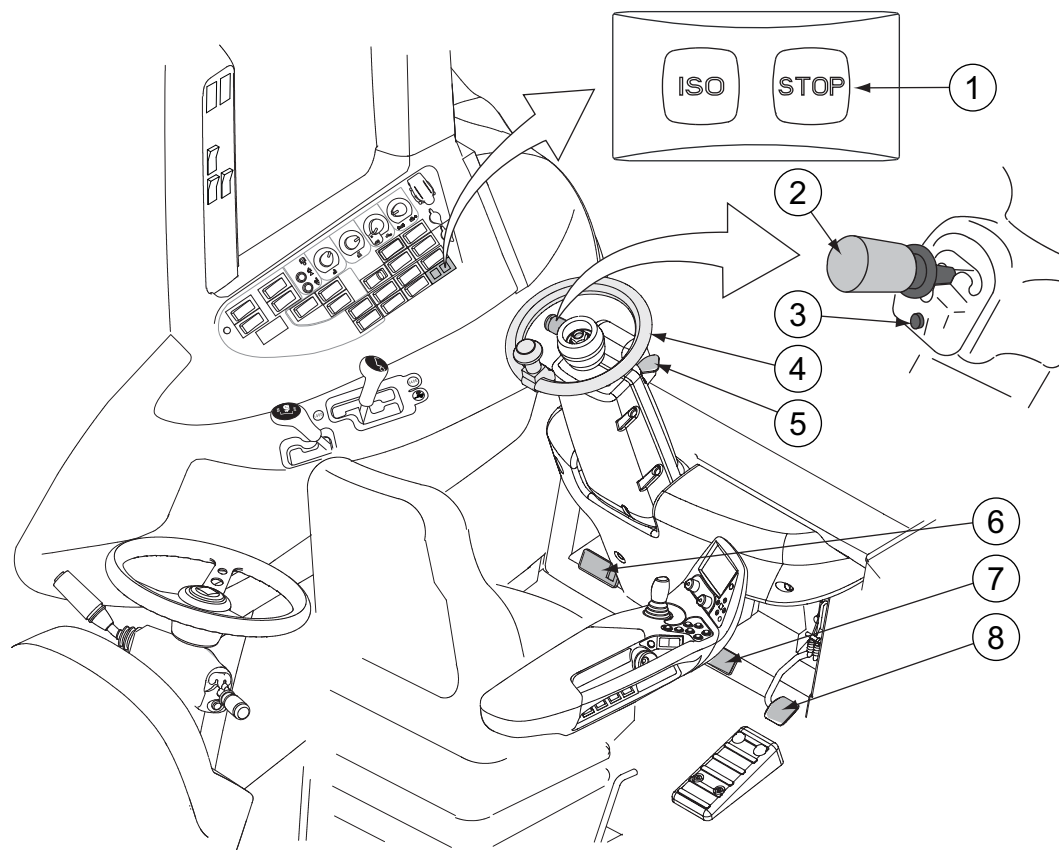
The following figure shows the rear window opening device.



1. Rear window opening device

2.4.2 Reverse drive system controls

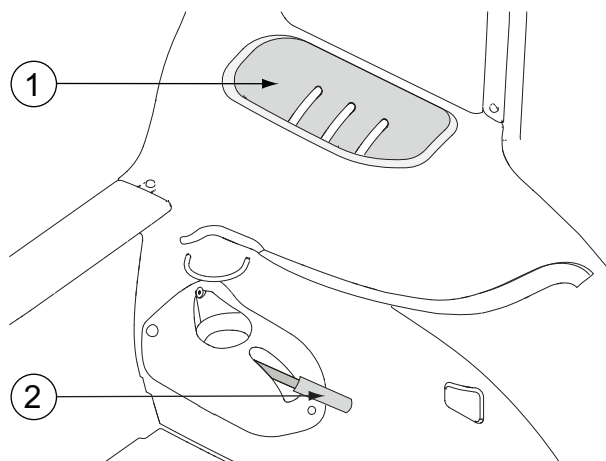
The reverse drive system is extra equipment.



1. STOP indicator light (red)
2. Power shuttle lever
3. Powershift preprogramming push button
4. Steering wheel
5. Lever for adjusting steering wheel inclination
6. Clutch pedal
7. Brake pedal
8. Accelerator pedal

2.5 Controls on the left-hand side

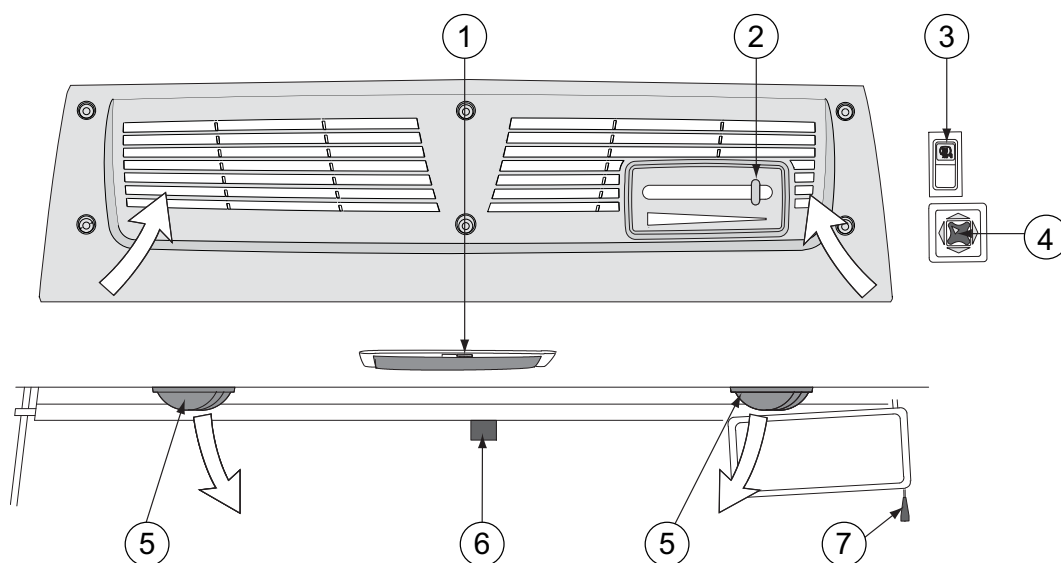
The following controls are positioned on the left-hand side.



1. Storage compartment
2. Emergency brake, extra equipment

2.6 Controls on the front roof console

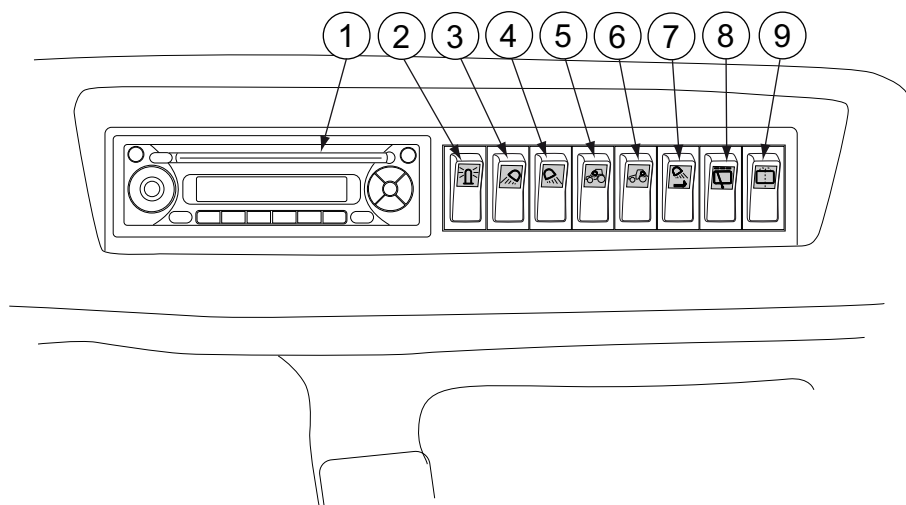
The following controls are positioned in the front roof console.



1. Cab light
2. Recirculation control lever (not with automatic air conditioning)
3. Mirror heating, extra equipment
4. Mirror adjustment, extra equipment
5. Ventilation nozzles
6. Sun visor down
7. Sun visor up

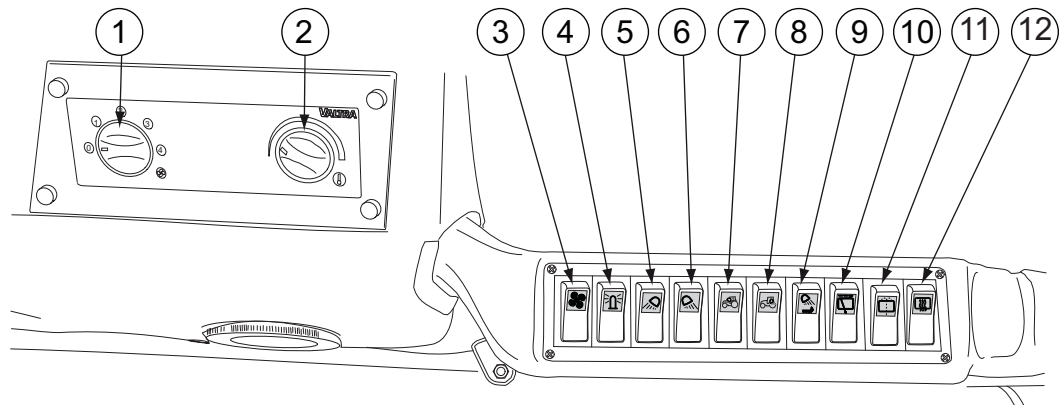
2.7 Controls on the right-hand side roof console

The following figure shows the components on the right-hand side roof console.



1. Radio (extra equipment)
2. Rotating warning light switch (extra equipment)
3. Front working lights switch
4. Rear working lights switch
5. Front waist working lights switch (extra equipment)
6. Rear waist working lights switch (extra equipment)
7. Trailer hitch light switch (extra equipment)
8. Rear window wiper switch (extra equipment)
9. Rear window washer switch (extra equipment)

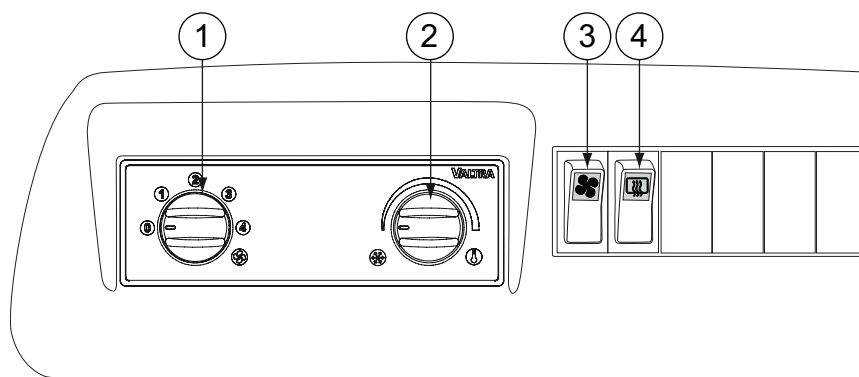
2.8 Controls on the forest equipment right-hand side roof console



1. Fan control knob
2. Temperature control knob
3. Floor fan switch (extra equipment)
4. Rotating warning light switch (extra equipment)
5. Front working lights switch
6. Rear working lights switch
7. Front waist working lights switch (extra equipment)
8. Rear waist working lights switch (extra equipment)
9. Trailer hitch light switch (extra equipment)
10. Rear window wiper switch (extra equipment)
11. Rear window washer switch (extra equipment)
12. Rear window heater switch (extra equipment)

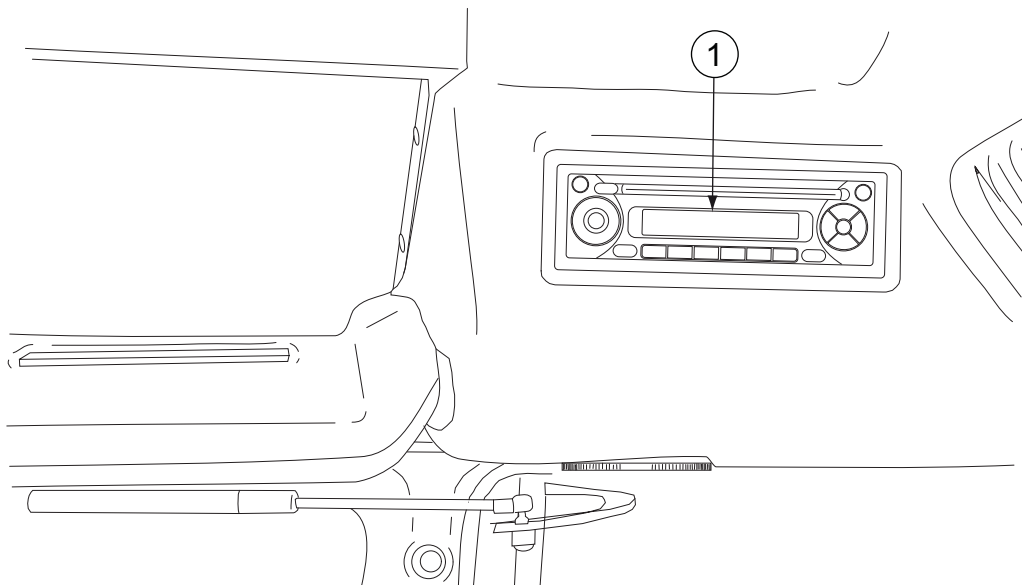
2.9 Controls on the left-hand side roof console

The following figure shows the components on the left-hand side roof console.



1. Fan control knob
2. Temperature control knob
3. Floor fan switch (extra equipment)
4. Rear window heater switch (extra equipment)

2.10 Controls on the forest equipment left-hand side roof console

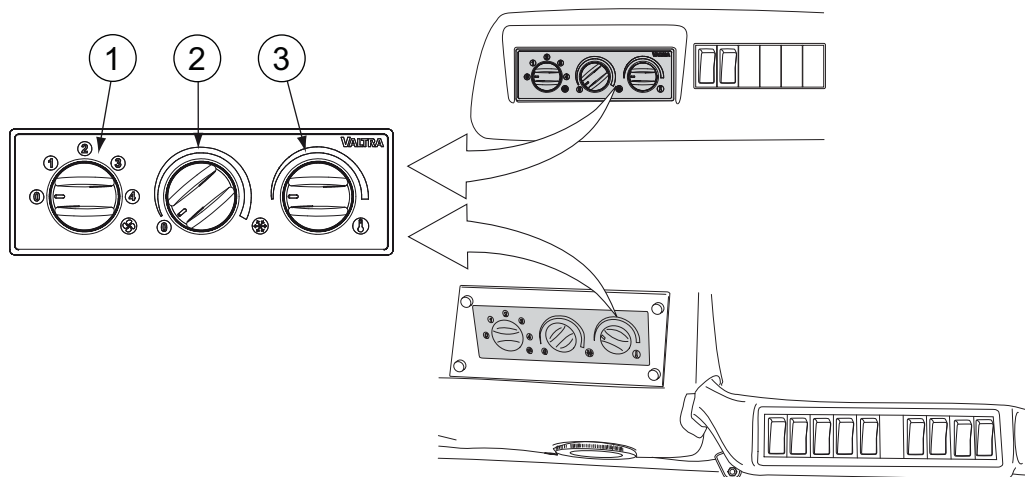


1. Radio (extra equipment)

2.11 Air conditioning controls

2.11.1 Manual air conditioning controls

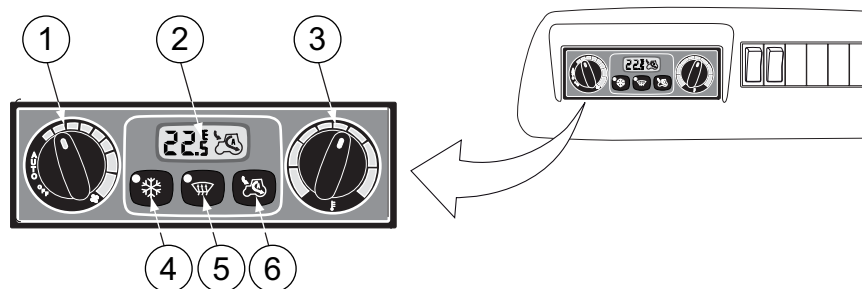
The manual air conditioning system is extra equipment.



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

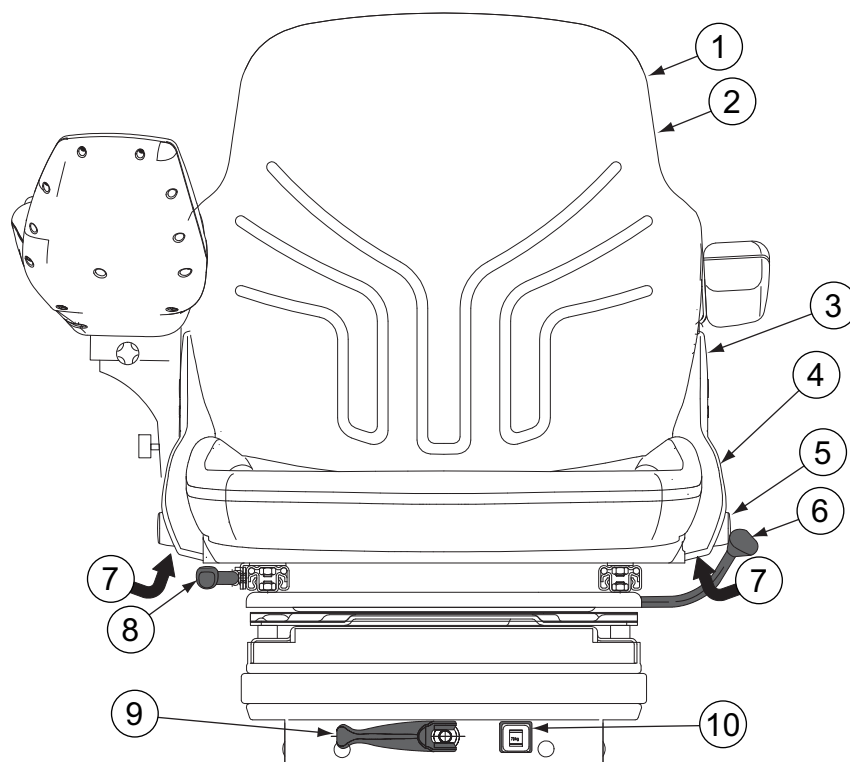
2.11.2 Automatic air conditioning controls

The automatic air conditioning system is extra equipment.



1. Fan control knob
2. Display
3. Temperature control knob
4. Air conditioning system on/off button
5. Defrosting button
6. Recirculation control button

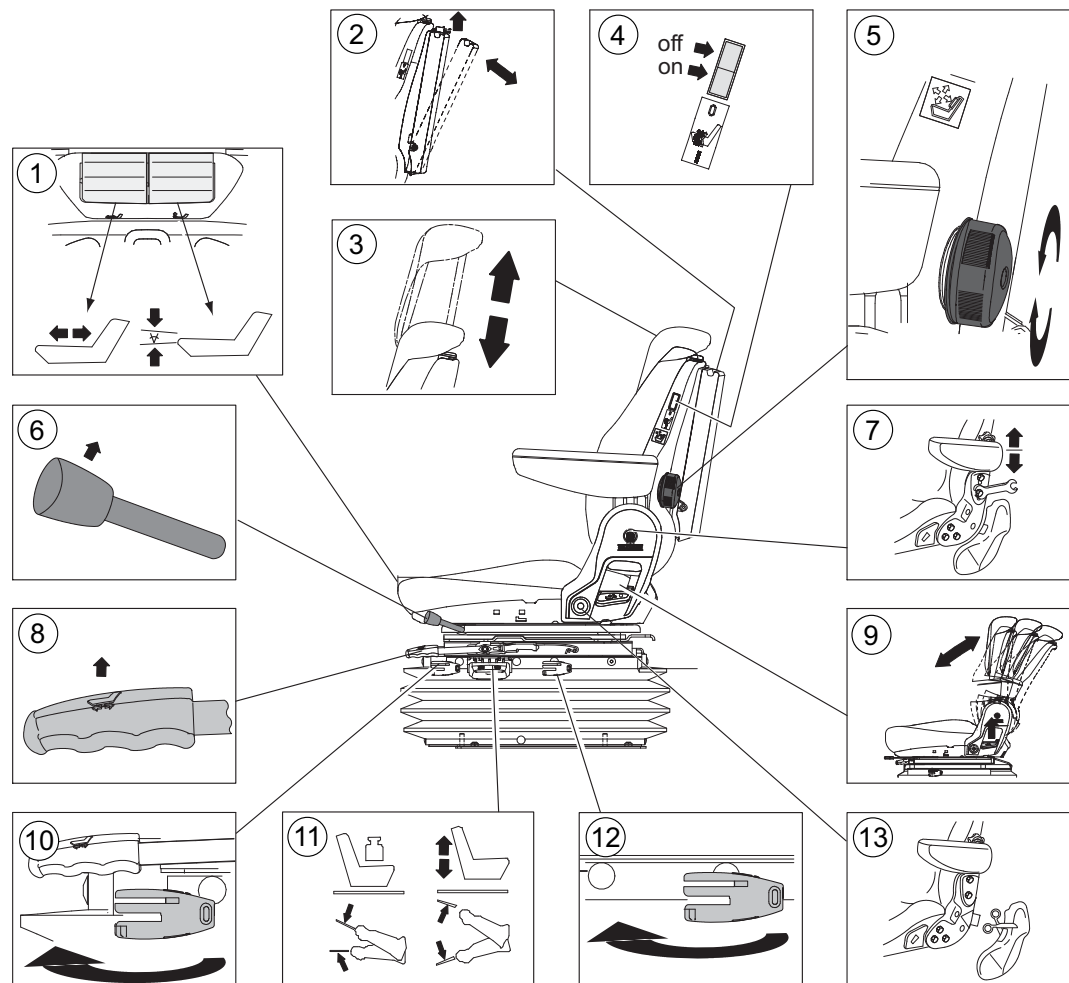
2.12 Driver's seat



1. Storage compartment for manuals
2. Seat heating
3. Armrest adjustment
4. Backrest inclination adjustment
5. Seat belt anchor point
6. Seat turning lock/release
7. Height adjustment
8. Forward/backward adjustment
9. Suspension adjustment
10. Operator weight display

2.13 Air suspended driver's seat

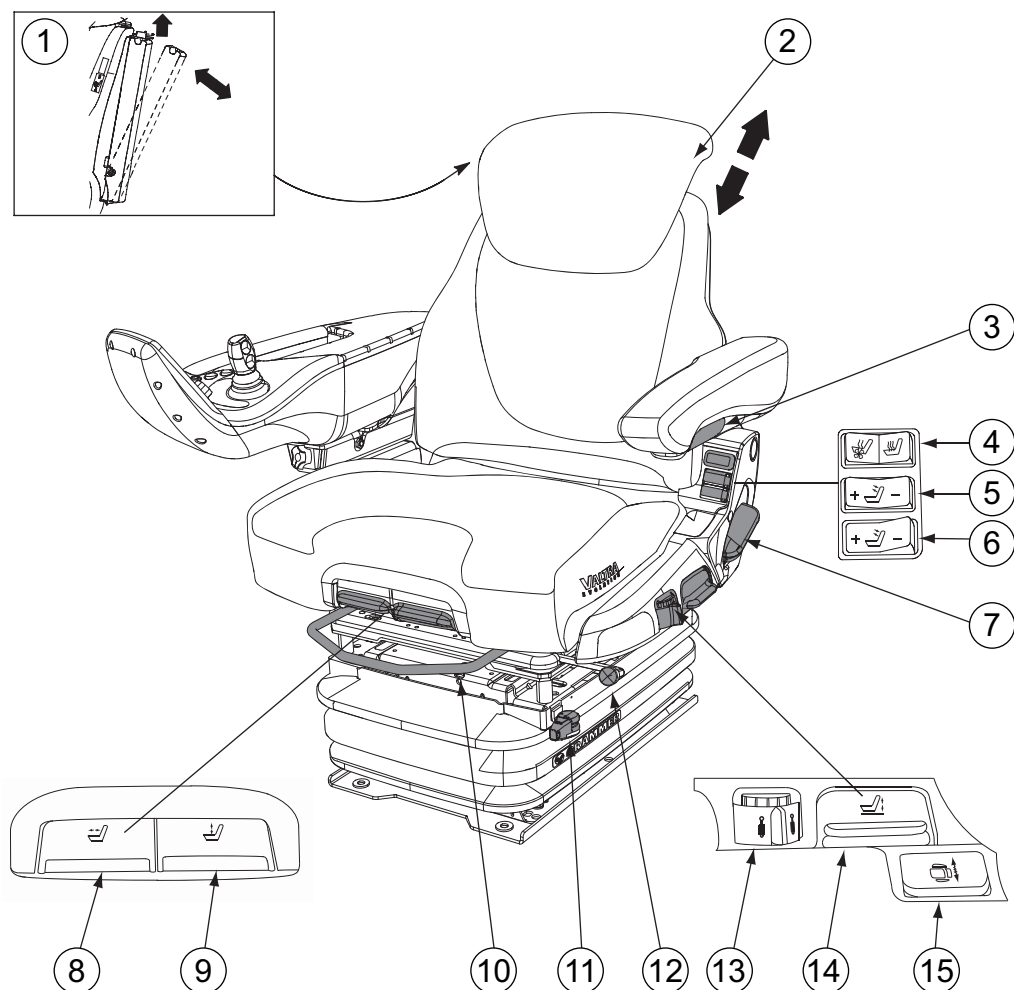
Air suspended driver's seat is extra equipment.



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. Seat turning lock/release
7. Armrest adjustment
8. Forward/backward adjustment
9. Backrest inclination adjustment
10. Longitudinal suspension adjustment
11. Height and vertical suspension adjustment
12. Suspension stiffness adjustment
13. Seat belt anchor point

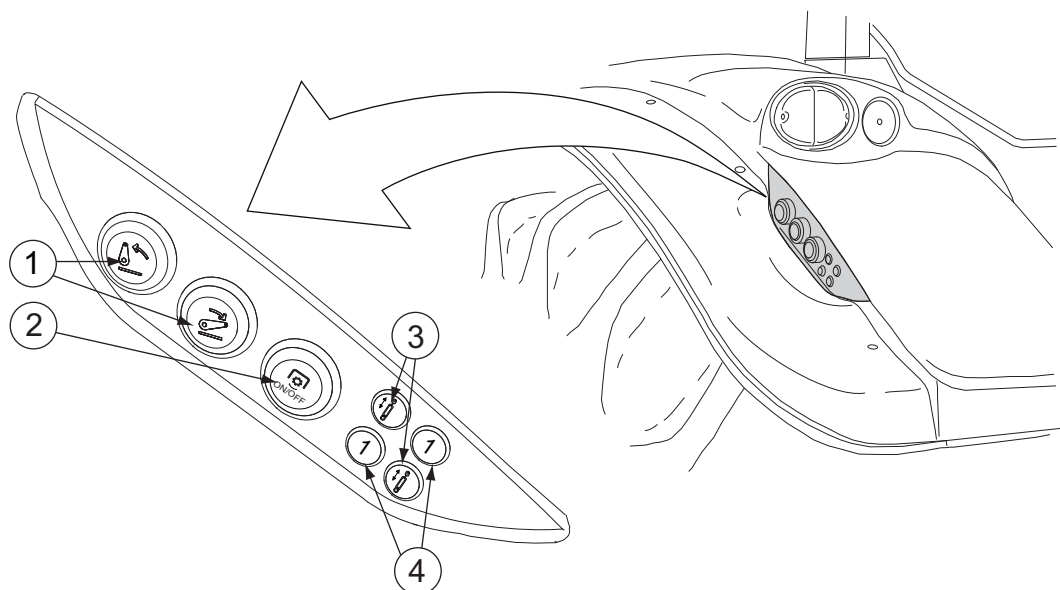
2.14 Valtra Evolution driver's seat

Valtra Evolution driver's seat is extra equipment.



1. Storage compartment for manuals
2. Headrest height adjustment and removal
3. Armrest adjustment
4. Seat heating and ventilation
5. Upper backrest support adjustment
6. Lower backrest support adjustment
7. Backrest inclination adjustment
8. Seat depth adjustment
9. Seat cushion angle adjustment
10. Forward/backward adjustment
11. Longitudinal suspension adjustment
12. Seat turning lock/release
13. Vertical shock absorption adjustment
14. Height and vertical suspension adjustment
15. Lateral suspension adjustment

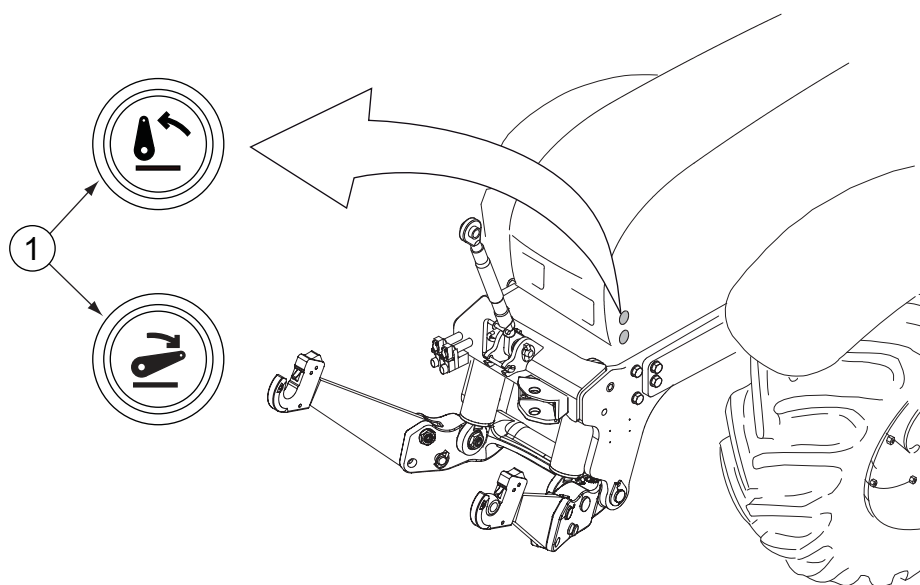
2.15 Controls on the rear mudguard



1. Lift/lower push buttons
2. Rear power take-off on/off push button (extra equipment)
3. Push buttons (extra equipment) for the on/off valve 1
4. Push buttons (extra equipment) for the rear valve 1

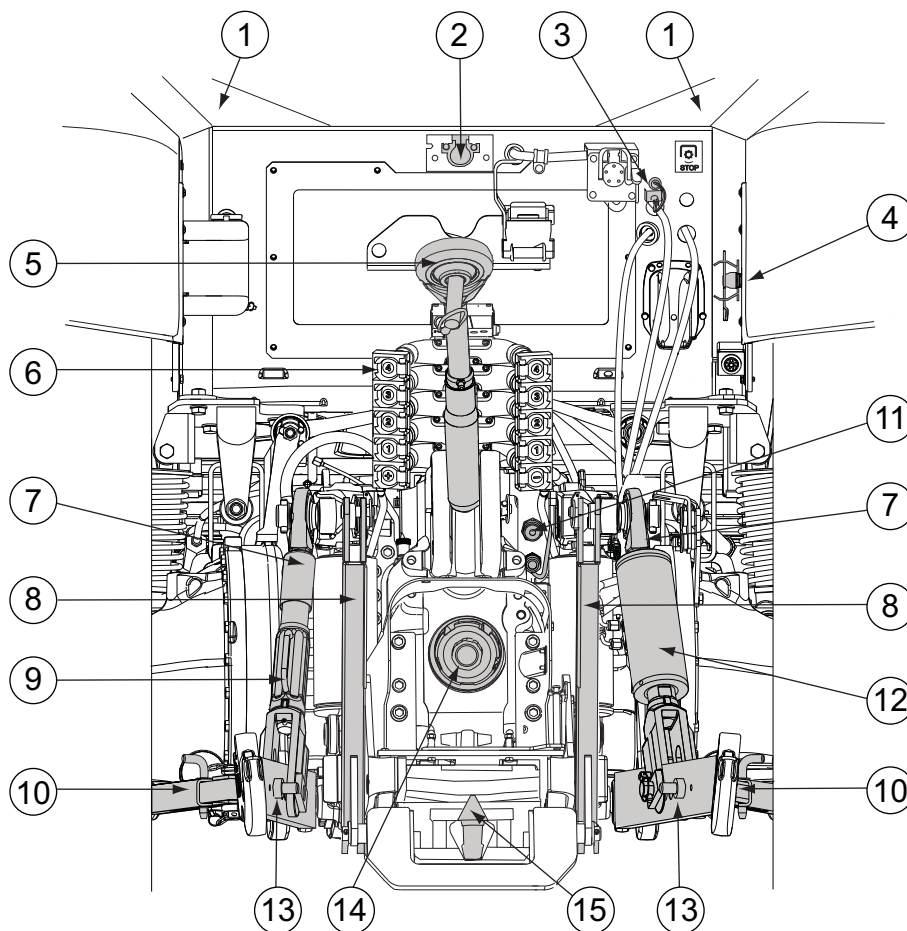
2.16 Controls on the bonnet

The following controls are positioned on the bonnet.



1. Lift/lower push buttons for the front linkage

2.17 Rear controls and connections outside the cab



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

The trailer 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.**

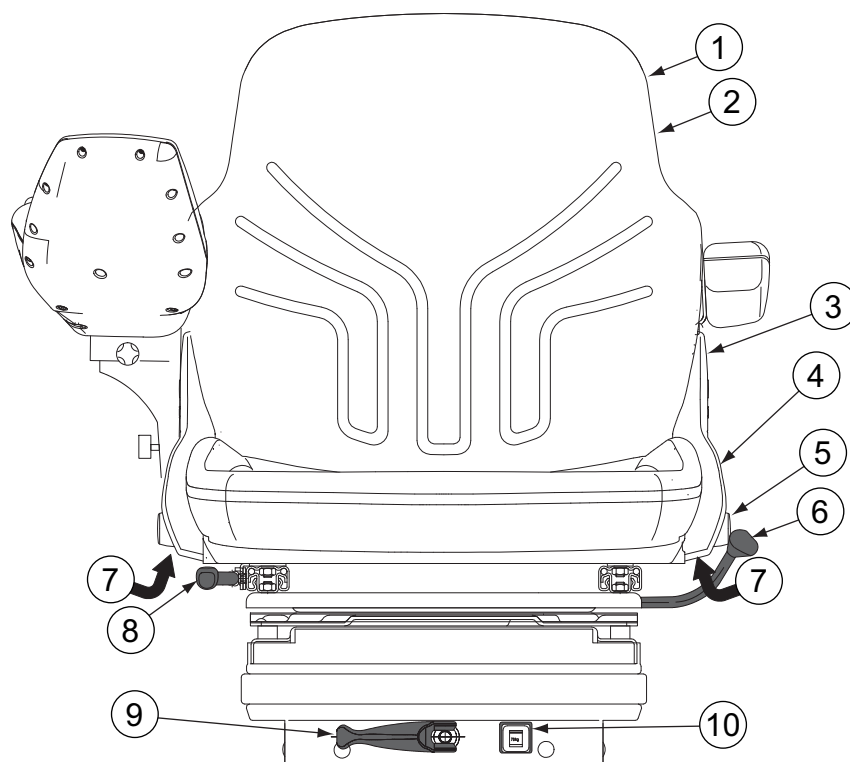
3.2.1 Adjusting the driver's seat

You can adjust the driver's seat according to your height and weight.



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

3. Operation



1. Storage compartment for manuals
2. Seat heating
3. Armrest adjustment
4. Backrest inclination adjustment
5. Seat belt anchor point
6. Seat turning lock/release
7. Height adjustment
8. Forward/backward adjustment
9. Suspension adjustment
10. Operator weight display

- **Turn the seat.**
 - Pull the locking lever upwards to release the lock.
 - Turn the seat 180° anti-clockwise to the desired position.

The seat has set positions at intervals of 10°, to be used, for example, when ploughing.
- **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.

- **Adjust the left armrest.**

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

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

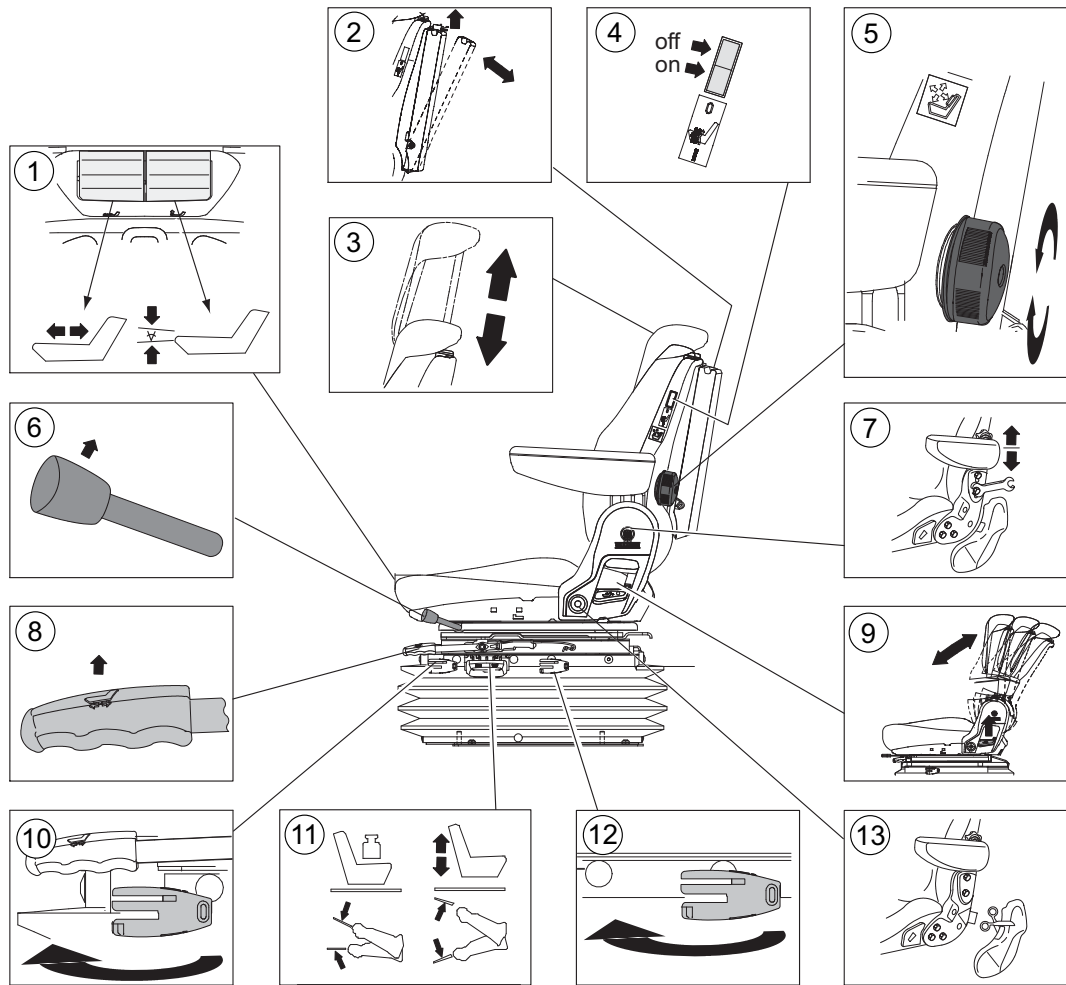
3.2.2 Adjusting the air-suspended driver's seat

You can adjust the air-suspended driver's seat according to your height and weight. 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.

3. Operation



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. Seat turning lock/release
7. Armrest adjustment
8. Forward/backward adjustment
9. Backrest inclination adjustment
10. Longitudinal suspension adjustment
11. Height and vertical suspension adjustment
12. Suspension stiffness adjustment
13. 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.**
 - Release the lock by pulling the lock/release lever upwards.
 - Turn the seat to the desired position.

The seat has set positions from 180° anti-clockwise to 30° clockwise at intervals of 10°.

- **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.
- **Adjust the stiffness of the seat suspension.**
 - When the lever is at the back position, the suspension is at its firmest.
 - When the lever is at the front position, the suspension is at its softest.
- **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.

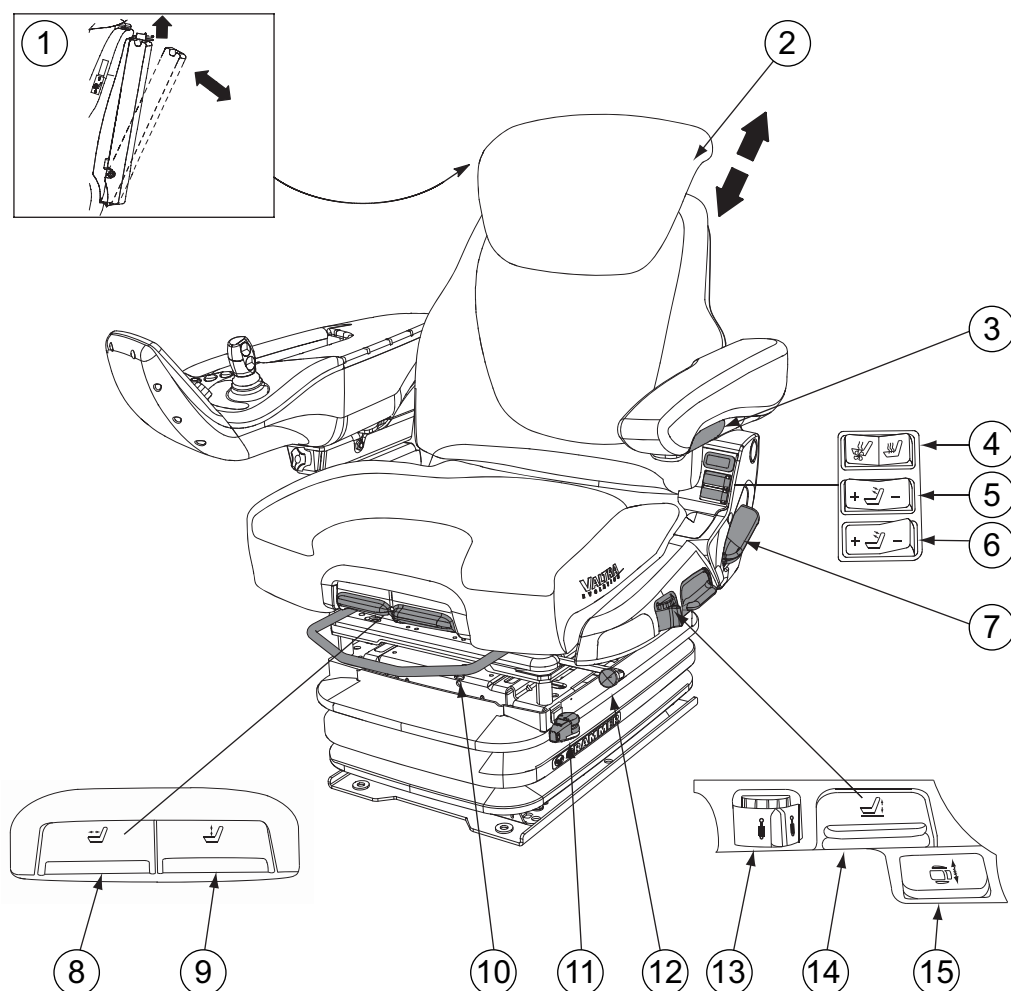
- **Adjust the lumbar support.**
Turn the knob clockwise or anti-clockwise to adjust the lumbar support. The height and depth are adjusted at the same time.
- **Turn the seat heating on or off.**
- **Adjust the headrest height by lifting or lowering it.**
- **Remove the headrest by pulling it upwards.**

3.2.3 Adjusting the Valtra Evolution driver's seat

You can adjust the Valtra Evolution driver's seat according to your height and weight. Valtra Evolution driver's seat is extra equipment. If the tractor is equipped with reverse drive controls, it cannot be equipped with a seat with lateral suspension.



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



1. Storage compartment for manuals
2. Headrest height adjustment and removal
3. Armrest adjustment
4. Seat heating and ventilation
5. Upper backrest support adjustment
6. Lower backrest support adjustment
7. Backrest inclination adjustment
8. Seat depth adjustment
9. Seat cushion angle adjustment
10. Forward/backward adjustment
11. Longitudinal suspension adjustment
12. Seat turning lock/release
13. Vertical shock absorption adjustment
14. Height and vertical suspension adjustment
15. Lateral suspension adjustment

- **Keep the manuals in the storage compartment behind the backrest.**
In models with reverse drive controls, the documents are placed in a net pocket.
- **Adjust the headrest height.**
 - Lift the headrest by pulling it upwards.
 - Lower the headrest by pushing it downwards.
 - Remove the headrest by pulling it upwards.

3. Operation

- **Adjust the height of the left side armrest.**
 - Remove the cover.
 - Change the armrest position in the mounting slot.
- **Adjust the left armrest inclination.**
 - To increase the armrest inclination, turn the handle outward.
 - To decrease the armrest inclination, turn the handle inward.
- **Adjust the seat heating and ventilation.**

There are three functions for seat heating and ventilation.

 - To switch on the ventilation only, press down the right side of the switch.
 - To switch both functions off, place the switch in the middle position.
 - To switch on the heating only, press down the left side of the switch.
- **Adjust the upper backrest support.**
 - To increase the upper backrest support, press the + side of the switch.

NOTE: Release the + side of the switch immediately when the backrest does not expand any more. If you continue pressing, the height of the seat may change when the air pressure of the system lowers.
 - To decrease the upper backrest support, press the - side of the switch.
- **Adjust the lower backrest support.**
 - To increase the lower backrest support, press the + side of the switch.

NOTE: Release the + side of the switch immediately when the backrest does not expand any more. If you continue pressing, the height of the seat may change when the air pressure of the system lowers.
 - To decrease the lower backrest support, press the - side of the switch.
- **Adjust the backrest inclination.**
 - Pull up the backrest inclination lever.
 - Set the backrest to the required position.
- **Adjust the seat depth.**

To adjust the seat depth, pull up the right handle in the seat front.
- **Adjust the seat cushion angle.**

To adjust the seat cushion angle, pull up the left handle in the seat front.
- **Adjust the seat forward or backwards.**
 - Pull the forward/backward adjustment lever upwards.
 - Move the seat in the desired direction.
- **Turn the longitudinal suspension on or off.**
 - To turn on the longitudinal suspension, turn the lever to the forward position.
 - To turn off the longitudinal suspension, turn the lever to the backward position.
- **Turn the seat.**
 - Release the lock by pulling the locking lever upwards.
 - Turn the seat to the desired position.

You can turn the seat up to 180° left or 30° right from the normal position. The seat has set positions at 10° intervals.

- **Adjust the vertical shock absorption.**

The adjusting knob has five positions.

- To decrease the level of damping, turn the knob backwards.
- To increase the level of damping, turn the knob forward.

- **Adjust the seat height and vertical suspension.**

IMPORTANT: Lifting or lowering the seat over a minute at a time can damage the compressor.

The seat has pneumatic height adjustment. The seat adjusts the vertical suspension automatically according to the operator's weight.

- To lift the seat, pull the height adjustment lever upwards. Release the lever when required height is reached.
- To lower the seat, push the height adjustment lever downwards. Release the lever when required height is reached.

If you set the seat too high or low, the seat adjusts automatically to the nearest permissible position to maintain the required margin for upward or downward suspension.

- **Adjust the seat lateral suspension.**

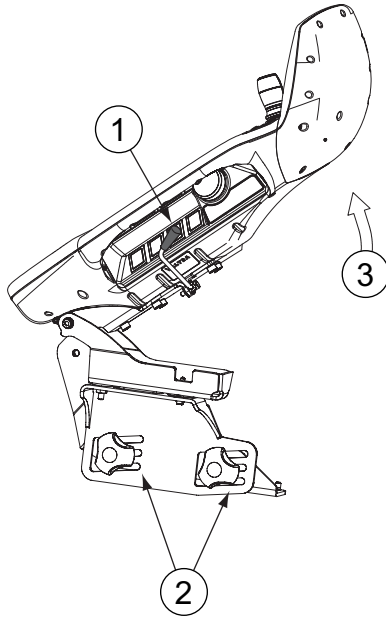
Lateral suspension is not in use if the tractor is equipped with reverse drive controls.

The lateral suspension is either on or off.

- To turn on the lateral suspension, pull the handle to the upper position.
- To turn off the lateral suspension, push the handle to the lower position.

3.2.4 Adjusting the right-side armrest

You can adjust the horizontal and sideways position as well as the inclination of the armrest.



1. Sideways adjustment
2. Horizontal position adjustment
3. Armrest inclination adjustment

- **Adjust the horizontal position of the armrest by moving the bracket to other mounting holes.**
- **Adjust the armrest sideways with the sideways adjustment lever.**
 - Pull the lever upwards.
 - Turn the armrest into the desired position.

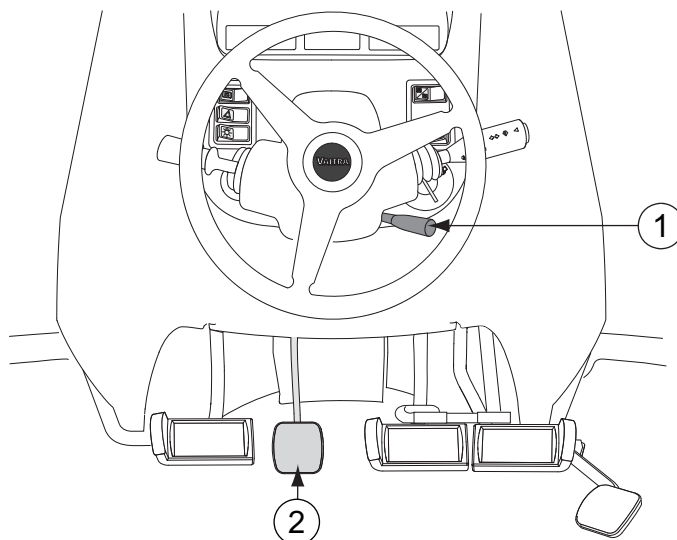
You can turn the armrest to both directions from the middle position.
- **Adjust the armrest inclination.**
 - Lift up the front edge of the armrest.
 - Set the armrest to the desired position.

3.2.5 Adjusting the steering wheel

You can adjust the steering wheel position with the lever and the locking pedal.



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



1. Lever for adjusting steering wheel position
2. Locking pedal for steering wheel inclination

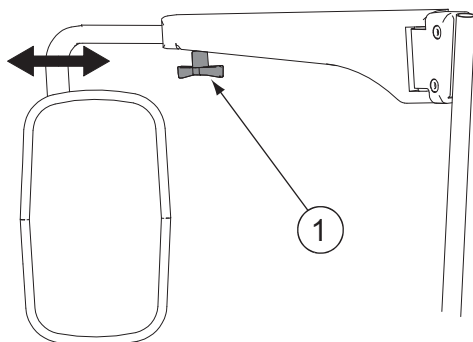
- **Adjust the steering wheel position.**
 - Push the lever downwards.
 - Move the steering wheel up or down to the wanted position.
 - Pull the lever up to lock the steering wheel position.
- **Set the steering wheel inclination.**
 - Press the locking pedal down.
 - Adjust the steering wheel inclination.

You can move the steering wheel to 9 different positions.

 - Release the pedal after adjusting.

3.2.6 Adjusting standard mirrors

You can adjust the position of the standard mirrors manually.



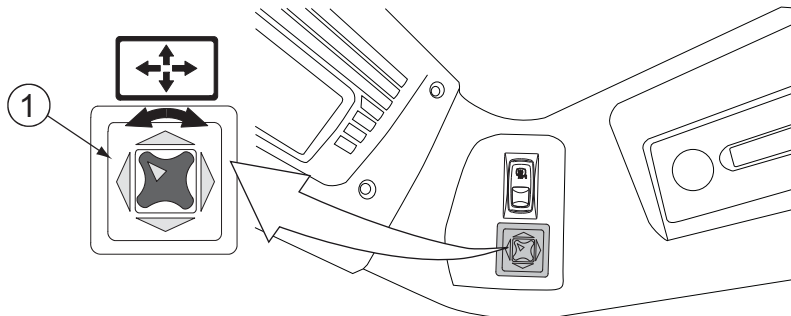
1. Locking device of the mirror support

To adjust standard mirrors:

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

3.2.7 Adjusting optional mirrors

You can adjust the position of the optional mirrors electrically.

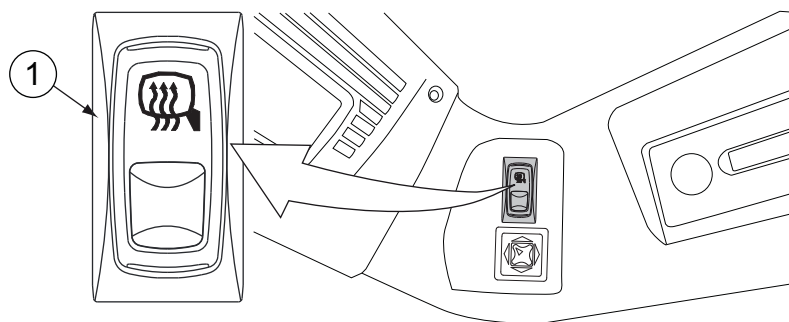


1. Mirror adjustment

- To adjust the left mirror, turn the knob to the left and push the knob in the direction of the arrows.
- To adjust the right mirror, turn the knob to the right and push the knob in the direction of the arrows.

3.2.8 Heating mirrors

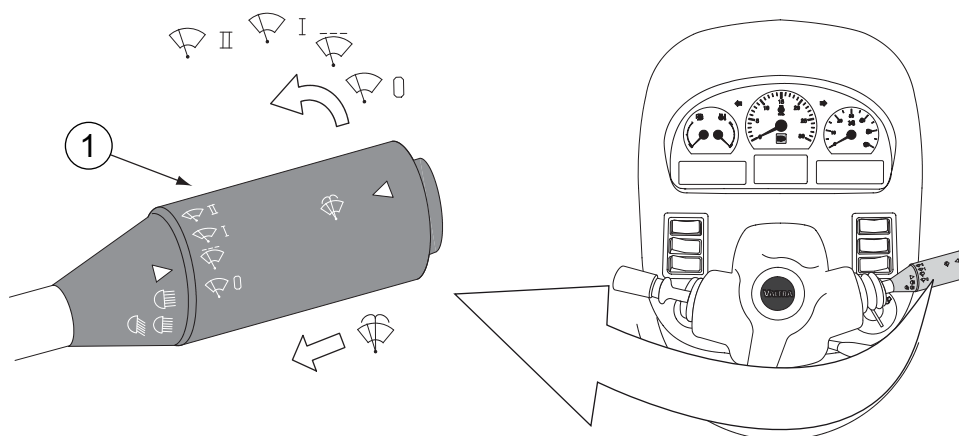
Mirror heating is extra equipment.



1. Mirror heating switch

- To switch the mirror heating on, press down the symbol side of the switch.
- To switch the mirror heating off, press down the side of the switch opposite to the symbol.

3.2.9 Using the windscreen wiper and washer

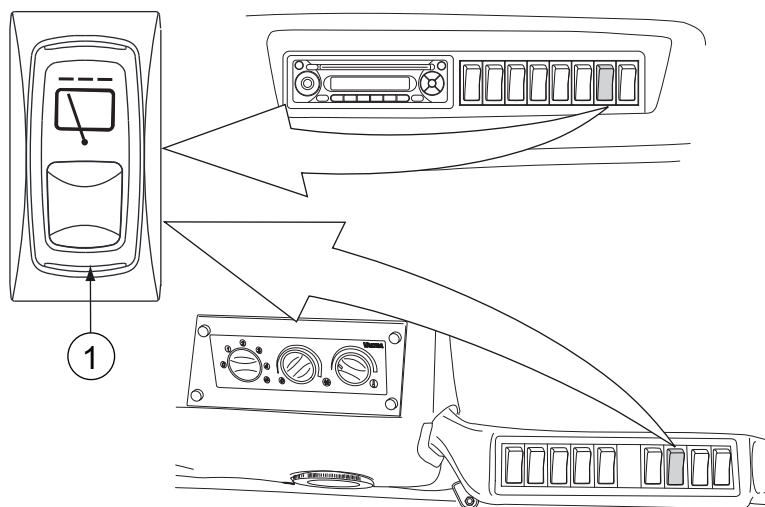


1. Multifunctional lever

- To use the windscreen wiper, turn the multifunctional lever.
The wiper has a drizzle position and two speeds.
- To use the windscreen washer, push the control lever inwards.

3.2.10 Using the rear window wiper

The rear window wiper is extra equipment.



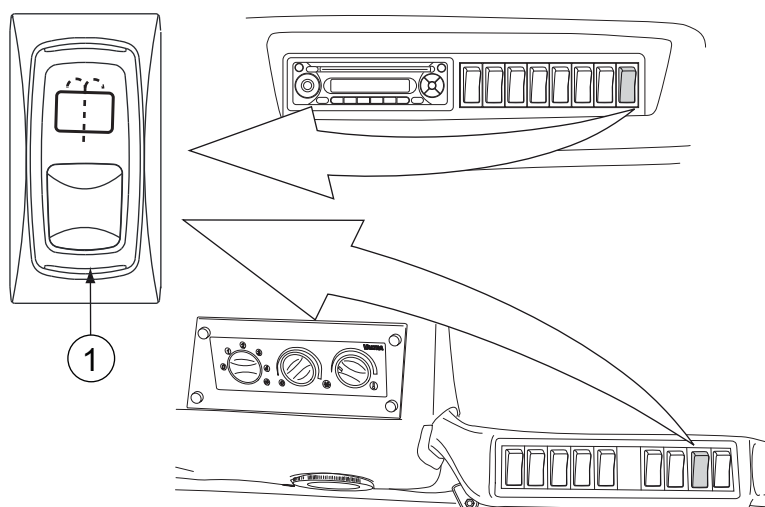
1. Switch for the rear window wiper

The wiper switch has three positions:

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

3.2.11 Using the rear window washer

The rear window washer is extra equipment.

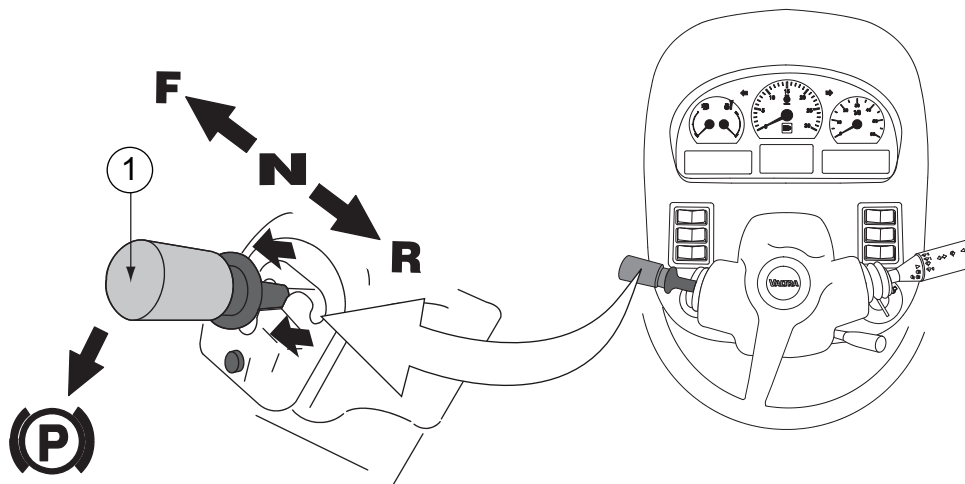


1. Switch for the rear window washer

- To turn on the rear window washer, press down the symbol side of the switch.
The switch for the rear window washer is spring returned.
- To turn off the washer, press down the side of the switch opposite to the symbol.

3.2.12 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

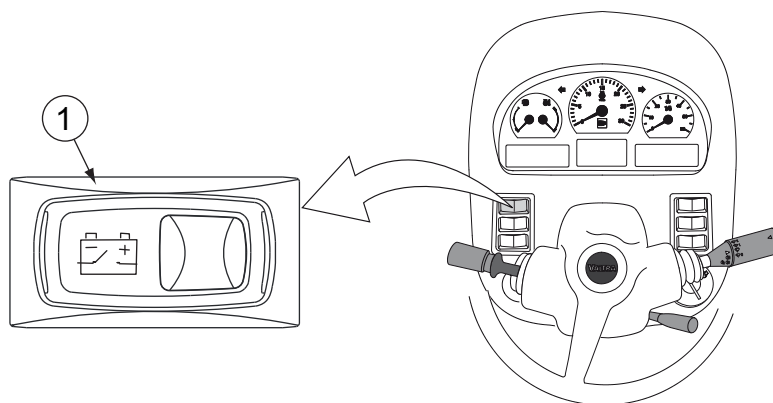
With the power shuttle, you can change the driving direction without using the clutch pedal. However, traditional use of the clutch pedal is still possible when changing direction, just make sure that you press the pedal fully down before moving the power shuttle lever.

- 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.

3.2.13 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.

- **To switch on the main power, press the symbol side of the main switch.**
When the main power is switched on, the indicator light of the main switch flashes.
- **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 clock.

3.2.14 Control stop

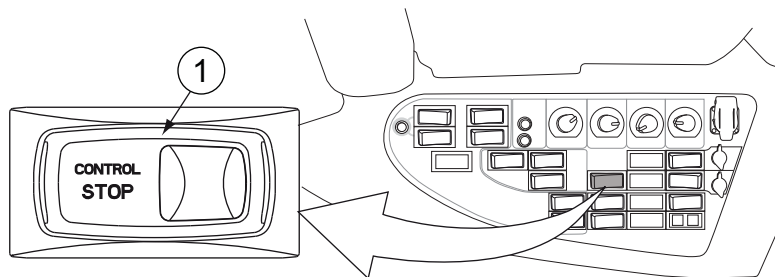
The control stop is used when the tractor is running an implement in stationary mode (for example a compressor or pump) and the operator is not in the cab. Using the control stop reduces the risk of more serious damage to the engine or in the transmission. The control stop is extra equipment.

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.

3.2.15 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.

3.2.16 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.



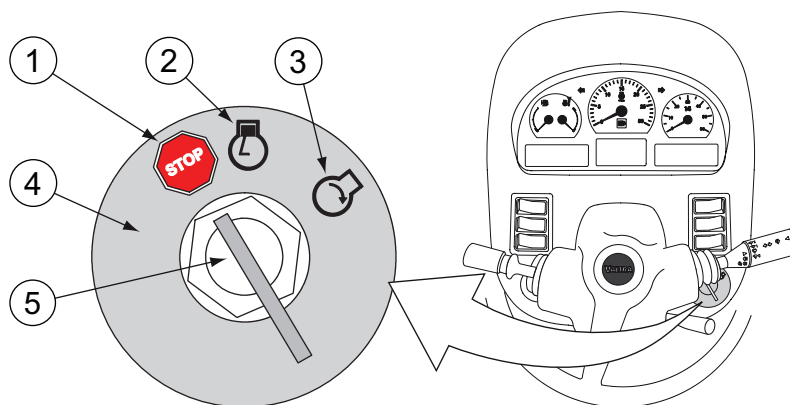
WARNING: If the engine stops while the tractor is moving (for example, the fuel has run out), do not press the clutch pedal down. When the tractor is moving and the transmission is engaged, the engine is running and there is pressure in the system.



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.

3. Operation



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.

3.3 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.



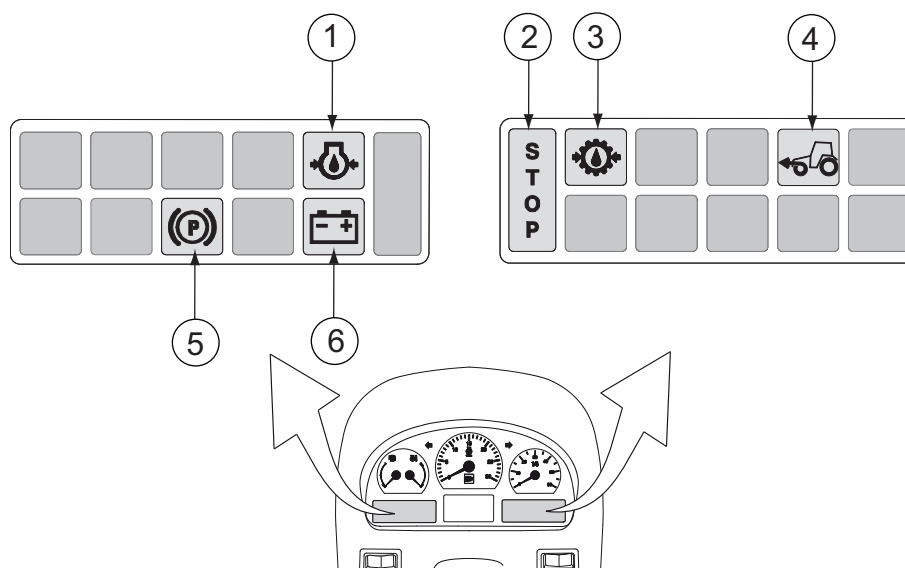
WARNING: Never start the engine unless you are seated on the driver's seat.



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 lever 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
9. Use the accelerator pedal to control the engine speed.

IMPORTANT: Never race a cold engine.

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: If you start the engine when it is very cold, the indicator light for blocked hydraulic filters can be lit. This indicates that the oil is going through the by-pass valve unfiltered.

IMPORTANT: Avoid using hydraulics until the oil has warmed up and the indicator light is no longer lit.

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. When first starting to use hydraulic functions, use the predefined factory setting M2 to set the maximum flow to 50% for the first few minutes.

- **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).



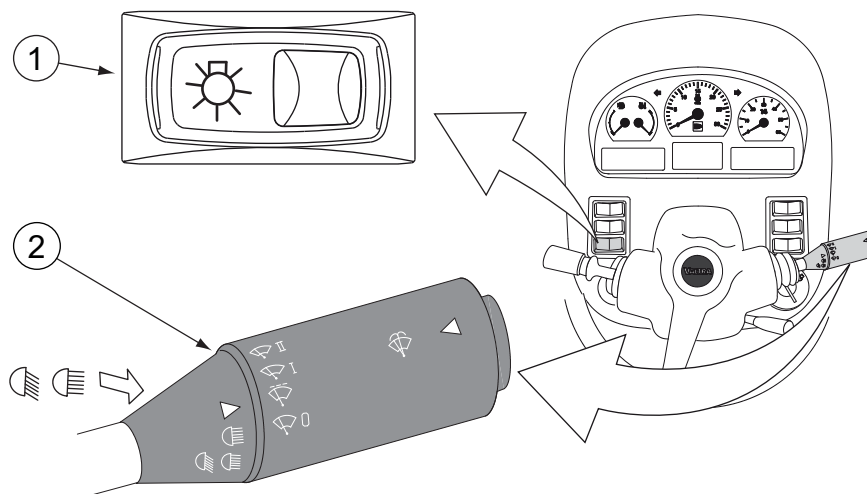
WARNING: A fully charged battery connected directly to a dead battery can cause a current surge capable of causing the batteries to explode.

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

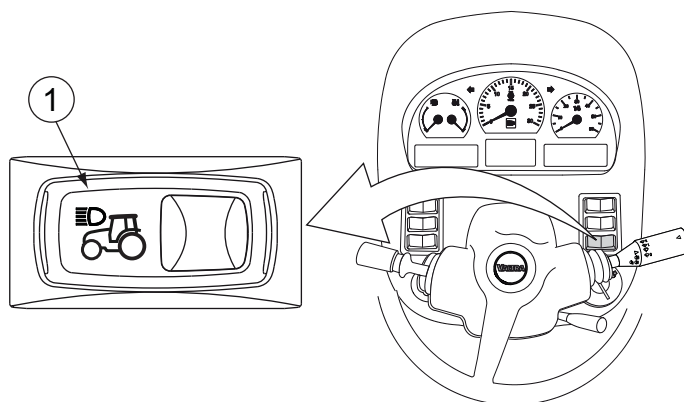


1. Light switch
2. Multifunctional lever

- **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 off. If lights are turned on when the power is off, the buzzer does not go off.
- **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.

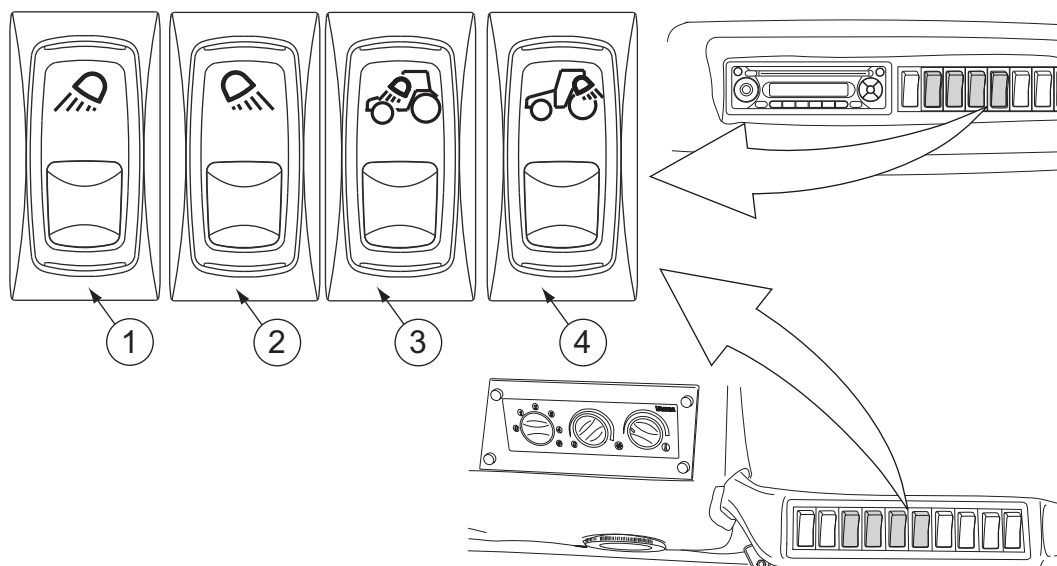
3.4.3 Using working lights

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

- The switches for the front working lights have two positions: on/off.
- The switches for the rear working lights have three positions: on/automatic/off.

IMPORTANT: If the tractor is equipped with the Infolight Xenon package, always turn off all the working lights before turning the power on. It is recommended to turn on Xenon working lights one by one because they need a lot of power when ignited.

IMPORTANT: If the tractor is equipped with the Infolight Xenon package, do not turn the lights more than 10 degrees up or down. If the lights are turned more than 10 degrees, the Xenon bulbs operating time is significantly shorter.



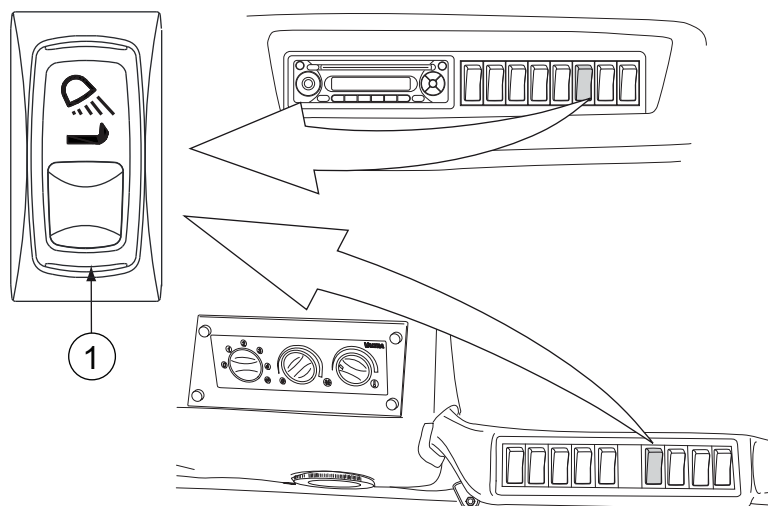
1. Switch for front working lights
2. Switch for rear working lights
3. Switch for front waist working lights (extra equipment)
4. Switch for rear waist working lights (extra equipment)

- To use the lights manually, press down the symbol side of the switch.
- To use the rear working lights automatically, press the switch to the centre position.
The rear working lights switch on when the reverse drive is engaged. The lights switch off when the reverse drive is disengaged.
NOTE: The automatic function does not work when reverse drive controls (extra equipment) are used.
- To turn off the lights, press down the side of the switch opposite to the symbol.

3.4.4 Using the trailer hitch light

The trailer hitch light is extra equipment.

The trailer hitch light is positioned in the power take-off (PTO) cover.

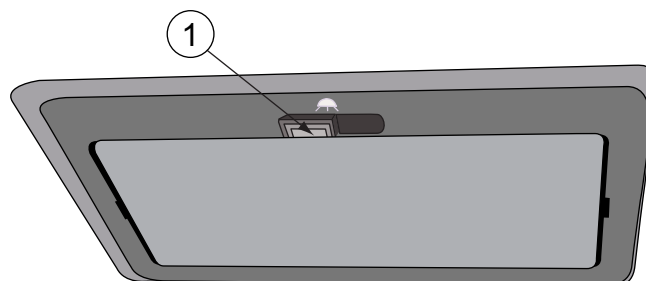


1. Trailer hitch light switch

- To switch on the trailer hitch light, press the symbol side of the switch.
- To switch off the trailer hitch light, press the side of the switch opposite to the symbol.

3.4.5 Using the cab light

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



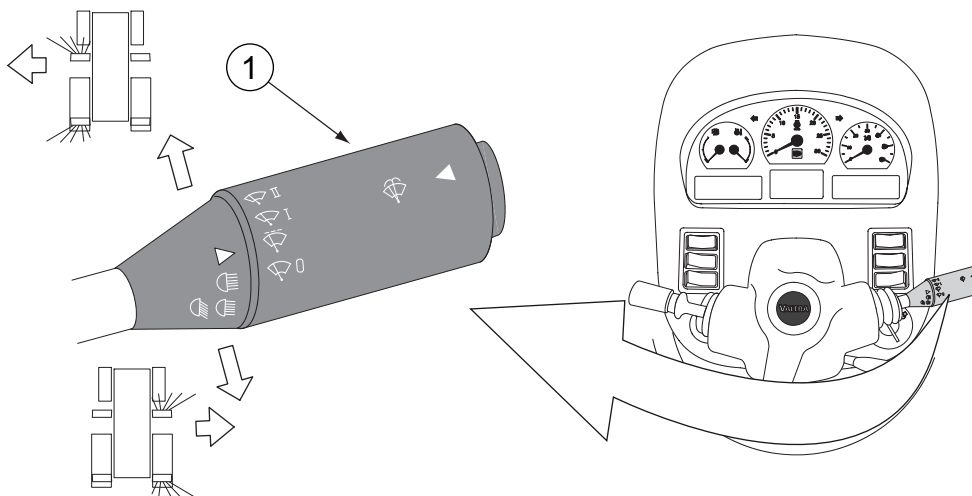
1. Cab light switch

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.
 - When the door is closed, the lights go out within 10 seconds.
 - If the door is left open, the lights go out within 10 minutes.
 - When the parking light or headlights are on, the right side panel is illuminated with the LED light in the roof.
- To turn off the cab lights, push the switch to the off position.

3.5 Using notification devices

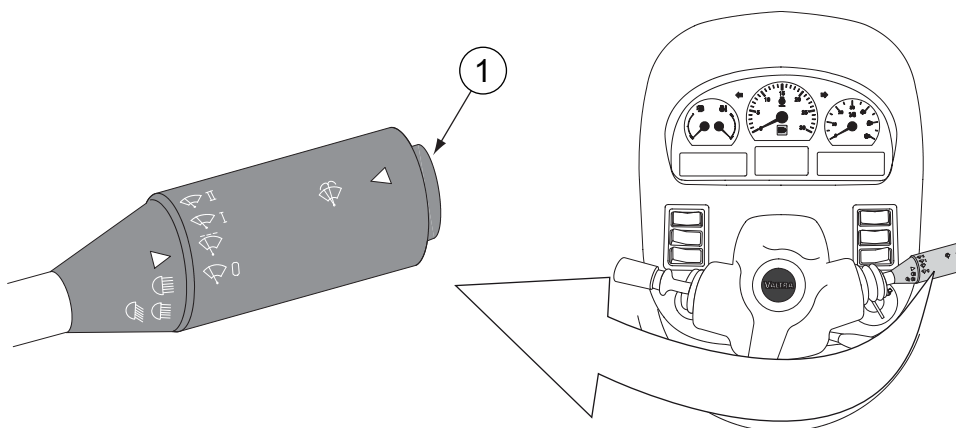
3.5.1 Using the direction indicators



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

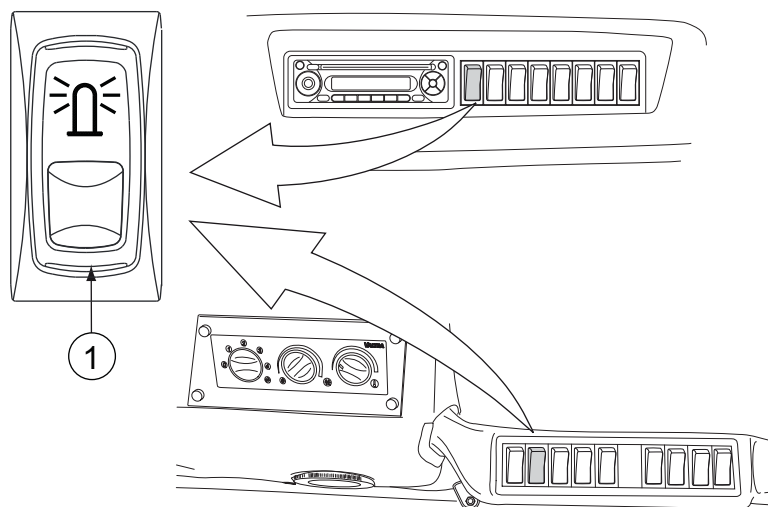


1. Horn button

- To sound the horn, push the horn button.

3.5.3 Using the rotating warning light

Rotating warning light is an extra equipment.

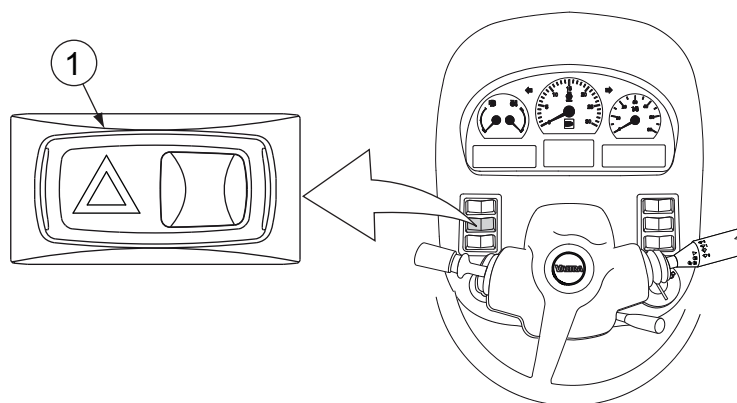


1. Rotating warning light switch

- 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.



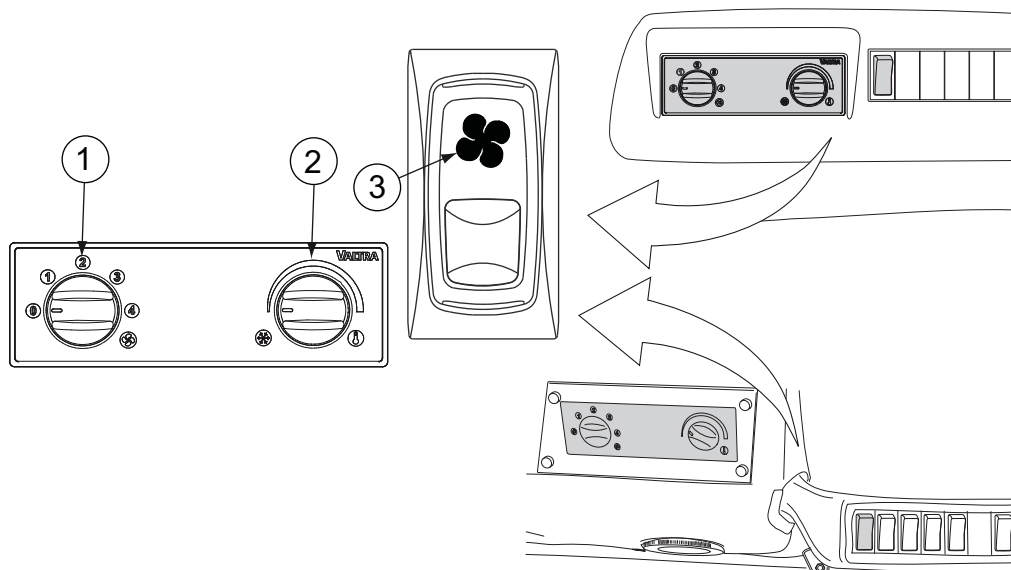
1. Switch for hazard warning flashers

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

You can regulate the temperature and the fan on the roof console.

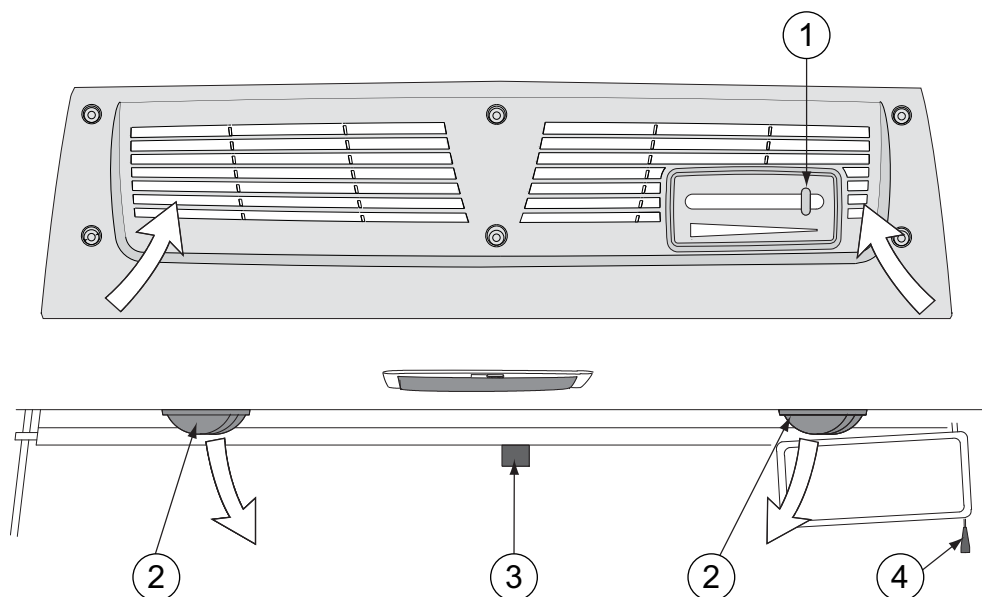


1. Roof fan control knob
2. Temperature control knob
3. Switch for floor fan (extra equipment)

- **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 clockwise.**
- **To blow air into the lower part of the cab, use the floor fan switch.**
 - To turn on the floor fan, press the switch to the centre position (speed 1).
 - To increase the speed of the floor fan, press down the symbol side of the switch (speed 2).
 - To turn off the floor fan, press down the side of the switch opposite to the symbol.

3.6.2 Controlling ventilation nozzles and air recirculation

You can control the ventilation nozzles and air recirculation with the controls in the front roof console.



1. Recirculation control lever
2. Ventilation nozzles
3. Sun visor
4. Sun visor raising string

- **Adjust the air ventilation nozzles.**
 - 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.
- **Adjust the sun visor.**
 - To lower the sun visor, pull it down.
 - To raise the sun visor, pull the raising string.
- **Adjust the air recirculation.**
 - To open the recirculation fully, push the recirculation control lever to the left.

When you open the recirculation:

- The outside air channel is partially closed.
- The cab heats up faster.
- The heating capacity is higher.
- The cooling capacity is higher if the tractor has air conditioning.
- **To close the recirculation, push the recirculation control lever to the right.**

When you close the recirculation, the windows demist faster.

3.6.3 Using the manual air conditioning

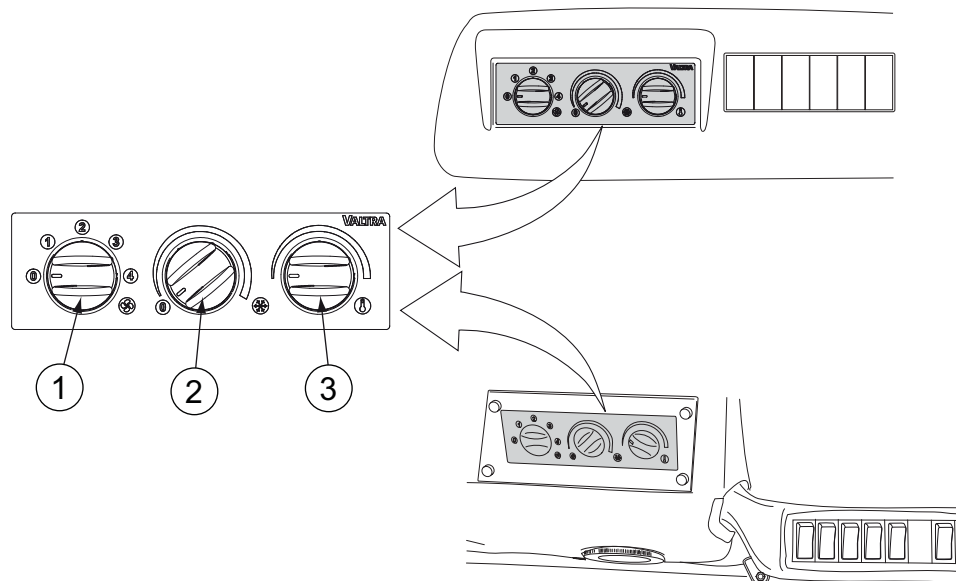
You can adjust the manual air conditioning with three control knobs.

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.

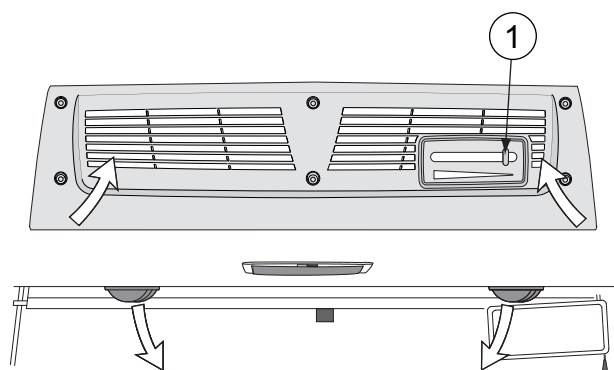


1. Fan control knob
2. Air conditioning control knob
3. Temperature control knob

1. Turn the temperature control knob anti-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.



1. Recirculation control lever

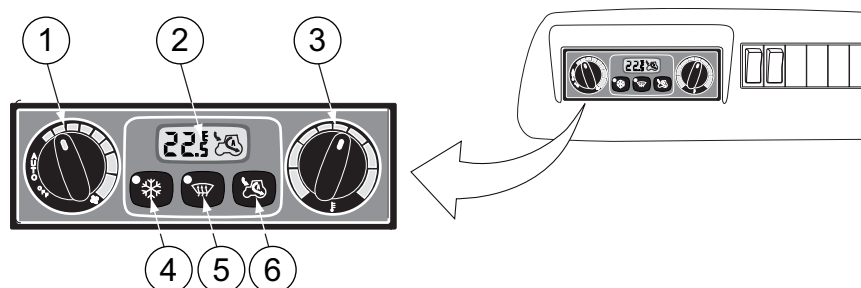
3.6.4 Automatic air conditioning

3.6.4.1 Air conditioning control panel

The automatic air conditioning system is extra equipment.

The control panel backlighting is white in daytime and green in the dark.

The graduation marks of the temperature control knob are always lit in blue or red. The air conditioning on/off button and the defrosting button have an amber indicator LED. The LED is lit only when the function is active.



1. Fan control knob
2. Display
3. Temperature control knob
4. Air conditioning system on/off button
5. Defrosting button
6. Recirculation control button

The operating temperature is -40°C...+80°C. The display decelerates in -30°C and degrades in -40°C.

3.6.4.2 Activating air conditioning when the battery has been disconnected

When the battery has been disconnected, you must calibrate the air conditioning system.

- **Turn the fan control knob to AUTO position.**

The automatic air conditioning starts the calibration.

NOTE: During calibration, the air conditioning system cannot be used.

3.6.4.3 Air conditioning control

Different air conditioning control situations are described in the following.

Starting

When you start the tractor, the air conditioning automatically defaults to the last selected adjustment, apart from the defrosting.

Temporary start mode

When you start the tractor in freezing weather, the air conditioning stays in the starting mode until the temperature of the engine coolant reaches the preset value.

During the starting mode:

- The fan speed is at the minimum.
- The fresh air intake is on.

The starting mode ends when the engine coolant has reached the preset value or if:

- The defrosting is connected.
- The LO setting mode is connected.
- A different speed is selected for the fan manually.

Priority of functions

The function with a higher priority controls the operations. The priority order of the functions is as follows.

Defrosting	High priority
OFF mode	.
Compressor, recirculation, fan speed	.
HI setting mode, LO setting mode	Low priority

For example, if you have selected the OFF mode with the fan control knob, the defrosting function cancels the OFF mode and activates the defrosting functions.

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

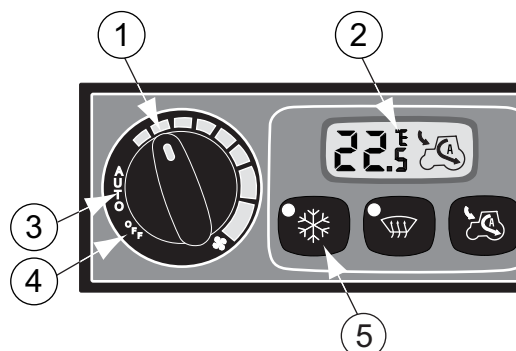
NOTE: Use the air conditioning for a few minutes at least once a month.

You can activate the air conditioning using the air conditioning system on/off button also in cold weather.

ECO mode

Switching off the air conditioning with the air conditioning system on/off button activates the ECO mode. The air cooling compressor is turned off and the system tries to achieve the target temperature by other available means, such as fresh air intake and fan speed.

3.6.4.4 Controlling the fan



1. Fan control knob
2. Display
3. AUTO position
4. OFF position
5. Air conditioning system on/off button

- **Activate the air conditioning system to increase the fan speed by pressing the air conditioning system on/off button.**

The efficiency of the fan speed can vary when the system tries to maintain the adjusted cab temperature. An increase in the sun heat radiation increases the fan speed.

- **Activate the automatic fan speed mode.**
 - To activate the automatic mode, turn the fan control knob to the AUTO position.
 - To activate the ECO mode, press the air conditioning system on/off button when the fan control knob is in the AUTO mode.

If the selected cab temperature is lower than the outdoor temperature, the numerical value of the temperature flashes on the display.


The fan speed changes gradually.

- **Adjust the fan speed manually.**

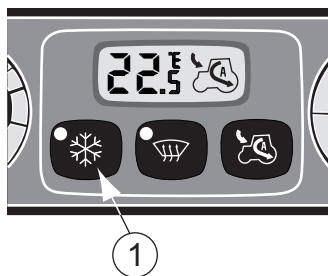
To change the fan speed from the default value of the AUTO position, turn the fan control knob to the desired position.

The fan speed changes immediately.

- **To deactivate the air conditioning system, turn the fan control knob to the OFF position.**

- The fan turns off.
- The recirculation of the indoor air is on, as indicated by the  symbol on the display.

3.6.4.5 Automatic air conditioning system on/off button



1. Automatic air conditioning system on/off button

- When the automatic air conditioning is on, the amber indicator LED is lit.
- When the automatic air conditioning is off, the compressor and the indicator LED are off.
- When the indoor-air recirculation is activated, the automatic air conditioning is normally on. Switching off the air conditioning by pressing the automatic air conditioning system on/off button turns off the compressor and activates the ECO mode.

3.6.4.6 Temperature view

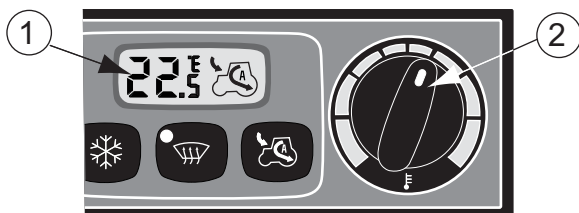
The selected temperature is displayed on the display.

- Within the range of 20-24°C, the temperature is displayed with an accuracy of 0.5°C.
- Outside the range of 20-24°C, the temperature is displayed with an accuracy of 1°C.
- If adjusted below 18°C, LO is displayed.
- If adjusted over 28°C, HI is displayed.

When the recirculation of the indoor air is active, the display shows HI, LO or the tractor symbol depending on the situation.

3.6.4.7 Temperature control

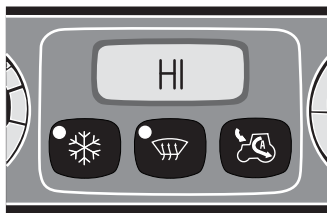
You can adjust the cab temperature with the temperature control knob.



1. Display
2. Temperature control knob

Adjust the cab temperature with the temperature control knob. The selected target temperature is shown on the display. Note that the selected temperature is a target value that may not be reached in extreme cold/heat conditions.

Setting mode HI



The maximum heating effect is reached by setting the cab temperature above +28°C. When the HI mode is active:

- The air conditioning indicator LED is lit.
- The fan speed is 75% of the maximum (if operating automatically).
- The recirculation of the indoor air is off.
- The text HI is displayed.

Setting mode LO

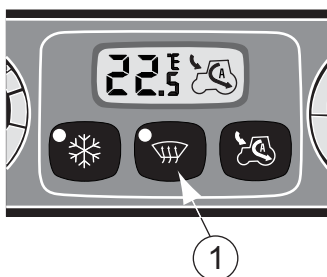


The maximum cooling effect is reached by setting the cab temperature below +18°C. When the LO mode is active:

- The air conditioning indicator LED is lit.
- The fan speed is at the maximum (if operating automatically).
- The recirculation of the indoor air is on.
- The text LO is displayed.

3.6.4.8 Defrosting

You can activate defrosting with the defrosting button.



1. Defrosting button

The maximum time of continuous defrosting is three minutes. When the defrosting is active:

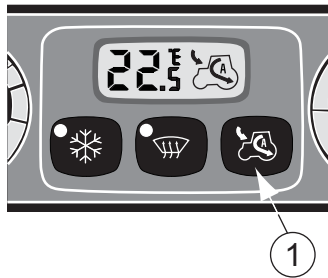
3. Operation

- The air conditioning indicator LED is lit.
- The defrosting button indicator LED is lit.
- The fan speed is 75% of the maximum.
- The fresh air intake is active.
- The text HI is displayed.

You can deactivate the defrosting by pressing the defrosting button again. The former display mode is restored and the defrosting button indicator LED goes off.

3.6.4.9 Selecting air recirculation

You can select between fresh air intake, recirculation of indoor air, or the automatic recirculation. With the automatic recirculation, the selection between fresh air intake and indoor air recirculation is done automatically based on the outdoor temperature.



1. Recirculation control button

1. **To switch on the cab indoor air recirculation, press the recirculation control button once.**

The symbol  is displayed.

2. **Press the recirculation control button again to switch to the fresh air intake.**

The symbol  is displayed.

3. **Press the recirculation control button for the third time to switch to the automatic recirculation.**

The symbol  is displayed.

NOTE: When the air conditioning system is restarted, you have to wait two minutes to ventilate the cab before activating the recirculation again.

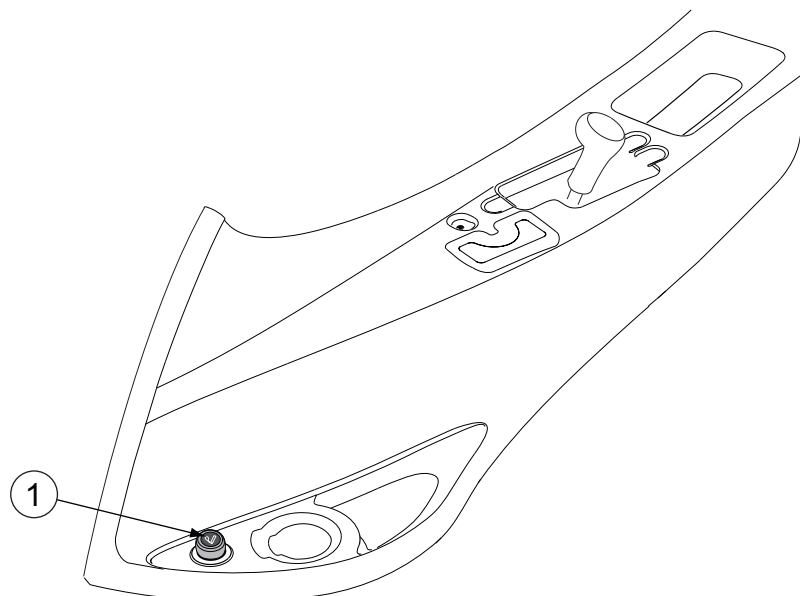
After 25 minutes of continuous use, the system deactivates the air recirculation for one minute.

It is recommended to use the fresh air intake with high outdoor temperatures. Fresh air intake is automatically set if the automatic function is selected.

3.7 Power outlets

3.7.1 Lighter

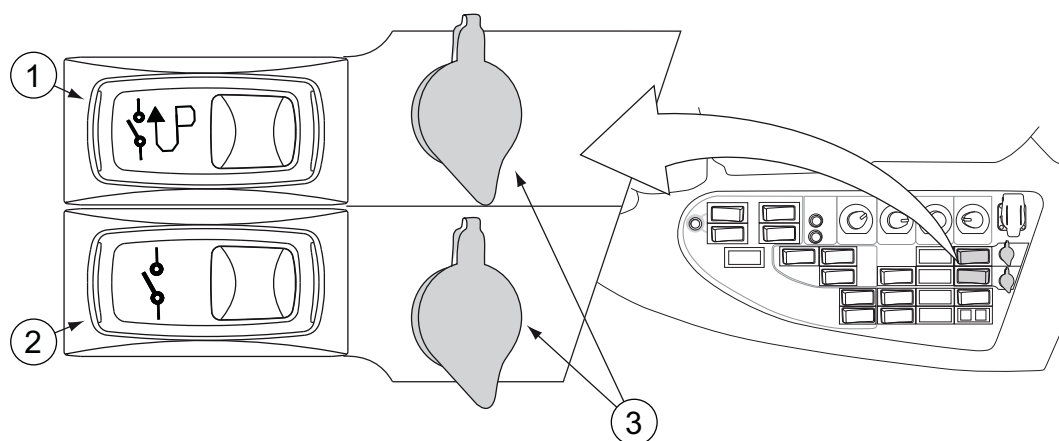
The tractor is equipped with a lighter. The lighter socket can be used also as an electric power output.



1. Lighter

3.7.2 Using the two-pin power socket and power switch

Use the two-pin power socket for electrical equipment.



- 1. Power switch, can be controlled by U-Pilot
- 2. Power switch
- 3. Two-pin power socket

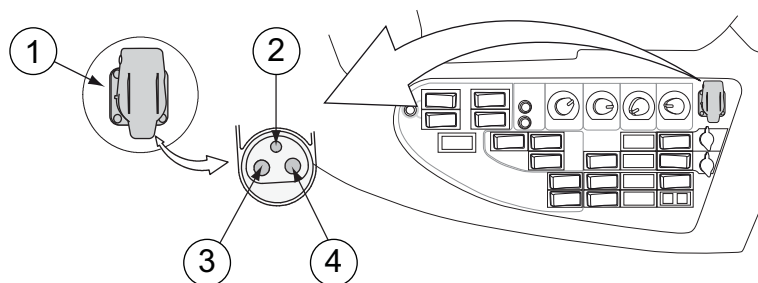
The socket provides an output of 12 V DC; 8 A at a maximum.

The power switch controls the power socket next to it.

3. Operation

- To activate the upper power socket, press down the symbol side of the upper switch (spring returned).
The light on the switch is lit.
The U-Pilot can control the upper power socket when it is activated.
- To disconnect the upper power socket, press down the side of the upper switch opposite to the symbol.
The light on the switch goes out.
- To activate the lower power socket, press down the symbol side of the lower switch.
The light on the switch is lit.
- To disconnect the lower power socket, press down the side of the lower switch opposite to the symbol.
The light on the switch goes out.

3.7.3 Three-pin power socket

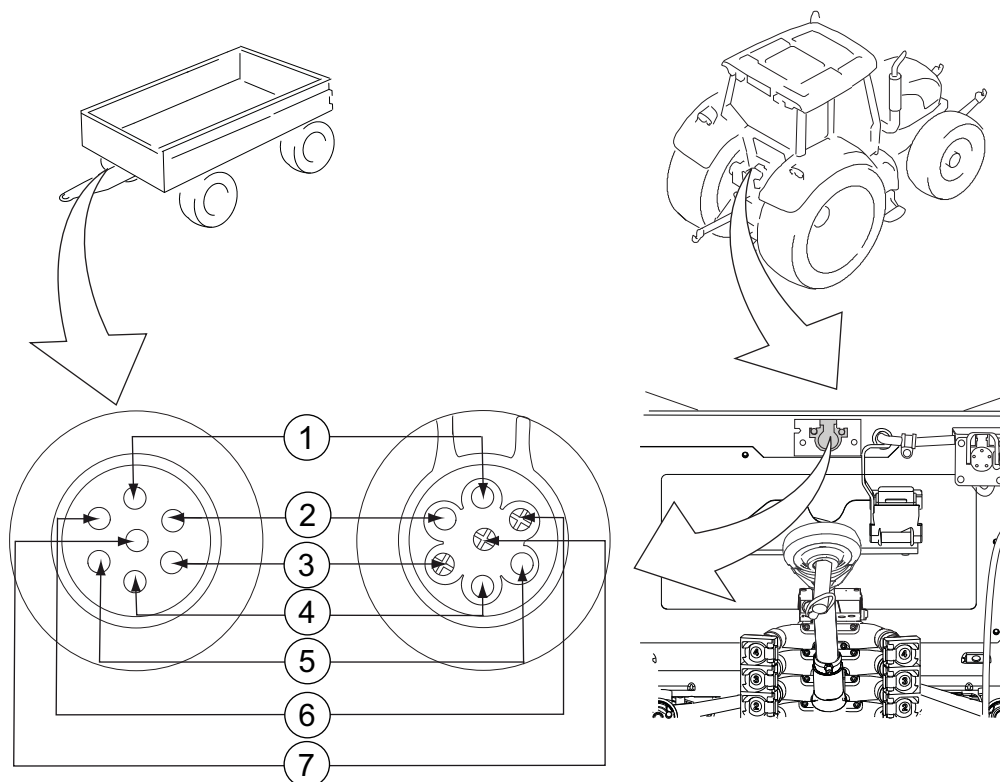


1. Three-pin power socket
2. 5 A
3. 25 A
4. Ground

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).

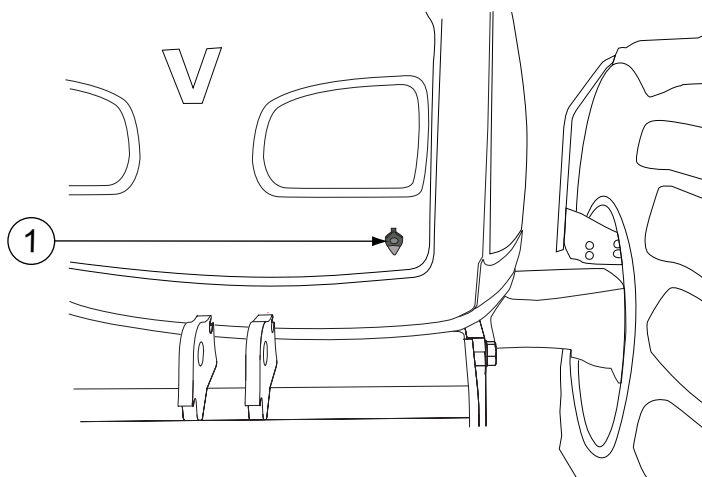
3.7.4 Trailer socket

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. Continuous current, max. 15 A. The current supply can be switched off only in tractors equipped with a main switch (extra equipment).
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 the driving speed is higher, the traction releases and the transmission goes into idle until the speed is low enough. The new direction arrow starts to flash to indicate that the driving direction change has been requested, and is lit constantly when the new direction is engaged. 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. If the direction is selected, the arrow of the selected direction flashes on the display panel. The selected direction does not engage 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 below 5 km/h:

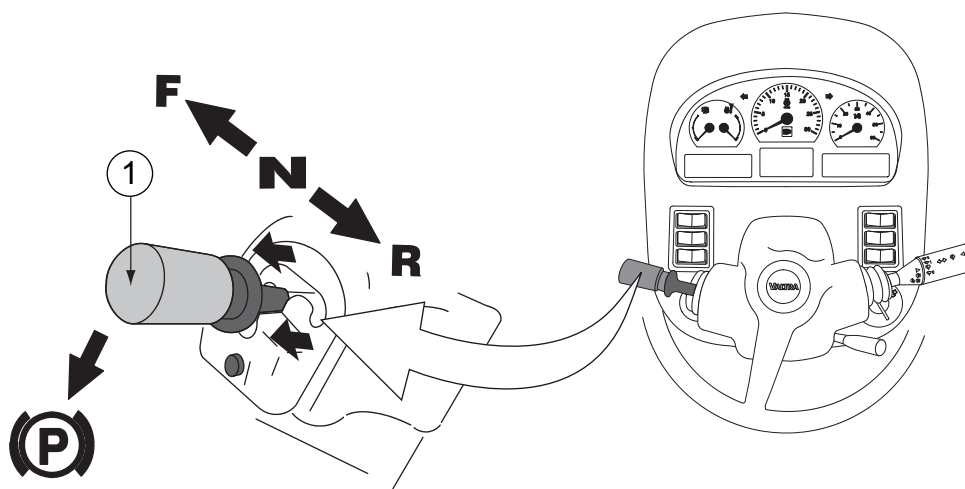
If you leave the seat for more than two seconds and the clutch pedal is not pressed down more than 10%, the shuttle disengages and the direction arrow flashes. The direction stays selected but the tractor does not move until you sit on the seat and move the power shuttle lever to the parking brake position (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

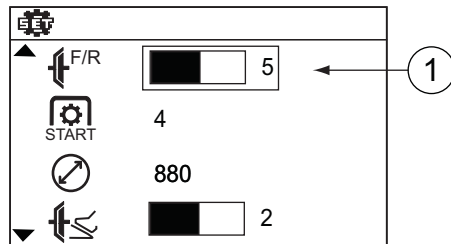
- F (front position) = forward driving direction
 - N (centre position) = neutral
 - R (rear position) = reverse driving direction
 - P = parking brake position
- **Disengage or engage the parking brake.**
 - To disengage the parking brake, pull out the collar round the power shuttle lever and move the 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 Adjusting the power shuttle engagement speed

You can adjust the power shuttle engagement speed through the tractor terminal transmission settings.

The index determines how quickly the torque of the power shuttle increases to the maximum value when the clutch is engaged. The index affects both the F (forward) and R (rearward) clutch engagements. The value ranges from 1...10, where:


- 1 = very slow engagement
- 10 = very quick engagement



1. Power shuttle engagement speed setting

1. Return to the main menu by pressing ESC as many times as needed.
2. Press the down arrow button in the main menu to enter the set menu.
3. Press the right arrow button in the set menu to enter the transmission settings view.

NOTE: When the power shuttle lever is in parking brake position (P) you can enter the transmission settings view by pressing the preprogramming button.

4. Move the navigation box to the power shuttle engagement speed setting  with the arrow buttons.
5. Press the right arrow button.
6. Set the value for the power shuttle engagement speed by pressing the up or down arrow button.
7. Press the left arrow button two times to return to the transmission settings view main level.

With a short press of the ESC button you can return directly to the main menu.

A long press of the ESC button returns to the previously active drive display.

3.8.5 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: If you must leave the cab with the engine running, move the power shuttle lever to the parking brake position.



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 starts flashing if the parking brake cable breaks or the adjustment is wrong. Repair the fault or adjust the cable before continuing driving.



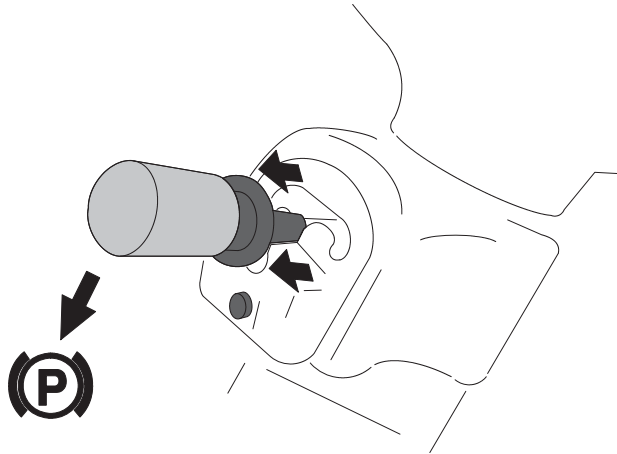
WARNING: The parking brake indicator light flashes and the buzzer alarms intermittently if there is a fault in the parking brake system. The parking brake might not function properly. Repair the fault before continuing driving.



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 on the instrument panel and the P symbols on the A-pillar and tractor terminal displays flash and the buzzer alarms intermittently until the speed drops below the limit. Always ensure that the parking brake is actually engaged before leaving the tractor.

1. Stop the tractor completely.

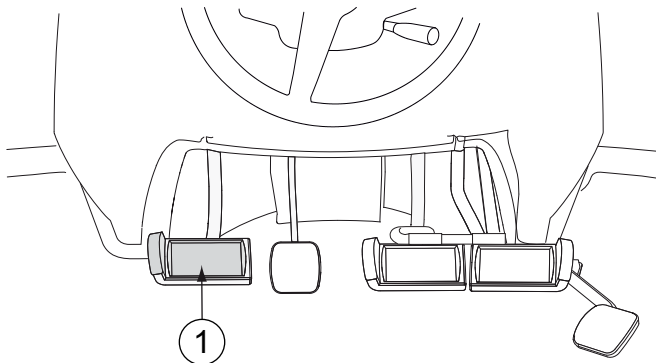
2. Pull up the collar round the power shuttle lever, and move the lever to the parking brake (P) position.



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.

3.8.6 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.

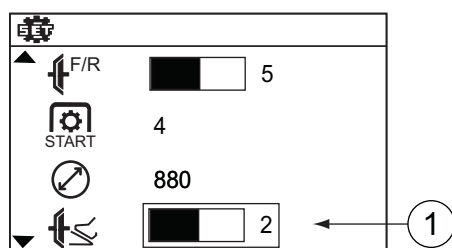
3.8.7 Adjusting the clutch pedal engagement position

You can adjust the clutch pedal's engagement position and clutch slipping properties according to your preferences through the tractor terminal transmission settings.

There are four alternative values for the clutch pedal engagement position setting:

Value	Clutch pedal engagement position (%) ¹⁾
1	approx. 5%
2	approx. 10%
3	approx. 15%
4	approx. 20%


1) The clutch pedal raised by approximately x% of the full pedal travel.



1. Clutch pedal engagement position setting

1. Return to the main menu by pressing ESC as many times as needed.
2. Press the down arrow button in the main menu to enter the set menu.
3. Press the right arrow button in the set menu to enter the transmission settings view.

NOTE: When the power shuttle lever is in parking brake position (P) you can enter the transmission settings view by pressing the preprogramming button.

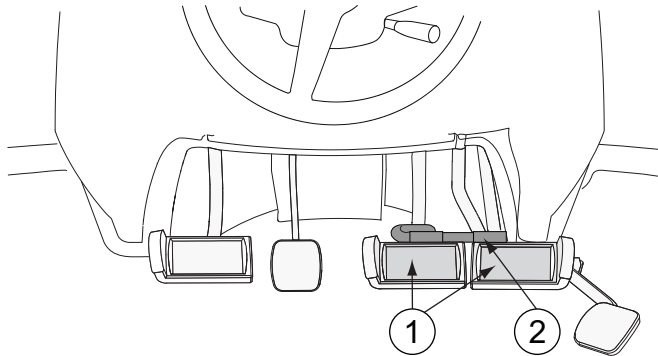
4. Move the navigation box to the clutch pedal engagement position setting  with the arrow buttons.
5. Press the right arrow button.
6. Select one of the four values for the clutch pedal engagement position by pressing the up or down arrow button.
7. Press the left arrow button two times to return to the transmission settings view main level.

With a short press of the ESC button you can return directly to the main menu.

A long press of the ESC button returns to the previously active drive display.

3.8.8 Braking

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



1. Brake pedals
2. Latch for 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.

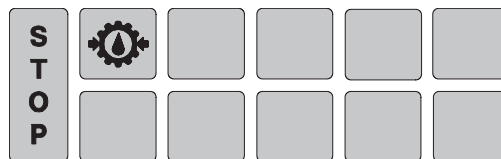


CAUTION: If functional problems occur in the braking system, stop the tractor and rectify the fault before continuing.

- To brake evenly with four wheels, press down the both brake pedals.



DANGER: On models T162e V - T202 V, the brake action is weaker if the gearbox oil pressure warning light is lit and the STOP indicator light begins to flash. Stop the tractor and correct the fault before continuing.



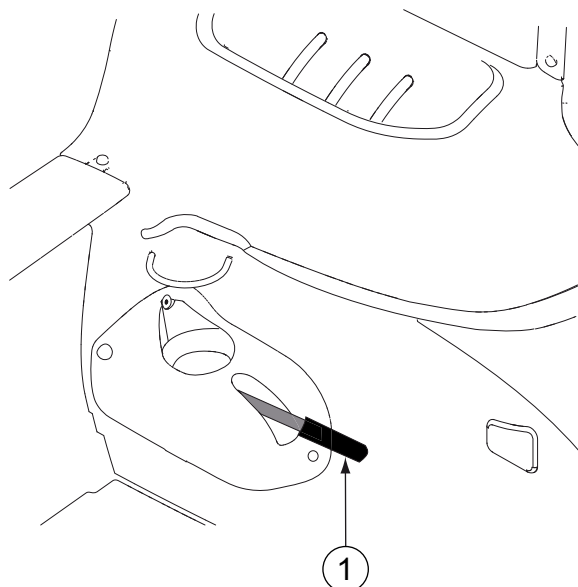
- To intensify steering by braking when turning on the field, press down the brake pedal on the inner curve side.

3.8.9 Using the emergency brake

If the brakes fail while driving, you can control braking with the emergency brake lever.

The emergency brake is extra equipment.

The emergency brake is applied to the rear wheels.



1. Emergency brake lever

1. **Pull up the emergency brake lever.**

You have to pull it constantly as it does not stay locked.

2. **Release the lever when the tractor has stopped.**

3.8.10 Starting to drive

1. **Start the engine.**

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

3. **Select the speed range and Powershift.**

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

5. **Release the brake pedals.**

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

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



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.

3.8.11 Transmission system

The tractor transmission system has six speed ranges and five Powershift stages. These together give the tractor 30 forward and 30 reverse gears.

The speed ranges are named LA, LB, A, B, C and D. The speed ranges LA and LB are called creeper speed ranges. 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 (40 km/h models)	Driving speed (50 km/h models)
LA	0.4-1.4 km/h	0.5-1.7 km/h
LB	0.7-2.7 km/h	0.9-3.4 km/h
A	2-7 km/h	2-8 km/h
B	4-13 km/h	5-17 km/h
C	6-21 km/h	7-26 km/h
D	12-40 km/h	15-50 km/h

3.8.11.1 Speed matching

The speed matching automatically tries to even out speed differences which are too high by engaging the appropriate Powershift gear.

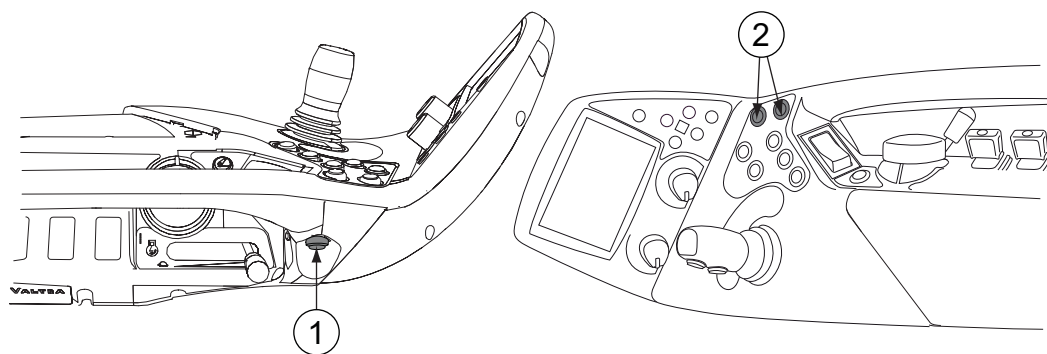
Speed matching is always on when the driving speed is over 0.5 km/h and:

- When changing speed range.
- or
- When MODE 1 or MODE 2 is selected and the power shuttle lever is in the centre position (N) or the HiShift push buttons are pressed down or the clutch pedal is pressed down.


3.8.11.2 Selecting the speed range

You can select the speed range by pressing the HiShift and Powershift push buttons simultaneously.


NOTE: The clutch pedal does not have an influence on the speed range changing.



1. HiShift push button
2. Powershift push buttons

- **Shift the speed range up.**
 - Press the HiShift push button and keep it pressed down.
 - Press the Powershift  push button.

You can change the speed range upwards by more than one step at a time, directly from A to D for example. A pop-up window indicating the speed range change shows on the display until the requested speed range is engaged.

- **Shift the speed range down.**
 - Press the HiShift push button and keep it pressed down.
 - Press the Powershift  push button.

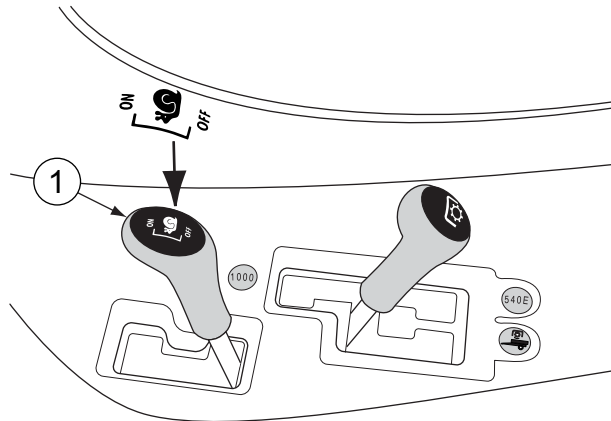
You can change the speed range downwards by more than one step at a time, directly from D to A for example. The change is implemented provided that the driving speed at the time of the request is within the defined limits for speed range changing. The request does not stay in the memory but has to be repeated when the driving speed has been reduced below the limit. The driving speed limits for changing speed ranges given in the following table are approximate and depend on the tyre size:

Speed range change	Maximum driving speed (40 km/h models)	Maximum driving speed (50 km/h models)
Changing from D to C	17.5 km/h	22 km/h
Changing from C to B	9 km/h	11 km/h
Changing from B to A	5.5 km/h	7 km/h

A pop-up window indicating the speed range change shows on the display until the requested gear is engaged.

3.8.11.3 Selecting the creeper speed range

You can engage the creeper speed range with the creeper speed range lever.





1. Creeper speed range lever

1. Press down the clutch pedal.
2. Keep the tractor stationary by pressing the brake pedals.
3. Select speed range A or B.

NOTE: You cannot engage the creeper gear with speed ranges C or D.

4. Move the creeper speed range lever to the ON position.

The  symbol flashes on the tractor terminal display until the creeper speed range is engaged. The creeper speed range indicator light  is lit on the instrument panel.

If the creeper gear does not engage, you can move the creeper speed range lever to the ON position by carefully slipping the clutch.

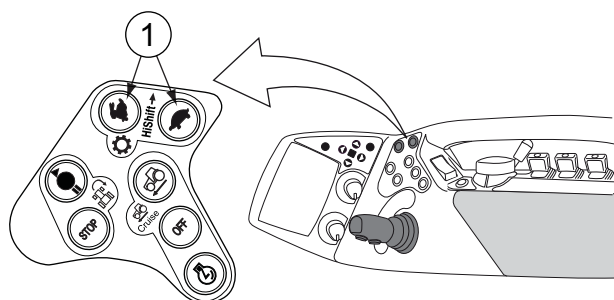
5. Release the clutch pedal.
6. To disengage the creeper gear, press down the clutch pedal and move the creeper speed range lever to the OFF position

3.8.11.4 Using Powershift

You can change the Powershift gear with push buttons.

NOTE: You can change the Powershift gear more than one step at a time, directly from 1 to 3 for example, by double-pressing either Powershift button. You can also change the Powershift gear several steps at a time by keeping either Powershift button pressed down, which triggers multiple consecutive Powershift gear changes. The number of the selected Powershift gear blinks on the tractor terminal display and A-pillar display until the requested Powershift gear is engaged.

NOTE: When turning the power on when it has been switched off for over 10 seconds, the Powershift is always in the lowest stage.



1. Powershift push buttons

- To increase the Powershift gear, press .
- To decrease the Powershift gear, press .

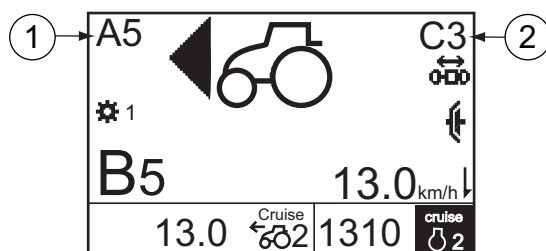
The Powershift gear number flashes on the tractor terminal display and on the A-pillar display until the change process is completed.

NOTE: If shifting down the Powershift gear would increase the engine speed beyond acceptable limits, the system will prevent the gear change.

3.8.11.5 Preprogramming gear for driving direction changing

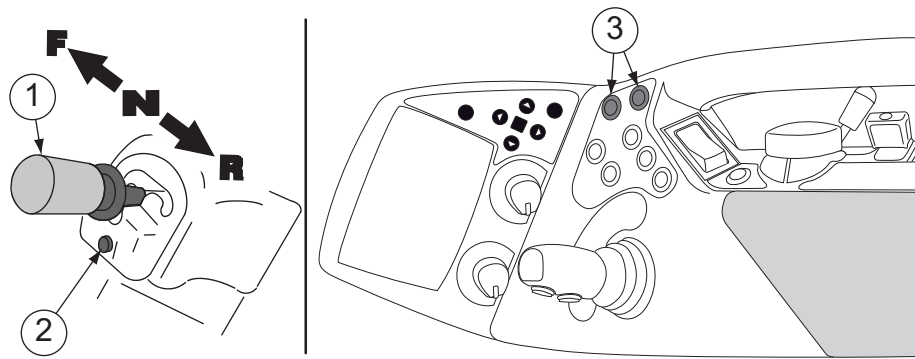
You can preprogramme the wanted speed range and Powershift gear to engage automatically when changing driving direction.

For example, when working with the front loader and changing the direction to forward, speed range A and Powershift 5 can be engaged, and when changing the direction to backwards, speed range C and Powershift 3 can be engaged.



1. Speed range A, Powershift 5
2. Speed range C, Powershift 3

NOTE: If the Powershift function is not preprogrammed, the selected speed range and Powershift gear is engaged while changing direction.



1. Power shuttle lever
2. Powershift preprogramming push button
3. Powershift push buttons

The engine must be running when you preprogramme the Powershift. Pressing the Powershift preprogramming push button with only the power on shifts to the tractor terminal setup menu.

- **To preprogramme the Powershift gear and the speed range:**

Both directions can have different programs.

- **Start the engine.**
- **Press down the clutch and brake pedals to ensure safety.**

You can make the preprogramming also while driving.

- **Select the driving direction F or R with the power shuttle lever.**
- **Select the speed range (A, B, C, D).**
- **Select the Powershift gear with the Powershift push button.**
- **Press the Powershift preprogramming push button for half a second.**

The tractor terminal display shows the preprogrammed driving direction, speed range and the Powershift gear.

NOTE: Even if the power is turned off, the preprogramming remains.

You can programme the other driving direction in the same way.

- **To cancel the preprogramming:**

The engine must be running when you cancel the preprogramming.

- **Start the engine.**
- **Press down the clutch and brake pedals to ensure safety.**

You can cancel the preprogramming also while driving.

- **Select the driving direction F or R with the power shuttle lever.**
- **Press the Powershift preprogramming push button for at least two seconds.**

You can cancel the programming of the other driving direction in the same way.

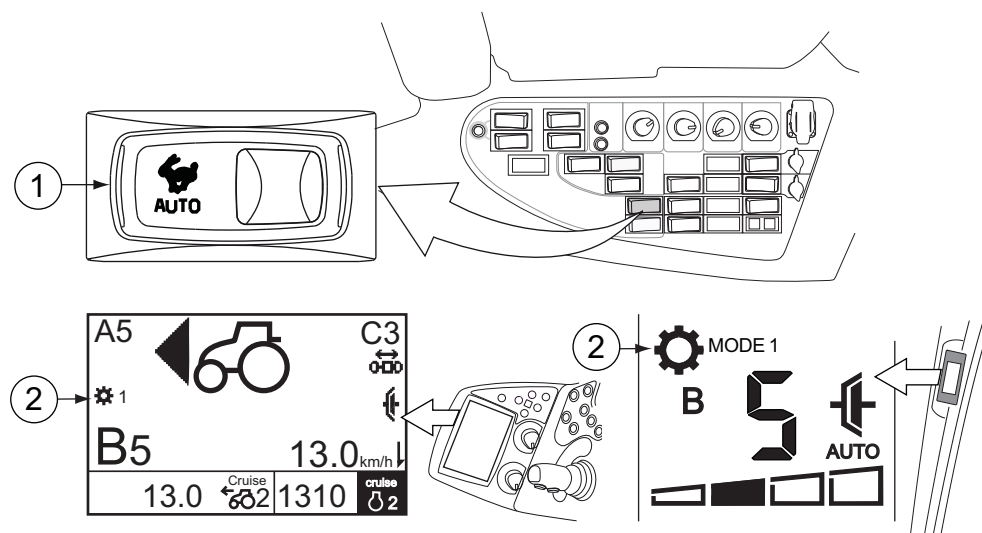
3.8.11.6 Using the shifting automatics

The tractor has two automatic gear changing programs (MODE 1 and MODE 2).

- With the MODE 1 program, the gears are changed according to the load and the engine speed.
- With the MODE 2 program, you can program the engine speeds where the gears are changed.

Automatic shifting between the speed ranges C and D is possible if you have activated the C-D shifting automatics functionality in the tractor terminal transmission settings. Automatic shifting between the speed ranges A and B is not possible.

For example, if the driving speed is 32 km/h (D range) and MODE 1 or MODE 2 is selected, the automatics shift the gear to C1 when the driving speed decreases to 0 km/h.



1. Shifting automatics switch
2. Indication of the selected program

The manual mode is on when the shifting program indicator is not visible.

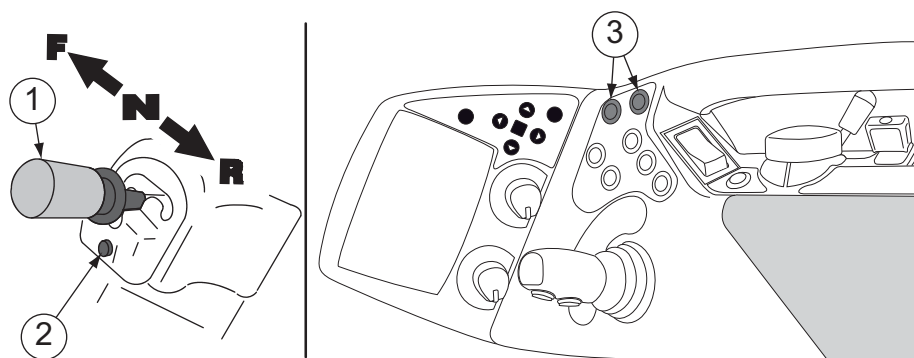
- **Press the symbol side of the shifting automatics switch to cycle through the programs.**
Before you can cycle through the programs, you must first activate the switch by pressing it once.
The programs change in the following order: manual mode, MODE 1, MODE 2.
- **Press the side of the shifting automatics switch opposite to the symbol to cycle through the programs.**
Before you can cycle through the programs, you must first activate the switch by pressing it once.
The programs change in the following order: MODE 2, MODE 1, manual mode.

3.8.11.7 Programming shifting automatics

You can program the shifting automatics to change the Powershift gear on specific engine speeds.

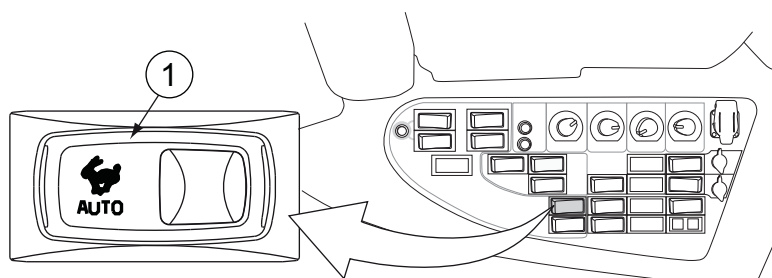
IMPORTANT: If you engage the driving direction during the programming sequence, the tractor starts moving. To ensure safety, it is recommended that you keep down the clutch and brake pedals during the programming.

3. Operation



1. Power shuttle lever
2. Powershift preprogramming push button
3. Powershift push buttons

1. Keep the tractor stationary by pressing the brake pedals, for example.
2. Set the power shuttle lever to the neutral (N) position.
3. Select the MODE 2 program.



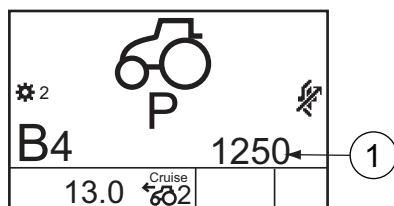
1. Shifting automatics switch

Press the shifting automatics switch until the MODE 2 program indicator is shown on the tractor terminal display.



4. Press the Powershift preprogramming push button for half a second.

5. **Press the Powershift push buttons to change the engine speed limit for downwards shifting.**

The current engine speed limit for downwards shifting is shown on the tractor terminal display.



1. Current engine speed limit for shifting

- To increase the engine speed limit for shifting, press .
- To decrease the engine speed limit for shifting, press .

NOTE: The engine speed limit can be changed in steps of 50 rpm in the 900-2300 rpm range.

6. **Press the Powershift preprogramming push button again.**

The current engine speed limit for upwards shifting is shown on the tractor terminal display.

7. **Press the Powershift push buttons to change the engine speed limit for upwards shifting.**

NOTE: The engine speed limit can be changed in the 1 000-2 400 rpm range. However, the upwards changing limit must be at least 100 rpm higher than the downwards changing limit.

If the engine speed limit for downwards shifting is set to 1500 rpm, the engine speed limit for upwards shifting can only be stepped between 1600-2400 rpm.


8. **Press the Powershift preprogramming push button.**

The tractor saves the set engine speeds and reverts to normal operation.

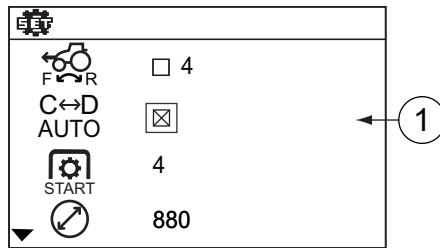
NOTE: The engine speed limits remain in the memory after the power is turned off.

3.8.11.8 Programming automatic shifting between speed ranges C and D

You can program the shifting automatics to change the speed range automatically between the speed ranges C and D through the tractor terminal transmission settings. In this case the speed range changes automatically according to the driving situation.

1. Return to the main menu by pressing ESC as many times as needed.
2. Press the down arrow button in the main menu to enter the set menu.
3. Press the right arrow button in the set menu to enter the transmission settings view.
4. Move the navigation box to the speed range C-D shifting automatics position  with the arrow buttons.

5. Press the right arrow button.
6. Select the speed range C-D shifting automatics by pressing the up or down arrow button.



1. Speed range C-D shifting automatics setting

- When the box is checked, the automatic shifting between speed ranges C and D is activated.
- When the box is unchecked, the automatic shifting between speed ranges C and D is deactivated.

7. Press the left arrow button two times to return to the transmission settings view main level.

With a short press of the ESC button you can return directly to the main menu.

A long press of the ESC button returns to the previously active drive display.

3.8.12 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. Reduce the engine speed to idling.

IMPORTANT: Before stopping the engine, allow the engine temperature to stabilise for about one minute.

5. Shut down the engine by turning the ignition key to the STOP position.

6. Fill up the fuel tank.

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

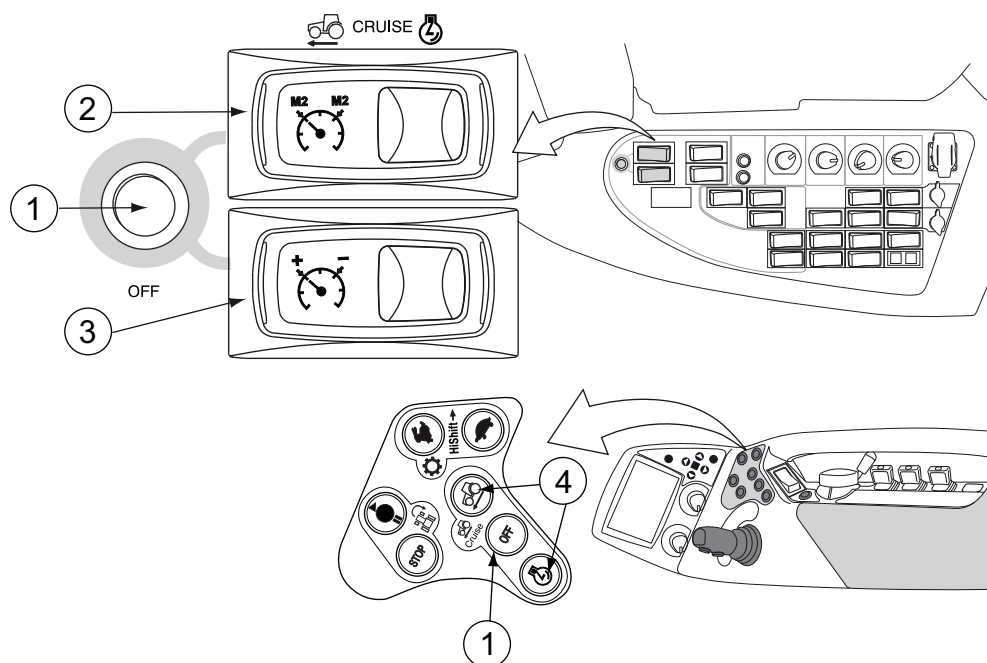
3.8.13 Cruise control

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

When cruise control is on, the indicator light is lit on the instrument panel and the tractor terminal display shows the status of cruise control. Cruise control does not operate simultaneously with automatic traction control.

There are two memory slots for both engine speed and driving speed settings.

3.8.13.1 Cruise control switches





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



Cruise control off button

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

Cruise control setting buttons

With the cruise control setting buttons, you can set or activate either the constant driving speed  or the constant engine speed  of memory slot 1.

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  of memory slot 2. The switch is spring returned.

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.

3.8.13.2 Programming the driving speed cruise control

1. Set the driving speed.

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

2. Select the memory slot to be used.

- To use memory slot 1, press the cruise control setting button  for more than two seconds.
- To use memory slot 2, press the  symbol on the cruise control setting switch for more than two seconds.

The cruise control indicator light blinks on the instrument panel indicating that the setting value can be stored in the memory.

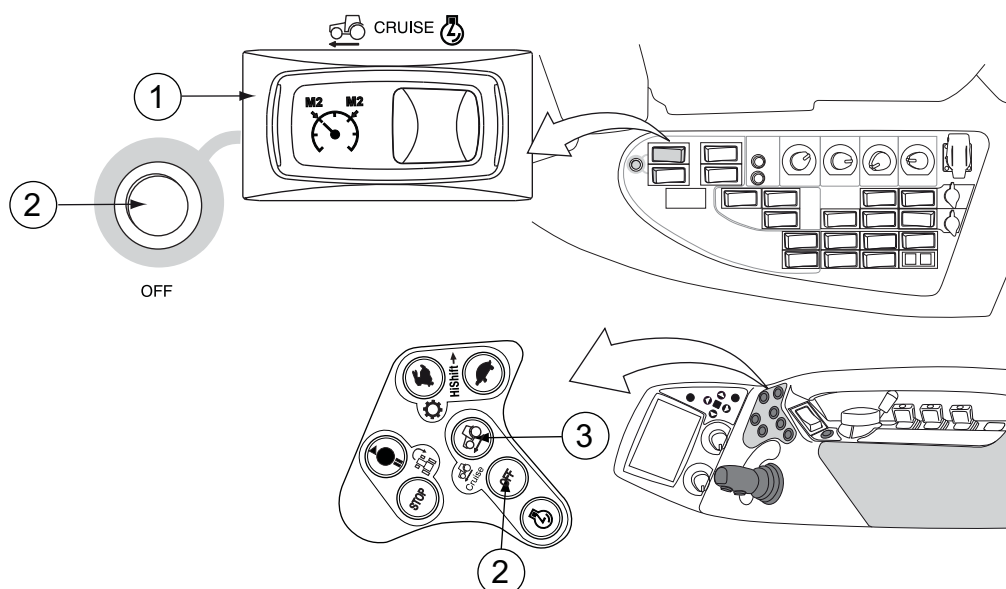
3. To store the value, release the switch.

The indicator light is continuously lit and the programmed driving speed cruise control is activated.


3.8.13.3 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 setting switch (memory slot 2)
2. Cruise control OFF buttons
3. Driving speed cruise control setting button (memory slot 1)

- **Activate the driving speed cruise control.**
 - To use the setting stored to memory slot 1, press the driving speed cruise control setting button.
 - To use the setting stored to memory slot 2, press the  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. The constant driving speed remains if you change the Powershift gear.

- **To deactivate the driving speed cruise control, press/move one of the following:**
 - Clutch pedal
 - Both brake pedals
 - One of the cruise control OFF buttons
 - 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.

3.8.13.4 Programming the engine speed cruise control

1. Set the engine speed.

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

2. Select the memory slot to be used.

- To use memory slot 1, press the cruise control setting button  for more than two seconds.
- To use memory slot 2, press the  symbol on the cruise control setting switch for more than two seconds.

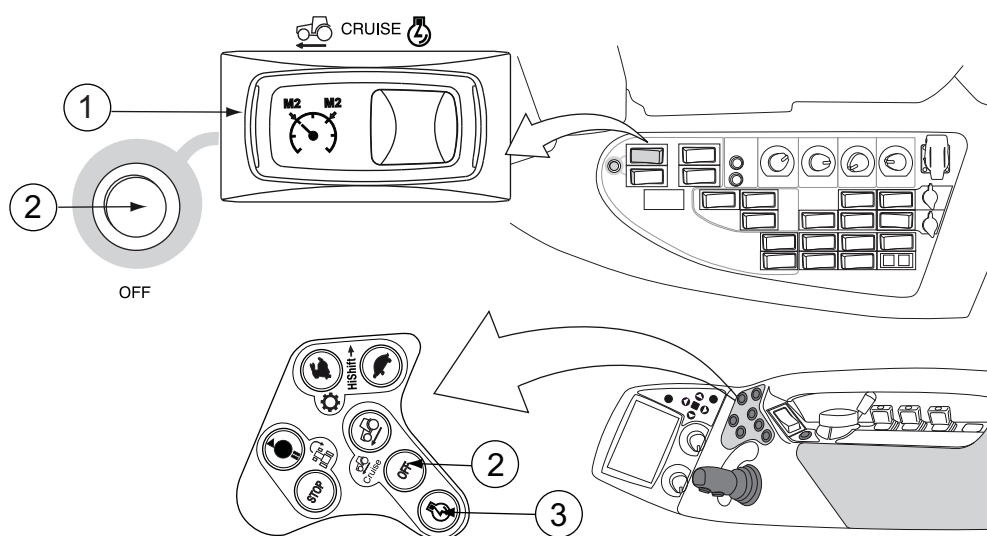
The cruise control indicator light blinks on the instrument panel indicating that the setting value can be stored in the memory.

3. To store the value, release the switch.


The indicator light is continuously lit and the programmed engine speed cruise control is activated.

3.8.13.5 Activating and deactivating the engine speed cruise control

NOTE: Control the position of the hand throttle lever before disengaging the cruise control.

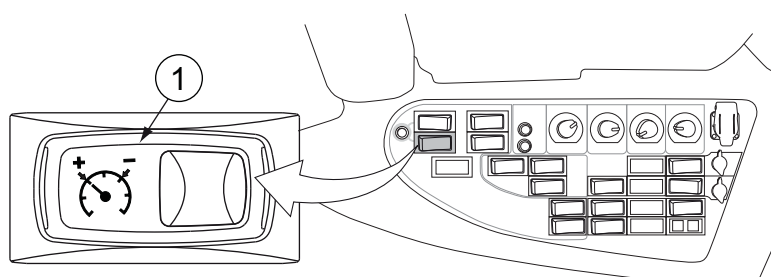


1. Cruise control setting switch (memory slot 2)
2. Cruise control OFF buttons
3. Engine speed cruise control setting button (memory slot 1)

- **Activate the engine speed cruise control.**
 - To use the setting stored to memory slot 1, press the engine speed cruise control setting button.
 - To use the setting stored to memory slot 2, press the  side of the cruise control setting switch.
- **To deactivate the engine speed cruise control, press one of the cruise control off buttons.**

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.

3.8.13.6 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.**

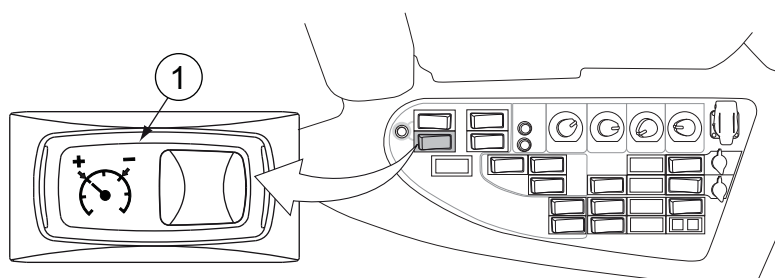
The cruise control setting decreases according to the following table.

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.

3.8.13.7 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.

3.8.14 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.

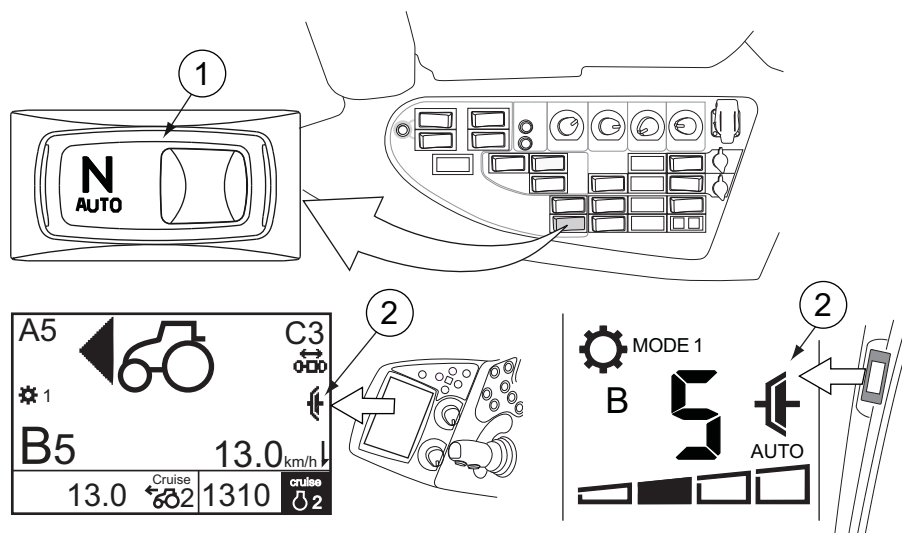
Function	Conditions
Standby	The automatic traction control is engaged in standby mode (but not in function), when the following conditions are fulfilled at the same time: <ul style="list-style-type: none">• Symbol side of the automatic traction control switch pressed down and released• The tractor is 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: <ul style="list-style-type: none">• 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: <ul style="list-style-type: none">• The driving speed is under 12 km/h AND• The engine speed is under 980 rpm AND• The accelerator pedal is almost up. or <ul style="list-style-type: none">• One of the brake pedals is pressed down when the driving speed is under 12 km/h.
OFF	<ul style="list-style-type: none">• 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. In this case, the arrow of the selected driving direction flashes, but the selected direction is not activated.

3.8.15 Using the automatic traction control

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

NOTE: When the automatic traction control is on, the arrow of the selected driving direction flashes on the display.



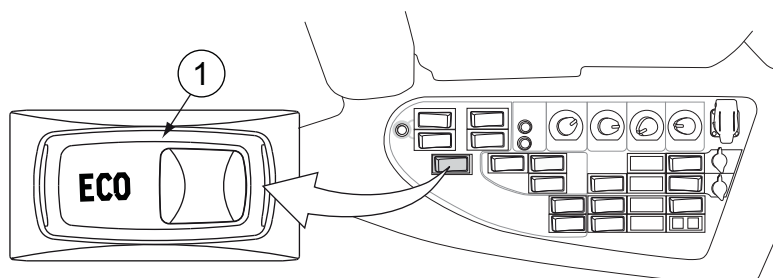
1. Automatic traction control switch
2. Automatic traction control symbol

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).
The automatic traction control symbol flashes on the tractor terminal display and A-pilar display.
3. **Select the driving direction.**
The selected direction does not engage and the direction arrow remains flashing until the traction is engaged.
4. **Raise the engine speed to over 1020 rpm to engage the traction.**
When the traction is engaged, the arrow of the selected direction and the automatic traction control symbol stops flashing and is lit continuously.
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, and the direction arrow remains flashing 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.

3.8.16 Selecting the engine speed range

On model T162e V, it is possible to select the economical low engine speed range or the standard engine speed range.



1. Engine speed range switch

- **To select the low engine speed range (ECO, nominal 1 800 rpm), press down the symbol side of the switch.**

When the ECO mode is engaged, the engine speed is limited to 1 800 rpm. This gives lower fuel consumption, reduced emissions and a lower noise level.

When using the highest gear, the maximum driving speed is 40 km/h.

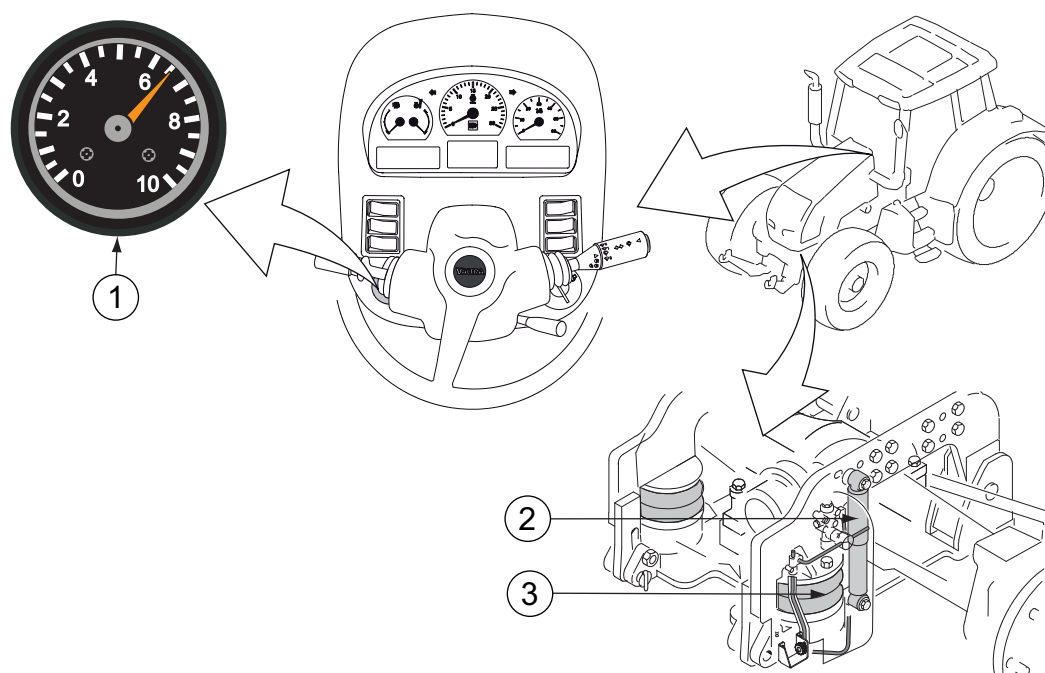
- **To select the standard engine speed range (nominal 2 200 rpm), press down the side of the switch opposite to the symbol.**

When using the highest gear, the maximum driving speed is 50 km/h. On marketing areas where the maximum driving speed is 40 km/h, the tractors are equipped with the electric speed limiter EcoSpeed.

3.8.17 Front axle air suspension

Driving a tractor with air suspension on the front axle is comfortable on uneven ground.

When driving at high speed, the front axle suspension reduces the pitching of the tractor. Stress on the operator, tractor and implements is reduced. The automatic lever control keeps the axle in the same position within the tractor frame independently of the axle load.



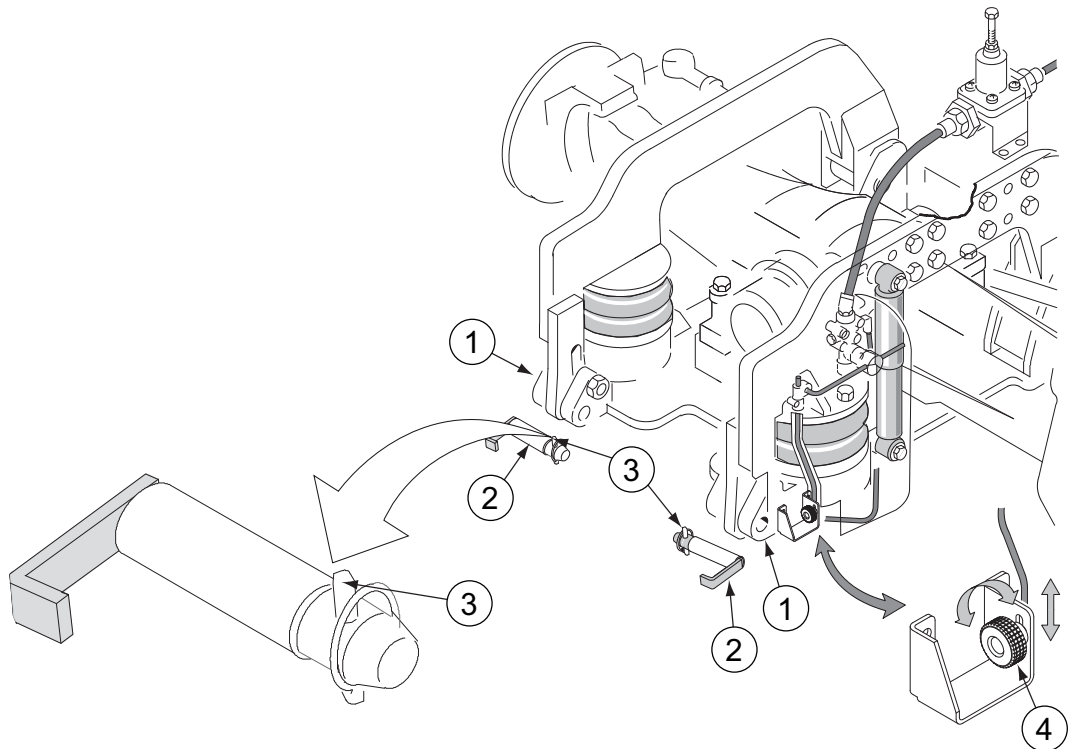
1. Gauge
2. Shock absorbers
3. Air suspension bellows

The operator can observe the air pressure in the suspension system on the gauge.

The suspension system has two air suspension bellows and two shock absorbers.

3.8.18 Disengaging the front axle air suspension

The air suspension is not in use when the lock pins are in their holes. The locking is used for maintenance. In addition, when ploughing with a fully mounted (three-point) heavy plough when the front axle load is low, the front suspension may interfere with the draft control sensitivity operation.



1. Lock holes
2. Lock pins
3. Ring pins
4. Locking wheel

1. To disengage the air suspension, secure the lock pins in the lock holes.
2. Make sure that the ring pins of the lock pins are in place.
3. If the lock holes do not line up when installing the lock pins, loosen the locking wheel and adjust the suspension height a little to line up the holes.

NOTE: After the adjustment, lock the wheel into the middle point. This ensures that there is enough suspension travel in both directions when the suspension is operating.

3.8.19 AutoComfort cab suspension

AutoComfort cab suspension is a semi-active system that controls the cab suspension either automatically or manually.

The AutoComfort cab suspension system is extra equipment.

It is recommended to keep the front axle suspension (extra equipment) on especially when driving on a road.

The automatic mode of the AutoComfort system adjusts the damping automatically based on:

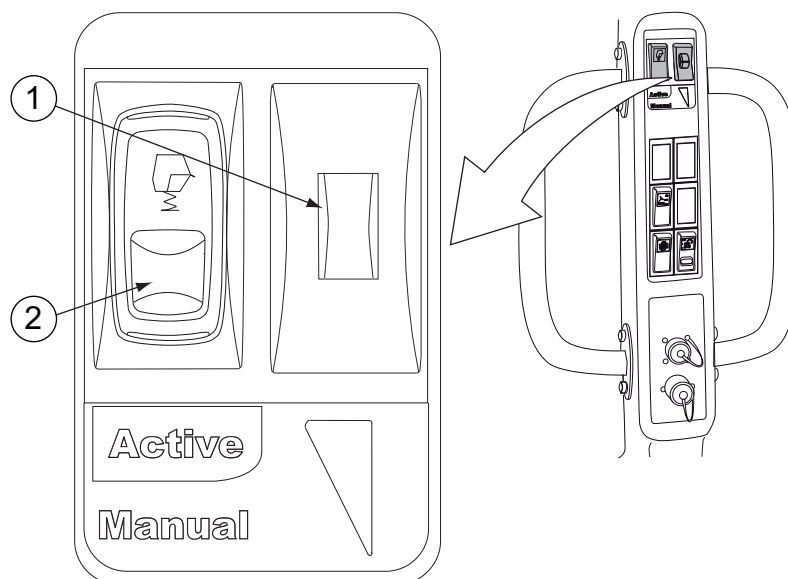
- Unevenness of the driving surface
- Driving speed
- Change of the Powershift gear

- Position of the power shuttle lever
- Braking
- Front axle movement (if the tractor has an air suspended front axle)

In the manual mode of the AutoComfort system, the damping stiffness can be adjusted manually with a potentiometer.

3.8.19.1 Adjusting AutoComfort cab suspension

The AutoComfort system can be set to automatic or manual position.



1. AutoComfort potentiometer
2. AutoComfort switch

- **Press the AutoComfort switch to the centre position to activate the automatic position.**

The automatic position dampens the oscillation of the cab automatically. This makes driving more comfortable for the operator.

- **Press down the side of the switch opposite to the symbol of the AutoComfort switch to activate the manual position.**

In the manual position, the damping stiffness of the cabin suspension is adjusted with the potentiometer.

- To increase the stiffness, turn the AutoComfort potentiometer knob upwards.
- To decrease the stiffness, turn the AutoComfort potentiometer knob downwards.

The flashing symbol on the AutoComfort switch indicates the service codes. If the light starts flashing, contact an authorised Valtra workshop.

3.8.19.2 Calibrating AutoComfort cab suspension

Before you start calibrating:

3. Operation

- Keep the tractor stationary on an even surface and the engine running.
- Make sure that the four-wheel drive (4WD) and the parking brake are not engaged.
- Lower the front loader and set the boom of the front loader to the floating position.

There must be a stand under the boom or, for example the bucket of the front loader must be turned down. The boom must be in the floating position during the whole calibration.

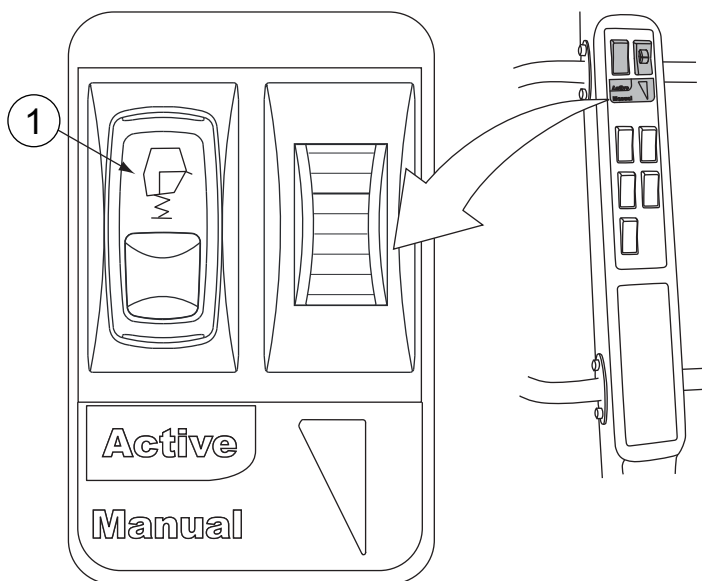
IMPORTANT: It is not recommended for the operator to calibrate the AutoComfort cab suspension. A new calibration should be performed by an authorised Valtra workshop.



WARNING: When calibrating, make sure that there is nobody near the cabin. The cabin moves to its extreme positions.

NOTE: Calibration can be stopped by turning the ignition key to the stop position. The earlier calibration remains valid.

IMPORTANT: There must not be any load on the front linkage or front loader.



1. AutoComfort switch


1. **Press down the symbol side of the switch for approximately 30 seconds.**
The indicator light of the switch starts flashing and the calibration starts.
2. **Release the switch.**
When the calibration is done, the light goes out.
3. **If the flashing does not stop within 2 minutes, start the calibration again.**

3.8.20 Differential lock

The differential lock is used to ensure an even grip for the wheels. The differential lock can be engaged while driving.

The differential lock has three positions: ON, AUTO and OFF.

Position	Description
ON	<p>The differential lock is always engaged except when:</p> <ul style="list-style-type: none"> • One or both brake pedals are pressed (the lock re-engages when one or both pedals are released). • When engaging the parking brake.
AUTO	<p>The differential lock engages when the following conditions are fulfilled:</p> <ul style="list-style-type: none"> • The speed difference between the right and left rear wheel is sufficient. • The driving speed is over 0.3 km/h and under 15 km/h. • The wheels are in the middle position. <p>The differential lock disengages:</p> <ul style="list-style-type: none"> • When the wheel slip is less than 6%. The disengaging delay is 5 seconds. • When the driving speed rises to over 15 km/h. • When the wheels are turned more than 20% from the middle position. • When pressing the clutch pedal or HiShift push button. • When pressing one of the brake pedals or both. • When pressing the lift/stop/lower switch to the lift position.
OFF	The differential lock is continuously disengaged.

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

If the indicator light on the instrument panel flashes in the automatic position, there is an error, and the differential lock disengages for safety reasons. The reason for the error may be one of the following:

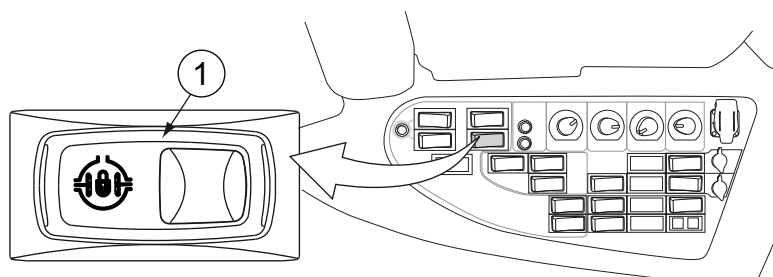
- The speed sensors are not calibrated.
- The turning angle sensor is not calibrated (contact an authorised Valtra workshop).
- There is a fault in the switch (the service code is displayed).
- There is a fault in the speed sensors (the service code is displayed).

3.8.21 Engaging and disengaging the differential lock

You can control the engagement of the differential lock with the differential lock switch. The switch has three positions (ON, AUTO, OFF).

If a wheel starts to slip, engage the differential lock. If a wheel is slipping heavily, reduce the engine speed before engaging the lock. If possible, disengage the lock while driving on public roads.

NOTE: For optimum performance, engage the differential lock before a wheel slips.



1. Differential lock switch

- To engage the differential lock, press down the symbol side of the differential lock switch (ON).
- To use the automatic function of the differential lock, turn the differential lock switch to the middle position (AUTO).
- To disengage the differential lock, press down the side of the differential lock switch opposite to the symbol (OFF).

3.8.22 Four-wheel drive

The four-wheel drive (4WD) has three positions: ON, AUTO or OFF. The 4WD can be engaged while driving.

Position	Description
ON	The 4WD is always engaged.
AUTO	<p>The 4WD engages:</p> <ul style="list-style-type: none"> • When the speed difference between the front and rear axle is sufficient. The driving speed has to be over 0.3 km/h. • When starting to drive or using the power shuttle. Driving start automatics must be activated. The automatics disengage the 4WD after a defined delay after starting to drive or using the power shuttle. You can define the disengagement delay in the driving start automatics user settings. <p>The 4WD disengages:</p> <ul style="list-style-type: none"> • When the wheel slip is less than 6%. The disengagement delay is 3 seconds. • When pressing clutch pedal or HiShift push button.
OFF	<p>4WD is disengaged except:</p> <ul style="list-style-type: none"> • When pressing both brake pedals. • When engaging the parking brake. • When starting to drive or using the power shuttle. Driving start automatics must be activated (activated as default). The automatics disengage the 4WD after a defined delay after starting to drive or using the power shuttle. You can define the disengagement delay in the driving start automatics user settings. • When using the HiShift push button if the driving speed is under 10 km/h. Driving start automatics must be activated (activated as default). The automatics disengage the 4WD after a defined delay after using the HiShift push button. You can define the disengagement delay in the driving start automatics user settings.

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

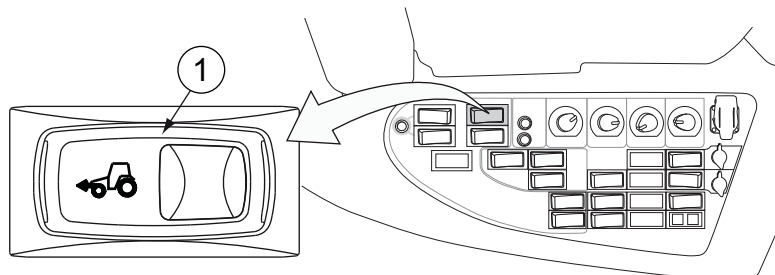
If the indicator light on the instrument panel flashes in the automatic position, there is an error and the 4WD engages. The reason for the error may be one of the following:

- The speed sensors are not calibrated.
- A switch fault has occurred (the service code is displayed).

3.8.23 Engaging and disengaging the four-wheel drive

You can control the engagement of the four-wheel drive (4WD) with the 4WD switch. The switch has three positions (ON, AUTO, OFF).

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 use the automatic function of the 4WD, turn the 4WD switch to the middle position (AUTO).
- To disengage the 4WD, press down the side of the 4WD switch opposite to the symbol (OFF).

3.8.24 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 speed range is changed.

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

When the driving start automatics has been activated from the tractor terminal the automatics engages four-wheel drive for a set time when starting to drive or when the driving direction is changed. If the driving speed exceeds 10 km/h and wheel slip is more than 6% when starting to drive, the driving start automatics disengages the four-wheel drive when the slip falls below 6%.

When the speed range is changed the driving start automatics engages the four-wheel drive if the wheel slip is more than 6%. The four-wheel drive disengages when the wheel slip is less than 6%.

If the clutch pedal or HiShift push button has been pressed while driving the driving start automatics engages when releasing the clutch pedal or HiShift push button.

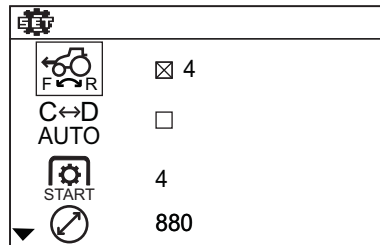
3.8.25 Setting the driving start automatics

You can set the driving start automatics through the tractor terminal transmission settings.

1. If the tractor terminal main menu is not displayed, press ESC as many times as needed.
2. Press the down arrow button in the main menu to enter the set menu.
3. Press the right arrow button in the set menu to enter the transmission settings view.

NOTE: When the power shuttle lever is in parking brake position (P) you can enter the transmission settings view by pressing the preprogramming button.

4. Move the navigation box to the four-wheel drive (4WD) automatics position  with the arrow buttons.



5. Press the right arrow button.
6. Select the desired status of the 4WD for driving start automatics by pressing the up or down arrow button.
 - When the box is checked the 4WD for driving start automatics is engaged.
 - When the box is not checked the 4WD for driving start automatics is disengaged.
7. Press the right arrow.
8. Change the 4WD engagement time value with the up or down arrow button.

The value can be chosen between 0 and 20 seconds.

When the value is set to 0 seconds the 4WD for driving start automatics is disengaged.
9. Press the left arrow button two times to return to the transmission settings view main level.

With a short press of the ESC button you can return directly to the main menu.

A long press of the ESC button returns to the previously active drive display.

3.8.26 Reverse drive system

You can use the rear and front controls in the reverse drive system.



WARNING: Using the rear controls: Before turning the seat to the backward position, move the front power shuttle lever to the parking brake position (position P). After this, you can turn the seat and

activate the rear controls using the rear power shuttle lever by moving the parking brake on and off.



WARNING: Using the front controls: Before turning the seat to the forward position, move the rear power shuttle lever to the parking brake position (position P). After this, you can turn the seat and activate the front controls using the front power shuttle lever by moving the parking brake on and off.



WARNING: Do not drive on the road with the reverse drive controls.



WARNING: Keep the driving speed below 10 km/h when using the reverse drive controls.



DANGER: If the front power shuttle lever is not in the P position, the parking brake cannot be engaged with the rear power shuttle lever.

The reverse drive control does not operate when driving forward, because the tractor has a reverse drive preventing valve. If the lockout does not work, check the fuse. If the fuse is broken, contact an authorised Valtra workshop.

The brake pedal for reverse drive control also controls the trailer brakes (extra equipment).

3.8.27 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.

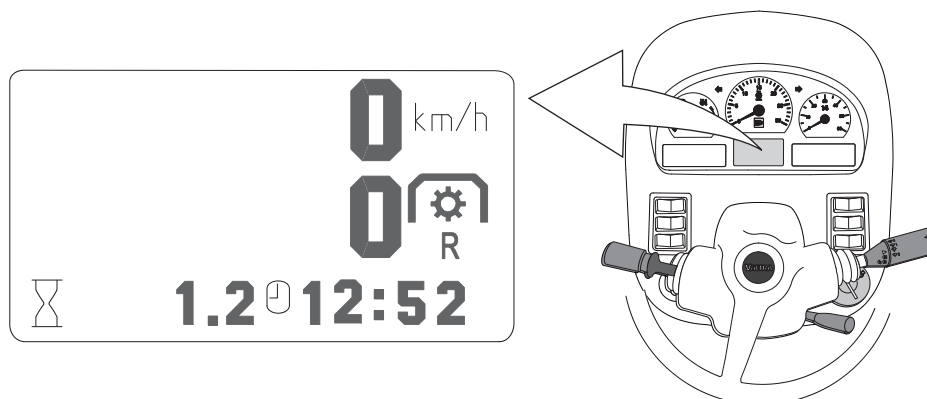


WARNING: Angles for safe driving should be smaller than stated to avoid the tractor from tipping over.

Up and down slope with either front or rear end up	30°
Sideways with slope to right or left	35°
Combined slope angles; left or right /up or down slope	25°/20°
Up slope, with front end up	30°
Down slope to right or left	35°
Combined slope angles; right /up slope	30°/25°
Combined slope angles; right /down slope	30°/20°
Combined slope angles; left /up slope	30°/20°
Combined slope angles; left /down slope	25°/20°

3.9 Proline instrument panel display

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



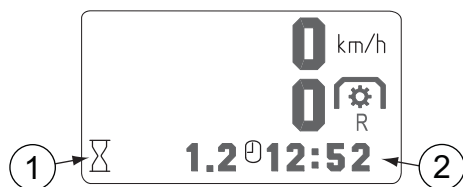
The display has three rows with either fixed or selectable views:

- 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.

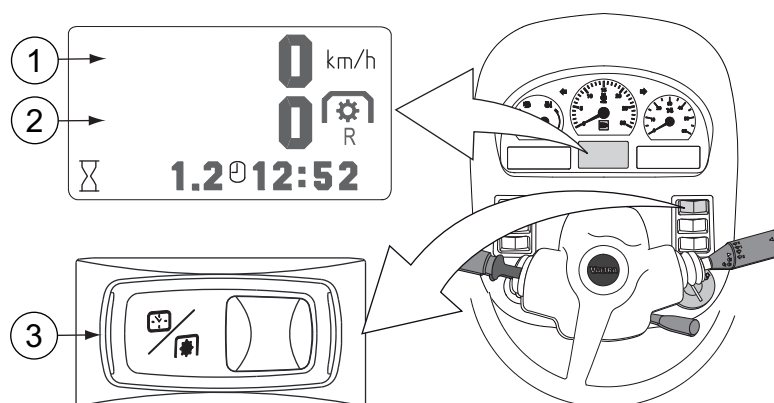
Clock

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 change the display view. The middle row has the same functions as the top row. You can select different functions to be displayed on the top and middle rows at the same time.



1. Top row
2. Middle row
3. Proline instrument panel display change-over switch

1. Select the row for which you want to change the view.

To jump between the rows, press the side of the display change-over switch opposite to the symbol.

2. Change the view by pressing the symbol side of the display change-over switch.

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 control
km/h/mph	Driving speed (km/h/mph)
	Wheel slip (%; 0-100)
	Rear power take-off (PTO) speed (rpm)
	Front power take-off (PTO) speed (rpm)
	Engine speed (rpm)
	Immediate fuel consumption (ha, acre)
	Average fuel consumption (ha, acre)
	Immediate fuel consumption


Table continued on next page

3. Operation

Symbol	Function
	Average fuel consumption
	Fuel consumption
AC_R	Lower link position (%; 0-100)
AC_F	Lifting link position of front linkage (%; 0-100)
Σ	Sigma power (%; 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.

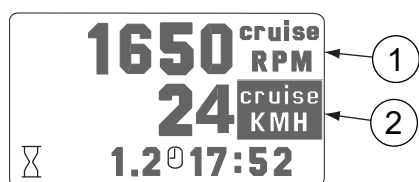
The working time is stored in the memory when the power is turned off.

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   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  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:

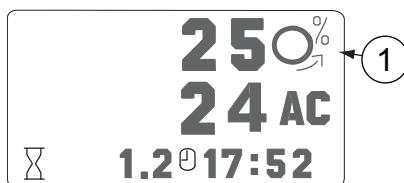
- The letter L shows that the driving speed is under 3 km/h (2 mph).
- Driving speeds of 0–10 km/h (0–10 mph) are shown with an accuracy of one decimal place.
- Driving speeds of 10–15 km/h (10–15 mph) are shown with an accuracy of one decimal place in steps of 0.2 units.
- Driving speeds of over 15 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 Wheel slip view

The wheel slip of the tractor is shown as a percentage.

The wheel slip  is shown on the top or middle row of the display.



1. Wheel slip


The wheel slip display shows the wheel slip percentage.

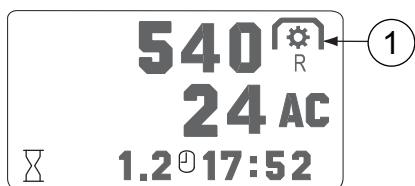
The wheel slip percentage is attained by comparing the speed information of the radar to the rotation speed of the wheels.

The radar starts to operate at a driving speed of 0.3 km/h (0.2 mph). For driving speeds below 0.3 km/h (0.2 mph), zero is displayed.

3.9.3.5 Rear power take-off speed view

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

The rear PTO speed  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.

3.9.3.6 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.

3.9.3.7 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.

3.9.3.8 Fuel consumption views

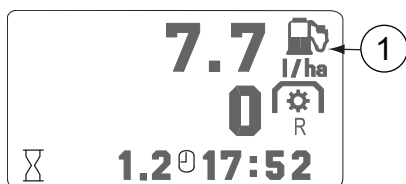
The display shows different kinds of fuel consumption: immediate and average fuel consumption on the area worked, immediate and average fuel consumption in an hour and total fuel consumption.

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.

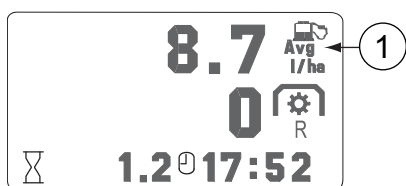
You can select litre, gallon UK or gallon US as the unit of volume.

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

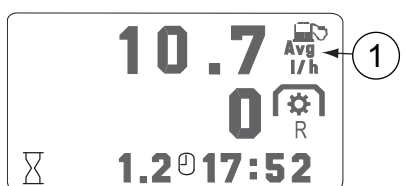
You can reset the fuel consumption information.

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.

3.9.3.9 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.

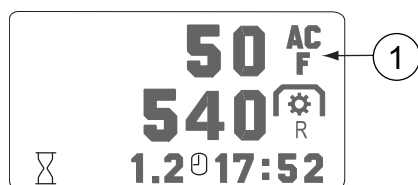
NOTE: The percentage value may not achieve the limit values (0 or 100) even if the linkage is functioning correctly.

3.9.3.10 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.

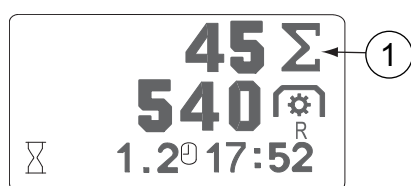


1. Lower links' position of the front linkage

3.9.3.11 Sigma Power view


The Sigma Power view shows the percentage of the maximum power that is transferred through the power take-off (PTO). The Sigma Power view is available on models T182 V and T202 V only.

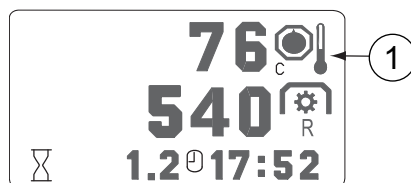
The Sigma Power Σ is shown on the top or middle row of the display.



1. Sigma Power

3.9.3.12 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:

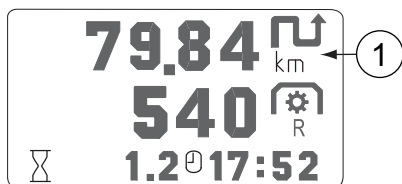
- When the temperature is below +40°C (+104°F), the text "lo" is displayed.
- When the temperature is above +40°C (+104°F), the actual temperature is displayed.
- When the temperature is above +119°C (+246°F), the text "high" is displayed.

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

3.9.3.13 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.

3.9.3.14 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



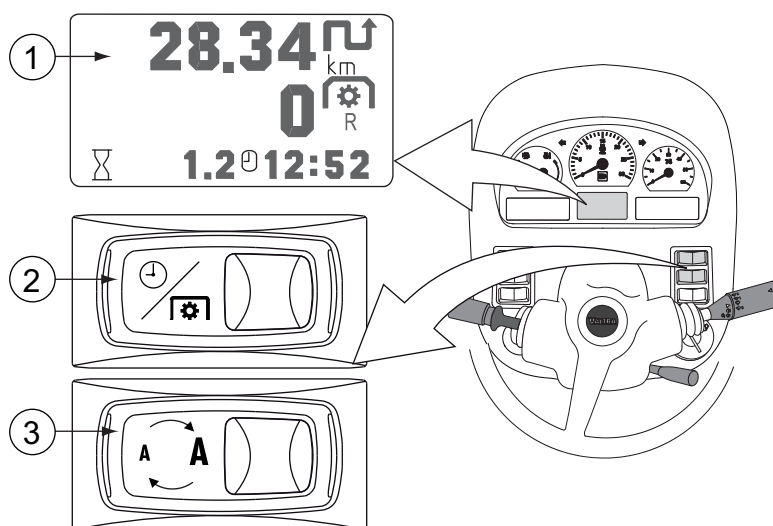
1. Periodical maintenance view

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.

3.9.5 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

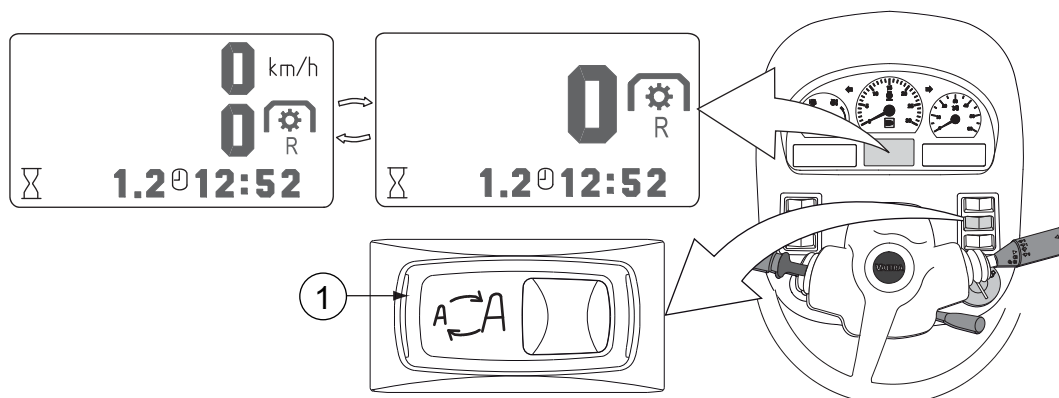
1. **Select the travel distance, fuel consumption, working time or worked area to the Proline instrument panel display.**

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.



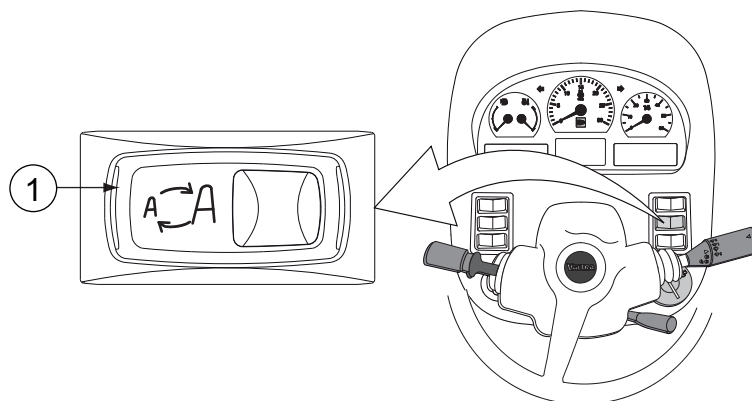
1. Proline instrument panel display setting switch

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.

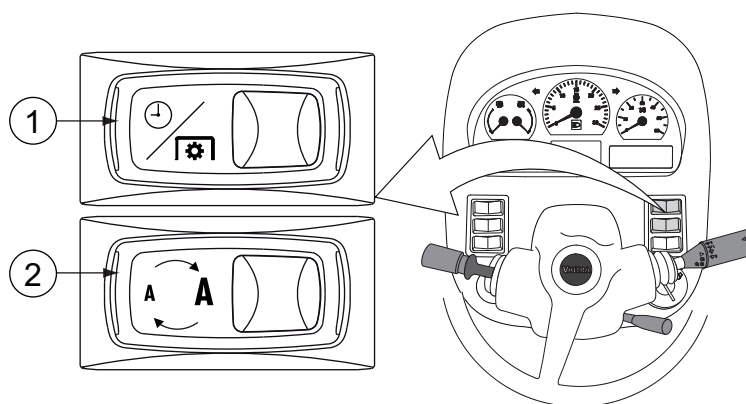
Press the side of the display setting switch opposite to the symbol. The available parameters are presented in the following table.

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



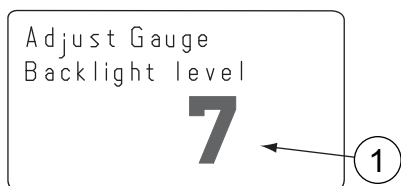
1. Proline instrument panel display change-over switch
2. Proline instrument panel display setting switch

- **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.

3. Operation

- **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

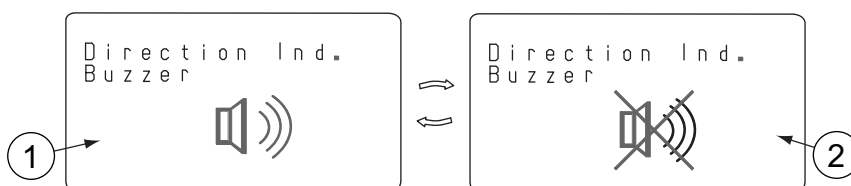


1. Clock mode

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.

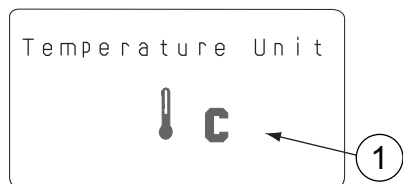
2. Change the direction indicator buzzer to either on or off.

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.



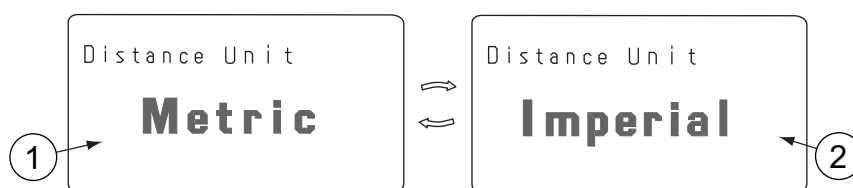
1. Temperature unit

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

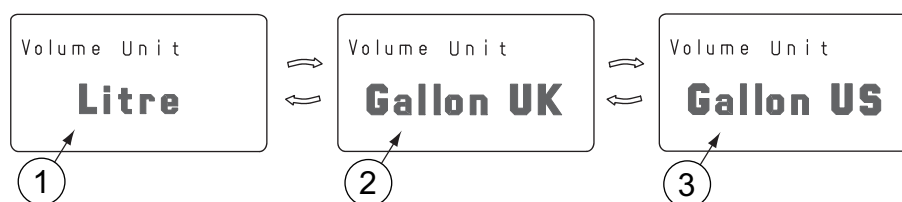
1. **Activate the unit of length in the setting mode.**
2. **Change the unit to either metric or imperial mode.**

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

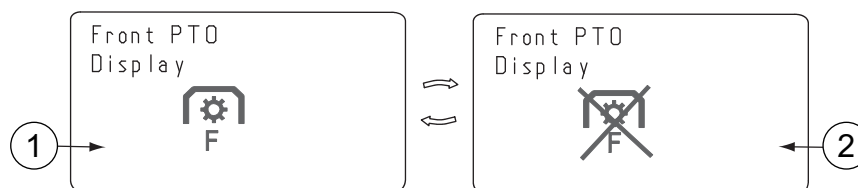
You can change the unit of volume to be shown in either litre, gallon UK or gallon US mode.



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

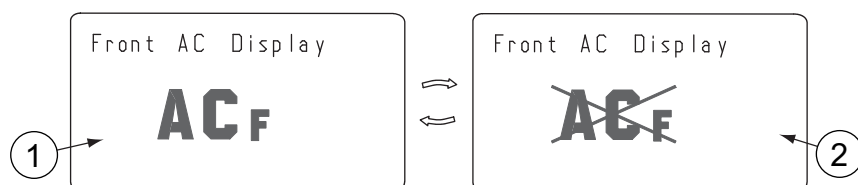


1. Front PTO speed view on
2. Front PTO speed view off

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

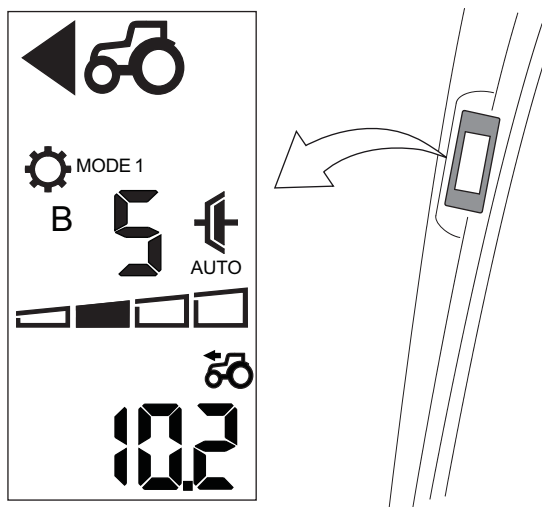
1. Activate the display contrast in the setting mode.

2. Adjust the display contrast.

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

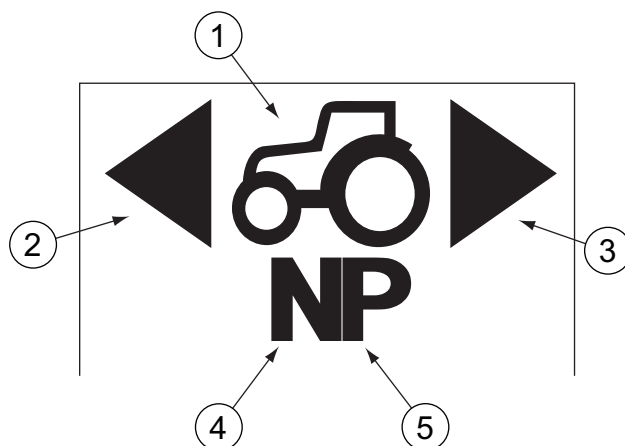
3.10 A-pillar display

A separate display is located on the right-hand side front pillar. It gives information on the power shuttle, driving speed, outdoor temperature, and transmission.



The display has a backlight to facilitate work in the dark.

The display is divided into a power shuttle section, a transmission section, and a general information section.

3.10.1 Power shuttle section

1. Tractor symbol
2. Forward direction arrow
3. Reverse direction arrow
4. Transmission neutral symbol
5. Parking brake symbol

Tractor symbol

The tractor symbol is shown continuously when the power is on.

Forward direction arrow

The forward driving direction arrow is shown when forward driving direction is engaged. The arrow flashes if the power shuttle has been operated at a driving speed over 10 km/h. The arrow flashes also when the Automatic Traction Control is activated.

Reverse direction arrow

The backward driving direction arrow is shown when reverse driving direction is engaged. The arrow flashes if the power shuttle has been operated at a driving speed over 10 km/h. The arrow flashes also when the Automatic Traction Control is activated.

Transmission neutral symbol

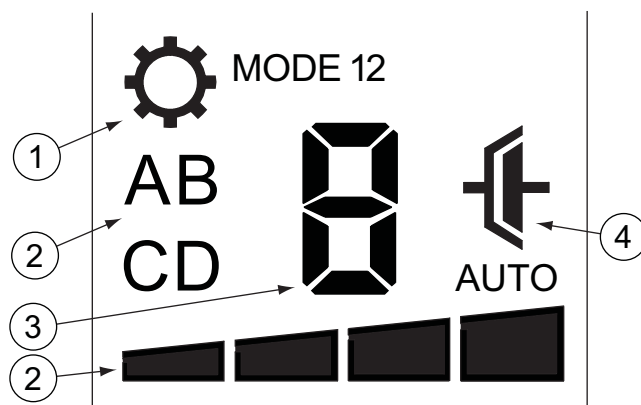
The neutral (N) symbol is shown when the power shuttle lever is in the centre position (N).

Parking brake symbol

The parking brake (P) symbol is shown when the parking brake is on.

3.10.2 Transmission section

The transmission information is shown in one of the A-pillar display sections.



1. Shifting automatics symbol
2. Speed range symbol
3. Selected Powershift gear
4. Automatic traction control symbol

Shifting automatics symbol

The gear wheel symbol and the text MODE1 or MODE2 show which mode of shifting automatics is in use. MODE1 indicates that the shifting automatics programme 1 is in use, and MODE2 indicates that the shifting automatics programme 2 is in use. When the shifting automatics is not selected, these symbols are not visible and the manual shifting is in use.

Speed range symbol

The speed range (A, B, C, D) is shown with a coloured bar and a letter:

	Speed range A When activated, the letter A is shown and the first bar is filled.
	Speed range B When activated, the letter B is shown and the second bar is filled.
	Speed range C When activated, the letter C is shown and the third bar is filled.
	Speed range D When activated, the letter D is shown and the fourth bar is filled.

When changing the speed range, the letter and bar for the requested speed range are flashing until the selected speed range becomes active.

NOTE: The creeper speed ranges do not show on the transmission section display. When a creeper speed range is engaged, only the speed ranges A or B are shown on the display.

Selected Powershift gear

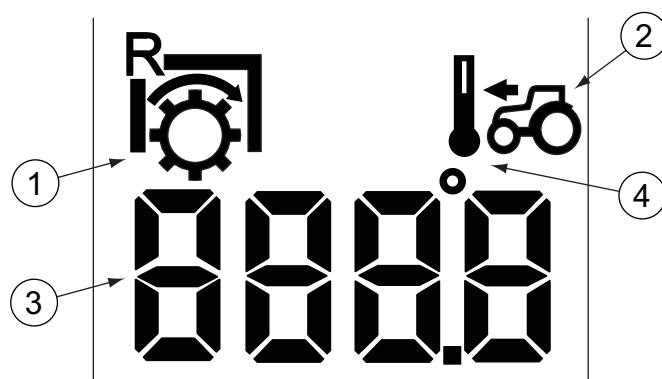
The number of the engaged Powershift gear is shown in the middle of the transmission section (1, 2, 3, 4, or 5).

Automatic traction control symbol

The automatic traction control symbol blinks when automatic traction control is activated. The symbol is displayed continuously when the desired direction has been reselected.

3.10.3 General information section

The general information section on the A-pillar display shows the basic mode view. The information shown in the basic mode view changes according to the driving situation. You can also select one of the views as fixed.



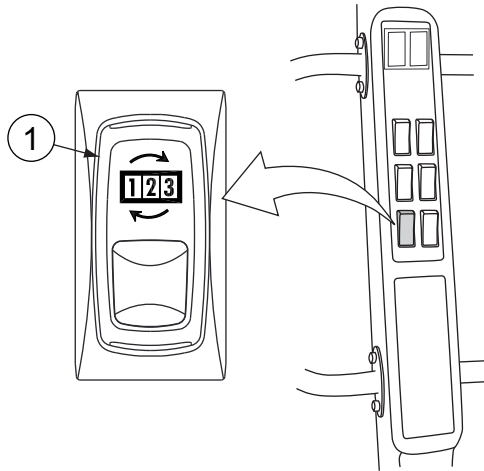
1. Rear Power take-off (PTO) symbol
2. Driving speed tractor symbol
3. The value of the selected property
4. Thermometer symbol

- In the basic mode view, the symbol for the rear PTO is shown only if the PTO is rotating. If rear PTO is selected as fixed, also the rotating speed is shown on the bottom line. The accuracy of the speed view is 10 rpm.
- In the basic mode view, the thermometer symbol and the current outside temperature are shown when the tractor is stationary. In the fixed view, they are shown continuously. The accuracy of the temperature view is one degree. The outside temperature sensor is placed in the front part of the tractor. The engine temperature can falsely affect the thermometer, especially when the tractor is stationary.
- In the basic mode view, the tractor symbol and the current driving speed are shown if the tractor is moving. In the fixed view, they are shown continuously. The accuracy of the driving speed view is described in the following table.

Driving speed	Accuracy
0.0-9.9	0.1
10.0-14.8	0.2
15 and above	1 (no decimals)

3.10.4 Changing general information section views

You can change the general information section view by pressing the view selection switch.



1. View selection switch

1. Select a view by pressing the view selection switch.

The views are organised in the following order: basic mode (the general information section is empty), rear power take-off (PTO), outdoor temperature, driving speed.

- To scroll through the functions in this order, press down the symbol side of the switch.
- To scroll through the functions in reverse order, press down the side of the switch opposite to the symbol.

The basic mode shows the outdoor temperature when the tractor does not move. When the driving speed is greater than 0.3 km/h, the speed is shown instead of the temperature.

2. The last used display mode is saved when turning off the power.

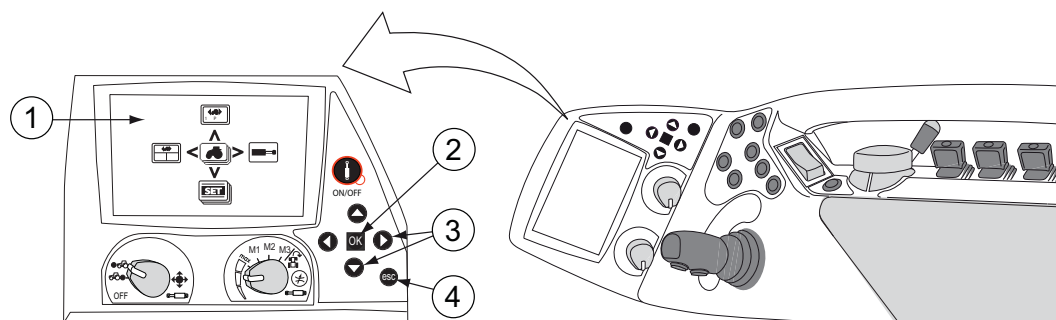
3.11 Tractor terminal

The tractor terminal display and keypad are placed on the right-hand side armrest. In the tractor terminal application views, you can view and/or adjust the following, for example:

- Information related to various tractor functions and working situations in the large drive view and split drive view.
- The settings of the tractor terminal display, such as display brightness and measurement units.
- The settings for auxiliary hydraulics functions.
- The settings for transmission parameters.
- The settings of the tractor terminal parameters.
- The active service codes.

3.11.1 Tractor terminal control button functions

With the tractor terminal keypad buttons you can navigate in the different display fields, activate and deactivate the functions and adjust the values.



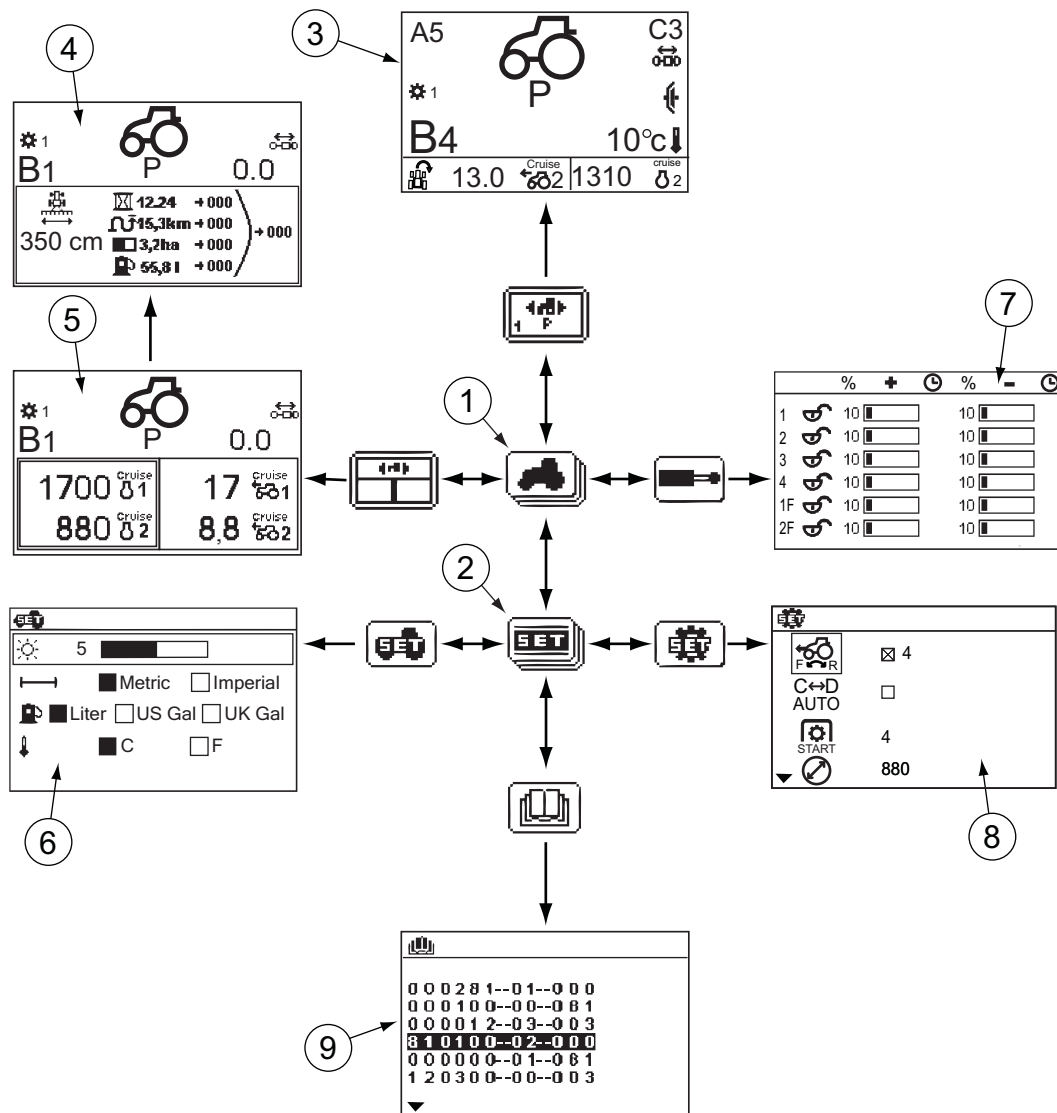
1. Tractor terminal display
2. OK button
3. Arrow buttons
4. ESC button

Button	Function
	<ul style="list-style-type: none"> A short press moves you from the present field in the selected direction. A longer press moves you continuously in the selected direction.
	<ul style="list-style-type: none"> A short press increases the activated value with one unit. A longer press increases the value, for example, with ten units (depending on the point selected). Pressing continuously, the value increases until the upper limit is reached.
	<ul style="list-style-type: none"> A short press decreases the activated value with one unit. A longer press decreases the value, for example, with ten units (depending on the point selected). Pressing continuously, the value decreases until the lower limit is reached.
	<ul style="list-style-type: none"> A short press activates the selected field for changing the data. Another press of the OK button saves the value in the field and deactivates the field. A longer press returns to the drive view last selected.
	<ul style="list-style-type: none"> When a field is activated, a press of the ESC button deactivates the field. A short press returns to the previous display. A longer press returns to the drive view last selected.

3.11.2 Entering menus

You can enter several setting and information views through the main menu.
The power has to be turned on before you can enter the menus.

3. Operation

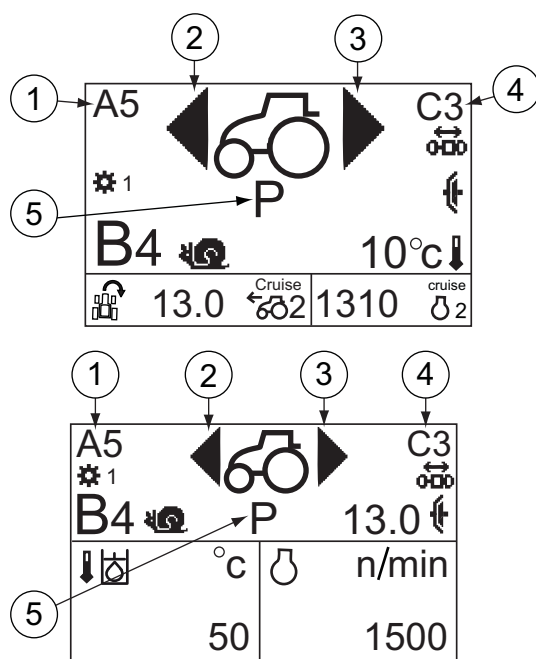


1. Main menu
2. Set menu
3. Large drive view
4. Implement width and resetting counters view
5. Split drive view
6. Changing units and adjusting display brightness view
7. Hydraulics settings view
8. Transmission settings view
9. Service code view

1. If the main menu is not displayed, press ESC as many times as needed.
The main menu is displayed.
2. Press an arrow button in the desired direction of the menu.
3. Press an arrow button again to access different views.

3.11.3 Power shuttle related drive view symbols

The power shuttle related symbols in both the large and split drive views:

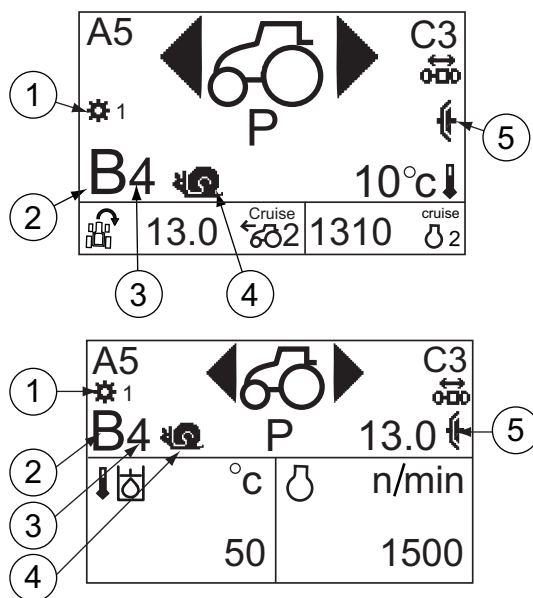


1	A5	The speed range (A, B, C or D) and the Powershift gear (1, 2, 3, 4 or 5) are lit when the speed range and Powershift are preprogrammed for the forward power shuttle.
2	◀	The driving direction forward arrow is lit when forward driving direction is engaged. The arrow flashes if the power shuttle has been operated at a driving speed over 10 km/h. The arrow also flashes when the Automatic Traction Control is activated and the direction has been selected, but the traction is not engaged.
3	▶	The driving direction backward arrow is lit when reverse driving direction is engaged. The arrow flashes if the power shuttle has been operated at a driving speed of over 10 km/h. The arrow also flashes when the Automatic Traction Control is activated and the direction is selected, but the traction is not engaged.
4	C3	The speed range (A, B, C or D) and the Powershift gear (1, 2, 3, 4 or 5) are lit when the speed range and Powershift are preprogrammed for the backward power shuttle.
5	P	When the parking brake is on, the symbol (P) is lit. If the parking brake is engaged while running, the symbol P flashes until the driving speed is below the engaging limit speed (factory adjusted 3 km/h).
	N	The symbol (N) is lit when the power shuttle lever is in the centre position (N). The N symbol flashes together with the driving direction arrow when the Automatic Traction Control is activated and the power shuttle lever is not in the centre position (N) or in the parking brake position (P).

3.11.4 Transmission related drive view symbols

The transmission related symbols in both the large and split drive views:

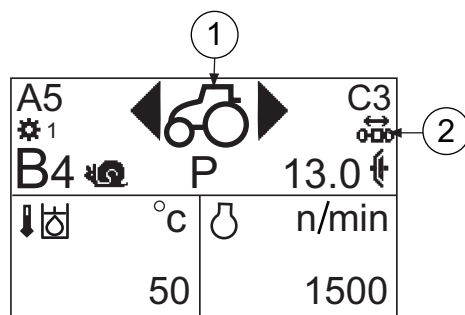
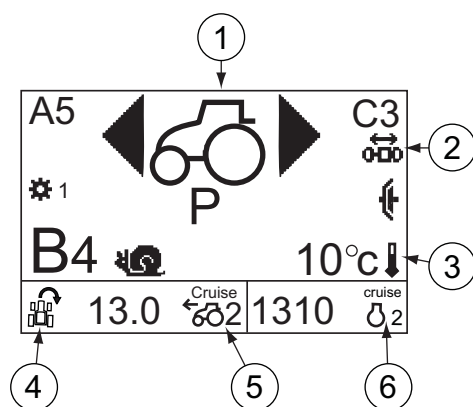
3. Operation



1		The symbol is lit when the shifting automatics programme 1 is selected.
		The symbol is lit when the shifting automatics programme 2 is selected.
		The field is empty when there is no shifting automatics programme selected.
2	B	This field shows the selected speed range (A, B, C or D). A pop-up window indicating the speed range change shows on the display until the requested speed range is engaged.
3	4	The selected Powershift gear number (1, 2, 3, 4 or 5).
4		The creeper gear symbol is lit when creeper speed range is engaged.
5		The automatic traction control symbol is lit when the control is activated or in function. The symbol flashes when the automatic traction control is engaged in standby mode (but not in function)







3.11.5 General information drive view symbols

The general information symbols in both the large and split drive views:

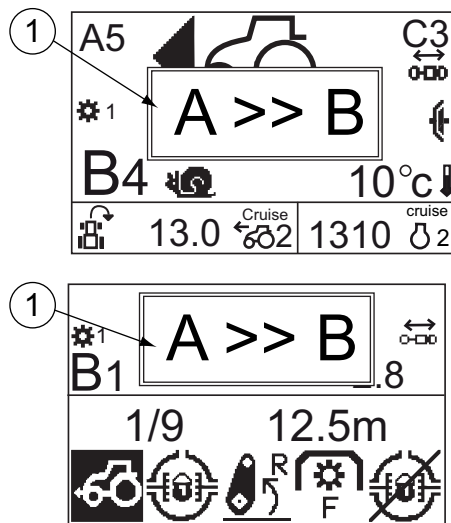


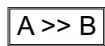


1		The tractor symbol is lit when the power is on.
		The warning symbol is displayed at the same time with the warning symbol of the instrument panel when one of the warning lights on the instrument panel is lit.
		The STOP symbol light starts flashing (the engine must be running) at the same time with the STOP light on the instrument panel when there is a serious fault. 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.
		When the system detects an error in its own operation, the book symbol flashes on the tractor symbol. If the STOP light on the instrument panel does not flash, you can continue driving. IMPORTANT: If the engine does not run over 1500 rpm, there is a serious fault (for example air in the fuel). To avoid serious damages, driving is only allowed to move the tractor to a safe place.
		The driver's seat symbol flashes on the display if the driving direction is selected with the power shuttle lever and the operator is not seated.
2		The hydraulic cylinder symbol flashes when there is pressure requested at least from one valve.
		The floating state symbol flashes on the display when there is at least one valve in floating state.
		The symbols flash in turns if there is at least one valve in floating state, and pressure is requested at least from one valve.
Table continued on next page		

3. Operation

3		In normal situations, with the power on and the tractor standing still, the thermometer and the outside temperature are displayed. The temperature is displayed with an accuracy of plus or minus one degree. The outside temperature sensor is located at the front part of the tractor. The heat of the tractor engine may raise the temperature reading.
	km/h or mph	The driving speed is displayed when the tractor is moving. The driving speed is displayed with an accuracy of: <ul style="list-style-type: none"> • 0-10: 0.1 • 10-15: 0.2 • > 15: 1 When the driving speed is under 1km/h the speed is shown in m/h
4		The U-Pilot symbol is lit when the U-Pilot is active.
5	cruise 	The driving speed cruise symbol for the memory slot 1 with the programmed driving speed are shown on the display. The inverted icon indicates the active cruise mode.
	cruise 	The driving speed cruise symbol for the memory slot 2 with the programmed driving speed are shown on the display. The inverted icon indicates the active cruise mode.
6	cruise 	The engine speed cruise symbol for the memory slot 1 with the programmed engine speed are shown on the display. The inverted icon indicates the active cruise mode.
	cruise 	The engine speed cruise symbol for the memory slot 2 with the programmed engine speed are shown on the display. The inverted icon indicates the active cruise mode.

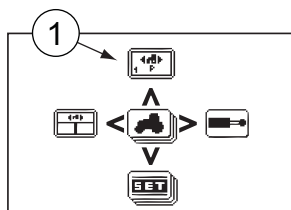
3.11.6 Pop-up views



1		The speed range change pop-up view is shown when the speed range is being changed. Both the old and the new speed range are displayed on the pop-up view.
		The hydrostat temperature pop-up view is shown when the hydrostat temperature rises to 105 °C (or over it).
		The hydrostat temperature pop-up view is shown when the hydrostat temperature rises to 110 °C.

3.11.7 Entering the large drive view

You can enter the large drive view from the main menu.

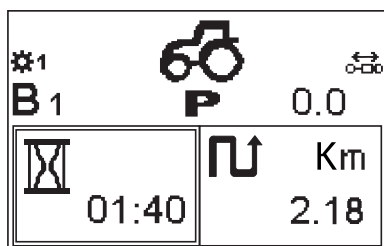


1. Large drive view

1. **If the main menu is not displayed, press ESC as many times as needed.**
The main menu is displayed.
2. **Press the up arrow button.**
The large drive view is displayed.

3.11.8 Split drive view

The split drive view is divided into three fields.



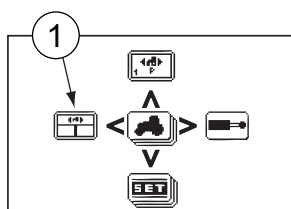
The upper part of the small drive view shows the same functions as the large drive view except for the following functions:

- Outside temperature
- Cruise control

For the lower two fields of the view, you can select the functions.

3.11.9 Entering the split drive view

You can enter the split drive view from the main menu.



1. Split drive view

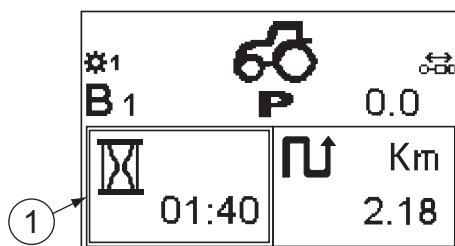
1. If the main menu is not shown on the display, press ESC as many times as needed.
The main menu is displayed.
2. Press the left arrow button.
The split drive view is displayed.

3.11.10 Changing the lower field views

You can select the views shown in the lower fields of the split drive view. The same view cannot be seen in both the fields at the same time.

You have to select the split drive view to change the lower field views.

1. Press OK.
The lower left field is activated, and a rectangle is displayed around it.



1. The activated field.
2. Activate either the left or the right field with the left and right arrow buttons.
3. Select the desired view in the field with the up and down arrow buttons.
4. Press OK.
The selected field stays on the screen.

3.11.11 Lower field views

Several views can be displayed in the lower fields of the split drive view.

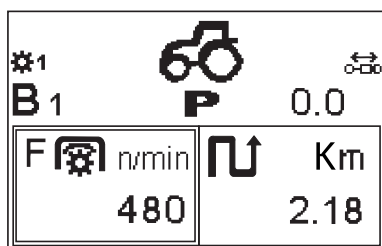
The functions selected for the lower fields are shown in the following order:

Symbol	Function
F	Front power-take-off (PTO) speed (rpm)
R	Rear power-take-off (PTO) speed (rpm)
	Engine speed (rpm)
Settings for the auxiliary hydraulics valves	
M1 M2 M3	Memory locations for auxiliary hydraulics valve settings
1 2 3 4	Settings for the rear hydraulic valves 1-4 of the memory locations M1, M2 and M3.
Table continued on next page	

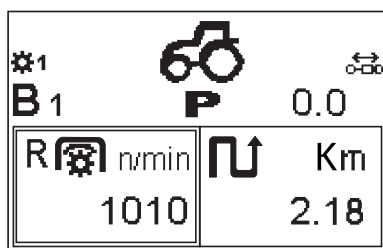
Symbol	Function
F1 F2 F3 5	Settings for the front hydraulic valves F1, F2 and F3. of the memory locations M1, M2 and M3. If the tractor is equipped with the 5th rear valve, it shows on the left in this view.
	Gearbox temperature (°C/°F)
	Hydraulic oil temperature (°C/°F)
	Outside temperature (°C/°F)
	Engine temperature (°C/°F)
AC _R	Position of lower links, rear (%; 0-100)
	Wheel slip (%)
Σ	Sigma Power (on models T182 V and T202 V), (%; 0-100)
	Working time (hh:mm)
	Travel distance (m/km/miles)
	Surface area (ha/acre)
	Fuel consumption views, displaying the following information: <ul style="list-style-type: none"> • Total fuel consumption (l) • Average fuel consumption in an hour (avg l/h) • Immediate fuel consumption in an hour (l/h) • Average fuel consumption on the area worked (avg l/ha/acre) • Immediate fuel consumption on the area worked (l/ha/acre)
Cruise control views, displaying the following information:	
cruise 	Constant engine speed 1 (rpm)
cruise 	Constant engine speed 2 (rpm)
cruise 	Constant driving speed 1 (km/mph)
cruise 	Constant driving speed 2 (km/mph)

3.11.11.1 Power take-off speed views

Front PTO speed

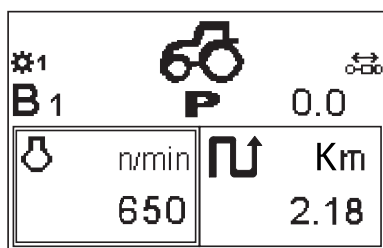


Rear PTO speed



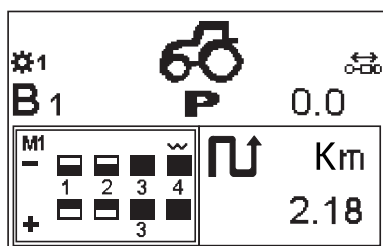
The PTO rotation speed is shown with an accuracy of 10 rpm.

3.11.11.2 Engine speed view



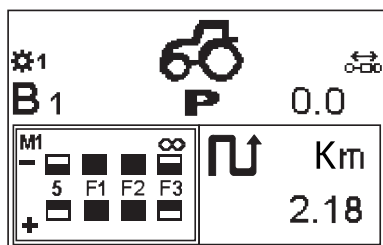
The view shows the engine speed with an accuracy of 10 rpm.

3.11.11.3 Rear hydraulic valve settings view



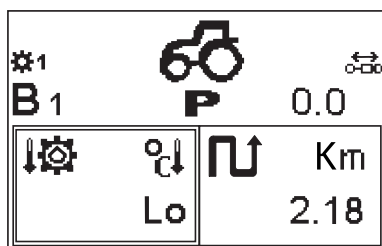
The hydraulic settings of the memory location (M1, M2 or M3) in use are displayed. If one of the factory settings is in use, the settings of memory location M1 are displayed. If the tractor has five rear valves, the fifth valve shows on the front hydraulic valve settings view on the left.

3.11.11.4 Front hydraulic valve settings view



This view is available in a tractor with front valves. The hydraulic settings of the memory location (M1, M2 or M3) in use are shown on the display. If one of the factory settings is in use, the settings of memory location M1 are shown on the display. If the tractor has five rear valves, the fifth rear valve shows on the left.

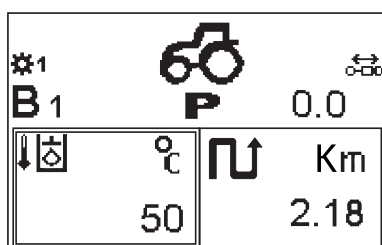
3.11.11.5 Gearbox temperature view



The gearbox temperature is displayed as follows:

- When the temperature is below +30°C, the text "lo" is displayed.
- When the temperature is above +30°C, the actual temperature is displayed.
- When the temperature is above +119°C, the text "high" is displayed.

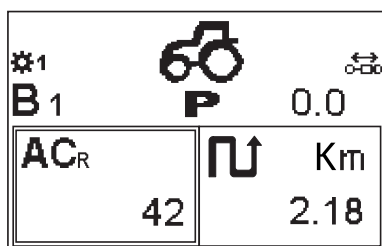
3.11.11.6 Working hydraulics oil temperature view



The hydraulic temperature is displayed as follows:

- When the temperature is below +30°C, the text "lo" is displayed.
- When the temperature is above +30°C, the actual temperature is displayed.
- When the temperature is above +119°C, the text "high" is displayed.

3.11.11.7 Rear lower links' position view

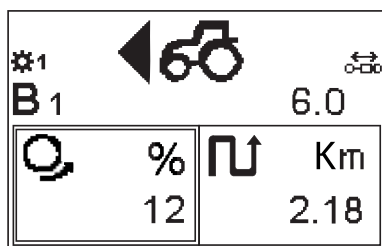


The display shows the symbol **AC_R** and the position of the rear lower links on a percentage scale 0–100.

- 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.

3.11.11.8 Wheel slip view



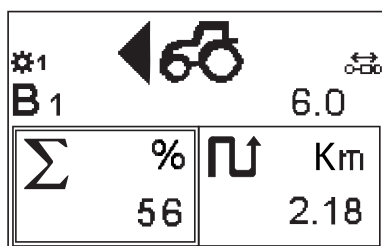
The wheel slip percentage is attained by comparing the speed information of the radar to the rotation speed of the back wheels.

For driving speeds lower than 0.3 km/h, zero is displayed.

3.11.11.9 Sigma Power view

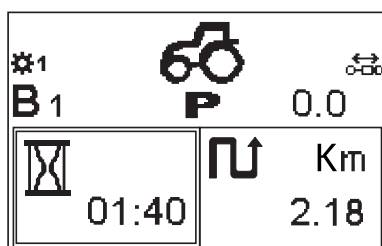
The Sigma Power view shows the percentage of the maximum power that is transferred through the power take-off (PTO).

The Sigma Power view is only available on models T182 V and T202 V.



3.11.11.10 Working time view

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

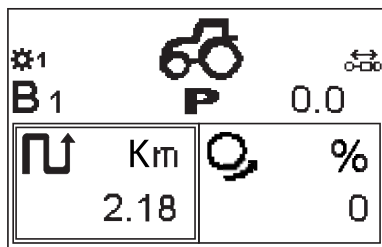


The working time is stored in the memory when the power is turned off.

You can reset the working time counter.

3.11.11.11 Travel distance view

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



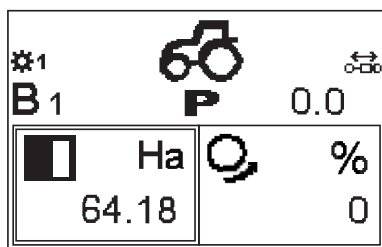
The travel distance is displayed as follows:

- 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 reset the distance reading.

3.11.11.12 Surface area view

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



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 from the tractor.

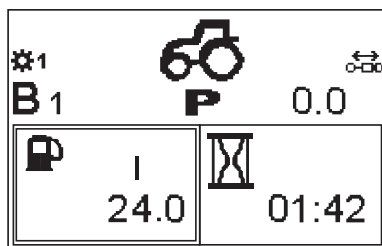
You can reset the area reading.

3.11.11.13 Fuel consumption views

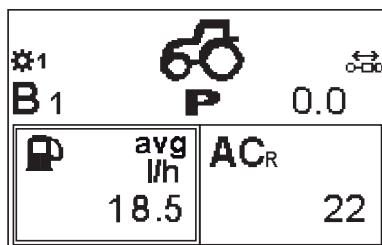
There are five different fuel consumption settings that can be displayed in the lower fields of the split drive view.

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

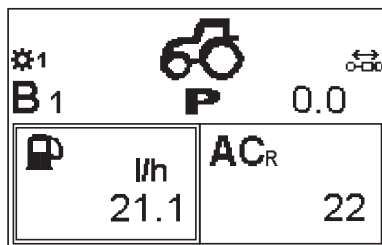
Total fuel consumption



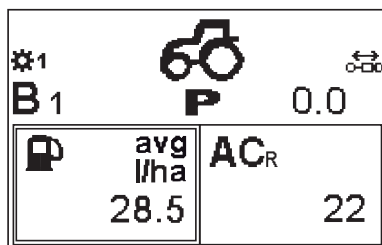
Average fuel consumption in an hour



Immediate fuel consumption in an hour

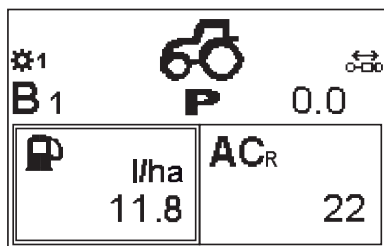


Average fuel consumption on the area worked



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

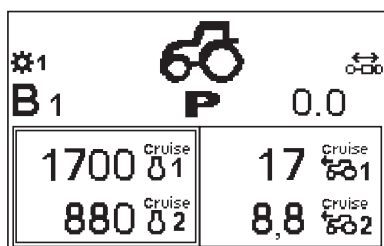
Immediate fuel consumption on the area worked



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

You can reset the fuel consumption information.

3.11.11.14 Cruise control view



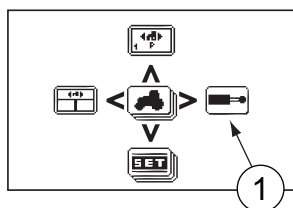
There are two memory slots for constant engine speed and constant driving speed.

The cruise control status indications are:

cruise ⌚ 1	Constant engine speed 1
cruise ⌚ 2	Constant engine speed 2
cruise ⚙️ 1	Constant driving speed 1
cruise ⚙️ 2	Constant driving speed 2

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

3.11.12 Entering the hydraulics settings view

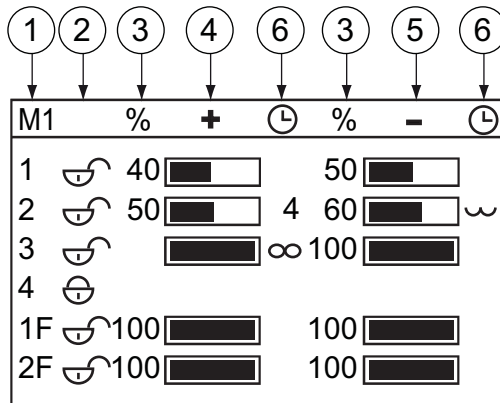


1. Auxiliary hydraulics settings view

3. Operation

1. If the main menu is not displayed, press ESC as many times as needed.
The main menu is displayed.
2. Press the right arrow button.
The auxiliary hydraulics settings are displayed.

3.11.13 Hydraulics view symbols






1. The number of the valve
2. Valve state
3. The set flow rate per port, as a percentage of the maximum flow
4. + port
5. – port
6. Duration of the functions per port

The number of the valve

- Front valves are indicated by “F” after the number.
- A small arrow in the upper or the lower corner indicates that there are more than six valves. If there are more than six valves, you can scroll up or down to view the ones that do not fit on the screen with the up or down arrow button.
- Memory position M1, M2 or M3 is selected with the selection switch, and the position of the selection switch can be seen in the upper corner.

Valve state

-  = active, the valve settings are shown
-  = not active
-  = not in use, error situation

The set flow rate per port, as a percentage of the maximum flow

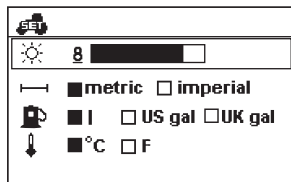
- The corresponding flow rate is displayed beside the percentage as a bar.
- The valve can be used for single action when the implement is engaged to only one of the quick couplings.

Duration of the functions per port

- 0–60 s timed duration of the position lock
- ∞ = the position lock continuously on
- ~ = floating position (only in the – port)
- empty = no function active

3.11.14 Adjusting the display brightness

1. In the main menu, press the down arrow.
2. Press the left arrow.
The view for adjusting the display brightness and changing the units is displayed.

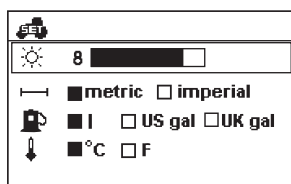


3. Select adjusting display contrast with the arrow keys.
4. Press OK.
The display brightness value is activated and the line below the value starts flashing. The indication of the brightness is 1-10.
5. Adjust the brightness with the up and down arrow buttons.
6. Activate the new value or restore the old value.
 - To deactivate the field and store the new value for brightness, press OK.
 - To deactivate the field and restore the old value for brightness, press ESC.

3.11.15 Changing units

NOTE: The units have to be changed separately for the Proline instrument panel display.

1. In the main menu, press the down arrow.
2. Press the left arrow.
The view for adjusting the display brightness and changing the units is displayed.



3. Select the unit with the arrow buttons.

4. Press OK to activate the unit.

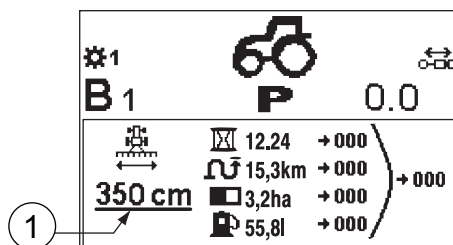
When the unit of length is changed between metric/imperial, the following units also change:

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

3.11.16 Changing parameters

3.11.16.1 Setting the implement width

1. Select the split drive view on the display.
2. Press OK until the view for setting the implement width and resetting the counters is displayed.



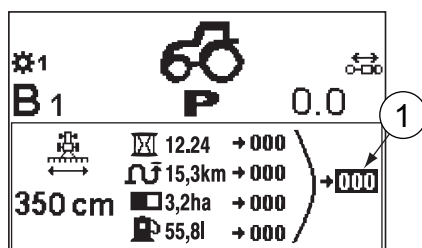
1. Implement width

3. Select the implement width with the arrow buttons.
4. Press OK.
5. Select the digit to be changed with the left and right arrow buttons.
You can change the value digit by digit.
The cursor below the activated digit starts flashing.
6. Set the value with the arrow buttons.
 - To increase the value, press the up arrow button.
 - To decrease the value, press the down arrow button.
7. Confirm or cancel the setting.
 - To deactivate the field and store the new value, press OK.
 - To deactivate the field and restore the old value, press ESC.

3.11.16.2 Resetting counters

1. Select the split drive view.

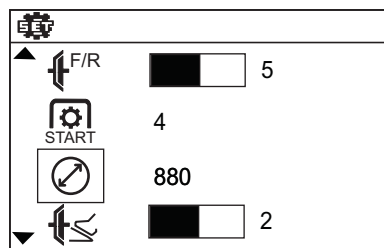
- Press OK until the view for setting the implement width and resetting the counters is displayed.










- Reset all counters
- Select the counter to be reset using the arrow buttons.
You can reset one counter or all counters.
- To reset the counter/s, press OK until "000" is displayed.

3.11.17 Transmission settings view

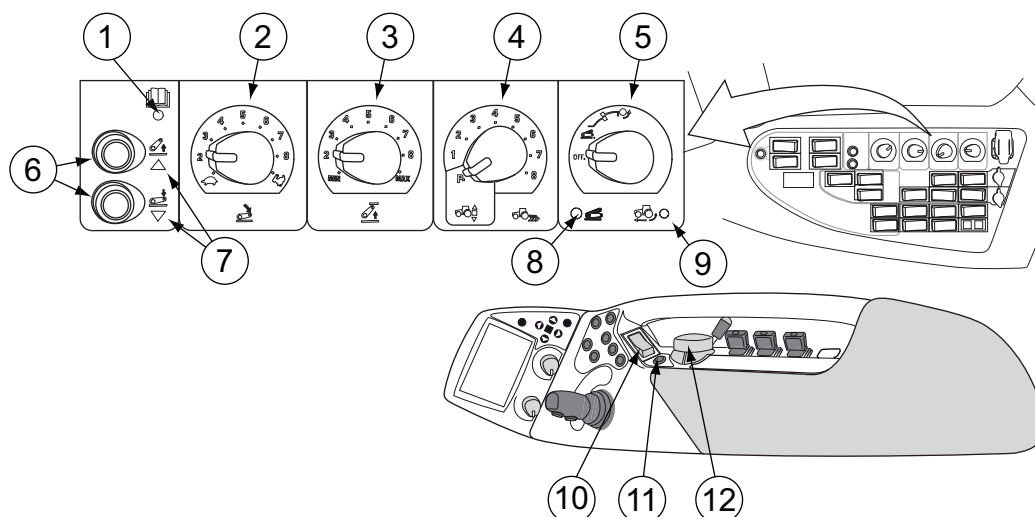
In the transmission settings view, you can adjust transmission parameters.



The following adjustments can be made in this view:

	Four-wheel drive automatics adjustment
	Automatic speed range change C<->D when using shifting automatics
	Power shuttle engagement speed setting
	Rear power take-off engagement adjustment
	Tyre parameter setting
	Clutch pedal engagement position setting
	Speed sensors calibration

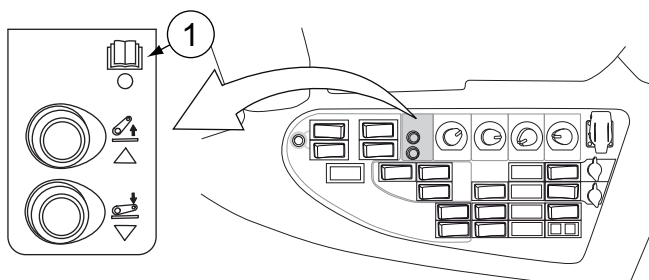
3.12 Rear linkage



1. Diagnose light
2. Lowering speed selector
3. Lifting height selector
4. Draft control selector
5. Drive balance control, including slip control system
6. Lift/low push buttons
7. Lift/low indicator lights
8. Drive balance control light
9. Slip control light
10. Lift/stop/low switch
11. Passing switch for position control knob
12. Position control knob

3.12.1 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.



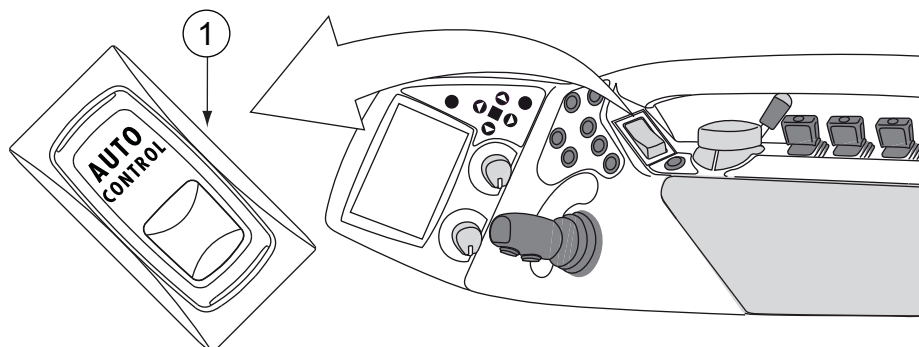
1. Diagnose light

IMPORTANT: Contact your dealer if the diagnostic light is flashing (the service code is displayed on the tractor terminal). This means that there is a system failure.

3.12.2 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 push buttons have been used.



1. Lift/stop/lower switch

1. Change the position of the lift/stop/lower switch.

The diagnose light goes out and the lower links move to the preset position.

The first movement is done by reduced speed.

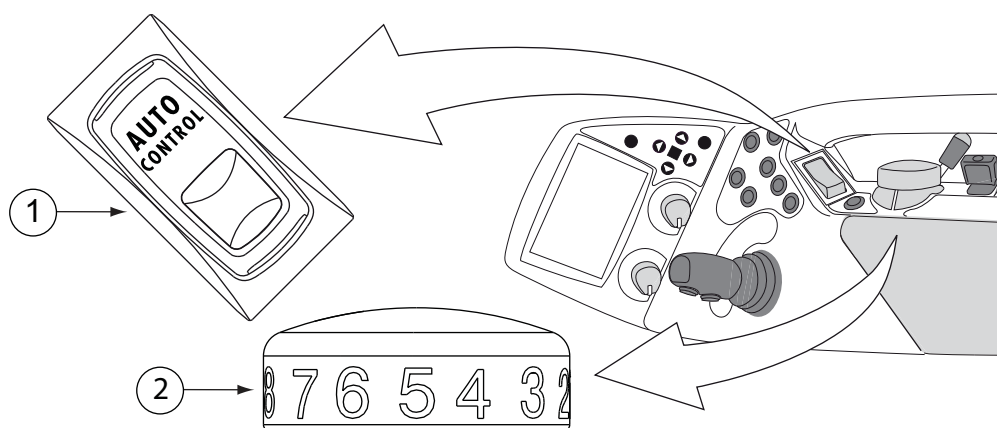
The change to stop position just turns off the diagnose light.

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

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

3.12.3 Using the lift/stop/lower switch

The lift/stop/lower switch has three positions.



1. Lift/stop/lower switch

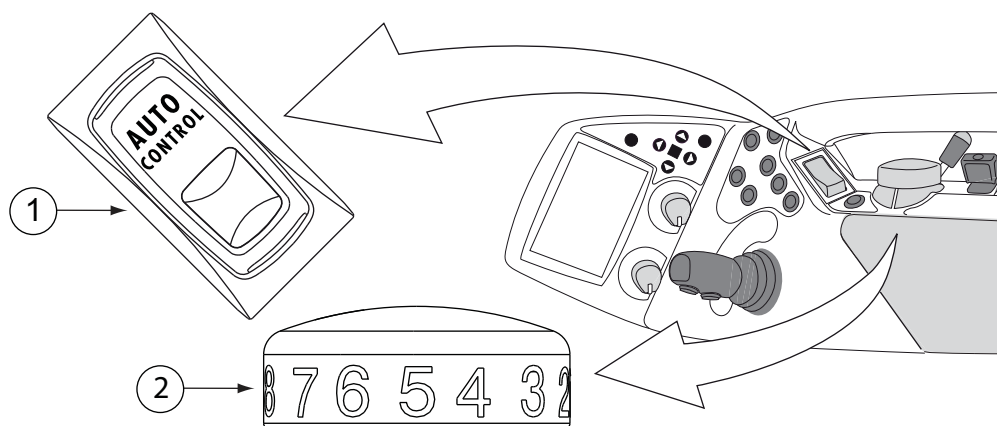
2. Position control knob

- **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.
NOTE: When the draft control is in use, the linkage movements can be large and undeterminable.
- **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.**

3.12.4 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 position.

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

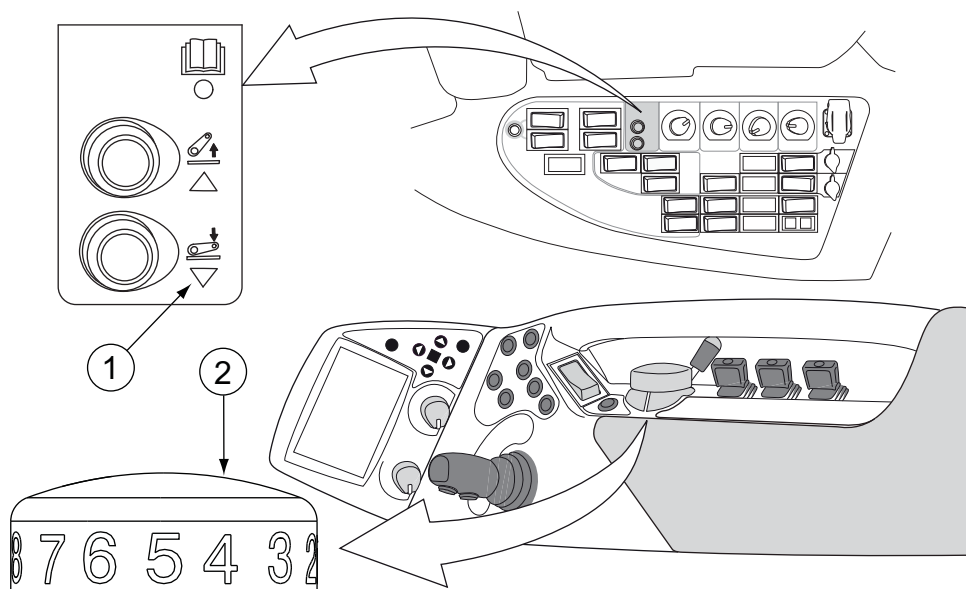


1. Lift/stop/lower switch
2. Position control knob

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

3.12.5 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.



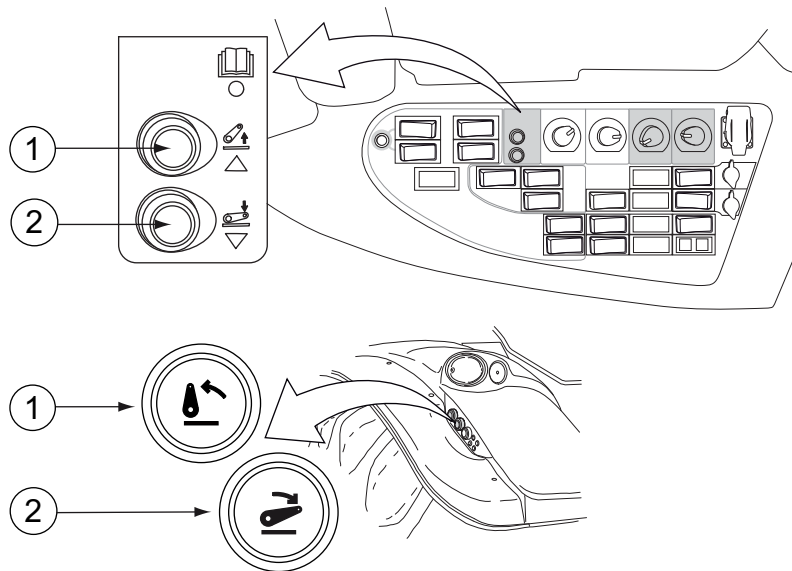
1. Lower indicator light
2. Position control knob

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.

3.12.6 Using the lift/lower push buttons

Using the lift/lower push buttons is the safest way of operating the linkage. The lifting/lowering continues as long as you keep pushing the respective button. Thus, you have steady control over the linkage movements.

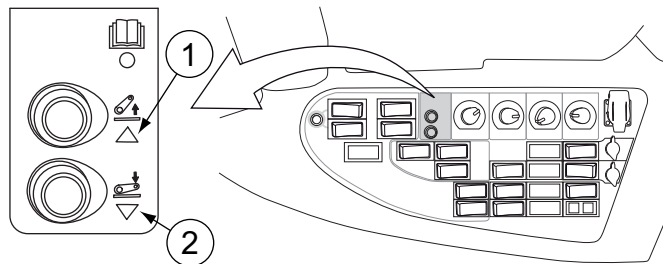


1. Lift push button
2. Lower push button

- **To lift the linkage, press the lift push button.**
The longer the lift button is pressed the faster the linkage lifts.
- **To lower the linkage, press the lower push button.**
The longer the lower button is pressed the faster the linkage lowers.

3.12.7 Lift/lower indicator lights

The indicator lights indicate when the lower links are moving.



1. Lift indicator light
2. Lower indicator light

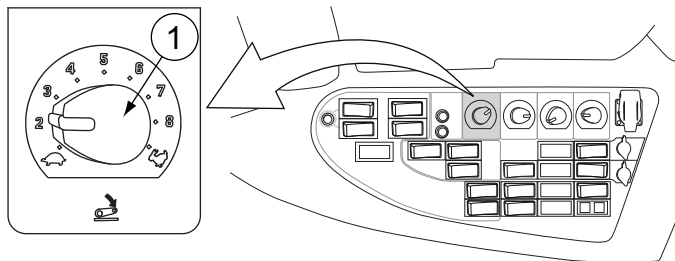
Lit indicator light indicates that the rear linkage is being used.

- 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.

3.12.8 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.



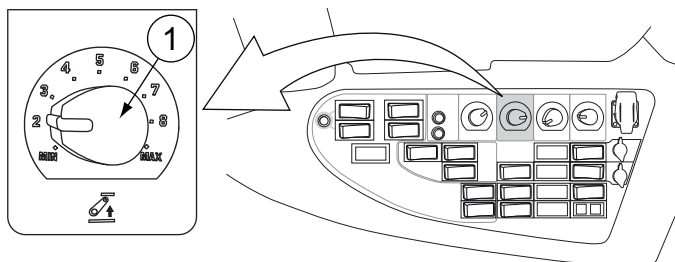
1. Lowering speed selector

- To increase the lowering speed, turn the knob clockwise.
Nine different levels are available.
- To decrease the lowering speed, turn the knob anti-clockwise.

3.12.9 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.

3.12.10 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.

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

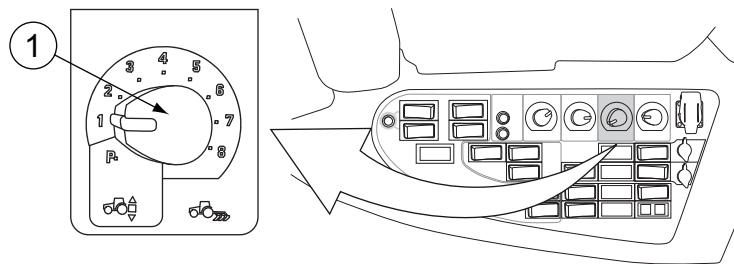
- 1 = small influence
- 8 = very large influence

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.

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 or tractor terminal display in the rear lower links' position view.

3.12.11 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.

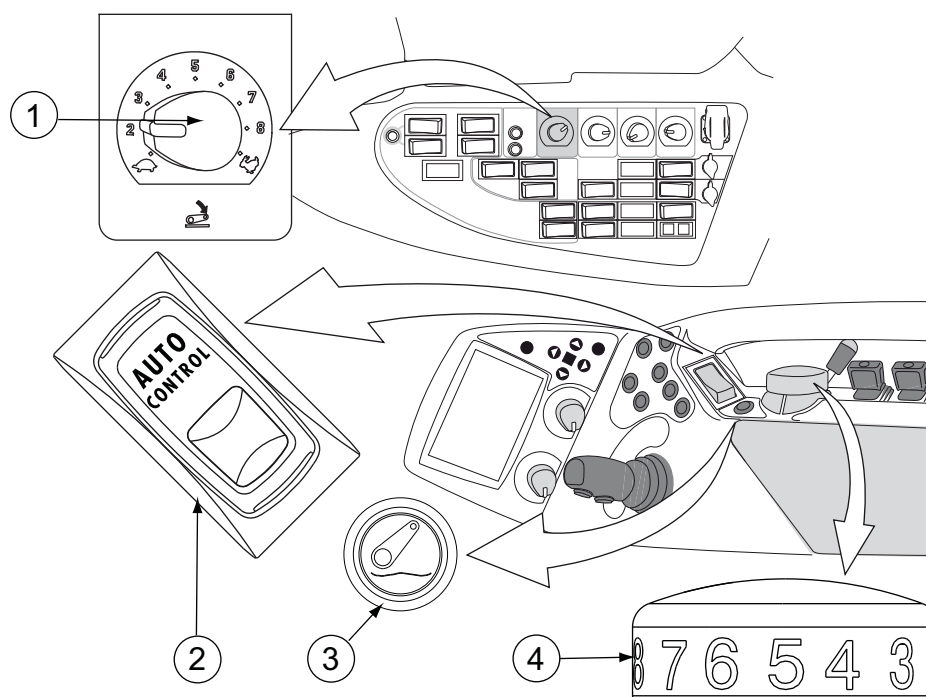
3.12.12 Passing the position set by the position control knob

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 lowering position (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. Lift/stop/lower switch
3. Passing switch for position control knob
4. Position control knob

1. **Press down the symbol side of the lift/stop/lower switch.**
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.

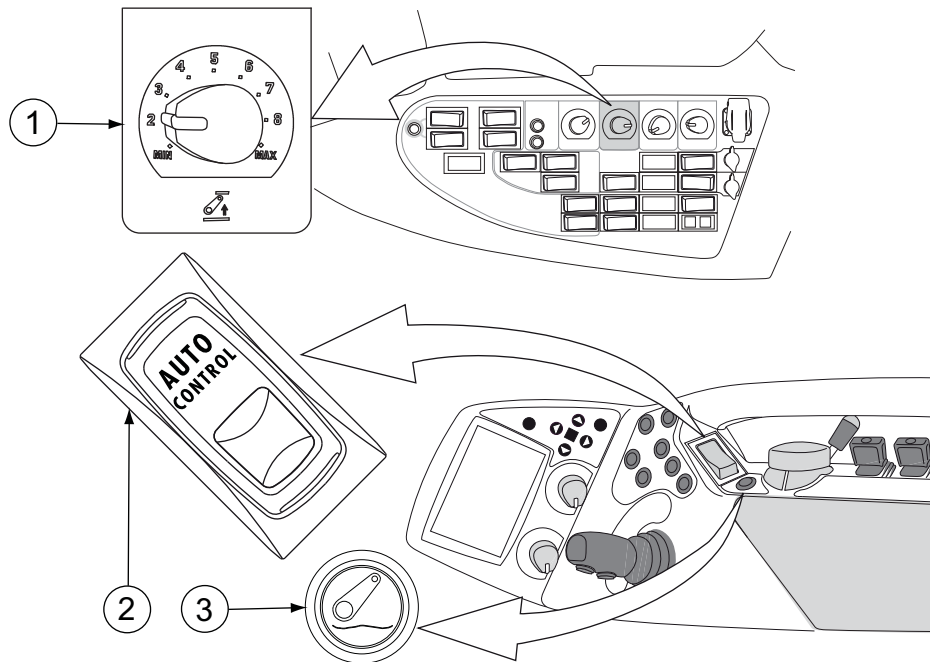
3.12.13 Passing the height set by the lifting height selector

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

3. Operation

feature is useful, for example, when disconnecting the trailer hitch or to make sure that the trailer 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 lifting position and the lifting selector is in the MAX position.



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

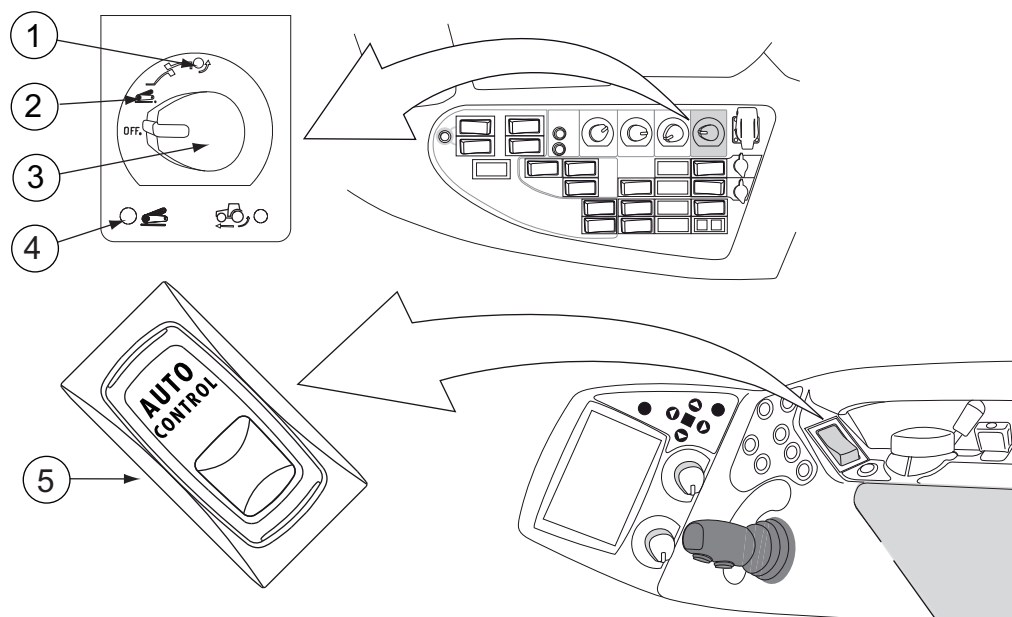
1. Turn the lifting height selector to the MAX position.
2. Press down the side of the lift/stop/lower switch opposite to the symbol.
3. Press down the passing switch for position control knob.
The lower links pass the limit set by the lifting height selector.
4. Release the passing switch for position control knob.
The lower links return to the value set by the lifting height selector.

3.12.14 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 lifting position.



1. Slip limit position
2. Drive balance position
3. Drive balance control selector
4. Drive balance control light
5. 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 transport position.
3. To deactivate the drive balance control, turn the drive balance control selector to the Off or Slip position.

3.12.15 Slip control

You can use the slip control when working with implements that operate below the surface of the ground and are connected to the three-point linkage.

NOTE: The slip control operates only when the draft control is activated.

The slip control function lifts the linkage a little when the wheels exceed the slip limit. It lowers the implement back to the set depth when the wheel slip is below the slip limit again.

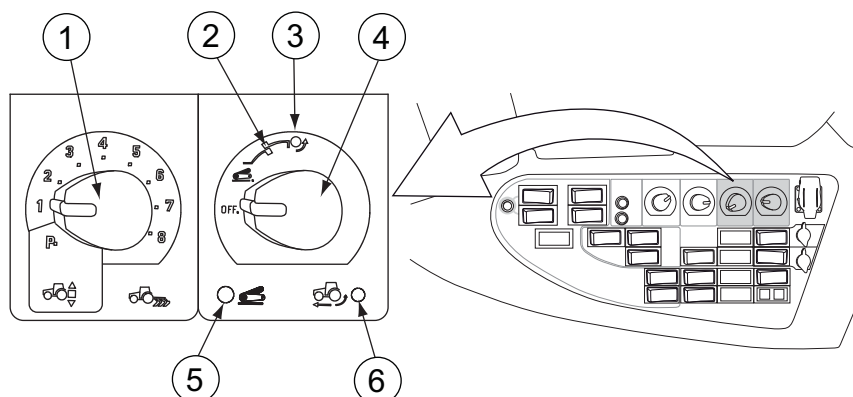
Tractors are equipped with radar under the right side of the cab. When all wheels slip, the real driving speed can only be measured with the radar.



WARNING: Do not go under the tractor until the ignition key has been turned to the STOP position. The tractor is equipped with radar which presents a hazard to your eyes.

3.12.16 Using the slip control

You can use the slip control when the draft control selector is in the draft control area.



1. Draft control selector
2. Drive balance control and slip control position
3. Slip limit position
4. Drive balance control selector
5. Drive balance control light
6. Slip control light

- **Turn the drive balance control selector to the drive balance control and slip control position.**

Both the drive balance control and slip control are activated.

The slip control is activated when the lift/stop/lower switch is in the lower position and the draft control selector is in the draft control area (position 1-8).

The slip control light is lit when the slip control is activated and driving speed is more than 1 km/h.

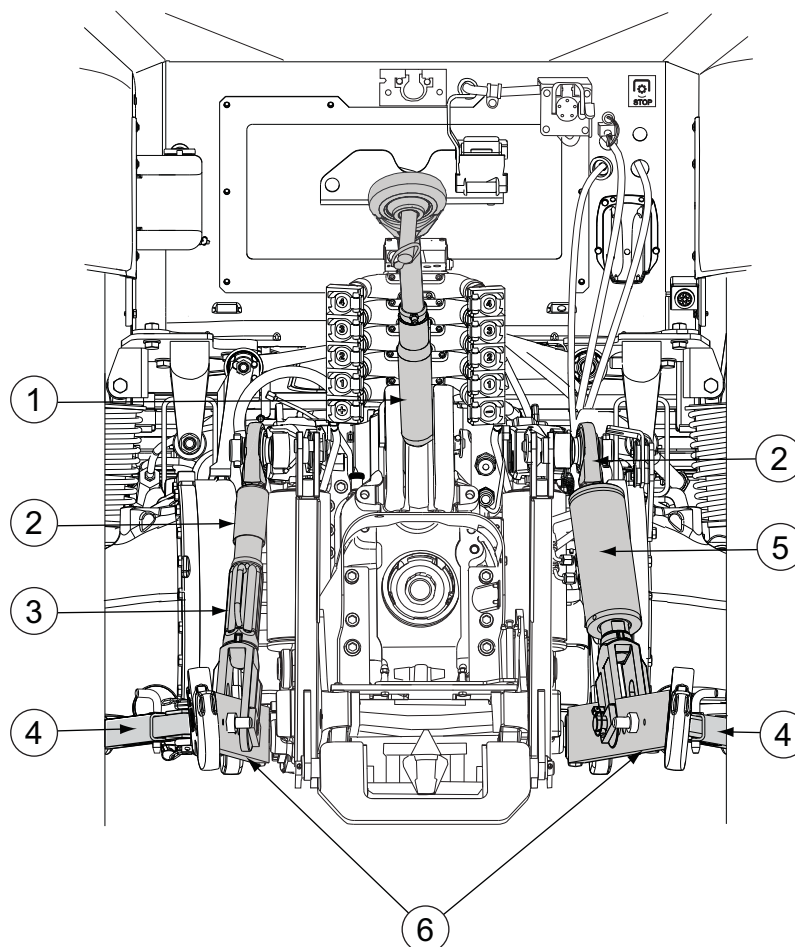
- **Turn the drive balance control selector to the slip control position.**

Only the slip control is activated.

The draft control selector must be in the draft control area (position 1-8).

The slip control light is lit when the slip control is activated and driving speed is more than 1 km/h.

3.13 Three-point linkage



1. Top link
2. Lifting link
3. Levelling gear
4. Check links
5. Hydraulic levelling ram (extra equipment)
6. Lower links



WARNING: Ensure that the hooks latch correctly.

The tractors are supplied with category 3 ball hitch lower links.

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.

NOTE: Usually it is recommended to use the middle hole.

3.13.1 Attaching implements

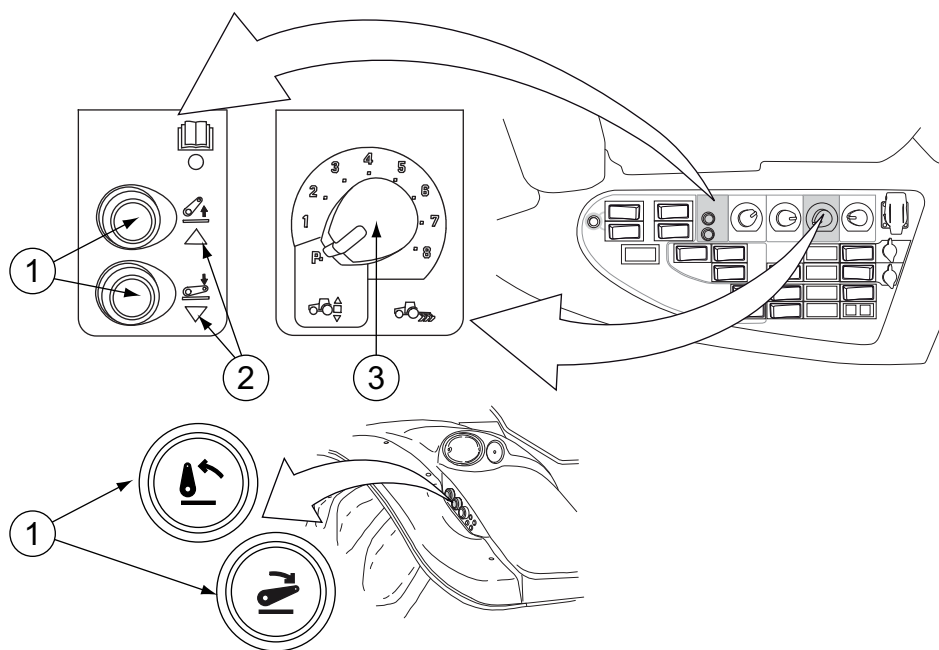


DANGER: Always use the lift/lower push buttons when attaching or releasing implements.



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. Do not use the hydraulic top link in the lowest hole in the mounting bracket as this may damage the top link or the bracket.



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

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 sensitive positions, even a small turn of the position control knob may cause an unexpected linkage movement.

2. Press the lift/lower push buttons to lift or lower the lower links.

You can use the corresponding push buttons on the mudguards also.

The lower links lift or lower as long as you press the corresponding button.



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.



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

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.

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.

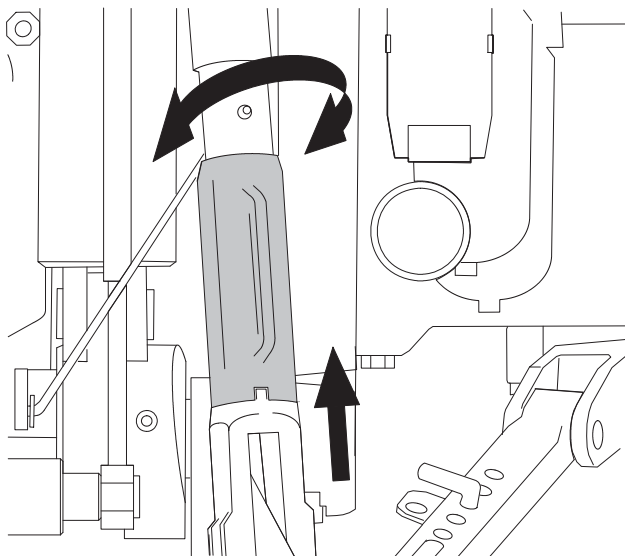
Correct adjustment of harrows, ploughs and cultivators reduces the required tractor power. An incorrectly adjusted plough, for instance, creates a badly shaped furrow, tends to twist the tractor away from the travelling direction, increases fuel consumption and wastes power due to wheel slip.

5. Activate the control system with the lift/stop/lower switch.

After using the lift/lower push buttons, you have to activate the position control system again.

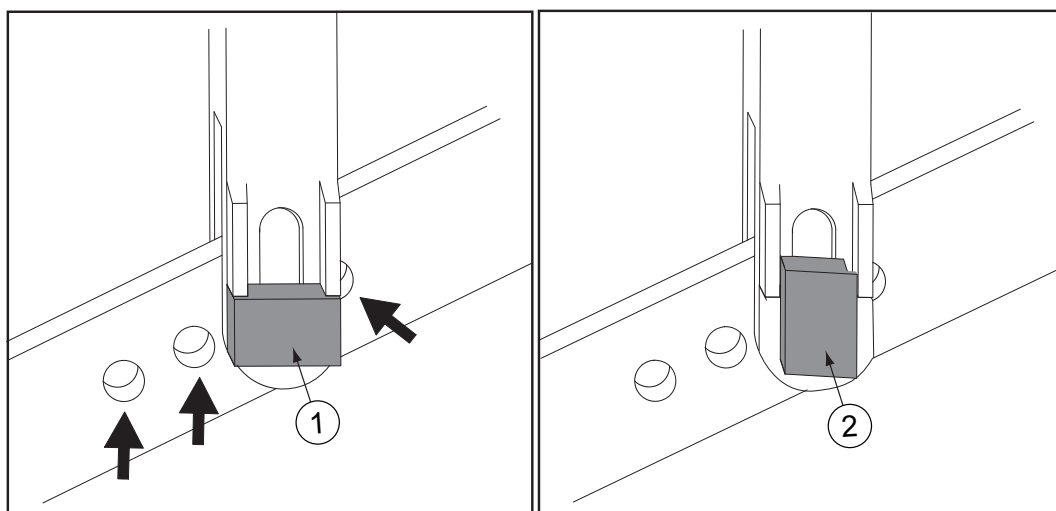
3.13.2 Adjusting lifting links

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.

3.13.3 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 in one of the four holes.

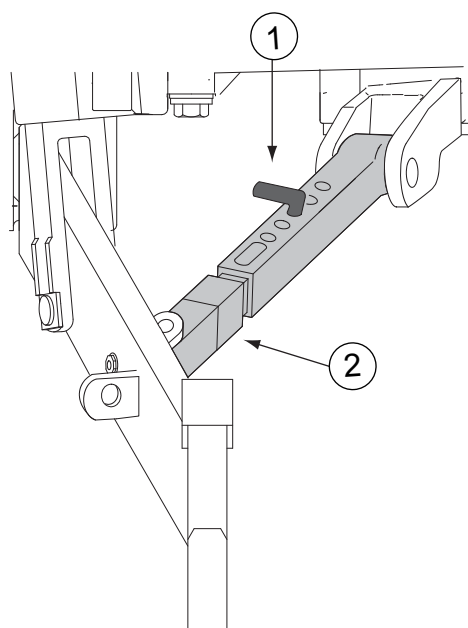
Different holes give different lifting ranges and lifting power for the lower links. When the tractor is equipped with heavy duty (HD) three-point linkage (lifting cylinder diameter 110 mm) there are only two holes on the lifting links. HD three-point linkage is standard on models T182 V - T202 V and extra equipment on other models.

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.

3.13.4 Adjusting check links

3.13.4.1 Adjusting the check links' length

Use 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.

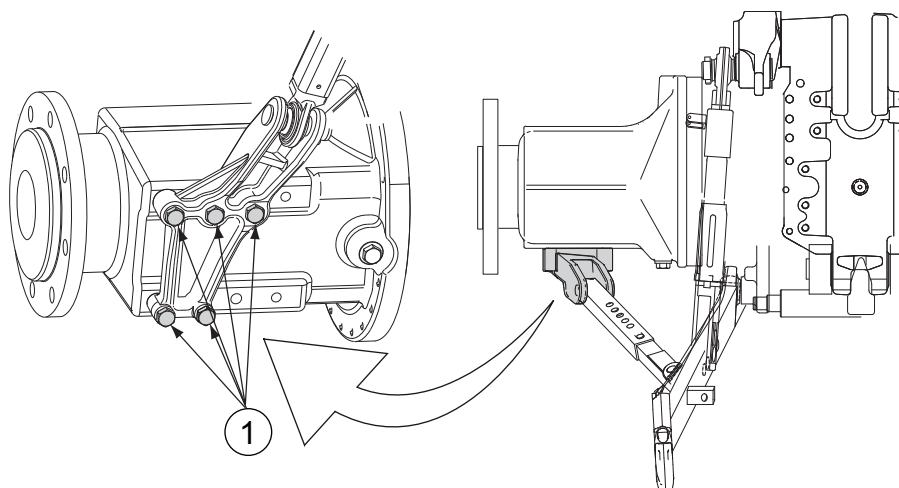
If the pins are fitted in the long holes, the lower links have a floating position in the lateral direction.

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.

3.13.4.2 Adjusting the check links' support

You can adjust the check links' support to two different positions.



1. Screw

1. **Unscrew the screws.**
2. **Change the position of the check links' support.**
The position should be the same on both sides of the tractor.
3. **Tighten all screws.**

3.13.5 Automatic check links

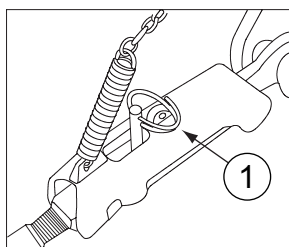
The automatic check links are used to limit the distance between the lower links.
The automatic check links are extra equipment.

There are two types of automatic check links available, one adjusted with thread and another adjusted with a locking pin.

NOTE: Adjust the check links so that they do not come into contact with the rear wheels.

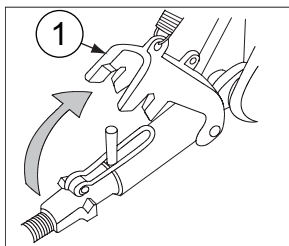
3.13.5.1 Adjusting thread-adjustable check links

1. **Unfasten the closure pin.**



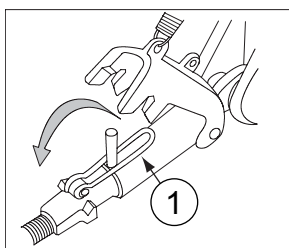
1. Closure pin

2. Turn up the link.



1. Link

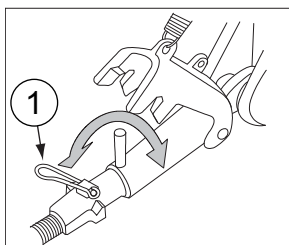
3. Lift up the turning handle.



1. Turning handle

4. Adjust the length of the check link by turning the handle.

IMPORTANT: If you shorten the right lifting link, check that the side limiter does not hit the tractor when the lifting link is raised to maximum height.

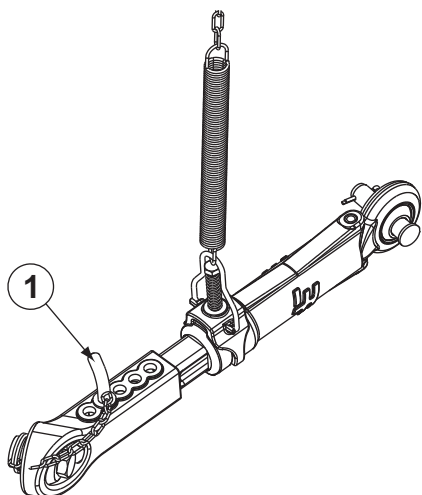


1. Turning handle

5. After completing the adjustment, perform the steps in the reverse order.

6. Lock the check link adjustment with the closure pin.

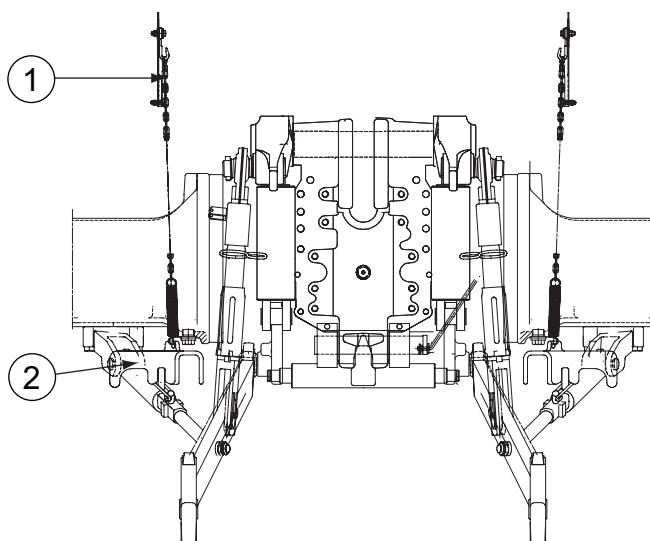
3.13.5.2 Adjusting pin-adjustable check links



1. Locking pin

1. Pull out the locking pin.
2. Adjust the length of the check link.
3. Put the locking pin back to lock the length of the link.

3.13.5.3 Using the floating position of automatic check links



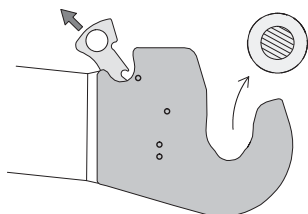
1. Holding chain
2. Link

- **Adjust the length of the link's holding chain.**
Adjustment is done by changing the attachment point of the holding chain.
This adjustment defines the height of the lower links where the check links lock.
- **Adjust the length of the check links to get the right amount of float.**

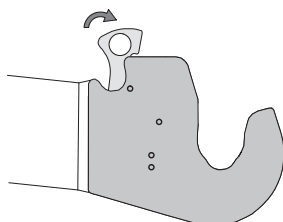
- Lower the implement to working position to allow floating.
- Lift the implement to transport position to lock the check links.

3.13.6 Using quick couplings for lower links

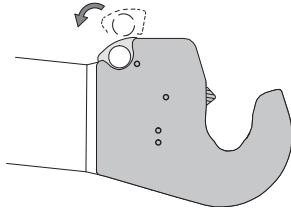
1. Pull the lever to release the implement.



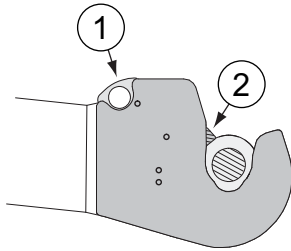
2. You can leave the lock open by pulling the lever backwards (for example when demounting an implement).



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.



1. Lever
2. Clamp

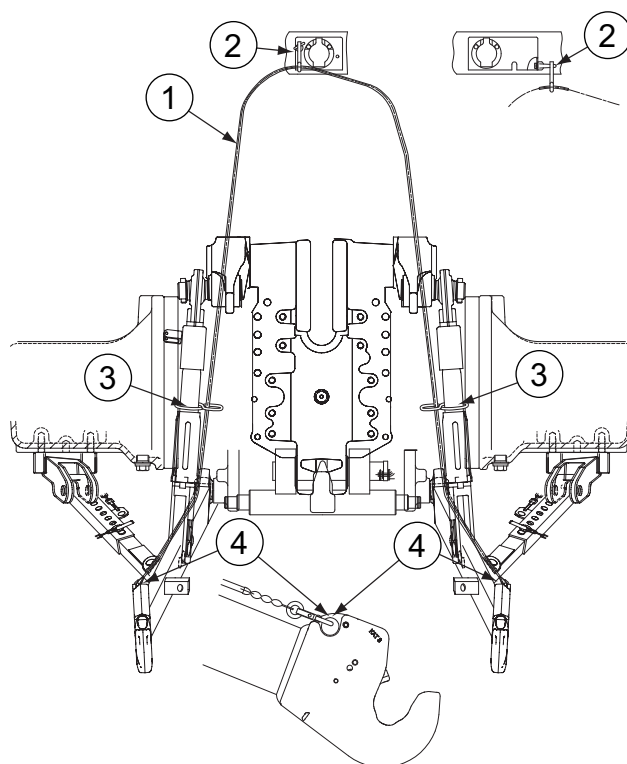


DANGER: Clean the quick couplings and ball joints before attaching an implement. There is risk that the implement is not attached properly.

The quick couplings can be controlled in the cab using a release cable.

3.13.6.1 Setting the release cable for lower link quick couplings

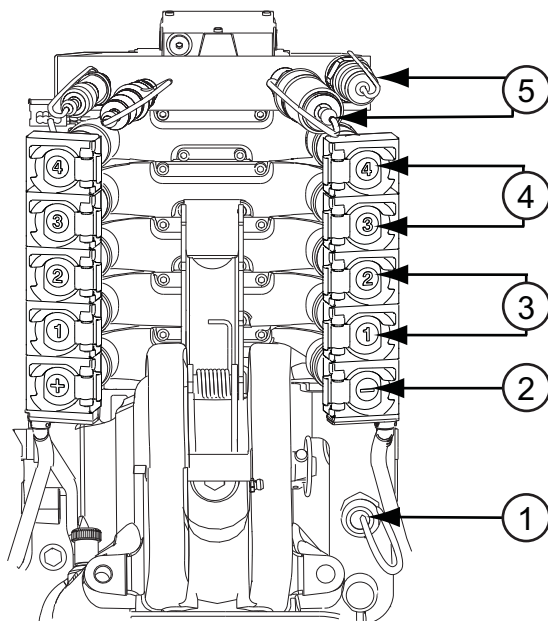
Release cable for lower link quick couplings is extra equipment. To be able to unlatch the hook type ends from the cab, the release cable must be attached via the holes on the three-point linkage unit.



- 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.

3.14 Auxiliary hydraulics



1. Return coupling
2. Standard on/off valve
3. Standard rear valves 1 and 2
4. Rear valves 3 and 4 (extra equipment)
5. Power Beyond couplings (extra equipment)

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

Standard valves on the rear side:

- One on/off valve
- Two valves with joystick control

Return coupling

The tractor is equipped with an auxiliary hydraulic return coupling (1/2 inch). If the back pressure is higher, a 3/4 (standard with 160 l/min pump) and 1-inch coupling is also available as extra equipment.

Extra equipment valves on the rear side:

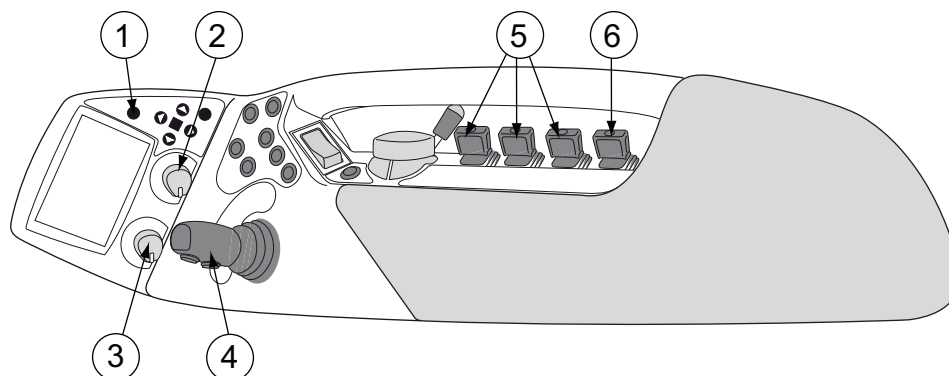
- One on/off valve
- Two or three valves with control lever (3, 4 and 5)
- Power Beyond couplings (when Power Beyond, always with two extra valves).

Extra equipment valves on the front side:

- Two valves with joystick control (1F and 2F)
- One valve with control lever (3F)
- Two change valves for simultaneous coupling of front linkage and front loader.

3.14.1 Auxiliary hydraulic controls and functions

The auxiliary hydraulic controls are positioned on the armrest.



1. Auxiliary hydraulics on/off push button
2. Selector for the predefined factory/user settings
3. Joystick functions selector
4. Joystick with push buttons
5. Control levers for valves 3, 4 and 5
6. Control lever for the third front valve

All the standard and extra valves have the same functions, except for the on/off valves.



WARNING: The programmable features of the joystick or other controls **MUST NOT** be used to operate a loader. In order to prevent involuntary loader motion, the loader joystick controller must be of a self-neutralising type. When the operator releases his grip on the joystick, the joystick must return to a non-operational neutral position - except for float detent position in the loader lower direction.

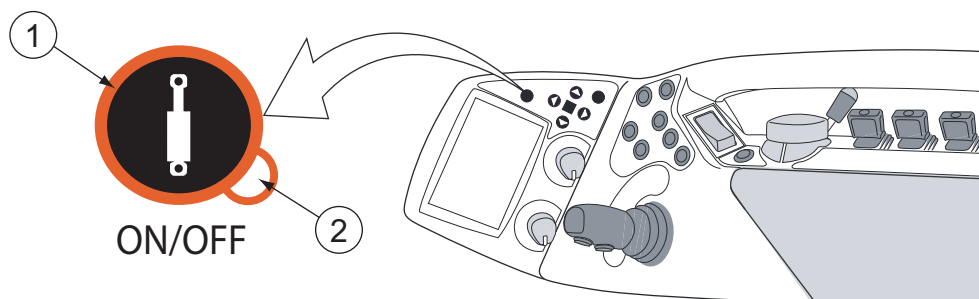
You can adjust the following properties of the auxiliary hydraulics valves through the tractor terminal display on the armrest:

- Position lock:
 - You can lock a valve function in the ON position.
- Position lock hold time:
 - You can set a timer for a valve function to hold the position lock for a particular time between 0-60 seconds or select continuous position lock.
- Floating position, only in the (-) port:
 - You can set the valve in floating position where the valve allows an implement to move freely, for example to follow the ground level.
- Flow adjustment:
 - You can adjust the output of the flow through the valve by selecting either one of the three factory settings or saving your own user settings.
 - The output stays as adjusted independent of the other valves if the pump output has enough capacity.
- Single-action:
 - You can set a valve to be used as a single-action valve by connecting an external device to one coupling only.

3.14.2 Activating and deactivating the auxiliary hydraulics



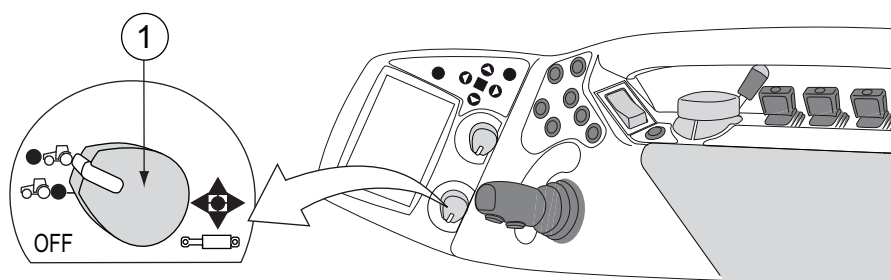
DANGER: To prevent accidental auxiliary hydraulics control movements, always turn off the auxiliary hydraulics during road driving and during work if you do not need it.



1. Auxiliary hydraulics on/off push button
2. Indicator light

- To activate the auxiliary hydraulics, press the on/off push button.
The indicator light on the push button is lit.
NOTE: Keep the auxiliary hydraulics on only when needed.
- To deactivate the auxiliary hydraulics, press the on/off push button.
The indicator light goes out.
IMPORTANT: The off function can be used as an emergency stop for the auxiliary hydraulics.

3.14.3 Selecting joystick functions for auxiliary hydraulics



1. Joystick functions selector



You can select which auxiliary hydraulic valves to control with the joystick, or you can turn the joystick functions off.



WARNING: The programmable features of the joystick or other controls **MUST NOT** be used to operate a loader. In order to prevent involuntary loader motion, the loader joystick controller must be of a self-neutralising type. When the operator releases his grip on the joystick,

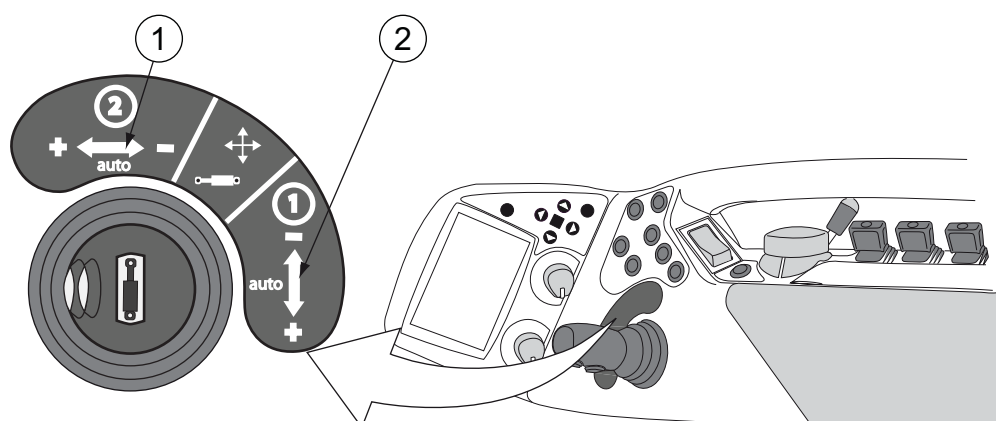
the joystick must return to a non-operational neutral position - except for float detent position in the loader lower direction.

NOTE: For safety reasons the position locks of valves 1F and 2F cannot be activated in front loader use. If the tractor is equipped with a change-over switch for front linkage/front loader, the position lock settings of the related valves are deactivated when you turn the change-over switch to the front loader position.

- Select OFF to deactivate the joystick.
- Select the  icon to control the rear hydraulic valves 1 and 2.
- Select the  icon to control the front hydraulic valves 1F and 2F (extra equipment).

3.14.4 Controlling the auxiliary hydraulics rear valves 1 and 2 and front valves 1F and 2F

You can control rear valves 1 and 2 or front valves 1F and 2F with the joystick. Use the joystick functions selector to choose the valves.



1. Joystick movement to control rear valve 2 and front valve 2F.
2. Joystick movement to control rear valve 1 and front valve 1F.



WARNING: The programmable features of the joystick or other controls **MUST NOT** be used to operate a loader. In order to prevent involuntary loader motion, the loader joystick controller must be of a self-neutralising type. When the operator releases his grip on the joystick, the joystick must return to a non-operational neutral position - except for float detent position in the loader lower direction.



WARNING: Do not unnecessarily activate the programmed position locks for the valves that are used by the joystick. There is a risk of engaging the position lock.

IMPORTANT: Do not turn the joystick round its vertical axis, because the joystick may get damaged and the wires can break.

1. To activate the position lock or the floating position, push the joystick in the desired direction and to the extreme position for less than 1 second.

2. Release the joystick.

If you hold the joystick in its extreme position for more than 1 second, the output starts to follow the joystick movements.

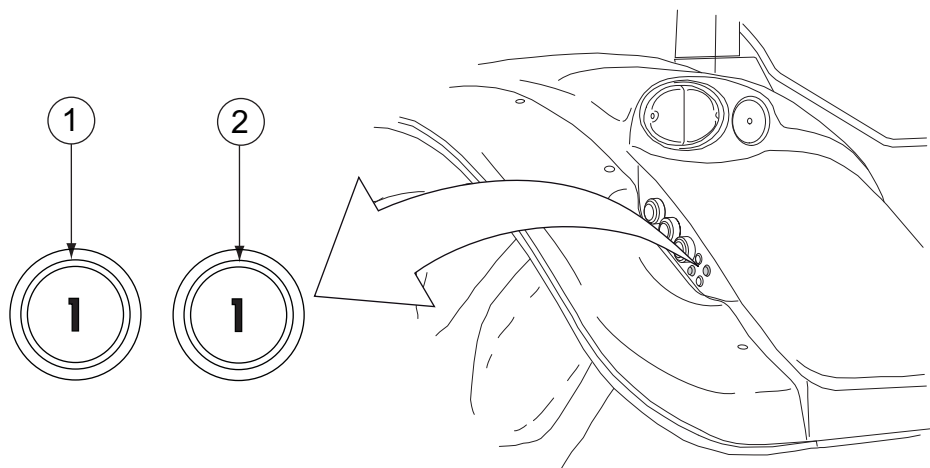
3.14.5 Controlling the rear valve 1 from rear mudguard push buttons

You can control the auxiliary hydraulic functions on the rear valve 1 from outside the cab by using the push buttons on the rear mudguards. This is useful, for example, for adjusting the length of a hydraulic top link when attaching implements.

Before you start, you have to activate the auxiliary hydraulics with the auxiliary hydraulics on/off push button.

IMPORTANT: Using the rear mudguard push buttons is permitted only with driving speeds lower than the safety limit of 2 km/h. If you try to use the push buttons with higher driving speeds, the buttons are disabled and an error code is shown on the tractor terminal display. The buttons remain disabled until you stop the engine and the tractor terminal shuts down.

When the rear mudguard push buttons are used, the oil flow is limited to 30% of the selected predefined factory/user settings for auxiliary hydraulics. You cannot activate any other hydraulic functions at the same time.



1. Push button (blue) for controlling the + port of the rear valve 1
2. Push button (green) for controlling the – port of the rear valve 1

The order of the push buttons is the same on both the left and right side mudguards.

1. Press the left (blue) push button 1 on the rear mudguard to increase the pressure in the (+) port of the rear valve 1.
2. Press the right (green) button 1 on the rear mudguard to increase the pressure in the (-) port of rear valve 1.

3.14.6 Controlling the auxiliary hydraulics rear valves 3, 4 and 5 and the front valve 3F

You can control the rear valves 3, 4 and 5, and the front valve 3F, with the control levers.

The rear valves 3, 4 and 5, and the front valve 3F (extra equipment), are always active when the auxiliary hydraulics is activated with the on/off push button.

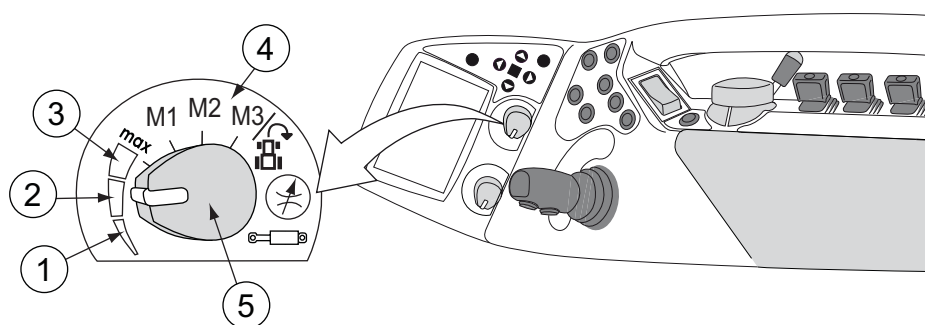
- To use the lifting function (+), pull the control lever towards yourself.
- To use the lowering function (-), push the control lever away from yourself.
- To activate the position lock or the floating-position:
 - Push the joystick in the wanted direction and to the extreme position.

Push the joystick past the max. flow point with increased force to lock it in the extreme position. The lever stays in the extreme position even if the timer is not working.

- Return the lever manually to the middle position.

3.14.7 Selecting predefined settings for auxiliary hydraulics valves

You can select one of the three predefined factory settings or your own user settings for auxiliary hydraulics valves.

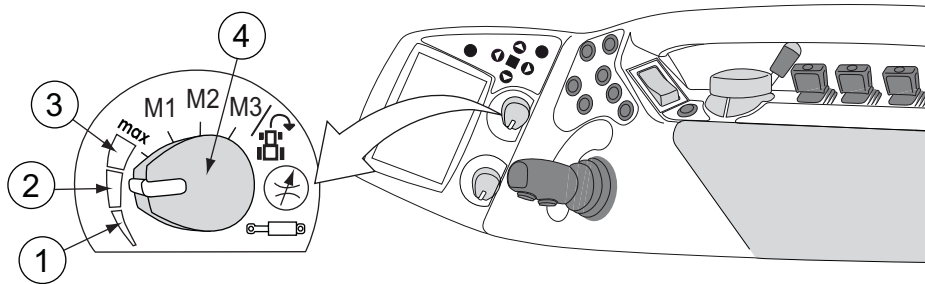


1. Factory setting for slow output
2. Factory setting for medium output
3. Factory setting for maximum output
4. Memory positions for predefined user settings
5. Selector for the predefined factory/user settings

- To select one of the three predefined factory settings, turn the selector to one of the three factory defined positions.
- To select one of the three predefined user settings, turn the selector to one of the positions M1, M2 and M3/U-Pilot.

3.14.7.1 Factory settings for auxiliary hydraulics

The factory settings are shown on the armrest display when the auxiliary hydraulics has been activated, and one of the factory settings has been selected with the selection switch.



1. Factory setting for slow output
2. Factory setting for medium output
3. Factory setting for maximum output
4. Selector for the predefined factory/user settings

In the factory settings, the maximum flow of all ports is limited to a fixed value:

- Slow output 10%
- Medium output 50%
- Maximum output 100%

You cannot change any values in the factory settings.

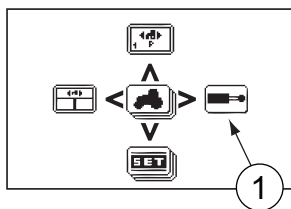
3.14.7.2 Defining user settings for auxiliary hydraulics

You can define your own user settings for auxiliary hydraulics functions. The user settings are defined through the tractor terminal display on the armrest.



WARNING: The programmable features of the joystick or other controls **MUST NOT** be used to operate a loader. In order to prevent involuntary loader motion, the loader joystick controller must be of a self-neutralising type. When the operator releases his grip on the joystick, the joystick must return to a non-operational neutral position - except for float detent position in the loader lower direction.

1. Return to the main menu by pressing ESC as many times as needed.
2. Select auxiliary hydraulics settings by pressing the right arrow button.



1. Auxiliary hydraulics settings

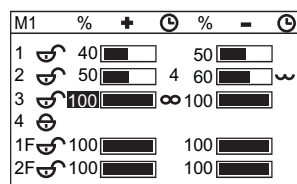
The auxiliary hydraulics settings are shown on the display.

3. Select a memory place (M1, M2 or M3) with selector for the predefined factory/ user settings.

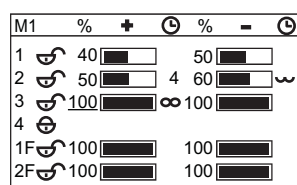
The settings are made in the selected memory place.

IMPORTANT: When using the valves of the auxiliary hydraulics with the U-Pilot, the U-Pilot follows the settings of memory place M3.

The selected memory place is shown in the upper left corner of the display.



4. Select the valve point to be set with the arrow buttons.
5. Press OK to activate the valve point to be set.
A line starts to flash under it.



6. Set the value with the arrow button.

- To increase the value, press the up arrow.
- To decrease the value, press the down arrow.

By pressing an arrow key, the functions appear successively:

- Position lock time 1...60
- Position lock ∞
- Floating ~ (not in + port)
- No function active = empty

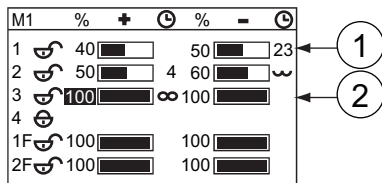
NOTE: For safety reasons the position locks of valves 1F and 2F cannot be activated in front loader use. If the tractor is equipped with a change-over switch for front linkage/front loader, the position lock settings of the related valves are deactivated when you turn the change-over switch to the front loader position.

7. Confirm or cancel the setting.

- To deactivate the active field and to restore the old value, press ESC.
- To deactivate the active field and to store the new value, press OK.

3.14.8 Activating and deactivating the position locking

You can activate or deactivate the position locking, or you can also interrupt the timed position locking before the timer runs out. You can use the position lock for operating an external hydraulic motor, for example.



1. The first rear valve has a timed position lock for 23 seconds.
2. The third rear valve has a continuous position lock.

When the valve port has the position lock activated, the oil is flowing continuously through the valve (out/in).

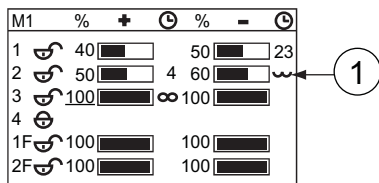
1. **Set the time for the position locking (1-60 seconds) or select the symbol continuous ∞ in the armrest display.**
2. **Activate the position locking either with the joystick or the lever.**
 - Push the joystick quickly to the extreme position in question.
 - Turn the linear lever to the extreme position in question. The lever stays in the extreme position.
3. **To interrupt a timed position locking before the timer runs out:**
 - move the joystick it to the position in question.
 - release the linear lever to the middle position.



WARNING: To avoid serious injury or death due to falling loads resulting from inadvertent raising or roll-back of the loader, do not connect loader hydraulics to any tractor auxiliary valve that has detents which cannot be locked out or removed, except for the float function in the loader lower circuit. If the tractor is equipped with such a valve, a dedicated, properly configured loader valve must be installed.

3.14.9 Activating and deactivating the floating position

You can activate and deactivate the floating position, or you can also interrupt the timed floating position before the timer runs out.



1. The second rear valve is in the floating position.

When the valve port has the floating position activated, the oil circulates freely and the implement follows the ground contours.

1. **Adjust the wanted valve port and floating position in the armrest display.**
2. **Activate the floating position either with joystick or the linear lever.**
 - Push the joystick quickly to the extreme position in question.
 - Turn the linear lever to the extreme position in question. The lever stays in the extreme position.

3. To interrupt the floating position function before the timer runs out:
 - move the joystick it to the position in question.
 - release the linear lever to the middle position.

3.14.10 Using a hydraulic valve as a single-action valve

You can use a hydraulic valve as a single-action valve for tipping, for example.



WARNING: Make sure that the valve for tipping does not have the position lock on.

When using a hydraulic valve as a single-action valve, connect the hose of the tipping device to the (+) coupling of the used valve.

1. To set pressure to the working device, move the respective valve lever to the (+) direction.
The tipping device raises.
2. To remove the pressure from the working device, move the respective valve lever to the (-) direction.

You can also use the float position for this action. This way you do not pressurise the hydraulic pump.
The tipping device lowers.

3.14.11 Using the auxiliary hydraulics on/off valves

By default, the tractor is equipped with one auxiliary hydraulics on/off valve. This standard on/off valve controls the lowest quick-action couplings at the rear. You can use the standard rear on/off valve to control the hydraulic top link, for example.

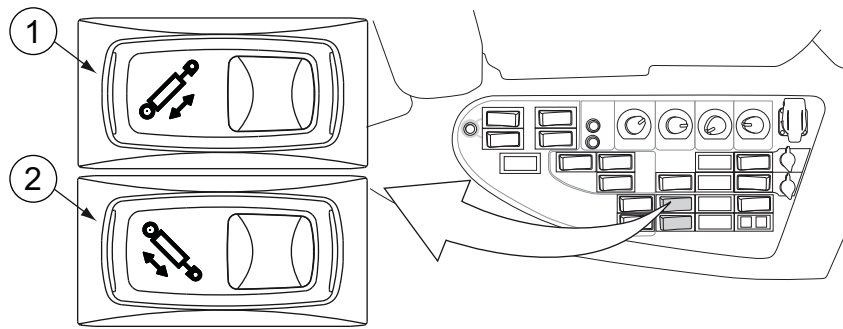
The rear on/off valve 2 is extra equipment. The implement is attached permanently to this valve. You can use the rear on/off valve 2 to control the levelling ram and hydraulic towing hook extension, for example.

You can control the on/off valves by rocker switches.

- The switches are active even if the auxiliary hydraulics is not activated.
- The switches have two positions and are spring returned.



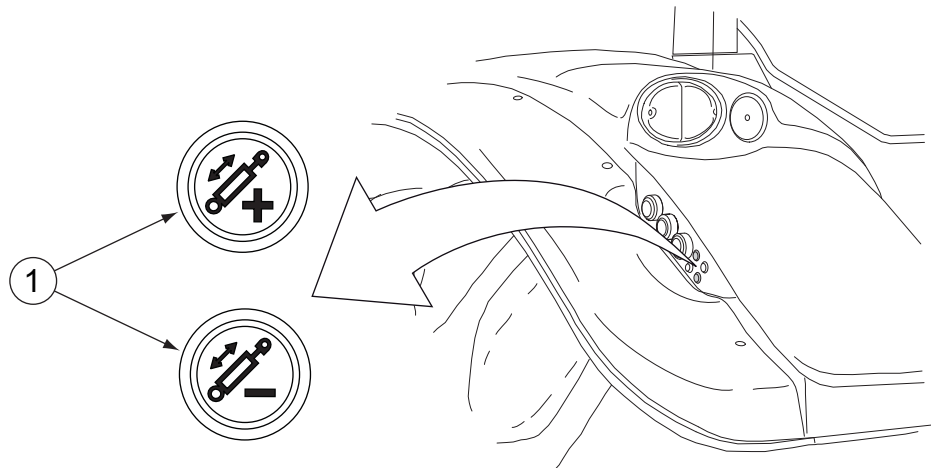
CAUTION: In the spring returned position, both ports are connected directly to the tank. This must be noticed when attaching implements to the valve.



1. Switch for rear on/off valve 1
2. Switch for rear on/off valve 2 (extra equipment)

1. Press down the symbol side of the switch to use the lifting function (+).
2. Press down the side of the switch opposite to the symbol to use the lowering function (-).

Push buttons on the rear mudguards that can be used for controlling the rear on/off valve 1 are extra equipment. These buttons work in the same way as the switch for rear on/off valve in the cab.



1. Push buttons (extra equipment) for the rear on/off valve 1

3.14.12 Using quick-action couplings

1. Ensure that the auxiliary hydraulics is activated.
2. Release the load from the auxiliary hydraulics (especially from the hydraulic cylinders).
3. Stop the flow through the auxiliary hydraulics valves.
4. Set all the needed valves to the floating position.



WARNING: Before connecting or disconnecting the quick couplings, adjust the valves into the floating position (the tractor has to be running and the parking brake engaged).

5. **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.
6. **Stop the engine.**
7. **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 attach 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.

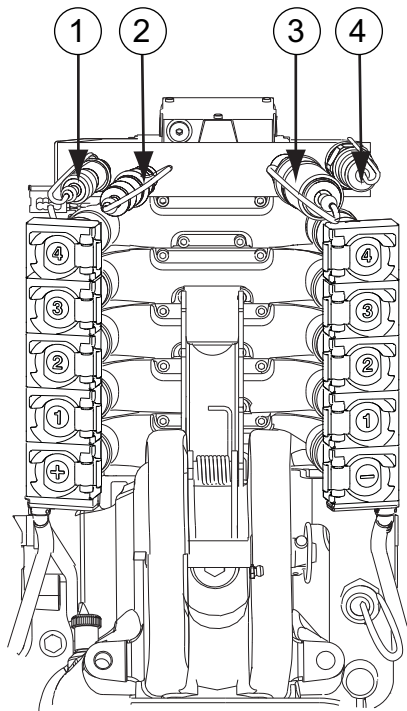
8. **Start the engine.**



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).

3.14.13 Using Power Beyond couplings

The greatest possible hydraulic output can be achieved with the smallest dissipation with the help of the Power Beyond couplings. This is suitable for implements that have a load-sensing (LS) line for the tractor. The system includes an LS coupling, in which the extra device load sensing system has to be connected (LS line).



1. Leakage connector for the hydraulic motor housing, male quick coupling 1/2" (12.5 mm)
2. LS coupling, female quick coupling 3/8" (10 mm)
3. Pressure coupling, female quick coupling 3/4" (20 mm)
4. Free return coupling, male quick coupling 1" (25 mm)

The LS line has a connection to the tank when the quick coupling has not been connected.

Use only couplings that comply to the standards.

1. Connect the tank hoses.

IMPORTANT: Always connect the tank hoses first and take them away last in order to avoid damages in the hydraulics.

2. Connect the LS line hose connector of the implement to the LS line.

The pump pressure settles to a level determined by the LS pressure of the implement. The pressure in the tractor is determined by the device that has the highest LS pressure.

If the external implement (and any other device) is not used, the pump line has only a pressure caused by the free circulation. Therefore, the pump is not overloaded unnecessarily, the hydraulic oil does not overheat and fuel consumption decreases.

3.14.14 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.

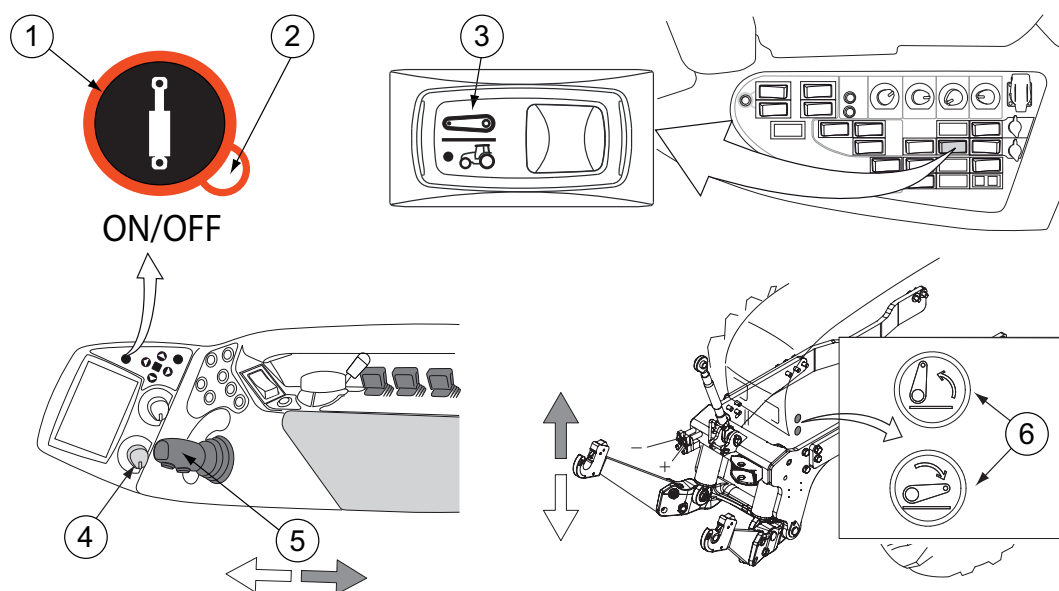
- To rotate the hydraulic motor in only one direction:
 - Attach the return coupling to the tractor return coupling without the shock valve.

- 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 pump or the engine. 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 tractor terminal display.

3.15 Using the front linkage

IMPORTANT: You have to detach the front loader before using the front linkage.



1. Auxiliary hydraulics on/off push button
2. Indicator light
3. Change-over switch for front linkage/front loader (extra equipment)
4. Joystick functions selector
5. Joystick
6. Lift/lower push buttons

- **Activate the auxiliary hydraulics by pressing the on/off push button.**
The indicator light on the push button is lit.
- **Turn the joystick functions selector to position •** .
- **If the tractor is equipped with a change-over switch for front linkage/front loader, press down the symbol side of the switch.**

- To raise the front linkage, pull the joystick rearwards or press the lifting push button.
- To lower the front linkage, push the joystick forwards or press the lowering push button.
- If the implement follows the ground, use the joystick to carefully lower down the implement.
 - Set the valve to the floating position by briefly (less than one second) pushing the joystick into the forward position.

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.

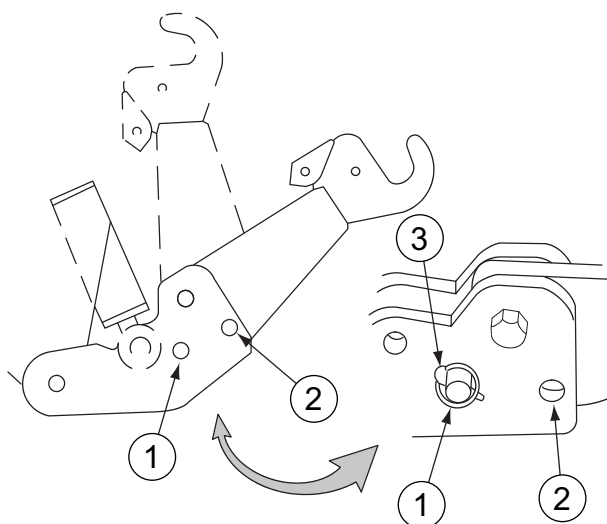
3.15.1 Setting front linkage lifting link positions

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.



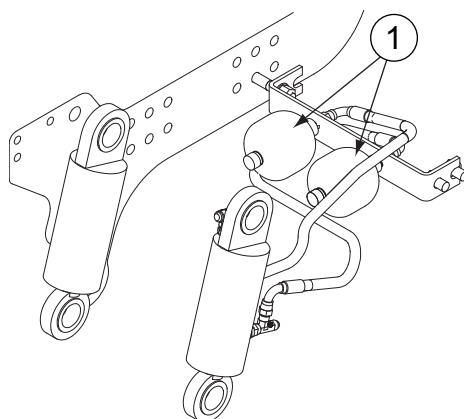
1. Fastening hole for working position
2. Fastening hole for floating or transport position
3. Locking pin

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.

3.15.2 Pressure accumulators for the front linkage

The pressure accumulators are extra equipment for the front linkage.



1. Pressure accumulators

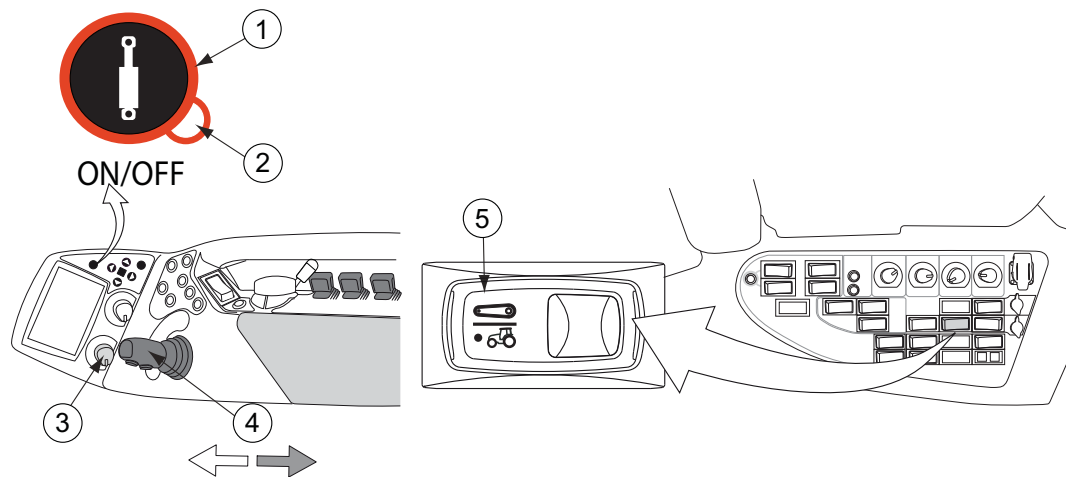
There are pressure accumulators for both lifting and lowering the front linkage and they are working continuously. This means that when you drive, the pressure accumulators even out the pressure peaks coming from the front linkage load. This makes driving smoother and the stress on the front linkage is reduced.

3.16 Using the Valtra front loader


Valtra front loader is extra equipment.



WARNING: The programmable features of the joystick or other controls **MUST NOT** be used to operate a loader. In order to prevent involuntary loader motion, the loader joystick controller must be of a self-neutralising type. When the operator releases his grip on the joystick, the joystick must return to a non-operational neutral position - except for float detent position in the loader lower direction.



1. Auxiliary hydraulics on/off push button
2. Indicator light
3. Joystick functions selector
4. Joystick with upper and lower contact buttons
5. Change-over switch for front linkage/front loader (extra equipment)

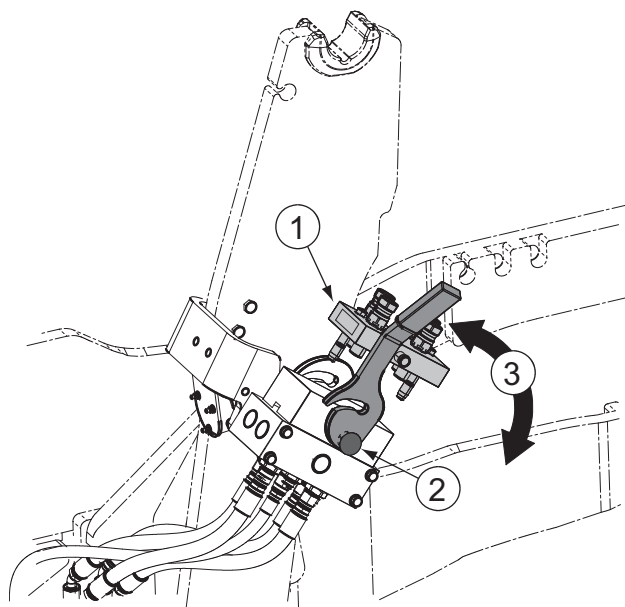
- **Activate the auxiliary hydraulics by pressing the on/off push button.**
The indicator light on the push button is lit.
- **Switch the joystick functions selector to position •.**
- **If the tractor is equipped with a front linkage/front loader change-over switch, press down the side of the switch opposite to the symbol.**
- **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.

3.16.1 Using the Valtra Quick front loader coupling plate

The quick coupling plate is extra equipment.



1. Hose multicoupler
2. Lock button
3. Lever

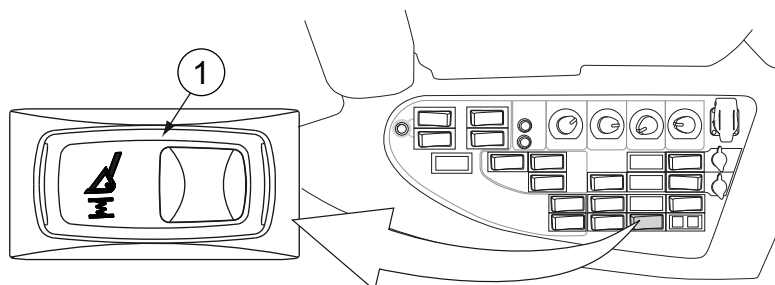


CAUTION: Hold on to the lever firmly as the pressure may cause the coupler to hit your hand.

- To release the hose multicoupler, press down the lock button and turn the lever to the open position.
- To attach the multicoupler, turn the lever to the closed position.
The lock button pops up.

3.16.2 Softdrive

The Softdrive function is extra equipment.



1. Switch for Softdrive

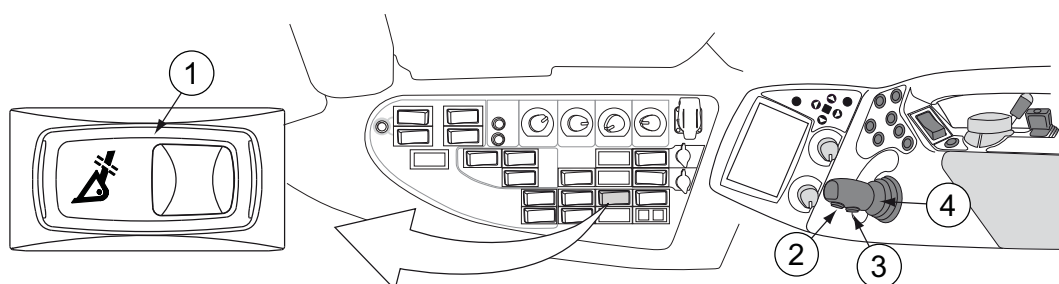
With the Softdrive function, you can connect the pressure accumulators to the cylinder circuits of the loader barrier. This means that when you drive, the pressure accumulators even out the pressure peaks coming from the load on the loader. This makes driving smoother and the stress on the loader and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

3.16.3 Locking the equipment

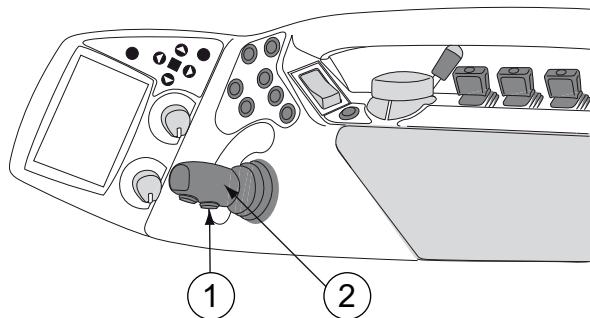


1. Equipment locking switch
2. Upper contact button
3. Lower contact button
4. Joystick

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

3.16.4 Controlling the extra cylinder with the change valve

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



1. Lower contact button
2. Joystick

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

3.17 Power take-off

3.17.1 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).



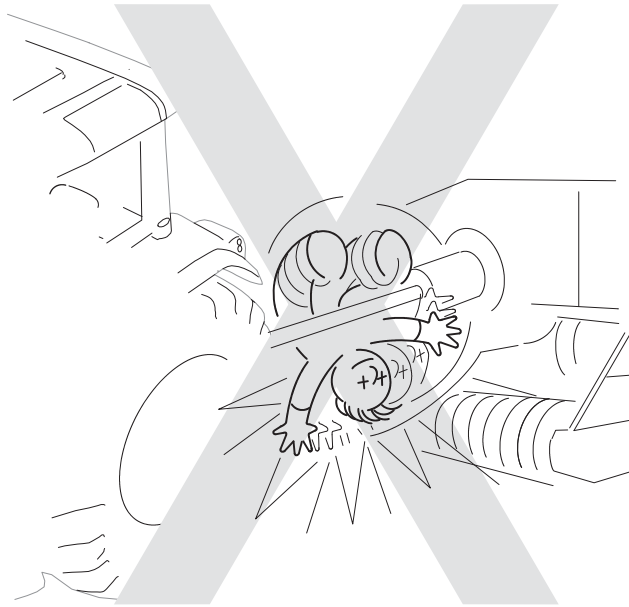
CAUTION: Observe all safety precautions in any operation involving implements driven by the power take-off (PTO).



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.



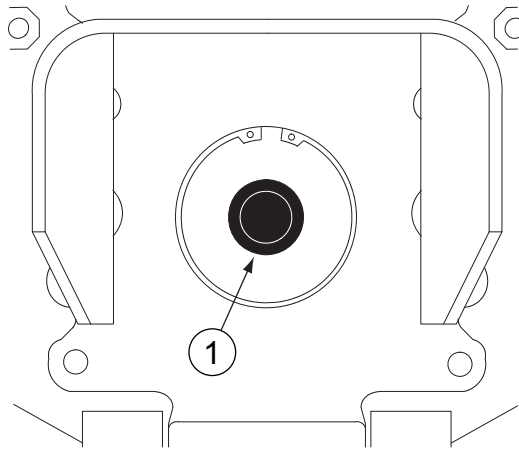
WARNING: When a power take-off (PTO) driven implement is being used, no personnel are allowed near the PTO shaft. Service work on the PTO shaft should be carried out only with the PTO disengaged, the engine stopped and the ignition key removed from the ignition switch.



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) shaft end should always be attached when the PTO is not in use.



1. Cover



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 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 shaft according to the manufacturer's instructions.**



DANGER: When fastening the power take-off (PTO) shaft, check that its shield is undamaged. Attach the shield 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) shaft between the tractor and the implement. Otherwise the implement can start to rotate with the PTO 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 hydraulic oil warm up for a few minutes with the maximum flow of 50%. To adjust the flow, select the factory setting for medium output (50%) with the selector for the predefined factory/user settings.

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

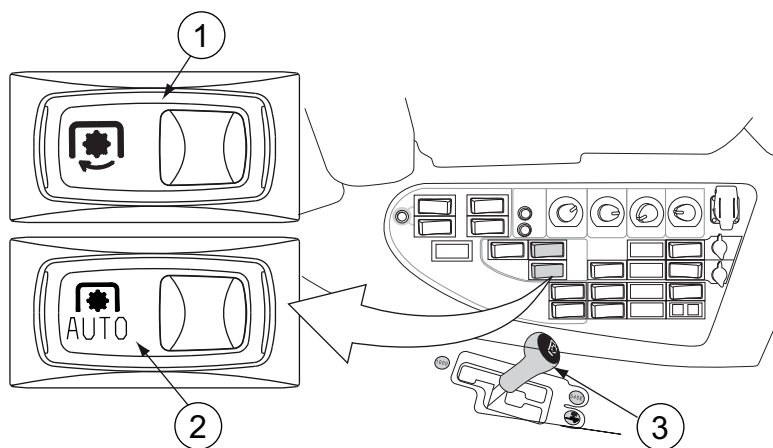
3.17.2 Rear power take-off

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.

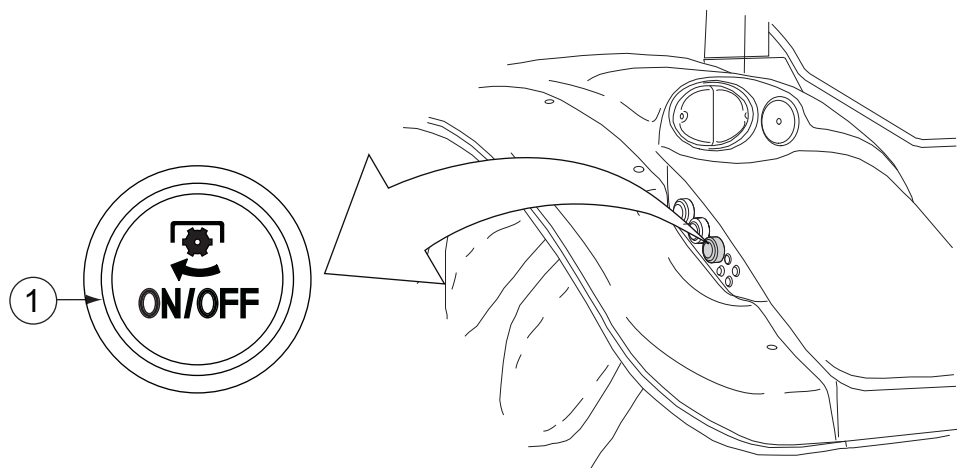
The rear power take-off controls are the following:

3. Operation



1. Switch for rear PTO
2. Switch for rear PTO automatic stop
3. Speed control lever for the rear PTO

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



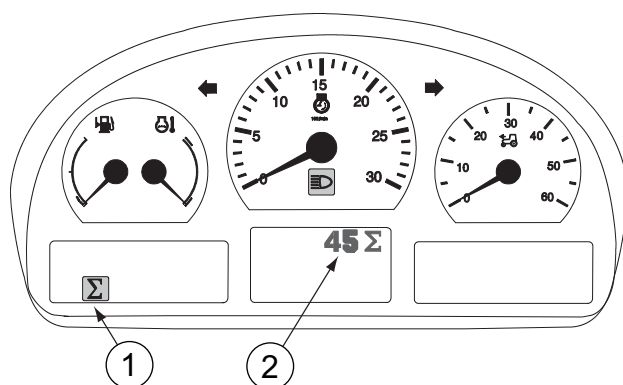
1. Rear PTO on/off push button

Sigma Power

The models T182 V and T202 V have the Sigma Power control system.

The Sigma Power control system gives extra power for PTO work. When required for PTO work, the engine will automatically provide up to 30 hp more power.

The Sigma Power activates automatically when the power transferred through the PTO rises high enough. As a sign of this, the Sigma Power symbol is lit on the instrument panel.



1. Sigma Power symbol
2. When the PTO is on, the display shows (on top/centre row) how much of the power is transferred through the PTO as a percentage.

3.17.2.1 Recommended rear power take-off shafts

Both the power take-off (PTO) nominal speeds can be used regardless of the type of shaft installed on the tractor.

Implements for 540 rpm (at engine speed of 1 874 rpm)

Normally a 6-spline shaft with a diameter of $1\frac{3}{8}$ " (35 mm) is recommended. The shaft is standard on models T132 V - T172 V, and extra equipment on models T182 V - T202 V.

The ISO norm does not limit the power of a 540 rpm 6-spline PTO shaft with a diameter of $1\frac{3}{8}$ " (35 mm).

NOTE: For power over 67 hp (50 kW), use a 1 000 rpm output to ensure durability of the PTO shafts.

Implements for 1 000 rpm (at engine speed of 2 000 rpm)

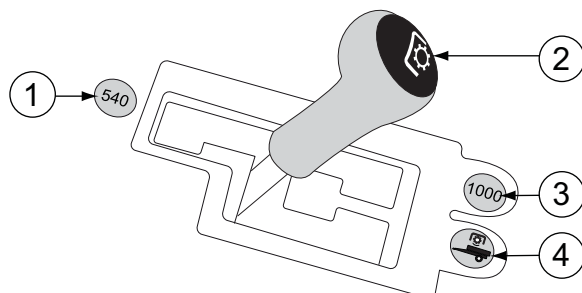
Normally a 21-spline shaft (extra equipment) with a diameter of 35 mm is recommended.

Heavy use

Normally a 20-spline shaft with a diameter of 45 mm is recommended. The shaft is standard on models T182 V - T202 V, and extra equipment on models T132 V - T172 V). If necessary, a torque limiting clutch with the maximum torque of 1 000 Nm should be used.

3.17.2.2 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.




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

- **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
1 000/540E	1000	PTO 1000 activated
	Centre	PTO deactivated
	540E	PTO 540E 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.

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.

- **Activate the ground speed PTO (alternative equipment) by moving the lever to the  position.**

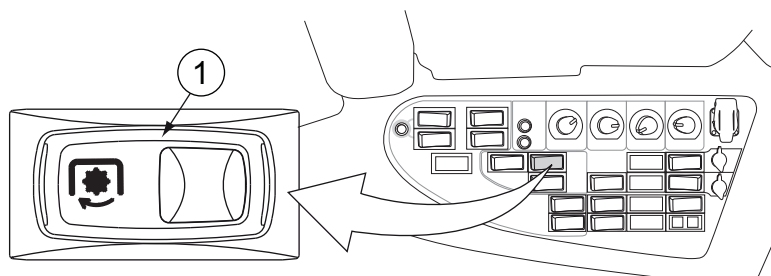
3.17.2.3 Starting rear power take-off

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:

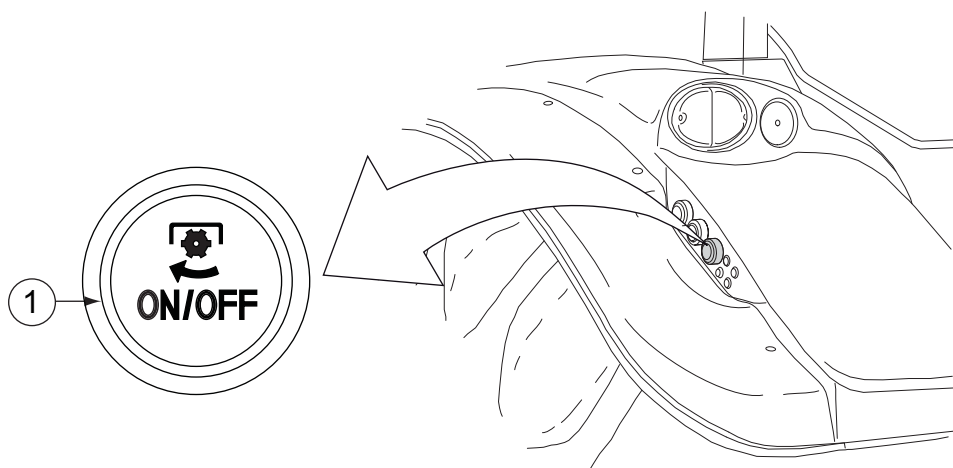
- By using the PTO switch. The PTO switch is spring-returned and has three positions: start/standby/off.
- By using the rear PTO on/off push button (extra equipment) on the rear mudguard.
- **To start the rear PTO with the PTO switch:**
 - **Activate the standby mode by setting the rear PTO switch to 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.

3.17.2.4 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.

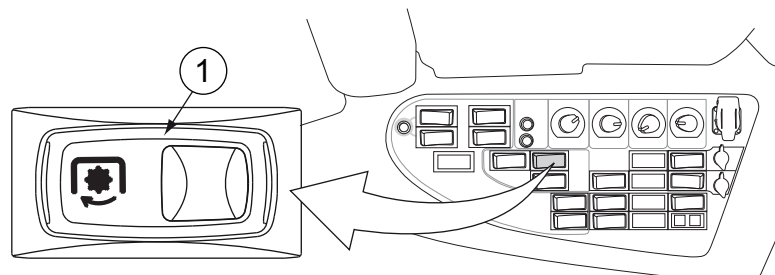


WARNING: When you do not need the power take-off (PTO), keep the PTO switch in off position.



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).

- **To stop the rear PTO temporarily:**
 - 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.

3.17.2.5 Deactivating rear power take-off



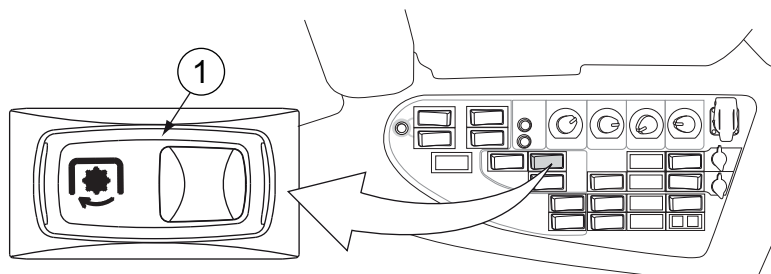
WARNING: When you do not need the power take-off (PTO), keep the PTO switch in off position.



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

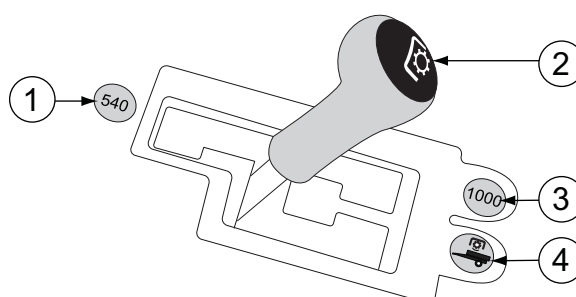
when using the PTO on/off push button on the mudguard (extra equipment).

- **To deactivate the rear PTO:**
 - 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).



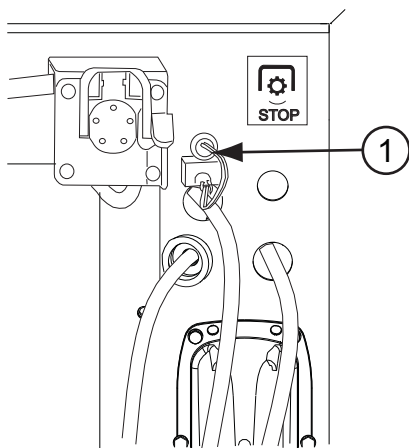
1. Rear PTO speed 540
2. Speed control lever for the rear PTO in centre position (PTO deactivated)
3. Rear PTO speed 1000
4. Ground speed PTO

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

3.17.2.6 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.

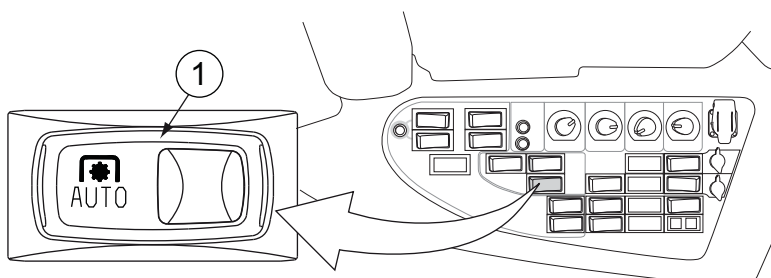


1. PTO emergency stop socket

- 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.

3.17.2.7 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.

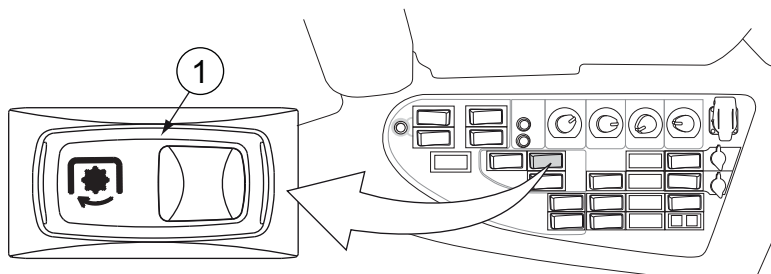


1. Switch for the rear PTO automatic stop

- 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 three-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.

3.17.2.8 Proportional ground speed power take-off

The proportional ground speed power take-off (PTO) is alternative equipment.




CAUTION: When using the proportional ground speed power take-off (PTO), the speed of the PTO shaft varies according to the transmission speed of the tractor. When the tractor is reversed, the PTO shaft also rotates in the reverse direction.

The faster rotating speed may damage the propeller shaft between tractor and implement. The trailer should be equipped with a means of disconnecting the drive from the trailer.

IMPORTANT: Do not use the creeper gear together with the proportional ground speed PTO to increase traction force. There is a risk of damage to the transmission.

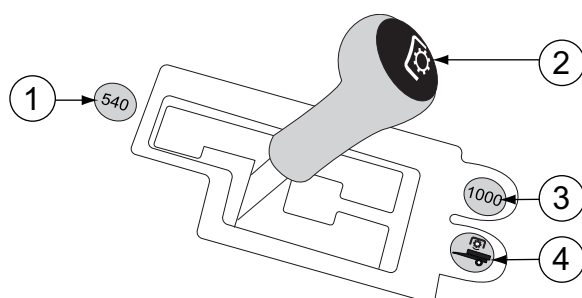
Before using a trailer with a powered axle, make sure that the drive is compatible with the PTO of the tractor. The speed of the trailer should be 0-3% lower than driving speed of the tractor.

For heavy proportional use it is recommended to use the 1 3/4" (45 mm) shaft.

You can engage the ground speed PTO by moving the control lever to the  position.

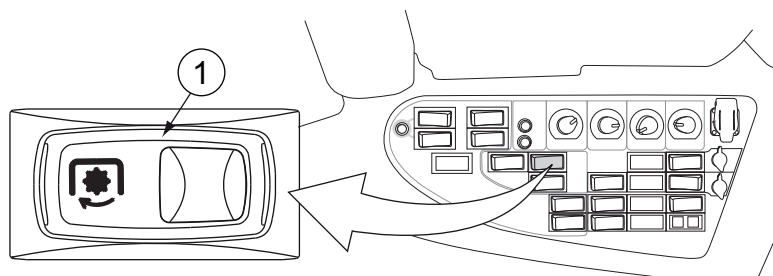
IMPORTANT: Do not engage the ground speed PTO when the tractor is moving.

IMPORTANT: If the power-take off (PTO) is activated and the PTO speed exceeds 1 800 rpm, the buzzer alarm goes off and the warning light (exclamation mark) on the instrument panel is lit. Should this occur, immediately decrease the rpm to prevent damage to the rotating parts of the PTO.



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

When the ground speed PTO is engaged, the switch for rear PTO does not function, and the warning light on the instrument panel is not lit.



1. Switch for rear PTO

3.17.2.9 Adjusting the rear power take-off engagement

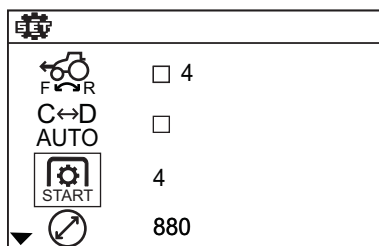
When working with heavily rotating implements, you can adjust the rear power take-off (PTO) engagement in the tractor terminal transmission settings view. The factory setting does not need to be changed for normal PTO use.

IMPORTANT: Make sure that the PTO shaft is suitable for heavy use.

1. Return to the main menu by pressing ESC as many times as needed.
2. Press the down arrow button in the main menu to enter the set view.
3. Press the right arrow button in the set view to enter the transmission settings view.

4. Move the navigation box to the PTO engagement adjustment position with the up or down arrow button.

A short press moves the box in the selected direction one field at a time. A long press moves the box in the selected direction continuously.



5. Press the right arrow button to select the PTO engagement adjustment value field.

6. Set the rear PTO engagement value with the up or down arrow button.

The value range is between 0...5, where 0 is the factory setting.

The new value is activated. You cannot restore the previous settings.

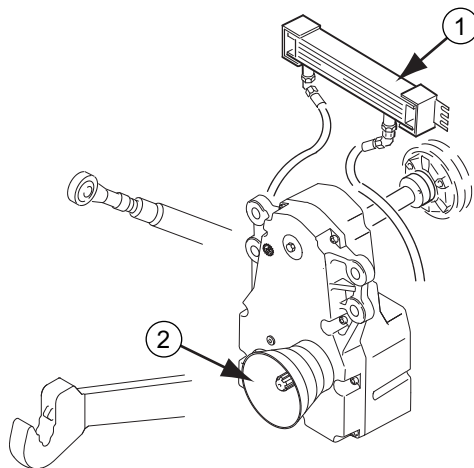
7. Press the left arrow button two times to return to the transmission settings view main level.

With a short press of the ESC button you can return directly to the main menu.

A long press of the ESC button returns to the previously active drive display.

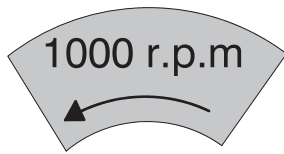
3.17.3 Front power take-off

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



1. Oil cooler
2. Front PTO shaft

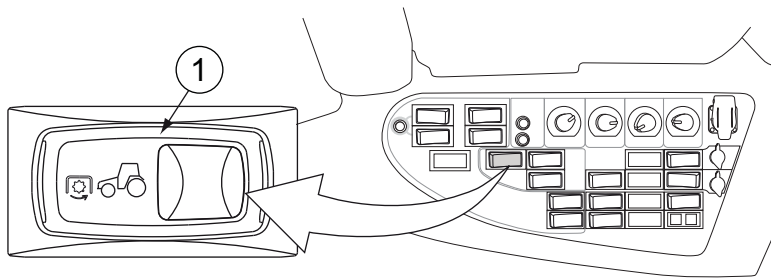
The front PTO shaft has a diameter of 35 mm with 6 splines. The front PTO is equipped with a pump inside the housing and an oil cooler to prevent overheating. The cooling system is equipped with a relief valve inside the housing for cold conditions.



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.

3.17.3.1 Activating and deactivating front power take-off

The front power take-off (PTO) switch is spring-returned and has three positions: start/standby/off.



1. Switch for front PTO

- **Activate the standby mode** by placing the switch for front PTO to the standby (centre) position.
- **Start the front PTO** by pressing down the symbol side of the switch for front PTO.
- **To stop the front PTO temporarily**, press down the symbol side of the switch for front PTO.
- **To set the front PTO in standby mode**, place the switch for front PTO in the centre position.
- **Deactivate the front PTO** by pressing down the side of the switch opposite to the symbol.

3.18 U-Pilot headland automatics

The aim of the U-Pilot system is to automate a group of often used functions. A typical example is a headland turn.

The idea of the system is that the operator runs the whole operational cycle pressing the switches for the required functions. The cycle is stored in system memory. After this, the operational cycle can be started with one press of a switch.

The system also has an on-line/programmable PAUSE function that is activated with the U-Pilot engage/pause switch in the arm rest. Pressing the U-Pilot engage/

pause switch stops the operation momentarily. Pressing the switch again continues the operation.

The functions activated with the switches and the travelled distances between the functions are stored in system memory. The actual driving speed can differ from the driving speed used during programming the U-Pilot, but the distances between the different functions are kept the same. The time intervals between the programmed functions can therefore also differ from the programmed time intervals.



DANGER: When using the U-Pilot, the functions of an operational cycle start automatically. Ensure that nobody is in the hazard area.



CAUTION: The switches on the side panel do not show the status of the equipment when using the U-pilot.

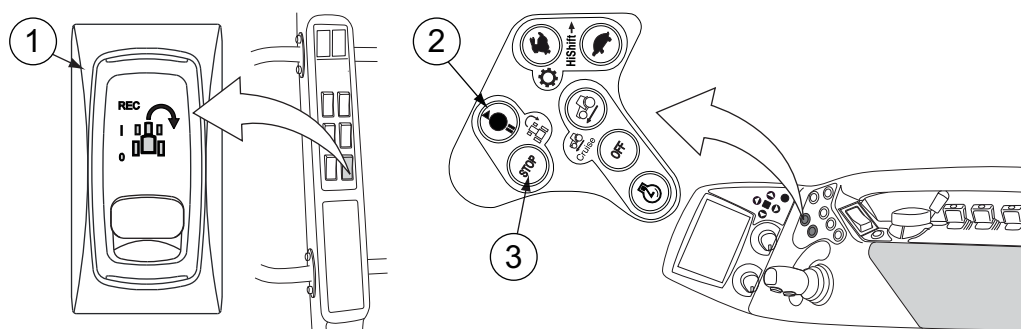
IMPORTANT: Check that the programme is for the intended work and that all the switches and controls are in the same position as when the programme was recorded.

3.18.1 U-Pilot operating requirements

For the U-Pilot to work properly, certain requirements have to be met.

- The driving speed must be 0.5-20 km/h.
- The maximum amount of operations for one operation cycle is 30.
- The maximum distance for an operation cycle is 100 m without a pause.
- The maximum distance between the starts of two consecutive functions is 63.5 m.
- The distance is measured with the accuracy of 0.5 m. The minimum distance between different functions is 0.5 m even if the function switches were pressed within a shorter distance.
- The maximum length of a pause is 5 minutes.

3.18.2 U-Pilot switches



1. U-Pilot activation/recording switch
2. U-Pilot engage/pause button
3. U-Pilot stop button

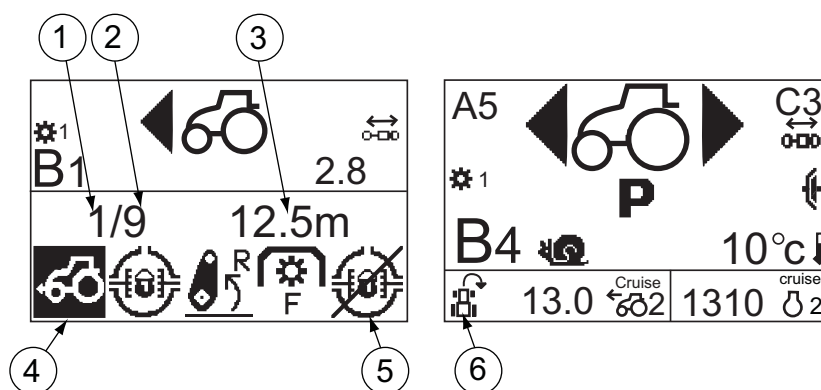
The U-Pilot activation/recording switch has three positions (OFF/ON/REC):

3. Operation

- The side of the U-Pilot activation/recording switch opposite to the symbol pressed down (OFF): U-Pilot is not in use.
- The middle position (ON): U-Pilot is in standby mode.
- The symbol side of the switch pressed down (spring returned; to release the locking device, push it towards the midpoint) (REC): U-Pilot starts recording or saving.

3.18.3 U-Pilot view

The U-Pilot view is shown on the tractor terminal display.




1. Number of the operation
2. Total number of operations
3. Distance to the next operation
4. Symbol of the next/ongoing operation
5. Symbols of the recorded operations
6. U-Pilot symbol

The number of the operation/total number of operations and the distance to the next operation are shown on the centre row of the tractor terminal display.

The bottom row shows the symbols of the recorded operations (a maximum of 5 symbols are shown).

The symbol of the next/ongoing operation is shown on a dark background.

The U-Pilot view appears on the tractor terminal display automatically when the activation/recording switch is set to the ON or REC position. Concurrently, the

warning light  is lit on the instrument panel. Press ESC to return to the previous functional view from the U-Pilot view. The U-Pilot symbol is shown on the tractor terminal display. The view can be changed to any other view. You can switch

between the U-Pilot view and the normal split drive view easily by using the left or right arrow button on the tractor terminal.

NOTE: To activate the U-Pilot view again, set the U-Pilot activation switch to OFF and then to ON again.

3.18.4 U-Pilot view symbols

U-Pilot operations are indicated with symbols. The U-Pilot operation symbols, settings and limitations are listed in the following table.





































Symbol	Operation	Switch positions	Limitation
	Rear linkage up	Rear linkage, stop or lowering	1), 2)
	Rear linkage down	Rear linkage, stop or lowering	1), 2)
	Rear linkage, Autocontrol position on	Rear linkage, stop or lowering	
	Rear linkage, Autocontrol position off	Rear linkage, stop or lowering	
	Hydraulic valve 1R +	Hydr. ON, joystick backward, M3	1), 2)
	Hydraulic valve 1R -	Hydr. ON, joystick backward, M3	1), 2)
	Hydraulic valve 2R +	Hydr. ON, joystick backward, M3	1), 2)
	Hydraulic valve 2R -	Hydr. ON, joystick backward, M3	1), 2)
	Hydraulic valve 3R +	Hydr. ON, M3	1), 2)
	Hydraulic valve 3R -	Hydr. ON, M3	1), 2)
	Hydraulic valve 4R +	Hydr. ON, M3	1), 2)
	Hydraulic valve 4R -	Hydr. ON, M3	1), 2)
	Hydraulic block 5R +	Hydr. ON, M3	1), 2)
	Hydraulic block 5R -	Hydr. ON, M3	1), 2)
	Hydraulic valve 1F +	Hydr. ON, joystick forward, M3	1), 2)
	Hydraulic valve 1F -	Hydr. ON, joystick forward, M3	1), 2)
	Hydraulic valve 2F +	Hydr. ON, joystick forward, M3	1), 2)
	Hydraulic valve 2F -	Hydr. ON, joystick forward, M3	1), 2)
	Hydraulic valve 3F +	Hydr. ON, M3	1), 2)
	Hydraulic valve 3F -	Hydr. ON, M3	1), 2)

Table continued on next page

3. Operation



Symbol	Operation	Switch positions	Limitation
	Front power take-off (PTO) on	Standby position	1)
	Front PTO off	Standby position	1)
	Rear PTO on	Standby position	1)
	Rear PTO off	Standby position	1)
cruise 	Cruise control 1 (constant driving speed) on		2)
cruise 	Cruise control 2 (constant driving speed) on		2)
cruise 	Cruise control (constant driving speed) off		2)
cruise 	Cruise control 1 (constant engine speed) on		2)
cruise 	Cruise control 2 (constant engine speed) on		2)
cruise 	Cruise control (constant engine speed) off		2)
PS 1	Powershift speed range 1		3)
PS 2	Powershift speed range 2		3)
PS 3	Powershift speed range 3		3)
PS 4	Powershift speed range 4		3)
PS 5	Powershift speed range 5		3)
	Four-wheel drive (4WD) on		3)
	4WD off		3)
	Differential lock on		3)
	Differential lock off		3)
	Power socket on	Standby position	1)
	Power socket off	Standby position	1)
Pause	Pause in the recorded programme		
END	End of the recorded programme		

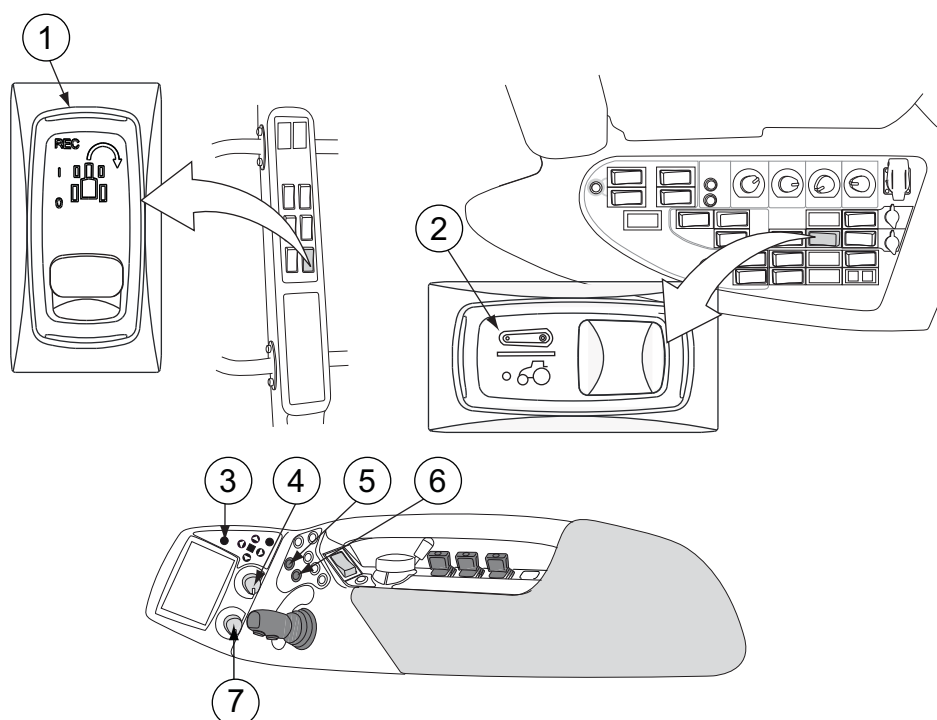
- 1) The system checks the correct positions of these switches before recording and playing. If the position is incorrect, the symbol of the operation flashes on the display.
- 2) The system does not check the adjustments of this equipment; they must be checked and adjusted by the operator.
- 3) If these operations are in the AUTO mode when recording, the operation is not recorded. If the operation is recorded and the switch is turned to AUTO position before use, the switch is dominant. In that case, the recorded operations of that switch do not occur.

The PTO is an exception. If it is in the AUTO mode, a stop is recorded also when the PTO has been stopped by the raise of the rear linkage. When used in the AUTO mode, the rear PTO is stopped either by the programme or a raise of the rear linkage, whichever occurs first.

3.18.5 Recording a U-Pilot programme

When saving functions for auxiliary hydraulics make sure that the switches are in the correct positions.


- The hydraulics switch is in the ON position (the indicator light is lit).
- The valve settings selector switch is in position M3. One of the valve functions must be selected. If no function is selected, the setting cannot be saved.
- When using rear valves, the joystick functions selector is in position .
- When using front valves, the joystick functions selector is in position . If the tractor is equipped with a front loader, only the functions of valve 3F can be saved.
- The symbol side of the 6/2 change-over switch has to be pressed down if the tractor is equipped with both front linkage and a front loader.



1. U-Pilot activation/recording switch
2. Change-over switch for front linkage/front loader (extra equipment)
3. Auxiliary hydraulics ON/OFF switch
4. Valve settings selector switch
5. U-Pilot engage/pause button
6. U-Pilot stop button
7. Joystick functions selector


3. Operation

1. **Activate U-Pilot by switching the U-Pilot activation/recording switch on the side panel to the centre position.**

The symbol and the warning light  are lit.

2. **Start recording by pressing the symbol side of the U-Pilot activation/recording switch (REC) shortly.**

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

The text RECORD is displayed on the middle row of the tractor terminal display. The warning light  blinks.



3. **Perform the operations in the required order.**
4. **Press the U-Pilot engage/pause button to mark a pause when all the operations preceding the turn are recorded.**

The recording continues automatically when the next operation is activated.

5. **Save the operation cycle.**

When all the operations are recorded, press the symbol side of the U-Pilot activation/recording switch for more than 2 seconds in order to save the cycle. The text SAVED is displayed on the middle row of the display. The warning light is lit.



The lights of the U-Pilot engage/pause and stop buttons lit. The symbols of the saved operations roll on the display.








The programme is stored and remains in the memory until it is replaced with a new one.

NOTE: The memory can be cleared by starting the recording process and saving a programme with no operations.


3.18.6 U-Pilot recording examples

The U-pilot can be used, for example, for programming a series of operations when using a reversible plough, or for shifting an operation of a side panel switch to the armrest.

Example**Using a reversible plough**

	Lift of the plough
	Four-wheel drive (4WD) off
	Differential lock off
PS 1	Powershift speed range 1
	Reversion of the plough
Pause	Pause
	Lowering of the plough
	4WD on
	Differential lock on
PS 2	Powershift speed range 2
END	End of the recorded programme

Example**Shifting an operation of a side panel switch to the armrest**

	Rear power-take off (PTO) on
END	End of the recorded programme

3.18.7 Running the recorded U-Pilot programme

IMPORTANT: Check the position and adjustments of other switches before starting the recorded programme. Check that the programme is for the intended work. Check also that the auxiliary hydraulics settings in memory place M3 are suitable for the U-Pilot programme in question.

If the work requires that the front power take-off (PTO) or the power socket is used, set the switches to the standby position after programming.

IMPORTANT: When manually performing any operation that is included in the recorded programme and that has a significant risk (linkages, power take-off (PTO), hydraulics), the ongoing programme stops immediately and cannot continue without reactivation.

Interruption of the recorded programme causes the following:

- The hydraulic operations controlled by the recorded programme are cancelled.
- The movement of the linkages is stopped.
- The PTOs are disengaged if they are included the recorded programme.

3. Operation












- The power socket is disconnected.
- The differential lock is disengaged.
- The cruise control is disengaged.
- The state of the four-wheel drive (4WD) does not change.
- The state of the Powershift does not change.

The text U-Pilot and the error code are shown on the display.


- **Press the U-Pilot activation/recording switch to the middle position to activate the U-Pilot.**

The symbols of the saved programme roll on the bottom row of the tractor terminal display. The number of the operation/total number of the operations and the distance to the next operation roll on the centre row. The lights of the U-Pilot activation/recording switch and the U-Pilot stop button are lit.

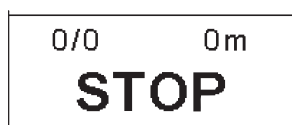
NOTE: The U-Pilot checks the position of the auxiliary hydraulics, linkage, rear power take-off (PTO) and upper power socket switches. If a switch that is included in the programme is in the wrong position, its symbol flashes on the display.

Flashing symbol	Switch settings
	Hydraulics ON
	Joystick rear
	Joystick front
	Selector switch, valve settings
	Change-over switch for front linkage/front loader, the symbol side pressed down
	Rear linkage stop or lift position
	Rear PTO, standby position
	Front PTO, standby position
	Current socket, OFF position
 (or a corresponding symbol for one of the other hydraulic valves)	Set the hydraulic valve control lever to the middle position
	Position lock applied to hydraulic valve

The symbol disappears when the switch is in the correct position.

- **Press the U-Pilot engage/pause button to start the recorded programme.**
The programme starts and continues until it is paused or the recorded programme ends. The warning light  is lit.
- **To pause, press the U-Pilot engage/pause button any time during the programme.**
- **To end a pause, press the U-Pilot engage/pause button again.**

- To end the recorded programme immediately, press the U-Pilot stop button.
The STOP text is shown on the tractor terminal display.



The recorded programme cannot be resumed.

- To resume the recorded programme after it has been stopped, reactivate the system by turning the U-Pilot activation/recording switch first to the OFF position, and then to the ON position.
- To start the recorded programme from the beginning, press the U-Pilot engage/pause button again.

3.18.8 U-Pilot error codes

The U-Pilot error codes indicate different error situations in the function of the U-Pilot.

U-Pilot error codes are shown on the tractor terminal display.

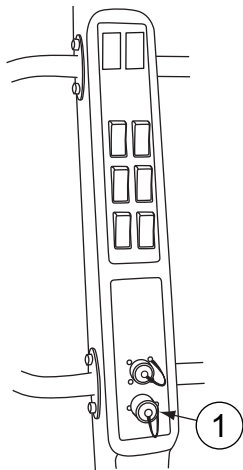
Code	Cause of error
U-Pilot 01	Recording or operation cancelled. Driving speed over 20 km/h.
U-Pilot 02	Recorded programme does not start. Driving speed over 20 km/h or under 0.5 km/h.
U-Pilot 03	Recording cancelled temporarily. Driving speed under 0.5 km/h.
U-Pilot 04	Not in use.
U-Pilot 05	Recording cancelled. Time limit 30 s for the driving speed under 0.5 km/h exceeded.
U-Pilot 06	Recording cancelled. Time limit 60 s for completing the first operation exceeded.
U-Pilot 07	Recording cancelled. Time limit 60 s for starting a new operation exceeded.
U-Pilot 08	Recording cancelled. Operator left the seat for more than 5 s.
U-Pilot 09	Recording cancelled. Distance between consecutive operations over 63.5 m.
U-Pilot 10	Recording cancelled. Travel length of the programme exceeds 100 m without a pause.
U-Pilot 11	Recording cancelled. Programme has more than 30 operations.
U-Pilot 12	Recorded programme cancelled. Operator left the seat for more than 5 s.
U-Pilot 13	Recorded programme cancelled. Time limit 10 s for the driving speed under 0.5 km/h exceeded.
U-Pilot 14	Recorded programme cancelled. Time limit 300 s for a pause exceeded.
U-Pilot 15	Saving or deleting the programme failed.
U-Pilot 16	Malfunction in the valve of the auxiliary hydraulics.

To reset an error code you have to reactivate U-Pilot by setting the U-Pilot activation/recording switch to the OFF position and then back to the ON position. Pressing the tractor terminal ESC button will not reset the error code. The only error code that does not have to be reset with the U-Pilot activation/recording switch is error code 03, which resets automatically once the driving speed is within acceptable limits.

3.19 Implement signal connection

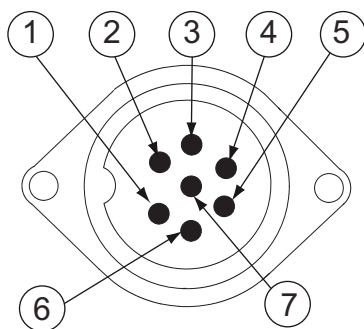
The implement signal connection complies with the ISO 11786 standard.

The implement signal connection is extra equipment. The implement signal connection is situated in the lower part of the right-hand side pillar in the cab.

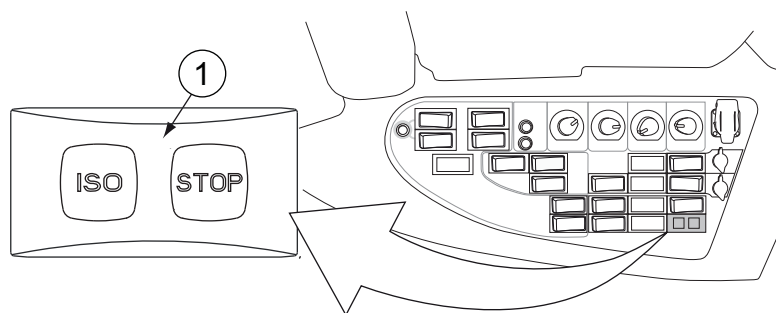


1. Implement signal connection

An implement connected to the connector can use the following tractor information:



1. Speed information of the radar, 130 pulses/m
2. Power supply max. 5 A
3. Rear linkage position (0–10 V)
4. In work (≤ 1.5 V)/out of work ($\geq 6,3$ V)
5. Rear power take-off (PTO) speed, 6 pulses/round
6. Transmission speed (wheel speed), 130 pulses/m
7. Ground

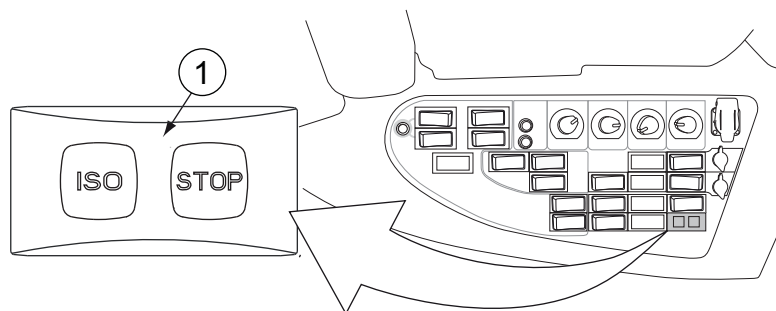


1. Indicator light for the implement signal connection

When the indicator light for the implement signal connection is lit, the implement signal system is in order.

3.19.1 Resetting the implement signal connection

If the implement signal connection (extra equipment) indicator blinks, the system is in error mode and the connection must be reset.



1. Indicator light for implement signal connection

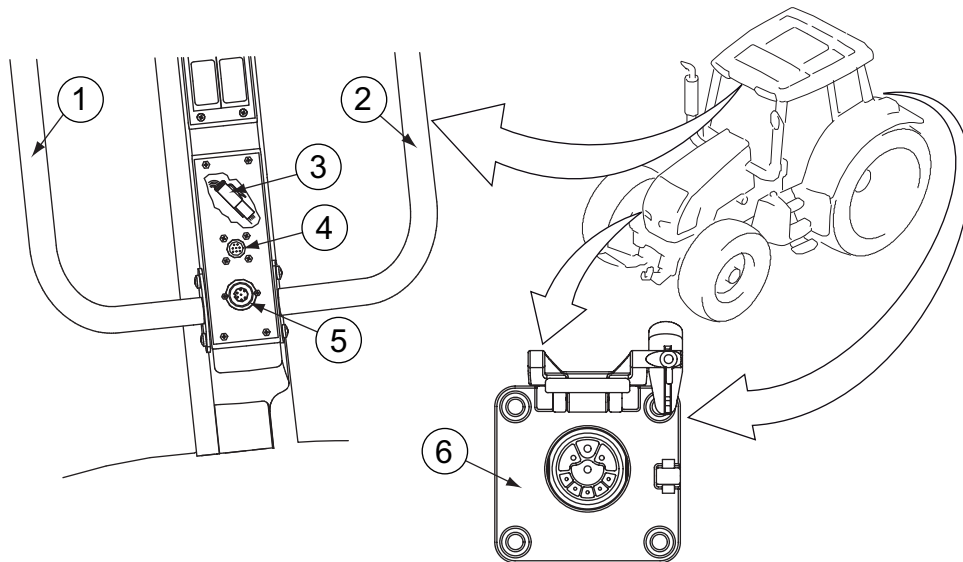
1. Stop the tractor.
2. Turn off the power.
3. Turn on the power.
4. Start the tractor.
5. If the light continues to blink, contact an authorised Valtra workshop.

3.20 Valtra ISOBUS

The Valtra ISOBUS implement control system (extra equipment) fulfils the requirements of class 1.

The ISOBUS implement control system complies with the ISO 11783 standard.

The ISOBUS implement control system connects the tractor, the implement and the ISOBUS terminal together. The system transfers information from the tractor to the implement and vice versa.



1. Mounting bracket
2. Mounting bracket
3. Bus extension connectors, ISOBUS system
4. ISOBUS terminal connector
5. Implement signal connection
6. ISOBUS implement connector, the front connector is extra equipment.

The Valtra ISOBUS controls the electric power of the system and the data transfer between the tractor and the implement. This data includes:

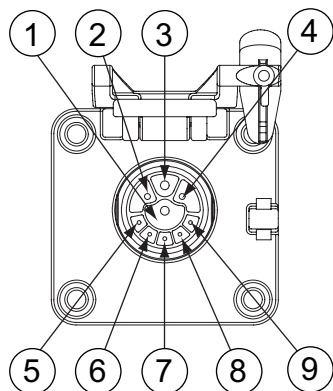
- Power management
 - Ignition switch state
 - Maintenance of the power request. The implement connected to the ISOBUS system can request the tractor to maintain power for the next two seconds.
- Speed information
 - Transmission speed, tractor speed calibrated from the tyres
 - Speed information of the radar
 - Engine speed
- Linkage information
 - Rear linkage position
 - Rear implement in-work indication
- Power take-off (PTO) information
 - Rear PTO speed
 - Rear PTO engagement
- Lighting information
 - Direction indicators
 - Marker lights (parking lights, side amber driving lights, number plate lights and instrument and switch lights)
 - Brake lights
 - Tractor rear working lights
- Distance and driving direction

- Distance based on information of the radar
- Distance based on tyre rotation
- Driving direction based on the power shuttle lever position
- Front linkage and front PTO
 - Front PTO speed
 - Front PTO engagement

3.20.1 ISOBUS implement connector

The ISOBUS implement connector is part of the ISOBUS implement control system (extra equipment). The connector connects an ISOBUS compatible implement to the ISOBUS system.

An extra connector is available with front linkage.

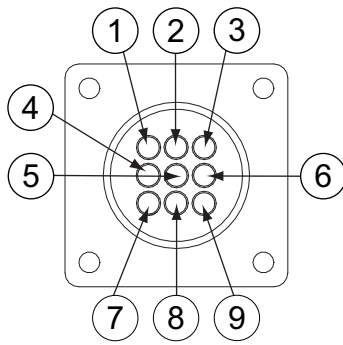


1. Ground (GND)
2. Power supply for electronic control unit max. 15 A (ECU PWR)
3. Power supply max. 30 A (PWR)
4. Electronic control unit ground (ECU GND)
5. Not in use
6. Power supply for terminating bias circuit (TBC PWR)
7. Return path for terminating bias circuit (TBC RTN)
8. CAN H
9. CAN L

3.20.2 ISOBUS terminal connector

The ISOBUS terminal connector is part of the ISOBUS implement control system (extra equipment). The connector is used to connect the terminal to the ISOBUS system.

The connector includes both an ISOBUS data bus and a power supply.



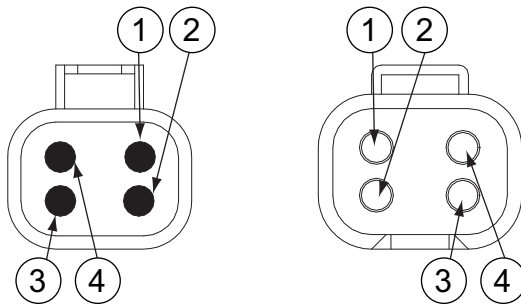
1. Not in use
2. CAN L
3. Not in use
4. CAN H
5. Not in use
6. Power supply for terminating bias circuit (TBC PWR)
7. Power supply for electronic control unit (ECU PWR)
8. Ground for terminating bias circuit (TBC GND)
9. Ground for electronic control unit (ECU GND)

3.20.3 Bus extension connectors

Bus extension connectors are part of the ISOBUS implement control system (extra equipment). Normally the bus extension connectors are connected together. They can also be used to connect additional ISOBUS devices to ISOBUS (for example, ISOBUS GPS).

NOTE: If the bus extension connectors are disconnected, the ISOBUS implement bus is broken and the system does not function properly. When connecting additional ISOBUS devices, check that the bus stays intact (the bus extension connectors are connected).

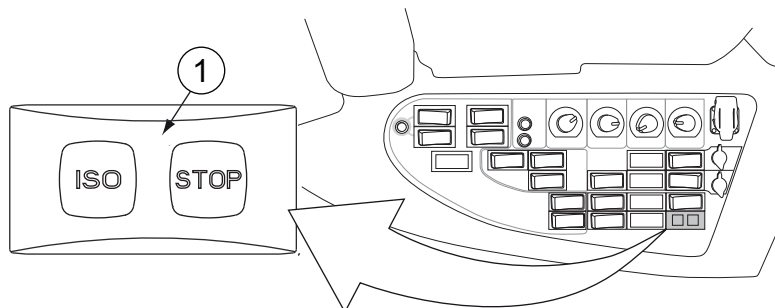
The connectors are located behind the cover, inside the B-pillar.



1. Power supply for terminating bias circuit (TBC PWR)
2. CAN H
3. Return path for terminating bias circuit (TBC RTN)
4. CAN L

3.20.4 Resetting the ISOBUS connection

If the ISOBUS connection (extra equipment) indicator blinks, the system is in error mode and the connection must be reset.



1. Indicator light for ISOBUS connection

1. Stop the tractor.
2. Turn off the power.
3. Turn on the power.
4. Start the tractor.
5. If the light continues to blink, contact an authorised Valtra workshop.

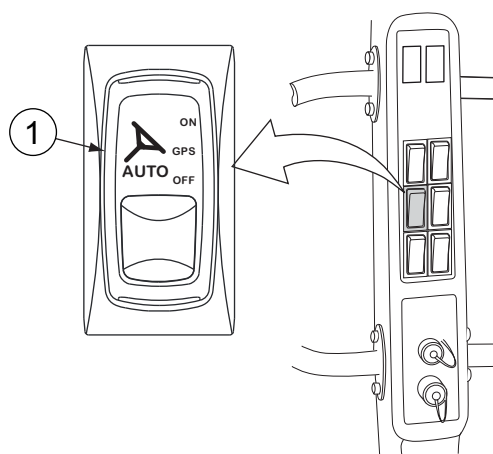
3.21 Auto-Guide

The Auto-Guide steering system is based on GPS satellite navigation technology and is capable of steering the tractor automatically.

Auto-Guide is extra equipment. It is not available for models T132 V and T152 V.



WARNING: Use of Auto-Guide is only allowed on the field or on other off-road areas.



1. Auto-Guide activation switch

The Auto-Guide activation switch is used when activating or deactivating the Auto-Guide system. The switch has three positions:

- Symbol side pressed down = the steering valve, TopDock (instrument on the roof), Auto-Guide terminal or connectors (with Auto-Guide readiness) are activated.
- Centre position = TopDock, Auto-Guide terminal or connectors (if with Auto-Guide readiness) are activated.
- Switch side opposite to the symbol pressed down = OFF position (all the instruments are switched off).



WARNING: The Auto-Guide activation switch has to be in the OFF or centre position when driving on the road.

The Auto-Guide activation switch must be in the centre or OFF position when Auto-Guide is not in use.

The Auto-Guide activation switch must be in OFF position under following conditions:

- The tractor is standing still
- The tractor is being maintained
- The tractor is near people or obstacles
- The tractor is only fitted with Auto-Guide readiness

For safety reasons, Auto-Guide cannot be used while driving over 25 km/h or when using reverse drive controls.

If you try to activate Auto-Guide while driving at over 25 km/h or when using reverse drive controls the indicator light on the switch starts to flash. This means that Auto-Guide is not activated and it cannot be used. Auto-Guide can be activated after the driving speed has fallen below 25 km/h or the seat is turned forward. The Auto-Guide switch has to be switched to the centre position and the symbol side has to be pressed down again.

If the driving speed rises over 25 km/h or the seat is turned backward when Auto-Guide is in use, the indicator light flashes or goes out. This means that Auto-Guide is disengaged and cannot be used. Auto-Guide can be re-engaged after the driving speed has fallen below 25 km/h or the seat is turned forward. The Auto-Guide switch has to be switched to the centre position and the symbol side has to be pressed down again.

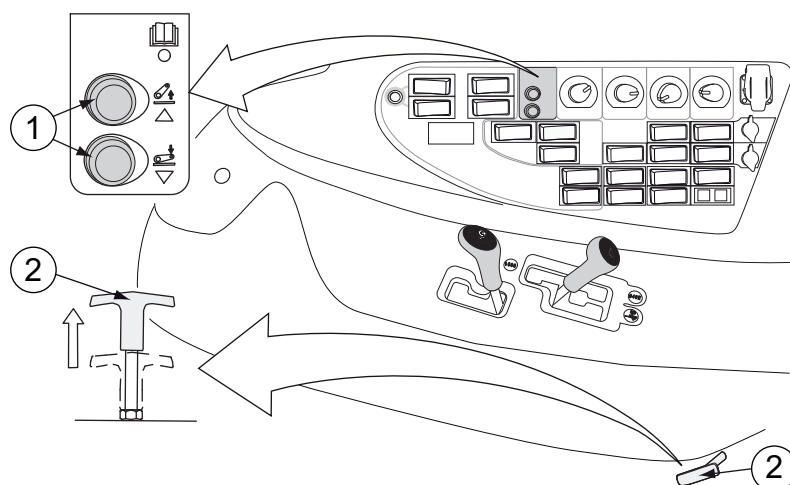
Separate quick guides and operator manuals are provided for the Auto-Guide steering system.

3.22 Towing devices

3.22.1 Trailer hitch

3.22.1.1 Unlatching the trailer hitch equipped with mechanical unlatching system

These instructions apply to both the standard trailer hitch and the Euro trailer hitch (extra equipment) but not to the hydraulically extended Euro trailer hitch (extra equipment).



- 1. Lift/lower push buttons
- 2. Hitch latch lever

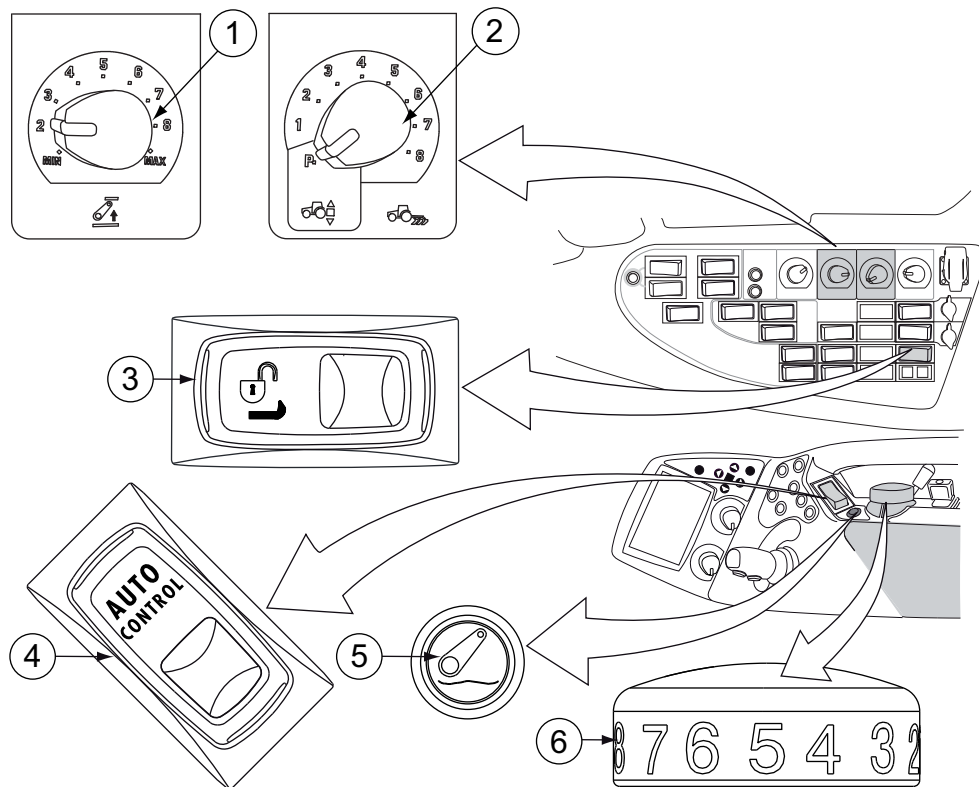
1. Press the lift push button to fully raise the linkage.
2. Pull the hitch latch lever to unlatch the hitch.
Keep the lever pulled up.
3. Press the lower push button to lower the linkage.
4. Release the hitch latch lever.

3.22.1.2 Unlatching the trailer hitch equipped with hydraulic unlatching system

The hydraulic trailer hitch unlatching system is extra equipment.

These instructions apply to both the standard trailer hitch and the Euro trailer hitch (extra equipment) but not to the hydraulically extended Euro trailer hitch (extra equipment).

3. Operation



1. Lifting height selector
2. Draft control selector
3. Trailer hitch latch releasing switch
4. Lift/stop/lower switch
5. Passing switch for the position control knob
6. Position control knob

1. Set the lifting height selector to max position.
2. Set the draft control selector to position P.
3. Set the position control knob to position 8.
4. Press down the side opposite to the symbol of the lift/stop/lower switch.
5. Press down simultaneously the passing switch for the position control knob and the trailer hitch latch releasing switch.
The trailer hitch latch unlatches.
6. Press down the symbol side of the lift/stop/lower switch.

NOTE: Make sure that the linkage is activated (the diagnose light is not lit).

Keep the trailer hitch latch releasing switch pressed down.

The linkage lowers below the latching point (to the position set by the position control knob).

7. Release the trailer hitch latch releasing switch.
8. Use the position control knob to lower the linkage as required.

3.22.1.3 Latching the trailer hitch

These instructions apply to both the standard trailer hitch and the Euro trailer hitch (extra equipment) but not to the hydraulically extended Euro trailer hitch (extra equipment). The instructions apply also to both the mechanical and the hydraulic (extra equipment) trailer hitch unlatching systems.

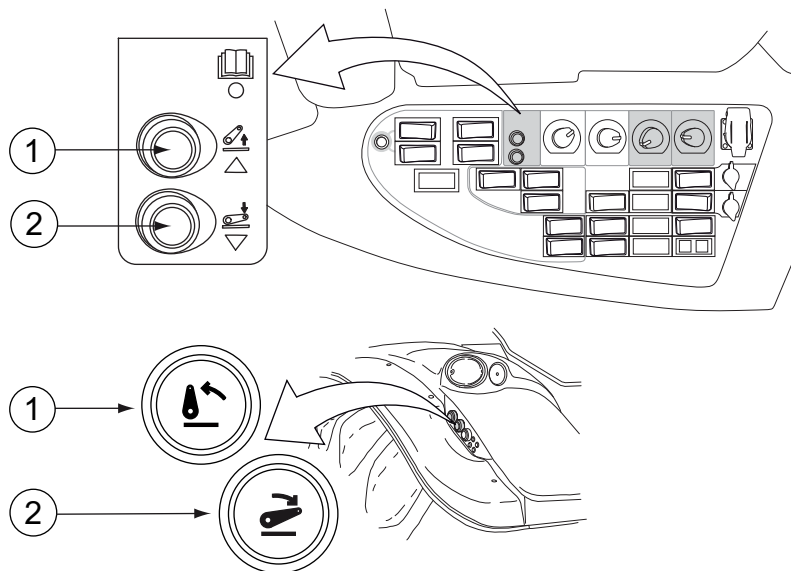


WARNING: When attaching any implements, check that the drawbar eye engages the trailer hook correctly.



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

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.



1. Lift push button
2. Lower push button

1. Reverse the tractor up to the trailer.
2. Align the hook with the trailer drawbar.
3. Press the lift push button 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.

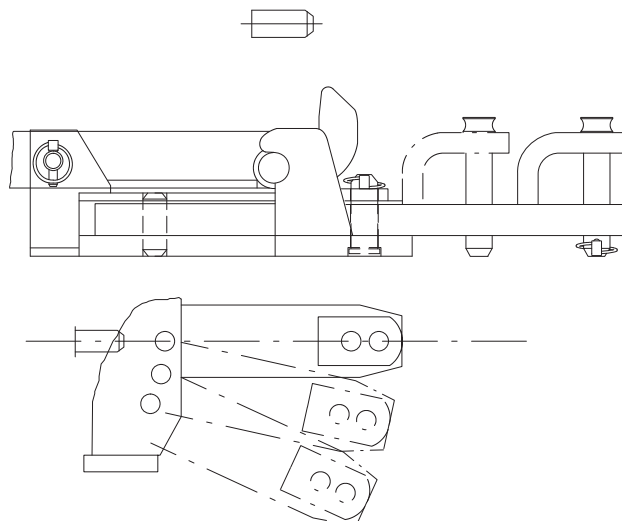
Ensure that the trailer is supported by the hitch latch and does not lower with the linkage.

5. Check the linkage position.

IMPORTANT: Adjust the linkage so that it does not hit the towed device at any circumstance.

3.22.2 Agricultural drawbar

An agricultural drawbar is extra equipment. Several different models are available according to the marketing areas.



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:

- One model for the trailer hitch and another model for tractors without the trailer hitch.
- Adjustable to four different distances from the power take-off (PTO) shaft.
- In the two outer positions, the drawbar can also be adjusted $\pm 12.5^\circ$ and $\pm 25^\circ$ laterally.
- The maximum permissible vertical load is 30 kN (drawbar in the forward position) and 18 kN (drawbar in the rearmost position).

Light agricultural towing device:

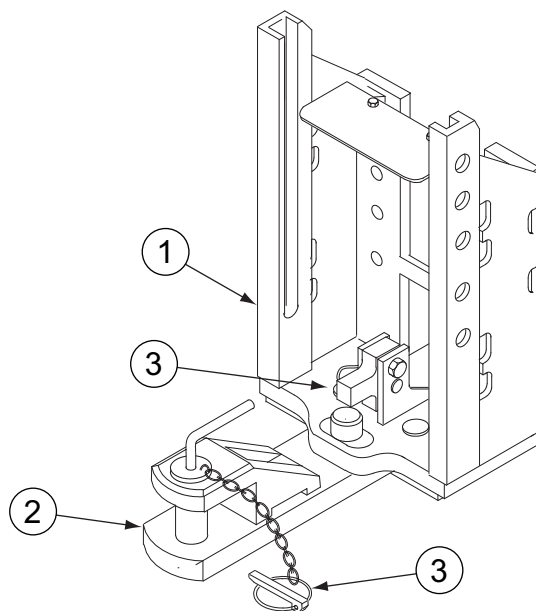
- Only available for the trailer hitch.
- Adjustable to two different distances from the PTO shaft.
- In the outermost position, the drawbar can also be adjusted $\pm 11^\circ$ and $\pm 22^\circ$ laterally, and to two different positions.
- The maximum permissible vertical load is 10 kN (drawbar in the forward position) and 7.5 kN (drawbar in the rearmost position).

3.22.3 Scharmüller towing device

The Scharmüller towing device consists of a towing device frame, an agricultural towing device and a locking.



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 hitch (Piton Fix)
2. Agricultural towing device
3. Locking

Locking to the trailer must be secured.

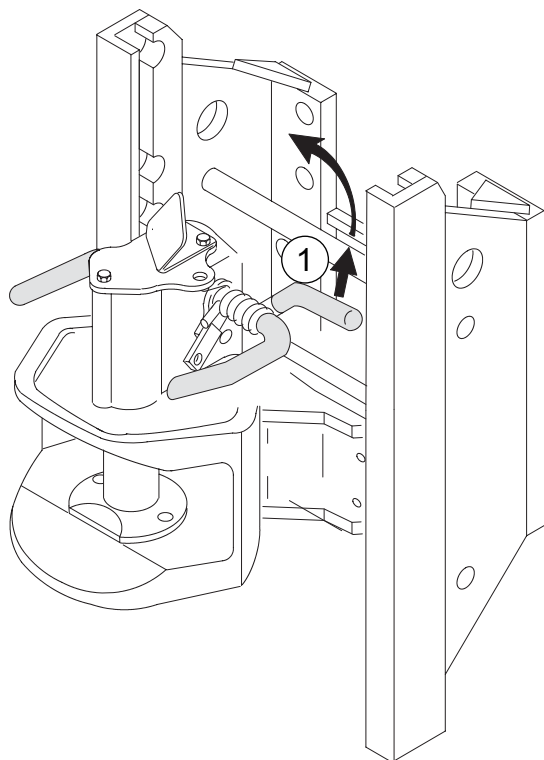
3.22.3.1 Adjusting the jaw height

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.

3. Operation



1. Lever

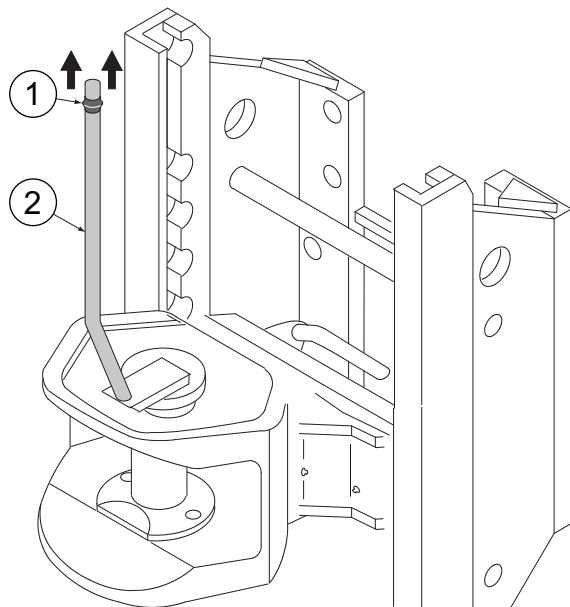
1. Pull the lever upwards and turn it to the left.
2. Move the jaw into the wanted height.
3. Release the lever.

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.

3.22.3.2 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 drawbar.



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.

3.22.3.3 Attaching to the automatic jaw

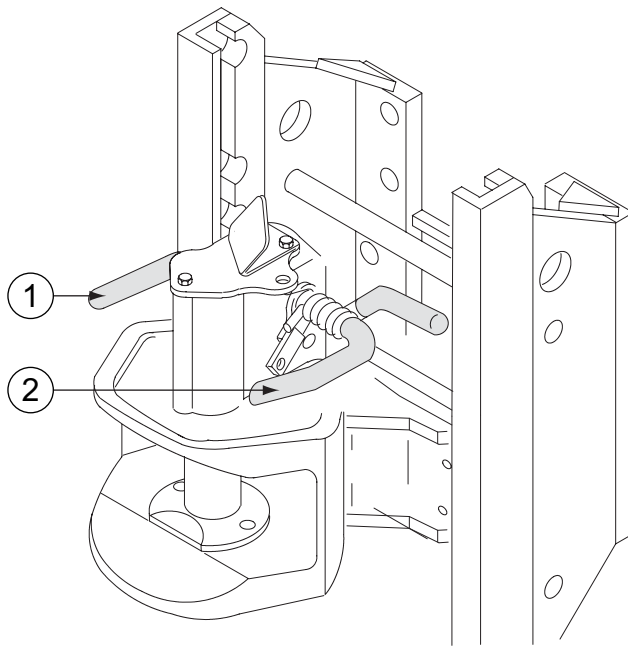
You can attach a trailer to the automatic jaw using the lowering and lifting levers.

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.

IMPORTANT: When using the hydraulic trailer hitch with the wagon device, do not let the link of the trailer touch the drawbar body.

3. Operation



1. Towing pin lowering lever
2. Towing pin lifting lever

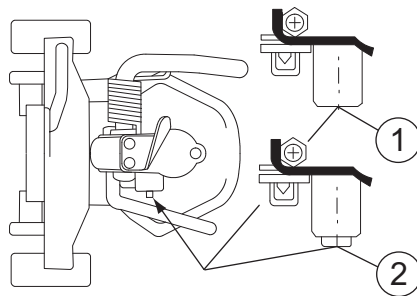
1. Lift the towing pin up.

To lift the pin, turn the lifting 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

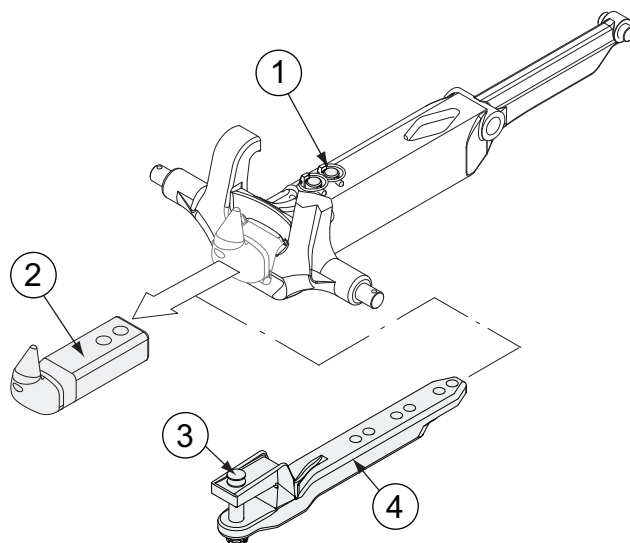


WARNING: The drawbar pin is locked in the down position when the security knob is out. When attaching the trailer, the drawbar locking pin must be secured.

3.22.4 Euro trailer hitch

The Euro trailer hitch can be mounted instead of the standard trailer hitch.

The Euro trailer hitch is extra equipment.

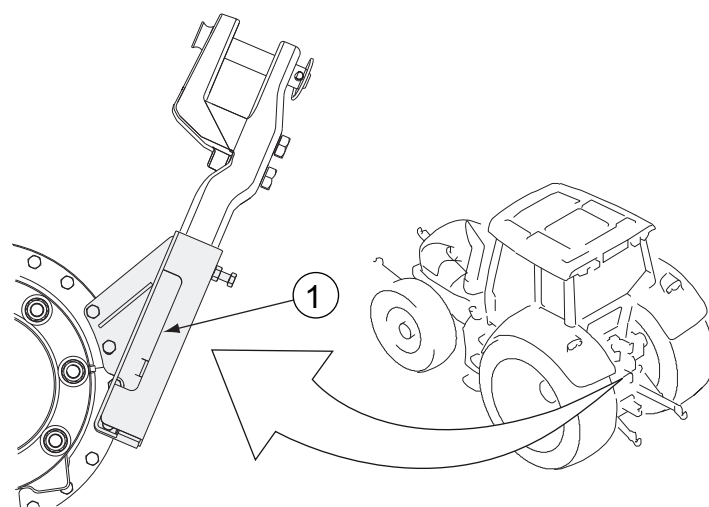


1. Fastening pins
2. Euro trailer hitch
3. Implement attachment pin
4. Euro drawbar, extra equipment

The Euro trailer hitch can be changed to the Euro drawbar (extra equipment) by removing the fastening pins.

IMPORTANT: Always secure the fastening pins with the locking pins on the top side of the trailer hitch. This prevents the locking pins from getting stuck to any objects such as tree branches on the ground that might open them accidentally.

When the hitch or drawbar is not in use, it can be fastened to the bracket.

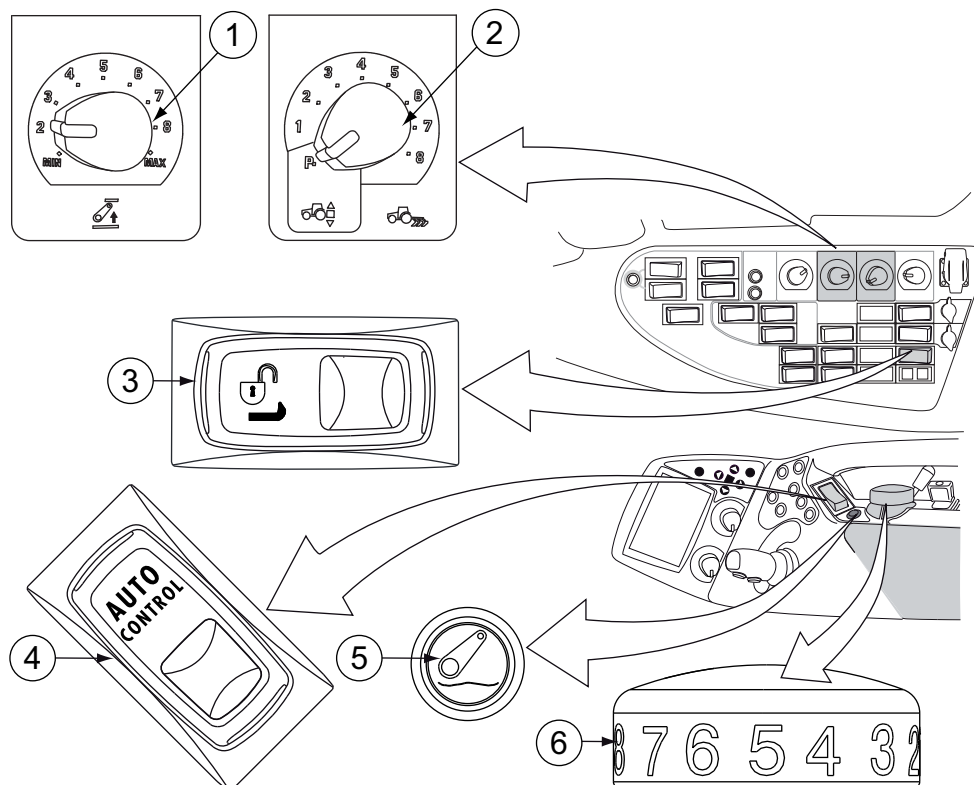


1. Bracket

3.22.5 Euro trailer hitch with hydraulic extension

The Euro trailer hitch with the hydraulic extension is otherwise similar to the Euro trailer hitch, but you can move it hydraulically in longitudinal direction.

3.22.5.1 Unlatching the hydraulically extended Euro trailer hitch



1. Lifting height selector
2. Draft control selector
3. Trailer hitch latch releasing switch
4. Lift/stop/lower switch
5. Passing switch for the position control knob
6. Position control knob

1. Set the lifting height selector to max position.
2. Set the draft control selector to position P.
3. Set the position control knob to position 8.
4. Press down the side opposite to the symbol of the lift/stop/lower switch.
5. Press down simultaneously the passing switch for the position control knob and the trailer hitch latch releasing switch.
The trailer hitch latch unlatches.

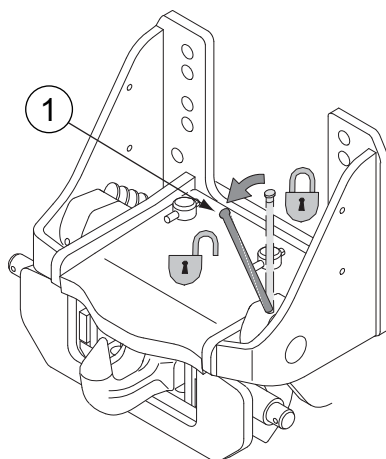
6. Press down the symbol side of the lift/stop/lower switch.

NOTE: Make sure that the linkage is activated (the diagnose light is not lit).

Keep the trailer hitch latch releasing switch pressed down.

The linkage lowers below the latching point (to the position set by the position control knob).

The locking indicator turns to the rear position and then to upright position again.



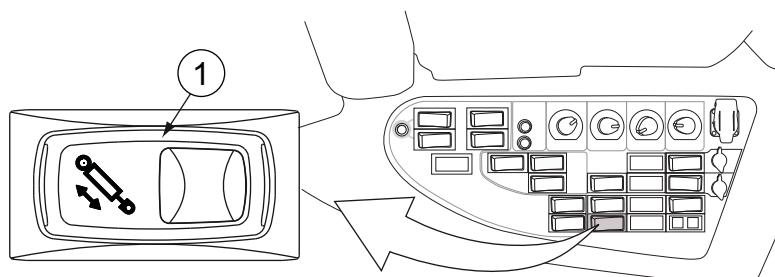
1. Locking indicator

7. Release the trailer hitch latch releasing switch.

8. Use the position control knob to lower the linkage as required.

3.22.5.2 Extending the Euro trailer hitch

When the frame of the towing device is lowered, you can extend it hydraulically backwards to make it easier to attach the hitch/drawbar to the drawbar eye. The cylinder of the hydraulic extension is usually connected permanently to the rear on/off valve 2 (extra equipment).



1. Switch for rear on/off valve 2 (extra equipment)

- **Extend the towing device.**

Press down the side opposite to the symbol of the switch for rear on/off valve 2.

- **Retract the towing device.**

Press down the symbol side of the switch for rear on/off valve 2.

3.22.5.3 Latching the hydraulically extended Euro trailer hitch

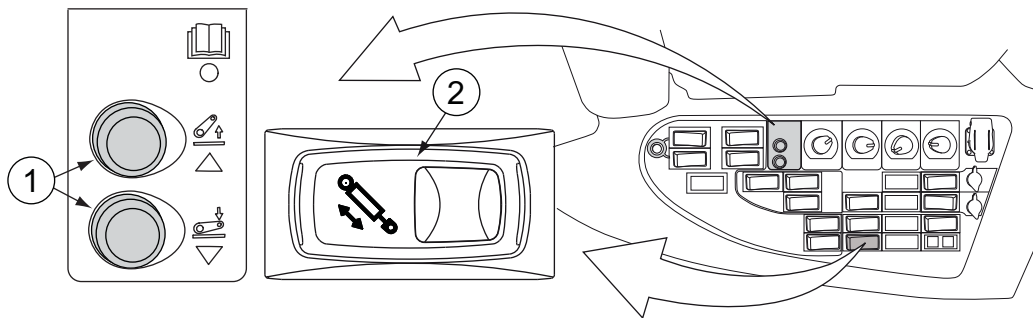


WARNING: When attaching any implements, check that the drawbar eye engages the trailer hook correctly.



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

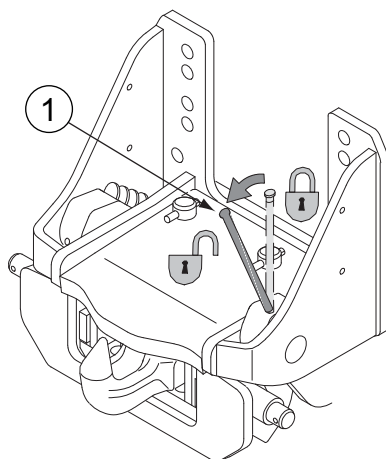
IMPORTANT: Use only drawbar eyes which comply with the regulations and are undamaged. When using other than allowed drawbar eyes, the warranty lapses and the responsibility of the manufacturer is no longer valid.



1. Lift/lower push buttons
2. Switch for rear on/off valve 2 (extra equipment)

1. Reverse the tractor up to the trailer.
2. Align the hook with the trailer drawbar.

- 3. Press the lift push button until the hitch latches.**



- 1. Locking indicator**

The locking indicator turns from the upright position to back position and then to upright position again. The indicator doesn't turn fully upright position if the towing device is extended.

You can hear a click when the hitch latches.

- 4. Press the lower push button to lower the linkage slightly.**

Ensure that the hitch is supported by the latch and does not lower with the linkage.

- 5. Press the symbol side of the on/off valve switch to retract the towing device.**

The towing device extension locks and the locking indicator turns to upright position.

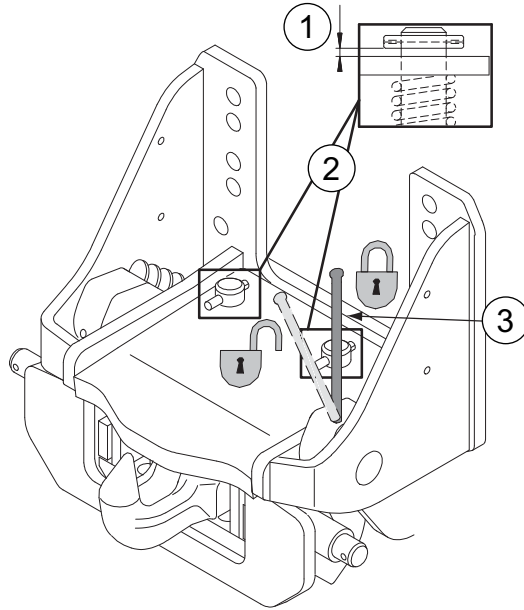
- 6. Ensure that the towing device extension is locked.**

- **Press the opposite side to the symbol of the on/off valve switch.**

Ensure that the towing device does not extend.

- **Press the symbol side of the on/off valve switch.**

7. Ensure that the towing device is fully locked.



1. 2-6 mm
2. Extension locking pins
3. Locking indicator

The towing device is fully locked when the following conditions are fulfilled simultaneously.

- The towing device is in the upmost position and supported by the latch
- The towing device is retracted and extension locking pins are down (the distance of the roll pins from the frame is 2-6 mm)
- The locking indicator is fully upright.

NOTE: The locking indicator is also in the fully upright position when the towing device is down.

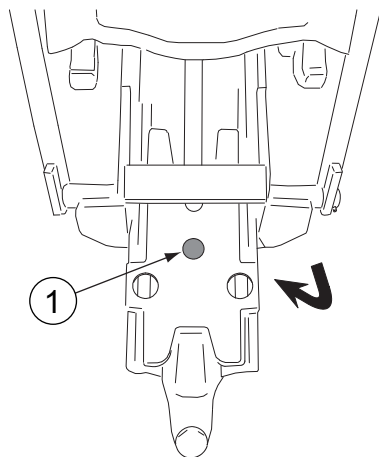
8. Check the linkage position.

IMPORTANT: Adjust the linkage so that it does not hit the towed device at any circumstance.

3.22.5.4 Changing the trailer hitch/draw

You can change the trailer hitch/draw. When the hook or jaw is not in use, you can fasten it to the bracket on the rear side.

When using the Euro trailer hitch, the requirements for the drawbar eye are the same as when using the trailer hitch.

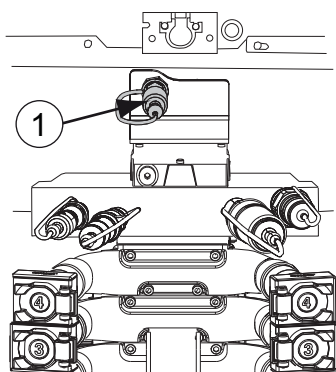


1. Fastening pin

1. Lower down and extend the towing device.
2. Remove the fastening pin by pushing it from below.
3. Change the hitch/draw.
4. Attach the fastening pin.

3.23 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).

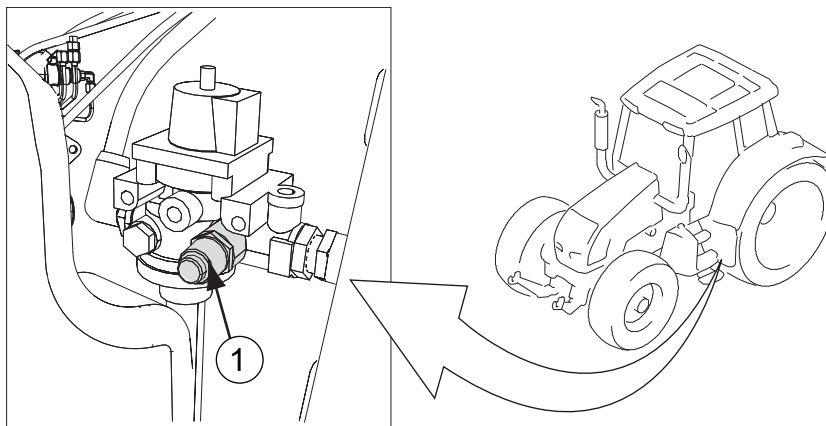


1. Pressurised air quick coupling

You can also get compressed air from the air pressure coupling by turning it as far as it goes. 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

3. Operation

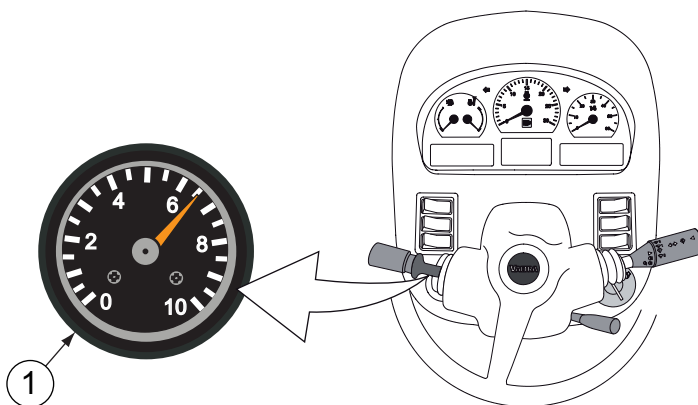
with outside compressed air, for example, when the compressor of the tractor is broken. In this case, the coupling must not be turned as far as it goes.



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.

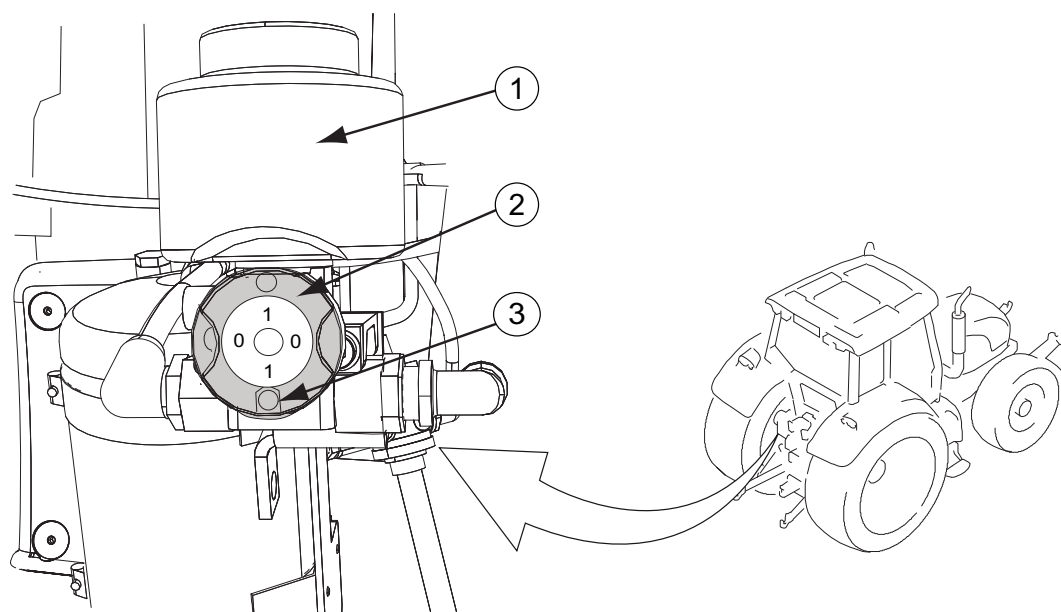


1. Air pressure system pressure gauge



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

3.24 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.

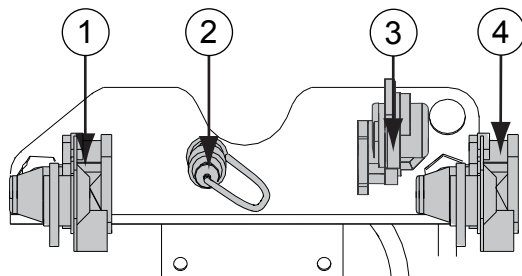


WARNING: If the trailer hitch is worn out or otherwise damaged so that the drawbar eye can come off the trailer hitch, the hook must be replaced.

3.24.1 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.



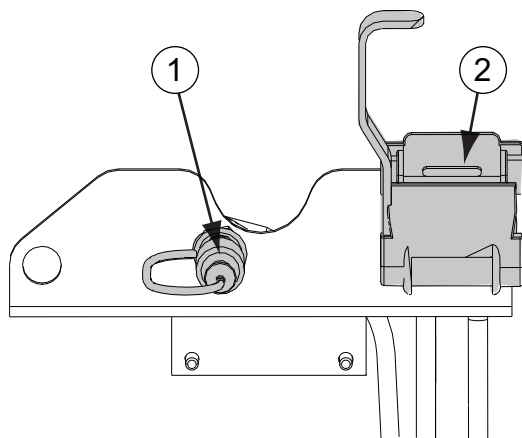
1. Brake line coupling with yellow cover
2. Quick coupling for the output of the pressurised air
3. Brake line coupling with black cover
4. Container line coupling with red cover

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. Quick coupling for the output of the pressurised air
2. Trailer coupling Duo-Matic



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.



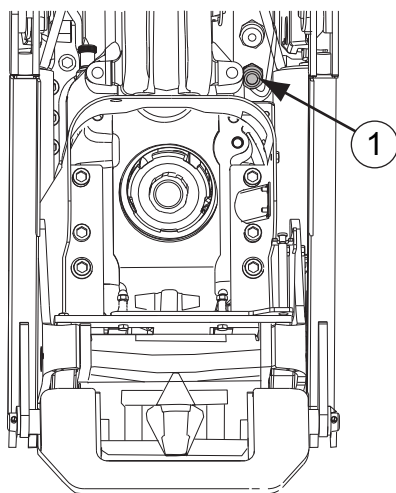
WARNING: The pressure of the air pressure system must be at its maximum, about 7-8 bar, before driving a tractor with a trailer equipped with air pressure brakes.

When the trailer couplings are not in use, they must be covered.

3.24.2 Trailer fluid brake valve

The trailer fluid brake valve (extra equipment) operates with the low 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



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 100 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 low pressure filter and lubrication 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

Working hydraulics

The inspection of the working hydraulic system contains the following services:

- Change of the pressure filter and return filter

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.**

Check the oil when it is cold and has had time to run down to the bottom of the oil sump.

- **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, replace all shields and covers.

4.3.1 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.**

4.3.2 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 the cold fat 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.

4.3.2.1 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.**

4.3.2.2 Cleaning front axle suspension bellows

To ensure correct function of the front axle air suspension, the dirt in the bellows of the suspension and in the housing have to be occasionally removed.

1. **Detach the protective housings of the suspension bellows, if necessary.**
2. **Wash the bellows with a pressure washer.**

4. Maintenance

3. **Keep the pressure washer nozzle during washing at a distance of at least 30 cm from the bellows.**

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.

4. **Install the protective housings back to the suspension.**

4.3.2.3 Cleaning polycarbonate windows

The polycarbonate windows must be cleaned regularly to keep the windows bright as long as possible.

- **Wash the windows by hand or pressure washer.**

NOTE: Do not use special nozzles, such as turbo nozzles, when washing.
Follow the instructions of the pressure washer manufacturer.

Do not point the pressure washer towards the side seals or lead-through seals. The possible detergent may reach the glass parts which are not coated.

- **Wipe the stains by using a detergent or plenty of water.**

The coated parts of the windows withstand different detergents well.

NOTE: Do not use abrasive detergents and do not rub the windows dry.

- **Do not use the window wiper on a dry window.**

Ensure that there is enough fluid in the washer reservoir.

- **Never clean the polycarbonate windows using a sharp tool like an ice scraper.**

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 Fuel filter system

The engine's standard filter system gives sufficient protection for the injection system from impurities that can be present in well-tended distribution systems.

The control of distributor-type injection pumps is based on internal pressure, which drops if the fuel system is clogged. If the pilot pressure drops too low, the engine power is reduced, the smoke level is increased and starting becomes more difficult.

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.

Always use the original Valtra fuel filters.

IMPORTANT: Using other fuel filters than the original ones, even for a short period of time, may cause lower performance and expensive damages.

4.4.1.4 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 Valtra Grease - NLGI2 universal grease

Use Valtra Grease for greasing for example wheel bearings, chassis water pumps, caterpillar rollers.

Valtra 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 Valtra Calsium LF - NLGI2 calsium grease LF

Use the Valtra 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 Valtra Calsium 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 Valtra Grease Moly - NLGI2 moly grease

Use Valtra Grease Moly for wheel bearings, chassis water pumps, caterpillar rollers et cetera. Valtra Grease Moly is a high-quality, lithium-based universal grease for vehicle use.

Valtra Grease Moly:

- is alithium-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.

4. Maintenance

- **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.

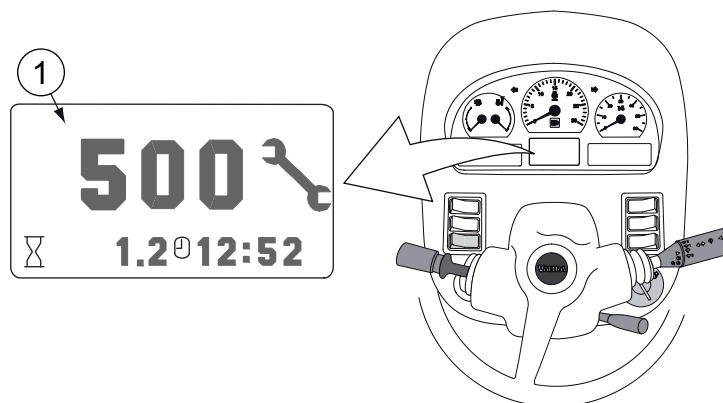
4.6.2 Running the tractor in after a storing period longer than two months

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 fan belt/belts (compression belt)
- 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

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 table shows the periodical maintenance tasks.

4. 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 and hydraulic system.	•	•	•	•	•
Check the coolant level.	•	•	•	•	•
Check and clean the radiator fins and engine cover grilles.	•	•	•	•	•
Check for oil and fuel leaks.	•	•	•	•	•
Grease the three-point linkage.		•	•	•	•
Check and grease the trailer hitch.		•	•	•	•
Check and grease the front linkage.		•	•	•	•
Check the front power take-off.		•	•	•	•
Grease the brake mechanism.		•	•	•	•
Grease front axle mounting bearings.		•	•	•	•
Grease flexible front mudguards		•	•	•	•
Check the belts' tightness.		•	•	•	•
Check the fuel system prefilter and sediment bowl.		•	•	•	•
Check the electrolyte level in the battery.		•	•	•	•
Check the tyre pressure.		•	•	•	•
Check the emergency brake		•	•	•	•
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.			•	•	•
Check wheel nuts' tightness.			•	•	•
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.			•	•	•
Check the integrity of the air pressure system.			•	•	•
Check the air pressure system automatic water draining.			•	•	•
Change the oil in the hydraulics.				•	•
Change the oil in the front axle differential and hubs.				•	•
Table continued on next page					

Maintenance check point	10 h	50 h	500 h	1000 h	2000 h
Change the cab air filter.				•	•
Change the recirculation air filter.				•	•
Change the fuel filter and prefilter.				• 2)	•
Change the engine air filters.				•	•
Grease the flywheel ring gear.				•	•
Check the front wheel toe-in.				•	•
Adjust the engine valves.				•	•
Change the hydraulics breather.				•	•
Check the power shuttle operation.				•	•
Tighten the frame nuts and bolts.				• 3)	•
Change the oil in the transmission.					•
Change the transmission breather.					•
Change the oil in the brake circuits.					•
Change the oil in the front axle brake system.					•
Clean the cooling system.					•
Check the engine vibration damper.					•
Change the cap of the coolant expansion tank.					•
Check the cab mounting.					•
Maintain the air conditioning.					•

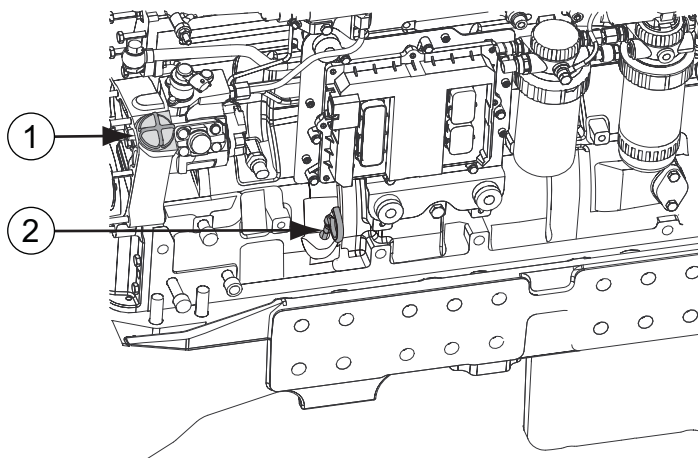
- 1) In extremely dusty conditions or when using over 5% Biodiesel fuel, change the oil and filters every 250 hours.
- 2) When using over 5% Biodiesel, change the fuel filter and prefilter every 500 hours.
- 3) If the tractor is fitted with a front loader, tighten the frame nuts and bolts every 500 hours.

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

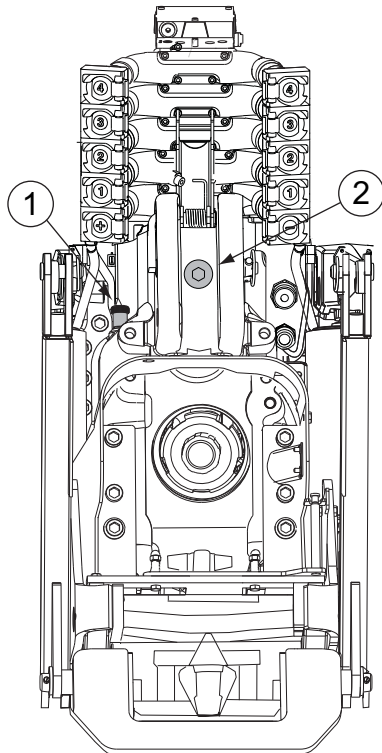
4. Maintenance

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 and transmission share the same oil system.



1. Transmission oil dipstick
2. Transmission oil filling plug

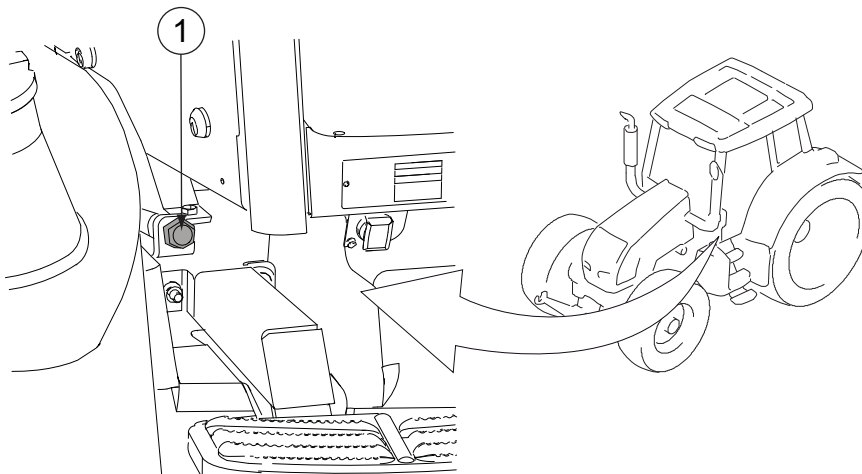
1. Stop the engine and let it stand for a few minutes.
2. Pull out the dipstick.
The oil level must be between the minimum and maximum lines on the dipstick.
3. Add oil if necessary.

4.7.2.3 Checking the oil level in the hydraulic system

Check the oil level in the hydraulic system periodically.

1. Stop the engine and let it stand for a few minutes.

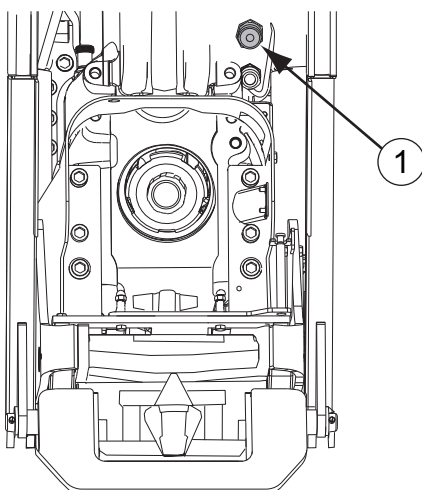
2. Pull out the dipstick.



1. Dipstick

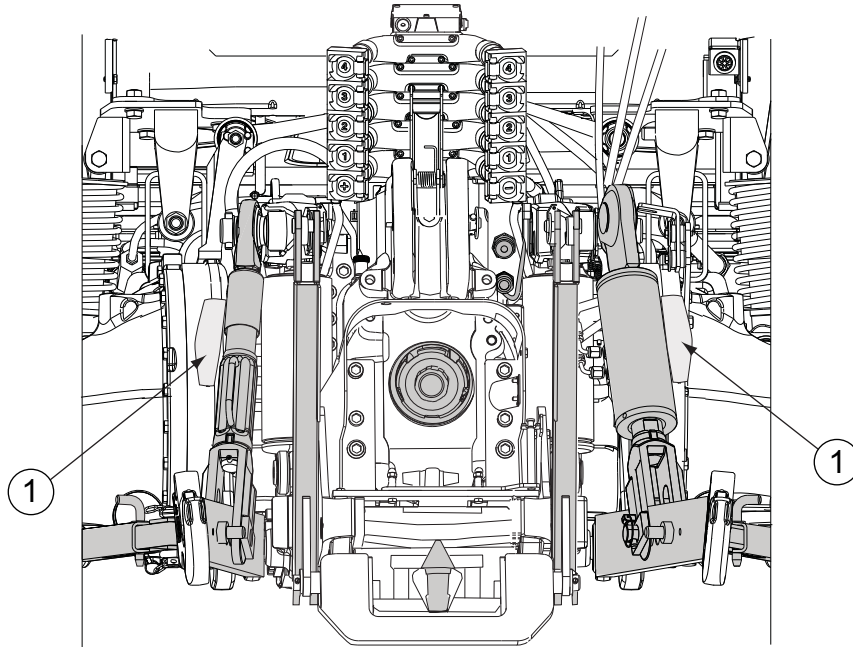
The oil level must be between the minimum and maximum lines on the dipstick.

3. Add oil through the hydraulic return coupling, if necessary.



1. Hydraulic return coupling

4. Check the leakage oil reservoir for the quick-action couplings and empty it occasionally.

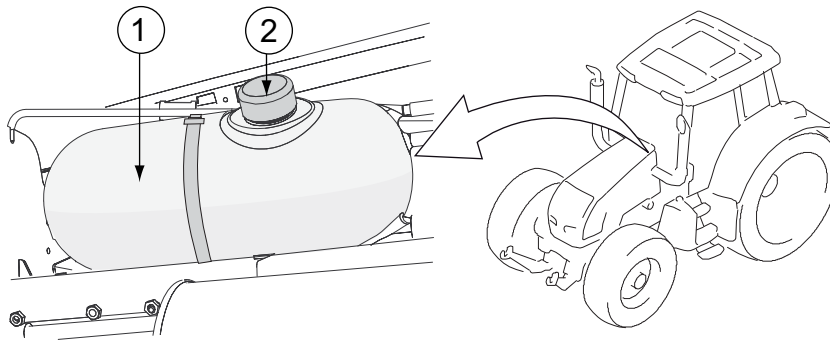


1. Leakage oil reservoir

4.7.2.4 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. Cold fluid level sign
2. Expansion tank

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.

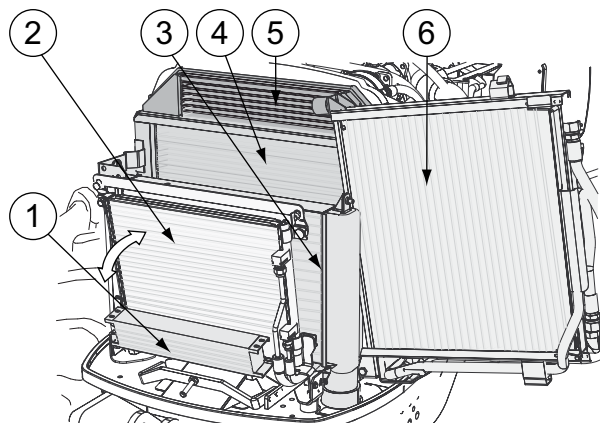
- Re-check the freezing point of the coolant.

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.

4.7.2.5 Cleaning radiators

Clean all the radiator honeycombs regularly.



1. Front power take-off (PTO) oil cooler (extra equipment)
2. Air conditioning cooler (extra equipment)
3. Engine intake air cooler
4. Engine coolant radiator
5. Hydraulics oil cooler
6. Transmission oil cooler, in cleaning position

1. Open the engine cover.

The air conditioning cooler turns forward to make the cleaning easier. Turn the transmission oil cooler sideways by opening the locking device.

4. Maintenance

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.

4.7.3 Weekly maintenance

4.7.3.1 Greasing the three-point linkage

Grease the three-point linkage regularly.

NOTE: Use Valtra Grease Universal 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.

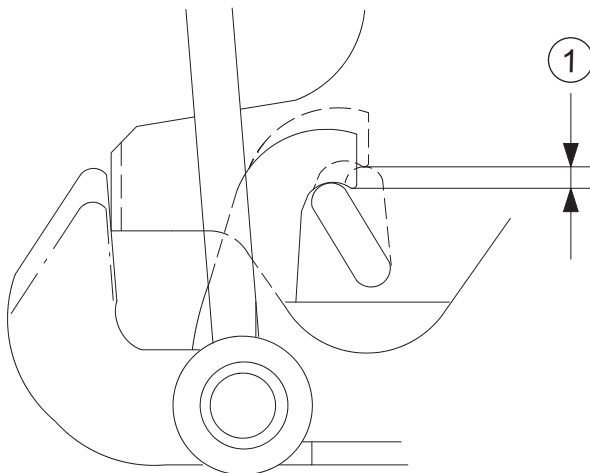
There are two grease nipples.

4. Grease the lifting cylinder upper pins.

There are two grease nipples.

4.7.3.2 Checking the trailer hitch

Check the locking of the trailer hitch.

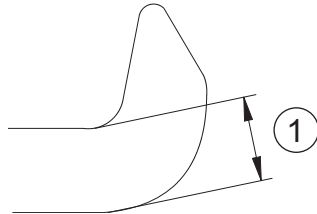


1. 6-8 mm

- **Make sure that the spring returns the pawl fully home.**
When the pawl is turned upwards the trailer hitch must move up 6-8 mm.
- **Check the wear of the trailer hitch.**



WARNING: When the trailer hitch has worn down to 44 mm at the thinnest part, it has to be replaced.

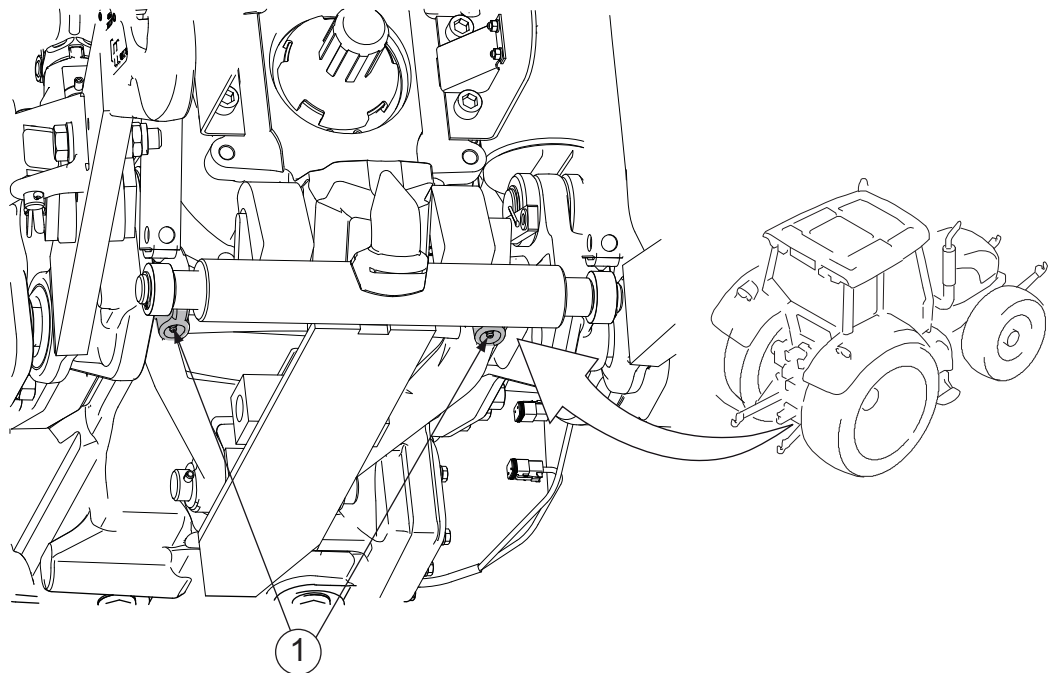


1. Minimum 44 mm

4.7.3.3 Greasing the trailer hitch

Grease the trailer hitch regularly.

NOTE: Use Valtra Grease Universal for greasing.



1. Grease nipple

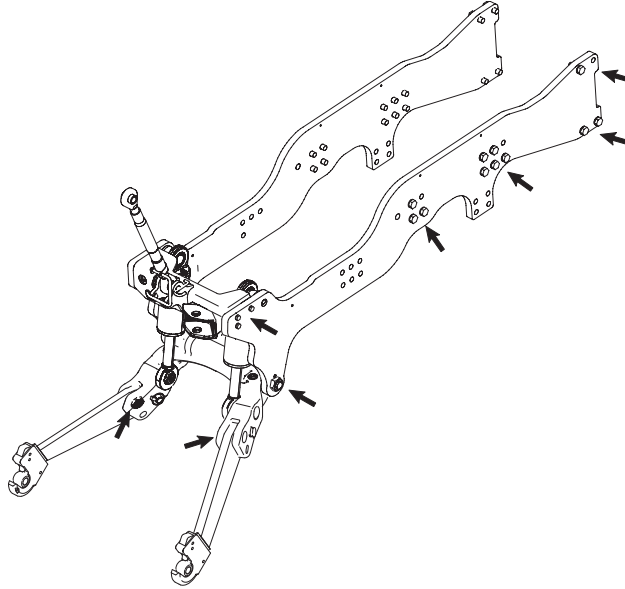
1. Grease the trailer hitch shaft.

4.7.3.4 Maintaining the front linkage

Check the front linkage regularly.

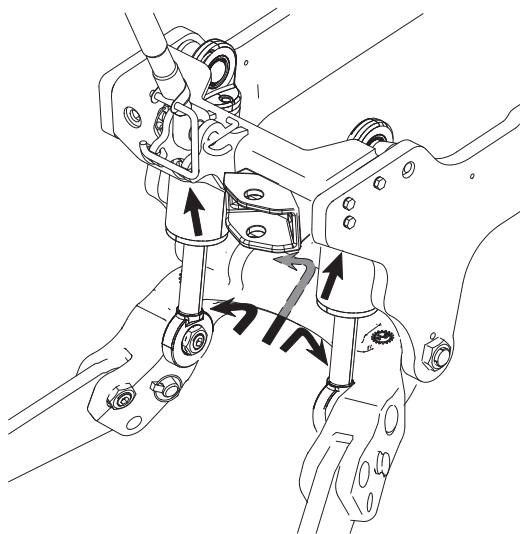
The type plate of the front linkage is located on the front part of the left frame bar.

- 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 pins of the lifting cylinders and the shaft of the lifting links with Valtra Grease Universal every 50 hours.

The grease nipple for the shaft of the lifting links is located on the rear side of the axle.

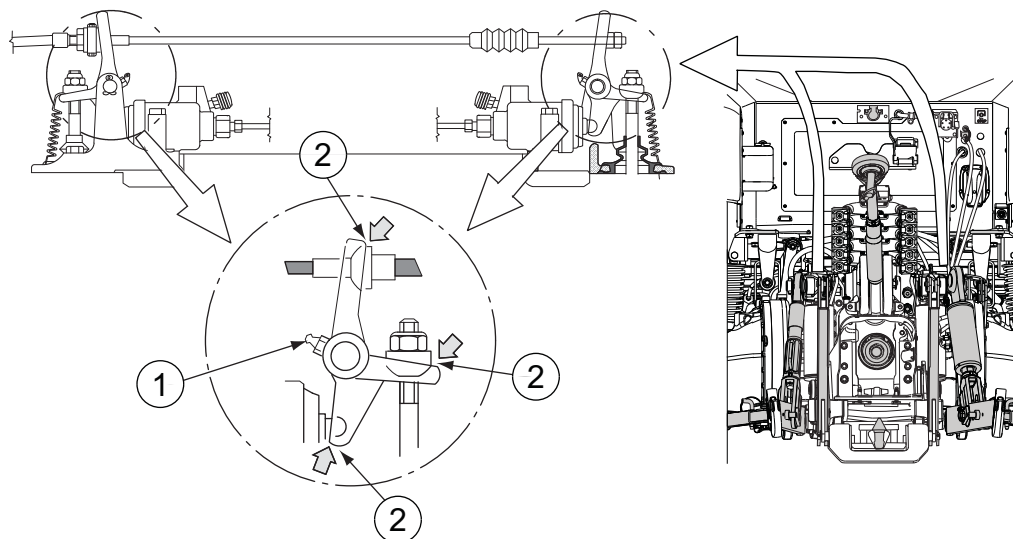


4.7.3.5 Checking the front power take-off

- 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 the brake cam

Use Valtra Calsium LF grease when greasing the brake cam.



1. Grease nipple
2. Sliding surfaces

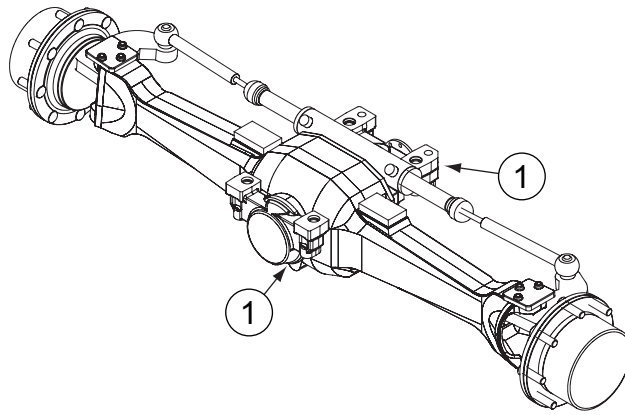
1. Grease the nipples on both sides of the brake cam.
2. Grease the sliding surface on the brake mechanism.

4.7.3.7 Greasing front axle mounting bearings

You must grease the front axle mounting bearings regularly.

Use Valtra Grease Universal when greasing.

4. Maintenance



1. Greasing nipples

1. Lift the front end of the tractor a little.

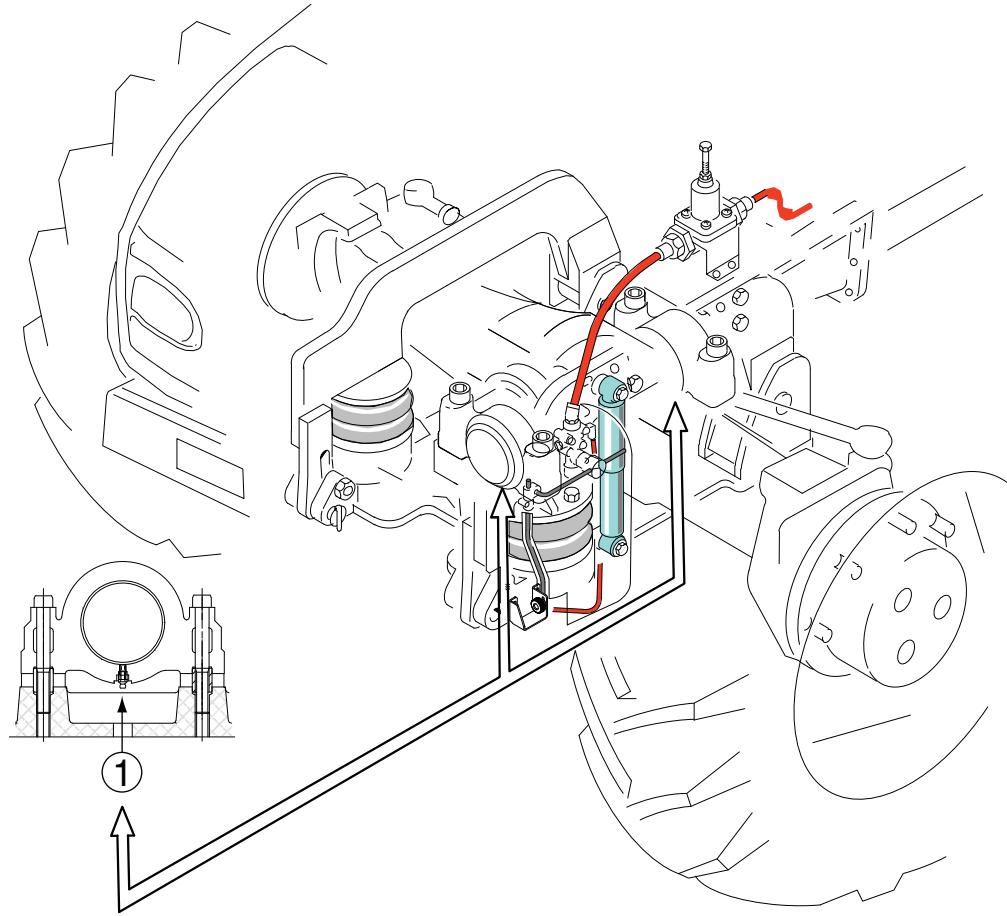
Do not lift from front axle or front weight bracket

2. Grease the nipples on both bearings.

Tilt the axle to make sure that grease goes equally into the bearings.

4.7.3.8 Greasing air-suspended front axle mounting bearings

Grease the air-suspended front axle mounting bearings regularly.

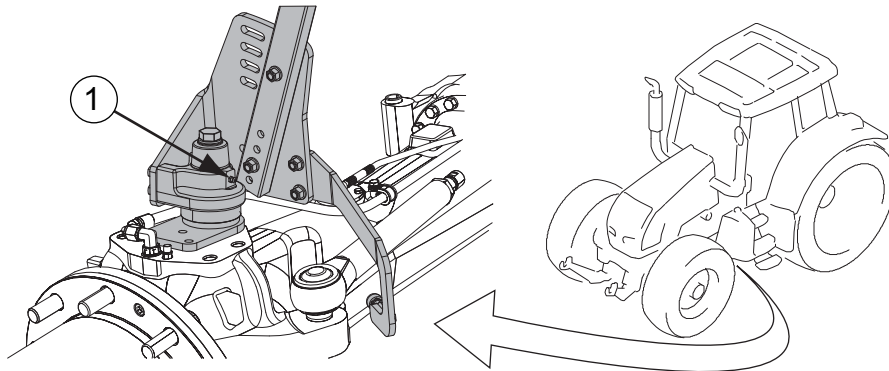


1. Front axle bearing grease nipples

1. Frequently check that all screws and nuts are tight.
2. Grease the nipples of the front axle mounting with Valtra Grease Universal.
If the front axle is equipped with a transfer set of nipples (extra equipment), the nipples are on the left side of the tractor.

4.7.3.9 Greasing flexible front mudguards

Grease the turning mechanism regularly with Valtra Calsium LF grease.



1. Turning mechanism

1. To aid the maintenance, turn the mudguards from the rear edge by pulling them sideways.
2. Grease the turning mechanism regularly with Valtra Calsium LF grease.

4.7.3.10 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.

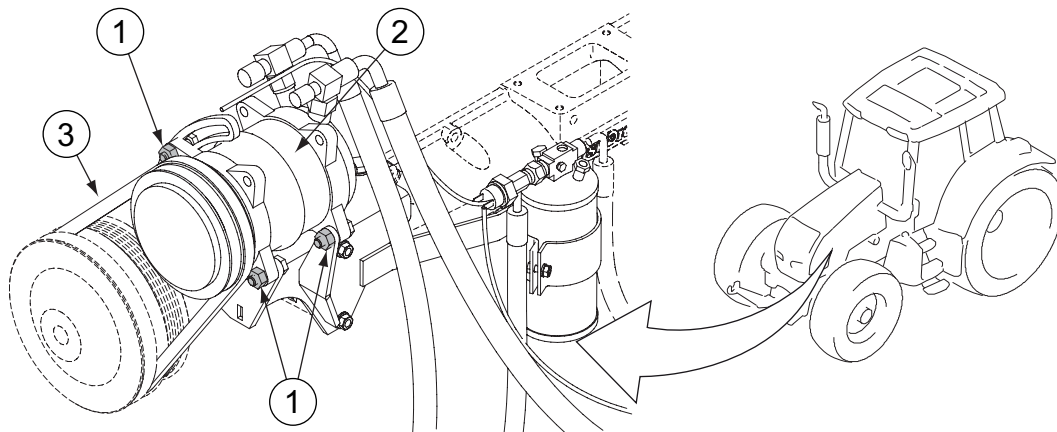
2. Check the belt tension.

The fan/generator belt has an automatic belt tensioner.

3. Adjust or change the belt, if needed.

4.7.3.11 Adjusting the air conditioning compressor belt

Adjust the air conditioning compressor belt, if needed.



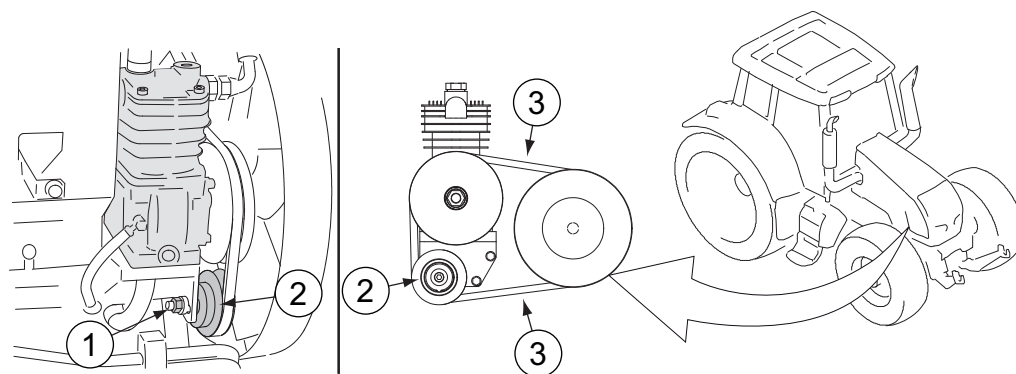
1. Attaching bolts
2. Compressor
3. Deflection (10 mm)

1. Loosen the three attaching bolts.
2. Turn the compressor in its mountings.
3. Tighten the attaching bolts.
4. Check the deflection of the belt.

A deflection of approximately 10 mm is suitable for the tension of the belt.

4.7.3.12 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.

4.7.3.13 Changing the air conditioning compressor belt

Change the air conditioning compressor belt, if needed.



1. Visco fan nut

1. Open the Visco fan nut.

IMPORTANT: The nut is a left-handed thread.

2. Move the Visco fan forward.

IMPORTANT: Do not hit the Visco fan against the radiator or the wind tunnel.

3. Remove the air conditioning compressor belt and install a new one.
4. Install the Visco fan and tighten the nut.
5. Ensure that the electrical connector of the Visco fan is connected.
6. Check the belt's tension.

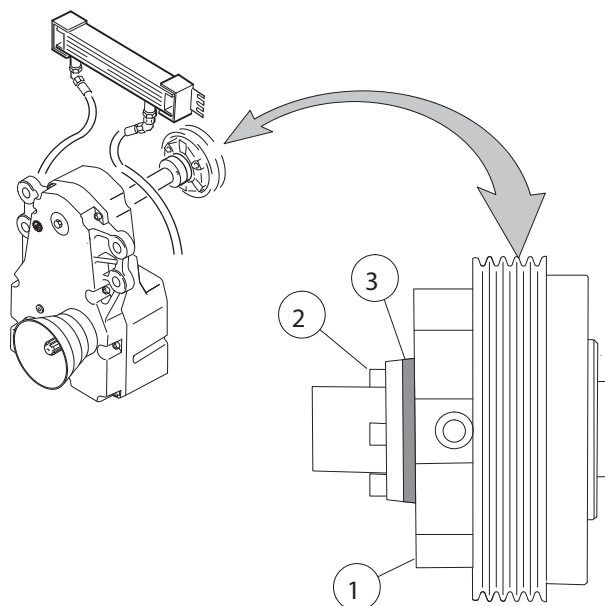
4.7.3.14 Changing the multi-grooved fan belt and the air compressor belt

Change the multi-grooved fan belt and the air compressor belt, if needed.

1. Remove the old belts by cutting.

2. 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.



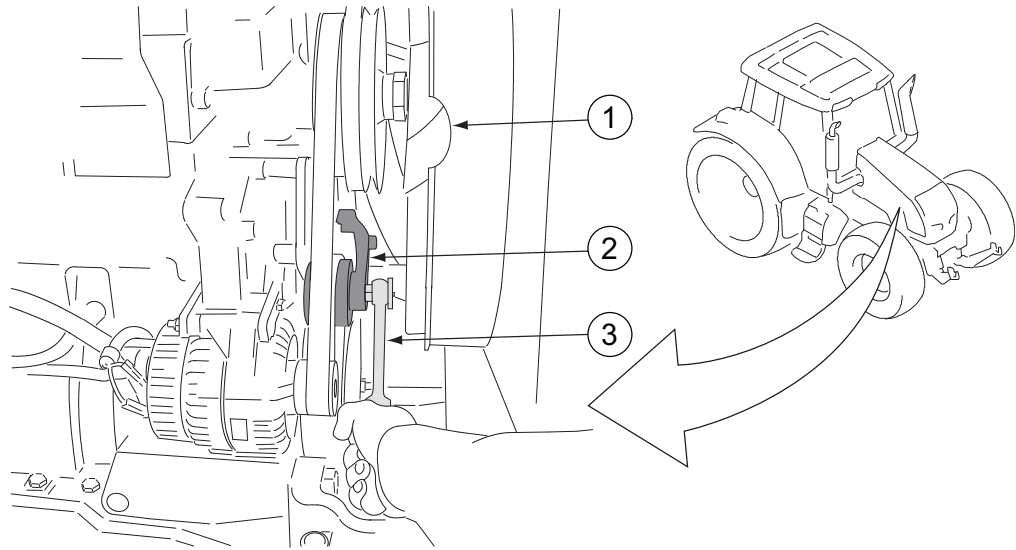
- 1. Elastic rubber coupling
- 2. Flange screws
- 3. Spacing ring

3. Remove the spacing ring.

The spacing ring is tightened between the flange and the elastic rubber coupling.

4. Loosen the automatic belt tensioner.

Use a 1/2" wrench as tool.



1. Belt changing groove on the wind tunnel
2. Automatic belt tensioner
3. 1/2" wrench

5. Install new belts.

Pass the belts through the belt changing groove on the wind tunnel

6. If you have removed the spacing ring, install it back to its place.

7. Tighten the automatic belt tensioner.

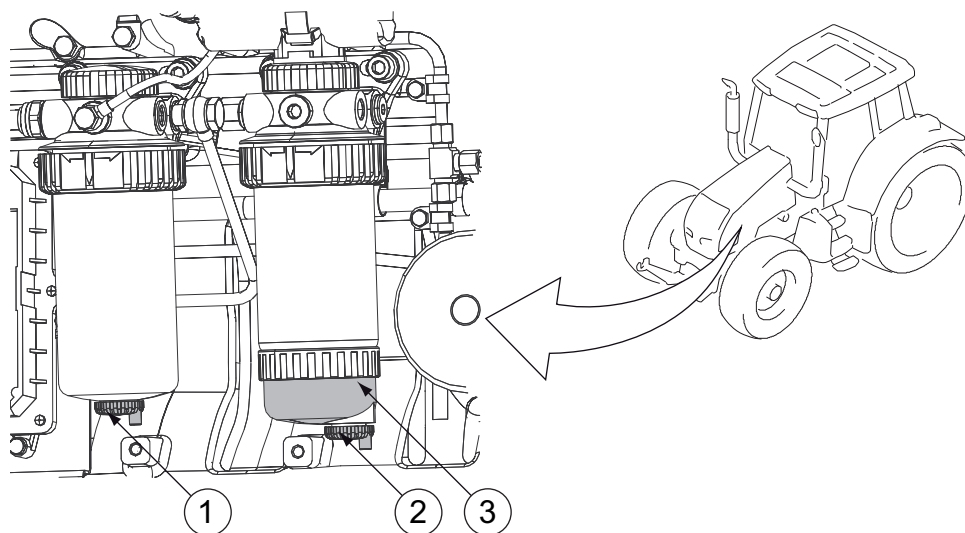
8. Tighten the air compressor belt.

9. Check the belts' tension.

4.7.3.15 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. Check the cleanliness of the sediment bowl.

If there are impurities or water in the sediment bowl, empty the prefilter.

2. Open the tap at the bottom of the prefilter to empty it.

3. 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!

4. Close the tap when the filter is empty.

Both the main fuel filter and prefilter are emptied in the same way.

5. If there was water in the filters, clean the fuel tank.

6. 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.

4.7.3.16 Checking the electrolyte level in the battery

Check the electrolyte level in the battery regularly.

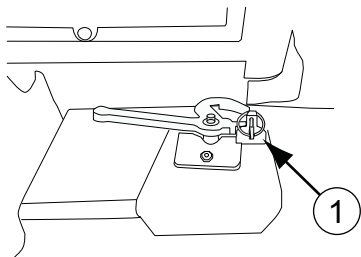


WARNING: Be careful with the battery solution. It is corrosive.

As default the battery is placed under the steps.

4. Maintenance

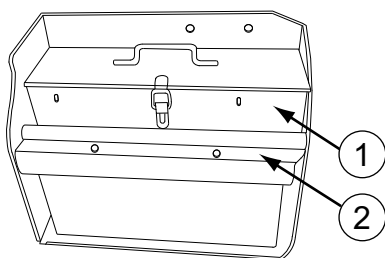
1. Open the lock for the battery casing.



1. Lock for the battery casing

2. Turn the battery casing to the open position.

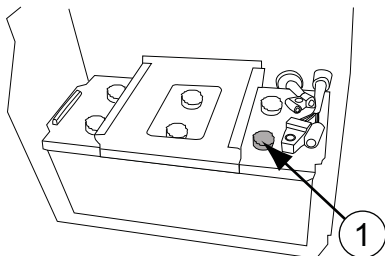
3. Take out the tool box.



1. Toolbox
2. Battery cover

4. Remove the battery cover.

5. Open the plugs.



1. Plug

6. Check that the battery electrolyte level is in accordance with the level marked on the battery.

If the battery has no mark, check that the electrolyte level is approximately 5-10 mm above the cell plates in the battery.

7. Top up with distilled water, if required.

IMPORTANT: During the cold season it is important that the engine is allowed to run for a while after topping up with distilled water, otherwise the water may freeze before it has had time to mix with the battery acid.



WARNING: Under no circumstances should you attempt to replenish the battery acid yourself.



WARNING: Never use a naked flame to check the level of the electrolyte.

8. Check the cables and battery terminals and clean them if necessary.

NOTE: If the water in the battery evaporates too quickly, it may be a sign that the charging voltage is too high. Keep the battery clean and dry on the outside. Protect the pole studs and the cable terminals with grease.

9. Fasten the covers and tool box after service.

4.7.3.17 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.

4.7.3.18 Checking the emergency brake

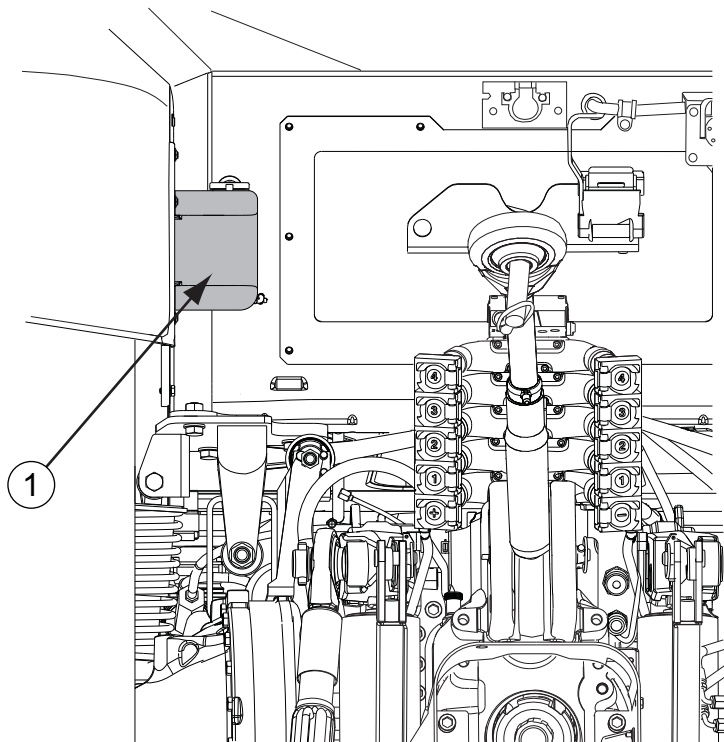
Check the emergency brake (extra equipment) weekly.

1. Pull the emergency brake to check that it is functioning.
2. Adjust the emergency brake, if necessary.

Normally there is no need for adjusting, because the emergency brake is adjusted (also parking brake), when the drive brakes are adjusted. The adjustment is done the same way as parking brake adjustment. In this case, the tractor has two cables.

4.7.3.19 Windscreen washer fluid reservoir

The windscreen washer fluid reservoir is located on the rear mudguards.



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.

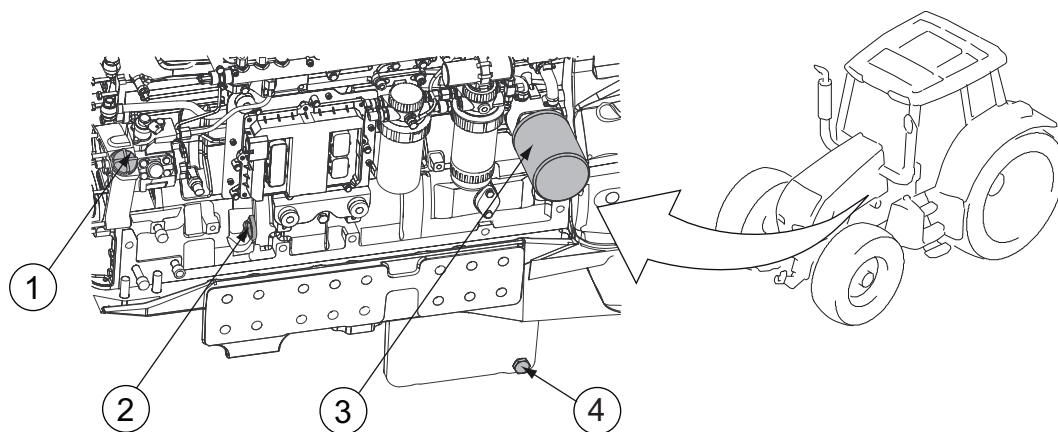
Use Valtra Universal Grease for the door hinges.

- **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.

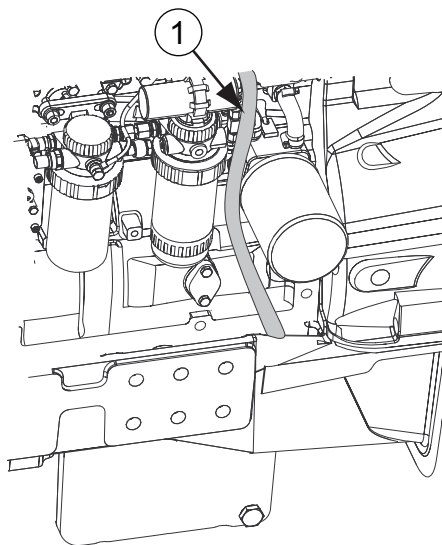


- 1. Filler hole
- 2. Dipstick
- 3. Oil filter
- 4. Drain plug

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.
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.

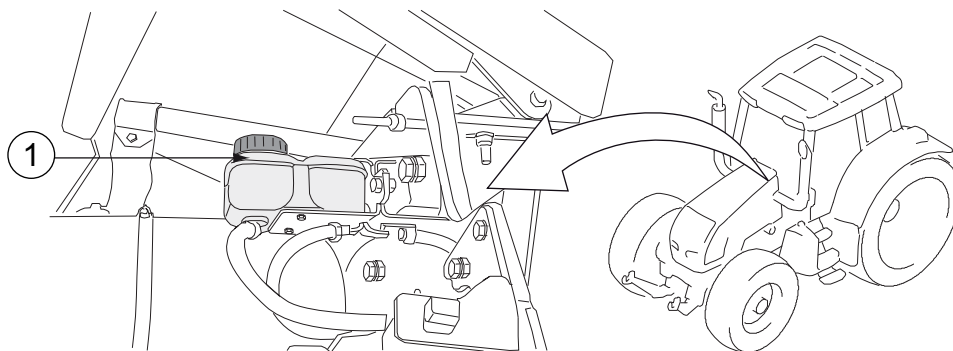


1. Breather pipe

- Check that the breather pipe is not blocked.

4.7.4.4 Checking the brake fluid level

On models T132 V and T152 V, check the brake fluid level periodically.



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.

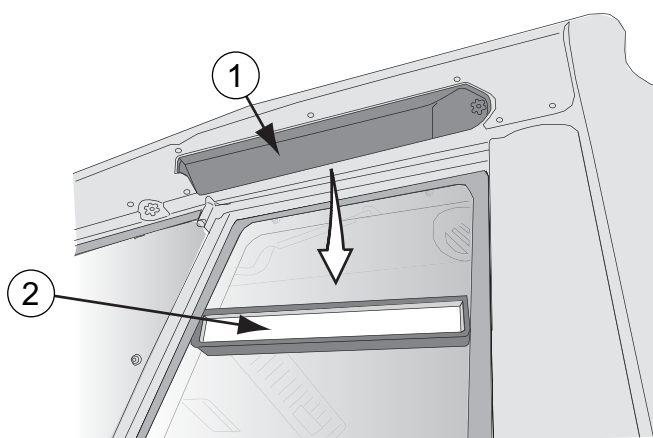
4.7.4.5 Cleaning the cab ventilation air filter

Clean the cab ventilation air filter periodically.



WARNING: The air filter element does not remove chemicals from the outside air. Follow the instructions of the pesticide manufacturer.

NOTE: Clean the cab ventilation air filter more often if needed.



1. Air filter housing
2. Ventilation air filter

1. Remove the air filter housing from the upper left-hand corner of the cab roof.
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 filter element 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.

A larger air filter housing with active coal filter or larger air filter is available as extra equipment.

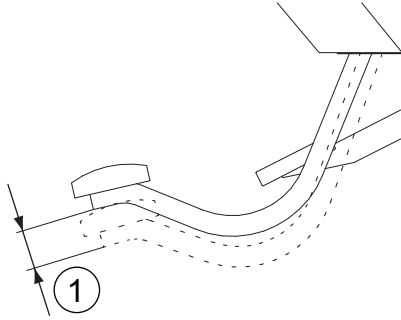
4.7.4.6 Checking wheel nuts' tightness

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.

4.7.4.7 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.

On models T132 V and T152 V, the free travel must be 70-80 mm when the pedals are latched together.

On models T162e V-T202 V, the free travel must be 35-45 mm when the pedals are latched together.

2. Adjust the free travel if necessary.

4.7.4.8 Adjusting brake pedals' travel when the tractor is equipped with unboosted brakes

Adjust the travel of brake pedals when needed.

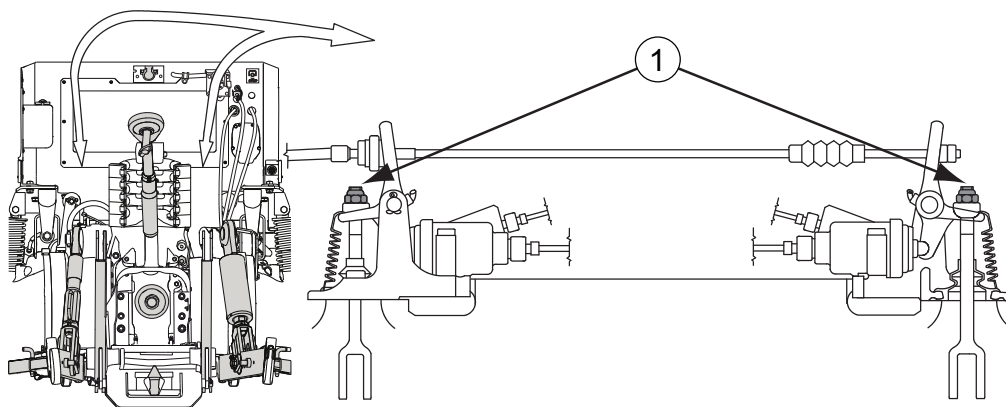
The models T132 V and T152 V have unboosted brakes.

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. Tighten the brake adjusting nuts.

Tighten the nuts until the rear wheels cannot be turned by hand.



1. Adjusting nut

3. Slacken the nuts.

Slacken the nuts for 1.5 turns.

4. Check that the rear wheels can rotate freely.

5. 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.

6. Check that the pedal free travel is the same on both wheels.

The pedal free travel should be ca. 70–80 mm. For the reverse drive system brakes, the brake pedal free travel should be 60-70 mm.

4.7.4.9 Adjusting brake pedals' travel when the tractor is equipped with boosted brakes

Adjust the travel of brake pedals when needed.

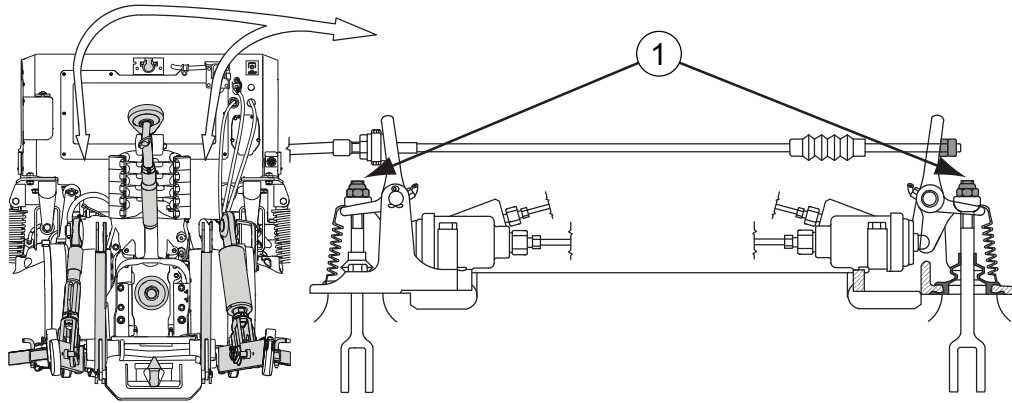
Models T162e V-T202 V have boosted brakes.

1. Make sure that the tractor cannot move by itself.

- Raise the rear wheels off the ground.
- Start the tractor.
- Engage the power shuttle to neutral.

2. Tighten the brake adjusting nuts.

- Adjust the nuts with the torque wrench to 20 Nm.
- Adjust the nuts without the torque wrench until they cannot be turned by hand.



1. Adjusting nut

3. Slacken the nuts.

- If you are tightening the adjusting nuts with a torque wrench, slacken them 2.3 turns.
- If you are tightening the adjusting nuts without a torque wrench, slacken them 1.5 turns.

4. Check that the wheels can rotate freely.

5. 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.

6. Check that the pedal free travel is the same on both wheels.

The pedal free travel should be ca. 35-45 mm. For the reverse drive system brakes, the brake pedal free travel should be 60-70 mm.

4.7.4.10 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.

4.7.4.11 Adjusting the parking brake

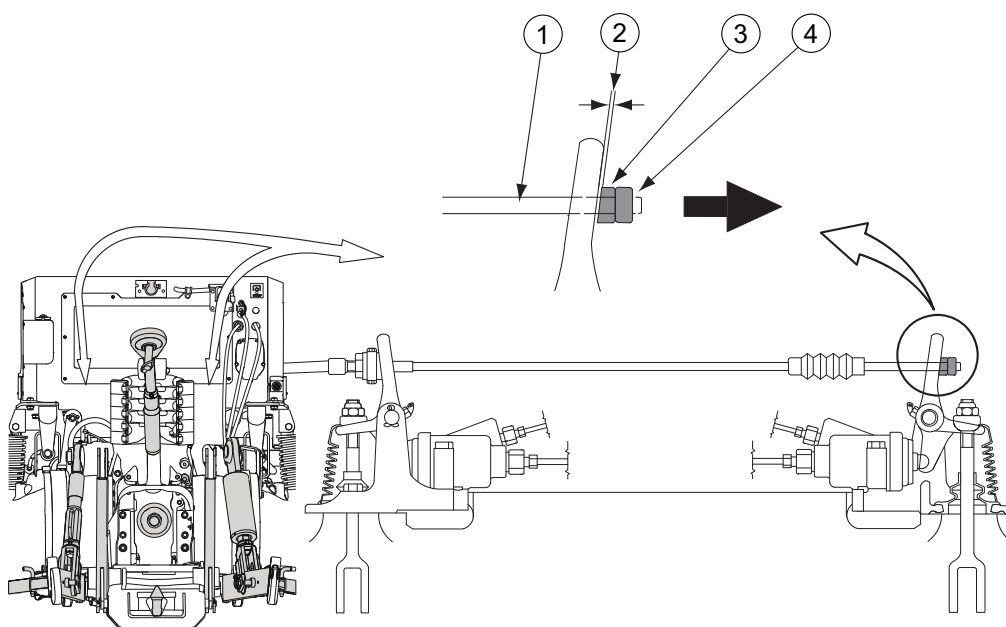
The parking brake is adjusted in the factory and readjustment is not necessary unless parts of the brake mechanism have been changed. The parking brake is affected when the driving brakes are adjusted.

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. Pull the cable clearance to the end of the cable.

The arrow in the following figure shows the direction.



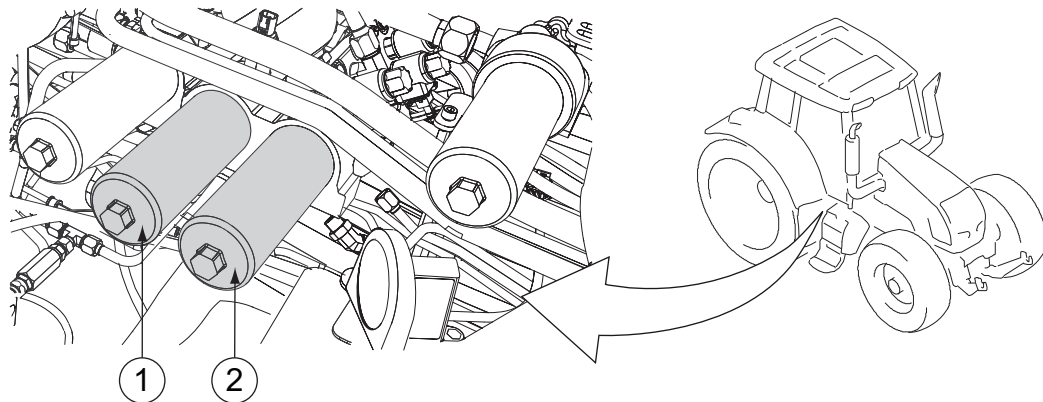
1. Cable
2. Clearance
3. Adjusting nut
4. Locking nut

5. Open the locking nut.
6. Adjust the clearance through the adjusting nut so that it is 1-2 mm.
7. 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.

4.7.4.12 Changing transmission oil filters

Change the transmission oil filters regularly.



1. Transmission lubrication filter.
2. Low pressure filter of the transmission system.

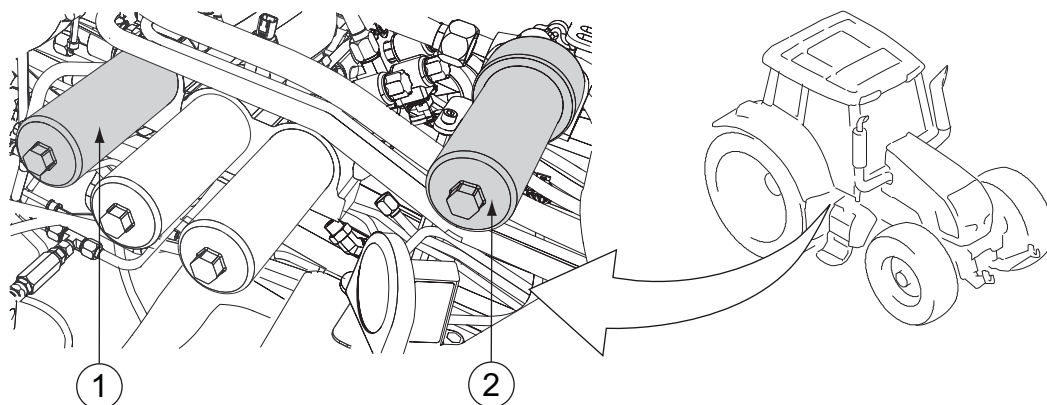
Oil filters are located on the right side of the tractor under the cab. The lubrication filter is indicated with the text LUB on the mounting piece on top of it. The low pressure filter is indicated with the text TRANS on the mounting piece on top of it.

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.

Screw in the housing fully by hand and then unscrew by one quarter-turn.

4.7.4.13 Changing hydraulic system oil filters

Change the hydraulic system oil filters regularly.



1. Return oil filter of the auxiliary hydraulic system
2. Pressure filter of the hydraulic system

Oil filters are located on the right side of the tractor under the cab. The return oil filter is labelled with the text HYD on the mounting piece on top of it.

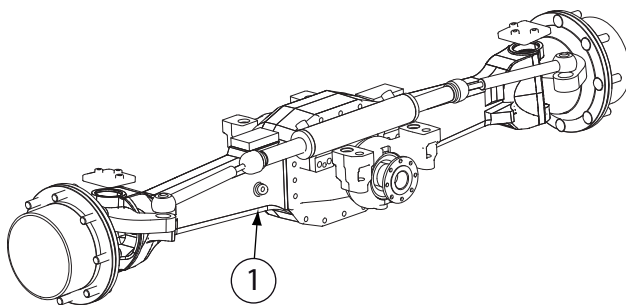
1. Fit a suitable container under the filter.
2. Clean the filter housing and the surrounding area.
3. Remove the filter housing and the filter element.
4. Wash the filter housing in clean diesel fuel.
5. Lubricate the seal of the new filter element.
6. Fit the new element into place.
7. Refit the filter housing.

Screw in the housing fully by hand and then unscrew by one quarter-turn.

4.7.4.14 Checking the oil level in the front axle differential

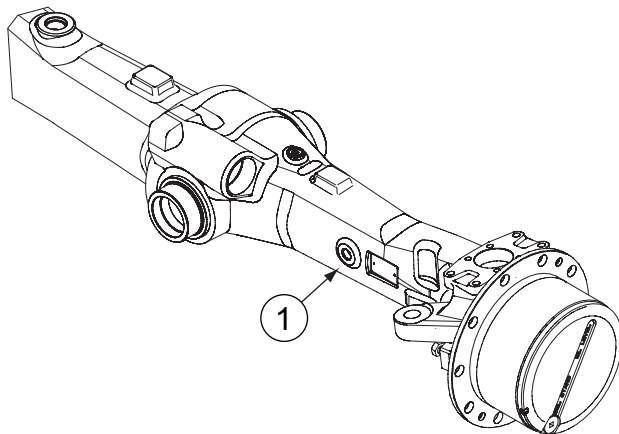
Check the oil level in the front axle differential periodically.

Agricultural front axle:



1. Inspection hole

Industrial front axle:

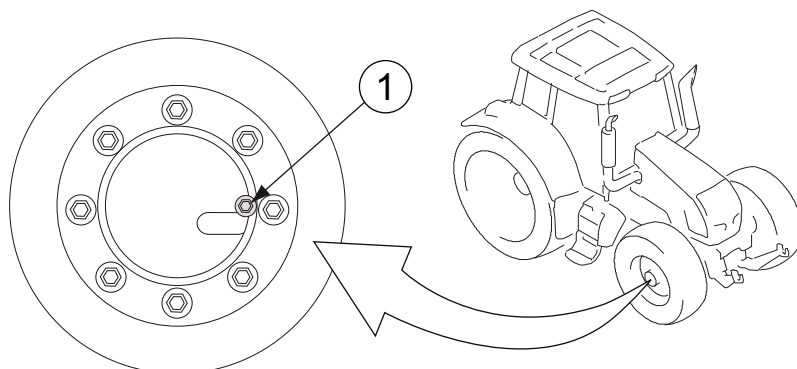


1. Inspection hole

1. Check that the oil is in level with the inspection hole.
2. Add more oil if necessary.

4.7.4.15 Checking the oil level in front axle hubs

Check the oil level in the front axle hubs periodically.

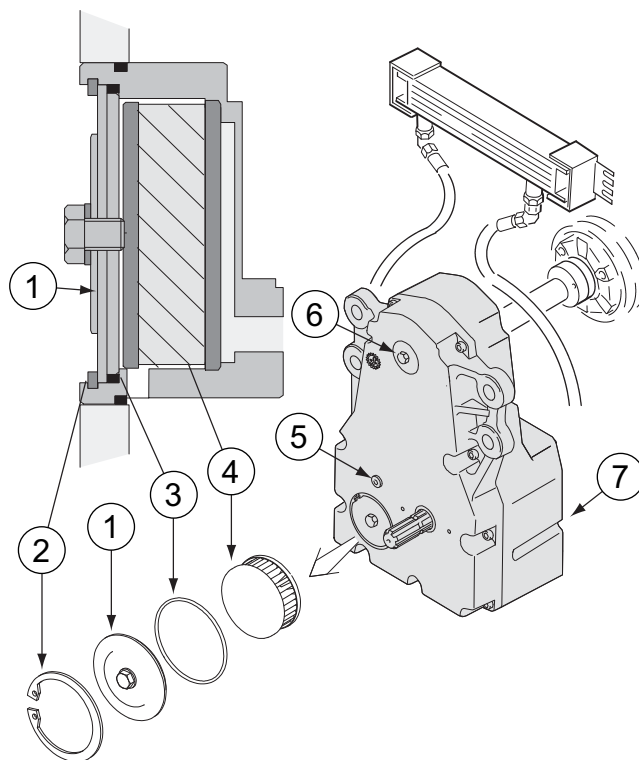


1. Oil surface indicator line

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.

4.7.4.16 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
7. Plug

1. Drain the oil by opening the plug at the rear of the housing.
2. Release the filter by loosening the lock ring and the end plate.
3. Clean the strainer with diesel.
4. Dry the strainer with compressed air.
5. Attach the filter and the parts in the contrary order.

Check that the O-ring fits the groove of the end plate.

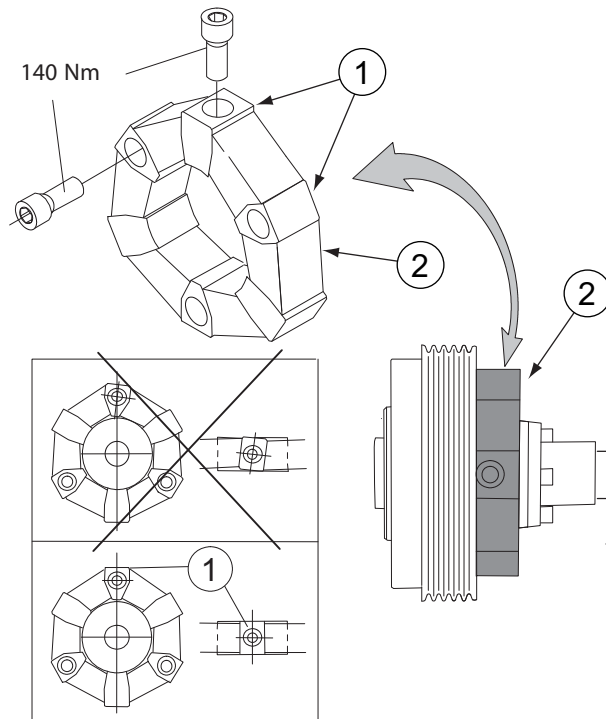
6. Fill up the housing with oil to the level of the hole.

The breather can be loosened for bleeding. Check that the breather is not blocked. When filling, the tractor has to stand on even ground.

7. Use the front PTO a moment and check oil.

4.7.4.17 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.

4.7.4.18 Checking and greasing the trailer air-pressure brake system

Check and grease the trailer air-pressure brake system regularly.

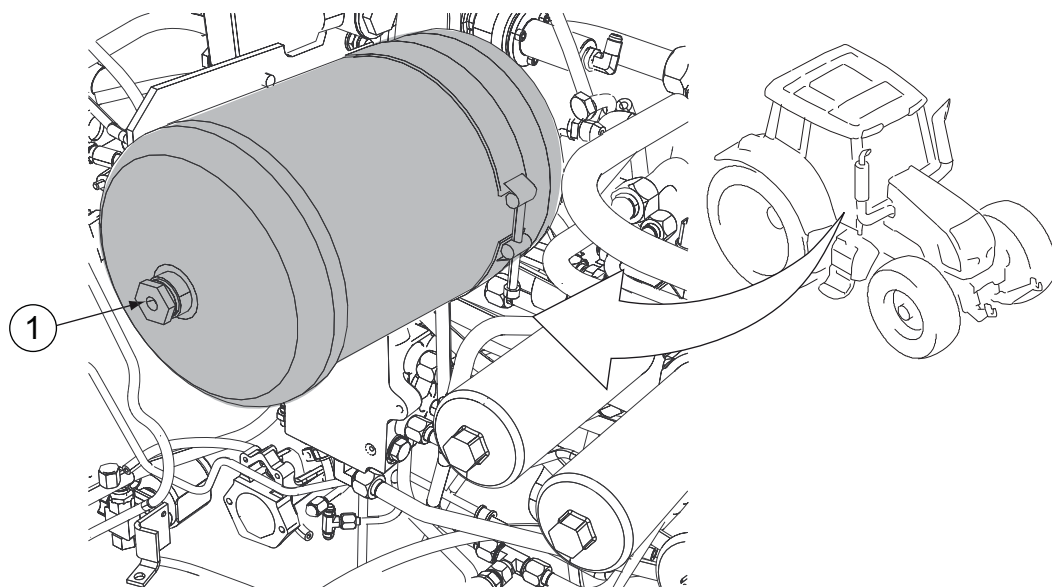
1. **Grease the rubber surfaces of the trailer quick couplings with Valtra Calsium LF grease.**
2. **Check the integrity of the system.**

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.

4.7.4.19 Checking the air pressure system's automatic water draining

If the tractor is equipped with an air pressure system, there are pressure containers on both sides of the tractor under the cab. The containers have

automatic valves for water draining. The valve functions must be checked frequently.



1. Automatic water draining valve on both sides of the tractor

1. Push a blunt stick through the draining valve hole.

IMPORTANT: The stick must not be sharp, because it can damage the valve. If the air that comes out is free of water, the automatic is operating.

2. If there is water with the air, push the stick through the valve hole until there is no pressure on the container.

3. Open the valve and clean the seal inside it.

4. Mount the valve back.

5. Check the valve on the other side.

6. If the valves do not operate properly after cleaning, replace them with new ones.

4.7.5	Maintenance every 1000 hours or yearly
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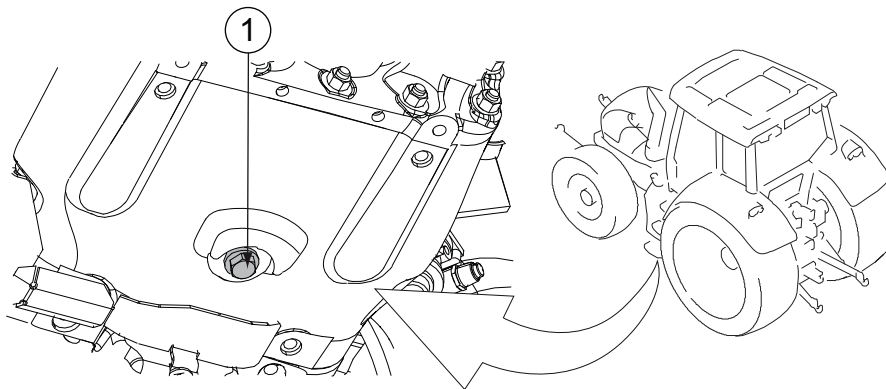
4.7.5.1	Changing oil in the hydraulic system
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Both hydraulic and transmission oil can be used in the hydraulic system. The use of transmission oil is recommended, since hydraulic oil may mix with oils from other tractors through implements and thereby damage other tractors. The hydraulic system is filled with transmission oil at the factory.

1. Run the tractor, and raise and lower the hydraulic lift (or e.g. the front loader) until the oil is a little warm.

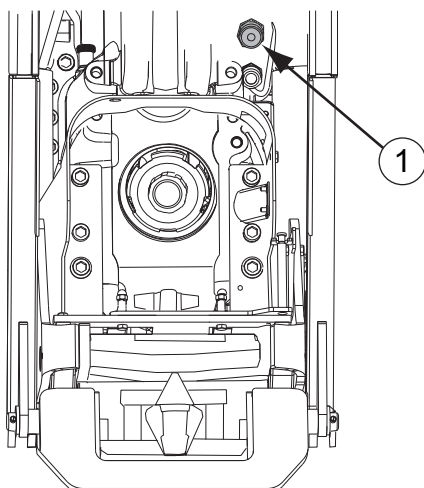
2. Lower the hydraulic lift (also the front lift).

3. Remove the drain plug under the housing.



1. Hydraulic oil drain plug

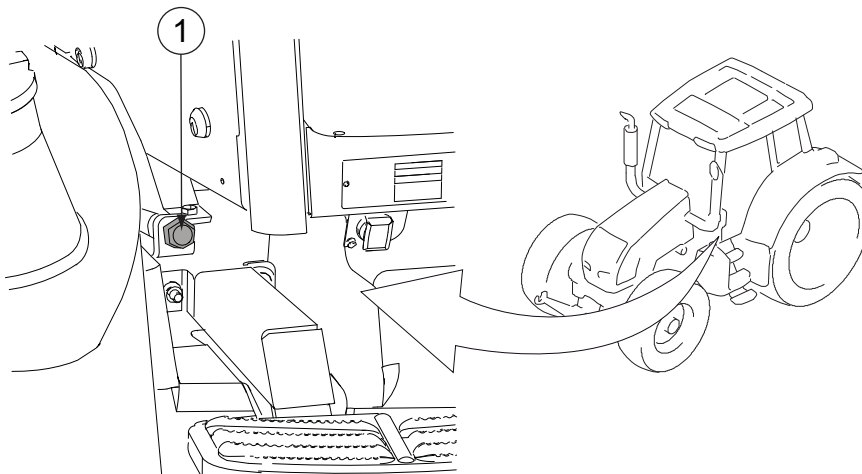
4. Drain the oil into a suitable container.
5. Clean and refit the plug.
6. Refill by pump through the hydraulic return coupling.



1. Hydraulic return coupling

The oil must go through the return filter so that no impurities enter the system.

7. Pull out the dipstick to check the oil level.



1. Hydraulic oil dipstick

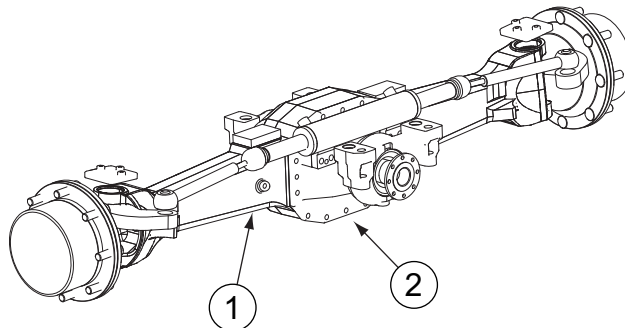
The dipstick is located in the front gearbox housing on the left. Make sure that after refilling, the oil level is between the minimum and maximum marks.

8. Start the engine and check the oil level.

4.7.5.2 Changing oil in the front axle differential

Change the oil in the front axle differential periodically.

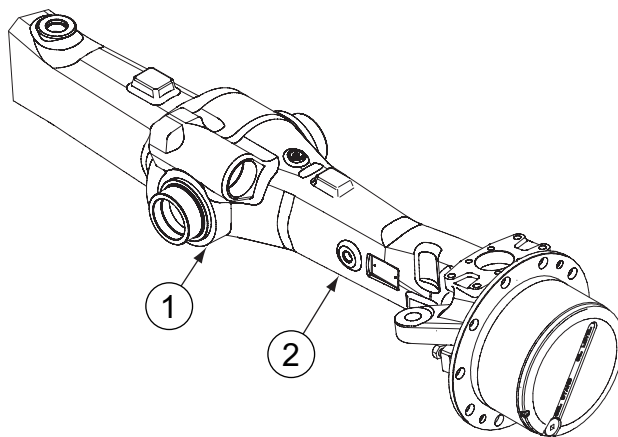
Agricultural front axle:



1. Inspection hole
2. Drain plug

Industrial front axle:

4. Maintenance

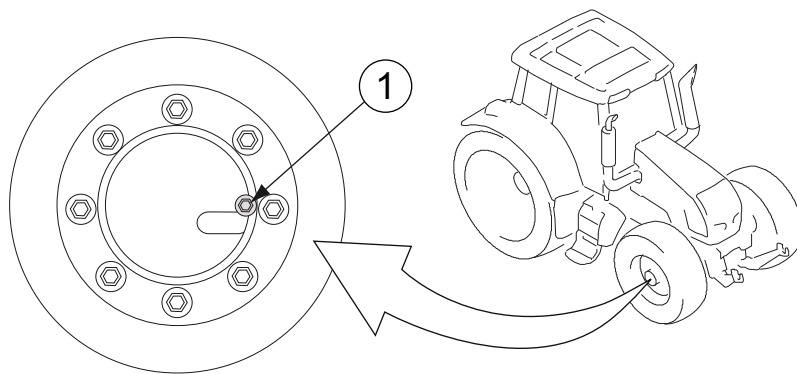


- 1. Drain plug
- 2. Inspection hole

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 inspection hole up to the level of the hole.

4.7.5.3 Changing oil in the front axle hubs

Change oil in the front axle hubs periodically.

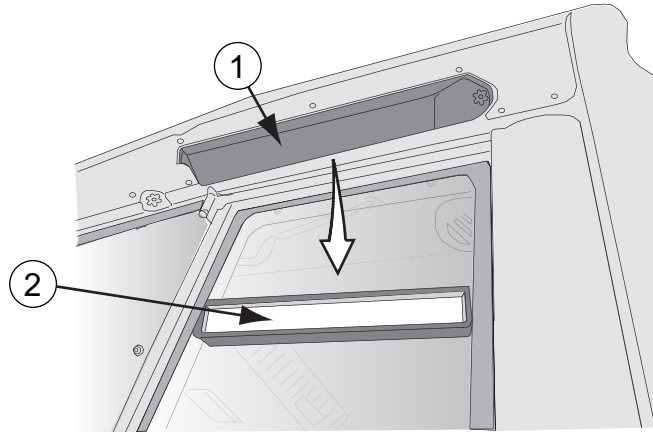


- 1. Oil surface indicator line

1. Unscrew the plug and drain the oil.
2. Turn the wheel until the line of the inspection hole is horizontal.
3. Fill up with oil to the level of the hole.

4.7.5.4 Changing the cab ventilation air filter

Change the cab ventilation air filter periodically.

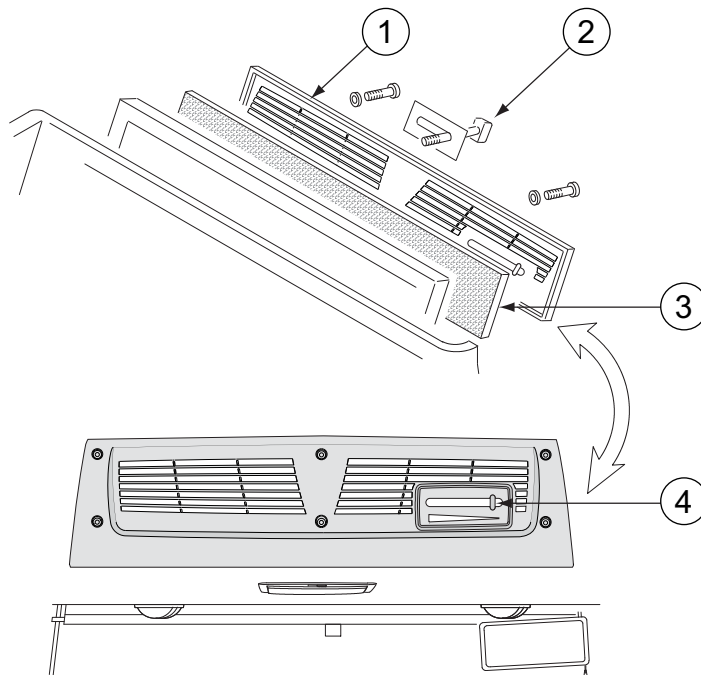


- 1. Air filter housing
- 2. Ventilation air filter

1. Remove the air filter housing from the upper left-hand corner of the cab roof.
2. Remove the ventilation air filter.
3. Replace the ventilation air filter with a new one.
Change ventilation air filter more often if necessary.
4. Attach the air filter housing back to its place.

4.7.5.5 Changing the recirculation filter

Change the recirculation filter periodically.



1. Grille
2. Recirculation control knob (not with automatic air conditioning)
3. Filter element

1. Remove the recirculation control knob (not with automatic air conditioning).
2. Remove the grille.
3. Extract the filter element.
4. Change the filter.

NOTE: It may be necessary to change the filter more frequently.

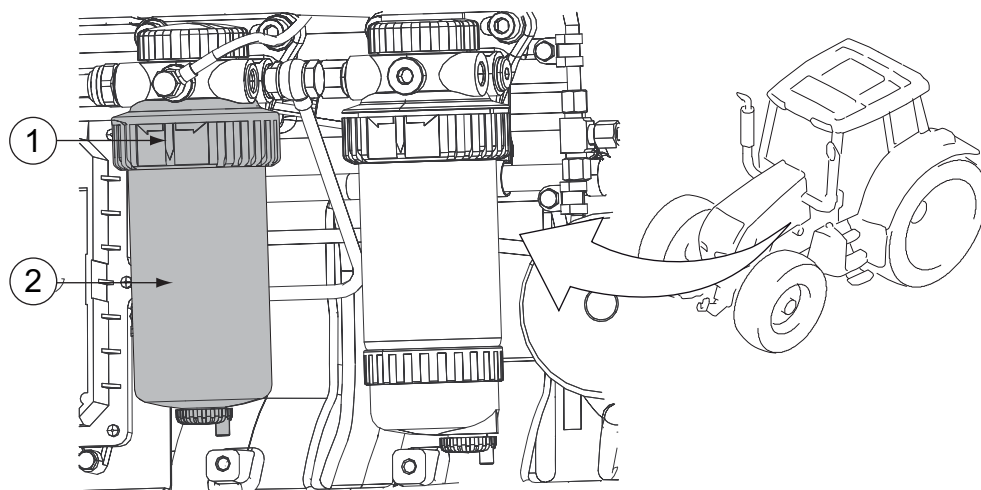
4.7.5.6 Changing the fuel filter

Change the fuel filter periodically.

Always use original Valtra fuel filters.

IMPORTANT: Using other fuel filters than the original ones, even for a short period of time, may cause lower performance and expensive damages.

IMPORTANT: When using over 5 % Biodiesel, change the fuel filter every 500 hours.



- 1. Locking ring
- 2. Filter element

1. Open the locking ring and remove the filter element.

IMPORTANT: Unscrew the filter by hand, do not use a filter wrench.

2. Fill a new filter element with fuel.

3. Attach the filter element.

NOTE: The filter fits in one position only.

4. Screw the locking ring until you hear a clicking sound.

4.7.5.7 Changing the fuel prefilter

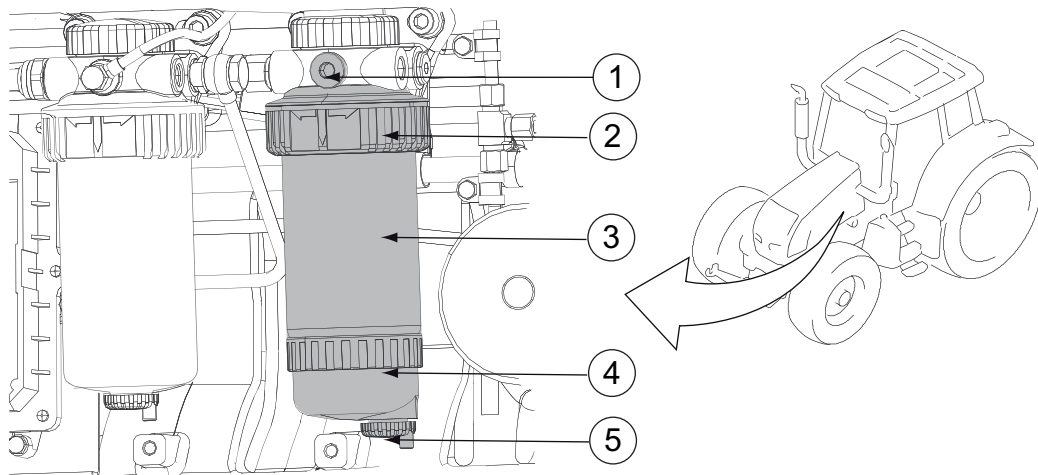
Change the fuel prefilter periodically.

Always use original Valtra fuel filters.

IMPORTANT: Using other fuel filters than the original ones, even for a short period of time, may cause lower performance and expensive damages.

IMPORTANT: Unscrew the filter by hand, do not use a filter wrench.

4. Maintenance



1. Bleeder-screw
2. Locking ring
3. Filter element
4. Water trap
5. Drain cock

1. Slightly open the drain cock at the lower part of the prefilter.
2. Drain the fuel into a container.
 - Open the bleeder-screw in the prefilter's mounting frame to drain the fuel more easily.
 - Close the bleeder-screw after the draining has been completed.

IMPORTANT: Do not drain fuel on the ground!

3. Release the water trap from the prefilter.
4. Open the locking ring.
5. Remove the filter element.
6. Fasten the water trap to the lower part of the new prefilter.
7. Fill the filter element and water trap with fuel.
8. Attach the filter element.

NOTE: The filter fits in one position only.

9. Screw the locking ring until you hear a clicking sound.

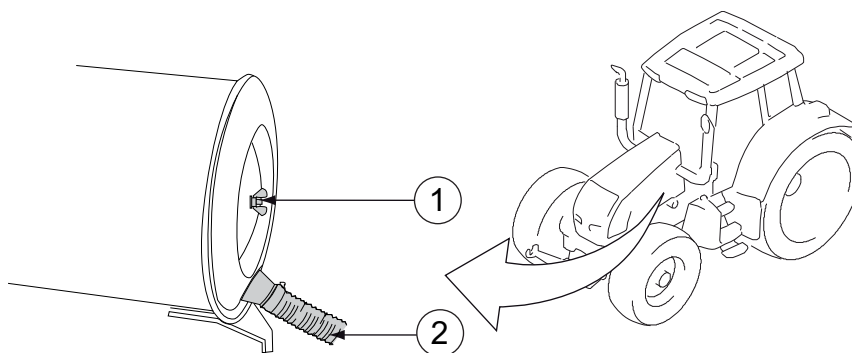
IMPORTANT: Change the filters more often, if necessary.

10. If necessary, bleed the fuel system.

4.7.5.8 Changing engine air filters

Change the main air filter and the safety filter periodically.

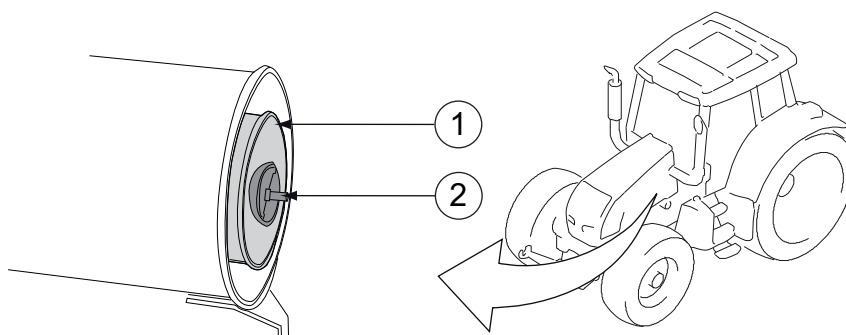
1. Open the cover of the air filter housing.



- 1. Cover tightening nut
- 2. Ejector pipe

The cover of the air filter housing is locked with one nut in the centre.

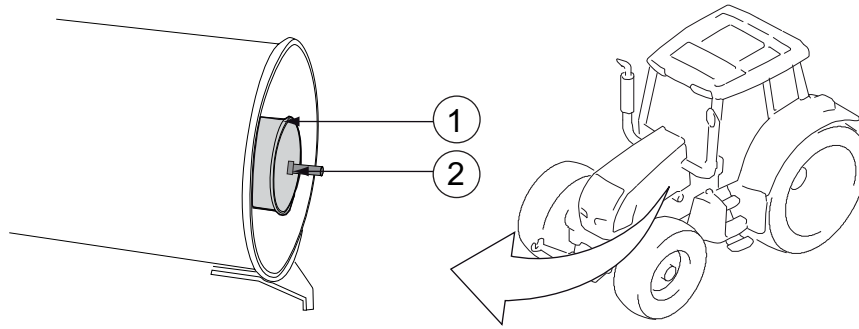
2. Take out the main filter.



- 1. Main filter
- 2. Main filter tightening nut

The main filter is locked with one nut in the centre.

3. Remove the safety filter.



1. Safety filter
2. Safety filter tightening nut

The safety filter is locked with one nut in the centre.

IMPORTANT: Take the utmost care when removing the safety filter so that no dirt enters the induction pipe.

NOTE: Do not clean the safety filter. Always change the safety filter according to the maintenance schedule.

4. Fit a new safety filter.

- Check that the seals are in good condition.
- Check that the sealing surfaces are clean.
- Fit the safety filter in place.

Make sure that the filter is correctly positioned in the housing.

- Tighten the nut to hold the filter in place.

IMPORTANT: Never run the tractor without the safety filter.

5. Fit a new main filter.

- Fit the main filter.

Make sure that the filter is correctly positioned in the housing.

- Tighten the nut to hold the filter in place.

Tighten until the filter comes into contact with the end of the filter housing.

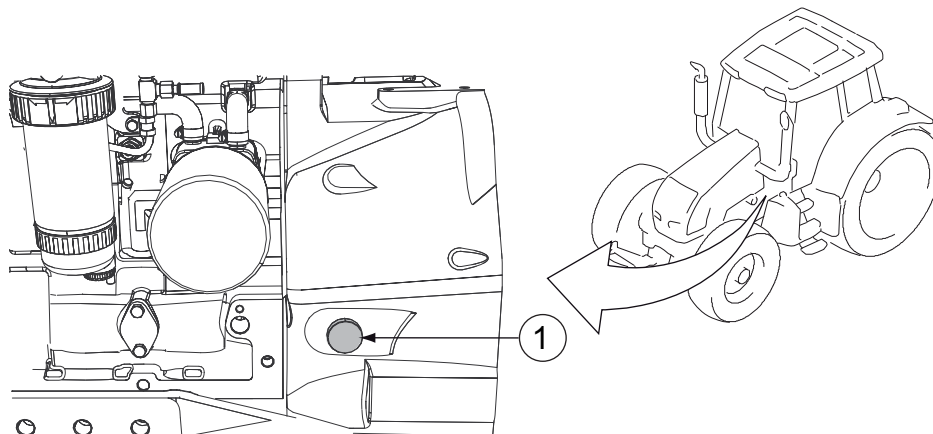
6. Close the cover of the air filter housing.

The cover of the housing must be mounted so that the ejector pipe is in the lower position.

NOTE: Do not over tighten the nut on the air filter housing. Tighten approximately 1-1.5 turns after the flange seal has come into contact with the surface of the housing.

4.7.5.9 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 Valtra Grease Moly.

4.7.5.10 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.

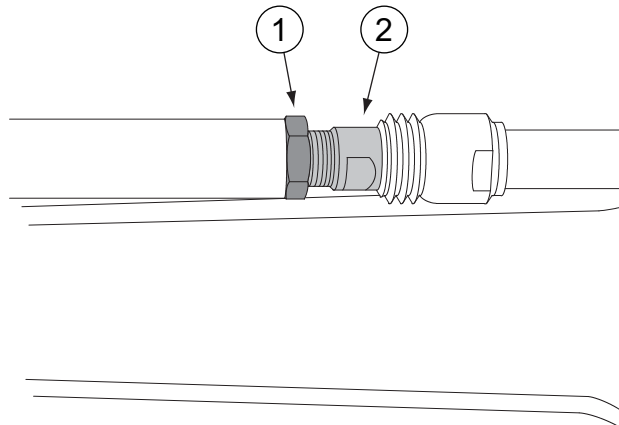
4.7.5.11 Adjusting toe-in of front wheels

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.

4.7.5.12 Adjusting engine valves

Contact an authorised Valtra workshop for the checking and adjustment of the engine valves.

NOTE: The adjustment of the engine valves must be done after 1 000 operating hours.

4.7.5.13 Changing the hydraulics breather

Change the hydraulics breather periodically.

IMPORTANT: If the tractor is used continuously in dusty conditions, the breather must be changed more frequently.



1. Hydraulics breather

1. Unscrew the old breather.
2. Lubricate the seal on the new breather.
3. Tighten the breather by hand.

4.7.5.14 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.

4.7.5.15 Tightening frame nuts and bolts

Tighten the frame nuts and bolts periodically.

4.7.6 Maintenance every 2000 hours or every other year

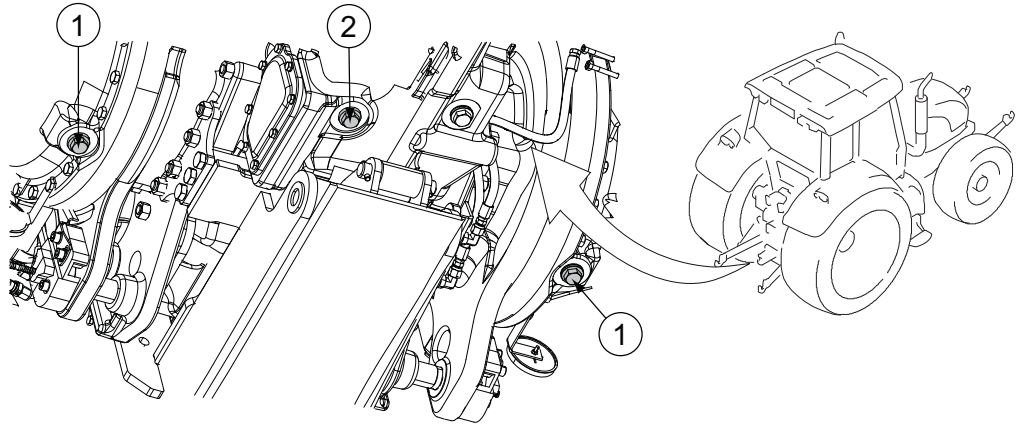
4.7.6.1 Changing oil in the transmission system

Change the oil in the transmission system periodically.

1. **Run the tractor until the oil in the transmission system is warm.**

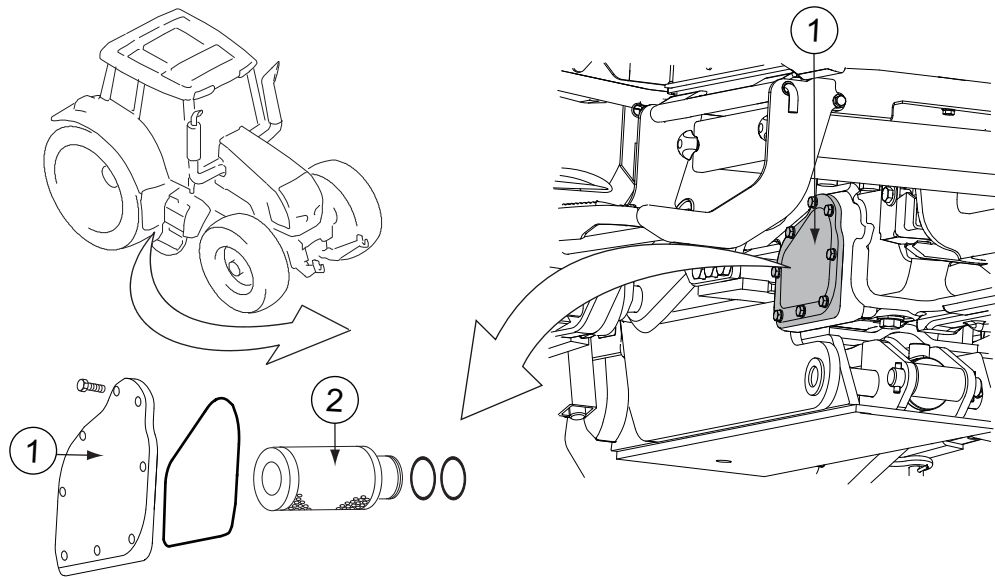
This speeds up the oil drainage and most of the impurities come out with the oil.

2. Remove the drain plugs under the gearbox and final drives.



1. Final drives drain plugs
2. Gearbox drain plug

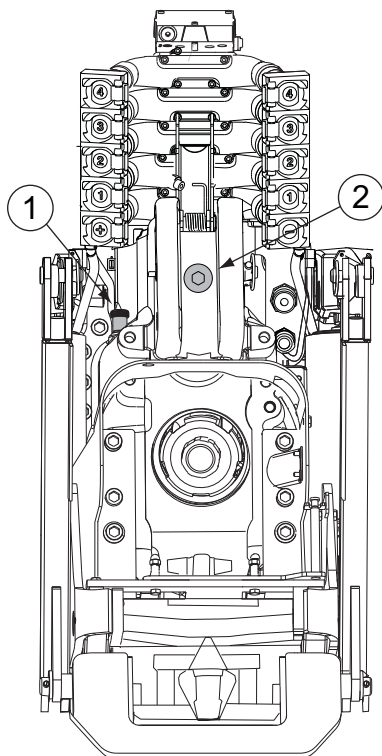
3. Drain the oil into a suitable container.
4. Clean and refit the plugs.
5. Remove the cover of the suction strainer.



1. Cover of the suction strainer
2. Suction strainer

6. Wipe off any oil which has run out on the chassis.
7. Clean the suction strainer in diesel fuel and dry it with compressed air.
Replace the suction strainer if it is damaged.
8. Refit the suction strainer, gaskets and cover.
9. Change the transmission oil filters.

10. Remove the top link to reach the filling plug located behind it.



- 1. Transmission oil dipstick
- 2. Transmission oil filling plug

11. Fill the oil through the filler cap.

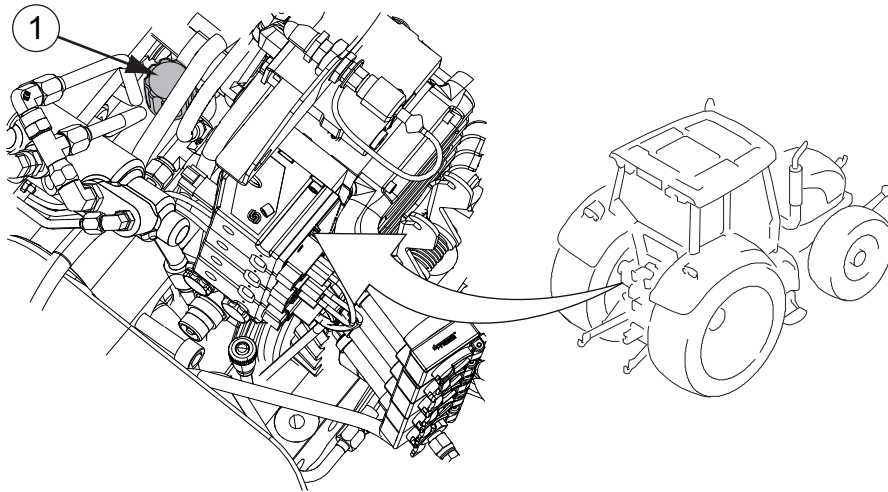
12. Check that the oil level is between the marks.

13. Start the engine and check the oil level.

4.7.6.2 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.



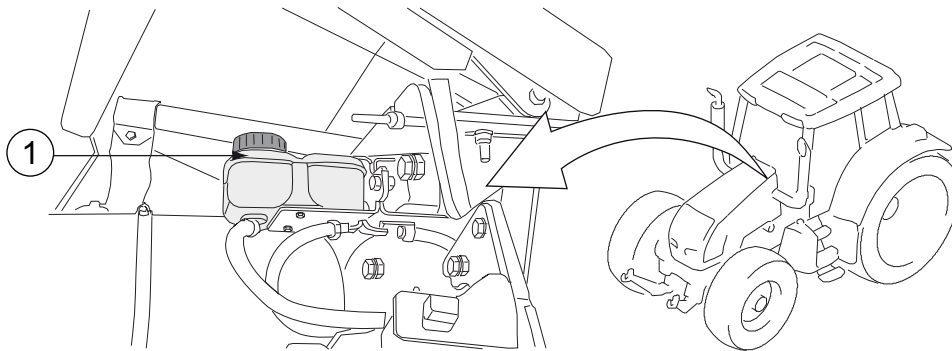
1. Breather

1. Unscrew the old breather.
2. Lubricate the seal on the new breather.
3. Tighten the breather by hand.

4.7.6.3 Changing the brake fluid in unboosted brake system

The unboosted brake system is in models T132 V – T152 V.

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.

4.7.6.4 Bleeding the unboosted brake system

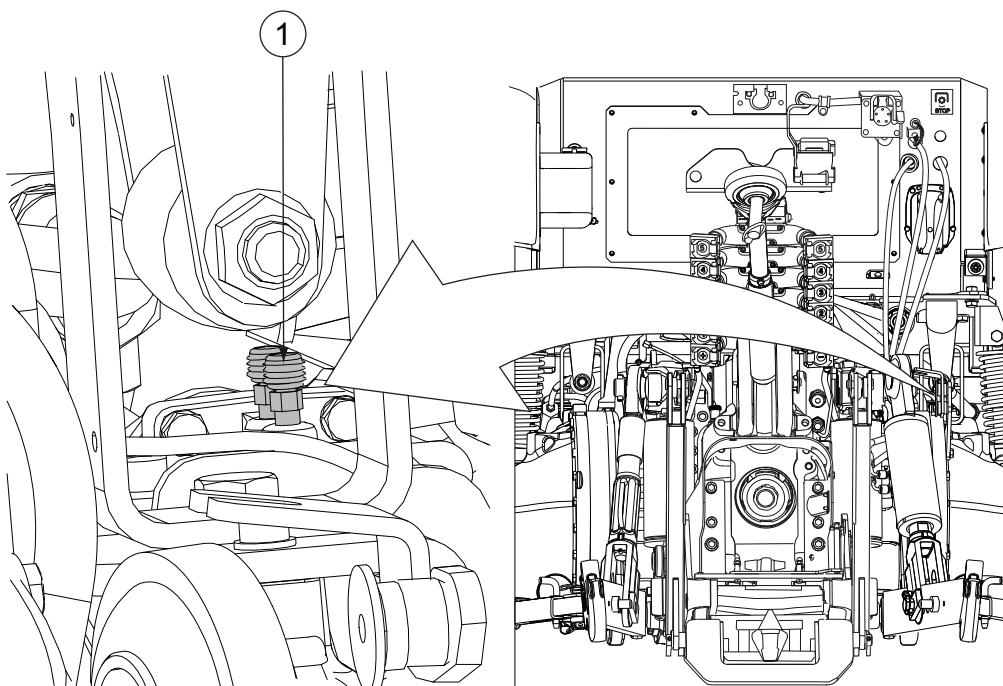
The brake system has to be bled every two years when changing the oil of the brake circuits, or if the connections have been opened when repairing.

The unboosted brake system is in models T132 V–T152 V.

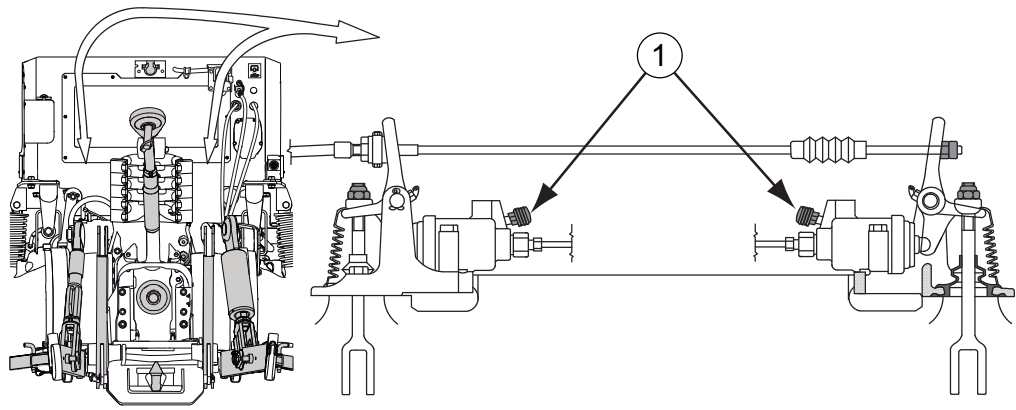
The brake pedals must not be latched together when bleeding. The procedure for bleeding the brake system is the same for both brake pedals.

If the tractor is equipped with a trailer brake valve (extra equipment), air pressure brakes (extra equipment) or reverse drive controls (extra equipment), they must all be bled. Brakes are bled from the lowest bleeding nipple in the following order:

1. The trailer air pressure brakes, the bleeding nipples of the control valve

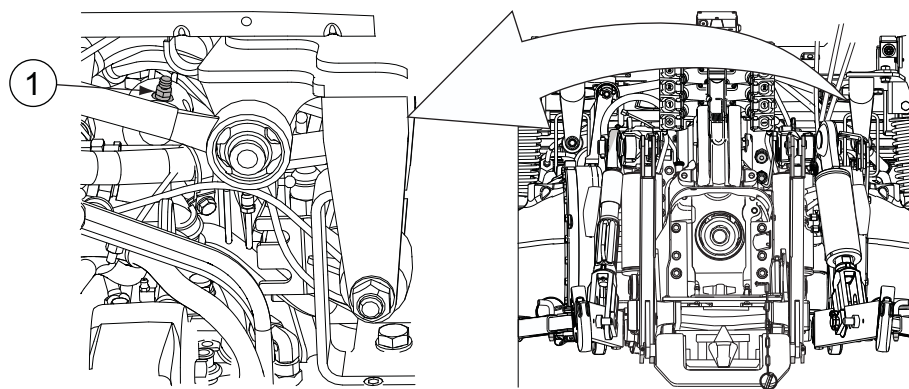


1. Bleeding nipples of the trailer air pressure brakes
2. The tractor brakes, the bleeding nipples of the working cylinder



1. Bleeding nipples of the tractor brakes

3. The trailer fluid brakes, the bleeding nipple of the fluid brake valve



1. Bleeding nipple of the tractor fluid brake valve

Bleeding of the brakes for the reverse drive system is carried out through the bleeding nipple of the trailer fluid brake valve. If there is no trailer fluid brake valve, the bleeding must be carried out last through the bleeding nipples of the tractor working cylinder.

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.

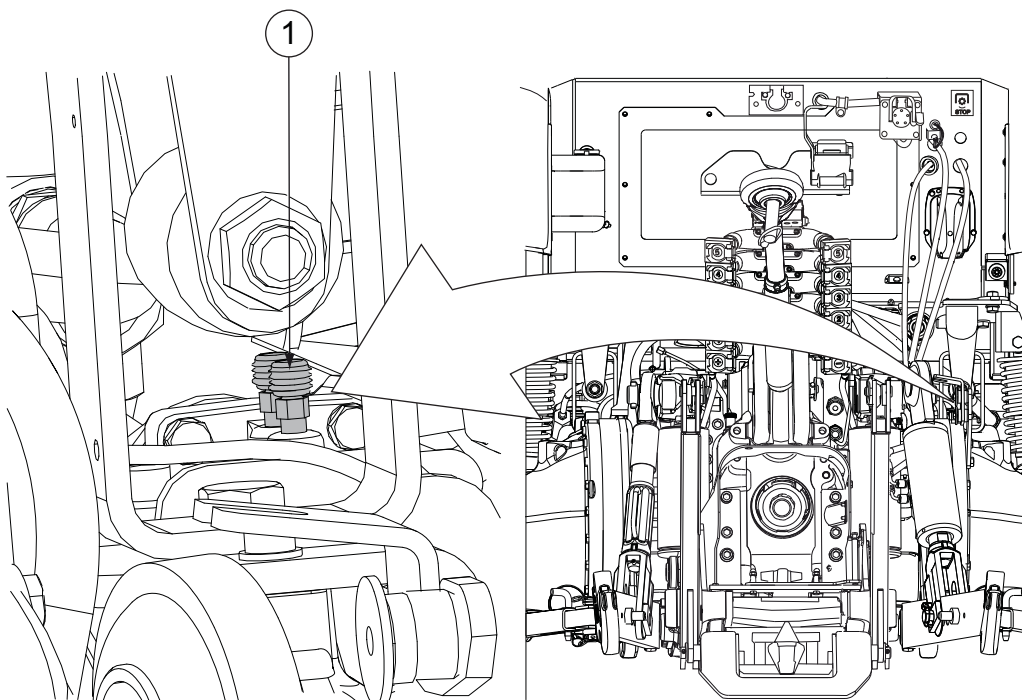
4.7.6.5 Changing oil in boosted brake system

The boosted brake system is in models T162e V - T202 V

The boosted brake system uses the same oil as the transmission system. The oil in the brake circuits is not changed when changing the transmission oil. Therefore, the brake circuit oil has to be changed by bleeding after every transmission oil change. Also when repairing, the system has to be filled and bled in the same way.

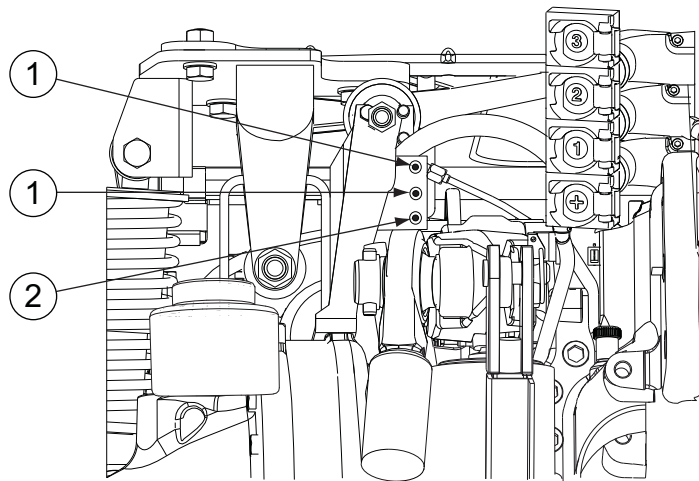
4.7.6.6 Bleeding the brake system when the tractor is equipped with boosted brakes

The boosted brake system is in models T162e V-T202 V.



1. Bleeding nipples of the trailer air pressure brakes

Both brake pedal circuits of the trailer air pressure brakes (extra equipment), right and left, have their own bleeding nipple. The control valve is situated on the right side under the cab on the air pressure reservoir.



1. Bleeding nipples of the tractor brake working cylinder
2. Bleeding nipple of the tractor fluid brake valve of the trailer

Both brake pedal circuits of the tractor brake working cylinder (extra equipment), right and left, have their own bleeding nipple. The nipples are placed on the bleed plate on top of the left axle housing.

The nipple of the tractor fluid brake valve of the trailer (extra equipment) is also placed on the bleed plate on top of the left axle housing.

1. **Start the tractor and let it run for ca. three minutes.**

This ensures that the oil from the pump is completely free from air.

2. **Lock the brake pedals together.**

3. **Open the bleeding nipples.**

It is recommended to use hoses from the bleeding nipples to a suitable container.

NOTE: Do not let the oil run on the ground.

4. **Pump the pedals until there are no air bubbles in the oil.**

5. **Close the bleeding nipples.**

6. **Check that the pedal free travel is the same on both wheels.**

Check the free travel while driving with the pedals latched together. The pedal free travel must be ca. 35-45 mm.

7. **Check the free travel on the rear brake pedal.**

The reserve drive control is extra equipment. The pedal free travel must be ca. 60-70 mm.

4.7.6.7 Changing oil in the front axle brake system

The front axle equipped with a brake system is extra equipment for models T162e V - T202 V.

Front axle brakes use the same power transmission oil as the rear brakes. Change the front brake oil every other year while changing the rear brake system oil.

1. Start the tractor and let it run for about three minutes.

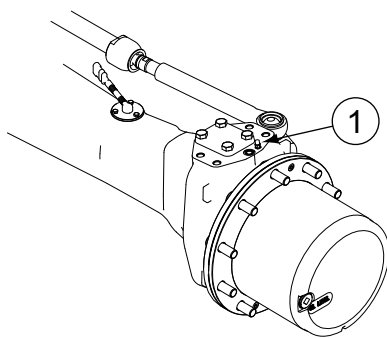
This ensures that the oil from the pump is completely free from air.

2. Make sure that the bleeding valves for the rear brakes and hydraulic trailer brakes are closed.

3. Lock the brake pedals together.

4. Open the bleeding nipples.

There is one bleeding nipple on both sides.



1. Bleeding nipple

5. Put a hose from both bleeding nipples to containers.

6. Pump the brake pedals until there are no air bubbles in the oil.

The oil has been changed when about 0.2 litres has come out from each side.

It is not necessary to adjust the front brakes.

4.7.6.8 Cleaning the cooling system

Clean the cooling system periodically.

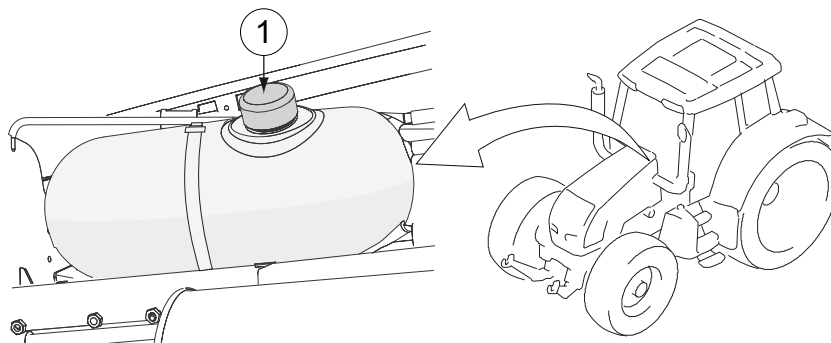
If problems occur with the cooling system, it can be a sign that the whole system needs to be thoroughly cleaned.

1. Stop the engine.

2. Open the cap of the expansion tank.

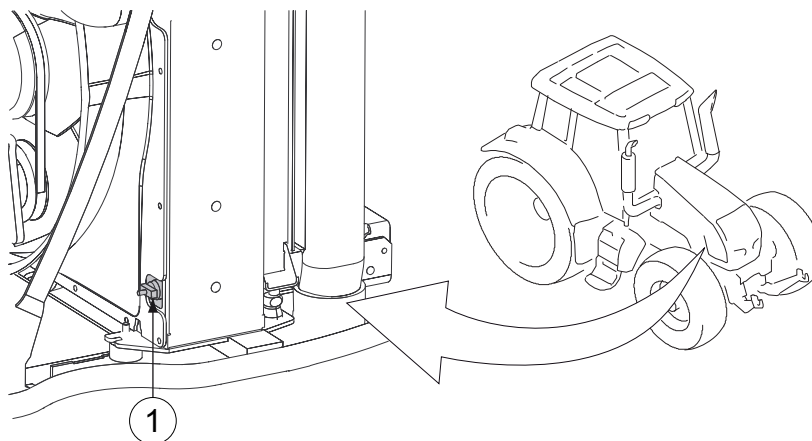


CAUTION: Open the expansion tank cap carefully. When running the tractor the expansion tank has an overpressure of 1.0 bar.



1. Cap of the expansion tank

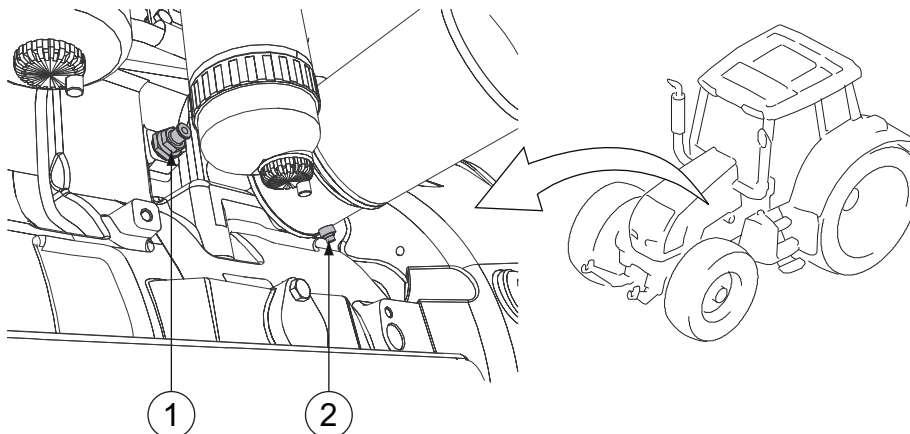
3. Connect a hose from the radiator draining cock to a clean container and open the plug.



1. Radiator draining cock

4. Open the drain cock on the cylinder block and open the drain plug on the oil cooler.

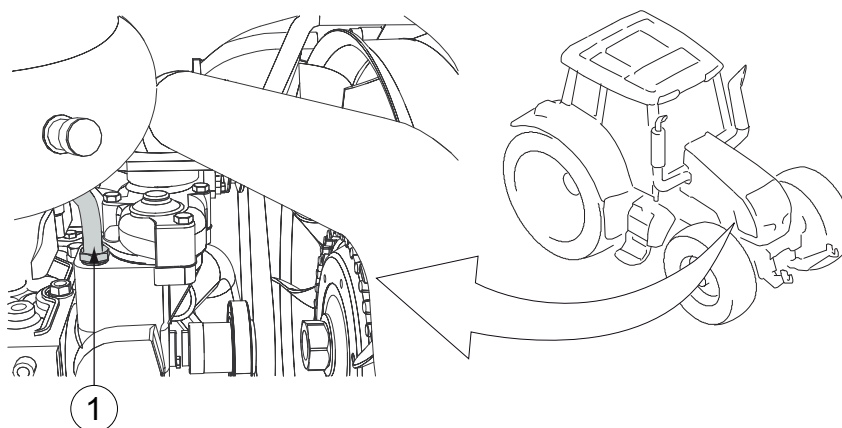
IMPORTANT: Do not drain coolant on the ground!



1. Drain cock on the cylinder block
2. Drain plug on the oil cooler

The cooler is located between the engine block and oil filter.

5. Turn the heater control in the cab clockwise.
6. Drain the water pump by cranking the engine a few revisions with the drain plugs removed.
7. Clean the cooling system with a special cleaning agent available from your dealer.
Follow the manufacturer's instructions.
8. Close the radiator drain cock.
9. Close the drain cock of the cylinder group.
10. Close the drain plug of the oil cooler.
11. Loosen the hose placed between the thermostat housing and expansion tank.



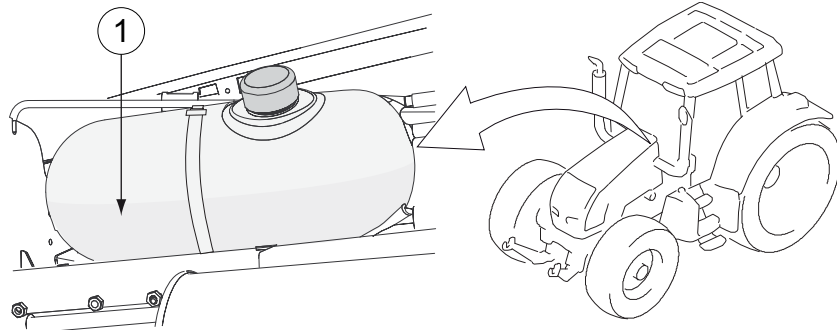
1. Hose

12. Check that the restrictor hole (\varnothing about 2 mm) in the union is open.

13. Refasten the hose.

14. 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.

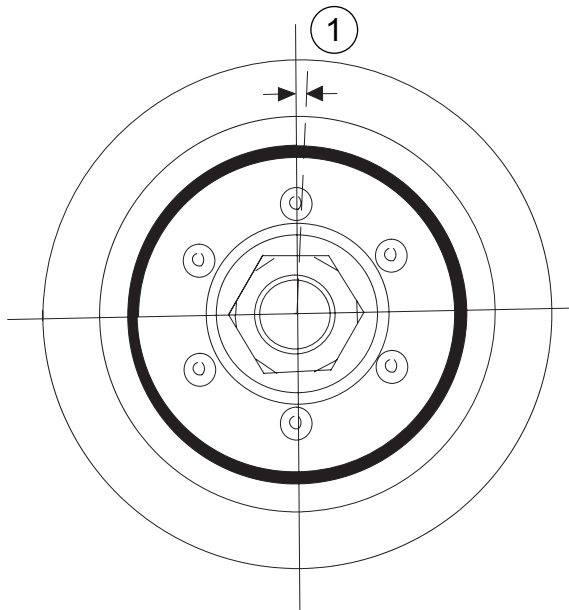
IMPORTANT: Do not use plain water as coolant.

After changing the fluid, run the engine for a while and check the level of the fluid.

4.7.6.9 Checking the engine vibration damper

Contact an authorised Valtra workshop for checking of the engine vibration damper.

The outer circumference of the vibration damper (belt pulley) can twist in relation to the hub. For this reason, alignment marks have been added to the damper front face, which indicate the possible twisting.



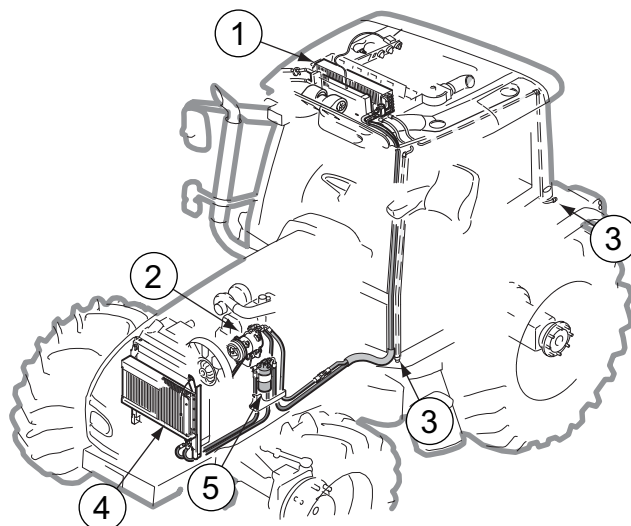
1. Alignment marks

NOTE: Changing of the engine vibration damper must be carried out at an authorised Valtra workshop.

IMPORTANT: The vibration damper is recommended to be changed after every 4000 operating hours.

4.7.6.10 Maintaining the air conditioning

Maintain the air conditioning regularly.



1. Condenser
2. Compressor
3. Outlet pipe of the condensation pipe
4. Evaporator
5. Dryer

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.**

4. Maintenance

- 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.

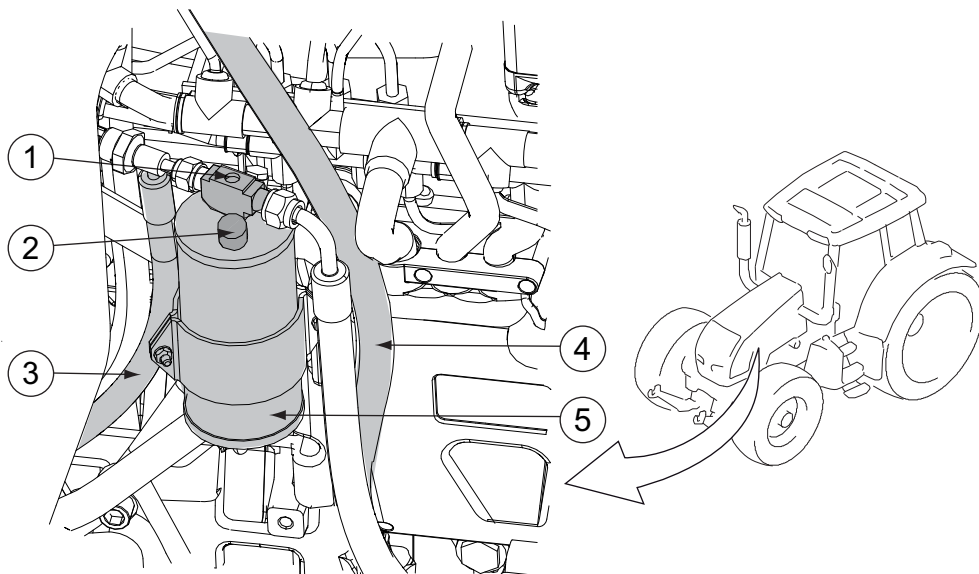


WARNING:

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.
- Check the condition of the refrigerant.

4.7.6.11 Checking the refrigerant condition







1. Sight glass
2. Moisture eliminator/indicator
3. High-pressure side
4. Low-pressure side
5. Receiver drier of the air conditioning system

1. Run the engine at 1 500 rpm.
2. Adjust the air conditioner to maximum cooling.
3. Let the engine run for a few minutes.
4. Observe the sight glass.

NOTE: The refrigerant must be colourless. If it is brown or yellow, it must be changed. Contact an authorised workshop.

5. Check the moisture eliminator/indicator.

NOTE: The colour of the moisture eliminator/indicator has to be blue or green depending on the manufacturer. If it is pink or grey, replace the moisture eliminator/indicator. Contact an authorised workshop.

	POSSIBLY EXCESSIVE REFRIGERANT No bubbles appear. The high-pressure side is abnormally hot. Contact an authorised Valtra workshop.
	SUFFICIENT REFRIGERANT The fluid is almost transparent. A few bubbles may appear as the engine speeds up and down. The high-pressure side is hot and the low-pressure side cold.
	INSUFFICIENT REFRIGERANT A few bubbles appear intermittently, at intervals of 1-2 seconds. The high-pressure side is warm, and the low-pressure side fairly cold. Contact an authorised Valtra workshop.
	VERY LITTLE REFRIGERANT Bubbles flow continuously, and when the refrigerant is almost exhausted, a mist-like flow is seen with no bubbles visible. There is almost no difference in temperature between the high-pressure side and the low-pressure side near the compressor. Contact an authorised Valtra workshop.

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. When larger front tyres are fitted, check and adjust the turning angles on both sides with maximum inclination of the front axle.

4. Set the tyre parameter.

5. Calibrate the speed sensors.

6. Tighten the wheel nuts after a few hours of driving.

4.8.1.1 Setting the tyre parameter

You can set the tyre parameter with the tractor terminal.

1. If the tractor terminal main menu is not displayed, press ESC as many times as needed.
2. Press the down arrow button in the main menu to enter the set menu.

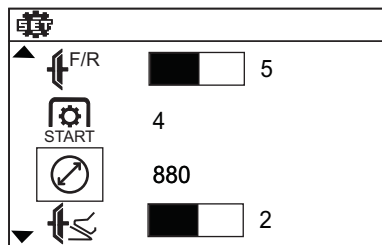
4. Maintenance

3. Press the right arrow button in the set menu to enter the transmission settings view.

NOTE: When the power shuttle lever is in parking brake position (P) you can enter the transmission settings view by pressing the preprogramming button.

4. Move the navigation box to the tyre parameter position with the arrow buttons.

A short press moves the box in the selected direction one field at a time. A long press moves the box in the selected direction continuously.



5. Press OK.
6. Change the tyre parameter value with the up or down arrow button.
7. Press OK to store the new value and to deactivate the selected field.

With a short press of the ESC button you can deactivate the selected field without saving the changes.

A long press of the ESC button returns to the previously active drive display.

4.8.1.2 Tyre parameters

Tyre	Parameter value
520/70R38	831
520/85R38	880
20.8R38	872
540/65R38	798
580/70R38	873
600/65R38	831
650/60R38	818
650/65R38	870
480/80R42	882
520/85R42	942
20.8R42	920
650/65R42	914
620/70R42	925
270/95R48	832
540/80R38 IND	880
650/65R42 IND	914
600/65-34 FOR	782
18.4-38/14 FOR	820
20.8-38/14 FOR	855
Table continued on next page	

Tyre	Parameter value
600/65R38 FOR	831
650/65R38 FOR	874
650/75-38 FOR	920

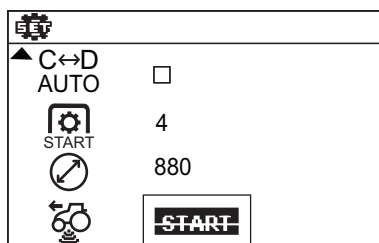
4.8.1.3 Calibrating speed sensors

1. Choose a straight and even road with no traffic for the speed sensor calibration.
2. Move the hand throttle lever to the low idling position.
3. Disengage the differential lock.
4. Disengage the four-wheel drive.
5. If the tractor terminal main menu is not displayed, press ESC.
6. Press the down arrow button in the main menu to enter the set menu.
7. Press the right arrow button in the set menu to enter the transmission settings view.

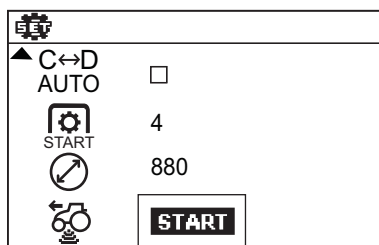
NOTE: When the power shuttle lever is in parking brake position (P) you can enter the transmission settings view by pressing the preprogramming button.

8. Move the navigation box to the speed sensor calibration position  with the arrow buttons.

If the preconditions for calibrating the speed sensors are not met, the following screen is displayed:



If the preconditions for calibrating the speed sensors are met, the following screen is displayed:



9. Turn the wheels to the middle position.
If the tractor is equipped with an angle sensor, note that the middle position of the sensor must be calibrated before starting the speed sensor calibration.
10. Release the brake pedal and clutch pedal.

11. Select the forward driving direction.

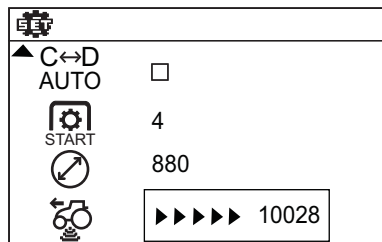
12. Start the calibrating procedure by pressing OK.

The tractor automatically selects the optimal gear and engine speed for calibration.

The tractor accelerates to the calibrating speed and the engine speed rises to the optimal level of 1700 rpm.

13. Calibration starts when the driving speed is suitable for calibrating.

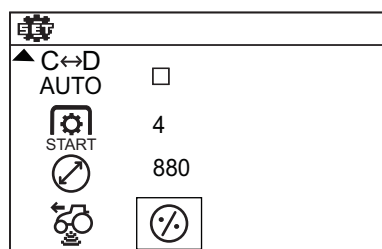
Forward arrows indicate that the calibration is in process.



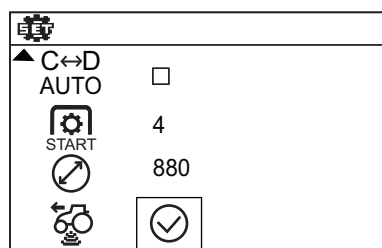
In order for the calibration to proceed normally, the speed should stabilise within 7 seconds.

14. Let the tractor drive forward until the display shows the calibration result.

- If the calibration is completed successfully, the following view is displayed:



- If the calibration cannot be completed successfully, the following view is displayed:



When the calibration is completed, the engine speed lowers to the low idling speed.

15. Stop the tractor

If the calibration was unsuccessful, perform the calibration again. If the calibration is still unsuccessful, contact an authorised Valtra workshop.

A long press of the ESC button returns to the previous active drive display.

If calibration cannot be completed successfully, the problem may be caused by one of the following:

- Four-wheel drive is engaged.
- Differential lock is engaged.
- The angle sensor is not calibrated.
- The system could not set the required engine speed within 7 seconds. (The tractor may be pulling too heavy a load, for example.)
- The speed of the tractor varied too much during the calibration.
- One of the sensors to be calibrated is in fault mode.

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 1090 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 50 mm.

4.8.2.1 Agricultural front axle track widths

The agricultural front axle track widths (in mm) are listed in the following table.

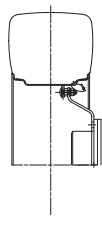
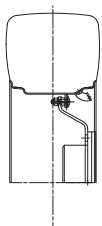
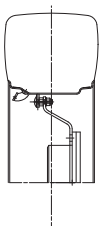
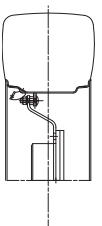
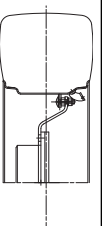
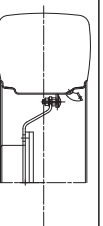
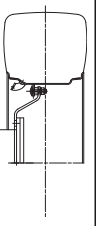
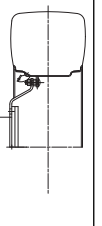
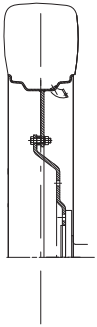
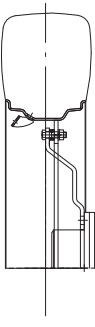
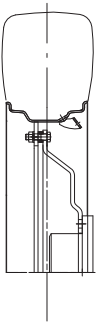
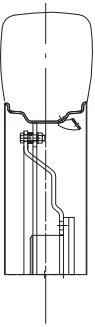
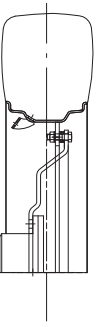
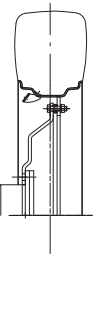
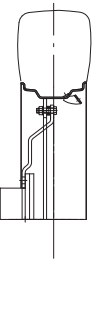
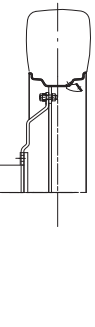
								
380/85R28 14.9R28 340/85R28	2 135	2 045	1 930	1 840 ¹⁾	1 735	1 645	1 530	1 440
16.9R28, 420/70R28 420/85R28, 440/65R28, 480/65R28, 480/70R28		2 045	1 930	1 840 ¹⁾	1 735	1 645	1 530	1 440
540/65R28			1 930	1 840 ¹⁾	1 735	1 645	1 530	1 440

Table continued on next page

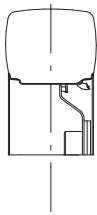
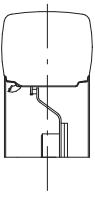
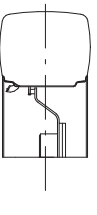
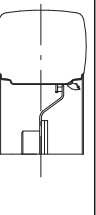
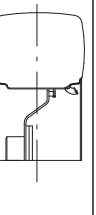
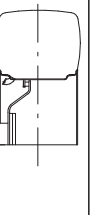
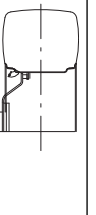
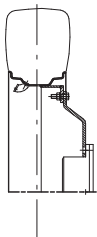
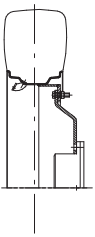
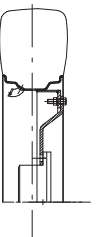
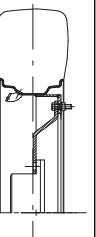
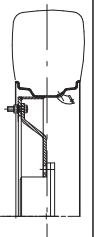
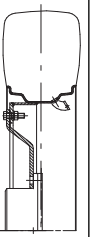
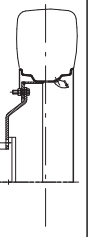
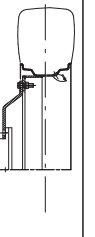
4. Maintenance

520/60R28			1 930	1 835 ¹⁾	1 735	1 640	1 530	1 435
								
230/95R36	2 100	2 000	1 980	1 880	1 700	1 600	1 580	1 505 ¹⁾

¹⁾ Standard track width

4.8.2.2 Industrial front axle track widths

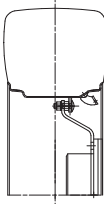
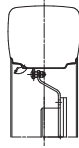
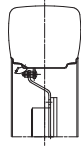

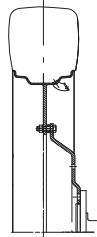
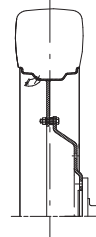
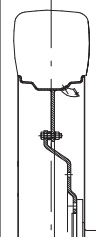
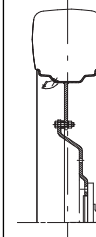
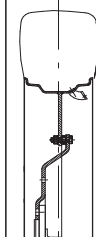
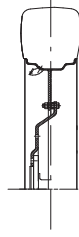
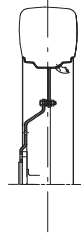

The industrial front axle track widths (in mm) are listed in the following table.

								
420/70R28	2 130	2 026	1 928	1 830 ¹⁾	1 732	1 626	1 530	
16.9R28, 420/85R28 480/65R28, 480/70R28		2 026	1 928 ¹⁾	1 830	1 732	1 626	1 530	
520/60R28, 480/70R30		2 030	1 935 ¹⁾	1 835	1 740	1 630	1 535	
540/65R28			1 928 ¹⁾	1 830	1 732	1 626	1 530	
600/60R30, 600/65R28, 540/65R30			1 935 ¹⁾	1 835	1 740	1 630	1 535	
								
230/95R36	2 255	2 210	1 940	1 900	1 855	1 810	1 545	1 500 ¹⁾

¹⁾ Standard track width

4.8.2.3 Rear axle track widths

The rear axle track widths (in mm) are listed in the following table.

								
20.8R38, 520/70R38, 520/85R38, 480/80R42, 20.8R42					2 012	1 910	1 808 ¹⁾	1 714
540/65R38						1 910	1 808 ¹⁾	1 714
580/70R38, 600/65R38, 650/60R38						1 910	1 808 ¹⁾	
620/70R42, 650/65R42, 710/70R38							1 811 ¹⁾	
								
270/95R48	2 022	2 000	1 922	1 900	1 622	1 600	1 522	1 500 ¹⁾

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.

IMPORTANT: With larger tyres and a suspended cab (extra equipment), the space between the mudguard and the tyre may become too small (under 25 mm). If the space is not large enough when you need to use the chains, adjust the mudguards.

- 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.

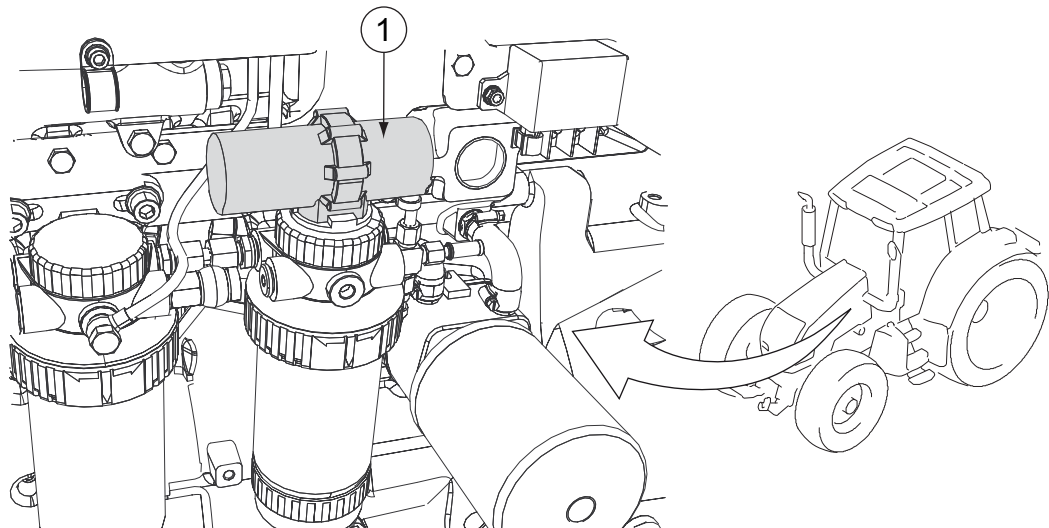
IMPORTANT: Do not exceed the maximum permitted axle loading even if the tyres allow a heavier load.

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.

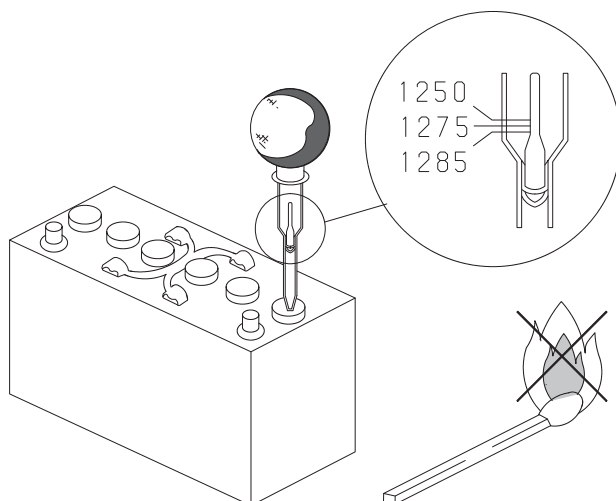
IMPORTANT: Do not connect any additional electrical equipment, as this may damage components of the existing electrical system.

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 the charge in the battery.**
Use a hydrometer (acid tester). The density of the electrolyte must be at least 1.23.
- **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.

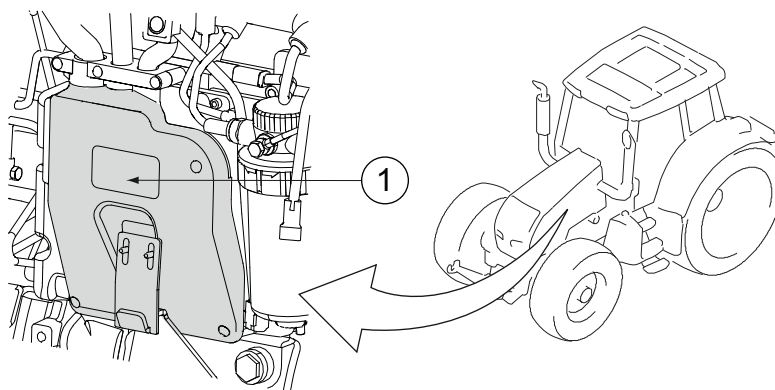
4.8.6.4 Protecting the electrical system before welding

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.**

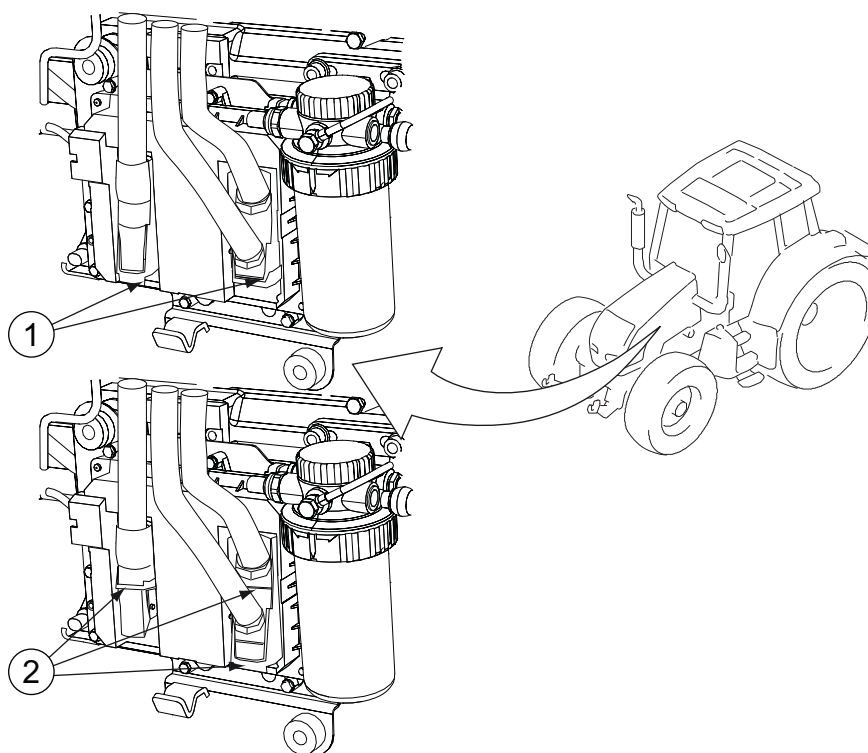
IMPORTANT: Never run the engine with the alternator disconnected.

3. Remove the engine control unit cover.



1. Engine control unit cover

4. Disconnect the three connectors.



1. Connectors
2. Connector locking device

Open the connector locking device to disconnect the connectors.
When reconnecting, turn the locking device back to the locking position.

4.8.6.5 Fuses and relays

The electric centre is positioned under 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.

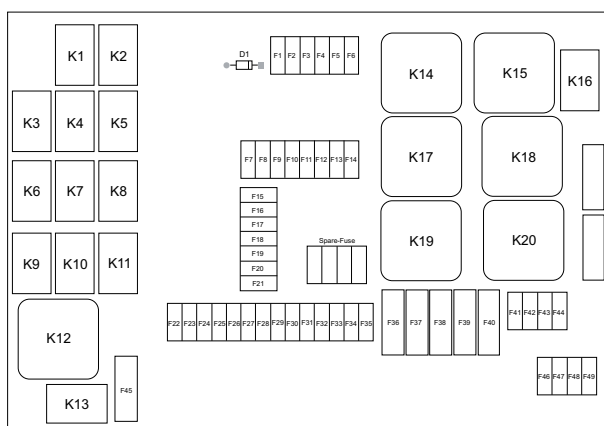
IMPORTANT: Fuses must not be replaced with new ones of higher rating as this may damage the electrical equipment.

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 fuses and relays in the electric centre in the lower part of the dashboard are listed in the following tables.

The fuse diagram is placed inside the fuse box. There is space for spare fuses. The electric centre in the lower part of the dashboard contains 49 fuses and the nominal current rating of these fuses is 5-30 A.



Fuse	Nominal current	Description
F1	10A	Brake lights
F2	10A	Ignition switch
F3	15A	Hazard
F4	10A	Beacon, cab light
F5	10A	Seat, diagnostics, Auto-Guide
F6	10A	2-pole current sockets
F7	15A	High beam
F8	15A	Low beam
F9	15A	Reserve
F10	10A	Lighter (+30)
F11	10A	Trailer hitch (light), Isoadapter
F12	10A	Direction indicators
F13	10A	Windscreen wiper and washer, horn
F14	10A	Floor fan
F15	10A	Trailer socket, back buzzer, hydr. pilot
F16	10A	Can valves
F17	10A	Air condition compressor

Table continued on next page

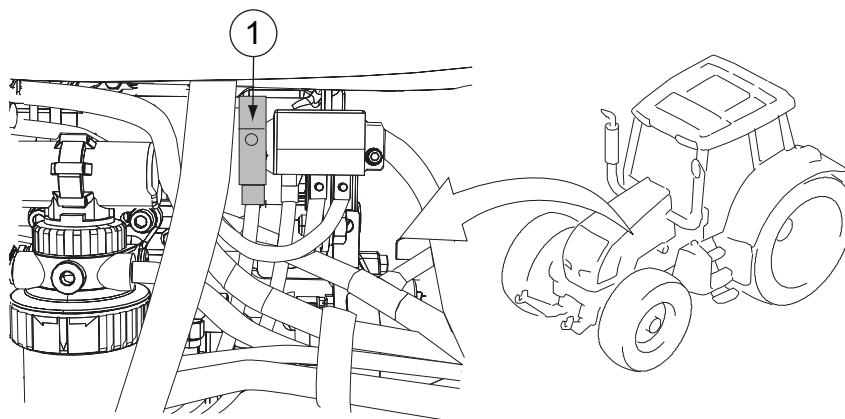
Fuse	Nominal current	Description
F18	10A	6/2 front 2
F19	10A	6/2 front 1
F20	10A	Fuel pump
F21	15A	Reserve
F22	15A	Reserve
F23	10A	Main switch
F24	10A	Memory
F25	10A	TC1 (VP3), F/N/R/P-lever
F26	10A	TC2, radar, working hydraulics
F27	5A	3-pole current socket
F28	5A	Cruise switches
F29	10A	Armrest, front loader
F30	5A	Instrumentation
F31	10A	Transmission sensors
F32	10A	Parking ensure
F33	10A	Twin-Trac, front PTO, front suspension
F34	15A	Radio, electrical mirrors, handsfree, rear wiper/washer
F35	15A	Seat, rear steering prevent
F36	25A	Fan
F37	30A	Engine controller (EEM)
F38	25A	Light switch
F39	25A	3-pole current socket
F40	25A	TC1 (VP1+VP2)
F41	15A	Rear working lights, left
F42	15A	Rear working lights, right
F43	15A	Waist working lights, front
F44	15A	Waist working lights, front
F45	30A	Waist working lights, rear/roof
F46	10A	Parking lights, left
F47	10A	Parking lights, right
F48	10A	Parking lights, illum.
F49	15A	Front working lights

Relay	Description
K1	Brake lights
K2	Parking ensure
K3	Air condition
K4	CAN valves
K5	Hydr. pilot
K6	Fuel pump
K7	6/2 Front 1
K8	6/2 Front 2
K9	Reserve
Table continued on next page	

4. Maintenance

Relay	Description
K10	Main switch
K11	Reserve
K12	Waist working lights, rear
K13	SCS socket
K14	Auxiliary relay, +15
K15	Parking lights
K16	Front working lights
K17	Auxiliary relay, +15
K18	Waist working lights, front
K19	Auxiliary relay, +15
K20	Rear working lights
K21	Direction indicator
K22	Intermittent control relay, front
K23	Main switch

4.8.6.7 Engine induction air preheater fuse

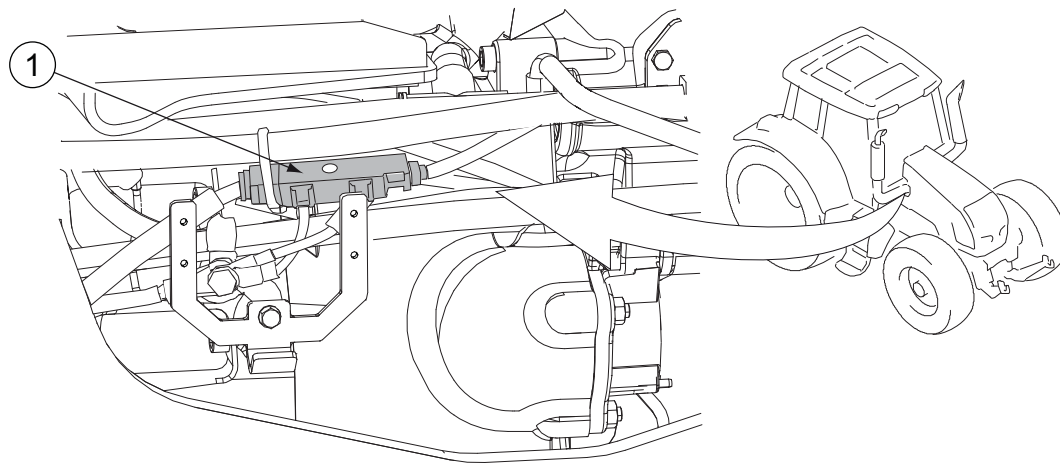


1. Fuse case

Fuse	Nominal current	Description
F53	250 A	Electric preheating of engine induction air

4.8.6.8 Cab power supply fuse

The fuse is situated immediately in front of the cab in the right-hand corner in the power supply cable from the starter motor.



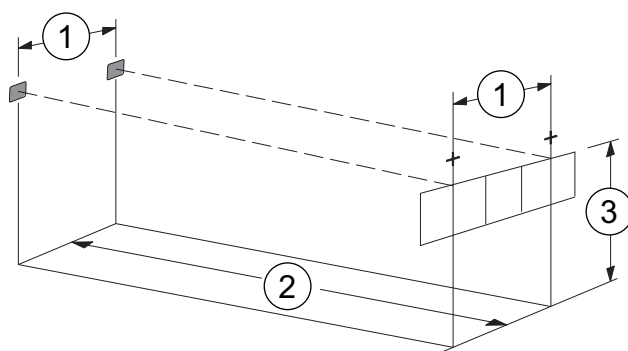
1. Fuse case

Fuse	Nominal current	Description
F52	125 A	Cab power supply

4.8.6.9 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.

4. Maintenance

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.

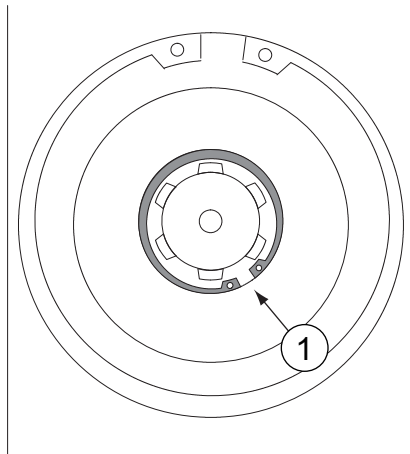
NOTE: Lights which can be mounted in the lower part of the front frame cannot be used on general roads.

4.8.7 Power transmission system

4.8.7.1 Changing the rear power take-off shaft

Change the rear power take-off (PTO) shaft when needed.

IMPORTANT: Never run the tractor without the power take-off (PTO) shaft.



1. Inner circlip

1. Remove the inner circlip and the space ring.
2. Pull out the shaft.
3. Fit the new shaft.
4. Check that the shaft seal is undamaged.
5. Attach the space ring and the circlip.
6. Change the circlip if damaged.

IMPORTANT: Check that the circlip is correctly positioned.

4.8.7.2 Checking the transmission ratio of a power take-off driven trailer

Check the transmission ratio of a power take-off (PTO) driven trailer.

Before you check the transmission ratio, make sure that the tractor with the trailer is on a flat, hard-surfaced area or road.

1. Check that the tyres have the correct pressure.
2. Remove the PTO transmission shaft.
3. Fasten wire or tape indicators on the PTO shaft of the tractor and on the trailer drive shaft.

The indicators must be aligned.

4. Drive the tractor together with the trailer slowly forwards.

Ask two people to count simultaneously how many revolutions the tractor and the trailer shaft each make. Stop counting when the tractor shaft has made 100 revolutions.

5. Compare the figures for the tractor and trailer shafts.

- If the number of the trailer drive shaft revolutions is higher than 100, the trailer is slower than the tractor.

The trailer should be 0-3% slower, that is, the trailer shaft should have revolved 100-103 times. If the number is greater than this, the trailer's braking effect is too great.

- If the number of the trailer drive shaft revolutions is lower than 100, the trailer is faster than the tractor.

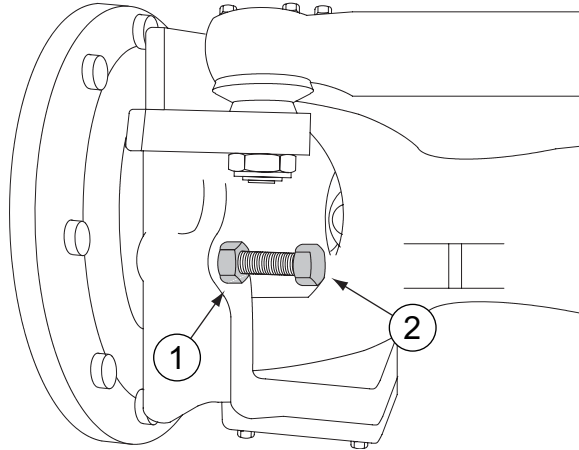
In this case, the trailer tends to push, which can endanger the steering of the tractor.

4.8.8 Steering system

4.8.8.1 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.

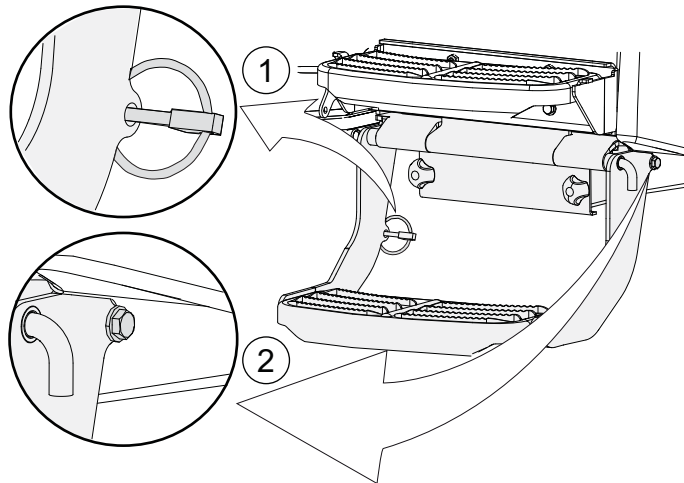
IMPORTANT: Adjust the adjusting screws on both sides to the same length so that the turning angle is the same on both sides.

3. Tighten the locking nut.

4.8.9 Cab and shields

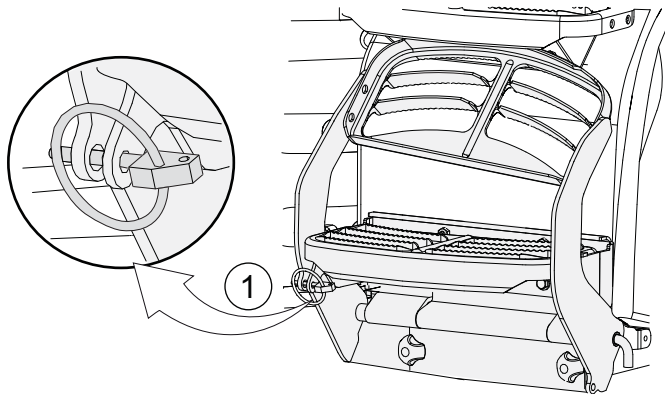
4.8.9.1 Adjusting the steps for driving off-road

1. On the right side, remove the pin and the locking screw.



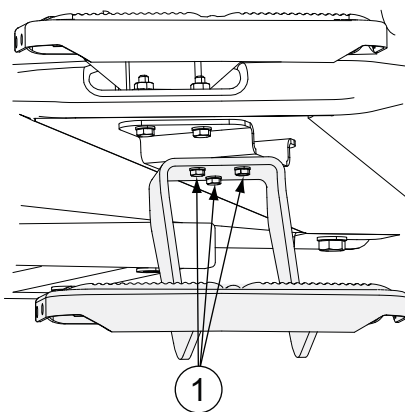
- 1. Pin
- 2. Locking screw

2. Turn the right side step fully up and lock it in this position with the pin.



1. Pin

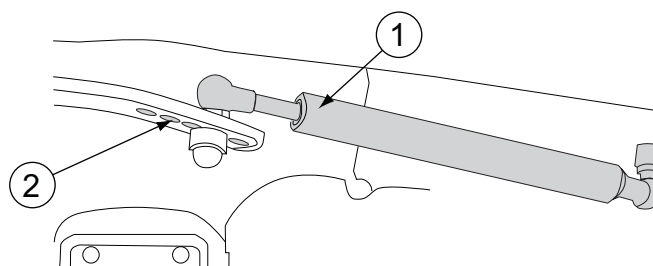
3. On the left side, remove the lowest step completely by unscrewing three screws.



1. Screws

4.8.9.2 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.

4.8.9.3 Checking and adjusting front mudguards

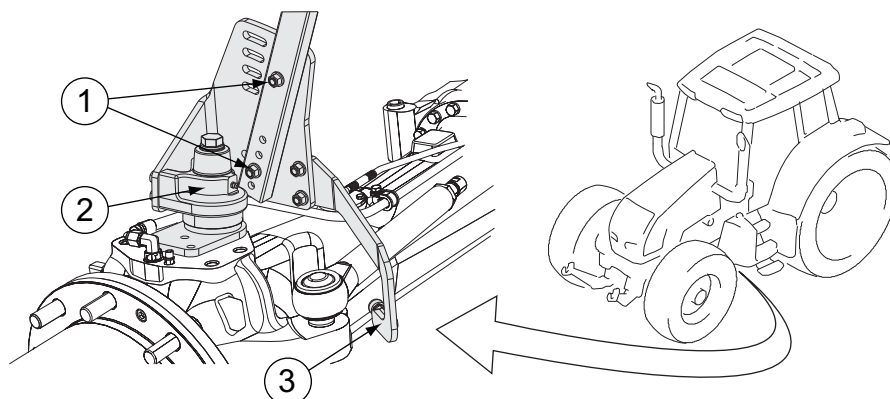
Check and adjust the front mudguards if needed.

- 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.

4.8.9.4 Adjusting flexible front mudguards

Adjust the flexible front mudguards, if needed.



1. Fixing screws
2. Turning mechanism
3. Stoppers

The front mudguards are adjusted correctly at the factory. With the fixing screws the pretension (15°) is adjusted for the mudguards to prevent vibration when driving straight. The fixing screws also limit the travel of the mudguard outside and inside.

On some tractor models the flexible front mudguards with turning limitation are fitted as standards with a factory-mounted front loader. It is also possible to fit them afterwards to other models. When turning the wheels, the mudguards turn less than the wheels and must be flexible in case they come into contact with something.

- Check the maximum oscillation and turning angles so that the front mudguards do not come in contact with, for example, the side panel when you fit tyres.

When this adjustment is not needed the screw is in the maximum position.

IMPORTANT: Check that the end of the fixing screw does not touch the guard of the tyre valve when turning the tyres to the maximum position.

- Adjust the fixing screw if the tyre touches the mudguard.
- If necessary, limit the turning of the mudguards by adjusting the stoppers.

- To adjust the height of the mudguards, change the fixing screws or the shafts to the other holes.

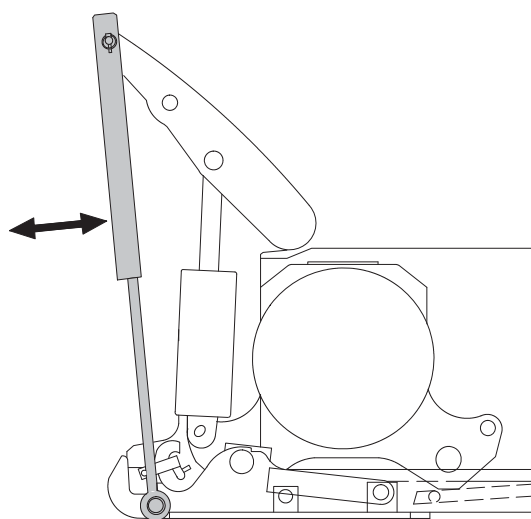
In addition, the mudguards can be inclined forward and backward in their fixing holes.

4.8.10 Hydraulic system

4.8.10.1 Adjusting lifting links of the trailer hitch

Adjust the lifting links of the trailer hitch if needed.

The lifting height selector must be in the maximum position when the towing hook is unloaded.



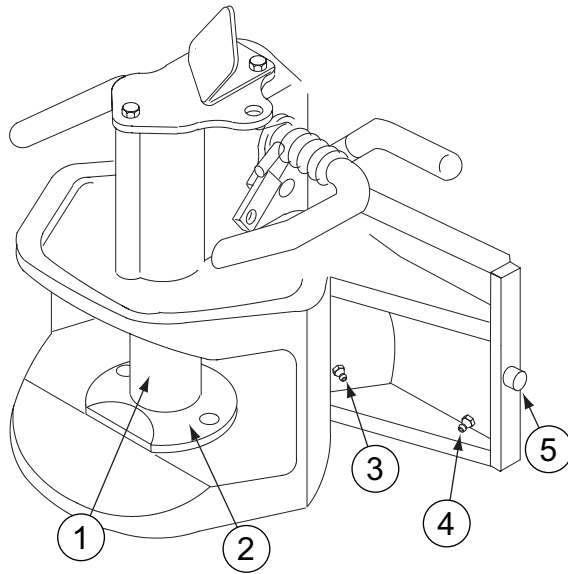
The lifting links must always have a certain amount of clearance when the hydraulic lift is in its upper position. However, they must be adjusted in such a way that the trailer hitch is securely locked by the pawl, even when the towing hook is loaded.

1. **Raise the hydraulic lift to its upper position.**
Do not use the buttons for connecting an implement.
2. **Check the adjustment by moving the lifting links manually.**
The adjustment is correct when the links move loosely. When the lift 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 push buttons for connecting an implement are used for lifting. Correctly adjusted, the lifting links ensure that the hydraulic lift can be raised to its uppermost position. The trailer hitch is locked when the lift 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.

4.8.10.2 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 90° 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 and service codes guide you in error situations.

- **Take notice of the indicator lights on the instrument panel and act accordingly.**

The STOP indicator light starts flashing.	<ul style="list-style-type: none"> • Stop the tractor and the engine immediately. • Continue only in an emergency, for example, to move the tractor to the roadside.
The book symbol starts flashing on the tractor terminal display to indicate an active service code in the system. NOTE: If the book symbol starts flashing, contact an authorised Valtra workshop, even if the error does not prevent driving the tractor.	<ul style="list-style-type: none"> • Check if the service code is included in the service code table. • Follow the instructions on what operations are allowed and what operations are to be avoided while the service code is displayed. • If the service code is not listed in the table, contact an authorised workshop immediately.
The limiting function of the maximum engine speed is on (for example, 1 500 rpm or 1 800 rpm). Some service codes limit the maximum engine speed, torque and power of the engine. This prevents serious damage to the engine.	Avoid long-term and heavy use of the engine until the error is fixed.

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.
	Direction indicator light. If the light flashes quickly, one of the bulbs on the tractor has failed.
	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.

Table continued on next page

5. Faults and remedial actions

Indicator light	Indication
	Σ-indicator light (on models T182 V and T202 V) In some error situations, the light flashes. If this is the case, contact an authorised Valtra workshop.
	Parking brake indicator light If the light is lit and the STOP light is flashing, the parking brake cable is broken or incorrectly adjusted. If the light flashes and the buzzer sounds continuously, there is a fault in the parking brake system.
	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.
	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: <ul style="list-style-type: none">  Engine oil pressure is too low  Gearbox oil pressure is too low  Gearbox oil temperature is too high  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 temperature is shown on the display. The gearbox oil temperature can be shown on the tractor terminal or 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: The main engine air filter element must not be cleaned more than five times. After that it must be replaced.

NOTE: Change the main engine air filter if you discover any holes or other defects.

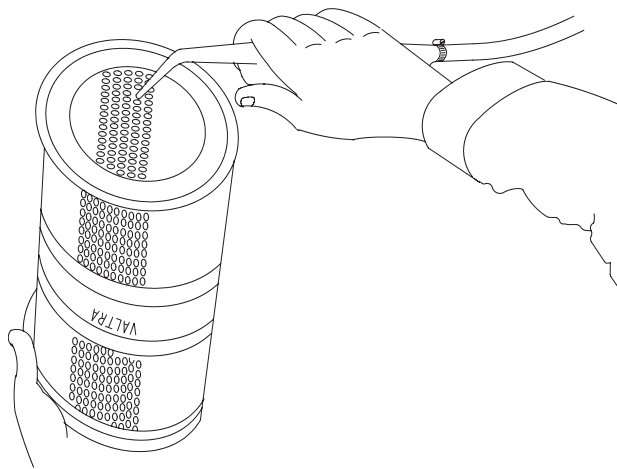
IMPORTANT: Do not open the cover of the air cleaner housing unnecessarily. During maintenance, check that the cover of the housing, pipes and unions are in good condition.

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.

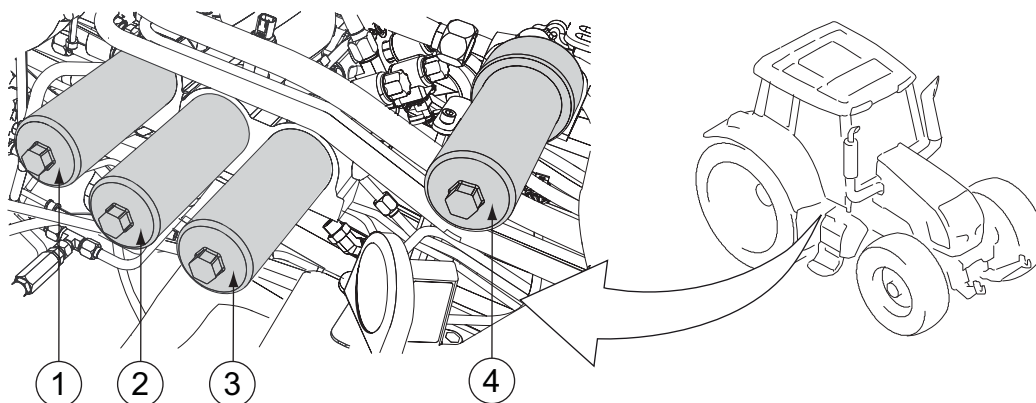
5.2.2 Identifying a blocked transmission or hydraulic system filter

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 (not the low pressure filter of the transmission system) 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.

5. Faults and remedial actions



1. Return oil filter of the auxiliary hydraulic system
2. Transmission lubrication filter
3. Low pressure filter of the transmission system
4. Pressure filter of the hydraulic system

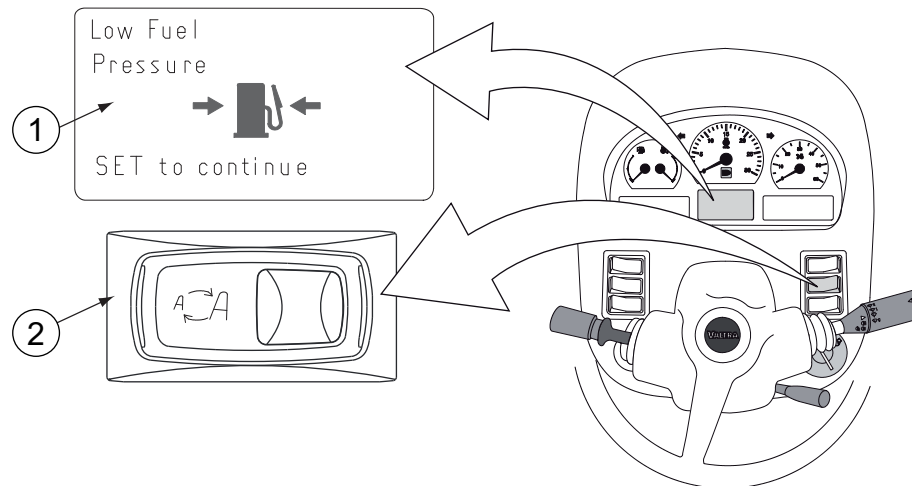
Oil filters are located on the right side of the tractor under the cab. The return oil filter is labelled with the text HYD on the mounting piece on top of it. The lubrication filter is indicated with the text LUB on the mounting piece on top of it. The low pressure filter is indicated with the text TRANS on the mounting piece on top of it.

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. **Release the pressure sensor wires of the pressure filter of the hydraulic system if the indicator light still comes on.**
6. **Run the engine.**
7. **If the indicator light does not come on, the fault is in the pressure filter of the hydraulic system.**
8. **Change the pressure filter of the hydraulic system if the blocking is caused by this filter.**
9. **Change the transmission lubrication filter and the low pressure filter of the transmission system if the indicator light still comes on.**

IMPORTANT: If the blocking is in one of the transmission filters and it occurs considerably ahead of scheduled replacement of the filters, it may be an indication of partial damage to the transmission system. In this case, further investigations need to be made to avoid additional damage to the transmission system.

5.3 Warning symbols on the Proline instrument panel display

5.3.1 Low fuel pressure warning



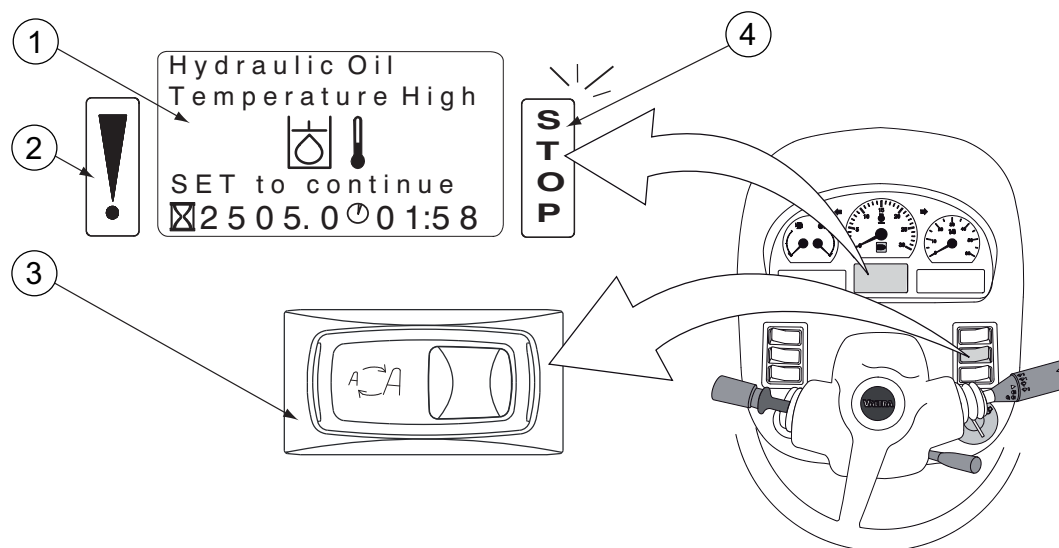
1. Instrument panel display
2. Proline instrument panel display setting switch

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 Hydraulic oil temperature warning

The hydraulic oil temperature warning is shown on the instrument panel display when the oil temperature is too high.



1. Instrument panel display
2. Exclamation mark
3. Proline instrument panel display setting switch
4. Stop indicator light

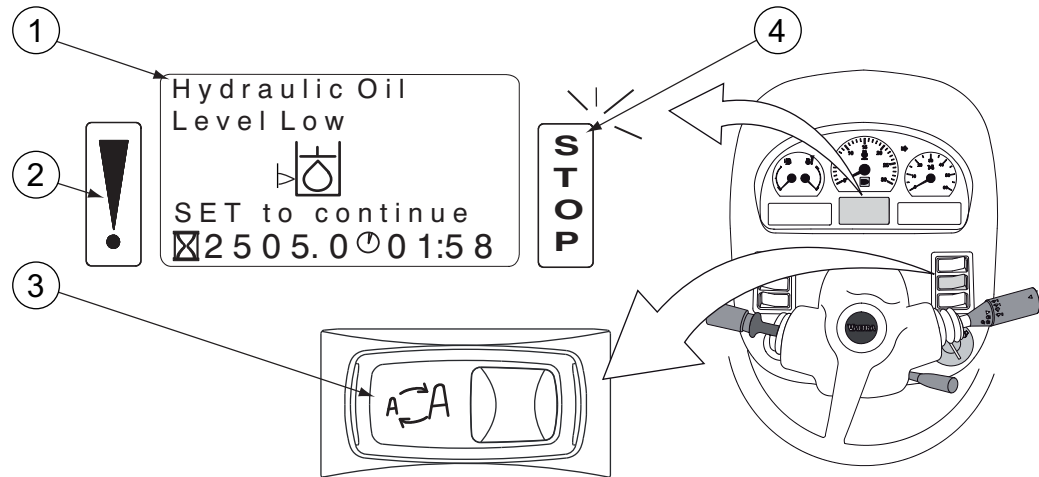
When the hydraulic oil temperature warning is shown on the display, the following also occur:

- The buzzer alarms once.
- The stop indicator light flashes.
- The exclamation mark is lit.

To clear the display, press the side of the Proline instrument panel display setting switch opposite to the symbol. The stop light is flashing until the oil temperature drops under the warning limit.

Stop the engine, clean the hydraulic oil cooler and check the hydraulic oil level.

5.3.3 Hydraulic oil level low warning



1. Instrument panel display
2. Exclamation mark
3. Proline instrument panel display setting switch
4. Stop indicator light

When the low hydraulic oil level warning is shown on the display, the following also occur:

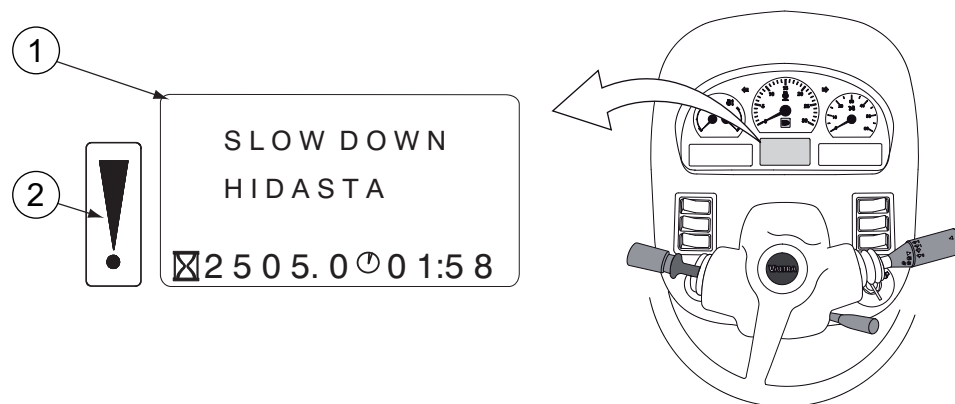
- The buzzer alarms once.
- The stop indicator light flashes.
- The exclamation mark is lit.

Stop the engine and check the hydraulic oil level. Add oil if needed.

To clear the display, press the side of the Proline instrument panel display setting switch opposite to the symbol.

5.3.4 Transmission speed warning

The transmission speed warning is shown on the instrument panel display when the transmission speed is too high or the engine speed is over 2 700 rpm.



1. Instrument panel display
2. Exclamation mark

5. Faults and remedial actions

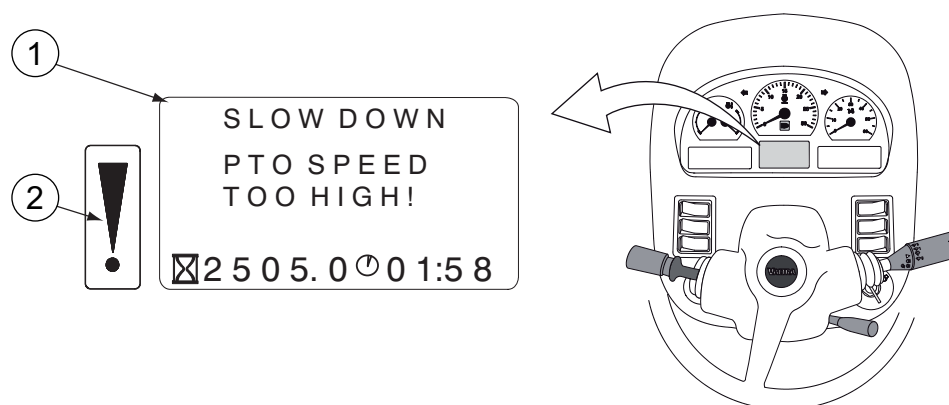
When the transmission speed warning is shown on the display, the following also occur:

- The buzzer sounds continuously.
- The exclamation mark is lit.

When the transmission speed or the engine speed has fallen low enough, the buzzer and exclamation mark go out and the display returns to the previously selected state.

5.3.5 Power take-off speed warning

The power take-off (PTO) speed warning is shown on the instrument panel display when the ground speed PTO is engaged and the PTO speed rises above 1800 rpm.



1. Instrument panel display
2. Exclamation mark

When the PTO speed warning is shown on the display, the following also occur:

- The buzzer sounds once.
- The exclamation mark is lit.

When the PTO speed has fallen low enough, the buzzer and exclamation mark go out and the display returns to the previously selected state.

5.4 Viewing service codes

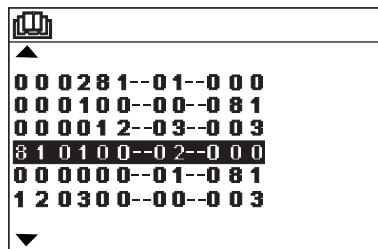
You can read active service codes on the tractor terminal display.

If there is an active service code, the book symbol is flashing on the display.

1. **If the tractor terminal main menu is not displayed, press ESC as many times as needed.**

2. Press the down arrow two times.

The service codes are displayed on the display.



3. Browse the service code list.

To browse the code list, use the arrow buttons.

If arrows are shown in the display margins, you can browse through more codes by pressing the corresponding arrow button.

4. Exit the service code list.

- To return to the main menu, press ESC shortly.
- To return to the last active drive view, press ESC longer.

5.5 Service codes

Service codes indicate different errors in the tractor components or functions.

IMPORTANT: The table explains what the service codes mean and what measures you should take in these situations.

NOTE: If two or more service codes marked with a star (*) are displayed simultaneously, driving is prevented for safety reasons until the error situations have been repaired.

Service codes	Error meaning/measures
000091 — 03 — 000	<p>There are faults in the function of the front control accelerator pedal. The engine runs only at low idling speed.</p> <ol style="list-style-type: none"> 1. Lift up the accelerator pedal and turn the ignition switch to the off position for a moment. 2. Start the engine again (do not touch the accelerator pedal). 3. Try driving by lifting the engine revolutions with the cruise control. If there is no cruise control, use the hand throttle or the accelerator pedal so that you do not push the pedal totally to the bottom.
000094 — 03 — 000	<p>There is an error in the engine fuel system function. The engine power output is limited and the maximum running speed is 1500 rpm.</p>
000094 — 18 — 000	<p>The fuel pressure (after the filters) is too low.</p> <ul style="list-style-type: none"> • Check that there is fuel in the fuel tank. • Check the fuses. <p>If this does not help, the feed pump of the fuel system may be faulty or the fuel filters may be blocked or frozen. The engine can be run temporarily to move the tractor to a safe area to avoid injection pump damage.</p>
Table continued on next page	

5. Faults and remedial actions

Service codes	Error meaning/measures
000097 — 31 — 000	<p>There is too much water in the water trap of the fuel system.</p> <ul style="list-style-type: none"> • Drain the water from the water trap in the lower part of the prefilter. • Drain the water from the main filter. <p>If water has to be drained from the filters frequently, find out the reason for the high water content in the fuel.</p>
000100 — 01 — 000	<p>The oil pressure of the engine is too low, or there is no pressure at all. The engine stops immediately.</p> <ul style="list-style-type: none"> • Check the oil level. • Do not try to start the engine.
000100 — 18 — 000	<p>The engine oil pressure is too low.</p> <ul style="list-style-type: none"> • Check the oil level. • Contact a Valtra authorised workshop immediately. <p>To avoid serious engine damage, avoid using the engine. The engine can be run only temporarily to move the tractor to a safe area.</p>
000100 — 31 — 000 000100 — 04 — 000 000100 — 03 — 000	<p>There is an error in the engine oil pressure sensor. The engine output is limited. The engine oil pressure may be low. To avoid serious engine damage, avoid using the engine. The engine can be run only temporarily to move the tractor to a safe area.</p>
000102 — 04 — 000 000102 — 03 — 000	<p>There is an error in the engine boost pressure sensor. The engine output is limited. You can continue driving temporarily, but clear the fault as soon as possible.</p>
000102 — 16 — 000	<p>The engine boost pressure is too high. The engine output is limited and the maximum running speed is 1500 rpm.</p>
000102 — 18 — 000	<p>The engine boost pressure is too low. The engine runs but the malfunction has to be examined as soon as possible to avoid engine damage.</p> <ul style="list-style-type: none"> • Check that the air filter is clean (see the warning light for blocked filter on the instrument panel).
000105 — 03 — 000 000105 — 04 — 000	<p>The temperature sensor for the engine injection air is faulty. The engine works but its output and exhaust gas emissions change. You can continue driving temporarily.</p>
000105 — 16 — 000	<p>The engine injection air temperature is too high. The engine output is reduced.</p> <ul style="list-style-type: none"> • Check that all tractor radiator grilles are clean. <p>You can continue driving temporarily, but clear the reason for heating as soon as possible.</p>
000110 — 00 — 000	<p>The coolant temperature is very high. The engine stops after 30 seconds.</p> <ul style="list-style-type: none"> • Check the coolant level and that the radiator is clean. • Let the engine cool off a moment and start the engine. • Let the engine run without load until the temperature reduces. <p>You can continue driving temporarily, but clear the reason for heating as soon as possible.</p>
000110 — 03 — 000 000110 — 04 — 000	<p>There is an error in the coolant temperature sensor. The engine output is limited.</p> <ul style="list-style-type: none"> • Clear the fault as soon as possible <p>You can continue driving temporarily, but the engine overheating may cause engine damage.</p>
000110 — 16 — 000	<p>The coolant temperature is too high. The engine output is limited.</p> <ul style="list-style-type: none"> • Check the coolant level and that the radiator is clean. <p>You can continue driving temporarily, but clear the reason for heating.</p>
Table continued on next page	

Service codes	Error meaning/measures
000168 — 01 — 000	The operating voltage coming to the engine control unit is too low, which may prevent the engine from running. <ul style="list-style-type: none"> • Check the fuses F55 and F56. • Check the battery and charging generator condition even if the engine works.
000898 — 03 — 000 000898 — 04 — 000	There is an error in the tractor electrical system. The engine should work at least with the accelerator pedal or with the hand throttle, but there may be faults in other functions.
009006 — 31 — 000	There is an error in the tractor electrical system. Normally, the engine works but there can be errors in some functions. The engine information cannot be seen on the instrument panel (running speed, temperature, indicator lights). You can continue driving temporarily, because the engine protection system is operating.
009100 — 31 — 000	There is an error in the tractor electrical system or the engine electrical system. The engine output is limited. You can continue driving temporarily.
009107 — 31 — 000	There is an error in the engine controlling system. Probably the engine does not start. Contact a Valtra authorised workshop.
009140 — 03 — 000	There are faults in the hand throttle function. The engine runs only at idling speed. <ol style="list-style-type: none"> 1. Turn the hand throttle to the minimum position, and turn the ignition switch to the off position for a moment. 2. Start the engine again. 3. Try driving with the accelerator pedal or the cruise control.
009141 — 03 — 000	There is an error in the engine controlling system. For safety reasons, the engine runs only at idling speed.
009300 — 31 — 000	There is an error in the tractor electrical system or the engine electrical system. The engine output is limited. You can continue driving temporarily.
009302 — 31 — 000	There is an error in the tractor electrical system. The engine does not start.
009303 — 31 — 000	There are faults in the cruise control function. The cruise control is out of use. The tractor can be driven normally. The fault has to be corrected soon.
009304 — 31 — 000	There is an error in the engine controlling system. You can continue driving, but the engine running speed as well as the driving speed are limited.
009305 — 31 — 000 009306 — 31 — 000	There is an error in the engine controlling system. You can continue driving temporarily. <ul style="list-style-type: none"> • Contact a Valtra authorised workshop.

5.6 Steering system malfunctions

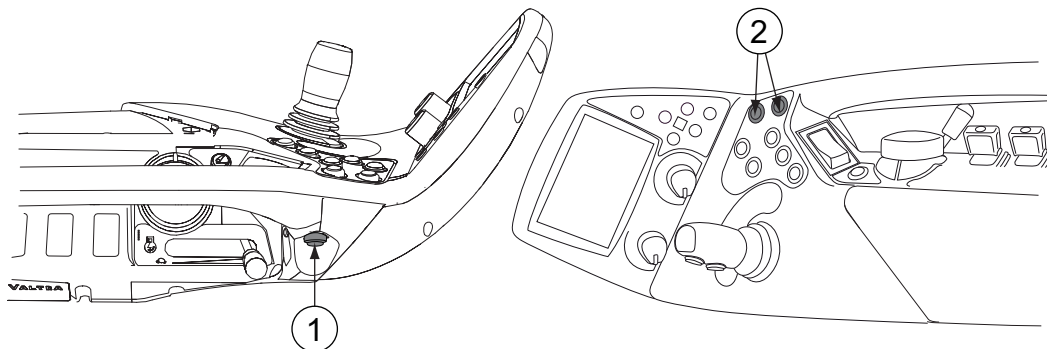


CAUTION: If a malfunction occurs in the steering system, stop the tractor and correct the malfunction before restarting.



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.

5.7 Towing the tractor

5.7.1 Towing the tractor when the engine is running



1. HiShift push button
2. Powershift push buttons

1. Set the transmission to neutral.
 - Press down the HiShift push button and simultaneously press the Powershift  and  push buttons for a minimum of 3 seconds.



DANGER: Pressing the HiShift push button releases the traction immediately. Press down the brake pedals to prevent the tractor from moving if you are on sloping ground.

Setting the speed range to neutral is possible only if the driving speed is lower than 1 km/h.

Transmission sets to neutral and N is displayed on the tractor terminal display and A-pillar display.

- If N does not appear on the tractor terminal display and A-pillar display, change the speed range to D.

If you do not get the D range on, follow the towing speeds below.

2. Tow the tractor.

The maximum allowed towing speeds are:

- Speed range A: 3 km/h
- Speed range B: 6 km/h
- Speed range C: 8 km/h
- Speed range D: 10 km/h
- Transmission in neutral: 10 km/h

5.7.2 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. Release the parking brake.

Use suitable tools for releasing the parking brake.

2. Tow the tractor.

The maximum allowed towing speeds are:

- Speed range A: 3 km/h
- Speed range B: 6 km/h
- Speed range C: 8 km/h
- Speed range D: 10 km/h

IMPORTANT: If you do not know which speed range is active, do not exceed the maximum allowed towing speed for speed range A.

6 Technical specifications

6.1 Dimensions

Dimensions	T132 V	T152 V	T162e V	T172 V	T182 V	T202 V
With front tyres	16.9R28	460/85R30	460/85R30	460/85R30	460/85R30	460/85R30
With rear tyres	20.8R38	20.8R42	20.8R42	20.8R42	20.8R42	20.8R42
Length (mm)	5 128	5 128	5 128	5 148	5 148	5 148
Width (mm)	2 280	2 280	2 280	2 280	2 280	2 280
Height to the roof (mm)	2 985	3 035	3 035	3 035	3 035	3 035
Height to the exhaust pipe (mm)	2 900	2 990	2 990	3 047	3 047	3 047
Wheel base (mm)	2 748	2 748	2 748	2 748	2 748	2 748
Front axle ground clearance/with front axle suspension (mm)	545/505	595/555	595/555	595/555	595/555	595/555
Rear axle ground clearance (mm)	550	600	600	600	600	600
From the midpoint of the rear axle to the cab roof (mm)	2 110	2 110	2 110	2 110	2 110	2 110

6.2 Weights

	T132 V	T152 V	T162e V	T172 V	T182 V	T202 V
With tyres	540/65R28, 650/65R38	540/65R30, 650/65R42	540/65R30, 650/65R42	540/65R30, 650/65R42	540/65R30, 650/65R42	540/65R30, 650/65R42
Total weight with full fuel tank and without ballast weights (kg)	6 110 ¹⁾	6 110 ¹⁾	6 420	6 420	6 420	6 420
Front axle weight (kg)	2 810 (46%)	2 810 (46%)	2 970 (46%)	2 970 (46%)	2 970 (46%)	2 970 (46%)
Rear axle weight (kg)	3 300 (54%)	3 300 (54%)	3 450 (54%)	3 450 (54%)	3 450 (54%)	3 450 (54%)

¹⁾ With industrial front axle 140 kg heavier

Total weight with the front axle suspension is 350 kg more.

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.

	Agricultural front axle	Industrial front axle, models T132 V and T152 V	Industrial front axle, models T162e V - T202 V
Maximum front axle loading (kg)	4 000	5 000	5 500

	T132 V and T152 V	T162e V - T202 V
Maximum rear axle loading (kg)	8 000	9 000

	T132 V and T152 V	T162e V - T202 V
Total weight (kg)	11 000	12 500

6.4 Tyres

Rear	Front	T132 V-T152 V	T132 V-T152 V	T162e V-T202 V
		Agricultural front axle	Industrial front axle	
460/85R38	380/85R28	x	x	x
		x ¹⁾	x ¹⁾	x ¹⁾
18.4R38	14.9R28	x	x	
		x ¹⁾	x ¹⁾	
520/70R38	420/70R28	x	x	x
520/85R38	420/85R28	x	x	x
		x ¹⁾	x ¹⁾	x ¹⁾
20.8R38	16.9R28	x	x	x
		x ¹⁾	x ¹⁾	x ¹⁾
540/65R38	440/65R28	x		
580/70R38	480/70R28	x	x	x
600/65R38	480/65R28	x	x	x
650/60R38	520/60R28	x	x	x
650/65R38	540/65R28	x	x	x
		x ¹⁾	x ¹⁾	x ¹⁾
710/60R38	600/60R28	x ^{1) 2) 3)}	x ^{1) 2) 3)}	x ^{1) 2) 3)}
480/80R42	16.9R28	x	x	x
620/70R42	480/70R30			x
650/65R42	540/65R30			x
				x ¹⁾
710/60R42	600/60R30			x ²⁾
710/70R38	600/65R28		x ²⁾	x ²⁾
650/65R42	600/65R28			x
270/95R48	230/95R36	x	x	x
480/80R38 IND	400/80R28 IND	x ¹⁾	x ¹⁾	x ¹⁾
540/80R38 IND	440/80R28 IND	x ¹⁾	x ¹⁾	x ¹⁾
650/65R42 IND	540/65R30 IND			x ¹⁾
18.4-38/14 FOR	14.9-28/14 FOR	x ¹⁾	x ¹⁾	x ¹⁾
20.8-38/14 FOR	16.9-28/14 FOR	x ¹⁾	x ¹⁾	x ¹⁾
600/65R38 FOR	500/65R28 FOR	x ¹⁾	x ¹⁾	x ¹⁾
650/65R38 FOR	540/65R28 FOR		x ¹⁾	x ¹⁾
650/75-38 FOR	540/70-30 FOR		x ¹⁾	x ¹⁾

1) Fixed disc

2) Not with Autocomfort

3) Rear adjustable wheel discs

6.4.1 Wheel nuts tightening torque

Wheel nuts	Tightening torque (Nm)
Front	450
Rear	450
Rim - wheel disc (front and rear)	210

6. Technical specifications

6.4.2 Front axle tyre loadings and pressures

NOTE: The permissible wheel load can reduce the maximum permissible axle load.

NOTE: The maximum permissible front axle load is 5 500 kg.

Tyre	Maximum load/axle - Two wheels/axle (kg)	Pressure (bar)
14.9R28	3 600	1.6
380/85R28	3 600	1.6
420/70R28	4 120	1.6
420/85R28	4 860	1.6
16.9R28	4 480	1.6
440/65R28	3 900	1.6
480/65R28	4 480	1.6
480/70R28	5 000	1.6
520/60R28	4 720	1.6
540/65R28	5 300	1.6
600/60R28	8 500	1.8
600/65R28	6 150	1.6
460/85R30	5 800	1.6
480/70R30	5 150	1.6
540/65R30	5 450	1.6
600/60R30	8 750	1.8
230/95R36	3 800	3.6
400/80R28 IND	6 900	3.2
440/80R28 IND	4 000	3.2
540/65R30 IND	9 250	3.2
500/60-26.5 FOR	8 770	2.4
14.9-28/14 FOR	5 000	3.0
16.9-28/14 FOR	5 800	2.7
500/65R28 FOR	5 600	2.4
540/65R28 FOR	6 500	2.4
540/70-30 FOR	7 100	2.4

IMPORTANT: On 50 km/h models driving at a maximum speed, the tyre loading is smaller. For more information, refer to the tyre manufacturer's catalogue.

6.4.3 Rear axle tyre loadings and pressures

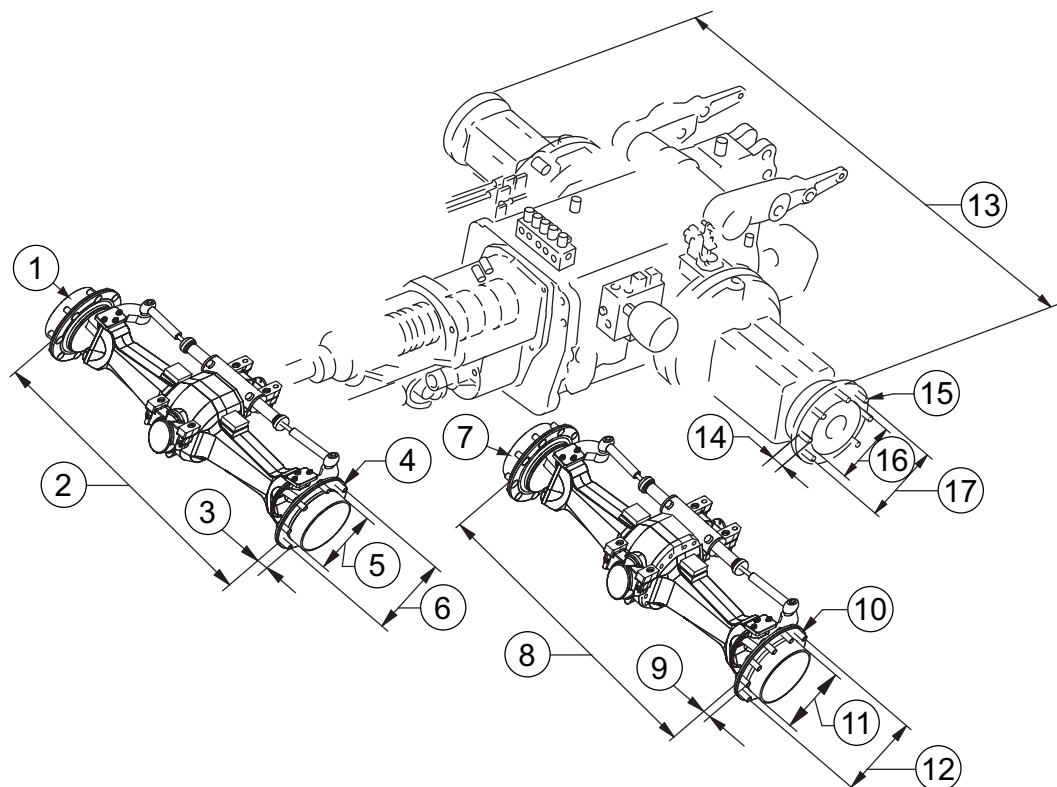
NOTE: The permissible wheel load can reduce the maximum permissible axle load.

NOTE: The maximum permissible rear axle load is 9 000 kg.

Tyre	Maximum loading/axle - Two wheels/axle (kg)	Pressure (bar)
460/85R38	6 000	1.6
18.4R38	6 000	1.6
520/70R38	6 700	1.6
520/85R38	7 750	1.6
20.8R38	7 300	1.6
540/65R38	6 150	1.4
580/70R38	7 750	1.6
600/65R38	7 300	1.6
650/60R38	3 875	1.6
650/65R38	8 250	1.6
710/70R38	10 600	1.6
710/60R38	9 000	1.4
480/80R42	7 500	1.4
520/85R42	9 500	1.6
20.8R42	7 750	1.4
650/65R42	5 150	2.4
620/70R42	9 000	1.6
710/60R42	9250	1.4
270/95R48	5 300	3.6
480/80R38 IND	10 600	3.2
540/80R38 IND	12 600	3.2
650/65R42 IND	14 200	3.2
600/65-34 FOR	8 820	2.4
18.4-38/14 FOR	7 750	2.6
20.8-38/14 FOR	8 750	2.6
600/65R38 FOR	8 750	2.4
650/65R38 FOR	10 000	2.4
650/75-38 FOR	11200	2.4

IMPORTANT: On 50 km/h models driving at a maximum speed, the tyre loading is smaller. For more information, refer to the tyre manufacturer's catalogue.

6.5 Stud dimensions and spacing for wheel discs



1. Agricultural front axle
2. 1800 mm
3. 40 mm
4. 8 x M20 x 1.5
5. $\varnothing 220$ mm
6. $\varnothing 275$ mm
7. Industrial front axle
8. 1900 mm
9. 40 mm
10. 10 x M20 x 1.5
11. $\varnothing 280$ mm
12. $\varnothing 335$ mm
13. 1750 mm
14. 40 mm
15. 8 x M20 x 1.5
16. $\varnothing 220$ mm
17. $\varnothing 275$ mm

6.6 Track widths

6.6.1 Rear track widths

Tyres, adjustable discs	Track widths (mm)
18.4R38, 460/85R38, 520/70R38, 520/85R38, 20.8R38, 480/80R42	1 714, 1 808 ¹⁾ , 1 910, 2 012
540/65R38, 580/70R38, 600/65R38, 650/65R38	1 808 ¹⁾ , 1 910
650/60R38, 620/70R42, 650/65R42, 710/60R38, 710/70R38, 710/60R42	1 811
270/95R48	1500 ¹⁾ , 1 522, 1 600, 1 622, 1 900, 1 922, 2 000, 2 022

¹⁾ Standard track width

Tyres, fixed discs	Track widths (mm)
520/85R38, 540/80R38 IND, 20.8R38, 20.8-38 FOR	1 676, 1 850 ¹⁾
600/65R38 FOR, 650/65R38, 650/65R38 FOR, 650/65R42, 650/65R42 IND, 650/75-38 FOR	1 850
460/85R38, 18.4R38, 18.4-38 FOR, 480/80R38 IND	1 650, 1 876 ¹⁾

¹⁾ Standard track width

6.6.2 Front track widths

Tyres	Agricultural axle, track widths (mm)
Adjustable discs	
14.9R28, 380/85R28	1530, 1645, 1735, 1840 ¹⁾ , 1930, 2045, 2135
420/70R28, 420/85R28, 16.9R28, 440/65R28, 480/65R28, 480/70R28	1530, 1645, 1735, 1840 ¹⁾ , 1930, 2045
520/60R28	1530, 1640, 1735, 1835 ¹⁾ , 1930
540/65R28	1530, 1645, 1735, 1840 ¹⁾ , 1930
230/95R36	1504 ¹⁾ , 1580, 1602, 1702, 1880, 1980, 2002, 2102
Fixed discs	
14.9R28, 380/85R28, 420/85R28, 540/65R28, 16.9R28, 16.9-28 FOR, 400/80R28 IND, 440/80R28 IND, 14.9-28 FOR, 500/65R28 FOR, 600/60R28	1745, 1840 ¹⁾

¹⁾ Standard track width

Tyres	Industrial axle, track widths (mm)
Adjustable discs	
14.9R28, 380/85R28, 420/70R28	1 530, 1 626, 1 732, 1 830 ¹⁾ , 1 928, 2 026, 2 130
16.9R28, 420/85R28, 480/65R28, 480/70R28	1 530, 1 626, 1 732, 1 830, 1 928 ¹⁾ , 2 026
540/65R28	1 530, 1 626, 1 732, 1 830, 1 928 ¹⁾
480/70R30, 520/60R28	1 535, 1 630, 1 740, 1 835, 1 935 ¹⁾ , 2 030
540/65R30, 600/65R28, 600/60R30	1 535, 1 630, 1 740, 1 835, 1 935 ¹⁾
230/95R36	1 500 ¹⁾ , 1 544, 1 812, 1 856, 1 898, 1 942, 2 210, 2 254
Table continued on next page	

6. Technical specifications

Tyres	Industrial axle, track widths (mm)
Fixed discs	
400/80R28 IND, 420/85R28, 14.9R28, 14.9-28 FOR, 540/65R30, 540/65R30 IND, 540/70-30 FOR, 600/60R28	1 875 ¹⁾ , 1 900
16.9R28, 380/85R28, 540/65R28, 540/65R28 FOR, 440/80R28 IND, 16.9-28 FOR, 500/65R28 FOR	1 865 ¹⁾ , 1 890


¹⁾ Standard track width

6.7 Engine

Model	T132 V	T152 V	T162e V		T172 V	T182 V	T202 V
Designation	66 CTA-4V	66 CTA-4V	66 CTA-4V		66 CTA-4V	74 CTA-4V	74 CTA-4V
Type	Four-stroke diesel engine with common rail direct injection						
Turbocharged and intercooling	Yes						
Number of cylinders	6	6	6		6	6	6
Max. output, kW/(hv)/rpm (ISO 14396)							
Normal	104(141)/ 2 000	115(156)/ 2 000	123(167) /2 000	ECO 117(159) /1 800	130(208)/ 2 000	137(186)/ 2 000	147(200)/ 2 000
Transport boost ¹⁾	112(152)/ 2 000	120(163)/ 2 000	128(174) /2 000	ECO 127(172) /1 800	135(184)/ 2 000	147(200)/ 2 000	155(211)/ 2 000
Sigma Power ²⁾						147(200)/ 2 000	155(211)/ 2 000
Nominal output kW/(hv)/rpm (ISO 14396)							
Normal	99(135)/ 2 200	110(150)/ 2 200	118(160) /2 200	ECO 117(159) /1 800	125(170)/ 2 200	132(180)/ 2 200	140(190)/ 2 200
Transport boost ¹⁾	107(146)/ 2 200	115(156)/ 2 200	123(167) /2 200	ECO 127(172) /1 800	131.5 (179)/ 2 200	142(193)/ 2 200	151(205)/ 2 200
Sigma Power ²⁾						142(193)/ 2 200	151(205)/ 2 200
Max. torque, Nm/rpm (ISO 14396)							
Normal	580/1 500	630/1 500	675/ 1 500	ECO 790/ 1 100	715/1 500	750/1 500	800/1 500
Transport boost ¹⁾	630/1 500	675/1 500	715/ 1 500	ECO 830/ 1 100	750/1 500	800/1 400	850/1 500
Sigma Power ²⁾						800/1 400	850/1 500
Max. no load speed, rpm	2 350	2 350	2 350	ECO 1 950	2 350	2 350	2 350
Low idling speed, rpm							
Normal	850	850	850	850	850	850	850
Parking brake is on	650	650	650	650	650	650	650

¹⁾ Higher transport boost power area in the speed ranges C and D.

²⁾ Sigma Power area, the largest output/torque area, when the power transferred through the

power take-off is large enough. The Sigma Power indicator light  is lit on the instrument panel.

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	19 litres

6.7.2 Fuel system

Fuel	
Type	Diesel fuel which conforms to EN 590 norm
Feed pump	Electric pump
Tank	275 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	2 thermostats: 79°C and 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	30 litres

6.8 Electrical system

Ground	Negative
Voltage	12 V
Battery	174 Ah
Table continued on next page	

6. Technical specifications

Alternator	150 A
Starter motor	4.2 kW
Electric resistor (engine induction air)	2.1 kW

Fuses	
Electric centre, lower part of the dashboard	49 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	10 W
Rear/brake lights	5/21 W
Direction indicators	21 W
Working lights	55 W-H3
Cab lights	2 x 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	9 pcs/9 pcs
Friction area, forward/reverse driving	1 742 cm ² /1 742 cm ²

6.9.3 Gearbox

Gear type	Helical gears
Synchronisation	Fully synchronised except creeper gear
Speed ranges ¹⁾	<ul style="list-style-type: none"> LA = 0.4-1.3 km/h LB = 0.7-2.6 km/h A = 2-8 km/h B = 5-17 km/h C = 7-26 km/h D = 15-40 km/h, on 50 km/h models 15-50 km/h
Table continued on next page	

Powershift	5-step
Forward gears	30
Reverse gears	30

1) With the engine speed of 1400-2200 rpm and 20.8-42 tyres

Oil type	
Valtra grade	Valtra Transmission XT60 (classification: Valtra G2-08)
API grade	GL-4

Oil volume	
When changing with filter	65 litres

6.9.4 Rear axle differential lock

Type	Electro-hydraulic multi-disc
Control	Electro-hydraulic

6.9.5 Rear power take-off

6.9.5.1 Rear power take-off alternatives

Power take-off (PTO) alternatives	T162e V	T132 V, T152 V, T172 V	T182 V, T202 V
540 + 1000		x	
540 + 1 000 + PGS PTO ¹⁾		x	
1 000 EHD ²⁾		x	x
1 000 EHD + PGS PTO		x	x
540 + 540 E		x	
540 + 540 E + PGS PTO		x	
1 000 + 540 E	x	x	x
1 000 + 540 E + PGS PTO	x	x	x

1) Proportional ground speed PTO

2) Heavy duty

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 2 000 rpm ¹⁾
	540 E = 540 rpm at engine speed 1 539 rpm

1) On model T162e V with ECO mode, 900 rpm at engine speed 1800 rpm.

6. Technical specifications

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.

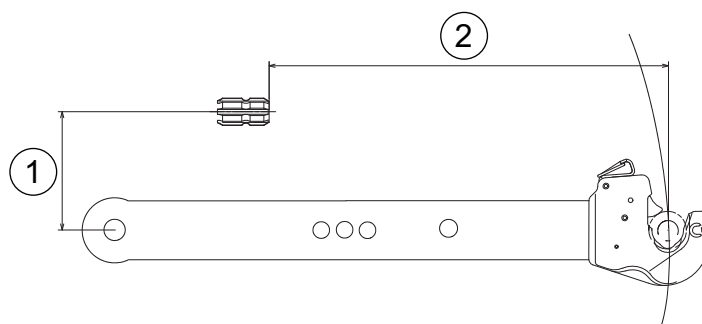
Splines	Standard	Shaft diameter (mm)
6 splines ¹⁾	ISO 500	35
21 splines	ISO 500	35
20 splines ²⁾	ISO 500	45
6 splines	ASAE (Valtra 1203)	45
8 splines	GOST 3480-58	38

1) Standard on models T132 V-T172 V

2) Standard on models T182 V-T202 V

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	8 splines	20 splines	1½ 6 splines
940	740	740	755	722	742



1. 224 mm

2. T measure

6.9.5.5 Proportional ground speed

Model	Power take-off (PTO) axle rpm/1 rear wheel rpm
T132 V-T152 V, 40 km/h	40.81
T132 V-T152 V, 50 km/h	40.96
T162e V-T202 V, 40 km/h	41.03
T162e V-T202 V, 50 km/h	40.79

6.9.5.6 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 2 000 rpm.

	T132 V	T152 V	T162 V	T172 V	T182 V	T202 V
Standard	88 kW (120 hp)	99 kW (135 hp)	<ul style="list-style-type: none"> 98 kW (133 hp) 94 kW (128 hp) ¹⁾ 	105 kW (143 hp)	112 kW (152 hp)	122 kW (166 hp)
Transport boost	96 kW (131 hp)	104 kW (141 hp)	<ul style="list-style-type: none"> 103 kW (140 hp) 104 kW (141 hp) ¹⁾ 	110 kW (150 hp)	122 kW (166 hp)	130 kW (177 hp)
Sigma Power	-	-	-	-	122 kW (166 hp)	130 kW (177 hp)

¹⁾ PTO speed of 1 000 rpm at engine speed of 1 750 rpm

6.9.6 Front power take-off

Oil type	Oil volume (litres)
Shell Donax TX	2.2

6.9.6.1 Front power take-off ratios

Front power take-off (PTO) ratio	1 000 rpm at engine speed 1 920 rpm
----------------------------------	-------------------------------------

6.9.6.2 Front power take-off shafts

Splines	Standard	Shaft diameter (mm)
6	ISO 500	35

6.10 Brake system

	T132 V–T152 V	T162e V–T202 V
Operation	<ul style="list-style-type: none"> Hydraulically controlled multi-disc type brakes with wet discs Two brake cylinders Separate brake fluid Oil spray cooling of the friction disc elements when necessary. 	<ul style="list-style-type: none"> Hydraulically controlled multi-disc type brakes with wet discs Boosted with low pressure hydraulic Two brake cylinders No separate brake fluid Pressure accumulator to ensure the pressure Oil spray cooling of the friction disc elements when necessary.
Number of brake friction discs	5 pcs/side	5 pcs/side
Friction disc diameter	224 mm	242.5 mm
Brake friction area	3690 cm ² /org.	4 272 cm ² /org.
Brake pedal free travel	70–80 mm	35–45 mm
Brake fluid	SAE J1703	—
Brake fluid volume	0.5 litre	—

6. Technical specifications

Parking brake	
Operation	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • Operated with the hydraulic pump for transmission and steering, controlled by the braking pressure • Trailer brake connection to the tractor with quick-action coupling

Air pressure brakes for trailer, extra equipment	
Operation	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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	18.5 MPa (185 bar)
Shock valve opening pressure	25 MPa (250 bar)
Steering valve revolution volume (agricultural front axle)	125 cm ³
Steering valve revolution volume (industrial front axle)	160 cm ³
Steering pump capacity	81 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 Powered front axle

Axle type	Hi-lock, agricultural axle ¹⁾	Hi-lock, industrial axle ²⁾
Control	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	8°	8°
Caster	0°	0°
King pin inclination (KPI)	5°	5°
Camber	1°	
Toe-in (mm)	0-2	
Flange distance (mm)	1 800	1 900

1) Agricultural front axle is not available for models T162e V - T202 V.

2) Industrial front axle is available as alternative equipment for models T132 V - T152 V. Industrial front axle with brakes is available as alternative equipment for models T162e V - T202 V.

Ratio	
Differential	2.923
Planetary gears	6.000
Total	17.538
Front axle/rear axle, 40 km/h	1.323
Front axle/rear axle, 50 km/h	1.329

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		
Hub reduction gears, front axle with brakes	Valtra Axle LS		

Oil volume when changing with filter		
Axle type	Differential (liters)	Hub reduction gears (liters)
Agricultural front axle	7.9	2 x 0.7
Industrial front axle	7.4	2 x 2

6.11.2 Turning circle radius

Minimum turning circle radius (m)	5.6 16.9R28 tyres with standard track width Front axle with or without air suspension
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6.11.3 Front air suspension

Extra equipment	Available for all front axle types
Front axle weight of tractor with air suspension	350 kg heavier than corresponding model without air suspension
Permissible axle loading	The same as for front axles without suspension
Air suspension bellow	8"
Pressure extreme values	2-14 bar
Suspension travel by front axle	51 mm
Front tyres turning angles	The same as without front suspension
Axle turning angles	The same as without front suspension
Automatic level control	Independent of front axle load
Hydraulic shock absorber	2 pcs

6.12 Cab and shields

6.12.1 Cab filter capacity

Standard filter (dop test, 300 m ³)	> Ø 0.2 µm 45% > Ø 1 µm 45% > Ø 5 µm 95% > Ø 8 µm 100%
Active coal filter, cab (dop test, 300 m ³)	> Ø 0.2µm 10% > Ø 1 µm 20% > Ø 5 µm 90% > Ø 8 µm 100%

6. Technical specifications

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	900 g, 20°C

6.13 Hydraulic system

6.13.1 Low pressure circuit

Pump capacity	<ul style="list-style-type: none">• T132 V - T202 V: 55 litres/min at engine speed 2 200 rpm• T162e V with low engine range (ECO): 45 litres/min at engine speed 1 800 rpm
Maximum pressure	2.4 MPa (24 bar)
Oil supply for the following functions:	<ul style="list-style-type: none">• Powershift• Powered front axle, disengaging• Power take-off (PTO)• Differential lock• Power shuttle• Boosted brake system• Parking brake• Transmission lubrication• Speed ranges changing

6.13.2 Steering hydraulic circuit

Pump capacity	<ul style="list-style-type: none">• T132 V-T202 V: 81 l/min at engine speed 2 200 rpm• T162e V with low engine range (ECO): 67 l/min at engine speed 1 800 rpm
Oil supply for the following functions:	<ul style="list-style-type: none">• Steering• Hydraulic trailer brake valve• Brake cooling• Transmission lubrication

6.13.3 Working hydraulic circuit

Pump	Variable-displacement pump that supplies oil when needed.
Pump capacity	<ul style="list-style-type: none">• 115 l/min at engine speed 2 200 rpm• T162e V with low engine range (ECO): 94 l/min at engine speed 1 800 rpm• Alternative equipment pump: 160 l/min at engine speed 2 200 rpm
Maximum pressure at 1 500 rpm	20.5 MPa (205 bar)
Shock valve opening pressure of working hydraulic circuit	24 MPa (240 bar)
Supplies oil for following functions	<ul style="list-style-type: none">• Hydraulic lift• Auxiliary hydraulics

Oil type	
Valtra grade: Valtra Hydraulic 46	DIN-grade: DIN 51524-3 HVL
Valtra grade: Valtra Transmission XT60	<ul style="list-style-type: none"> Classification: Valtra G2-08 API-grade: GL-4
Bio-oil ¹⁾	Standard ISO 15380, class HEES

1) Bio-oil can not be mixed with mineral oil.

Oil volume	
When changing with filters	62 litres
Available volume of oil for auxiliary hydraulics (maximum longitudinal inclinations 10 degrees)	40 litres

6.13.3.1 Valves for auxiliary hydraulics

Rear, standard	<ul style="list-style-type: none"> One on/off valve that controls the hydraulic top link Two double-acting valves with adjustable electric control
Rear, extra equipment	<ul style="list-style-type: none"> One on/off valve with solid connection for the hydraulic lift link or for the hydraulic trailer hitch extension Three double-acting valves with adjustable electric control
Front, extra equipment	<p>Four adjustable valves must be mounted at the rear before the front valves can be mounted. The following variations are possible:</p> <ul style="list-style-type: none"> Two double-acting valves with adjustable electric control. Additionally one of the following options can be fitted as extra equipment: <ul style="list-style-type: none"> Front loader readiness or front loader Front linkage as extra equipment Three double-acting valves with adjustable electric control. Additionally one of the following options can be fitted as extra equipment: <ul style="list-style-type: none"> Front loader readiness Front loader Front loader readiness and front linkage Front loader and front linkage

On/Off valve	
Type	Directional control valve
Maximum capacity	12 l/min
Control	With the rocker switch

Double-acting valve	
Type	Directional control valve including Zero leak
Maximum capacity	80-90 l/min
Control	<p>Electrically adjusted CAN-bus valves</p> <ul style="list-style-type: none"> With joystick <ul style="list-style-type: none"> Rear valves 1 and 2 Front valves 1 and 2 With linear control levers <ul style="list-style-type: none"> Rear valves 3, 4 and 5 Front valve 3

Quick-action couplings	
Standard	ISO7241-1 Series A

6. Technical specifications

6.13.3.2 Counter pressure when using the return connection for auxiliary hydraulics

Flow l/min, temperature	Return connection counter pressure		
	1/2 inch connection	3/4 inch connection	1 inch connection
50 l/min, 65°C	6 bar	5.5 bar	5 bar
80 l/min, 65°C	10 bar	8 bar	7 bar

6.13.4 Rear linkage

Maximum lifting force	Lifting cylinder ø	Lower link type	The length of the lower links
81 kN ¹⁾	100 mm	Category 3, quick coupling grabs	940 mm
85 kN ²⁾	110 mm	Category 3, quick coupling grabs	940 mm

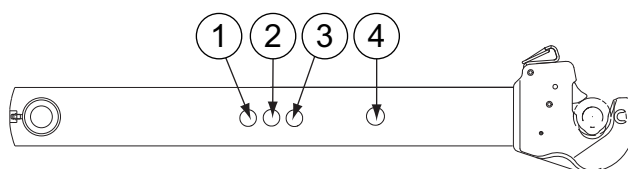
1) Not available for the models T182 V-T202 V

2) Alternative equipment for the models T132 V-T172 V

Function	Linkage version ACD
With electro-hydraulic lower link draft sensing	x
Draft control mixing (position control/draft control mixing)	x
Lowering speed, independent of load	x
Transport height	x
Drive balance control	x
Slip control	x

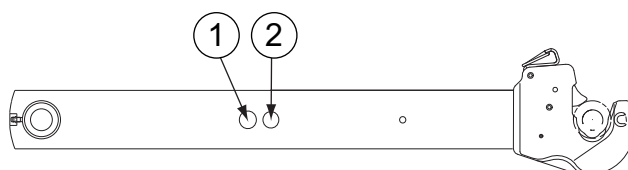
6.13.4.1 Maximum lifting force on the whole lifting area

Lifting cylinder diameter 100 mm



Lifting link's fastening point	Lifting force (kN)
1	66
2	70
3	75
4	81

Lifting cylinder diameter 110 mm

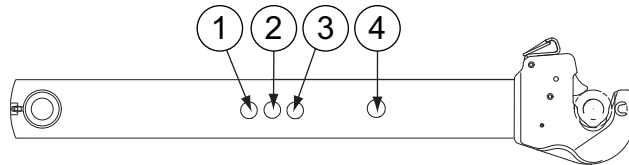


Lifting link's fastening point	Lifting force (kN)
1	79
2	85

6.13.4.2 Lifting range at the end of the lower links

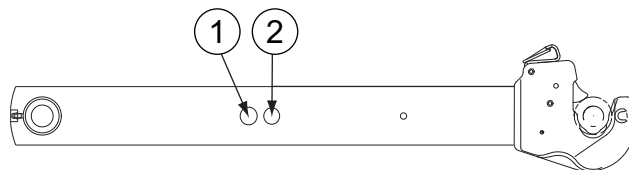
The length of the lower links is 940 mm.

Lifting cylinder diameter 100 mm



Lifting link's fastening point	Lifting range, mm
1	850
2	790
3	735
4	690

Lifting cylinder diameter 110 mm



Lifting link's fastening point	Lifting range, mm
1	850
2	790

6.13.5 Front linkage

Lifting force	35 kN	50 kN
Number of lifting cylinders	2	2
Diameter of the lifting cylinders	90 mm	100 mm
Lifting range at the end of the lifting links	750 mm	750 mm
Quick coupling hooks	Category 3/2	Category 3/2

6.13.6 Trailer hitches and towing devices**Trailer hitch**

Control	Hydraulically controlled
Max. permissible vertical loading	30 kN (the max. axle loading must not be exceeded)
Trailer hitch height on the lower position from the tyre centre	705 mm
Trailer hitch height from the ground (lower position and tyres 18.4R34)	90 mm
Drawbar eye standard	ISO 5692

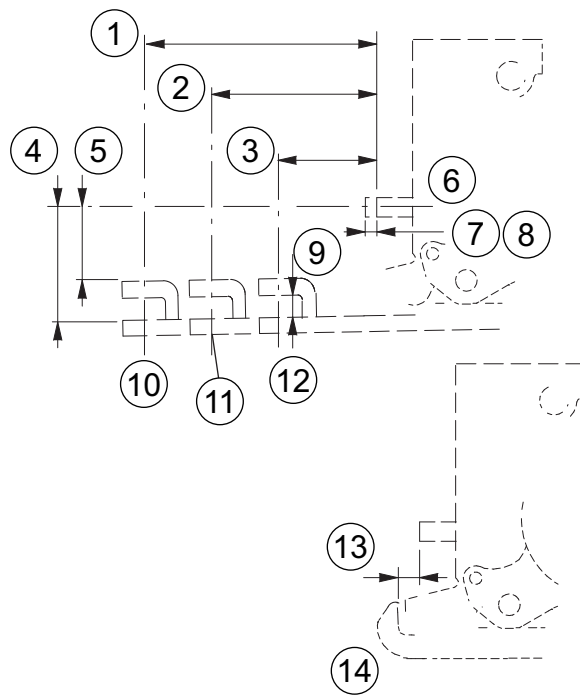
Scharmüller towing device

Max. permissible total weight for the tractor with all jaws	<ul style="list-style-type: none"> • 10 000 kg (models T132 V- T152 V) • 11 000 kg (models T162e V- T202 V)
Max. permissible vertical loading for a trailer hitch with all jaws	1 500 kg
Wagon towing device frame with a fixed hitch (Piton Fix), max. permissible vertical loading	2 000 kg
Automatic jaw, main pin diameter	31 or 38 mm
Mechanical jaw, main pin diameter	<ul style="list-style-type: none"> • 31.5 mm • 28, 42, 50 mm (model Italy)
Drawbar standard	DIN 74054 or DIN 11026

Euro trailer hitch

The horizontal distances of the pulling point from the power take-off (PTO) shaft and the maximum vertical loadings:

Drawbar eye standard	ISO 5692
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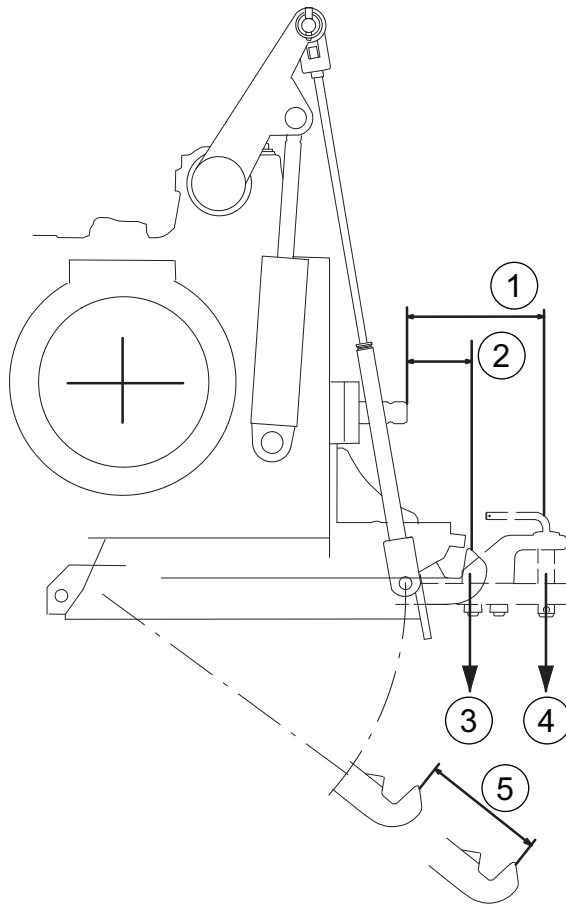
1. 388 mm
2. 298 mm
3. 208 mm
4. 272 mm
5. 181 mm
6. Z (number of splines on PTO shaft) = 6
7. 13 mm
8. Z = 20
9. 65 mm
10. 15 kN
11. 23 kN
12. 30 kN
13. 35 mm
14. 30 kN

Euro trailer hitch with hydraulic extension

Raising/lowering and extension	Electro-hydraulic
Locking of the towing device latch	Electro-hydraulic
Hitch or drawbar	Replaceable
Maximum weight of the tractor	8 000 kg
Trailer hitch/jaw	Lowered down to the ground when extended

The towing point distances from the take-off axle and the maximum vertical loads in the horizontal direction are shown in the following figure.

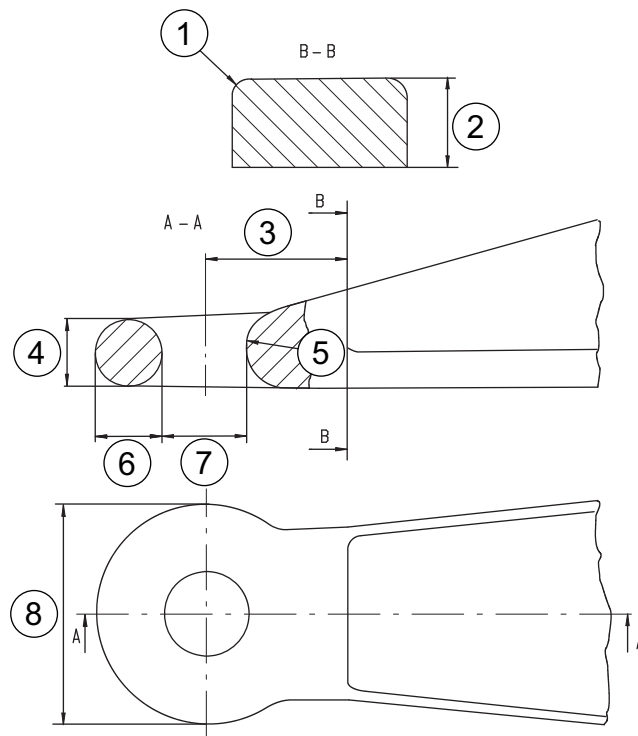
6. Technical specifications



- 1. 350 mm
- 2. 215 mm
- 3. 30 kN
- 4. 10 kN
- 5. 250 mm

Drawbar eye

Drawbar eye standard	ISO 5692
----------------------	----------



1. R 15 mm
2. max 50 mm/min 30 mm
3. 80 mm
4. 30 mm
5. max 20 mm/min 15 mm
6. 30 mm
7. Ø 50 mm
8. min 110 mm/max 120 mm

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