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VALTRA

OPERATOR'S MANUAL
N SERIES

Direct

YOUR WORKING MACHINE

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About this manual

This operator's manual is for the Valtra N Series Direct tractors. The N Series Direct models are N134 D, N154e D, N174 D.

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

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



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

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

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

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

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.

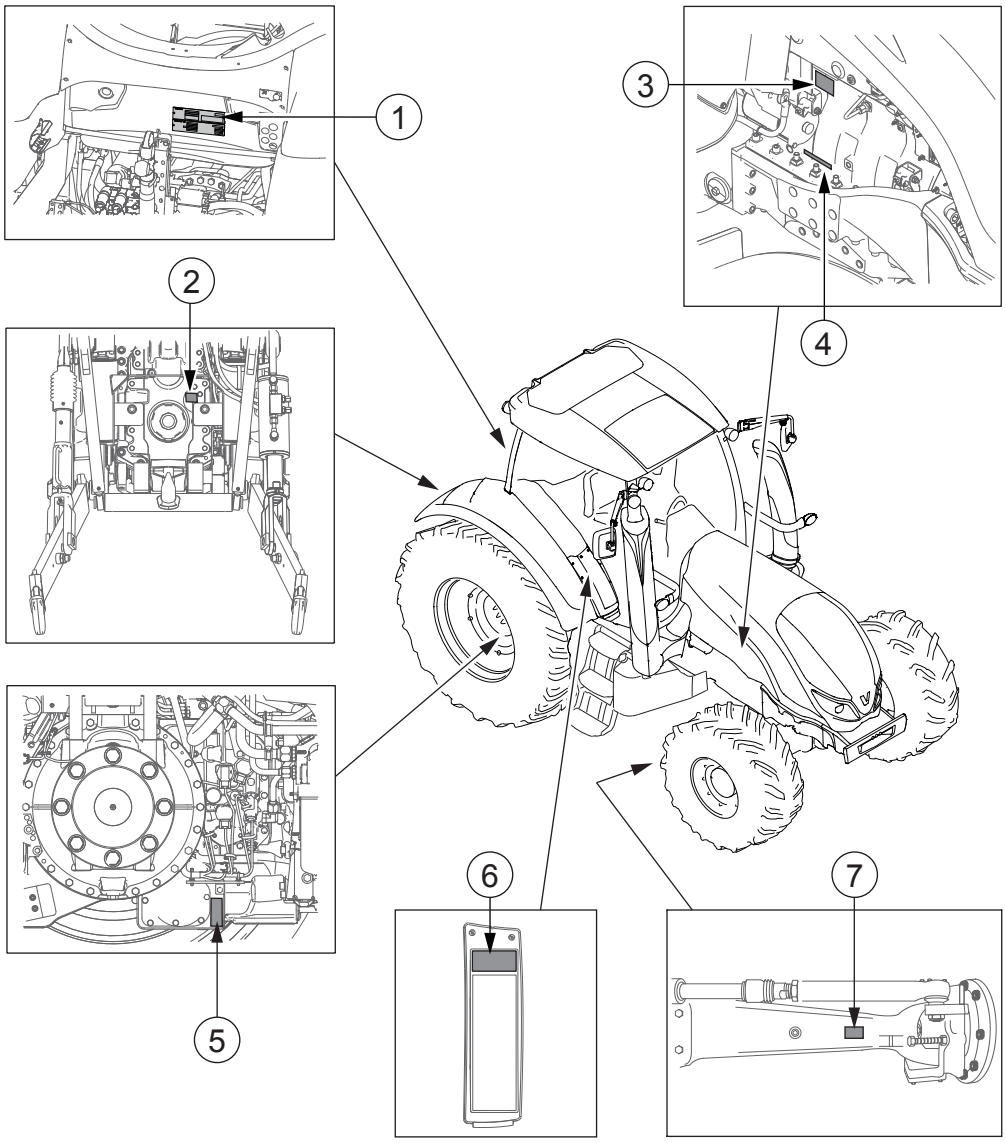
Maintenance, repairs and adjustments which are not described in this manual require special tools and exact technical data. For such work contact your dealer who has specially trained personnel to help you.

Valtra Inc.

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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. Cab number and Type plate EEC
   - Model = model indication
   - Identification number = tractor serial number
2. Power take-off identification number
3. Engine number
4. Tractor serial number
5. Transmission Identification number
6. Tractor technical details used by service/spare part department
7. 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 regarding 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 types of notifications 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 surroundings.

NOTE: Indicates points of particular interest for a 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.

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

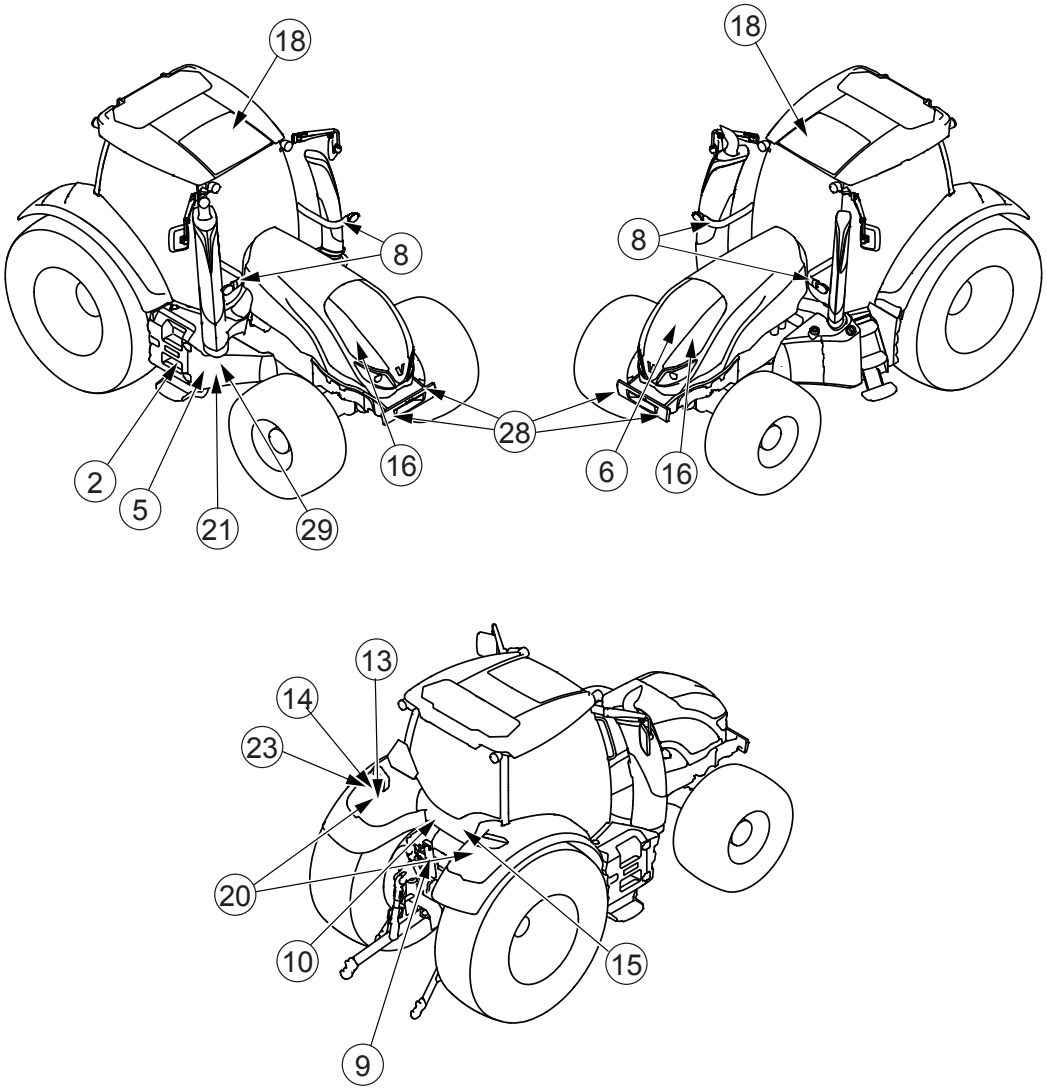


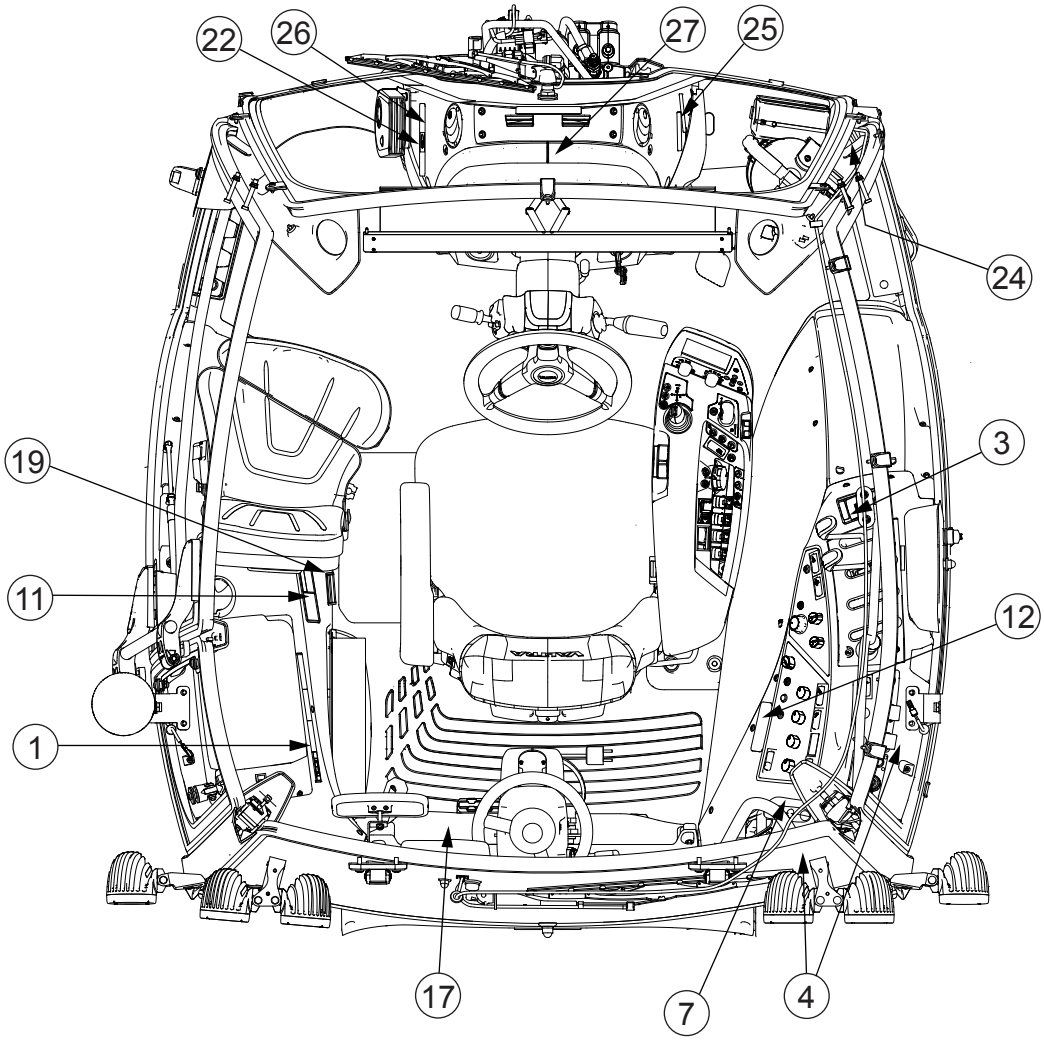
WARNING: Do not remove or obscure danger, warning, caution or instructions signs.

1.2.2 Safety signs

The safety signs on the tractor draw attention to possible dangers related to certain parts or equipment of the tractor. The safety signs must be clean and clearly visible. Worn or detached safety signs must be replaced.

IMPORTANT: After maintenance work, all replacements for parts with a safety sign on them must include also the new safety sign.





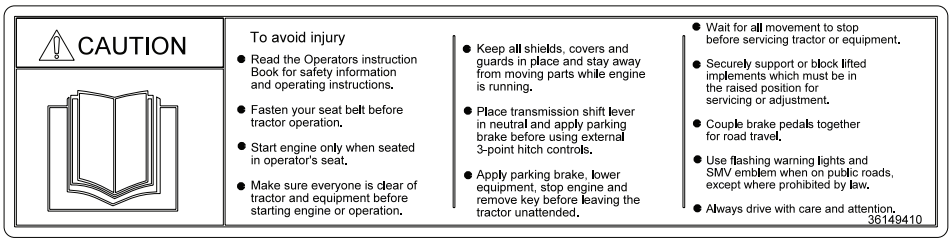
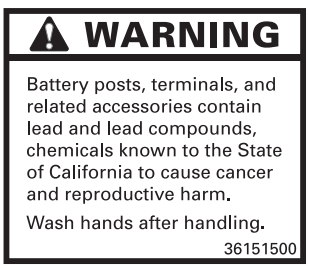
1	Caution: Instructions on avoiding injuries during startup, driving and maintenance. Located inside the cab, below the left-hand side C-pillar.
	
2	Warning: Country-specific warning concerning handling of the battery and its accessories. Located on the side of the battery casing.
	 

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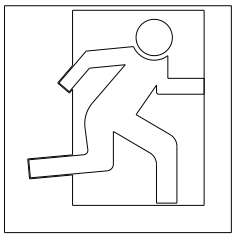
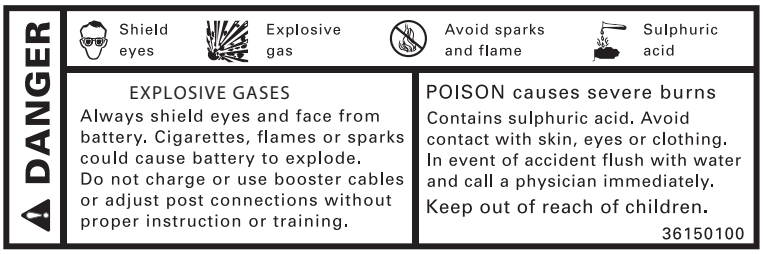
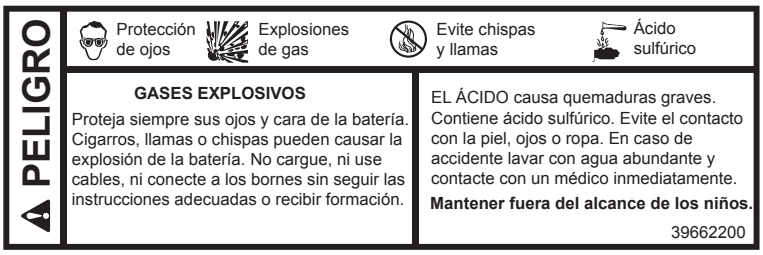
3	Sign indicating the location of emergency brake. Located inside the cab, next to the right-hand side control panels.	
4	Sign indicating an emergency exit. Located inside the cab on the rear window and on the right-hand side window.	
5	Danger: Country-specific warning that the battery and its accessories are dangerous to handle. Located near the battery casing.	
		
		
6	Warning: Country-specific warning that for some time after use the liquid in the system is hot and under high pressure. Located under the bonnet.	
		
7	Warning: Sign indicating the location of the hitch locking release. Located in the cab, below the rear window.	
8	Warning: Country-specific warnings that surfaces are hot after use. Located on the marker light support on the exhaust pipe's side of the cab.	
		

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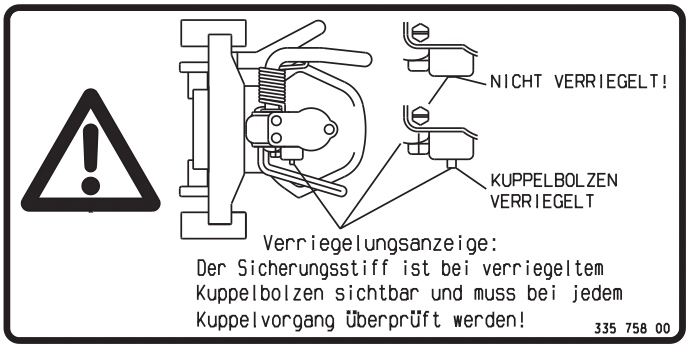
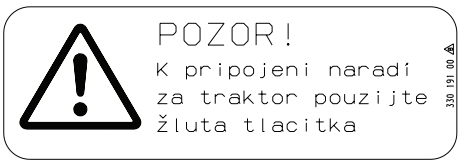
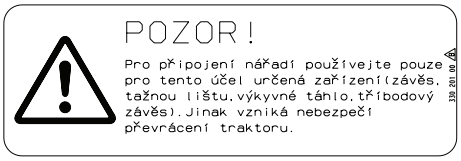
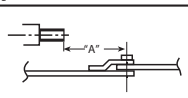
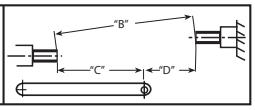
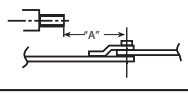
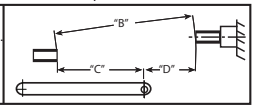
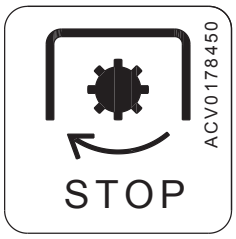
9	Caution: During the connection of the front linkage to the shut-off valve, there must be no load on the front linkage or a rear implement connected to the same valve. The warning sign is located next to the shut-off valve at the back of the tractor.	
10	Country-specific warning concerning jaw locking. Located below the rear window on the outside of the tractor.	
		
11	Warning: Country-specific warning against standing on the stairs while the tractor is moving. Located in the cab, behind the passenger seat.	
		
12	Country-specific notification concerning the power lift / front linkage. Located in the cab, near the control panel on the right-hand side.	
13	Country-specific notification concerning connecting of implements. Located at the back of the tractor, on the left rear wheel mudguard.	

Table continued on next page

<table>
<tr><td>14</td><td>Warning: Country-specific sign indicating the standard distances related to PTO driveline. Located at the back of the tractor, on the left rear wheel mudguard.</td></tr>
<tr><td></td><td>
⚠ WARNING
Personal injury could result from PTO driveline separation.
1. Drawbar supplied provides standard distance “A”. Do not change.
<table>
<tr><th>PTO RPM</th><th>SHAFT SIZE</th><th>DISTANCE “A”</th><th rowspan="3"> 
</th></tr>
<tr><td>540</td><td>35mm (1.38 in)</td><td>400mm (15.85 in)</td></tr>
<tr><td>1000</td><td>35mm (1.38 in)</td><td>400mm (15.85 in)</td></tr>
</table>
2.Three-point link distance “C” and mounted implement distance “D” may not be standard.
<table>
<tr><td>Measure distance “B” over complete lift range for tractor and implement combination. Select driveline length to ensure that driveline will not bottom out at minimum distance “B” and will have sufficient overlap at maximum distance.</td><td> 
</td></tr>
</table>
ACV0279640
</td></tr>
<tr><td></td><td>
⚠ ATENCIÓN
Pueden producirse daños físicos al separar el eje cardánico de la TDF
1. La barra de tiro proporcionada tiene una distancia “A” estándar. No la cambie.
<table>
<tr><th>TDE RPM</th><th>DIÁMETRO DEL EJE</th><th>DISTACIA “A”</th><th rowspan="3"> 
</th></tr>
<tr><td>540</td><td>35mm (1.38 in)</td><td>400mm (15.85 in)</td></tr>
<tr><td>1000</td><td>35mm (1.38 in)</td><td>400mm (15.85 in)</td></tr>
</table>
2. La distancia a los tres puntos “C” y la distancia del implemento “D” no pueden ser estándar.
<table>
<tr><td>Mida la distancia “B” para el rango completo de altura de elevación para la combinación del tractor y el implemento. Seleccione la longitud del eje cardánico de la TDF para que no despunte a la distancia mínima “B” y tenga holgura suficiente para la distancia máxima.</td><td> 
</td></tr>
</table>
ACV0285740
</td></tr>
<tr><td>15</td><td>Sign indicating location of the PTO emergency stop. Located at the back of the tractor, below the rear window.</td><td> 
</td></tr>
<tr><td colspan="3">Table continued on next page</td></tr>
</table>

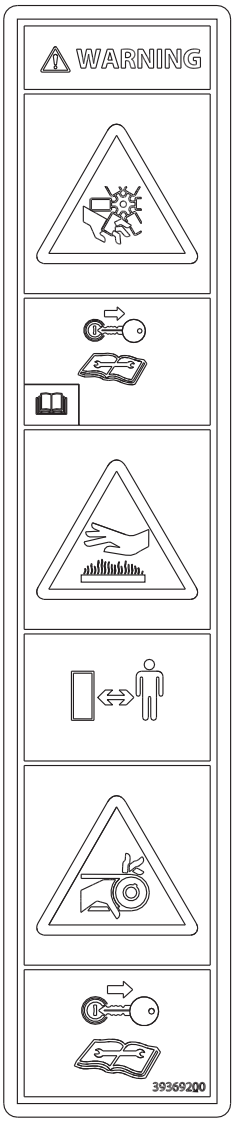
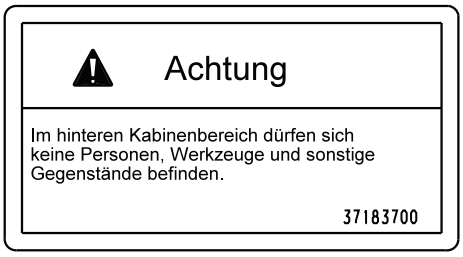
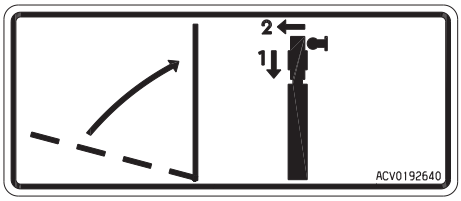
16	Warning: The sign warns against several dangers: • exposed fan which can crush and cut • surfaces which can be hot • exposed belt drive which can cause severe injury Located under the bonnet, on both sides of the radiator.	
17	Country-specific notification concerning the reverse drive system. Located in the cab, next to the TwinTrac driving controls.	
		
18	The sign advises how to open the roof hatch so that it can be used as an emergency exit. Located in the cab, on the roof hatch.	
		

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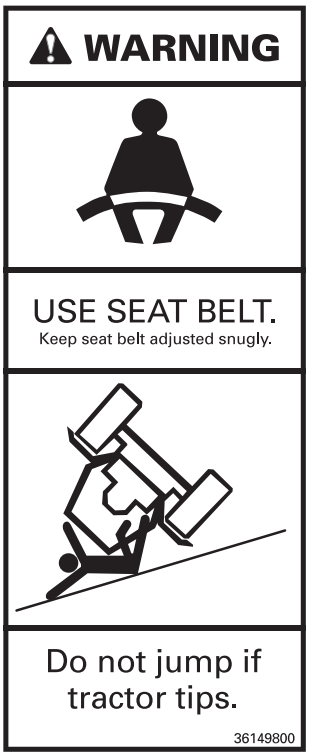
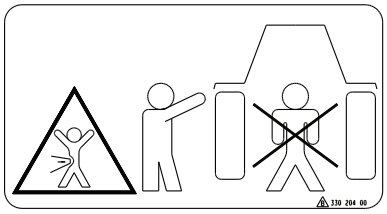
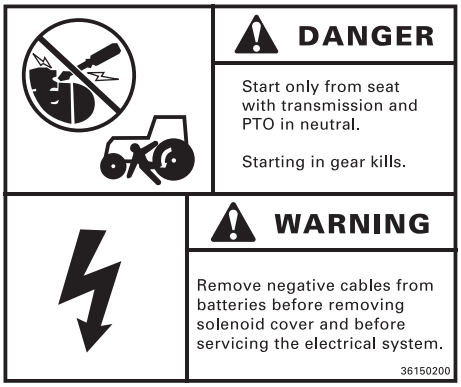
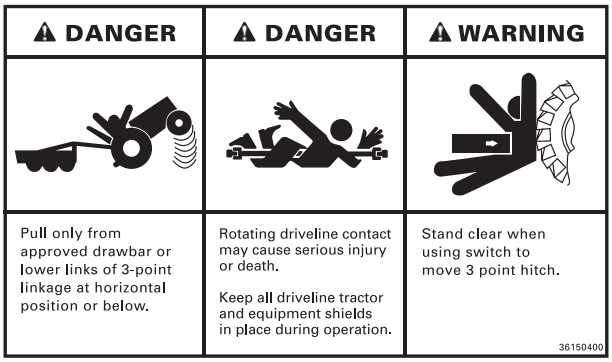
19	Warning: Country-specific sign notifying that the seat belt must be used when driving the tractor. Located behind the passenger seat.	
		
20	Warning against standing directly behind the tractor when it is used. Located at the back of the tractor, on both rear mudguards.	
21	Country-specific signs located near the battery casing. Danger: Starting the tractor is only allowed when sitting in the seat with the transmission and PTO in neutral. Warning: Preparations for servicing the electrical system.	
		

Table continued on next page

22	Country-specific warning concerning cabin tightness. Located in the cab, on the left side of the front housing.
	UPOZORNĚNÍ Kabina traktoru není zajištěna proti pronikání postřikových aerosolů a látek k chemickému ošetřování plodin a půdy.
23	Country-specific signs located at the back of the tractor, on the left rear mudguard. Danger: Only approved parts in their correct position can be used for pulling. Danger: All equipment shields must be kept in place during operation. Warning: The switch to move the three-point hitch must not be used while standing directly behind the tractor.





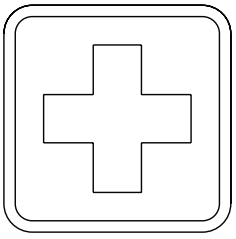
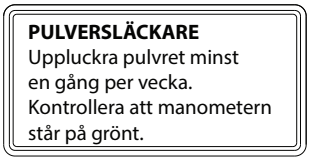
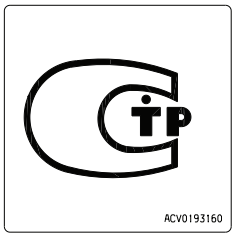
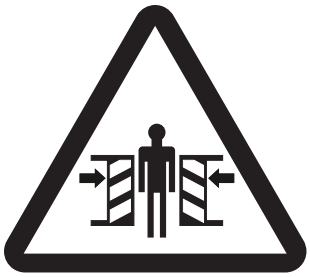
24	Sign indicating the location of first aid kit. Located on the right-hand side A-pillar.	
25	Country-specific safety signs located on the front housing, next to the fire extinguisher.	
		

Table continued on next page

26	Country-specific notification concerning tractor approval. Located in the cab, on the front housing.	
27	Country-specific notification as a reference for surface inclination. Located in the cab, on the windshield.	
28	Warning against standing too close to the pivoting front linkage.Located on both lifting cylinders.	
29	Warning concerning hot surfaces. Located below the exhaust pipe.	

1.2.3 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**

  Take care that damages on the cab are repaired without delay to ensure the cab's protective capability.

  WARNING: If damage occurs to the cab, replace all affected parts 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 before driving that the brakes are working.
    - After attaching a trailer, check that the brakes are working.
  - 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.
    - Make sure that steering is still effective.
    - Make sure that the tractor remains stable and the rear end does not rise up when braking.
    - Use appropriate ballast weights at the rear as required.
    - Do not exceed the maximum axle loads.

- **Cleaning**

  Keep the tractor clean to decrease the 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 as dirty steps can lead to falls and injuries.

- **Quick couplings**

  WARNING: Clean the quick couplings and ball joints before attaching an implement. There is a 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.

    DANGER: Support the tractor from the correct support points on the frame and use suitable blocks or stands when carrying out maintenance tasks that require supporting the tractor.

1.2.4 Using safety features

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

- **Steering wheel and safety handles**

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

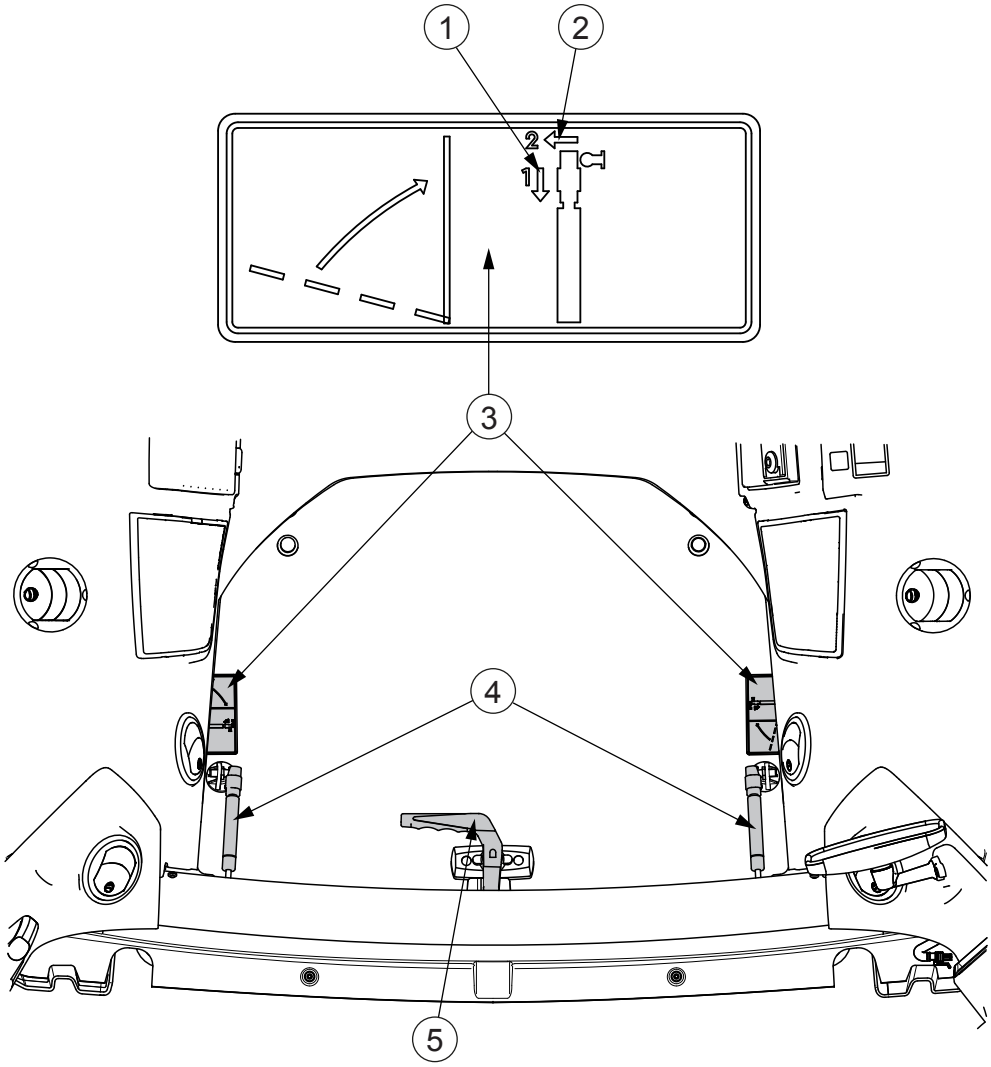
- **Safety belt**

  Always use the safety belt when using the tractor.

- **Emergency exits**

  Familiarise yourself with the three emergency exits of the tractor cab, that is, the door, the rear window and the roof hatch. If necessary, the right-side window can be broken and used as emergency exit. The windshield is polycarbonate and cannot be easily broken.
  When the tractor is equipped with the Skyview roof (optional), there is no roof hatch which could be used as an emergency exit. The windshield is then made of glass and can be broken and used as an emergency exit.

- **Roof hatch**



1. Direction for releasing the lock
2. Direction for detaching the spring
3. Safety sign for using the emergency exit
4. Gas springs with quick locks
5. Handle

- **Pull open the sunshade.**
- **Turn the handle to unlock the hatch.**
- **Release the locking of the gas springs by pulling the spring shafts to the direction the arrow indicates.**
- **Detach both gas springs from their quick locks by pulling to the direction the arrow indicates.**
- **Push the hatch fully open.**

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

- **Emergency brake**

  Use the emergency brake only in emergency situations if braking with brake pedals is not possible.

  WARNING: Turning the ignition switch to (OFF) position cannot be used as an emergency brake. The emergency brake operates only when the power is switched on.

  WARNING: Emergency brake uses the parking brake which is not designed for continuous use. The parking brake can become faulty.

  WARNING: Using emergency brake in slippery conditions can result in skidding and loss of control. Release the emergency brake immediately when there is danger of wheels locking up. Release the emergency brake only if you can do it safely.

1.2.5 Safe operation

1.2.5.1 Following safe operating practices

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

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

  Also follow the chemical application equipment manufacturer's instructions.

- **Protect yourself against engine noise.**

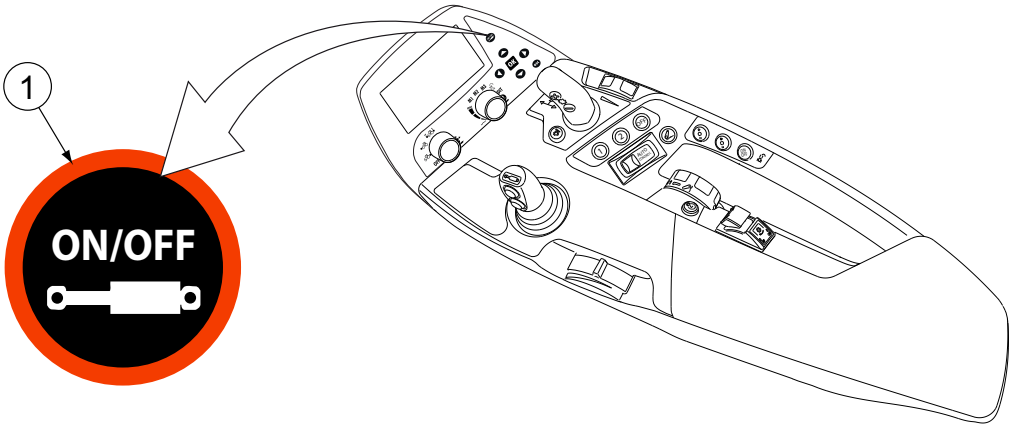
  Use hearing protectors to avoid injuries when you are working outside the cab near the engine.

- **Avoid carbon monoxide poisoning.**

  WARNING: To avoid carbon monoxide poisoning, do not start the engine or run it indoors with the doors closed unless the exhaust is vented to the outside.

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- **Functionality of the auxiliary hydraulics on/off push button.**



1. Auxiliary hydraulics on/off push button

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 functionality of the ON/OFF valves or the rear linkage.

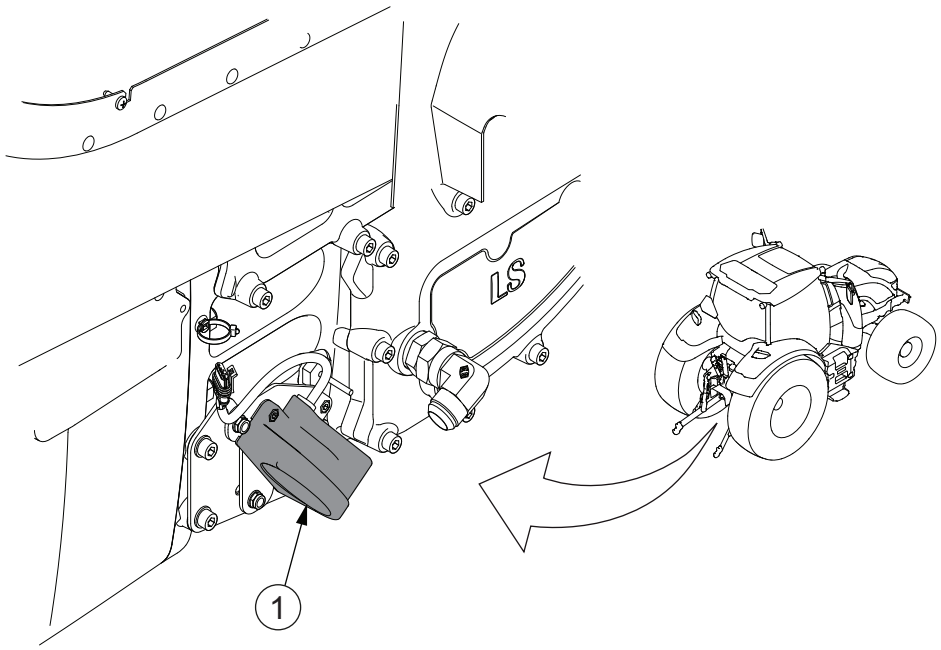
When the auxiliary hydraulics on/off symbol on the auxiliary hydraulics push button is white, the auxiliary hydraulics is deactivated.

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.

- **Restart after engine stop.**
  - If the engine has stalled, for example due to too heavy loading, turn the ignition key to the Off 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 (OFF) position. The tractor is equipped with a radar which presents a hazard to your eyes.

- Front linkage

WARNING: When the front linkage is being connected to the rear valve, make sure there is no load on the front linkage or rear implement connected to the same valve. The load on the front linkage or rear valve implement discharges when the shut-off valve lever is turned. This may cause the implements to move abruptly.

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

- Front loader

WARNING: The programmable features of the joystick or other controls must not be used to operate a loader. To prevent involuntary loader motion, the loader joystick controller must be of the self-neutralising type. When the operator releases their grip on the joystick, the joystick must return to the neutral position, except for the float detent position in the loader lowering direction.

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

- Pivoting front linkage



WARNING: There is a danger of being squeezed between the pivoting front linkage and the tractor's front wheels. Do not let anyone stand within the turning range of the pivoting front linkage.



WARNING: There is a risk of overturning when working with heavy loads or on an unstable or sloping surface or when taking sharp turns.



WARNING: Make sure that link arms are in operating position and that the movement range of the pivoting front linkage is clear.



WARNING: The linkage may extend farther than the tractor's sides. This may be dangerous when driving in traffic.



WARNING: When the pivoting front linkage is being turned or if the steering system malfunctions, the equipment may be a risk to bystanders. Make sure there are no bystanders near the pivoting front linkage.



WARNING: If you disengage the hydraulic system while using the pivoting front linkage, you must reactivate the pivoting front linkage after re-engaging the hydraulics.



WARNING: The front wheels and the pivoting front linkage can be turned to opposite directions, which may cause dangerous situations.

IMPORTANT: When the front loader is in use, the pivoting front linkage must be centered and in its top position and the lifting links must be folded to the transport position.

- Differential lock

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

- Overturning
  - Always consider the way in which the tractor is to be used and the fact that the centre of gravity of the tractor/implement assembly changes according to the load being transported or towed.
  - Adapt the tractor speed according to visibility, weather conditions and the type of terrain.
  - Do not transport loads in the top position. Transport them as low as possible and balance the tractor with ballast weights.
  - Do not accelerate, brake, turn or release clutch too suddenly when driving on a slope.
  - If possible, drive so that the heavier end of the tractor is towards the top of the slope.
  - Work situations with an increased risk of overturning include front-loader work, lifting of heavy loads with the rear or front linkage, forest work, especially with a boom, as well as driving on a soft, uneven or inclined surface.



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

- **Hydraulic/fuel pressure**

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

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

- **Hot surfaces**

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

- **Fuel-operated heater**

  WARNING: During the heating period, clean the exhaust pipe of the fuel-operated heater daily and its surroundings monthly. In dusty conditions, clean more frequently. There is a risk of dry hay or other dirt catching fire.

  WARNING: When using the heater, the area directly below the heater must be clear.

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

  DANGER: The cab structure is designed for protection against falling objects in accordance with the OECD code 10 (energy level 1362 J). Before operating, make sure the protection is adequate for your work conditions.

- **Operator Protection Structure (OPS)**

  DANGER: Protection against penetrating objects is not provided (no OPS available) if the cab of your tractor is fitted with windows made of glass. Protection against penetrating objects is provided in accordance with ISO 8084 (OPS is available) if the cab of your tractor is fitted with windows made of polycarbonate, except the Side visibility cab (no OPS in Side visibility cab). Before operating, make sure the protection is adequate for your work conditions.

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

  DANGER: The cab is classified as category 2 according to the draft of EN 15695-1:2009. Protection against dust is provided. Protection against hazardous substances (agricultural chemicals, etc.) is not provided. Personal protective equipment must be used according to the chemical manufacturer's recommendations. Without air conditioning and with manual air conditioning, the fan knob position must be 3 or higher and recirculation must be closed. With automatic air conditioning, the fan speed must be set to maximum.

- **Forest work**
  - When working in forest, pay special attention to safety issues. The specific dangers related to forest work are falling or penetrating objects and overturning, particularly when working with a boom or a winch fitted to the rear of the tractor. For forest work, a set of forest equipment providing additional protection is available.

1.2.5.2 Getting into and out of the cab

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

- **Always use three-point contact with the tractor and face the tractor when getting in and out.**
- **Use handrails, grab handles and steps when getting in and out.**
- **Do not use control levers as a handhold.**
- **Do not step on the pedals when getting in and out.**
- **Park the tractor carefully before you get out of the cab.**
  - **Stop the tractor.**
  - **Apply the parking brake and make sure that the parking brake symbol shows on the instrument panel.**
  - **If possible, stop and lower the implements.**
- **Never attempt to get into or out from a moving tractor.**
- **Never jump off a tractor.**

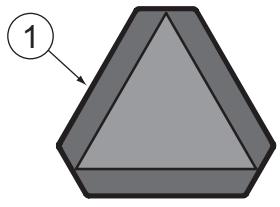
1.2.5.3 Driving on public roads

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

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

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

  - Use the slow moving vehicle emblem on the rear end of the tractor if allowed by law.



1. Slow moving vehicle emblem

1.2.5.4 Controlling the driving speed

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

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

- **Avoid any sudden increase or reduction (braking) in the driving speed.**
- **Avoid tight turns at high driving speed.**

WARNING: When driving the tractor with an attached implement with the centre of gravity far from the tractor, the tractor may sway considerably during cornering. The tractor may tip over or the load may be displaced.

1.2.5.5 Driving downhill

Be careful when driving downhill.

- **Check the brakes often while driving downhill.**
- **Change to a lower gear before driving down a steep decline.**

  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.

1.2.5.6 Permitted driving inclinations

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°
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°

1.2.5.7 Operating with implements

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



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



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



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



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



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



WARNING: When disconnecting, the implement may fall downward.

IMPORTANT: When attaching a trailer or implement, do not exceed the maximum weight of the rear axle.

- **Allow sufficient clearance for turning.**

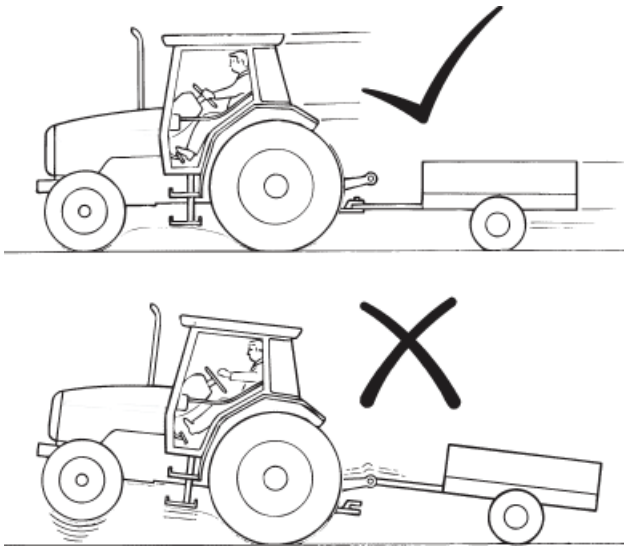
  Three-point hitch and side-mounted implements make a much larger arc when turning than towed equipment. Use only Valtra-approved attachments and implements.

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

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



WARNING: Pull only from the approved drawbar. Attaching to other locations and then towing may cause the tractor to overturn.



1.2.5.8 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.**

1.2.5.9 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 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.**

1.2.5.10 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.



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

IMPORTANT: When attaching a trailer or implement, do not exceed the maximum weight of the rear axle or the maximum load of the tyre type and rear axle.

- **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 one meter behind the vehicle must be suitably marked. During daytime, this should be done with a flag, and during darkness, with a red light and a reflector arrangement.

1.2.5.11 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 or untrained or unqualified persons to operate your tractor.**

  They could injure themselves or someone else.

1.2.5.12 Fire hazards

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

The main switch of the battery has a main power emergency button to disconnect the battery immediately if needed. The red-coloured push button is located below the right fender fuse and relay board. The emergency off switching can be done only when the ignition key is turned to the Off position.

Using the main power emergency button causes uncontrolled battery disconnection. For example, the AdBlue urea lines are not emptied properly and electrical control unit operating data has not been saved as designed.

1.2.5.13 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.

1.2.5.14 Aftertreatment system

The selective catalytic reduction (SCR) aftertreatment system contains copper-zeolite. Copper-zeolite is not classified as hazardous.

The SCR aftertreatment system is installed in the muffler. The system is not hazardous to health under normal use and handling.

When the SCR aftertreatment system is handled in such a way that there is a risk of exposure to dust, safety precautions must be taken. Such work includes, for example, opening the aftertreatment system, machining and disposing of the aftertreatment system.

Safety instructions for work involving the SCR aftertreatment system

- Inhalation: If dust is inhaled, the affected person must be moved to fresh air. If a considerable amount of dust has been inhaled, seek medical help.
- Contact with eyes: Rinse eyes with water for 15 minutes and with eyelids held open. If irritation continues, seek medical help.
- Contact with skin: Wash with soap and water. Take off contaminated clothes.
- Swallowing: If you swallow a large amount, rinse mouth and then drink plenty of water.

Environmental hazards

Copper/zeolite is not acutely harmful to aquatic organisms. The product has not been tested.

Precautions to protect the environment

All dust and spillage must be gathered in a container for recycling or disposal in accordance with local regulations. Used catalysts may have different hazardous properties than the original products.

When an SCR aftertreatment system is no longer used, it must be disposed of in accordance with applicable EU regulations, national regulations or local regulations.

1.2.5.15 Working with the front loader

- **Ensure that no one is in the working area when you are working with the front loader.**
- **Lower the front loader to the down position before leaving the tractor.**

  Objects may fall off the front loader, either to the sides of the tractor or down the length of the loader arms and on the cabin.
- **Use ballast weight at the back if the load is particularly heavy and if you have to drive on a slope.**
- **Avoid sudden stops, starts and turns.**
- **Observe any special instructions issued by the loader manufacturer.**



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

1.2.5.16 Repair and maintenance

During repair and maintenance work, all the applicable safety precautions and maintenance instructions have to be followed. The engine has to be stopped and the implements lowered before any maintenance work.

Support

If the maintenance work requires supporting the tractor, the supports have to be suitable and the tractor has to be supported from the correct support points. When splitting the tractor, the support points and the center of gravity for each frame part have to be considered.

Heavy components

Tools and lifting devices have to be used in the correct way. Lifting slings should be in a vertical position and lifting and lowering should be vertical as often as possible.

Substances

Suitable protection must be worn when handling toxic or harmful chemicals such as fuel, oil, grease or fluids. During and after such maintenance work, all affected parts and equipment must be carefully covered or cleaned. Excess substances must be disposed of in the correct way.

Pressure

Pressurized circuits should not be opened immediately after the engine has stopped. Opening pressurized circuits can be dangerous if the pressure is not carefully released first.

Electrical system

The main power has to be turned off before disconnecting or reconnecting the battery. The battery leads have to be connected and disconnected in the correct order and with the correct polarity.

IMPORTANT: After maintenance work, all replacements for parts with a safety sign on them must include also the new safety sign.

2 Instruments and controls

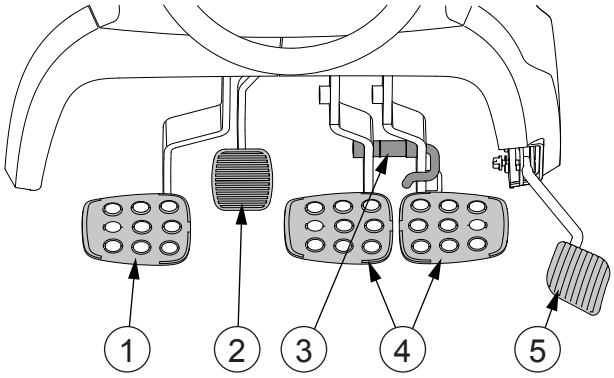
2.1 One-key locking system

There is one key for locking and unlocking all the locking devices of the tractor.

- Ignition switch
- Door handle lock
- Fuel tank cap lock
- AdBlue tank cap lock
- Engine hood lock

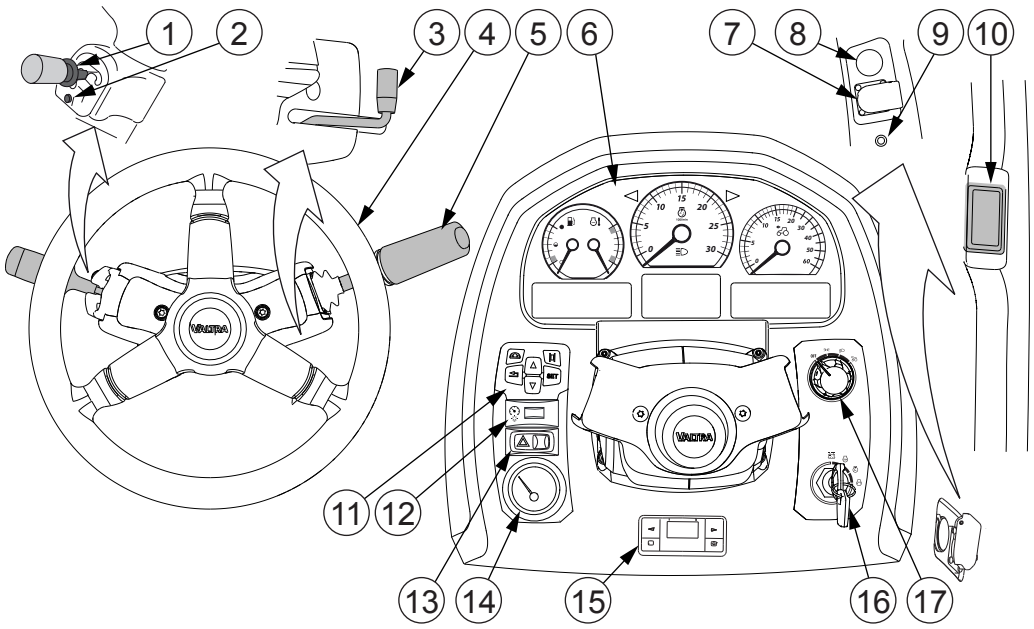
A replacement key is available from your dealer in the event of loss or damage.

2.2 Pedals



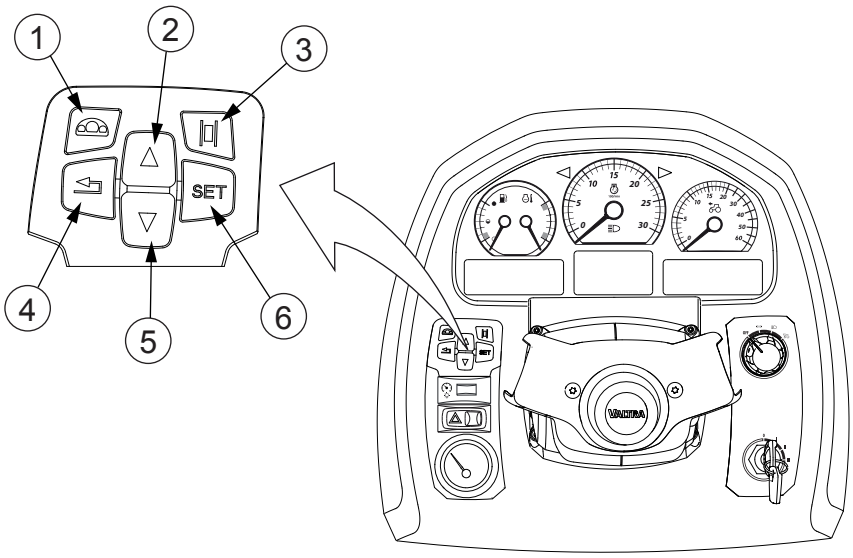
1. Clutch pedal
2. Locking pedal for steering wheel rake adjustment
3. Latch for brake pedals
4. Brake pedals
5. Drive pedal

2.3 Dashboard



1. Power shuttle lever
2. Push button for tractor terminal transmission settings view
3. Lever for adjusting steering wheel position
4. Steering wheel
5. Multifunction lever
6. Proline instrument panel
7. 3-pin current socket (optional)
8. Power outlet (optional)
9. Fuel-operated heater on/off push button (optional)
10. A-pillar display
11. Control panel for A-pillar display and Proline
12. Instrument panel light dimmer
13. Hazard lights switch
14. Pressure gauge (optional)
15. Fuel-operated heater panel (optional)
16. Main power/ignition switch
17. Light switch

2.4 Control panel for A-pillar display and Proline



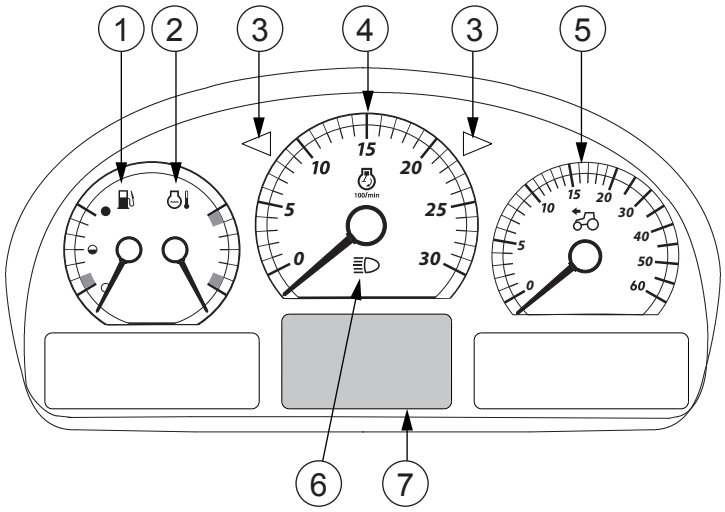
1. Proline instrument panel selection
2. Arrow up
3. A-pillar display selection
4. Back
5. Arrow down
6. SET / selection

NOTE: Moving back in the selection menu automatically saves the selection.

When power is switched on, the control panel controls the Proline instrument panel as a default.

2.5 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 temperature gauge
3. Indicator lights for turn signal
4. Tachometer
5. Speedometer
6. Indicator light for the high 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.

2.5.1 Symbols on the Proline instrument panel display

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

Fixed view symbols

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

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

The periodical maintenance symbol is lit on the centre row of the display when the tractor periodical service must be carried out.

Symbol	Function
	Periodical maintenance

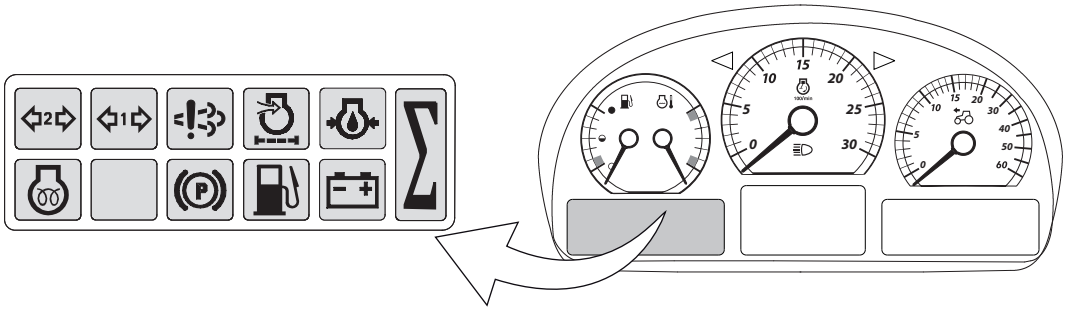
Selectable view symbols

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

Symbol	Function
	Working time (h:mm)
	Battery charge (V)
	Cruise control • RPM = engine speed • KMH = driving speed
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)
Table continued on next page	

Symbol	Function
l/ha Avg l/ha	Immediate fuel consumption (ha, acre) Average fuel consumption (ha, acre)
l/h Avg l/h	Immediate fuel consumption Average fuel consumption
	Fuel consumption
ACR	Lower link position (%, 0-100)
	Gearbox temperature (C/F)
	Travel distance (m/km/miles) Square area (ha)
RESET	Counters reset

2.5.2 Indicator lights on the left side of the display

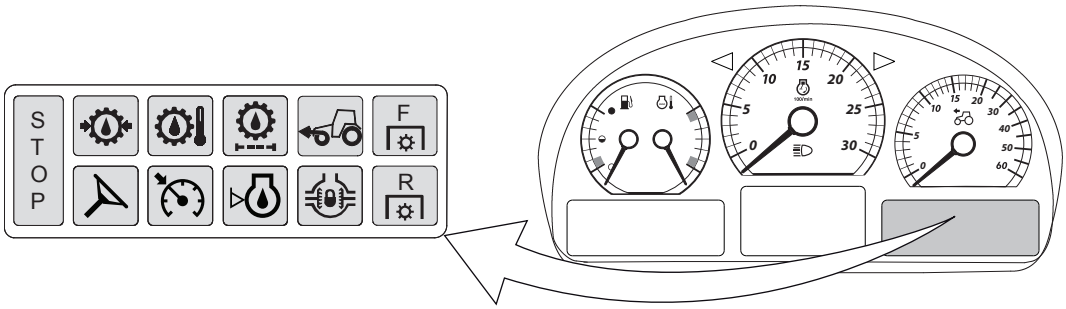


Indicator light	Indication
	Turn signal indicator light of a vehicle combination with two trailers. The signal light blinks when there are two trailers connected to the tractor, or one trailer with double lamps. If a bulb of the trailer combination has failed the light is not lit. When the hazard lights are switched on the signal light blinks if there are four turn signals blinking in the trailer combination. If the turn signal indicator light is lit during the first two blinks, there is a fault in the direction indicator relay and it must be calibrated. Contact an authorised Valtra workshop.
	Turn signal indicator light of a vehicle combination with one trailer having one pair of lamps. The signal light blinks when there is one trailer connected to the tractor. When the hazard lights are switched on the signal light blinks if there are two or three turn signals blinking in the trailer. If the turn signal indicator light is lit during the first two blinks, there is a fault in the direction indicator relay and it must be calibrated. Contact an authorised Valtra workshop.
	Engine emission system failure or malfunction indicator light. The light is lit when the AdBlue/DEF tank is empty or a malfunction occurs in the SCR-system. If the AdBlue/DEF is not filled or the malfunction is on, after a period of time the light begins to flash until the error is resolved. Engine torque and speed is reduced to avoid excessive engine exhaust emissions.
	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.

Table continued on next page

Indicator light	Indication
	Engine oil pressure light. The light is lit when the engine is running, a buzzer sounds continuously and the STOP indicator light flashes to indicate that the oil pressure is too low.
	Σ-indicator light (optional on models N134, N154E). The light is lit continuously (yellow) when the tractor is operating in the higher power range and using PTO.
	Glow indicator light. The light (yellow) is lit when the ignition key is in position **II** and the engine is cold.
	Parking brake indicator light • The light (red) is lit to indicate that the parking brake has engaged • The light blinks when the parking brake is engaging or disengaging • The light blinks and the buzzer sounds continuously when there is a fault in the parking brake
	Low fuel level indicator light The light is lit (yellow) and a buzzer sounds once to indicate that the fuel level is low. The light blinks if there is water in the fuel.
	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.

2.5.3 Indicator lights on the right side of the display



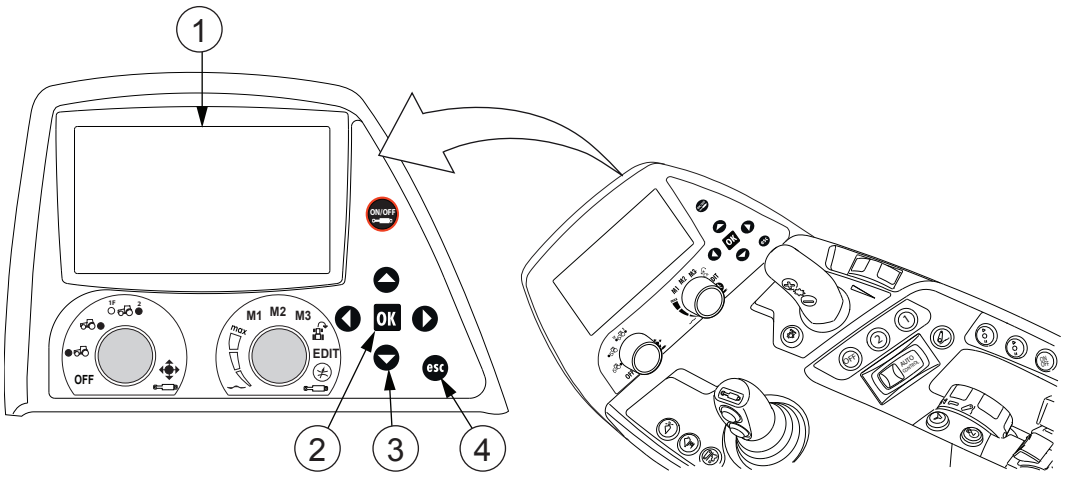
Indicator light	Indication
	STOP indicator light (red). The light flashes to indicate serious fault. Possible reasons: • Engine oil pressure too low • Engine temperature too high (gauge) • Gearbox oil pressure too low • Gearbox oil temperature too high • Hydraulic oil temperature too high • Hydraulic oil level too low **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.
	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/hydrostat temperature light. The light is lit and the STOP indicator light flashes to indicate that the gearbox oil or hydrostat temperature is too high. The gearbox oil temperature can be shown on the tractor terminal or Proline instrument panel display. The hydrostat temperature can be shown on the tractor terminal display. • If the hydrostat temperature rises to 105°C (or over it), the buzzer goes on and a pop-up view is shown on the tractor terminal display for 5 seconds. • If the hydrostat temperature rises to 110°C, the traction is disengaged and a pop-up view is shown on the tractor terminal display for 5 seconds. The service code (7200-31-003) is also displayed on the tractor terminal display.
	Gearbox/hydraulic oil pressure oil filter clogging indicator light. The light is lit to indicate that the pressure filter(s) of the hydraulic or transmission system requires service. Oil filter clogging is monitored when the oil temperature is within the normal operating range.
	Four-wheel drive (4WD) indicator light. The light is lit (yellow) to indicate that 4WD is engaged.
	Front power take-off (PTO) indicator light. The light (yellow) is continuously on and indicates that the front PTO (optional) is engaged.
	Auto-Guide indicator light. The light is on (yellow) to indicate that Auto-Guide steering valve (optional) is powered on.
	Cruise control indicator light. The light is on (yellow) to indicate that cruise control is engaged (constant driving speed / constant engine speed chosen).
Table continued on next page	

Indicator light	Indication
	Engine low oil level indicator light. The engine oil level light (yellow) is lit if the engine oil is below low level. Engine oil level is measured before the tractor is started, running engine oil level is not observed.
	Differential lock indicator light. The light is lit (yellow) to indicate that the differential lock is engaged.
	Rear PTO indicator light • The light is lit when the PTO is on or the proportional ground speed power take-off has been engaged • The light blinks quickly if the PTO is rotating but no longer engaged • The light blinks with normal speed when the PTO is not rotating and the gear selected with the speed selection switch is engaged • The light blinks slowly if the PTO is not rotating and the gear selected with the speed selection switch is not engaged • The light is not lit when the PTO is not on and the speed selection switch is in the **N** position

2.6 Controls on the right-hand side

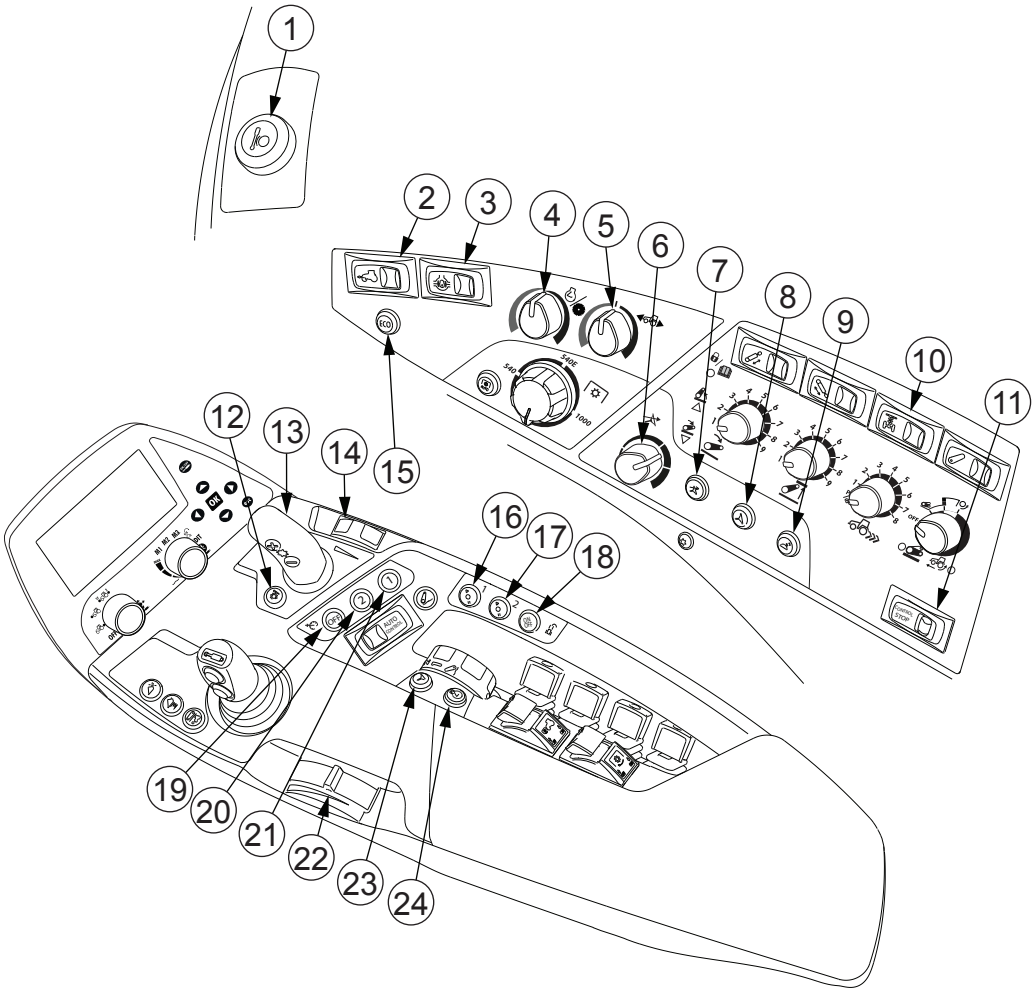
2.6.1 Tractor terminal

The tractor terminal contains the following components.



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

2.6.2 Driving controls

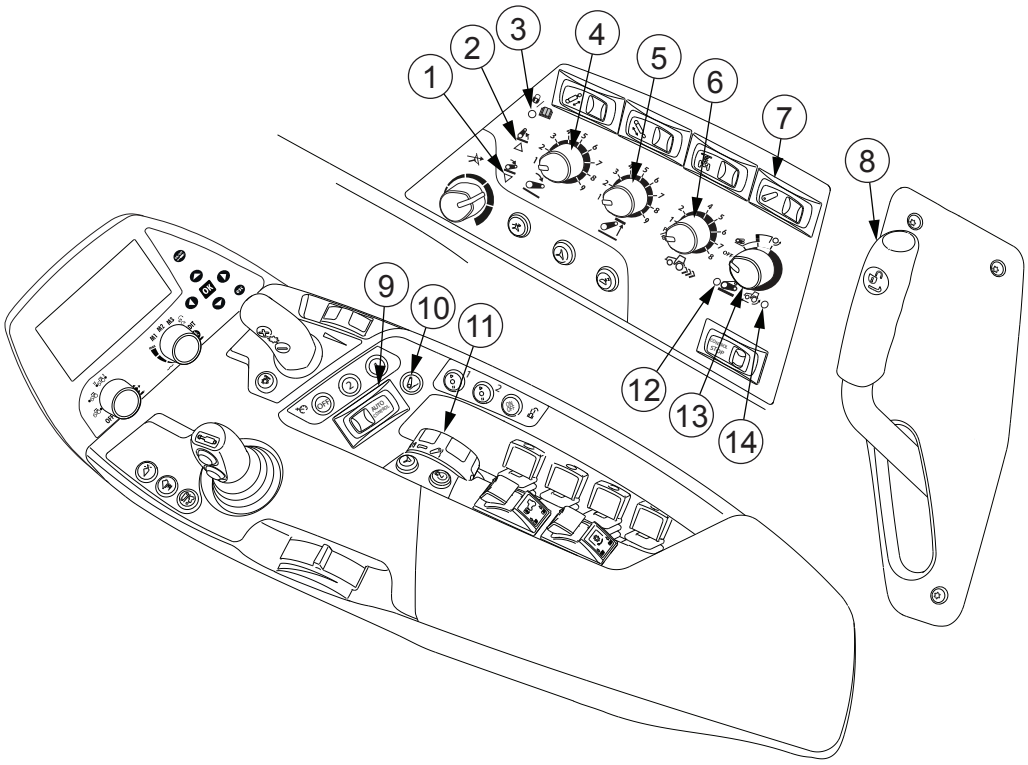


1. Emergency brake button
2. Switch for four-wheel drive (4WD)
3. Switch for differential lock
4. Droop adjustment knob
5. Speed balance control knob
6. QuickSteer control knob (optional)
7. QuickSteer activation button (optional)
8. Auto-Guide steering valve on/off button (optional)
9. Auto-Guide receiver on/off button (optional)
10. Front axle suspension switch (optional)
11. Control stop switch (optional)
12. Drive response mode selector
13. Drive lever
14. Max speed / Cruise control adjustment wheel
15. Push button for EcoPower (optional)
16. Activation / recording button 1 for U-Pilot
17. Activation / recording button 2 for U-Pilot
18. U-Pilot on/off button
19. Driving speed cruise control off button
20. Driving speed cruise control memory button 2
21. Driving speed cruise control memory button 1

22. Hand throttle
23. Auto-Guide remote activation button (optional)
24. Engine RPM memory button

2.6.3 Linkage

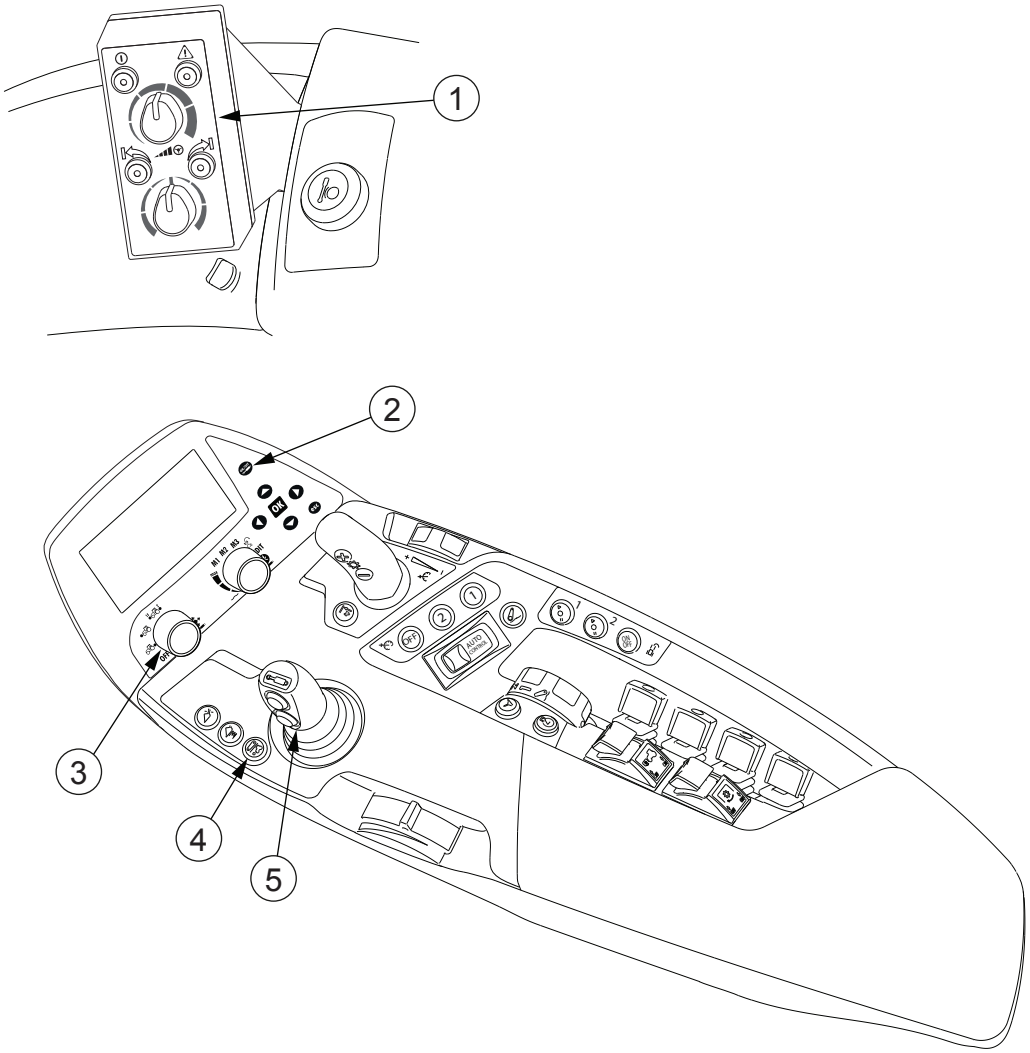
2.6.3.1 Rear linkage



1. Lowering indicator light
2. Lifting indicator light
3. Diagnostic light
4. Lowering speed selector
5. Max lifting height selector
6. Draft control selector
7. Lifting/lowering switch
8. Trailer hitch release lever (optional)
9. Lift/stop/lower switch
10. Override button for position control knob
11. Position control knob
12. Drive balance control light
13. Drive balance control, including slip control system
14. Slip control light

2.6.3.2 Front linkage

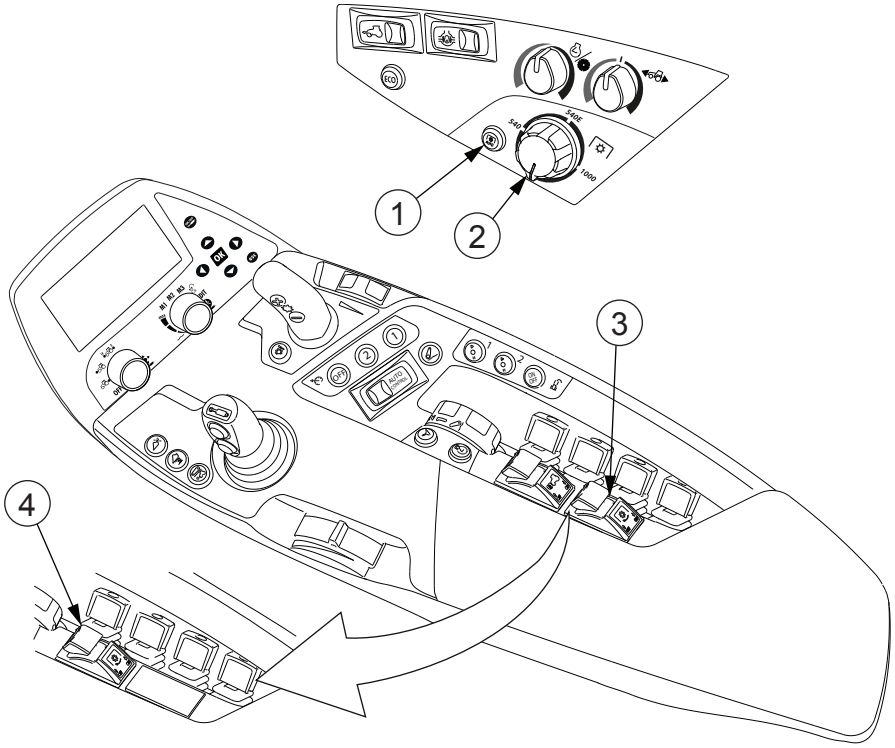
The front linkage is optional.



1. LHLift control unit (optional)
2. Auxiliary hydraulics on/off push button
3. Joystick function selector
4. Changeover button for front linkage / front loader (optional)
5. Joystick

2.6.4 Power take-off

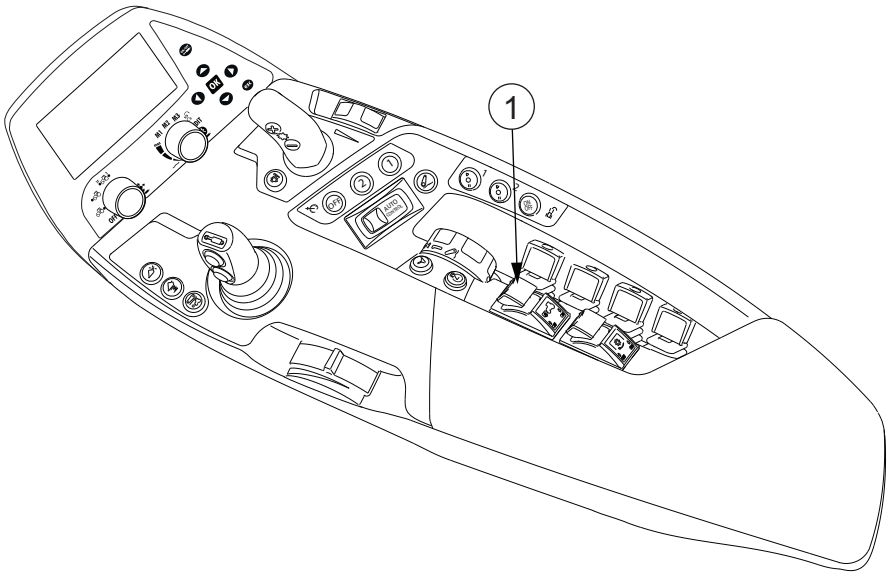
2.6.4.1 Rear power take-off



1. Button for rear PTO automatic start/stop
2. Speed control knob for rear PTO
3. Switch for rear PTO when front PTO is included
4. Switch for rear PTO when front PTO is not included

2.6.4.2 Front power take-off

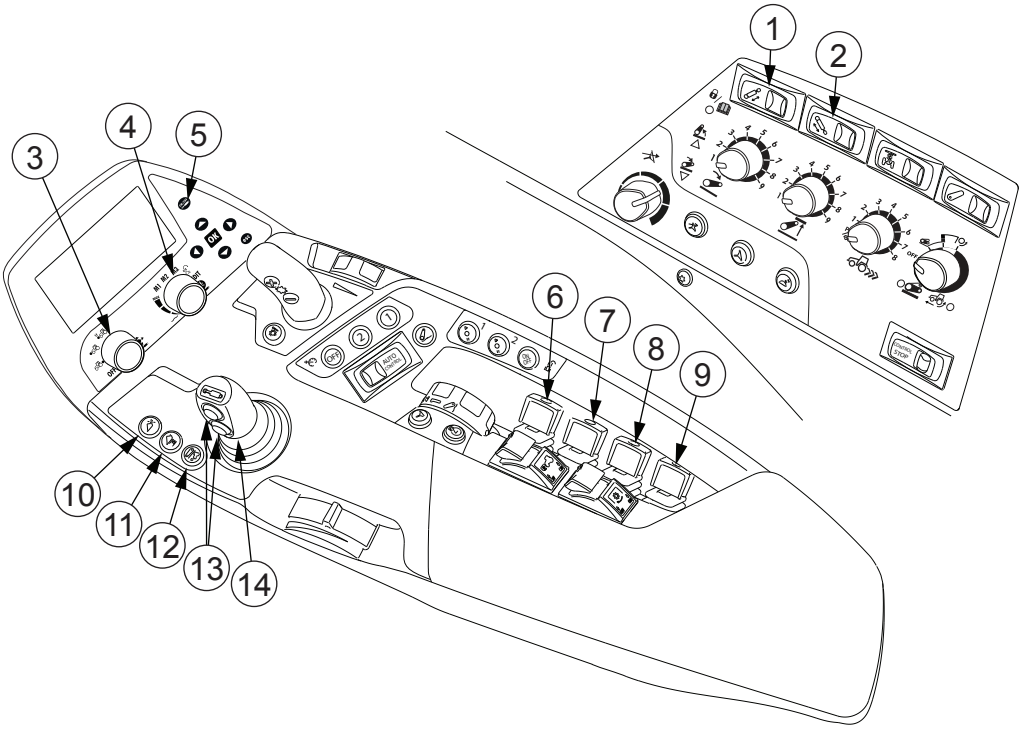
The front power take-off (PTO) is optional.



1. Switch for front PTO

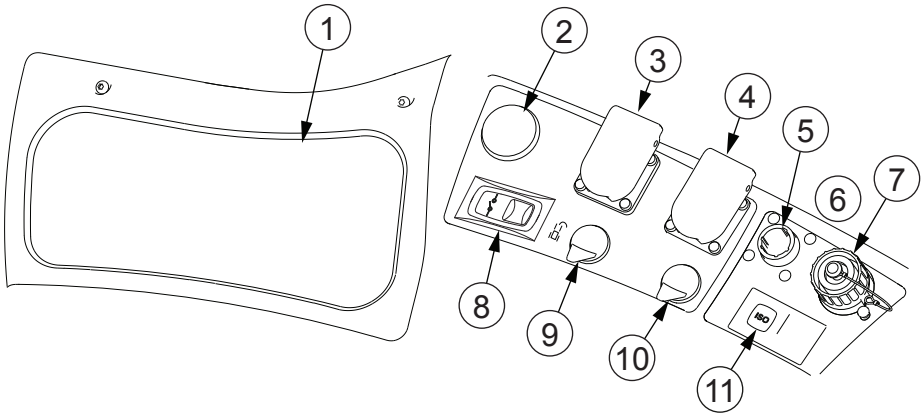
2.6.5 Auxiliary hydraulics

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



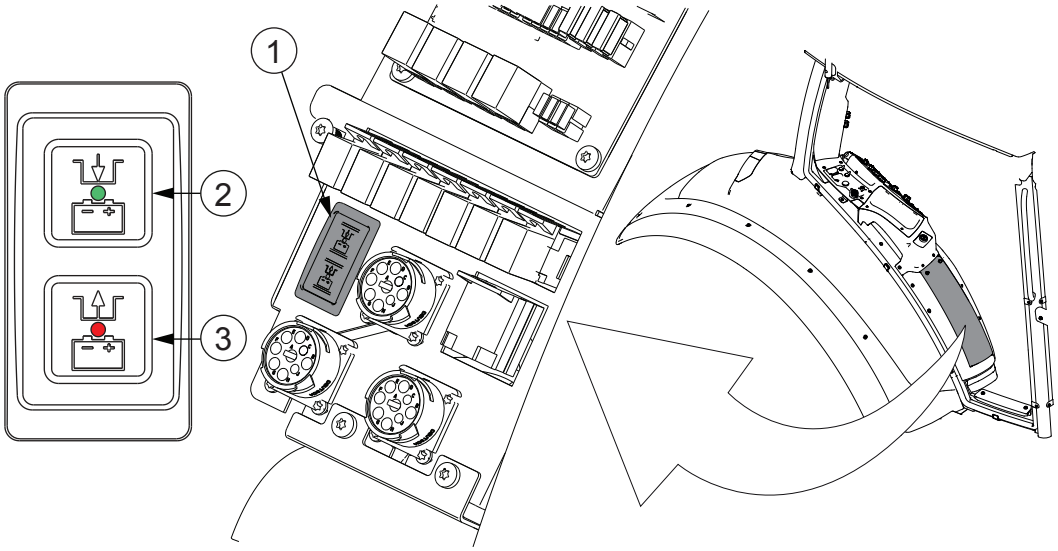
1. Switch for rear on/off valve 1
2. Switch for rear on/off valve 2 (optional)
3. Joystick functions selector
4. Selector for the predefined factory / user settings
5. Auxiliary hydraulics on/off push button
6. Control lever for auxiliary hydraulics rear valve 3 (optional)
7. Control lever for auxiliary hydraulics rear valve 4 (optional)
8. Control lever for auxiliary hydraulics rear valve 5 (optional) / front valve 3F (optional)
9. Control lever for auxiliary hydraulics front valve 3F (optional) / front valve 4F (optional)
10. Button for hydraulic implement locking (optional)
11. Button for Softdrive (optional)
12. Changeover button for front linkage / front loader (optional)
13. Joystick push buttons
14. Joystick

2.6.6 Other controls



1. Storage compartment
2. Power outlet (optional)
3. 3-pin current socket
4. 3-pin current socket (optional)
5. ISOBUS terminal connector (optional)
6. ISOBUS bus extension connectors (behind the cover; optional)
7. Implement signal connector (optional)
8. Power switch for 2-pin current socket
9. 2-pin current socket (controlled by power switch / U-pilot)
10. 2-pin current socket
11. Indicator light for implement signal connection (optional)

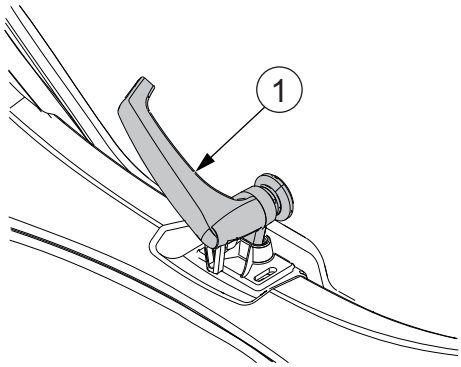
2.6.7 Main power emergency button



1. Main power emergency button
2. Main power on (green light)
3. Main power off (red light)

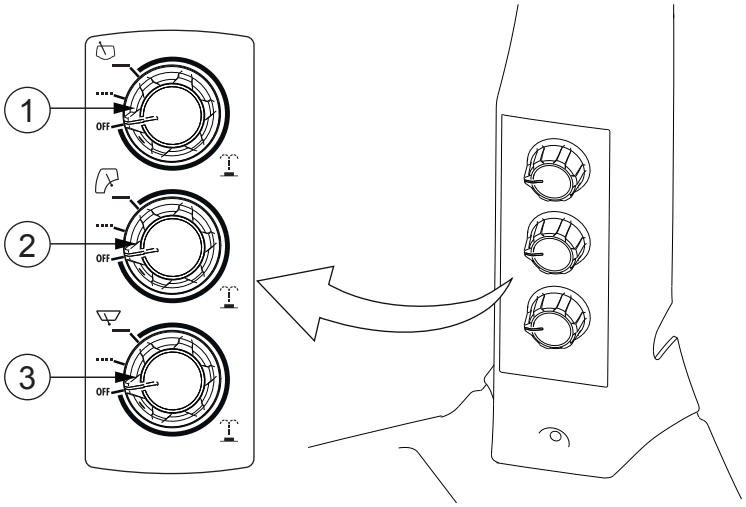
2.7 Controls on the rear side

2.7.1 Rear window opening latch



1. Rear window opening latch

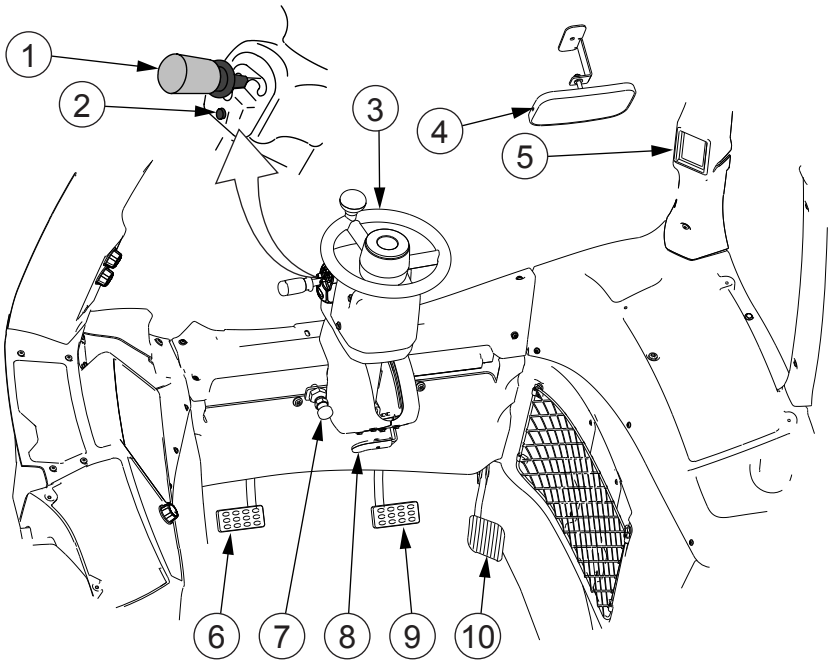
2.7.2 Additional wipers



1. Rear window wiper switch (optional)
2. Side window wiper switch (optional)
3. Roof window wiper switch (optional)

2.7.3 Reverse drive system controls

The reverse drive system is optional.

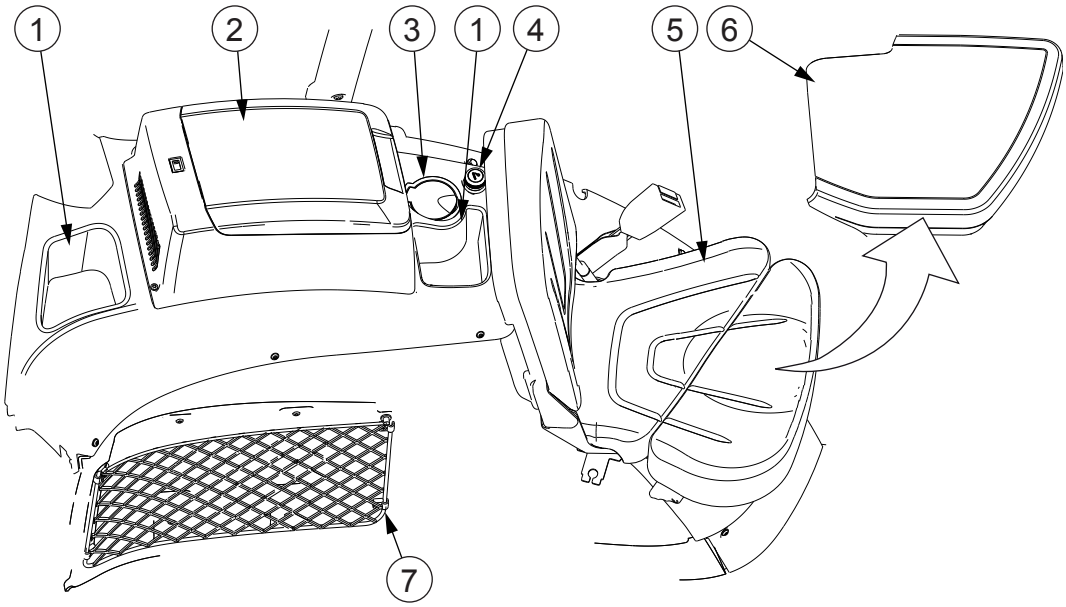


1. PowerShuttle lever
2. Push button for tractor terminal transmission settings view
3. Steering wheel
4. Mirror
5. C-pillar display
6. Clutch pedal
7. Lever for adjusting steering wheel horizontal position

8. Lever for steering wheel rake adjustment
9. Brake pedal
10. Drive pedal

2.8 Controls on the left-hand side

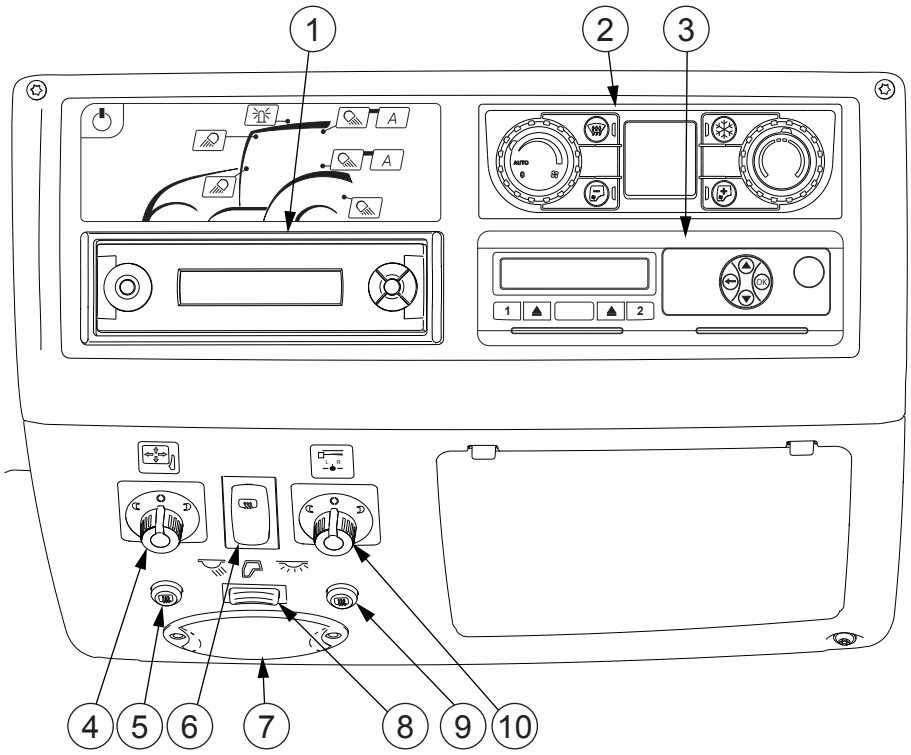
The following controls are positioned on the left-hand side.



1. Storage compartment
2. Cool box (optional)
3. Ashtray (optional)
4. Lighter
5. Passenger seat with seat belt (optional)
6. Writing table
7. Storage pocket

2.9 Controls on the right-hand side roof console

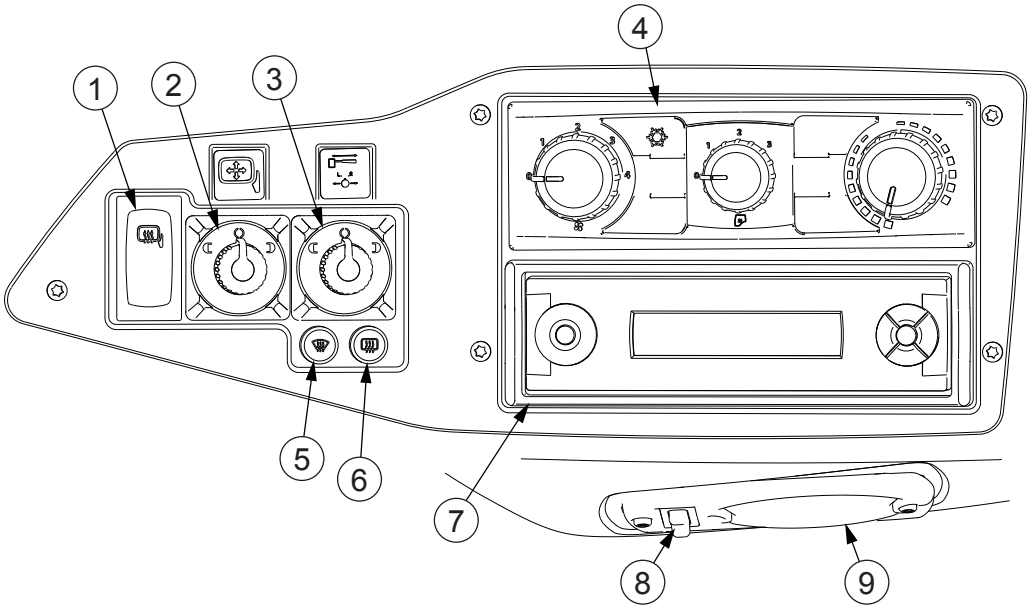
The following controls are positioned on the right-hand side roof console.



1. Radio (optional)
2. Air conditioning controls
3. Tachograph (optional)
4. Mirror adjustment knob (optional)
5. Windscreen heater push button (optional)
6. Mirror heating switch (optional)
7. Interior light
8. Control switch for interior light
9. Rear window heater push button (optional)
10. Telescopic mirror adjustment knob (optional)

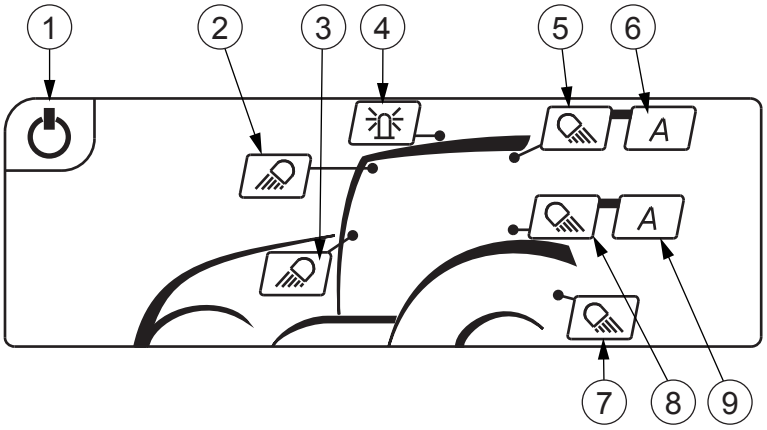
2.10 Controls on the Skyview equipment right-hand side roof console

The following controls are positioned on the Skyview equipment right-hand side roof console.



1. Mirror heating switch (optional)
2. Mirror adjustment knob (optional)
3. Telescopic mirror adjustment knob (optional)
4. Air conditioning controls
5. Windscreen heater push button (optional)
6. Rear window heater push button (optional)
7. Radio (optional)
8. Control switch for interior light
9. Interior light

2.11 Working light controls



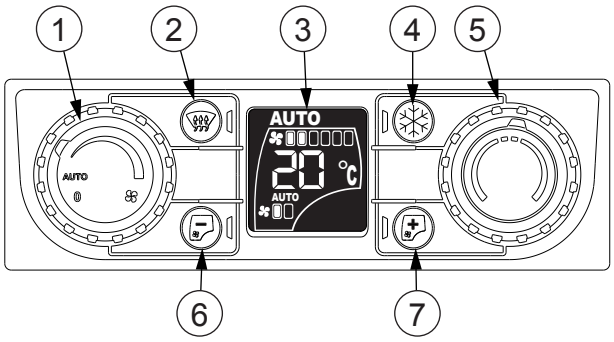
1. Light panel on/off button
2. Front working lights
3. Front waist working lights (optional)
4. Rotary beacon light (optional)
5. Rear working lights
6. Automatic operation of the rear working lights
7. Trailer hitch light (optional)
8. Rear waist working lights (optional)
9. Automatic operation of the rear waist working lights (optional)

With the Skyview equipment, the button for the rear working lights also turns on the side working lights.

2.12 Air conditioning controls

2.12.1 Automatic air conditioning and additional heater controls

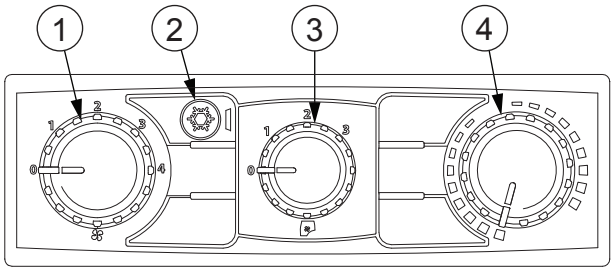
The automatic air conditioning and additional heater system is optional.



1. Fan speed control knob (selection OFF/Auto/Manual)
2. Defrost
3. Display
4. Air conditioning ON/OFF
5. Temperature control knob
6. Additional heater fan speed decrease (selection Manual/OFF/Auto)
7. Additional heater fan speed increase (selection ON/Manual)

2.12.2 Manual air conditioning and additional heater controls

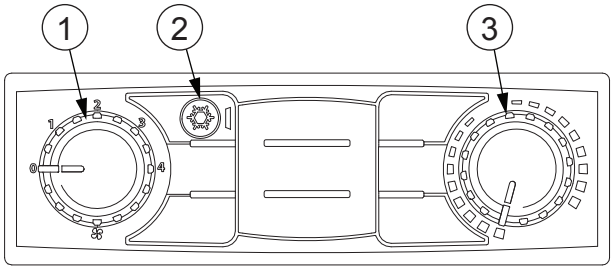
The manual air conditioning and additional heater system is optional.



1. OFF/Fan speed control knob
2. Air conditioning ON/OFF
3. Additional heater OFF/fan speed control knob
4. Temperature control knob

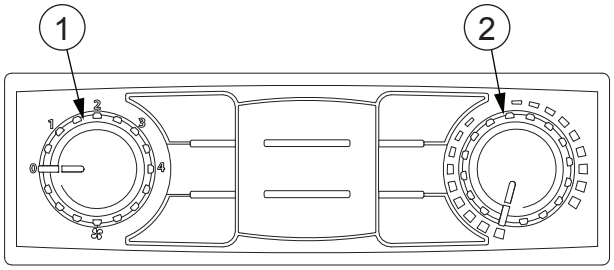
2.12.3 Manual air conditioning

The manual air conditioning system is optional.



1. OFF/Fan speed control knob
2. Air conditioning ON/OFF
3. Temperature control knob

2.12.4 Heater controls

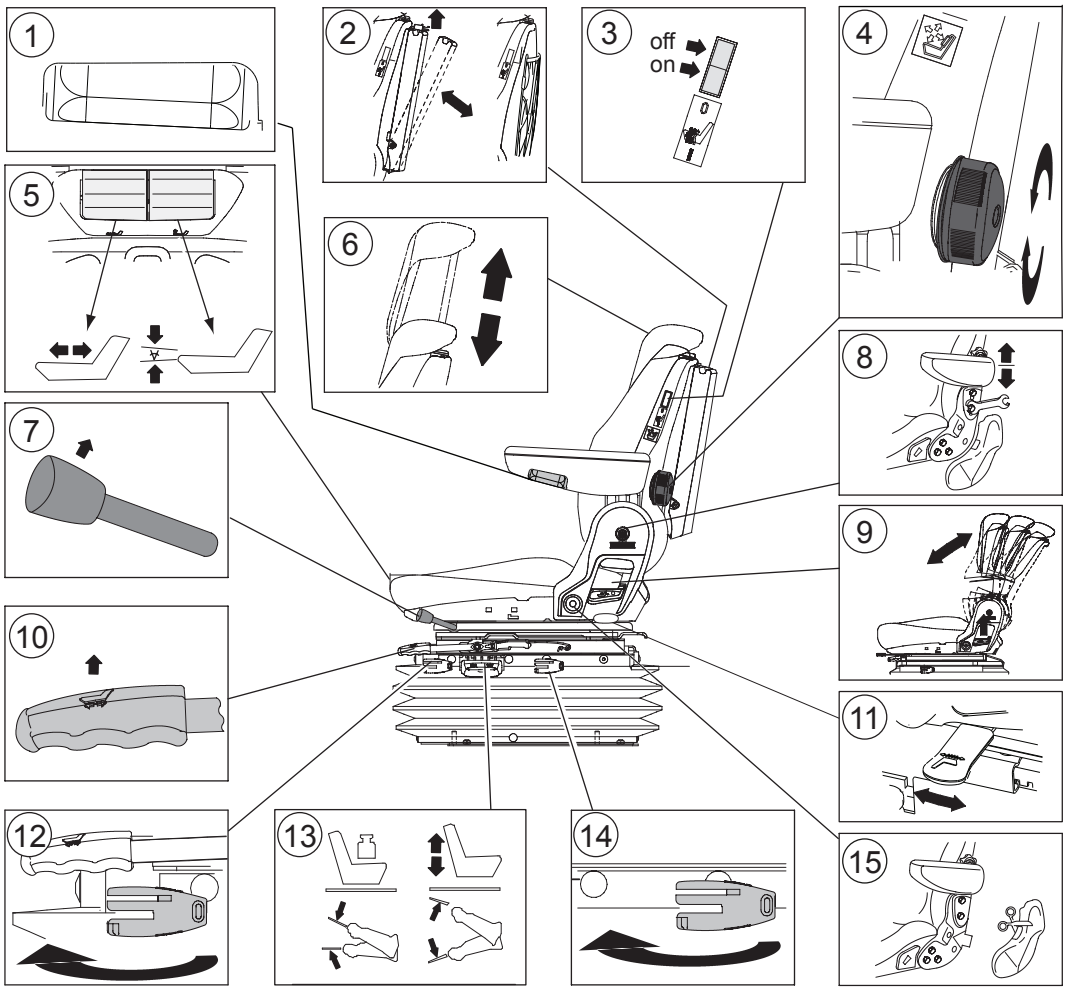


1. OFF/Fan speed control knob
2. Temperature control knob

2.13 Operator's seat

2.13.1 Air suspended operator's seat

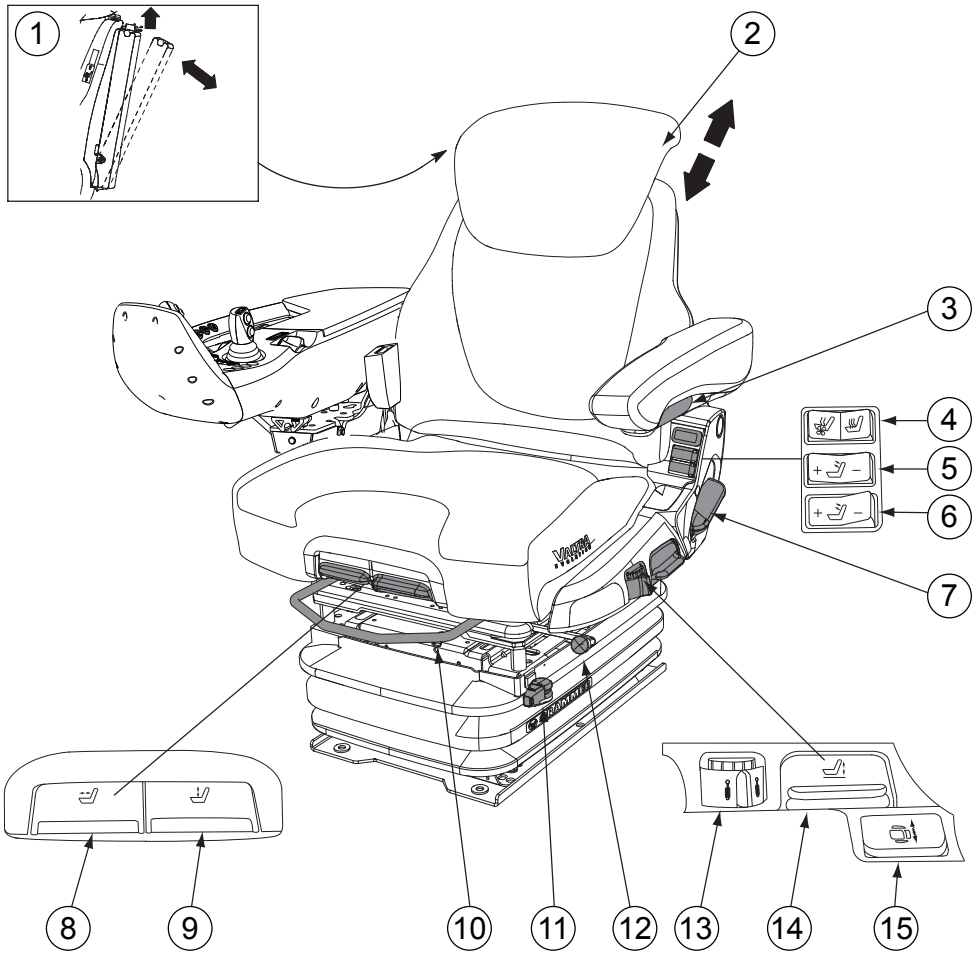
Air suspended operator's seat is standard and Air suspended + operator's seat is optional.



1. Armrest adjustment (Air suspended + only)
2. Storage compartment (Air suspended +) or net (Air suspended) for manuals
3. Seat heating
4. Lumbar support adjustment (Air suspended + only)
5. Seat depth and cushion angle adjustment
6. Headrest height adjustment and removal
7. Seat turning lock/release
8. Armrest adjustment
9. Backrest tilt adjustment
10. Forward/backward adjustment
11. Lateral suspension adjustment (Air suspended + only)
12. Longitudinal suspension adjustment
13. Height and vertical suspension adjustment
14. Suspension stiffness adjustment
15. Seat belt anchor point

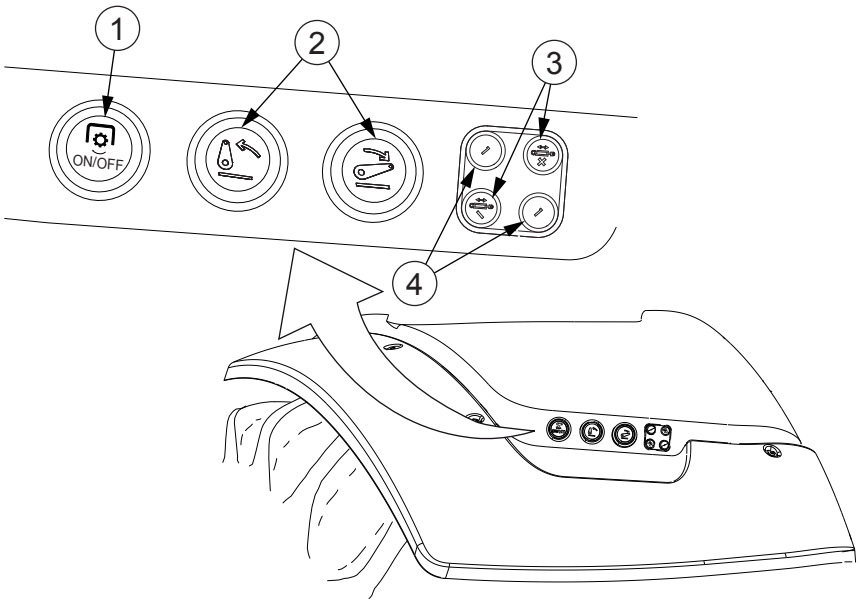
2.13.2 Valtra Evolution operator's seat

Valtra Evolution operator's seat is optional.



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 tilt 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

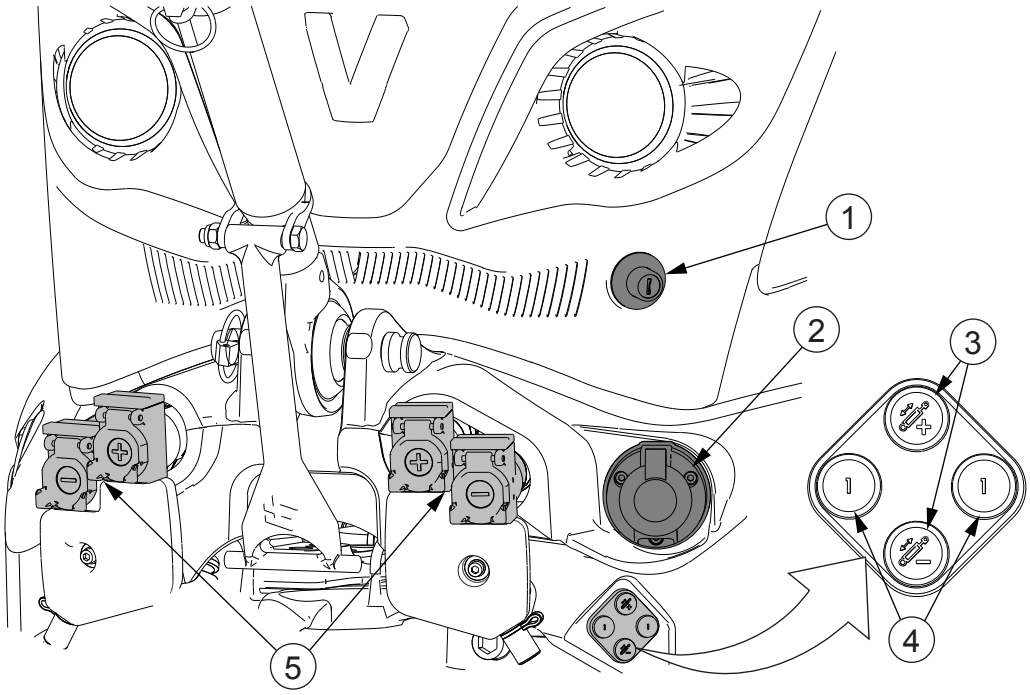
2.14 Controls on the rear mudguard



1. Rear power take-off on/off push button (optional)
2. Lifting/lowering push button
3. On/off valve 1 push buttons (optional)
4. Rear valve 1 push buttons (optional)

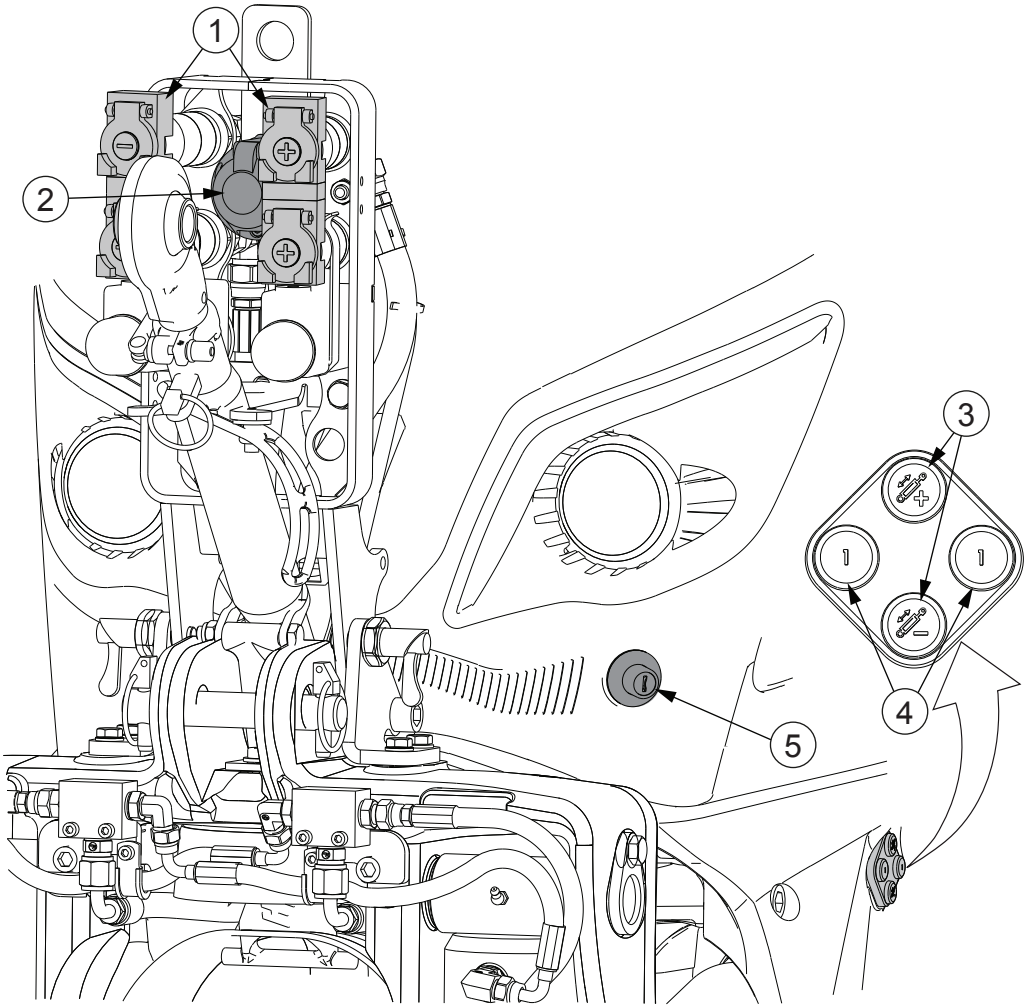
2.15 Front end controls and connections

Front linkage and front quick couplings are optional.



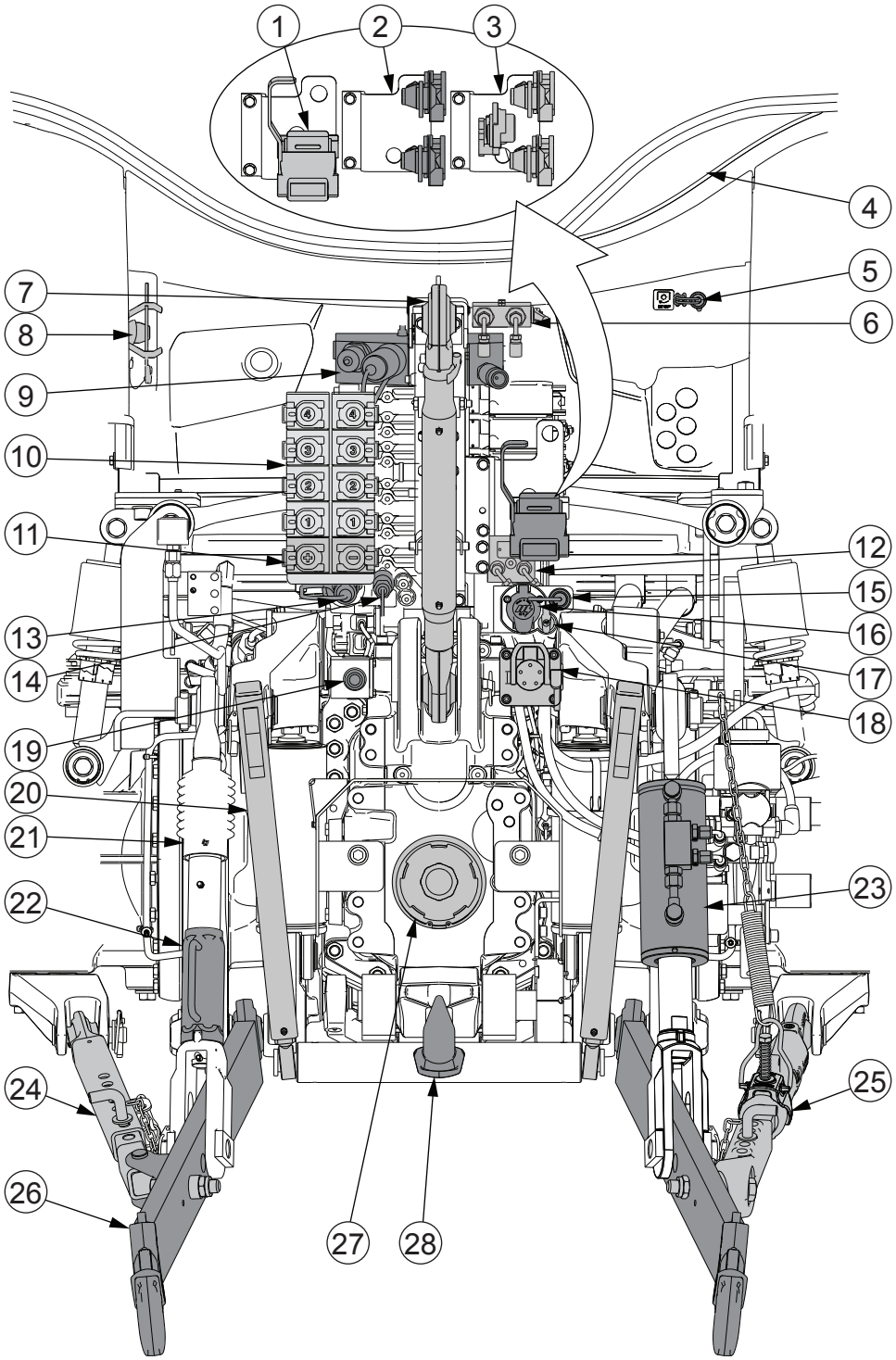
1. Engine bonnet lock
2. Trailer socket (optional)
3. Lifting/lowering push buttons for the front linkage (optional)
4. Front valve 1 push buttons (optional)
5. Front quick couplings (optional)

With pivoting front linkage:



1. Front quick couplings (optional)
2. Trailer socket (optional)
3. Lifting/lowering push buttons for the front linkage (optional)
4. Front valve 1 push buttons (optional)
5. Engine bonnet lock

2.16 Rear controls and connections outside the cab



1. Trailer coupling, Duo-Matic (optional)
2. Trailer coupling, 2-line system (optional)
3. Trailer coupling, 1-2-line system (optional)
4. Inlet for implement control cables/wires
5. Emergency stop plug for rear power take-off (PTO)
6. Front linkage shut-off valve (optional)
7. Top link

8. Top link/lower link ball storage bracket
9. Power Beyond couplings
10. Quick couplings, auxiliary hydraulics
11. Quick coupling, on/off valve 1
12. On/off valve 2 (optional)
13. Auxiliary hydraulics system return coupling
14. Case drain coupling for Power Beyond (optional)
15. Quick coupling for air pressure devices (optional)
16. Trailer socket
17. Power outlet (12 V)
18. ISOBUS connector (optional)
19. Quick coupling for hydraulic trailer brakes (optional)
20. Pick-up hitch lift links (optional together with the pick-up hitch)
21. Lift link
22. Levelling screw
23. Hydraulic levelling link (optional)
24. Side limiter
25. Automatic side limiter (optional)
26. Lower link
27. Power take-off (PTO) shaft
28. Pick-up hitch (optional)

The pick-up hitch is optional 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.

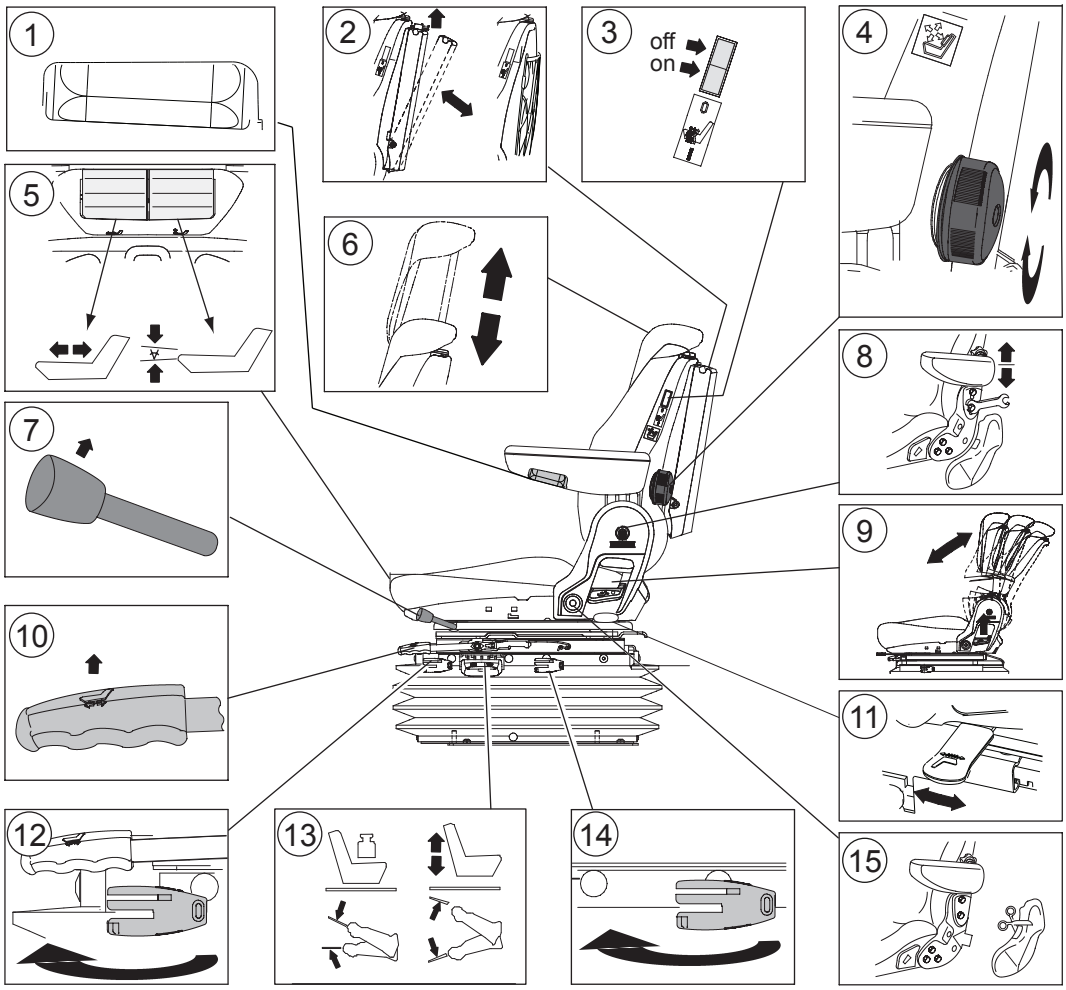
- **Make sure that the tractor is handled and maintained in the correct way to ensure reliability and provide economical operation.**
- **Follow the maintenance program carefully and include the daily maintenance in your normal routine.**
- **Use only genuine AGCO Parts spare parts for optimum performance.**

3.2.1 Adjusting the air-suspended driver's seat

You can adjust the air-suspended driver's seat according to your height and weight.With these adjustments you can minimise the exposure to vibration, obtain the best support for your lower back and get the most comfortable driving position. You may need to change the adjustments according to work conditions or the components you are using such as the tyre type. Power must be switched on while adjusting the air-suspended driver's seat, but the seat has its own compressor. The air-suspended driver's seat is extra equipment.

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



1. Armrest adjustment (Air-suspended +)
2. Storage compartment (Air-suspended +) or net (Air-suspended) for manuals
3. Seat heating
4. Lumbar support adjustment (Air-suspended +)
5. Seat depth and cushion angle adjustment
6. Headrest height adjustment and removal
7. Seat turning lock/release
8. Armrest height adjustment
9. Backrest tilt adjustment
10. Forward/backward adjustment
11. Lateral suspension adjustment (Air-suspended + only)
12. Longitudinal suspension adjustment
13. Height and vertical suspension adjustment
14. Suspension stiffness adjustment
15. 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 can be turned between 190° anti-clockwise and 90° clockwise. The seat can be locked to set positions at 10°, 20°, 80° and 90° when turning clockwise and 10°, 20°, 180° and 190° when turning anti-clockwise.

- **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 seat's own compressor runs continuously but the main power must be switched on).**

    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.**

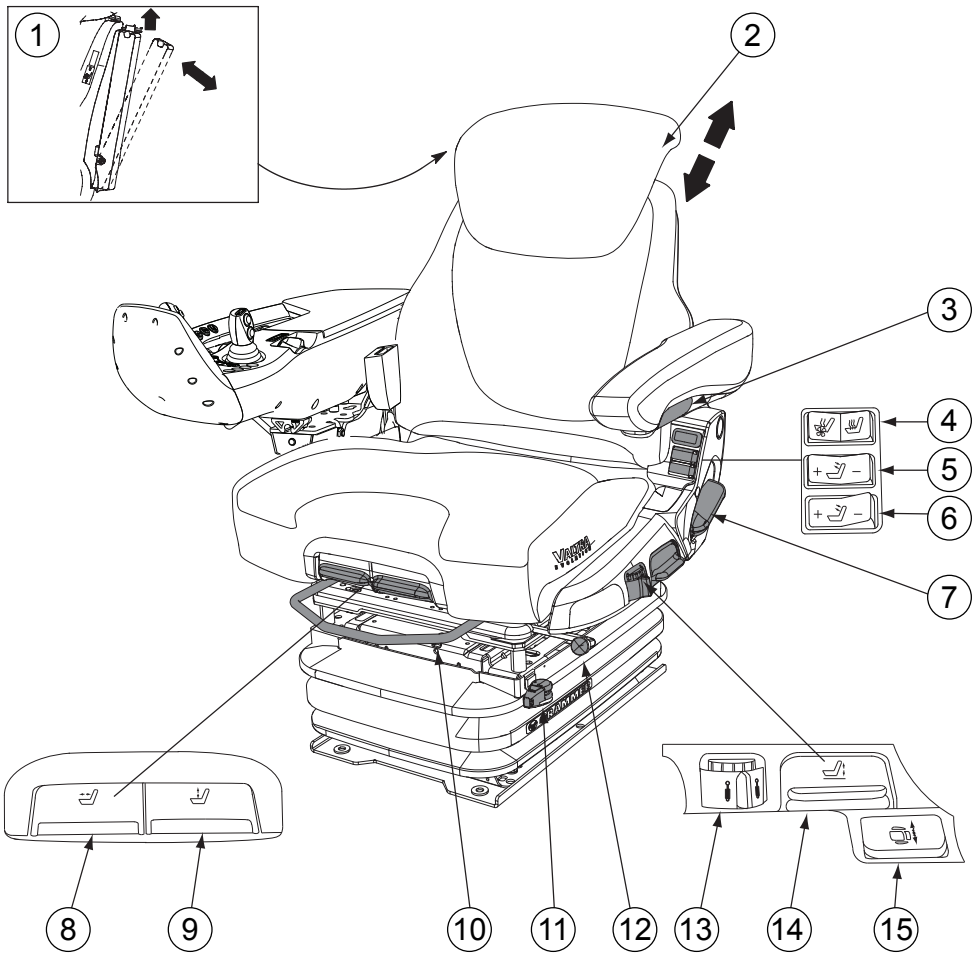
  Turn the knob clockwise or anti-clockwise to adjust the lumbar support. The height and depth are adjusted at the same time.
- **Turn the seat heating on or off.**
- **Adjust the headrest height by lifting or lowering it.**
- **Remove the headrest by pulling it upwards.**

3.2.2 Adjusting the Valtra Evolution driver's seat

You can adjust the Valtra Evolution driver's seat according to your height and weight. With these adjustments you can minimize the exposure to vibration, obtain the best support for your lower back and get the most comfortable driving position. Note that you may need to change the adjustments according to work conditions or the components you are using such as the tyre type. 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.
- **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 outwards.
  - To decrease the armrest inclination, turn the handle inwards.
- **Adjust the seat heating and ventilation.**

  There are three functions for seat heating and ventilation.
  - To switch on only the ventilation, press down the right side of the switch.
  - To switch off both functions, place the switch in the middle position.
  - To switch on only the heating, 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 forwards 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 between 190° anti-clockwise and 90° clockwise from the normal position. The seat can be locked to set positions at 10°, 20°, 80° and 90° when turning clockwise and 10°, 20°, 180° and 190° when turning anti-clockwise.

- **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 forwards.

- **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.**

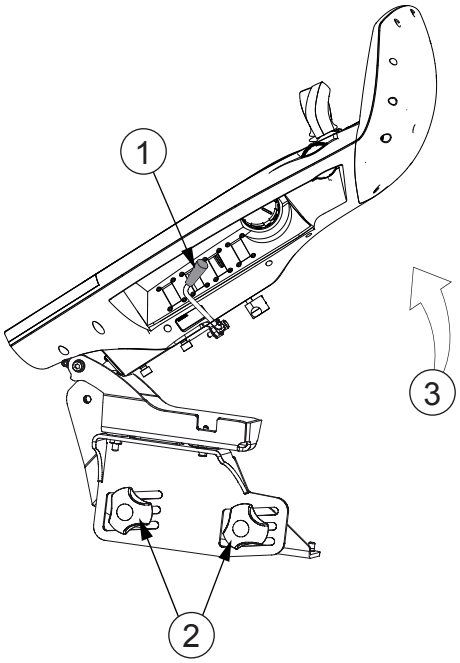
  Lateral suspension is not in use if the tractor is equipped with reverse drive controls.

  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.

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3.2.3 Adjusting the right-side armrest

You can adjust the back/front position and the sideways position as well as the inclination of the armrest.



1. Sideways adjustment
2. Forward/backward position adjustment / armrest height adjustment
3. Inclination adjustment

- **Adjust the armrest sideways with the sideways adjustment lever.**
  - **Pull the lever upwards.**
  - **Turn the armrest into the desired position.**

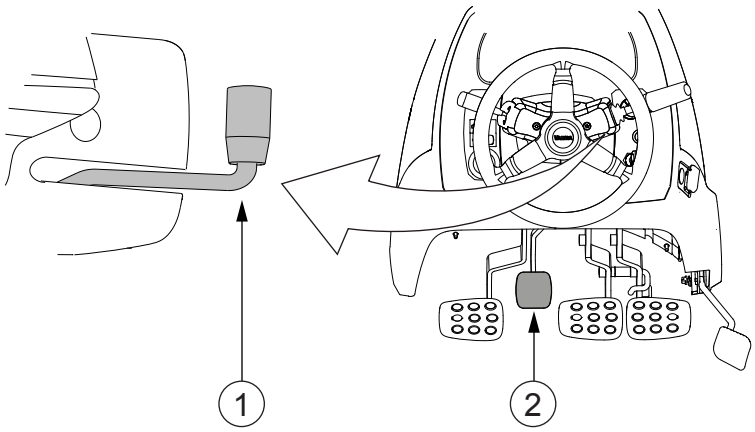
    You can turn the armrest to both directions from the middle position. There are 5 positions available.
- **Adjust the position of the armrest forwards and backwards by loosening the locking knobs, adjusting the armrest and then tightening the locking knobs.**
- **Adjust the height of the armrest by fully opening and detaching the locking knobs, adjusting the armrest height and then attaching the locking knobs.**

  There are three levels for adjusting the armrest height.
- **Adjust the armrest inclination.**
  - **Lift up the front edge of the armrest.**
  - **Set the armrest to the desired position.**

3.2.4 Adjusting the steering wheel

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

CAUTION: Do not adjust the steering wheel position while driving. There is an increased risk of loss of control.

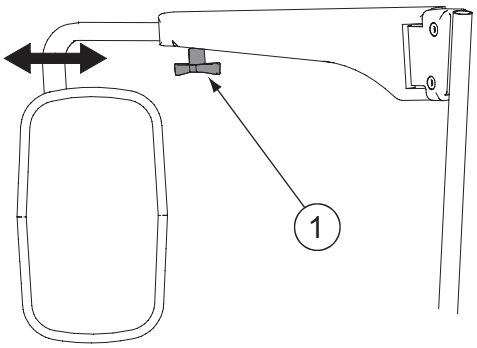


1. Lever for adjusting steering wheel position
2. Locking pedal for steering wheel rake adjustment

- **Adjust the steering wheel position.**
  - **Pull the lever upwards.**
  - **Move the steering wheel up or down to the desired position.**
  - **Push the lever down to lock the steering wheel position.**
- **Set the steering wheel rake.**
  - **Press the locking pedal down.**
  - **Adjust the steering wheel rake to the desired position.**
  - **Release the pedal.**

3.2.5 Adjusting standard mirrors

You can adjust the position of the standard mirrors manually.



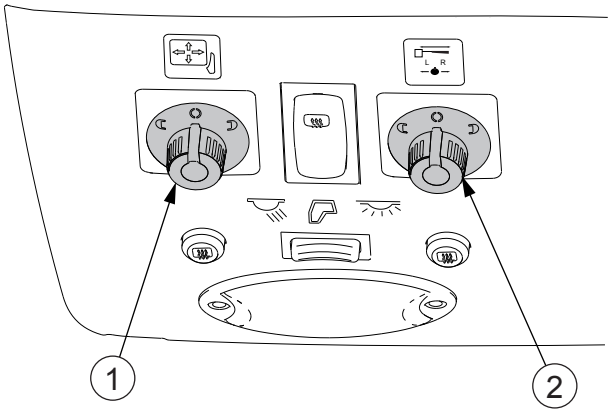
1. Locking device of the mirror support

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

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3.2.6 Adjusting optional mirrors

You can adjust the position of the optional mirrors electrically.

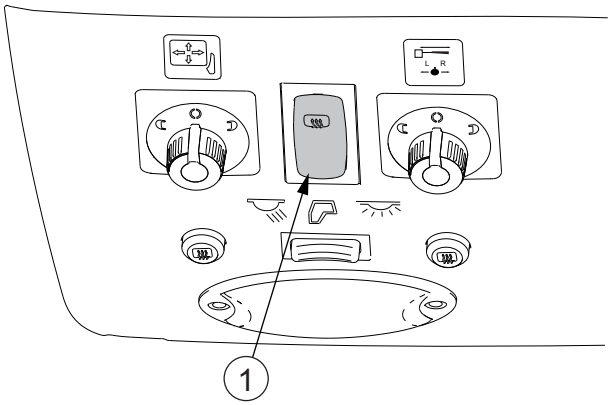


1. Mirror adjustment
2. Telescopic mirror adjustment

- Adjust the mirrors.
  - 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.
- Adjust the telescopic mirrors.
  - To shorten/extend the left telescopic mirror, turn the knob to the left and push the knob in the direction of the arrows.
  - To shorten/extend the right telescopic mirror, turn the knob to the right and push the knob in the direction of the arrows.

3.2.7 Heating mirrors

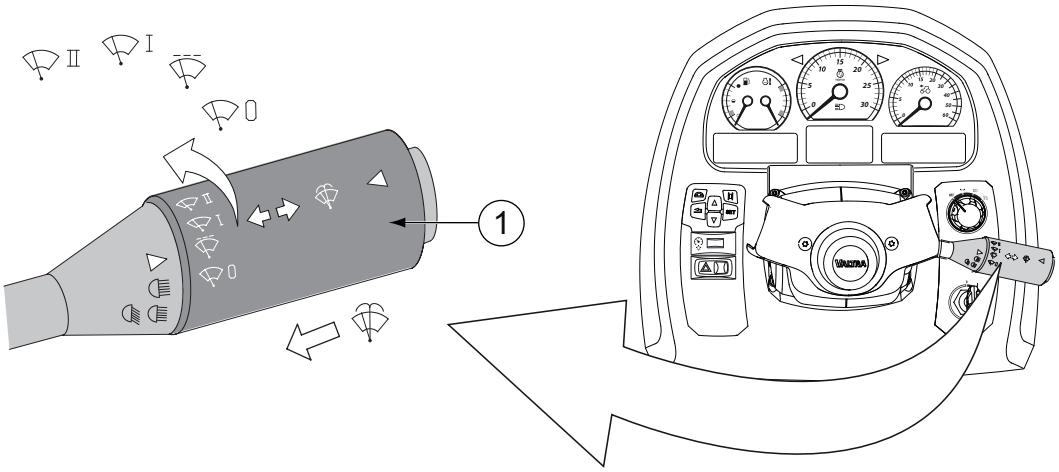
Mirror heating is extra equipment.



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.**

3.2.8 Using the windscreen wiper and washer

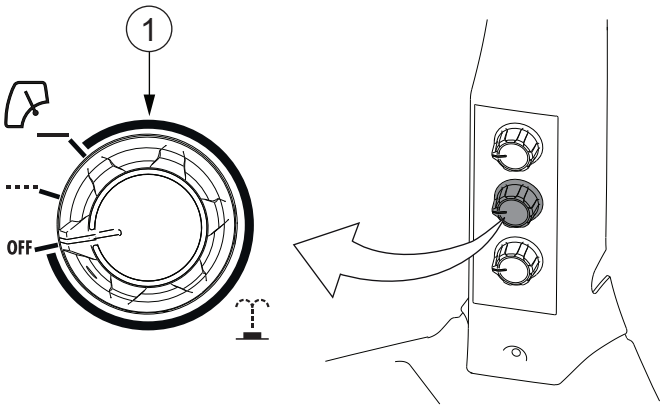


1. Multifunction lever

- **To use the windscreen wiper, turn the multifunction lever.**
  The wiper has an intermittent position and two speeds.
- **To use the windscreen washer, push the lever inwards.**

3.2.9 Using the side window wiper and washer

The switch for the side window wiper and washer is located on the C-pillar.



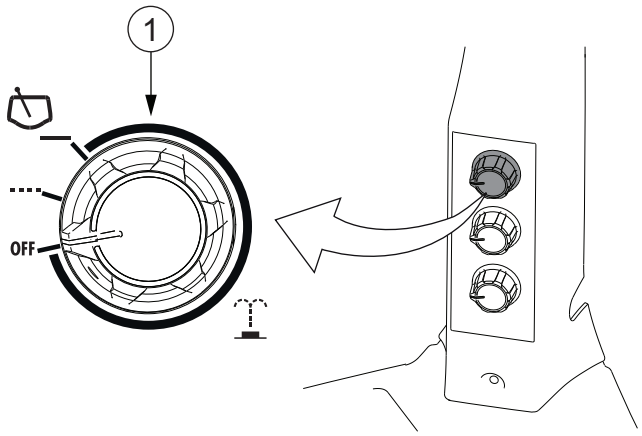
1. Side window wiper switch

- **To use the side window wiper, turn the switch.**
  The wiper has an intermittent position and one speed.
- **To use the washer, press the switch.**

3.2.10 Using the rear window wiper and washer

The rear window wiper is extra equipment.

The switch for the rear window wiper and washer is located on the C-pillar.

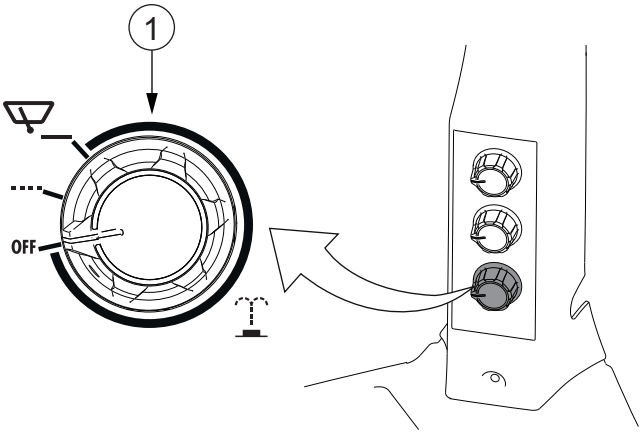


1. Rear window wiper switch

- **To use the rear window wiper, turn the switch.**
  The wiper has an intermittent position and one speed.
- **To use the washer, press the switch.**

3.2.11 Using the roof window wiper and washer

The switch for the roof window wiper and washer is located on the C-pillar.



1. Roof window wiper switch

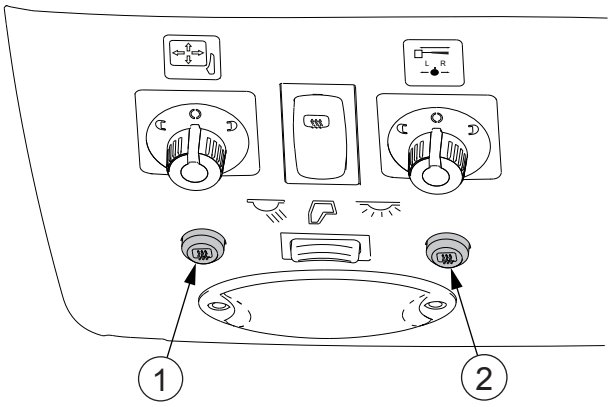
- **To use the roof window wiper, turn the switch.**

  The wiper has an intermittent position and one speed.

- **To use the washer, press the switch.**

3.2.12 Using the window heaters

Windscreen and rear window heaters are optional equipment.



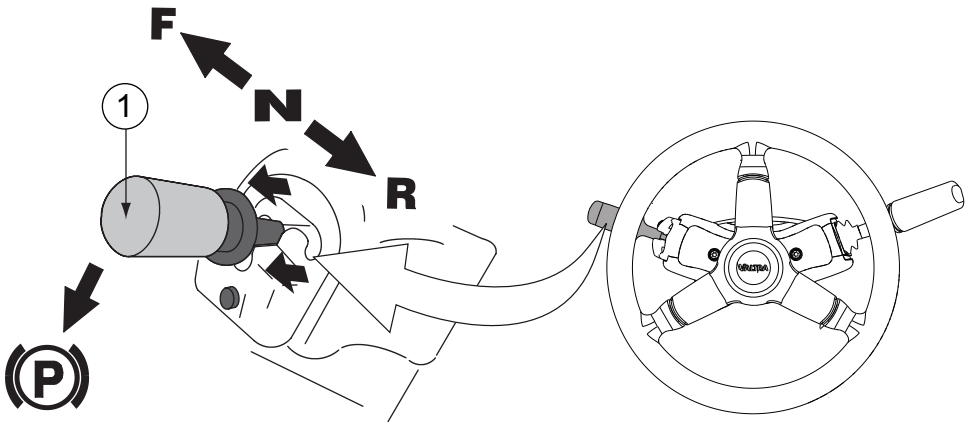
1. Windscreen heater button
2. Rear window heater button

When the windscreen or rear window heater is on, the light on the button is lit.

- **To switch on the windscreen heater for 10 minutes, push the windscreen heater button.**
- **To switch on the windscreen heater continuously, push the windscreen heater button more than 2 seconds.**
- **To switch the windscreen heater off, push the windscreen heater button again or turn off the main power.**
- **To switch on the rear window heater for 10 minutes, push the rear window heater button.**
- **To switch on the rear window heater continuously, push the rear window heater button more than 2 seconds.**
- **To switch the rear window heater off, push the rear window heater button again.**

3.2.13 Power shuttle lever

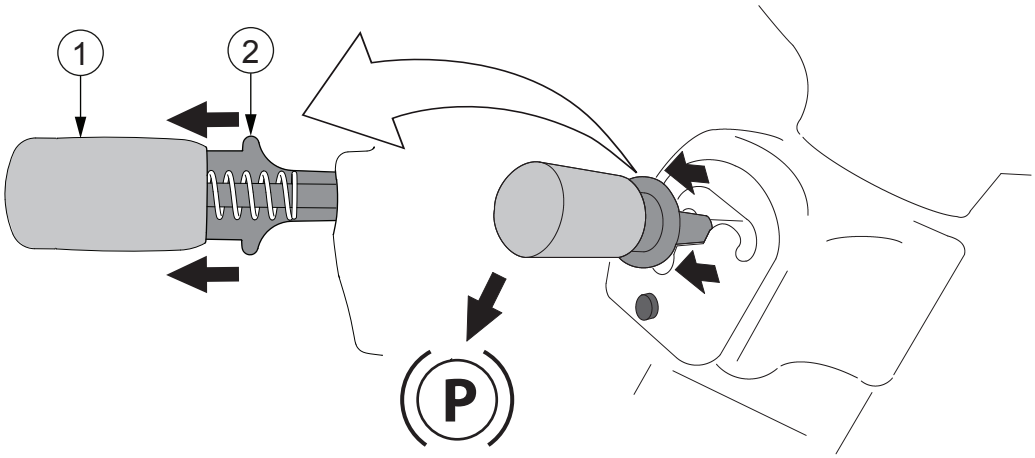
With the power shuttle lever you can change the driving direction and apply the parking brake.



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, if you use the clutch pedal, 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.
- Always apply the parking brake before turning off the power.



1. Power shuttle lever
2. Collar

3.2.14 Control stop

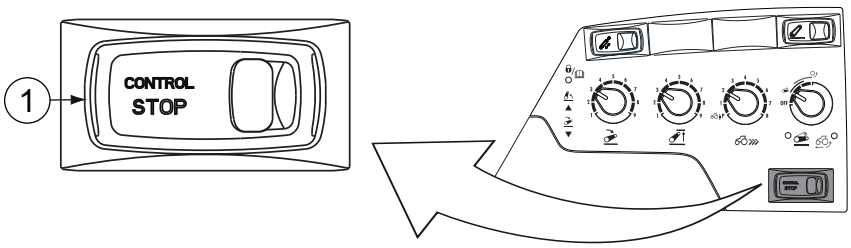
The control stop is used when the tractor is running an implement in stationary mode (for example a compressor or pump) and the operator is not in the cab. Using the control stop reduces the risk of more serious damage to the engine or in the transmission. The control stop is extra equipment.

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.

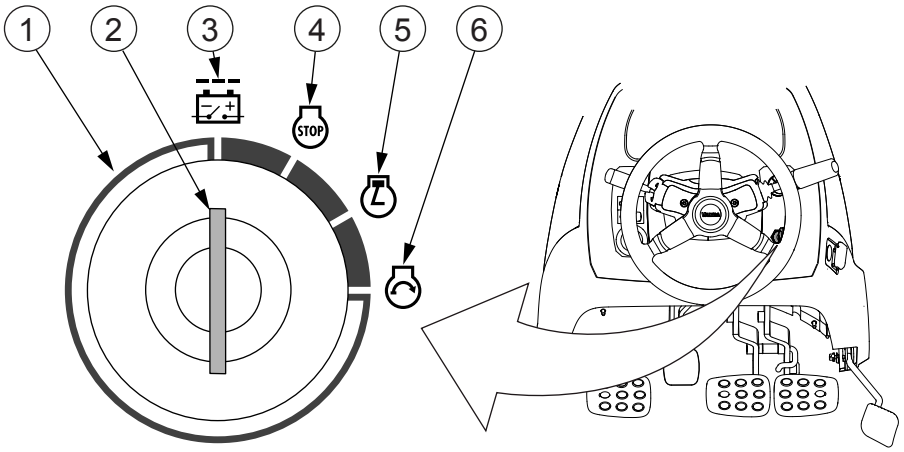
- **To deactivate the control stop, press down the side of the control stop switch opposite to the symbol.**

3.2.16 Using the ignition switch

The ignition switch has four positions: OFF, ACC, power on and start position. In the ACC position, for example, the radio and cold box are powered.

After turning the ignition key to OFF position, there is a delay before the main power switches off.

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1. Ignition switch
2. Ignition key
3. OFF position
4. ACC position
5. Power on position
6. Start position

- **Turn on the power by turning the ignition key from the (OFF) position to the (power on) position.**

  In cold conditions, when the engine is cold, the glow indicator light on the instrument panel is lit.

- **Start the engine by turning the ignition key from the (power on) position to the (start) position after the glow indicator light on the instrument panel has gone out.**

- **Stop the engine by turning the ignition key to the (ACC) position.**

- **Turn off the power by turning the ignition key to the (OFF) position.**

  First, stop the tractor, apply the parking brake, check that the parking brake symbol (P) is lit on the instrument panel, and then turn off the power.

  The tractor and several movements of the implements can be stopped if a fault occurs by turning the ignition key to the (OFF) position. This will make the engine stop and the transmission disengage, and the movement of the linkage stops.

  WARNING: Do not turn the ignition key to the (OFF) position when the tractor is moving unless it is unavoidable.

  WARNING: When the power is off, the emergency brake is not in use and the engagement of the parking brake can be delayed.

  IMPORTANT: 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.

3.2.17 Main power

The main power is controlled by the ignition switch.

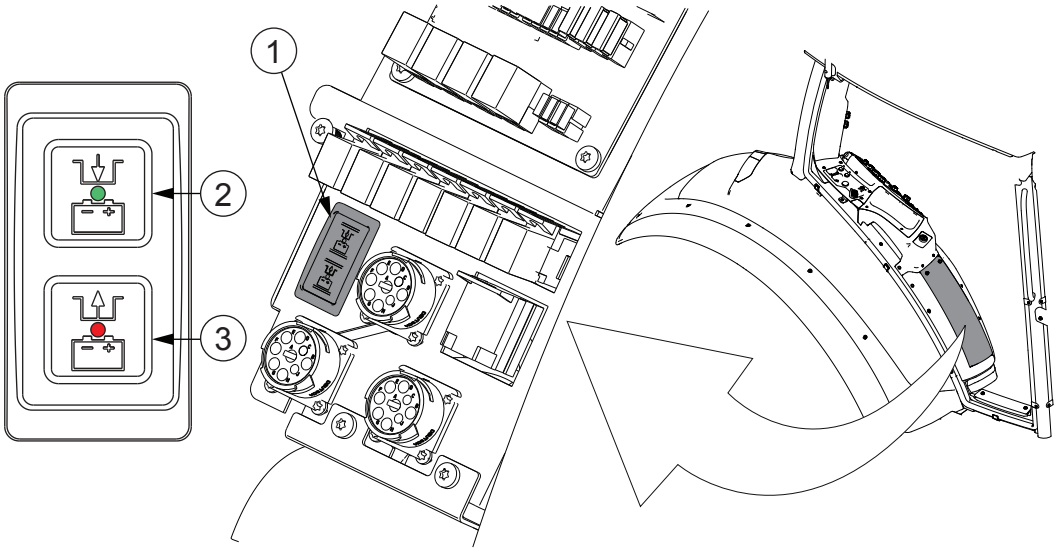
The main power is automatically turned on when you turn the ignition key to other than the (OFF) position. When you turn the ignition key to the (OFF) position, the main power is turned off after a delay. During this delay, data is saved, the system performs a controlled shutdown and the urea system lines are emptied. The light in the light switch is lit until the main power is switched off.

The main power is not switched off automatically in the following situations:

- the parking lights are on
- the hazard warning flasher is on
- the control electronics request for additional time (maximum of one hour), for example, the Auto-Guide system

3.2.18 Using the main power emergency button

In case of an emergency, all power can be switched off immediately without a delay by pressing the main power emergency button when the ignition key is removed. In normal use, the main power is switched off after a delay when you turn the ignition key to the (OFF) position, and there is no need to use the main power emergency button.



1. Main power emergency button
2. Main power on (green light)
3. Main power off (red light)

The main power emergency button has a green and a red LED light to indicate its status.

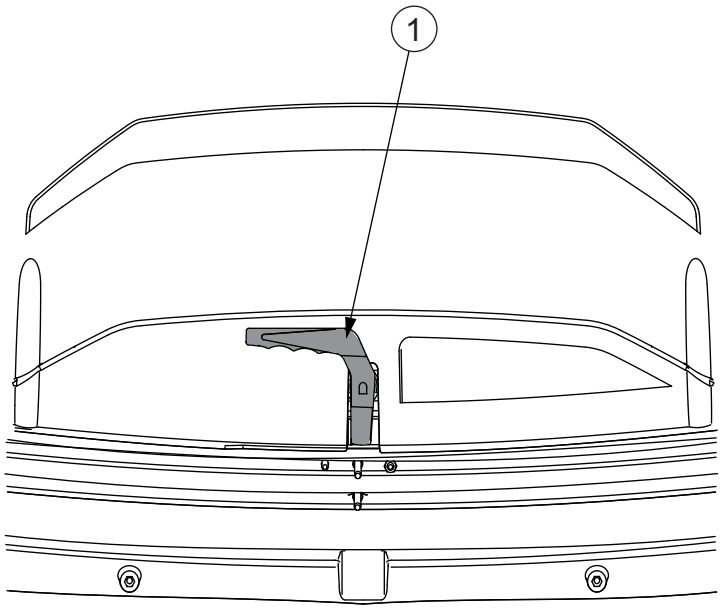
- If neither light is lit, the main power emergency button status is OFF.
- If the green light is lit, the main power emergency button status is ON.
- If the green light is blinking, the main power is shutting down with the delay.
- If the red light is blinking, the red button has been pressed while the ignition has been in the OFF position and the main power shuts down after the delay. This is an unlikely situation as the main power emergency button is controlled automatically by the ignition switch.
- If the red light is lit, the red button has been pressed while driving and the main power shuts down after the delay once the ignition has been turned to the OFF position. This is an unlikely situation as the main power emergency button is controlled automatically by the ignition switch.

1. **Turn the ignition to the (OFF) position and remove the key from the ignition switch.**
2. **Open the cover of the electric centre.**
3. **Press the red button of the main power emergency button for three seconds.**

   The main power is switched off without a delay and the red light is lit in the main power emergency button to indicate that the power is off.

   NOTE: The electric system does not save data or perform controlled shutdown and the urea lines will not be emptied.
4. **Reset the main power emergency shutdown in either of the two ways.**
   - **Press the green button of the main power emergency button.**
   - **Disconnect a battery cable terminal.**

3.2.19 Using the roof hatch



1. Handle

1. Open the roof hatch.
   - Slide the sun shade open by pulling it backward.
   - Turn the handle to unlock the roof hatch.
   - Push the roof hatch open.
2. Close the roof hatch.
   - Pull the roof hatch closed.
   - Turn the handle to lock the roof hatch.
   - Slide the sun shade closed by pushing it forward.

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.

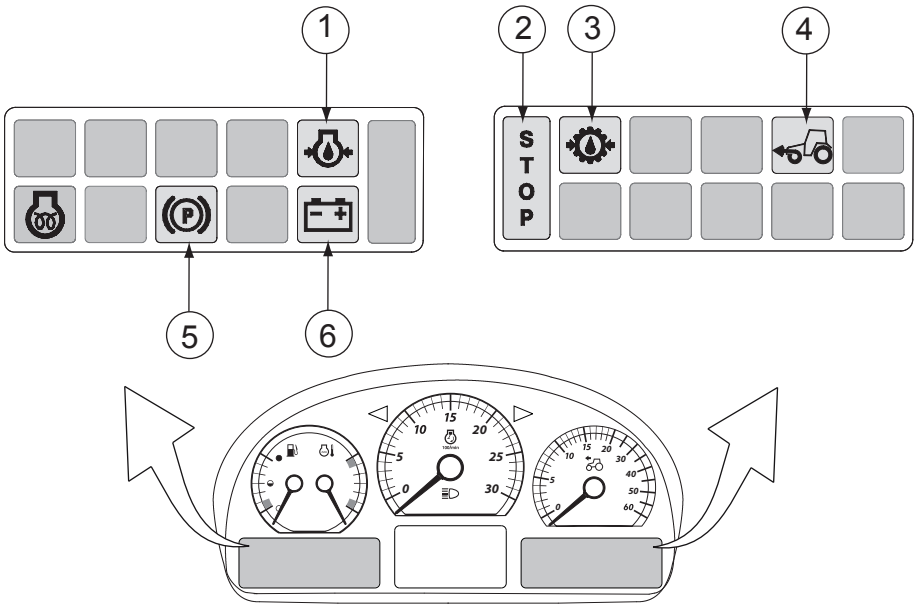


CAUTION: Do not use starting aerosols. Due to the automatic glowing, there is a risk of explosion.

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:

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

1. **Apply the parking brake.**
2. **Turn the hand throttle to the low idling position.**
3. **Ensure that the control stop (optional equipment) is deactivated.**
4. **Press down the clutch pedal.**
5. **Turn the ignition key to the (power on) position.**
6. **Wait until the glow indicator light on the instrument panel has gone out.**

   The glow indicator light is lit depending on temperature.
7. **Turn the ignition key to the (start) position.**

   - When the engine starts to fire up, keep the ignition key in the (start) 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:

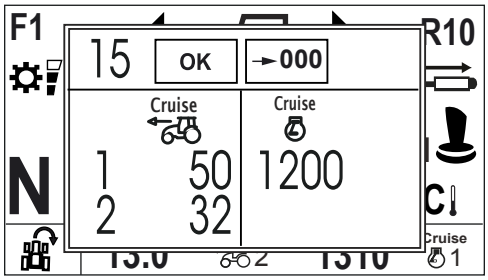
   - Engine oil pressure
   - Gearbox oil pressure
   - Stop light
   - Battery charging

   NOTE: The hydrostat is bled automatically when the engine is started. During the bleeding process, the hourglass symbol is displayed on the tractor terminal display. The bleeding process takes about 10 seconds.

   IMPORTANT: Do not move the power shuttle lever away from the parking brake position during the bleeding process. Moving the power shuttle interrupts the bleeding and disengages the parking brake. This may cause jerkiness when starting to drive and also damage the transmission.

9. **Set the cruise control values.**

   When the engine has started the cruise control pop-up view is displayed.



   - **Press the OK button or the selector for the predefined factory/user settings shortly to restore the previously saved cruise control values.**

     NOTE: If you do not press any button within 15 seconds after starting the engine, the previously saved cruise control values will be restored.

   OR

   - **Press the right arrow button shortly to select the cruise control value reset function.**
   - **Press the OK button or the selector for the predefined factory/user settings shortly to set the cruise control values to zero.**

10. **Use the driving 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.

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3.3.2 Starting under cold conditions

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

IMPORTANT: It is recommended to use the engine heater or fuel-operated 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 or fuel-operated heater reduces the wear on the engine.

NOTE: In cold conditions, the hydrostat bleeding process increases the engine speed according to the transmission oil temperature. The engine speed remains increased until the transmission oil is warm enough.

- **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.**

  With the engine heater, warming up the engine for 2–3 hours before starting is sufficient.
  With the fuel-operated heater, warming up the engine for 1 hour before starting is sufficient.
  NOTE: Using the fuel-operated heater in cold conditions for more than 3 hours may empty the battery.
  When the engine heater or fuel-operated heater is activated, you can hear a hissing sound.
- **If you start the engine under very cold conditions, keep the ignition key in the (start) position until the engine has started.**

  IMPORTANT: Do not keep the ignition key in the (start) position for more than 60 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 use jump leads that are damaged or otherwise inadequate. Use only well protected heavy-duty jump leads with strong clamps.

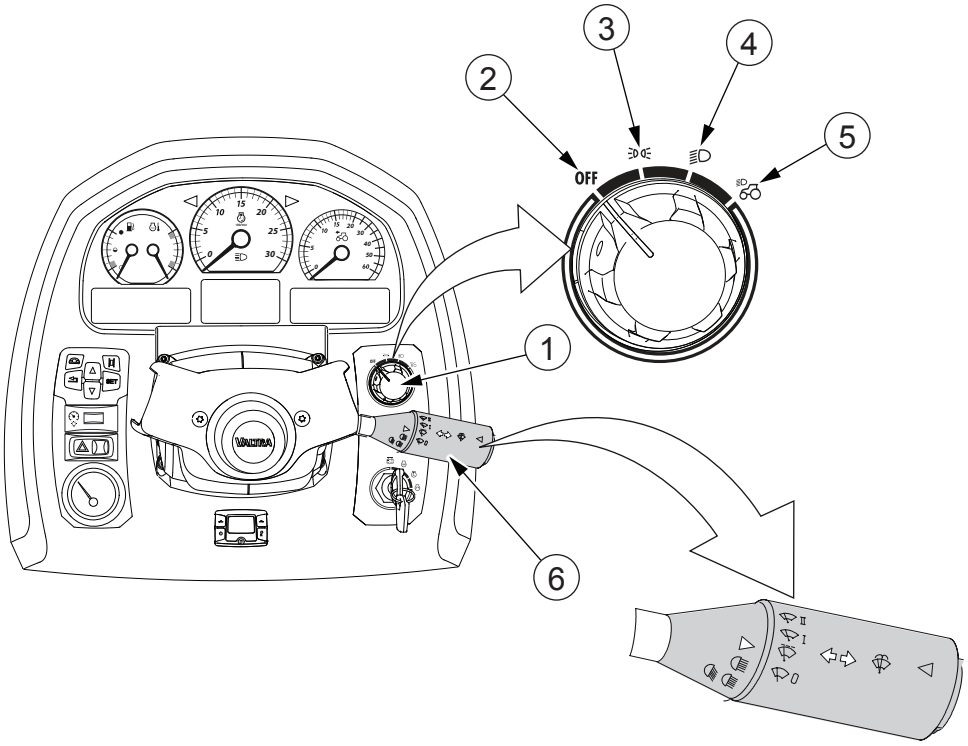
IMPORTANT: Never try to start the engine by short-circuiting leads.

1. **Check that the auxiliary battery has the same voltage as the standard battery.**
2. **Connect the jump lead between the (+) terminal on the auxiliary battery and the (+) terminal on the tractor battery.**
3. **Connect another jump lead between the (-) terminal on the auxiliary battery and the (-) terminal on the tractor battery.**

   WARNING: Make sure that the jump leads are properly connected to the terminals. Otherwise the jump leads can cause a short circuit, which might lead to the explosion of the battery.
4. **Start the engine.**
5. **When the engine has started, disconnect the jump leads in the following order:**
   - **Remove the jump lead between the (-) terminals.**
   - **Remove the jump lead between the (+) terminals.**

3.4 Using lights

3.4.1 Using the light switch



1. Rotary light switch
2. Off position
3. Parking lights
4. Headlights
5. Upper headlights
6. Multifunction lever

- **Turn the light switch to the parking lights position to use the parking lights.**
- **Turn the light switch to the headlights position to use the headlights.**

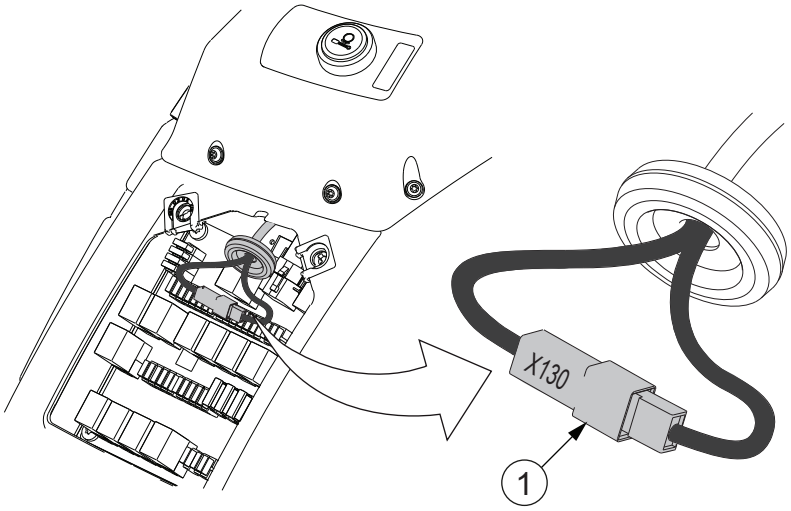
  Working lights operate only when the parking lights or headlights are switched on.
- **If the tractor is equipped with upper headlights (optional), turn the light switch to the far right position to use them.**

  NOTE: Your tractor has a safety circuitry for lights, meaning that if the fuse of the light switch has burned and the lights are switched on, the front working lights are forced on.

  NOTE: The main power is not switched off automatically if the lights are left on with the light switch. This feature is needed if the tractor has to be left on the road, for example.

  NOTE: The main power is not switched off automatically if the hazard warning flasher is switched on.

- **To turn on the high beams, pull the multifunction lever towards yourself.**



1. Connector X130

When the light switch is in the headlight position, the upper high beams (optional) operate as an additional high beams when the connector X130 (black wire 185) is connected together. If the high beams of the upper headlights glare, disconnect the X130 connector to turn them off.

When the light switch is in the upper headlight position, high beams operate only on the upper headlights.

- **To use the headlight flasher, pull the multifunction lever towards yourself a bit when the dipped–beams are on.**

3.4.2 Using the follow-me-home functionality

In the follow-me-home functionality, the front waist working lights (optional) are still on even if the power is turned to the (OFF) position and you exit the cab.

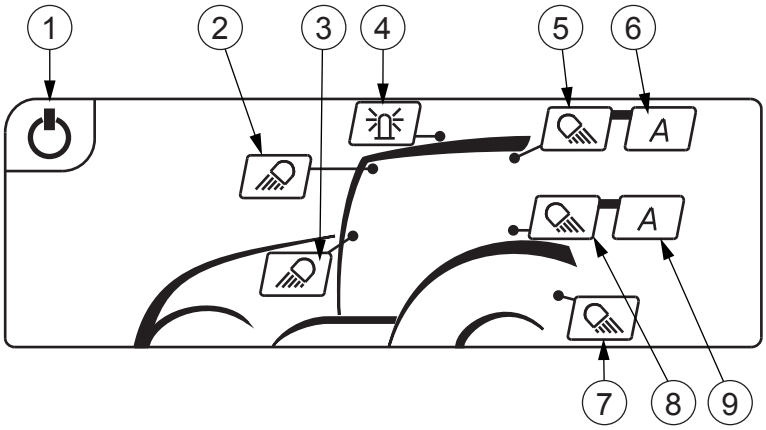
- **To use the follow-me-home functionality, turn the ignition key to the (OFF) position and open the door before the main power turns off.**

  The follow-me-home functionality activates automatically at the same time as the cab lights. The follow-me-home lights turn off when the cab lights or the main power turn off.

  NOTE: The main power is not turned off if the hazard warning flasher or the parking lights are turned on. If the door is left open in such a situation, the cab lights and the follow-me-home lights are turned off after about 10 minutes.

3.4.3 Using the working lights

The parking lights or the headlights must be switched on before you can use the light panel. If the parking lights or the headlights are not switched on and you try to use the light panel, the symbol on the light panel on/off button blinks few times.



1. Light panel on/off button
2. Front working lights
3. Front waist working lights (optional)
4. Rotary beacon light (optional)
5. Rear working lights
6. Automatic operation of the rear working lights
7. Trailer hitch light (optional)
8. Rear waist working lights (optional)
9. Automatic operation of the rear waist working lights (optional)

With the Skyview equipment, the button for the rear working lights also turns on the side working lights.

1. **Turn the light switch to parking lights or headlights position.**

   The light panel and working lights turn on if the light panel and working lights were on when the power was previously shut down.

2. **Press the light panel on/off button to switch on the light panel.**

   You can turn on the working lights only after you have switched on the light panel. When the panel is switched on, the symbol on the on/off button is lit green. Previously saved working light settings are taken into use.

3. **Turn the working lights on and off with the corresponding working light buttons.**

   When a working light is turned on, the symbol on the working light button is lit green. The light is lit green even if the actual working light is not installed.

4. **Use the automatic rear working lights with the corresponding working light buttons.**

   When the automatic operation is activated, the rear working lights are switched on automatically when the power shuttle lever is in the reverse position. With the Skyview equipment, the side working lights works alike.

5. **Press the light panel on/off button again to switch off the light panel.**

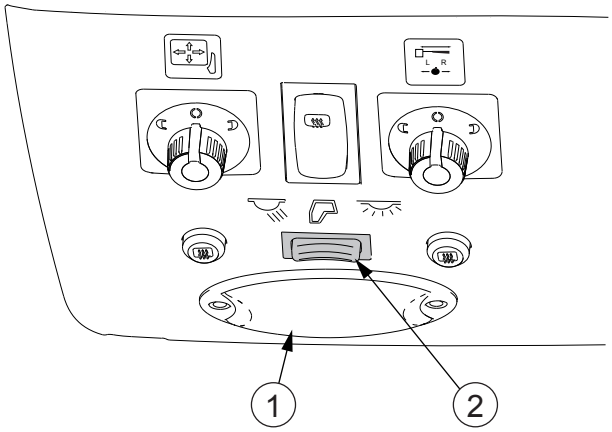
   The panel can be turned off also by switching off the parking lights. When the panel is turned off, the working light settings are saved and taken into use when the panel is turned on again.

   NOTE: The rotary beacon light (optional) can be turned on and off from the light panel independently.

6. **Turn the light switch to off position.**

3.4.4 Using the cab light

The tractor is equipped with a step light(s) and cab lights.



1. Cab light
2. Cab light switch

The cab lights and step light(s) function automatically as follows:

- When the door is opened, both the cab and step lights are lit.
- When the door is closed, the lights go out in 10 seconds.
- If the door is left open, the lights go out in 10 minutes.

The cab light switch has three positions: left, centre and right.

- **To turn on the cab lights, push the switch to the right.**

  Two white cab lights are continuously on but the red LED light is off.

- **To turn off the cab lights, push the switch to the centre position.**

  The two white cab lights and step light(s) are turned on only when the door is opened. The red LED light is not on.

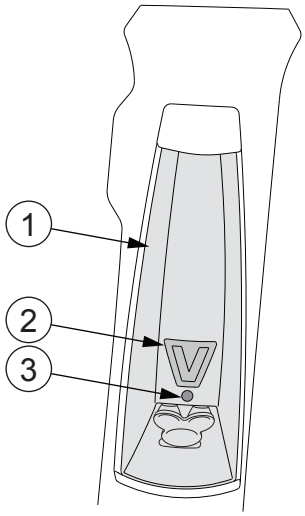
- **To turn on the red panel light, push the switch to the left.**

  The red LED light is continuously on, and the two white cab lights are turned on when the door is opened.

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3.4.5 Using the torch

The torch (optional) is fitted in the holder in the cab's left B-pillar.



1. Torch
2. Torch on/off button
3. Battery charge indicator light

The magnet at the bottom of the torch allows you to attach it as a working light on different surfaces. When the torch is on, the battery charge indicator light is lit as follows:

- Not lit = battery capacity is more than 50%
- Orange = battery capacity is less than 50%
- Red = battery capacity is less than 10%

- **To use the torch:**
  - **Pull the torch from the holder.**

    The torch is held by a magnet.
  - **To lit the torch bright, push the on/off button.**
  - **To lit the torch dimmed, push the on/off button again.**
  - **To turn off the torch, push the on/off button for a third time.**

- **To charge the torch:**
  - **Fit the torch to the holder.**

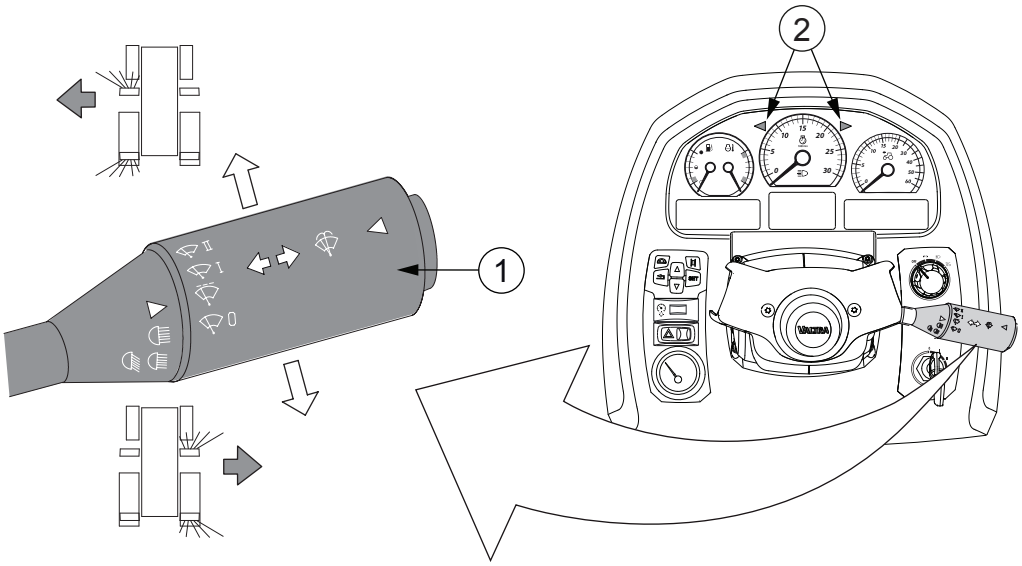
    When the tractor power is on, the torch is charged and green indicator light is lit.
  - **Connect an auxiliary charger to the micro USB connector in the torch.**

    You can use, for example, a car charger or a mobile phone charger.

  IMPORTANT: The torch contains a lithium battery. If the battery has gone out of order, recycle the torch appropriately.

3.5 Using notification devices

3.5.1 Using turn signals

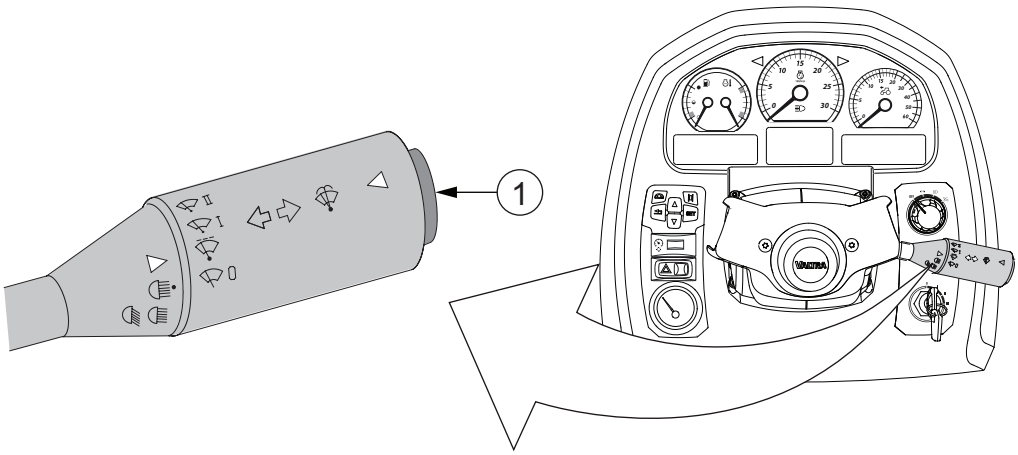


1. Multifunction lever
2. Indicator lights for turn signals

- **To switch on the left-hand side turn signal, move the multifunction lever upwards.**
- **To switch on the right-hand side turn signal, move the multifunction lever downwards.**

The left or right indicator light blinks correspondingly.

3.5.2 Using the horn

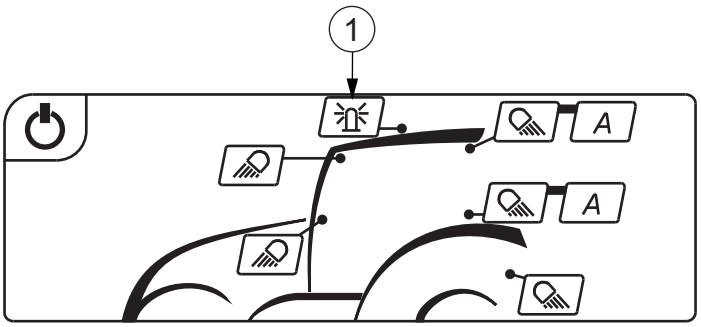


1. Horn button

- **To sound the horn, push the horn button.**

3.5.3 Using the rotary beacon light

Rotary beacon light is an extra equipment.



1. Button for rotary beacon light

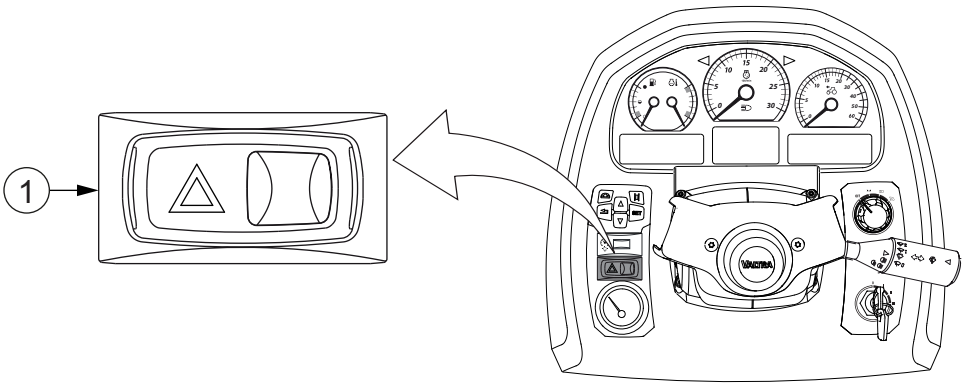
1. **Press the button for rotary beacon light to switch the beacon on or off.**

   When on, the symbol on the button is lit green.

   NOTE: The rotary beacon light (optional) can be turned on and off from the light panel independently.

3.5.4 Using hazard lights

All four turn signals can be switched on to warn of a hazardous situation.



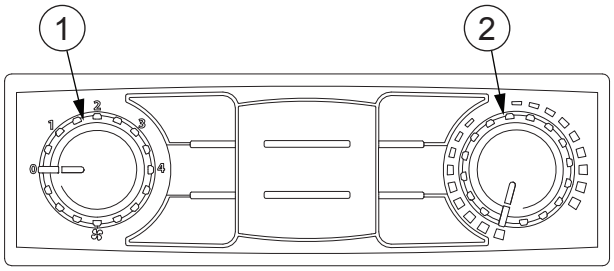
1. Hazard lights switch

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

   NOTE: If the hazard lights are on and the ignition switch is turned to  (OFF) position, the main power stays on until the hazard lights are switched off.

3.6 Heating and ventilation

3.6.1 Using the heater



1. OFF/Fan speed control knob
2. Temperature control knob

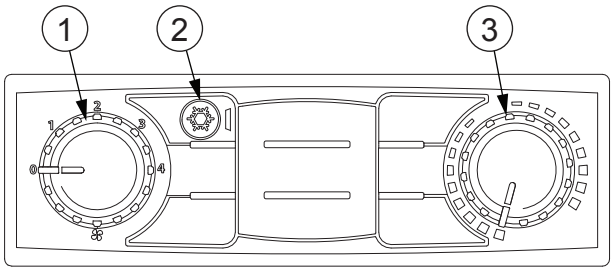
- **To regulate the speed of the fan, turn the fan speed control knob.**
- **To regulate the temperature, turn the temperature control knob.**

3.6.2 Using the manual air conditioning

The manual air conditioning is optional equipment.

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

IMPORTANT: When using the air conditioning, keep the cab doors and windows closed.

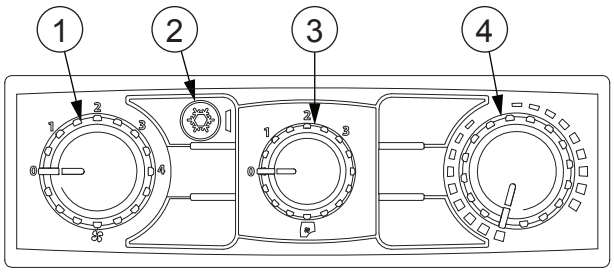


1. OFF/Fan speed control knob
2. Air conditioning ON/OFF
3. Temperature control knob

1. **Press the air conditioning ON/OFF button to turn on the air conditioning.**
   The light on the air conditioning ON/OFF button is lit.
2. **To regulate the speed of the fan, turn the fan speed control knob.**
3. **To regulate the temperature, turn the temperature control knob.**

3.6.3 Using the manual air conditioning and additional heater

The additional heater is optional equipment.



1. OFF/Fan speed control knob
2. Air conditioning ON/OFF
3. Additional heater OFF/fan speed control knob
4. Temperature control knob

1. **Press the air conditioning ON/OFF button to turn on the air conditioning.**

   The light on the air conditioning ON/OFF button is lit.

2. **To regulate the speed of the fan, turn the fan speed control knob.**
3. **To regulate the temperature, turn the temperature control knob.**
4. **To blow warm air to the lower part of the cab, turn the additional heater fan speed control knob.**
5. **To use the fuel-operated heater, turn the additional heater on.**

WARNING: When the additional heater is turned off, coolant does not circulate from the fuel-operated heater onwards. This causes the fuel-operated heater to overheat, if turned on.

3.6.4 Automatic air conditioning

The automatic air conditioning system is optional equipment.

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

IMPORTANT: When using the air conditioning, keep the cab doors and windows closed.

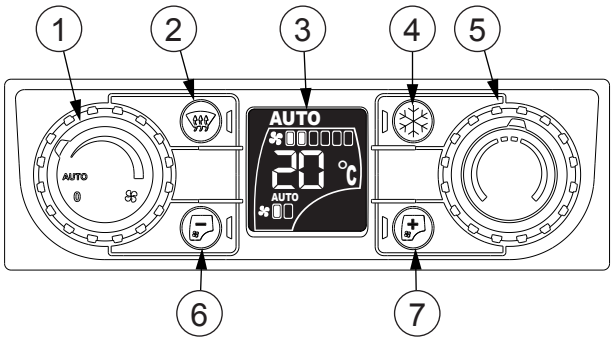
The operating temperature of the air conditioning is -40°C...+80°C. The display decelerates in -30°C and stops working in -40°C.

When operating in cold conditions, the air conditioning stays in the starting mode until the temperature of the engine coolant reaches +40°C. During the starting mode the fan speed is at the minimum. The starting mode ends when the engine coolant has reached the temperature of +40°C, or in the following cases:

- defrost is connected
- LO mode is connected
- a different fan speed is selected manually

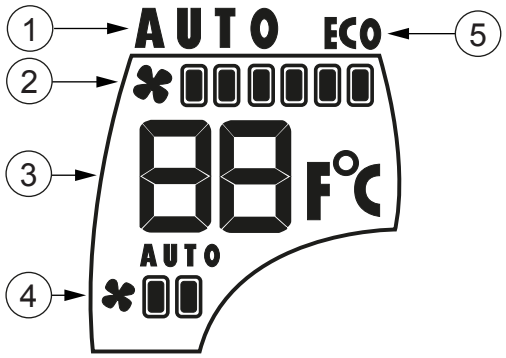
3.6.4.1 Automatic air conditioning control panel and display

Control panel



1. Fan speed control knob (selection OFF/Auto/Manual)
2. Defrost
3. Display
4. Air conditioning ON/OFF
5. Temperature control knob
6. Additional heater fan speed decrease (selection Manual/OFF/Auto)
7. Additional heater fan speed increase (selection ON/Manual)

Display



1. Automatic mode
2. Fan speed
3. Set temperature
4. Additional heater
5. ECO mode

Indicator	Indication
AUTO	Displayed when the automatic fan speed and the AC compressor are on.
	Displays the fan speed.

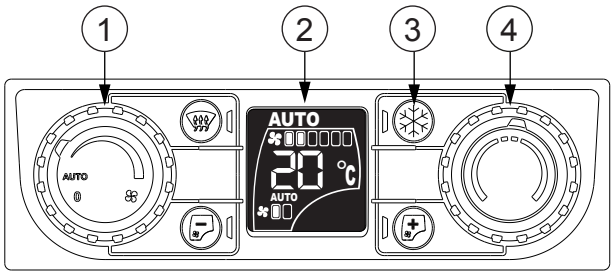
Table continued on next page

88F°C	Displays the selected target temperature. If adjusted below 16°C, LO is displayed. If adjusted over 29°C, HI is displayed.
AUTO	Displays the additional heater fan status and speed (OFF, 1, 2, AUTO).
ECO	Displayed when the ECO mode (temperature control without the AC compressor switched on) is on.

3.6.4.2 Using the automatic air conditioning

NOTE: When you start the tractor, the air conditioning automatically defaults to the last selected adjustment.

NOTE: If the battery has been disconnected, the air conditioning system starts a calibration process automatically when turning the fan speed control knob to AUTO. During calibration, the air conditioning system cannot be used.



1. Fan speed control knob
2. Display
3. Air conditioning ON/OFF
4. Temperature control knob

- **To activate the automatic air conditioning system, turn the fan speed control knob to the AUTO position.**

  When the automatic air conditioning and the AC compressor are active, the LED next to the air conditioning ON/OFF button is lit and the indicator AUTO is shown on the display. The system regulates the fan speed automatically.

- **Select the target temperature with the temperature control knob.**

  The target temperature is shown on the display.
  - **To reach the maximum cooling effect, turn the knob to the extreme cooling position.**

    Indicator LO is shown on the display.
  - **To reach the maximum heating effect, turn the knob to the extreme heating position.**

    Indicator HI is shown on the display.

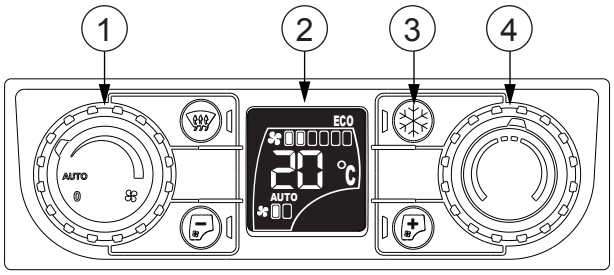
- **To regulate the fan speed manually, turn the fan speed control knob clockwise to the target speed.**

  The fan speed is shown on the display.

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

3.6.4.3 Using ECO mode

Use the air conditioning ECO mode to regulate the cab temperature without the AC compressor. In the ECO mode the system tries to achieve the target temperature by adjusting the water valve and fan speed. This mode saves both the battery power and fuel.



1. Fan speed control knob
2. Display
3. Air conditioning ON/OFF
4. Temperature control knob

- **Using the ECO mode when the air conditioning system is in the AUTO mode.**
  - **Switch off the AC compressor by pressing the air conditioning ON/OFF push button.**

    The fan speed is regulated by the system and indicators AUTO and ECO are displayed.
  - **Select the target temperature with the temperature control knob.**

    If you turn the temperature to LO the AC compressor is automatically turned on.
- **Using the ECO mode when the air conditioning system is in the manual mode**
  - **Switch off the AC compressor by pressing the air conditioning ON/OFF push button.**
  - **Select the target fan speed with the fan speed control knob.**
  - **Select the target temperature with the temperature control knob.**

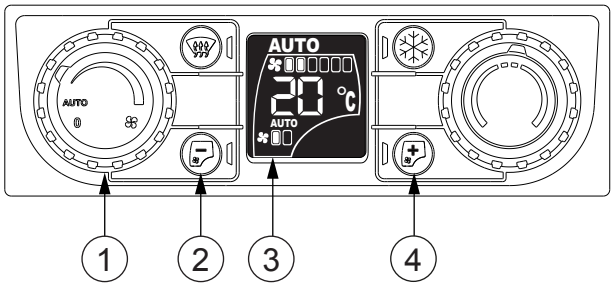
    If you turn the temperature to LO the AC compressor is automatically turned on.
- **To deactivate the ECO mode:**
  - **press the air conditioning ON/OFF button (the AC compressor is activated), or**
  - **turn the fan speed control knob to AUTO, or**
  - **turn the fan speed control knob to OFF.**

3.6.4.4 Using the additional heater

Use the additional heater to blow air to the lower part of the cab.

The additional heater operates automatically when the air conditioning is in the AUTO or ECO mode.

The additional heater has four modes: AUTO, fan speed 1, fan speed 2 and OFF.



1. Automatic air conditioning fan speed
2. Additional heater fan speed decrease
3. Display showing the additional heater's fan status and speed
4. Additional heater fan speed increase

- **Using the additional heater when the air conditioning is in the AUTO mode**

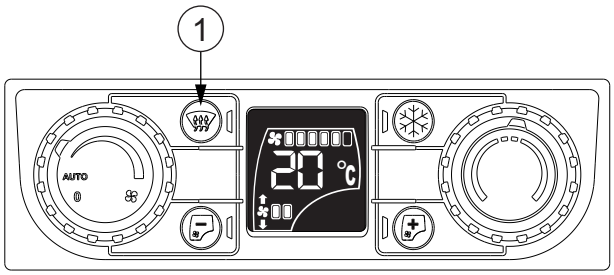
  The air conditioning system is in the AUTO mode when either of the indicators AUTO or AUTO-ECO are displayed.
  - Press the additional heater fan speed decrease and increase buttons to
    - toggle between additional heater AUTO and OFF modes
    - decrease and increase the additional heater fan speed manually.

- **Using the additional heater when the air conditioning is in the ECO mode**

  The air conditioning system is in the ECO mode when indicator ECO displayed. In this mode, the AC compressor is off and the air conditioning fan speed is regulated manually.
  - Press the additional heater fan speed decrease and increase buttons to toggle between speed 1, speed 2 and OFF.

3.6.4.5 Using defrost

Use defrost to clear frost or fog from windows.



1. Defrost

- **To activate defrost, press the defrost button.**

  The LED next to the button is lit. When defrost is active, the fan speed is at its maximum and the text HI is displayed.

- **To deactivate defrost, press the defrost button again.**

  The defrosting button indicator LED goes off, and the former air conditioning mode is restored.

3.6.5 Fuel-operated heater

The fuel-operated heater (optional equipment) uses the same fuel as the tractor and can be used for heating the engine and the cabin. The heater heats primarily the engine and then the cabin. The heater is controlled either with the heater panel or remotely via mobile phone and push button on the dashboard.

WARNING: During the heating period, clean the exhaust pipe of the fuel-operated heater daily and its surroundings monthly. In dusty conditions, clean more frequently. There is a risk of dry hay or other dirt catching fire.

WARNING: When using the heater, the area directly below the heater must be clear.

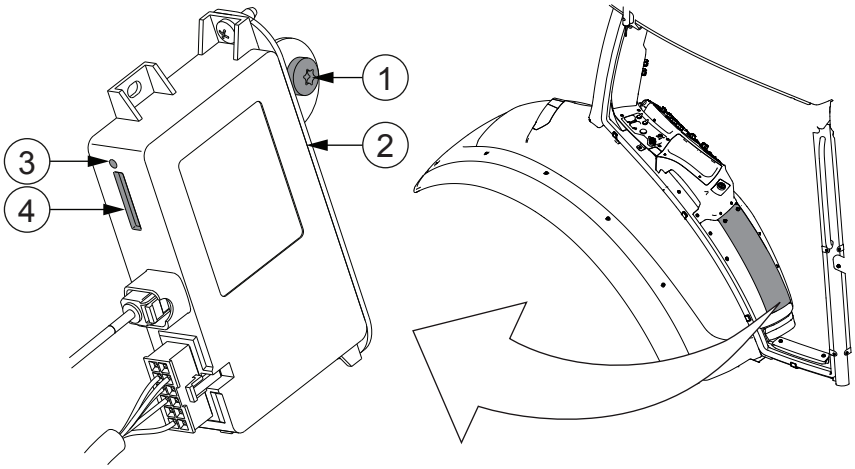
NOTE: Using the fuel-operated heater in cold conditions for more than 3 hours may empty the battery.

The fuel-operated heater can be used together with the tractor air conditioning system. With the automatic air conditioning there are no limitations. With the manual air conditioning and additional heater, note the following:

WARNING: Before the fuel-operated heater is used with the manual air conditioning system, the additional heater must be set to positions 1-3 while the tractor power is on. When the additional heater is turned off, coolant does not circulate from the fuel-operated heater onwards. This causes the fuel-operated heater to overheat, if turned on.

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3.6.5.1 Installing SIM card to the mobile controlled heater



1. Screw
2. GSM modem
3. Button
4. SIM card

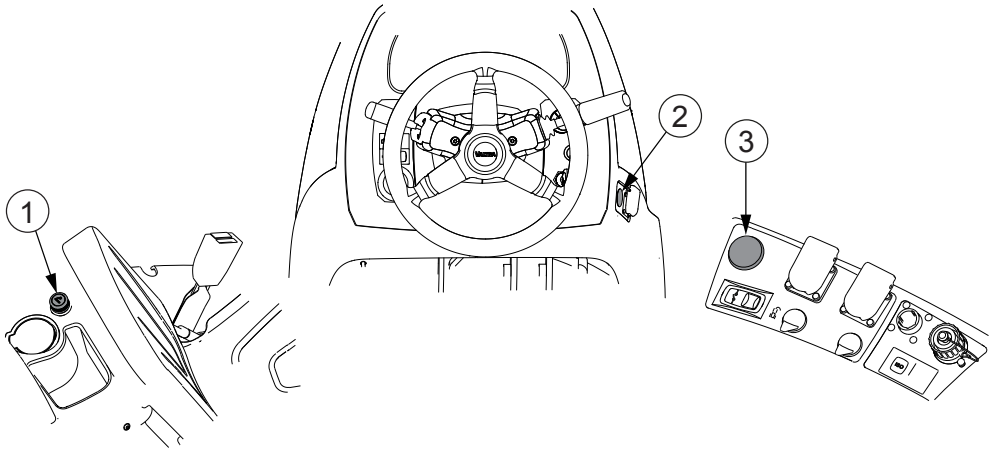
1. **Turn off the tractor power.**
2. **Open the cover of the electric centre.**

   The GSM modem is fitted at the bottom of the electric centre.
3. **Loosen the screw.**
4. **Turn the GSM modem towards yourself.**
5. **Push the button to eject the SIM card holder.**
6. **Install the SIM-card to the holder.**
7. **Push the SIM card holder to its place.**
8. **Turn the GSM modem to its place and tighten the screw.**
9. **Fit the cover of the electric centre.**

3.7 Power outlets

3.7.1 Lighter and power outlets

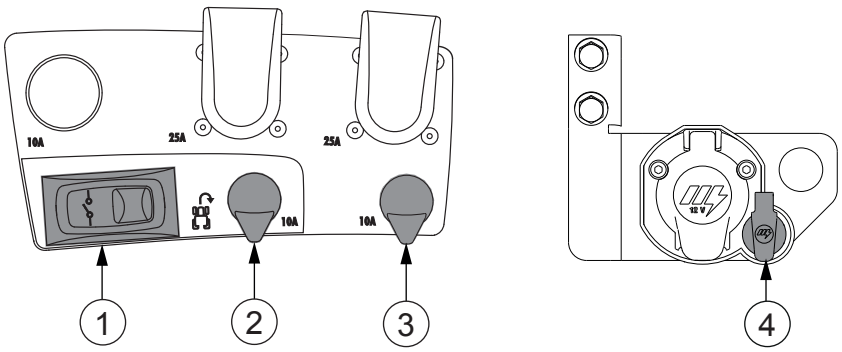
A lighter socket and power outlets provides an output of 12 V DC; 10 A at a maximum.



1. Lighter
2. Power outlet on the front console (optional)
3. Power outlet on the right-hand side (optional)

3.7.2 Using the two-pin current socket and power switch

A 2-pin current socket provides an output of 12 V DC; 10 A at a maximum.



1. Power switch
2. 2-pin current socket
3. 2-pin current socket
4. Power outlet

The 2–pin current socket on the right hand side is active when the main power is on.

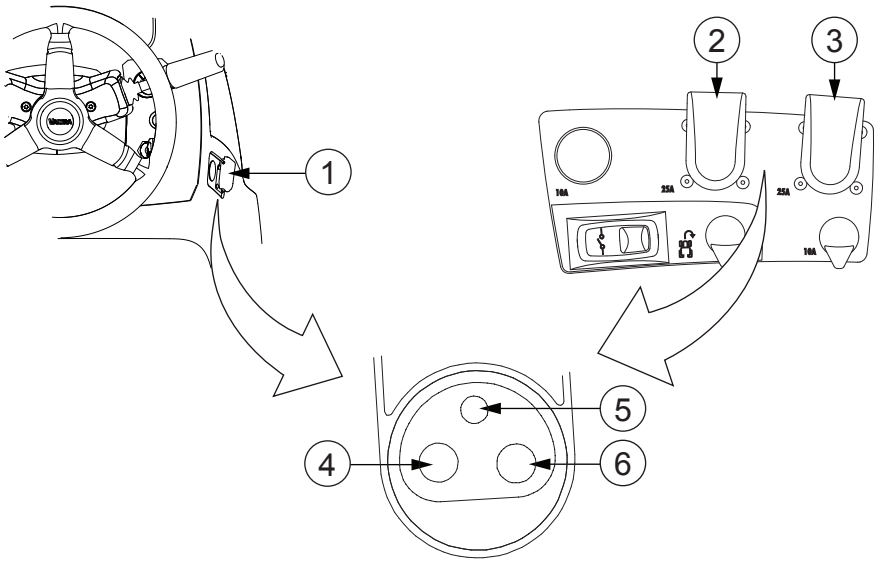
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The 2–pin current socket on the left hand side and the power outlet at the rear end of the tractor is controlled with the power switch. They can also be connected or disconnected with a U-Pilot programme.

- **To connect or disconnect the 2–pin current socket power, press down the symbol side of the switch.**

  The switch is spring-returned.
  When connected, the symbol of the switch is lit green.
  When not connected, the symbol of the switch is not lit.

3.7.3 Three-pin current socket



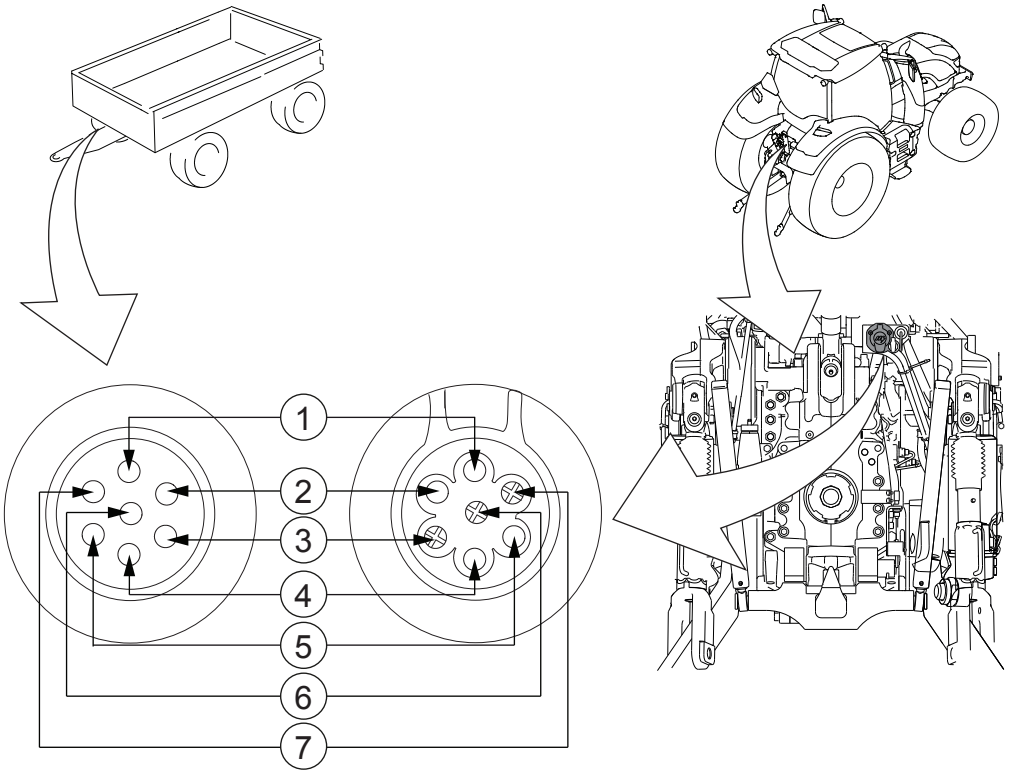
1. Three-pin current socket on the front console (optional)
2. Three-pin current socket on the right-hand side
3. Three-pin current socket on the right-hand side (optional)
4. 25 A
5. 5 A
6. Ground

The direct current is supplied through the current 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 switches off after a delay when the ignition switch is turned to the  (OFF) position.

3.7.4 Trailer socket

Socket at the rear end

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

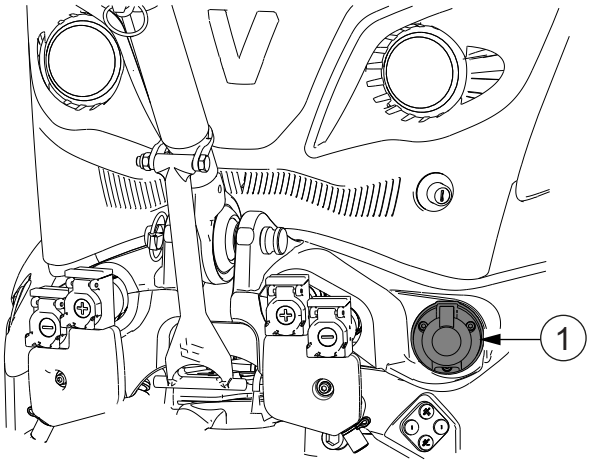


1. Direction indicator left (yellow)
2. Ignition switch current, max. 10 A (blue)
3. Ground (white)
4. Direction indicator right (green)
5. Parking light right (brown)
6. Parking light left (black)
7. Brake light (red)

Socket at the front end

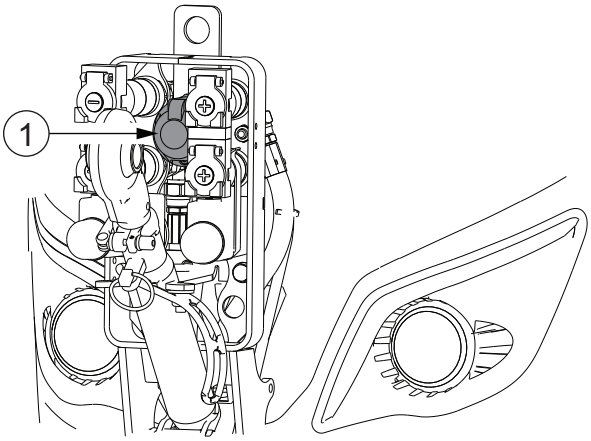
The power socket at the front end is optional equipment. It can be used for supplying current for the lights and blinkers of the front implements, for example.

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1. Socket at the front end

With pivoting front linkage:



1. Socket at the front end

3.8 Driving the tractor

3.8.1 Notifications about steering

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. If you press down the clutch pedal, the hydraulic pump does not run and steering deactivates, because there is no hydraulic pressure in the system.

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

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

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 6 km/h. If the driving speed is higher, the transmission brakes until the speed is low enough. The new direction arrow starts to flash to indicate that the driving direction change has been requested. The direction arrow is constantly lit when the new direction has 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.

If the driving speed is below 5 km/h and the operator leaves the seat for more than two seconds without pressing the clutch pedal down for more than 10%, the shuttle disengages and the direction arrow flashes. The direction stays selected but does not engage until the operator sits on the seat and moves the power shuttle lever to the parking brake position (P) and then to the desired direction.

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

3.8.3 Parking brake

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

You can use the parking brake by changing the position of the power shuttle lever. The parking brake engages when driving speed is approximately 3 km/h or lower.

IMPORTANT: 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. Always ensure that the parking brake is actually engaged before leaving the tractor.

WARNING: The parking brake indicator light  **flashes or message "PARKING BRAKE FAULT!" is shown on the instrument panel display if there is a fault in the parking brake system. In addition the buzzer alarms continuously. The parking brake might not function properly.**

Park the tractor on level ground and repair the fault before continuing to drive.

In some situations (for example, after working with a heavy load) when you engage the parking brake, the engine may perform cooling of the after-treatment system by increasing the idling RPM momentarily. The word COOL flashes on the A-pillar display.

IMPORTANT: Do not stop the engine while the idling rpm is increased and the word COOL flashes on the A-pillar display. Stopping the engine may damage the after-treatment system.

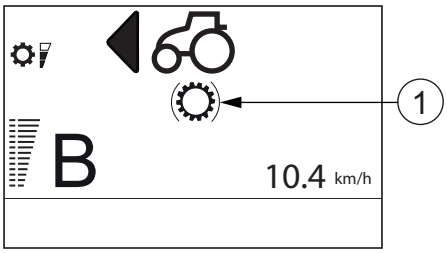
3.8.4 Using the standstill

DANGER: If you press down the clutch pedal with the standstill on, the transmission disengages. There is a danger of the tractor starting to move if you are on sloping ground.

WARNING: Do not go between the tractor and the implement when the standstill function is on. Always apply the parking brake before you start attaching implements to the tractor.

1. **To use the standstill in the automatic drive mode, do one of the following.**
   - Lift the power shuttle lever a small distance from the F or R position.
   - Release the drive pedal.
   - Move the drive lever to the center position.

   The transmission is locked and the tractor remains in standstill. The standstill symbol shows on the tractor terminal display.



   IMPORTANT: Using the standstill function for idling is not recommended.

   If you leave the seat, the parking brake engages automatically. When the parking brake is on and the symbol P shows on the tractor terminal display, you have to move the power shuttle lever to the parking brake position and back to the F or R position to disengage the parking brake.

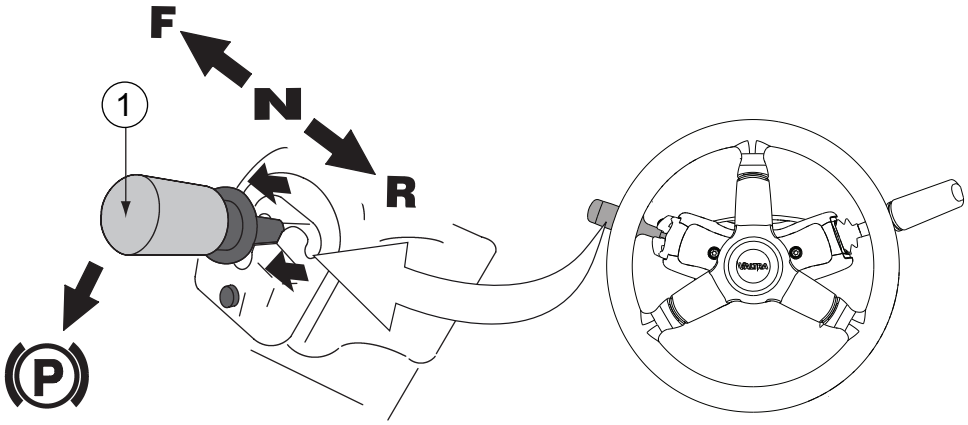
2. **To release the standstill in the automatic drive mode, do one of the following.**
   - Lower the power shuttle lever to its position.
   - Push the drive pedal.
   - Move and hold the drive lever in the forward position.

   This releases the transmission lock. The tractor starts to move to the selected direction.

3. **To use the standstill in the manual drive mode, move and hold the drive lever in the rear position.**
4. **To release the standstill in the manual drive mode, push the drive lever to the forward position.**

   This releases the transmission lock. The tractor starts to move to the selected direction.

3.8.5 Using the power shuttle lever

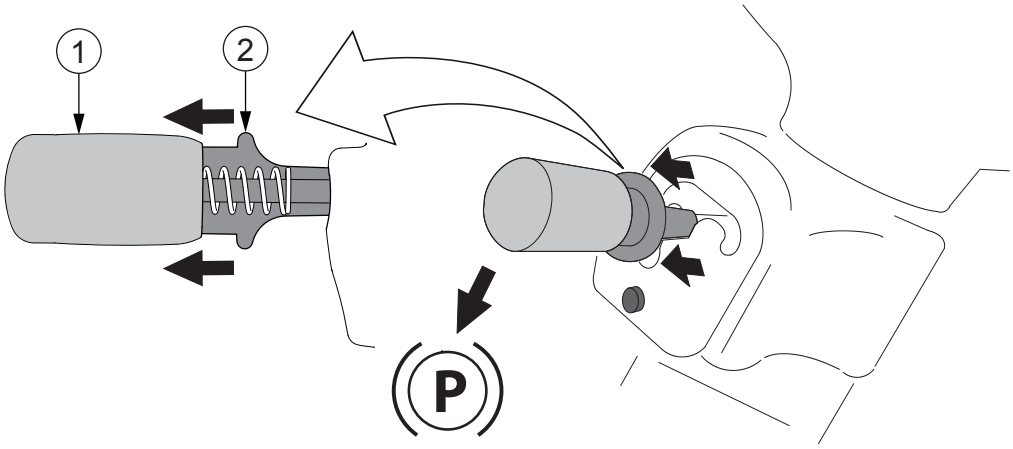


1. Power shuttle lever
   - F (front position) = forward driving direction
   - N (centre position) = neutral
   - R (rear position) = reverse driving direction
   - P = parking brake position

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- **Engage the parking brake:**

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



1. Power shuttle lever
2. Collar

Keep the clutch and brake pedals pressed down when applying the parking brake. If you move the power shuttle lever to centre position (N) when the tractor is on standstill mode, it can start moving if you are on declined ground.

The parking brake indicator light on the instrument panel and the P symbols on the A-pillar and tractor terminal displays are lit. If the indicator light is flashing, the engagement of the parking brake is delayed.
The parking brake engages when driving speed is approximately 3 km/h or lower. If you move the power shuttle lever to the P position at higher driving speeds, the P symbols on the A-pillar and tractor terminal displays flash until the speed drops below the limit.

DANGER: Apply the parking brake when you park the tractor. The tractor may still move if the parking brake is not applied, even if the tractor is parked and power is turned off.

WARNING: The parking brake indicator light flashes or message “PARKING BRAKE FAULT!” is shown on the instrument panel display if there is a fault in the parking brake system. In addition the buzzer alarms continuously. The parking brake might not function properly. Park the tractor on level ground and repair the fault before continuing to drive.

- **Disengage the parking brake:**

  Pull up the collar round the power shuttle lever and move the lever away from the parking brake (P) position to the neutral (N) position. If the indicator light is flashing, the disengagement of the parking brake is delayed.

- **Select the desired driving direction:**

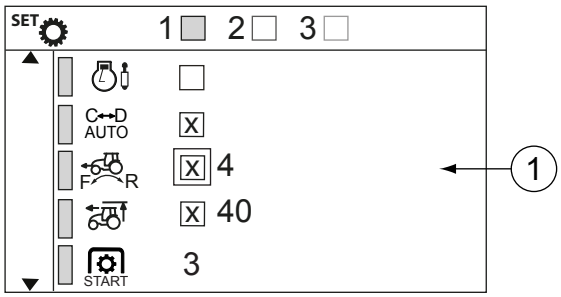
  Move the power shuttle lever to the forward (F) or reverse (R) driving direction. Change the driving direction at lower driving speeds with high load so that there is less stress on the power transmission.

3.8.6 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 (reverse) clutch engagements. The value ranges from 1–10, where:

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



1. **Press ESC.**
2. **Navigate to the menu 2 with the up and down arrow buttons.**
3. **Press the right arrow button to enter the transmission settings view.**

   NOTE: You can enter the settings view by pressing the push button for tractor terminal transmission settings view.

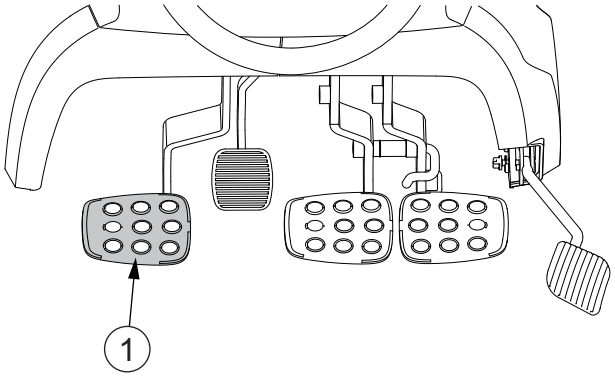
4. **Select the wanted memory slot with the left and right arrow buttons.**
5. **Move the navigation box to the power shuttle engagement speed setting** F/R **with the up and down arrow buttons or by rotating the selector for the predefined factory/user settings.**
6. **Press the right arrow button, OK button or the selector for the predefined factory/user settings.**
7. **Set the value for the power shuttle engagement speed by pressing the up or down arrow button or by rotating the selector for the predefined factory/user settings.**
8. **Press the left arrow button or selector for the predefined factory/user settings to return to the transmission settings view main level.**

With a short press of the ESC button you can return to the menu 2. A long press of the ESC button returns to the previously active drive display.

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3.8.7 Clutch pedal

3.8.7.1 Using the clutch pedal while driving



1. Clutch pedal

1. **Press the clutch pedal to release the traction.**

   Pressing the clutch pedal releases the traction immediately. This is useful in case of emergency, for example.

   DANGER: If you press down the clutch pedal with the standstill on, the transmission disengages. There is a danger of the tractor starting to move if you are on sloping ground.

2. **Let the clutch pedal up gradually.**

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

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

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. If you press down the clutch pedal, the hydraulic pump does not run and steering deactivates, because there is no hydraulic pressure in the system.

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

3.8.7.2 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.

The index determines how quickly the clutch engages when the clutch pedal is raised. The value range is between 1…4.

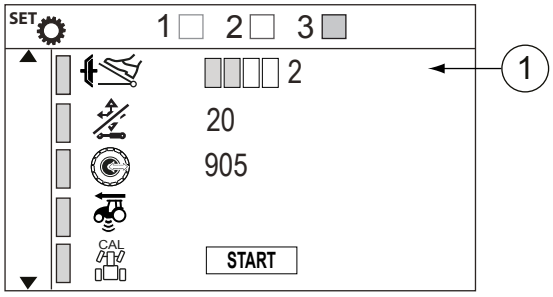
- 1 = the clutch engages quickly, the engagement point is relatively low.
- 4 = the clutch engages slowly, the engagement point is relatively high.

1. **Press ESC.**
2. **Navigate to the menu 2 with the up and down arrow buttons.**
3. **Press the right arrow button to enter the transmission settings view.**

   NOTE: You can enter the settings view by pressing the push button for tractor terminal transmission settings view.

4. **Move the navigation box to the clutch pedal engagement position setting 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.



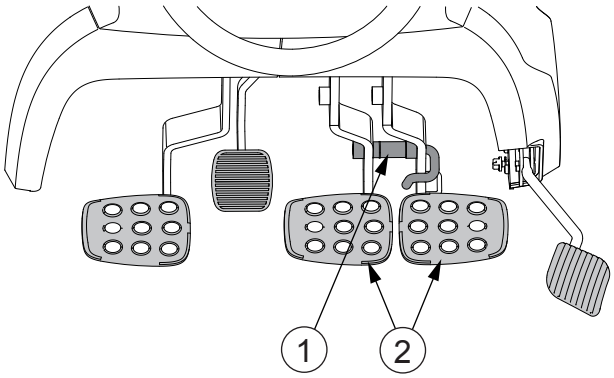
1. Clutch pedal engagement position setting

5. **Select one of the four values for the clutch pedal engagement position with the up or down arrow button.**
6. **Press the ESC button or selector for the predefined factory/user settings to leave the transmission settings view.**

With a short press of the ESC button you can return to the menu 2. 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. Latch for brake pedals
2. Brake pedals

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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 repair the fault before continuing.

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

  DANGER: 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.



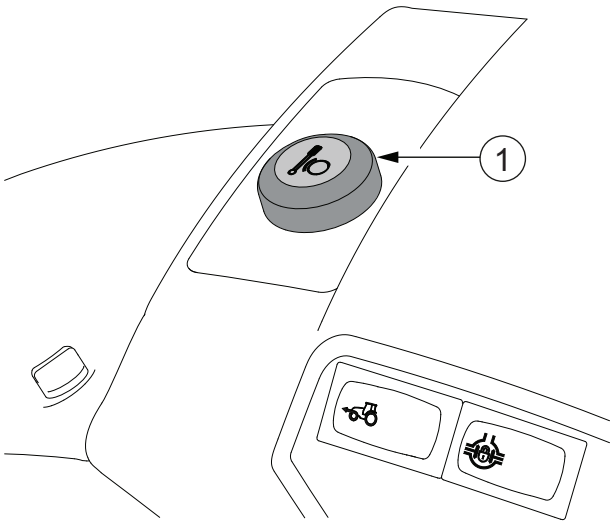
- **To intensify steering by braking when turning on the field, press down the brake pedal on the inner-curve side.**

3.8.9 Using the emergency brake button

Use the emergency brake only in emergency situations if braking with brake pedals is not possible.

WARNING: Turning the ignition switch to (OFF) position cannot be used as an emergency brake. The emergency brake operates only when the power is switched on.

WARNING: Using the emergency brake releases traction.



1. Emergency brake button

1. **Press the emergency brake button to start braking.**

   The emergency brake button uses maximal braking power.
   Message “**SECONDARY BRAKE!**” is shown on the instrument panel display.

2. **Release the emergency brake button to stop braking.**

WARNING: Using emergency brake in slippery conditions can result in skidding and loss of control. Release the emergency brake immediately when there is danger of wheels locking up. Release the emergency brake only if you can do it safely.

WARNING: Emergency brake uses the parking brake which is not designed for continuous use. The parking brake can become faulty.

WARNING: Message “SECONDARY BRAKE FAULT!” is shown on the instrument panel display if there is a fault in the emergency brake system. Emergency brake is not in use.

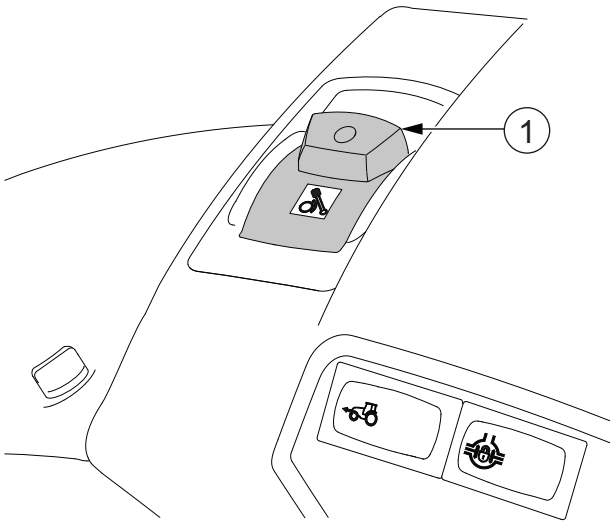
3.8.10 Using the emergency brake lever

Use the emergency brake lever only in emergency situations if braking with brake pedals is not possible.

WARNING: Turning the ignition switch to (OFF) position cannot be used as an emergency brake. The emergency brake operates only when the power is switched on.

WARNING: Using the emergency brake releases traction.

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1. Emergency brake lever

1. **Pull the emergency brake lever to start braking.**

   Pull the lever slowly to start braking gradually. Pull the lever down quickly to get maximal braking force.
   Message “**SECONDARY BRAKE!**” is shown on the instrument panel display.

2. **Release the emergency brake lever to stop braking.**

WARNING: Using emergency brake in slippery conditions can result in skidding and loss of control. Release the emergency brake immediately when there is danger of wheels locking up. Release the emergency brake only if you can do it safely.

WARNING: Emergency brake uses the parking brake which is not designed for continuous use. The parking brake can become faulty.

WARNING: Message “SECONDARY BRAKE FAULT!” is shown on the instrument panel display if there is a fault in the emergency brake system. Emergency brake is not in use.

3.8.11 Starting to drive

1. **Press down the clutch pedal and start the engine.**
2. **Release the clutch pedal when the engine is running.**

   In the default driving mode, the automatic driving mode, you do not need to use the clutch pedal in basic use.

3. **Select the speed range.**

   Select a speed range which:

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

   IMPORTANT: When operating with heavy loads, it is recommended that you start with the speed range C to ensure better acceleration and economical fuel consumption.

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

   NOTE: At the engine start, the transmission starts a reset procedure. Duration of the reset is about one minute. During this time, you can select the drive direction with the power shuttle lever. The tractor does not start to move until the transmission has completed the reset. The direction arrow shows on the tractor terminal display continuously to indicate the completed reset.

5. **Adjust the driving speed with the drive pedal.**

   The hillhold start helps with the start in such a way that the tractor does not move downhill at all. Keep an eye on the indicator lights and gauges while driving.

WARNING: Do not turn the ignition key to the (OFF) position when driving. When the power is off, the emergency brake is not in use and the engagement of the parking brake can be delayed.

NOTE: If the engine stops when driving, for example due to overload, you can restart it without turning the ignition key to the (OFF) position first. However, if the front linkage, PTO, U-pilot, hydraulics or cruise control were in use when the engine stopped, they have to be restarted separately.

3.8.12 Speed ranges

The tractor transmission system has four speed ranges: A, B, C and D. The following table shows the nominal speeds within the different speed ranges. The maximum driving speed of each speed range depends on the tyres used.

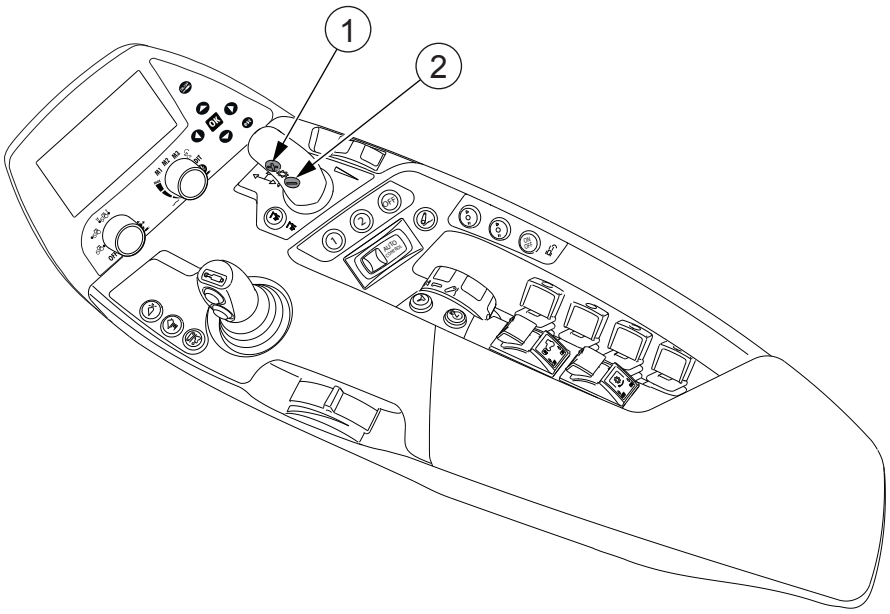
Speed range	Driving speed (40 km/h models)	Driving speed (50 km/h models)
A	0-7.0 km/h	0-8.7 km/h
B	0-12.9 km/h	0-16.0 km/h
C	0-22.7 km/h	0-28.2 km/h
D	0-40.0 km/h	0-50.0 km/h

3.8.12.1 Selecting the speed range

NOTE: The clutch pedal does not affect the speed range changing.

IMPORTANT: When driving with the manual driving mode, changing the speed range is allowed only with the parking brake engaged.

NOTE: When driving with manual driving mode, only the speed ranges A and B are available.



1. Speed range selection + button
2. Speed range selection - button

- **Shift the speed range up with the + button.**

  You can change the speed range up more than one step at a time, directly from A to D for example, by keeping the + button pressed down until the desired speed range appears on the tractor terminal display. A pop-up window indicating the speed range change appears on the tractor terminal display until the requested speed range has engaged.

- **Shift the speed range down with the - button.**

  You can change the speed range down by more than one step at a time, directly from D to A for example, by keeping the - button pressed down until the desired speed range appears on the tractor terminal display. The change is implemented if 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.

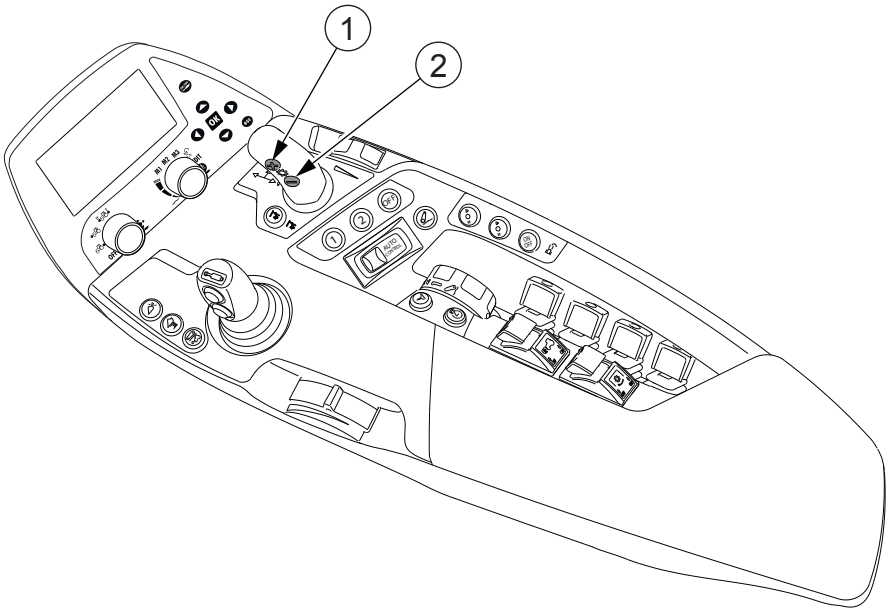
  The driving speed limits for changing speed ranges given in the following table are approximate and depend on the tyre size:

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 appears on the tractor terminal display until the requested gear has engaged.

3.8.12.2 Changing the speed range while driving

IMPORTANT: When driving with the manual driving mode, changing the speed range is allowed only with the parking brake engaged.



1. Speed range selection + button
2. Speed range selection - button

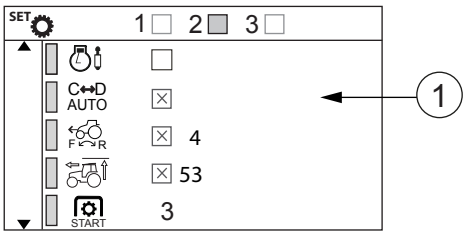
1. **Shift the speed range by pressing the speed range selection + button or - button.**

   If the driving speed is less than 2 km/h, you can change the speed range only when pressing the brake pedal or after the tractor has stopped. If the driving speed is more than 2 km/h, you can change the speed range immediately.

3.8.12.3 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. **Press ESC.**
2. **Navigate to the menu 2 with the up and down arrow buttons.**
3. **Press the right arrow button to enter the transmission settings view.**
4. **Select the wanted memory slot with the left and right arrow buttons.**
5. **Move the navigation box to the speed range C-D shifting automatics position C↔D AUTO with the up and down arrow buttons or by rotating the selector for the predefined factory/user settings.**
6. **Press the right arrow button, OK button or the selector for the predefined factory/user settings.**
7. **Select the speed range C-D shifting automatics by pressing the up or down arrow button or by rotating the selector for the predefined factory/user settings.**



8. **Press the left arrow button or selector for the predefined factory/user settings to return to the transmission settings view main level.**

With a short press of the ESC button you can return to the menu 2. A long press of the ESC button returns to the previously active drive display.

3.8.13 Driving modes

You can choose between two different driving modes for driving the tractor.

Automatic driving mode (default driving mode)	You control driving speed and acceleration.
Manual driving mode	You control engine speed and the transmission ratio.

The automatic driving mode is the default driving mode that is activated every time power is turned on.

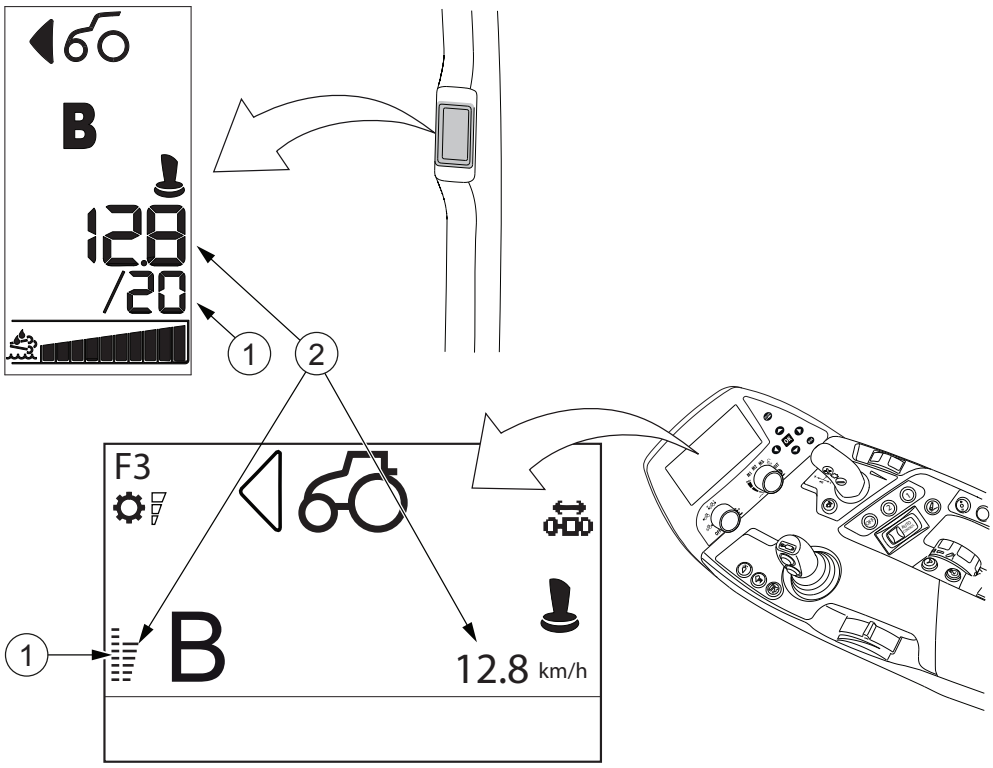
In case the manual driving mode is activated, the manual driving mode symbol appears on the A-pillar and tractor terminal displays. If the automatic driving mode is activated, there is no symbol displayed.

3.8.13.1 Automatic driving mode

The automatic driving mode is the default driving mode that is activated every time power is turned on.

When the automatic driving mode is active, you can control the driving speed and acceleration using the driving pedal. The transmission system automatically determines the optimal transmission ratio and engine speed according to the selected speed and acceleration while maintaining optimal fuel efficiency.

You can use the adjustment wheel to limit the maximum driving speed within the selected speed range. The maximum driving speed is shown on the A-pillar display as a number. The same information is displayed on the tractor terminal display as bars. The actual driving speed is shown as a number on both displays and also as bars on the tractor terminal display.



1. Maximum driving speed
2. Actual driving speed

When using the automatic driving mode, the position of the hand throttle determines the minimum engine speed, but has no effect on driving speed.

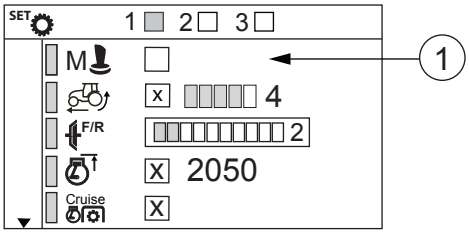
3.8.13.2 Activating the automatic driving mode

Automatic driving mode is the default driving mode activated every time the power is switched on. Thus, if you have just started the tractor, there is no need to activate the automatic driving mode.

1. **Engage the parking brake by moving the power shuttle lever to the parking brake position (P).**
2. **Press ESC.**
3. **Navigate to the menu 2 with the up and down arrow buttons.**
4. **Press the right arrow button to enter the transmission settings view.**

   NOTE: You can enter the settings view by pressing the push button for tractor terminal transmission settings view.

5. **Move the navigation box to the manual driving mode setting position 2 with the up and down arrow buttons or by rotating the selector for the predefined factory/user settings.**
6. **Press the right arrow button, OK button or the selector for the predefined factory/user settings.**
7. **Select the desired status of the manual driving mode by pressing the up or down arrow button or by rotating the selector for the predefined factory/user settings.**



1. Manual driving mode setting

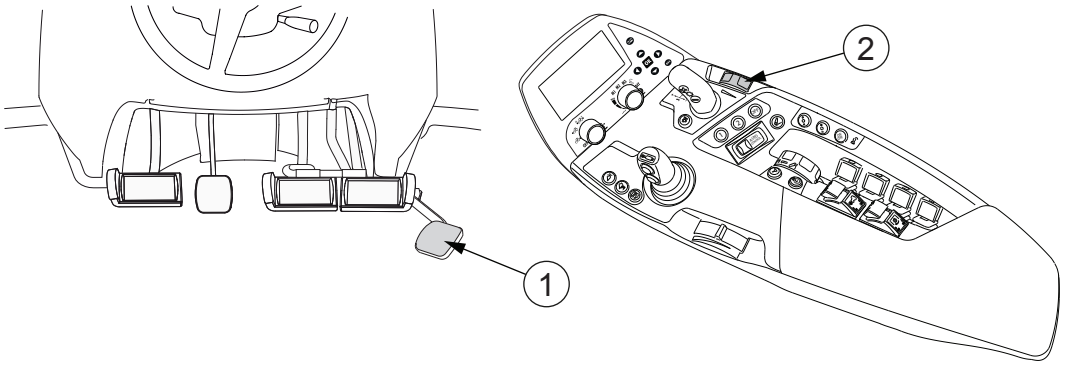
- When the box is checked, the manual driving mode is activated.
- When the box is not checked, the manual driving mode is deactivated.

When you remove the check mark from the check box, automatic driving mode is activated.

8. **Press the left arrow button or selector for the predefined factory/user settings to return to the transmission settings view main level.**

   When the automatic driving mode is active, there is no symbol displayed on the tractor terminal or A-pillar display. With a short press of the ESC button you can return to the menu 2. A long press of the ESC button returns to the previously active drive display.

3.8.13.3 Driving with the automatic driving mode



1. Drive pedal
2. Adjustment wheel

1. **Select the driving direction with the power shuttle lever.**

   The tractor will not move until the driving pedal is pressed.

2. **Set the maximum driving speed with the adjustment wheel.**

   NOTE:
   The adjustment wheel cannot be used for stopping the tractor.

3. **Set the driving speed and acceleration by pressing the driving pedal.**

   NOTE: The position of the hand throttle determines the minimum engine speed but has no effect on driving speed.

3.8.13.4 Manual driving mode

The manual driving mode is an optional driving mode that has to be activated every time you wish to use it.

NOTE: When driving with manual driving mode, only the speed ranges A and B are available.

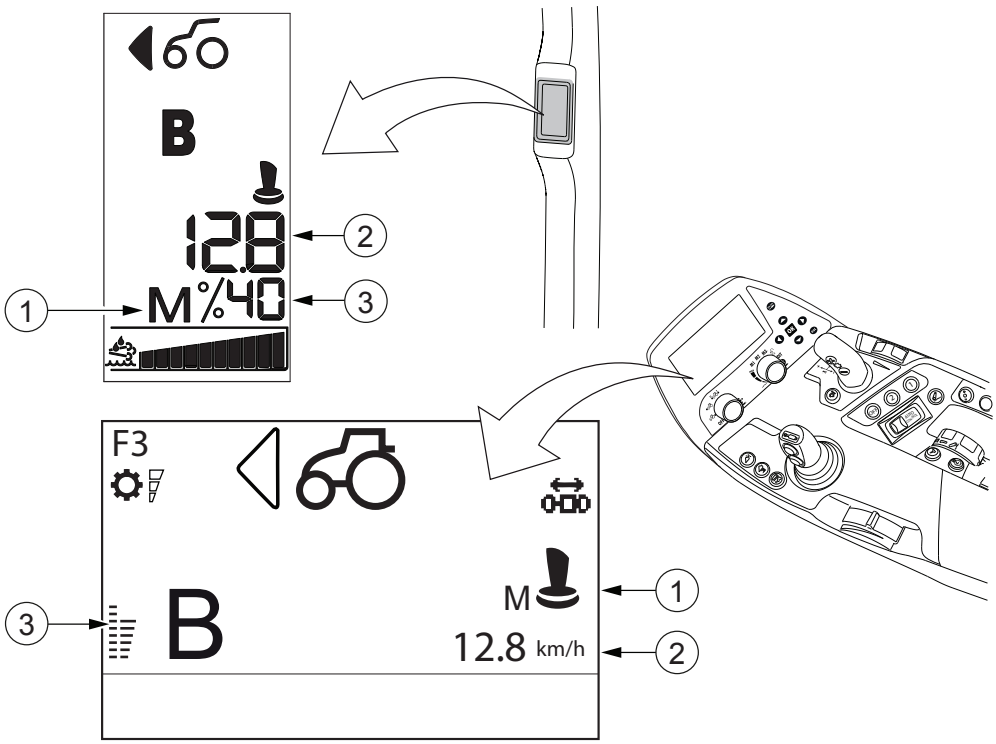
When the manual driving mode is active, you control the engine speed with the driving pedal and adjust the transmission ratio with the drive lever. The transmission ratio is solely determined by the drive lever. Moving the lever backward decreases the driving speed. Moving the lever forward increases the driving speed.

The driving pedal adjusts the engine running speed and functions like a normal accelerator pedal. Thus, driving speed is determined by the combination of the driving pedal and drive lever positions.

WARNING: If the drive lever is not in the rear position and the driving pedal is released, the tractor does not stop. The lever must be pushed to the rear position and held there for the tractor to stop.

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WARNING: Do not move the drive lever without careful consideration. Exercising great caution when using the lever is important as abrupt movements of the lever may cause sudden changes in tractor speed.



1. Driving mode symbol
2. Actual driving speed
3. Maximum transmission ratio

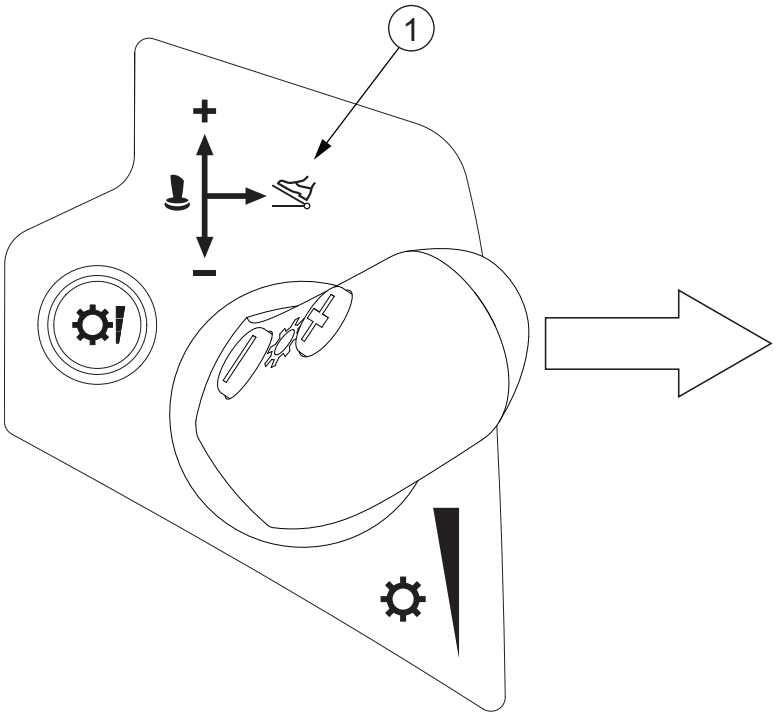
The transmission ratio appears on the A-pillar display as a percentage (0-100%) and on the tractor terminal display as bars. Moving the drive lever backward enough times decreases the transmission ratio to 0%. Moving the drive lever forward enough times increases the transmission ratio to 100%. The actual driving speed in relation to the position of the driving pedal is shown as numbers on both displays.

3.8.13.5 Activating the manual driving mode

Automatic driving mode is the default driving mode that is activated every time the power is switched on. You therefore have to activate the manual driving mode through the tractor terminal transmission settings every time you wish to use it.

1. **Engage the parking brake by moving the power shuttle lever to the parking brake position (P).**

2. **Move the drive lever to the pedal driving mode.**



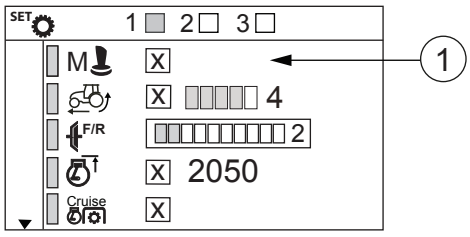
1. Pedal driving mode

3. **Press ESC on the tractor terminal control buttons.**

   NOTE: You can enter the settings view by pressing the push button for tractor terminal transmission settings view.

4. **Navigate to the menu 2 with the up and down arrow buttons.**
5. **Press the right arrow button to enter the transmission settings view.**
6. **Move the navigation box to the manual driving mode setting position M with the up and down arrow buttons or by rotating the selector for the predefined factory/user settings.**
7. **Press the right arrow button, OK button or the selector for the predefined factory/user settings.**

8. **Select the desired status of the manual driving mode by pressing the up or down arrow button or by rotating the selector for the predefined factory/user settings.**



1. Manual driving mode setting

- When the box is checked the manual driving mode is activated.
- When the box is not checked the manual driving mode is deactivated.

When you remove the check mark from the check box, the automatic driving mode is automatically activated.

9. **Press the left arrow button or selector for the predefined factory/user settings to return to the transmission settings view main level.**

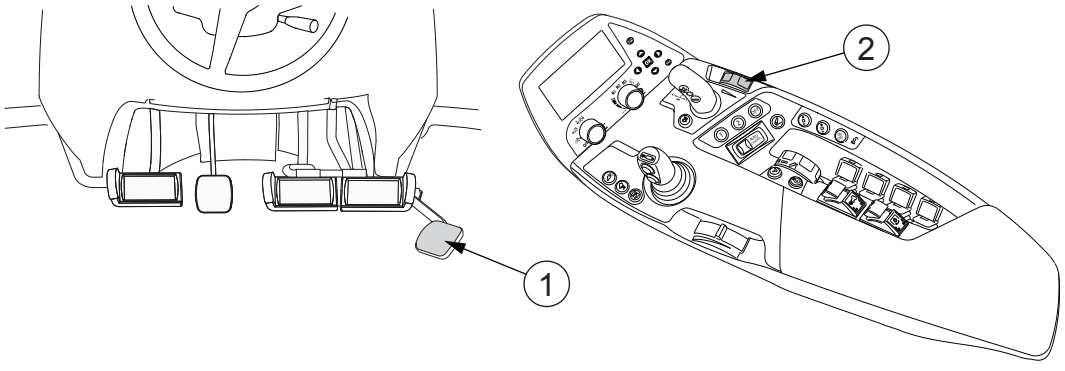
The manual driving mode symbol appears on the A-pillar and tractor terminal displays.

With a short press of the ESC button you can return to the menu 2. A long press of the ESC button returns to the previously active drive display.

3.8.13.6 Driving with the manual driving mode

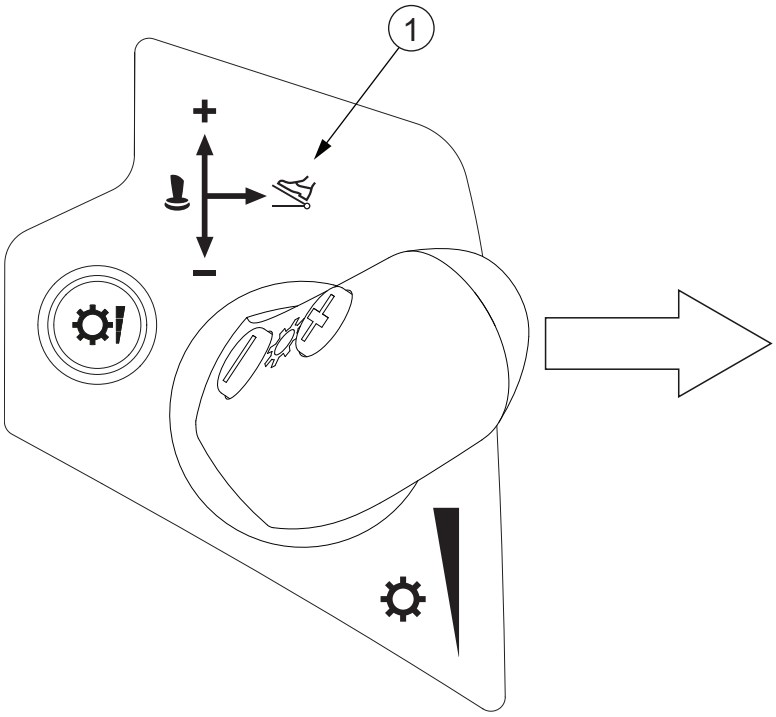
When the manual driving mode is active, the manual driving mode symbol is displayed on the tractor terminal and A-pillar display.

IMPORTANT: When driving with the manual driving mode, changing the speed range is allowed only with the parking brake engaged.



1. Drive pedal
2. Adjustment wheel

1. **Make sure the pedal driving mode is selected.**



1. Pedal driving mode

2. **Select the driving direction with the power shuttle lever and then move the drive lever to the drive lever driving mode position.**

   The tractor will not move until the drive lever is moved forward.

3. **Set the transmission ratio with the drive lever.**

4. **Set the engine speed and driving speed by pressing the drive pedal.**

   The driving speed is determined by the combination of the driving pedal and drive lever positions. You can control the driving speed by selecting an appropriate engine speed and then adjusting the transmission ratio with the transmission adjustment lever position.

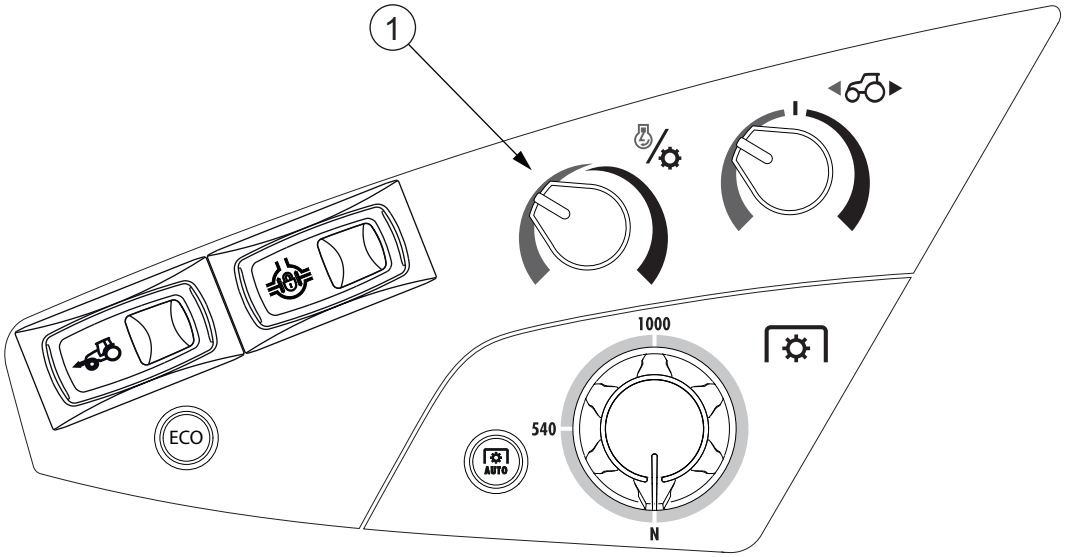
   You can use the drive pedal in parallel with the hand throttle. The one giving the larger value controls the engine speed.

3.8.14 Adjusting the transmission droop

In automatic driving mode the transmission droop setting determines how much the engine speed can drop before the automatic system reduces the transmission ratio. In other words, the transmission droop setting determines how sensitive the transmission system is to changes in engine load.

In manual driving mode the transmission droop determines how the maximum driving speed is achieved.

The transmission droop can be adjusted with the droop adjustment knob.



1. Droop adjustment knob

- **In automatic driving mode, turn the droop adjustment knob to adjust the transmission sensitiveness to the changes in engine load.**
  - **Turn the droop adjustment knob anti-clockwise.**

    The transmission reacts quickly to the engine load and tries to keep the engine revolutions stable.
  - **Turn the droop adjustment knob clockwise.**

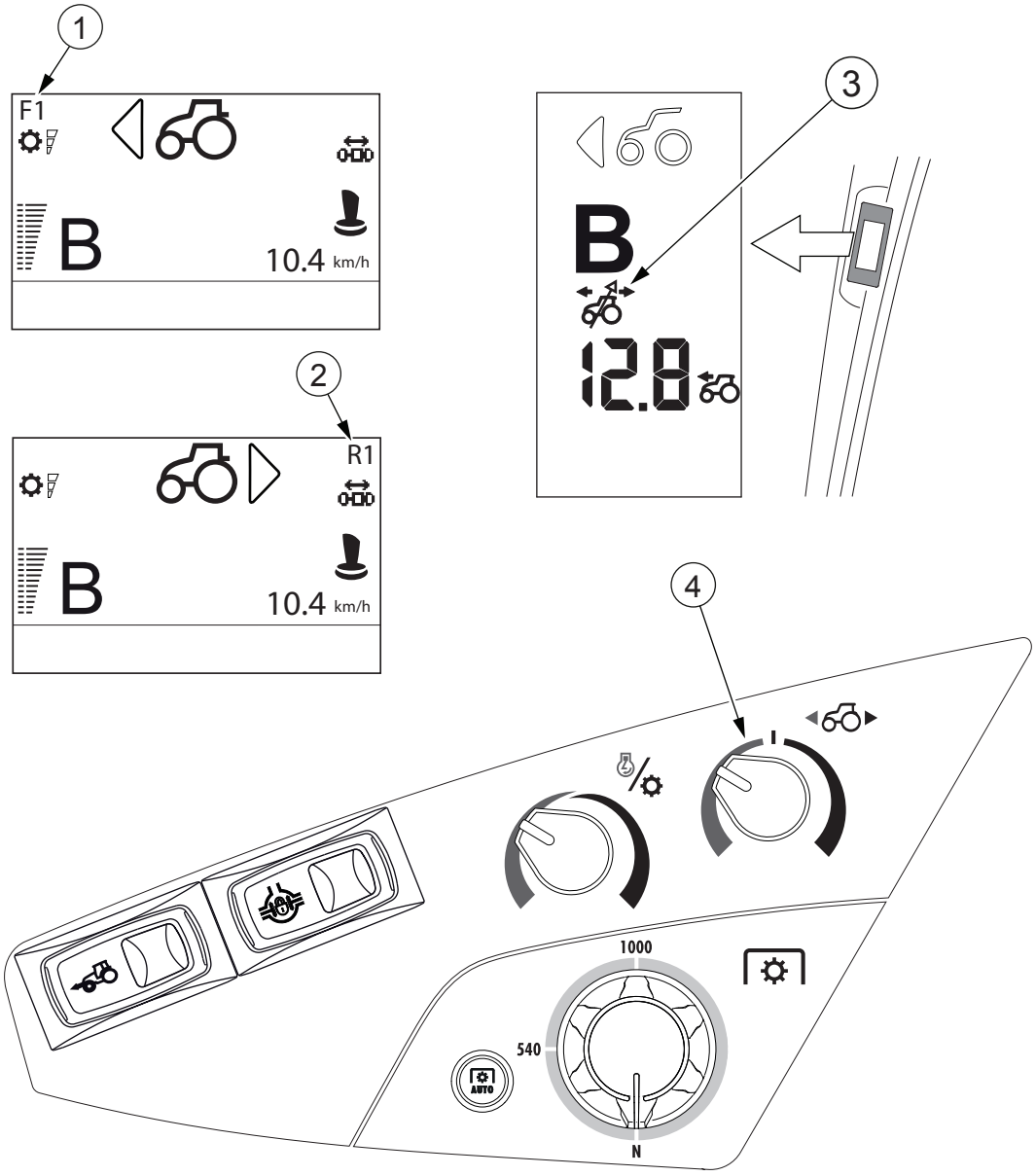
    The transmission reacts slowly to the engine load.
- **In manual driving mode, turn the droop adjustment knob to adjust the maximum driving speed achievement.**
  - **Turn the droop adjustment knob anti-clockwise.**

    The maximum driving speed is achieved with the maximum engine revolutions.
  - **Turn the droop adjustment knob clockwise.**

    The maximum driving speed is achieved with the maximum transmission ratio.

3.8.15 Adjusting the speed balance

With the speed balance function the maximum forward driving speed can be reduced while the maximum reverse driving speed is kept the same or the maximum reverse driving speed can be reduced while the maximum forward driving speed is kept the same.



1. Tractor terminal symbol for adjusted forward speed balance
2. Tractor terminal symbol for adjusted reverse speed balance
3. A-pillar display symbol for speed balance in use
4. Drive balance control

The speed balance symbol only appears on the A-pillar display if the control knob is not in the middle position.

You can adjust the speed balance with the speed balance control knob. The more you turn the control knob, the more the maximum driving speed is reduced. The relationship between forward and reverse driving speed is indicated on the tractor terminal display.

Only the symbol of the direction with relatively lower maximum speed is shown on the tractor terminal display.

- **To reduce the driving speed in relation to the opposite driving speed, turn the speed balance control knob.**
  - **To reduce the forward driving speed, turn the control knob anti-clockwise.**

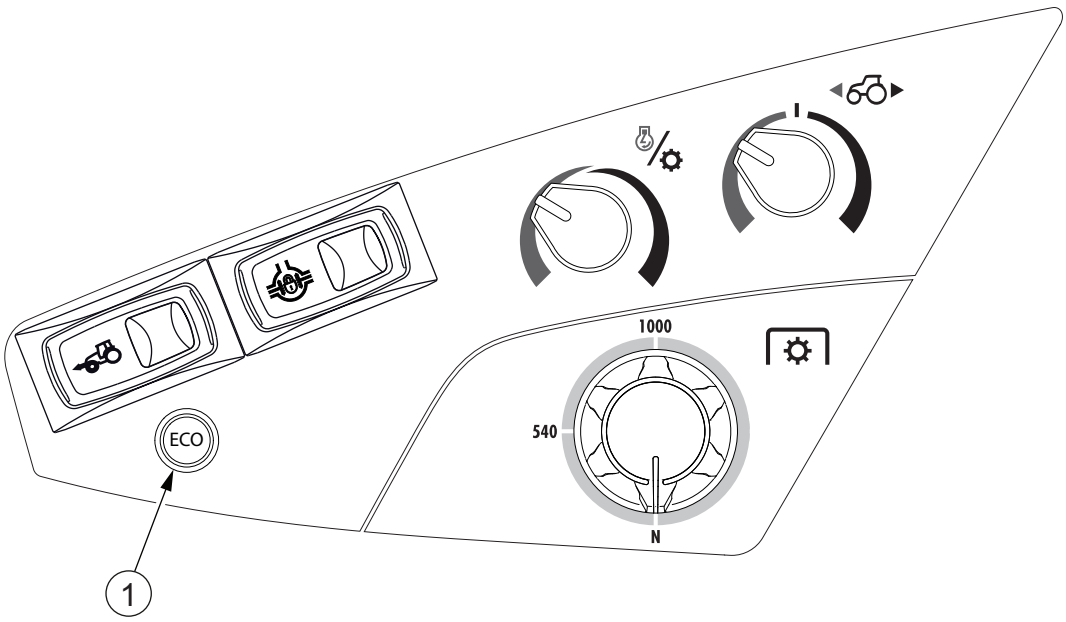
    The balance number of the forward driving increases accordingly on the tractor terminal display (F1, F2, ..., FMAX). With value F1 the maximum forward driving speed is 10% smaller than the maximum reverse driving speed. With value FMAX the maximum forward driving speed is 90% smaller than the maximum reverse driving speed.
  - **To reduce the reverse driving speed, turn the control knob clockwise.**

    The balance number of the reverse driving increases accordingly on the tractor terminal display (R1, R2, ..., RMAX). With value R1 the maximum reverse driving speed is 10% smaller than the maximum forward driving speed. With value RMAX the maximum reverse driving speed is 90% smaller than the maximum forward driving speed.
- **To keep the maximum driving speed of both directions the same, turn the control knob to the middle position.**

3.8.16 Using the EcoPower mode

The tractor N154e D can be used in the EcoPower mode or in the normal mode. With the EcoPower mode, you can optimize engine/transmission for the best possible fuel economy. The maximum power output is the same for both modes.

- The EcoPower mode reduces fuel consumption considerably.
- In the EcoPower mode, the maximum power and torque are achieved at approximately 150 RPM lower level than in the normal mode.
- The maximum torque is higher in the EcoPower mode.
- You can activate or deactivate the EcoPower mode in any situation. The driving speed does not decrease even if the engine speed decreases.



1. EcoPower button

- **To activate or deactivate the EcoPower mode, press the EcoPower button.**

  The EcoPower button is lit when the EcoPower mode is activated.

3.8.17 Drive lever

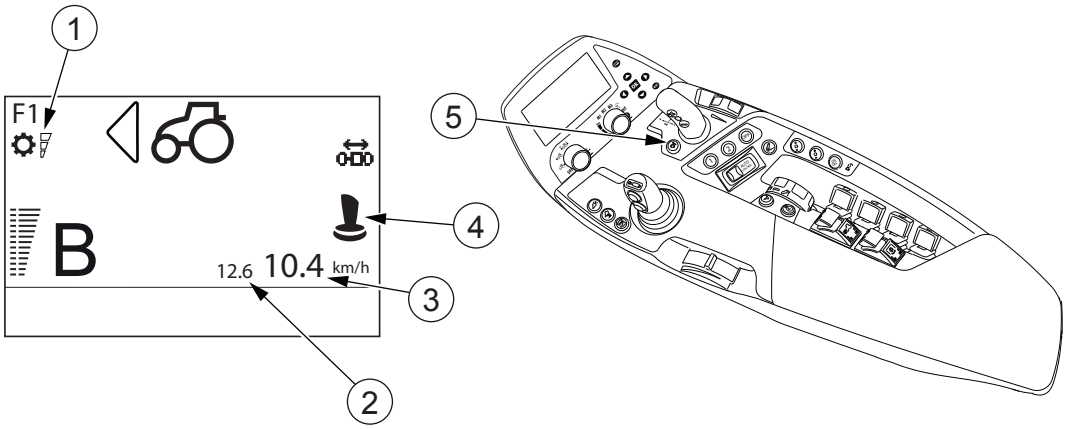
3.8.17.1 Drive lever mode

You can use the drive lever mode to control the driving speed when driving forward or backward. The drive lever mode should be used only when driving in off-road conditions. The pedal driving mode is recommended when driving on public roads.

Engaging the drive lever driving mode sets the current driving speed as the default driving speed. This selected speed bypasses the cruise control speed that may be in use. However, the drive lever speed is not saved in the cruise control memory.

3.8.17.2 Driving with the drive lever

When the drive lever driving mode is activated, the driving speed automatically stays the same as it was when the drive lever driving mode was engaged.



1. Selected drive lever mode
2. Default drive lever speed
3. Current driving speed
4. Drive lever driving mode activated
5. Drive lever mode selector

You can drive with the drive lever at any speed up to the maximum speed. The display shows the current driving speed and the driving speed during the engagement of the drive lever driving mode. This is the default drive lever driving speed.

- **To accelerate, move and hold the drive lever in the forward position.**
- **To decelerate, move and hold the drive lever in the backward position.**

  When driving in reverse, moving the drive lever forward increases the speed and backward decreases it.

- **Press the drive lever mode selector to set the engine brake, turbine clutch imitation and the sensitivity of the drive lever.**
  The selected mode appears on the tractor terminal display.

- **Press both brake pedals to stop the tractor.**

  The driving speed decreases for as long as the brake pedals are pressed or the tractor stops.

  NOTE: While you press the brake pedals, the drive lever symbol flashes on the display as a reminder that the drive lever mode is still active.

  Pressing the brake pedals does not disengage the traction or shift to neutral, so the engine speed increases temporarily.

  IMPORTANT: Due to the automatic acceleration back to the default speed or the speed of 20 km/h, it is recommended that you use the drive lever mode in off-road driving only and not when driving on public roads.

- **Move the drive lever to the forward or backward position with short presses to change the currently selected drive lever driving speed.**

  The new default driving speed appears on the display. How quickly this new default speed is set depends on engine power, tractor load and selected drive lever mode.

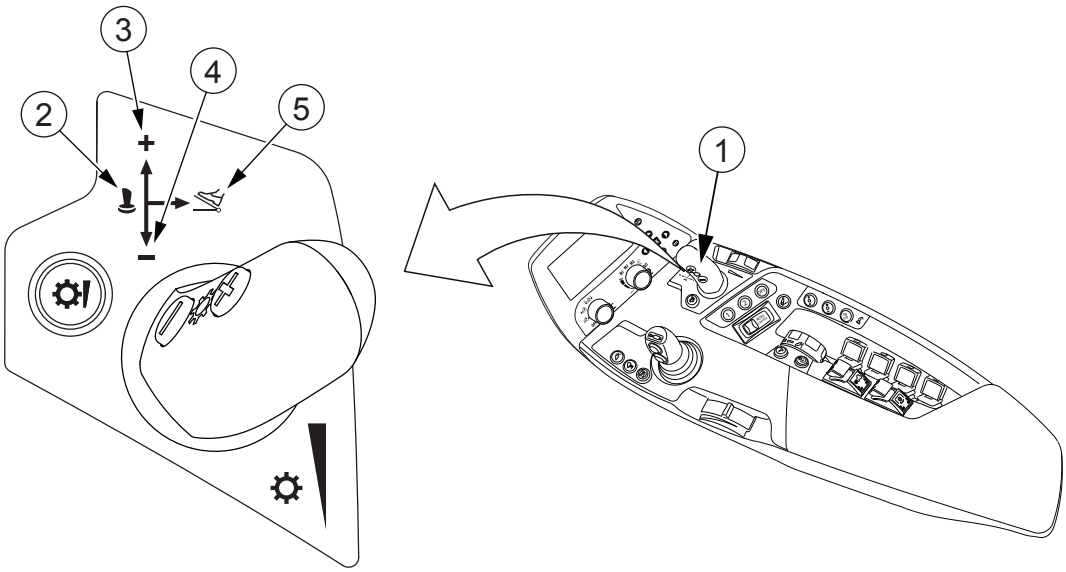
- **Press the driving pedal to temporarily drive faster than the drive lever speed.**

  Pressing the driving pedal does not affect the default drive lever speed saved in the memory. When you release the driving pedal, the speed automatically decreases to the default level.

  If you activate the driving speed cruise control when the drive lever driving mode is activated, the setting value of the cruise control replaces the default drive lever driving speed. A short press of cruise control memory slot button activates the cruise control and sets the cruise control memory slot value as the driving speed. A long press of cruise control memory slot button sets the driving speed of that moment as the cruise control value and bypasses the drive lever default speed. If you deactivate the driving speed cruise control, also the drive lever driving mode is deactivated.

3.8.17.3 Activating and deactivating the drive lever driving mode

When you start the tractor, the pedal driving mode is in use by default.



1. Drive lever
2. Drive lever driving mode
3. Increasing the value which depends on the selected driving mode
4. Decreasing the value which depends on the selected driving mode
5. Pedal driving mode

- **Accelerate the driving speed to the desired level.**
- **Move the drive lever to the left to activate the drive lever driving mode.**

  If the drive lever is in the drive lever driving mode position when you start the tractor, the drive lever driving does not activate. In such case, you have to move the drive lever to the pedal driving position and then to the drive lever driving position to activate the drive lever driving.

  Moving the drive lever to the drive lever driving position locks the current driving speed as the default drive lever driving speed. If the driving speed cruise control is in use when the drive lever driving mode is activated, the cruise control is bypassed. The symbol for drive lever driving mode appears on the display.
- **Deactivate the drive lever driving mode by moving the drive lever to the pedal driving mode.**

  Pressing the brake pedal stops the tractor but it does not deactivate the drive lever driving mode.

  If the driving speed cruise control is activated when the drive lever driving mode is in use, the cruise control value replaces the default driving speed value of the drive lever driving mode. Deactivating the driving speed cruise control in this situation also deactivates the drive lever driving mode.

  The drive lever speed selection is not saved in the cruise control memory. When deactivating the drive lever driving mode, the cruise control does not reactivate automatically. The symbol for the pedal driving mode appears on the display.

3.8.17.4 Using the clutch pedal in the drive lever mode

- **Press the clutch pedal to disengage traction.**

  The driving speed decreases for as long as the clutch pedal is pressed or the tractor stops. Pressing the clutch pedal fully down disengages the traction and engages the neutral, so the engine speed stays at the same level as it was before pressing the clutch pedal.

- **Release the brake pedals and the clutch pedal.**

  The driving speed of that moment is taken into use.

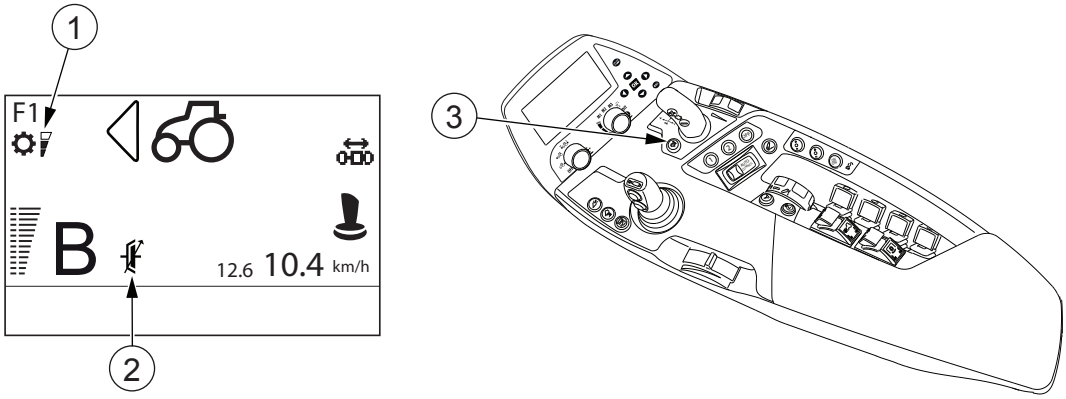
  NOTE: While you press the brake pedals, the drive lever symbol flashes on the display as a reminder that the drive lever mode is still active.

  When you release both the brake pedals and the clutch pedal and shortly press the drive pedal or push the drive lever forward, the tractor automatically accelerates to the default drive lever speed if it is 20 km/h or less. If you press the clutch pedal and then release it before the speed drops below 20 km/h, the automatics do not accelerate the driving speed back to what it was before the clutch pedal was pressed. In this case, the driving speed stays at what it is at the moment of releasing the clutch pedal.If you do not press the drive pedal within one minute or if you pull the drive lever backward, the automatic acceleration to the default speed is cancelled and the driving speed of that moment becomes the default drive lever driving speed.

  IMPORTANT: Due to the automatic acceleration back to the default speed or the speed of 20 km/h, it is recommended that you use the drive lever mode in off-road driving only and not when driving on public roads.

3.8.17.5 Turbine clutch imitation

The turbine clutch imitation allows a shock-free traction; it is of particular benefit when ground conditions are slippery or when the tractor is heavily loaded. The turbine clutch imitation also protects the clutch disc and other transmission components from uneven and excessive load peaks.



1. Drive response mode
2. Turbine clutch imitation
3. Drive response mode selector

The turbine clutch imitation has an effect in the automatic driving mode (both drive lever and pedal driving modes). The imitation has four setting levels, which can be controlled with the drive response mode selector. The selection appears on the tractor terminal display.

- The first level gives the slowest drive lever acceleration and a light engine brake, and the turbine clutch imitation is activated. The display shows the symbol and one bar.
- The second level gives the slowest drive lever acceleration and a light engine brake, and the turbine clutch imitation is not activated. The display shows one bar and no symbol.
- The third level gives a medium drive lever acceleration and a medium engine brake, and the turbine clutch imitation is not activated. The display shows two bars and no symbol.
- The fourth level gives a quick drive lever acceleration and a heavy engine brake, and the turbine clutch imitation is not activated. The display shows three bars and no symbol.

3.8.18 Parking the tractor

1. **Stop the tractor.**
2. **Apply the parking brake.**

   Check that the parking brake symbol (P) is lit on the instrument panel display.

   DANGER: Apply the parking brake when you park the tractor. The tractor may still move if the parking brake is not applied, even if the tractor is parked and power is turned off.

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 at least two minutes.

   In some situations (for example, after working with a heavy load) when you engage the parking brake, the engine may perform cooling of the after-treatment system by increasing the idling RPM momentarily. The word COOL flashes on the A-pillar display.

   IMPORTANT: Do not stop the engine while the idling rpm is increased and the word COOL flashes on the A-pillar display. Stopping the engine may damage the after-treatment system.

5. **Stop the engine by turning the ignition key to the (ACC) position.**
6. **Turn off the power by turning the ignition key to the (OFF) position.**
7. **Fill up the fuel tank.**

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

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3.8.19 Refuelling the tractor

3.8.19.1 Filling the fuel tank



WARNING: Always turn off the power before filling up.



WARNING: Do not smoke while refuelling the tractor.



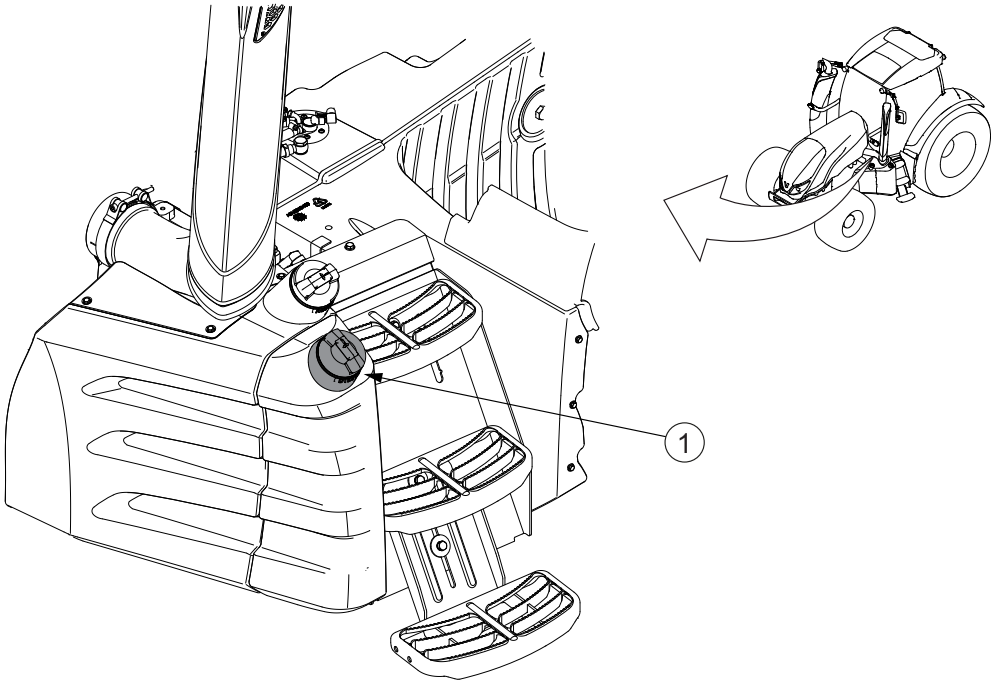
WARNING: Keep away from open fire.



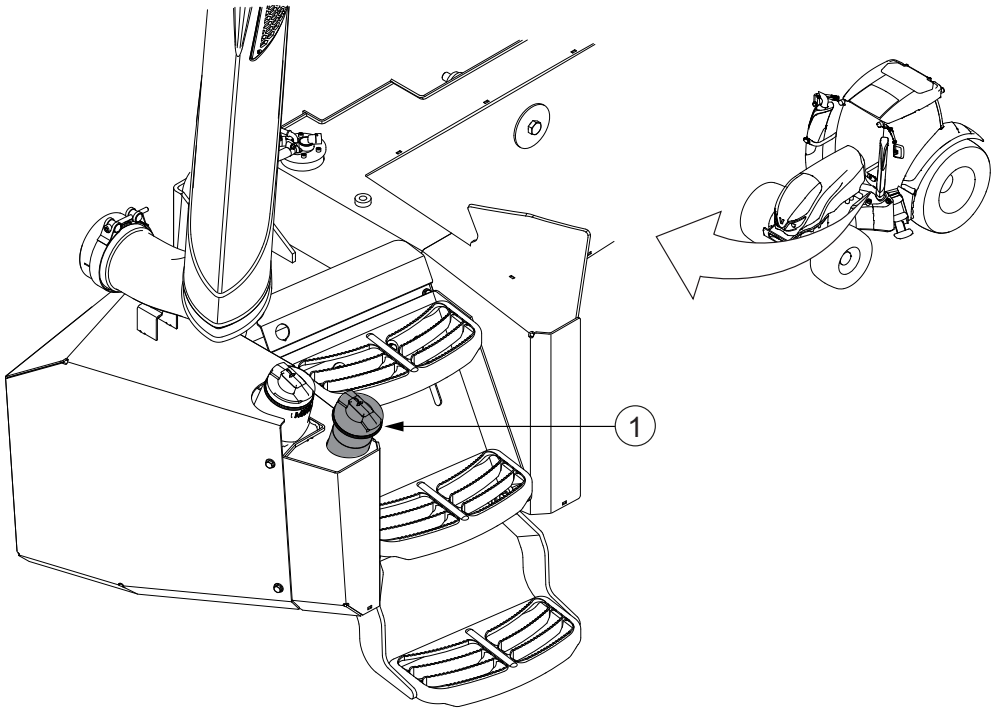
WARNING: Wear suitable gloves when filling up.

IMPORTANT:
Carefully clean the tank cap and the area around the cap before filling up. Wipe off any spills after filling up.

1. **Open the fuel tank cap.**



1. Fuel tank cap



1. Forest equipment (optional) fuel tank cap

2. **Fill the tank.**
3. **Close the fuel tank cap.**

IMPORTANT: Never put AdBlue/DEF in the fuel tank, as the engine and fuel system may become damaged.

IMPORTANT: Never put fuel in the AdBlue/DEF tank. Even small amounts of fuel in the AdBlue/DEF tank may damage the gaskets of the selective catalytic reduction (SCR) system.

IMPORTANT: Do not start the engine if the tank has been filled with a wrong type of additive. If filled with a wrong additive, the tank must be carefully emptied and washed before starting the engine.

3.8.19.2 Filling the AdBlue/DEF tank



WARNING: Always turn off the power before filling up.



WARNING: Do not smoke while refuelling the tractor.



WARNING: Keep away from open fire.



WARNING: Wear suitable gloves when filling up.

IMPORTANT:

Carefully clean the tank cap and the area around the cap before filling up. Wipe off any spills after filling up.

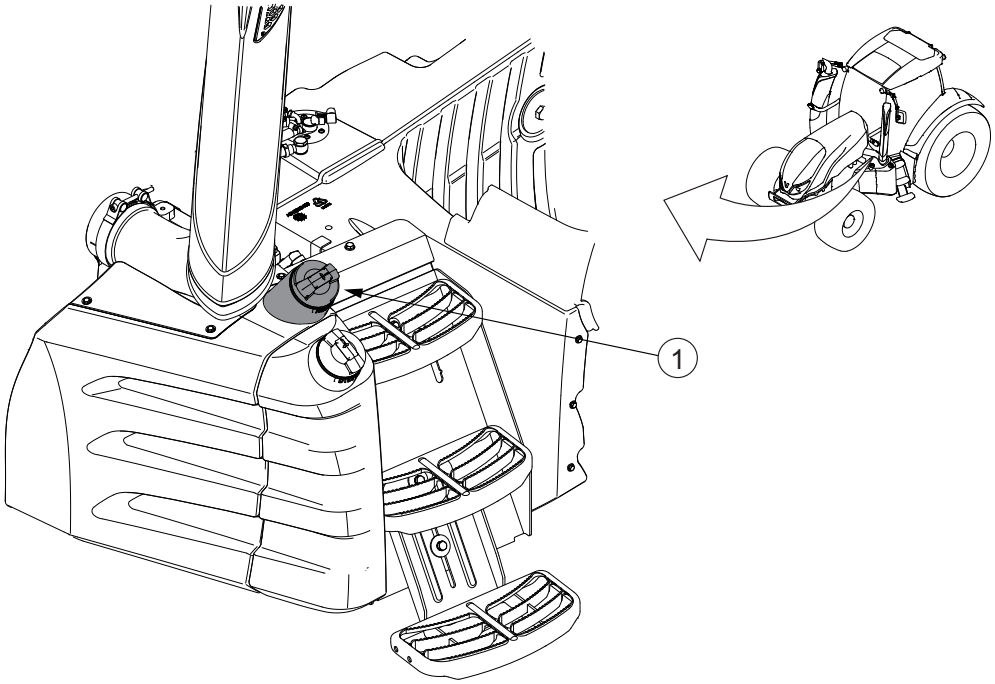
NOTE:

When the AdBlue level decreases to 5% or less, the torque and maximum rotation speed of the engine are slowly decreased.

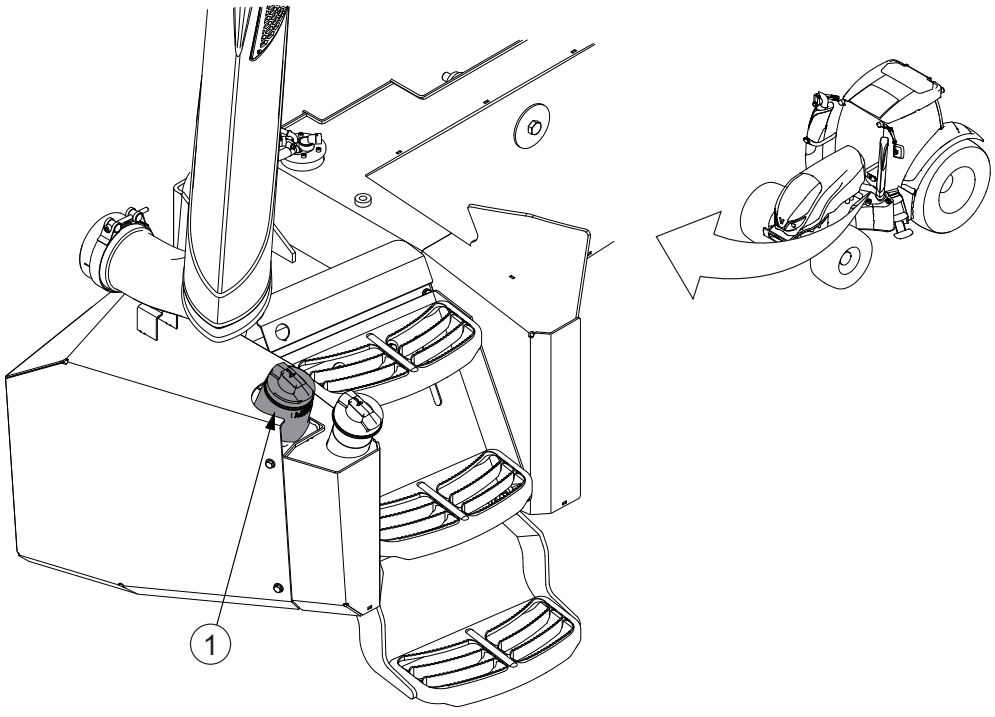
When the AdBlue level has decreased to approximately 0% and stayed at that level for about an hour, the engine decreases to idling speed and the torque is heavily limited. This is to ensure that the exhaust fume emissions remain in the allowable limits set by legislative authorities.

NOTE: Fill up the AdBlue/DEF tank in time because too low an AdBlue level may even lead to service codes. This can happen especially in high-temperature environments.

1. **Open the AdBlue/DEF tank cap.**



1. AdBlue/DEF tank cap



1. Forest equipment (optional) AdBlue/DEF tank cap

2. **Fill the tank.**
3. **Close the AdBlue/DEF tank cap.**

- As the AdBlue fluid is very corrosive, if the tractor is splashed with fluid, wipe off and rinse with water.
- If an electrical connector is splashed with AdBlue fluid, it must be replaced.
- Crystals of AdBlue/DEF additive may appear on the vehicle in the event of spillage. Rinse immediately with water to remove these crystals.

IMPORTANT: Never put fuel in the AdBlue/DEF tank. Even small amounts of fuel in the AdBlue/DEF tank may damage the gaskets of the selective catalytic reduction (SCR) system.

IMPORTANT: Never put AdBlue/DEF in the fuel tank, as the engine and fuel system may become damaged.

IMPORTANT: If the AdBlue/DEF additive is modified or replaced by a fluid which does not comply with the standard ISO 22241 (DIN 70070), the after-treatment system will be damaged.

IMPORTANT: Do not start the engine if the tank has been filled with a wrong type of additive. If filled with a wrong additive, the tank must be carefully emptied and washed before starting the engine.

3.8.20 Cruise control

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

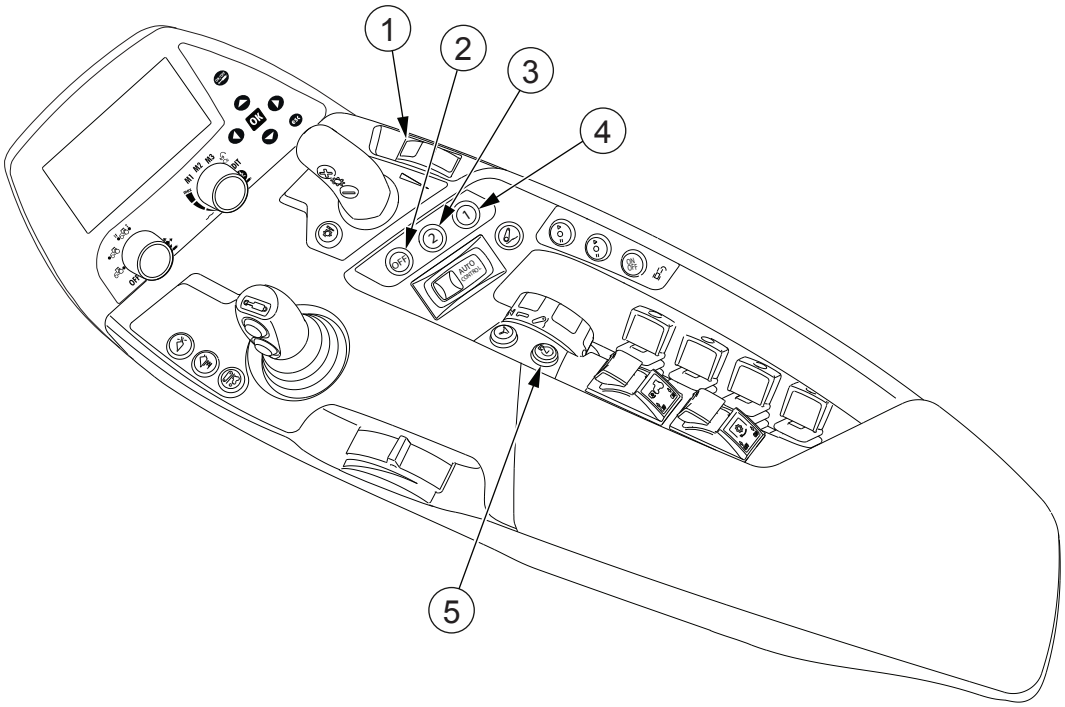
When cruise control is on, the indicator light is lit on the instrument panel and the tractor terminal display shows the status of cruise control.

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

When the automatic driving mode is activated both driving speed cruise control and engine speed cruise control can be activated at the same time. When the manual driving mode is activated either the engine speed cruise control or driving speed cruise control can be activated, but not both at the same time.

In addition, there is the power take-off (PTO) cruise control function. The PTO cruise control function saves the engine speed corresponding to the current nominal PTO speed when the PTO speed is selected.

3.8.20.1 Cruise control buttons



1. Adjustment wheel
2. Driving speed cruise control off button
3. Driving speed cruise control memory button 2
4. Driving speed cruise control memory button 1
5. Engine RPM memory button

Adjustment wheel

If the driving speed cruise control is activated, you can use the adjustment wheel to control the cruise control setting value between speed 0.3 km/h and the set maximum speed. The set maximum speed is the speed that was selected with the adjustment wheel when the driving speed cruise control was not yet activated.

Driving speed cruise control memory buttons 1 and 2

The driving speed cruise control has two memory slots for saving driving speeds. You can use the buttons for programming values to the memory slots and for activating either of the memory slot.

Driving speed cruise control off button

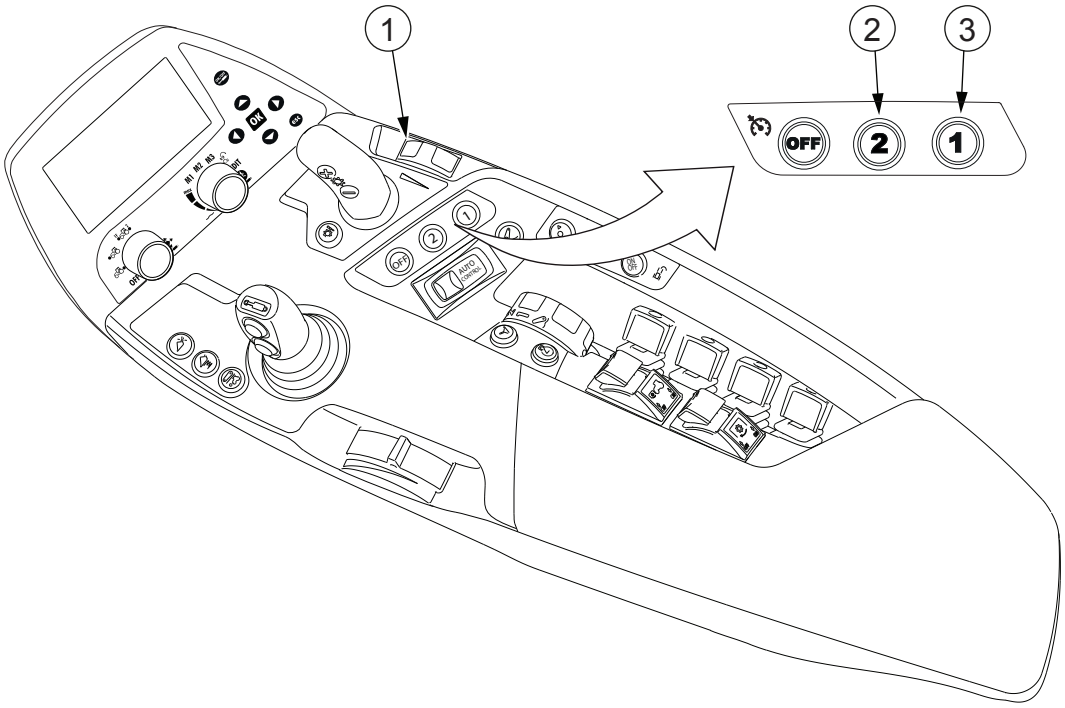
You can use this button to deactivate the driving speed cruise control.

Engine RPM memory button

You can use this button to program values to RPM cruise control memory and to activate or deactivate the RPM cruise control.

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3.8.20.2 Programming the driving speed cruise control



1. Adjustment wheel
2. Driving speed cruise control memory button 2
3. Driving speed cruise control memory button 1

1. **Set the desired driving speed.**

   Use the drive pedal to set the wanted driving speed value. If the manual driving mode is selected, you can also use the hand throttle to set the wanted driving speed.

2. **Select the memory slot to be used.**
   - **To use memory slot 1, press the driving cruise control memory button 1.**
   - **To use memory slot 2, press the driving cruise control memory button 2.**

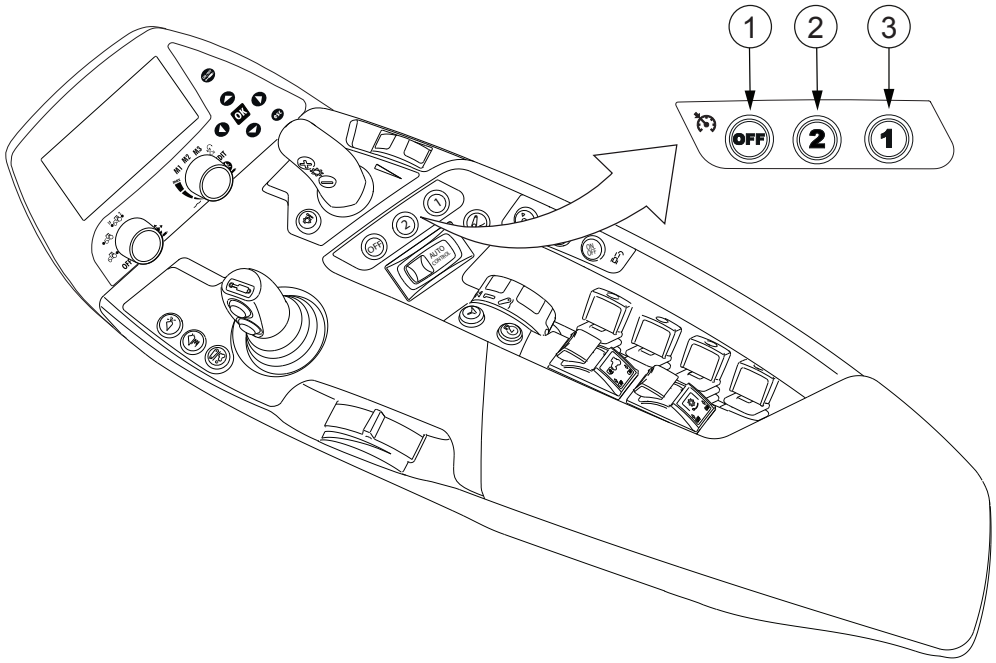
     This saves the current driving speed to the corresponding memory slot and activates it.
   - **If the wanted memory slot already has a speed value, set the new value by pressing and holding the cruise control setting button for two seconds.**

     This replaces the old memory slot value with the new value. If the tractor is stationary and the automatic driving mode is selected, pressing the setting button of an empty memory slot saves the maximum driving speed value set with the adjustment wheel but does not activate the value. In the manual driving mode, the adjustment wheel has no effect on setting the driving speed.

3. **If the driving speed cruise control is activated, adjust the driving speed value of a memory slot between the values 0.03 km/h and the maximum driving speed with the adjustment wheel.**

3.8.20.3 Activating and deactivating the driving speed cruise control

WARNING: Note the function of the hand throttle and adjustment wheel before deactivating the cruise control. Adjust their position if needed. However, if the automatic driving mode is selected, the hand throttle has no effect on driving speed.



1. Driving speed cruise control off button
2. Driving speed cruise control memory button 2
3. Driving speed cruise control memory button 1

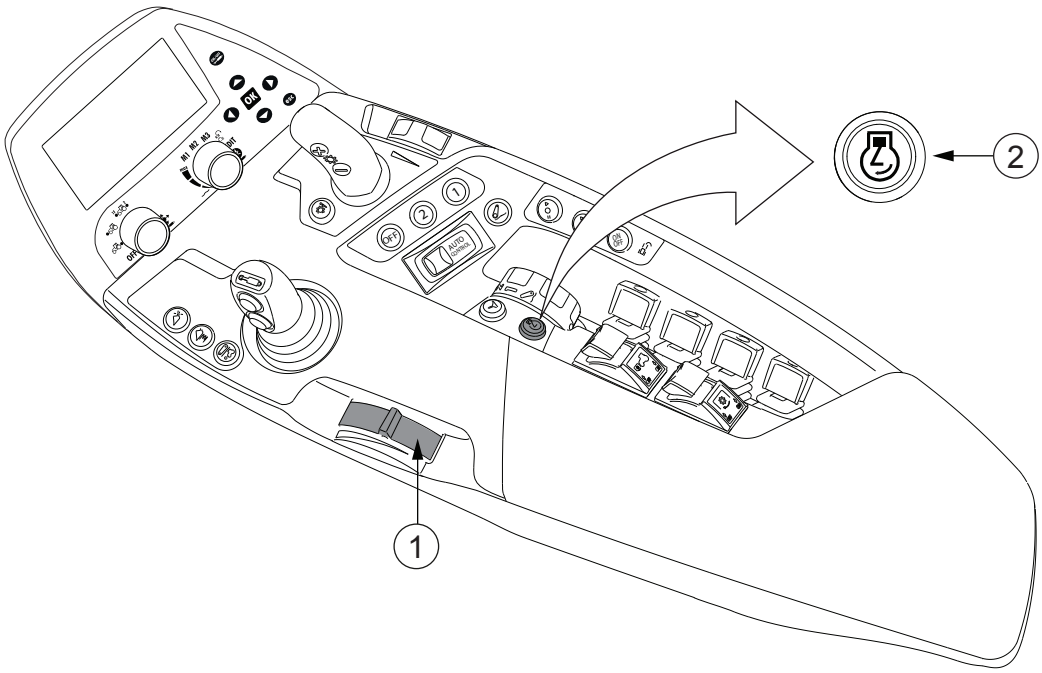
- **Activate an existing driving speed cruise control value.**
  - **To use the setting stored to memory slot 1, press the driving speed cruise control memory button 1 shortly.**
  - **To use the setting stored to memory slot 2, press the driving speed cruise control memory button 2 shortly.**
    The tractor maintains the selected constant driving speed if possible.
- **Save and activate a new driving speed cruise control value.**
  - **Drive at the desired speed.**
  - **To save the value to an empty memory slot and activate it, press the memory button shortly.**
  - **To save the value to a memory slot that already has a value, press the memory button for at least two seconds.**
    The new value overwrites the old value, and the driving speed cruise control is activated with the new value.

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- **Deactivate the driving speed cruise control by pressing the driving speed cruise control off button.**

If you activate and then deactivate the drive lever driving mode when the cruise control has been activated, the cruise control does not activate again automatically.

3.8.20.4 Programming the engine speed cruise control



1. Hand throttle
2. Engine RPM memory button

1. **Set the engine speed.**

   Use the hand throttle to set the desired engine speed value. If the manual driving mode is selected, you can also use the drive pedal to set the wanted engine speed.

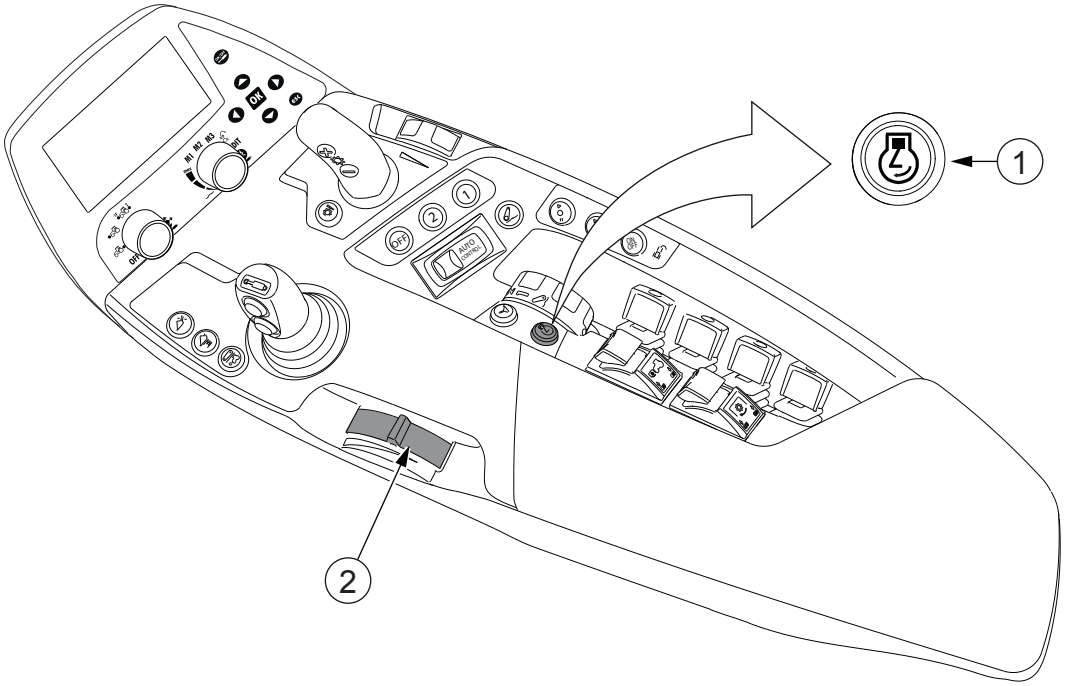
2. **Press the engine RPM memory button shortly.**

   The setting is activated and stored in the memory. The indicator light is continuously lit.

   NOTE: In the automatic driving mode, both engine speed cruise control and driving speed cruise control can be activated. In the manual driving mode, only either one of the two cruise control types can be activated at a time.

3.8.20.5 Activating and deactivating the engine speed cruise control

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



1. Engine RPM memory button
2. Hand throttle

- **Activate the engine speed cruise control.**
  - **Activate an engine speed value that is already saved in the memory by pressing the engine RPM memory button shortly (less than two seconds).**
  - **Save a new engine RPM value into the memory and activate it by setting the desired engine RPM with the hand throttle or drive pedal and pressing the engine RPM memory button for a longer time (two seconds).**
- **Deactivate the engine speed cruise control.**
  - **Press the engine RPM memory button shortly (less than two seconds).**

When the engine speed cruise control is activated and the automatic driving mode is selected, pressing the drive pedal increases the driving speed only and not the engine speed.

3.8.21 Limiting the engine speed

With the engine speed limiting function, you can limit the maximum engine speed. The function limits the maximum engine speed in all conditions, also when using the cruise control.

NOTE: If the maximum engine speed has been set from the tractor terminal menu, engine brake force may be reduced.

The engine speed limiting function is useful when using the power take-off (PTO) driven equipment. The adjustment is made through the tractor terminal.

1. **Press ESC.**
2. **Navigate to the menu 2 with the up and down arrow buttons.**

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3. **Press the right arrow button to enter the transmission settings view.**

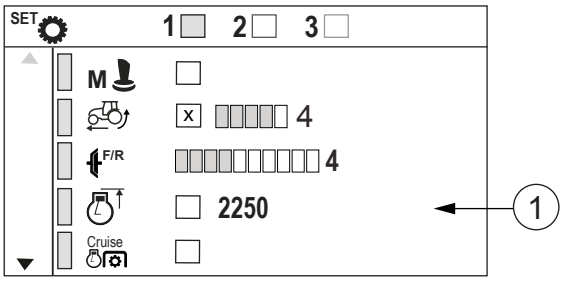
   NOTE: You can enter the settings view by pressing the push button for tractor terminal transmission settings view.

4. **Select the wanted memory slot with the left and right arrow buttons.**

5. **Move the navigation box to the maximum engine speed position with the up or down arrow buttons or by rotating the selector for the predefined factory/user settings.**

6. **Press the right arrow button, OK button or the selector for the predefined factory/user settings.**

7. **Select the desired value of the maximum engine speed limitation by pressing the up or down arrow button or by rotating the selector for the predefined factory/user settings.**



1. Setting for the maximum engine speed

- When the box is checked, the maximum engine speed limitation is engaged.
- When the box is not checked, the maximum engine speed limitation is disengaged.

8. **Press the right arrow button, OK button or the selector for the predefined factory/user settings.**

9. **Select the maximum engine speed by pressing the up or down arrow button or by rotating the selector for the predefined factory/user settings.**

   The maximum engine speed can be selected between 1 000-2 250 rpm with 50 rpm intervals.

10. **Press the left arrow button or the selector for the predefined factory/user settings to return to the transmission settings view main level.**

With a short press of the ESC button you can return to the menu 2. A long press of the ESC button returns to the previously active drive display.

When the maximum engine speed is achieved, the limit symbol for the maximum engine speed starts blinking under the tractor figure on the tractor terminal display.

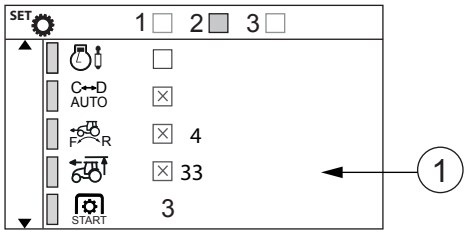
3.8.22 Limiting the maximum driving speed

With the maximum driving speed function, you can limit the maximum driving speed of the tractor. The function limits the driving speed in all conditions, also when using the cruise control.

The adjustment of the maximum driving speed is done on the tractor terminal.

1. **Press ESC.**
2. **Navigate to the menu 2 with the up and down arrow buttons.**
3. **Press the right arrow button to enter the transmission settings view.**

   NOTE: You can enter the settings view by pressing the push button for tractor terminal transmission settings view.
4. **Select the wanted memory slot with the left and right arrow buttons.**
5. **Move the navigation box to the maximum driving speed position with the up and down arrow buttons or by rotating the selector for the predefined factory/user settings.**
6. **Press the right arrow button, OK button or the selector for the predefined factory/user settings.**
7. **Select the desired status of the driving speed limitation by pressing the up or down arrow button or by rotating the selector for the predefined factory/user settings.**



1. Setting for the maximum driving speed

- When the box is checked, the maximum driving speed limitation is engaged.
- When the box is not checked, the maximum driving speed limitation is disengaged.

8. **Press the right arrow button, OK button or the selector for the predefined factory/user settings to set the maximum driving speed.**
9. **Select the maximum driving speed in km/h by pressing the up or down arrow buttons or by rotating the selector for the predefined factory/user settings.**

   The maximum driving speed can be selected between 1–40 km/h (on 50 km/h models 1–50 km/h) with 1 km/h intervals.

10. **Press the left arrow button or the selector for the predefined factory/user settings to return to the transmission settings view main level.**

With a short press of the ESC button you can return to the menu 2. A long press of the ESC button returns to the previously active drive display.

When the maximum driving speed is achieved, the limit symbol for the maximum driving speed starts to flash under the tractor figure on the tractor terminal display.

3.8.23 Front axle suspension and cab suspension

3.8.23.1 Front axle suspension

Driving a tractor with suspension on the front axle is comfortable on uneven ground. The front axle suspension is extra equipment.

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

3.8.23.2 AutoComfort cab suspension

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

The AutoComfort cab suspension system is extra equipment.

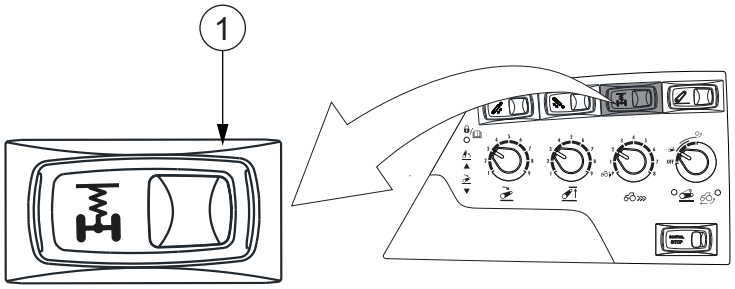
The AutoComfort system adjusts the damping automatically based on:

- Unevenness of the driving surface
- Driving speed
- Position of the power shuttle lever
- Braking
- Front axle movement

3.8.23.3 Using the hydraulic front suspension and AutoComfort

The hydraulic front suspension and the AutoComfort cab suspension are optional equipment.

IMPORTANT: The hydraulic front suspension and AutoComfort are not active when the parking brake is engaged or the tractor is stationary.



1. Switch for hydraulic front suspension and AutoComfort

The switch has three positions:

- Calibrating position
- Center position
- Locked position

- **To activate the suspension and AutoComfort, push the switch to the center position.**

  The indicator light on the switch comes on.

  When the switch is in the center position, the automatics keep the tractor front level in the middle of the suspension area, regardless of the load, and give a smooth ride.

  When the driving speed is below 1 km/h, the automatics disengage the hydraulic front suspension. The hydraulic front suspension then operates only with the pressure remaining in the system. When the speed is over 1 km/h, the automatics engage the hydraulic front suspension again. This way, it is possible to prevent undesired change of height, for example when coupling implements or during other front linkage operations where precise movements are needed.

  AutoComfort stays active when the switch is in the center position, regardless of the driving speed.

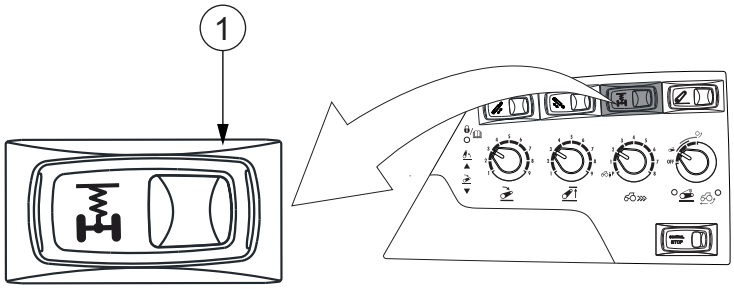
- **To lock the suspension, press down the switch side opposite to the symbol.** The tractor front is in the lowest position and locked. AutoComfort is active even when the switch is in the locked position.

- **If the indicator light on the switch begins to flash, contact an authorized Valtra workshop.**

3.8.23.4 Calibrating the hydraulic front suspension and AutoComfort

Calibrating has to be carried out if the position sensor has been changed or the front axle is not in the middle of the suspension area.

IMPORTANT: The hydraulic front suspension and AutoComfort are not active when the parking brake is engaged or the tractor is stationary.



1. Switch for hydraulic front suspension and AutoComfort (optional)

1. **Keep the tractor stationary with the engine running when calibrating.**
2. **Check that there is no load on the front linkage or front loader.**
3. **Check that the four-wheel drive (4WD) and parking brake are not engaged.**
4. **Keep the symbol side of the switch pressed down for approximately 15 seconds.**
   The light on the switch flashes as an indicator of the calibration process. The cab and the front axle are first lowered simultaneously for 40 seconds, after which they are raised for 80 seconds. When the calibrating is done, the light goes off. If the light does not go off, contact an authorized Valtra workshop.
5. **Start to drive.**

   At the speed of 1 km/h, the front axle and the cab move to the center position.
6. **When the front axle and the cab are in the center position, finalize the calibration.**
   - **Stop the tractor.**
   - **Turn off the engine.**
   - **Shut down the power.**
   - **Restart.**

3.8.24 Differential lock

3.8.24.1 Differential lock

The differential lock is used to ensure an even grip for the wheels by locking the rear wheels to rotate at the same speed. The differential lock can be engaged while driving.

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

ON	The differential lock is engaged except in the following conditions: • One or both brake pedals are pressed (the lock re-engages when the brake is released). • The parking brake is engaged.
AUTO	The differential lock engages in the following conditions: • The wheels are in the middle position. • The lifting/stop/lowering switch is in the lowering position. The differential lock disengages in the following conditions: • The wheels are turned more than 20% from the middle position. • The lifting/stop/lowering switch is turned to the lifting position. • One or both brake pedals are pressed. When controlled by the radar, the differential lock engages when all of the following conditions are met: • The speed difference between the rear wheel speed sensor and the gearbox output speed sensor is more than 7%. • The driving speed is higher than 0.3 km/h. • The radar speed and the gearbox output speed are less than 15 km/h. • The wheels are in the middle position. If the tractor is equipped with the steering angle sensor, the differential lock disengages in the following conditions: • The wheels are turned more than 20% from the middle position. • The speed difference between the radar and the gearbox output speed sensor is less than 6%. The disengaging delay is 5 seconds. • One or both brake pedals are pressed. • The lifting/stop/lowering switch is turned to the lifting position. • The clutch pedal is pressed.
OFF	The differential lock is always 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:

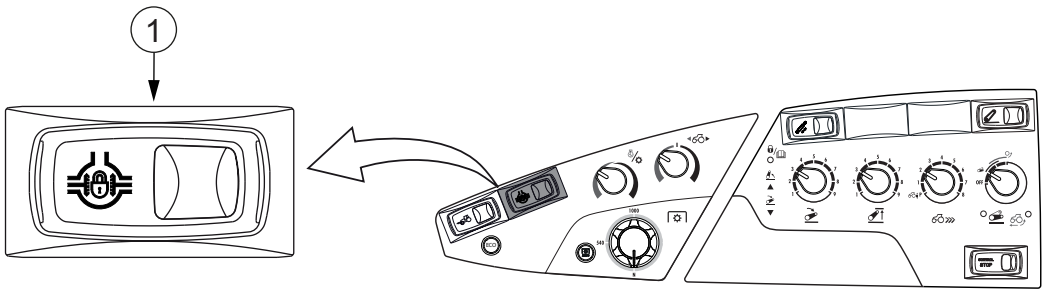
- The speed sensors are not calibrated.
- The turning angle sensor is not calibrated (contact an authorised Valtra workshop).
- There is a fault in the switch (the service code is displayed).
- There is a fault in the speed sensors (the service code is displayed).

3.8.24.2 Engaging and disengaging the differential lock

You can control the engagement of the differential lock with the differential lock switch.

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).**

  The switch light is lit green.
- **To disengage the differential lock, press down the side of the differential lock switch opposite to the symbol (OFF).**

3.8.25 Four-wheel drive

3.8.25.1 Four-wheel drive

The four-wheel drive (4WD) has three positions: ON, AUTO and OFF. The 4WD can be engaged while driving. When starting to drive, the driving start automatics control the 4WD, regardless of the 4WD switch positions.

Position	Description
ON	The 4WD is always engaged.
AUTO	The 4WD engages when one or more of the following conditions are met: • When starting to drive. • When using the power shuttle. • When the rear wheels slip more than 8% in a speed of 0.3 km/h or more. The 4WD disengages: • When the driving speed is higher than 10 km/h and the wheel slip is less than 6%. The disengagement delay is 3 seconds. • When pressing the clutch pedal. • When the wheel slip is less than 6%. The disengagement delay is 3 seconds. • After the driving start automatics' disengagement delay.
OFF	4WD is disengaged except in the following situations: • Both brake pedals or the brake pedal of the reverse drive system are pressed at any speed. • Either left or right brake pedal is pressed when the driving speed is higher than 10 km/h. • The parking brake is engaged.

The driving start automatics (activated by default) engage the 4WD in the following situations:

- When starting to drive or using the power shuttle.
- When pressing and releasing the clutch pedal while the driving speed is lower than 10 km/h.
- The automatics disengage the 4WD after a defined delay after releasing the clutch pedal. You can define the disengagement delay from the tractor terminal.

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

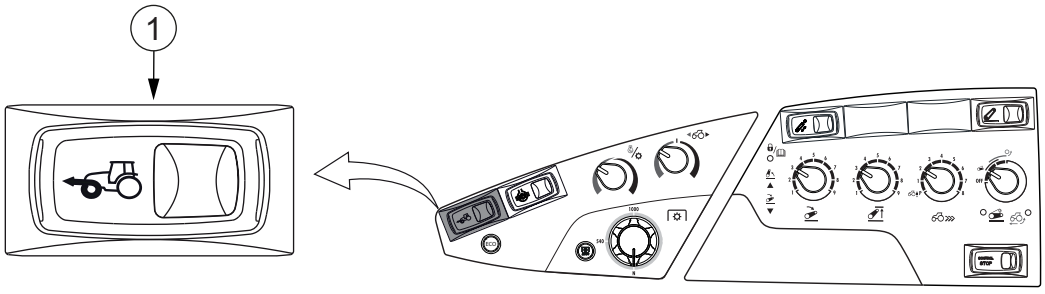
If the indicator light on the instrument panel flashes in the automatic position, there is an error and the 4WD engages. The reason for the error may be one of the following:

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

3.8.25.2 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 and 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).**

  The switch light is lit green.

- **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).**

3.8.26 Driving start automatics

3.8.26.1 Driving start automatics

Driving start automatics can be used to prevent the rear wheels from slipping while starting to drive or when changing the driving direction with the power

shuttle. The driving start automatics engage the four-wheel drive automatically, regardless of the level of wheel slip.

If the clutch pedal has been pressed while starting to drive or when changing the driving direction, the four-wheel drive remains engaged until the clutch pedal is fully released.

If the clutch pedal has been pressed while driving, the driving start automatics engages when releasing the clutch pedal.

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

The driving start automatics is controlled from the tractor terminal by activating and deactivating the function or setting the time that the four-wheel drive remains engaged.

3.8.26.2 Setting the driving start automatics

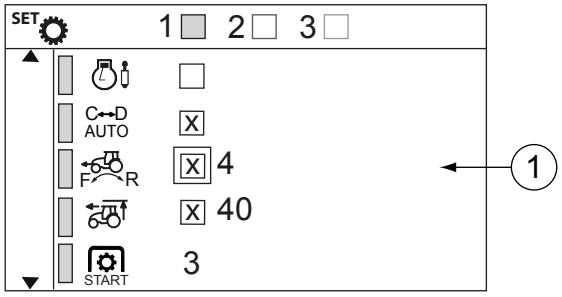
The driving start automatics is set through the tractor terminal transmission settings.

1. **Press ESC.**
2. **Navigate to the menu 2 with the up and down arrow buttons.**
3. **Press the right arrow button to enter the transmission settings view.**

   NOTE: You can enter the settings view by pressing the push button for tractor terminal transmission settings view.

4. **Move the navigation box to the driving start automatics position F R 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.



1. Setting the driving start automatics

5. **Select the desired status of the driving start automatics with the up or down arrow button.**
   - When the box is checked the driving start automatics is engaged.
   - When the box is not checked the driving start automatics is disengaged.

6. **Change the four–wheel drive engagement time value with the up or down arrow button.**

   The value can be chosen between 0 and 30 seconds.

   When the value is set to 0 seconds the driving start automatics is disengaged.

   The value is automatically saved when you deactivate the selected field by moving the navigation box to another parameter or by pressing the ESC button.

With a short press of the ESC button you can return to the menu 2. A long press of the ESC button returns to the previously active drive display.

3.8.27 Anti-slip regulation

3.8.27.1 Anti-slip regulation

The anti-slip regulation (ASR) assists in maintaining the optimal wheel slipping on different surfaces, so that traction is as efficient as possible. When driving in the field, a certain slipping percentage at a certain driving speed is required in order to achieve the optimal traction efficiency. When the wheels slip, they dig into the ground, the tires' contact surface with the ground increases and traction improves. The optimal slipping percentage depends on the driving speed, surface quality and type and the load the tractor imposes on the surface. The ASR makes the driving more stable and assists on slippery surfaces by controlling the engine power and tractor speed. The ASR is available in the automatic driving mode.

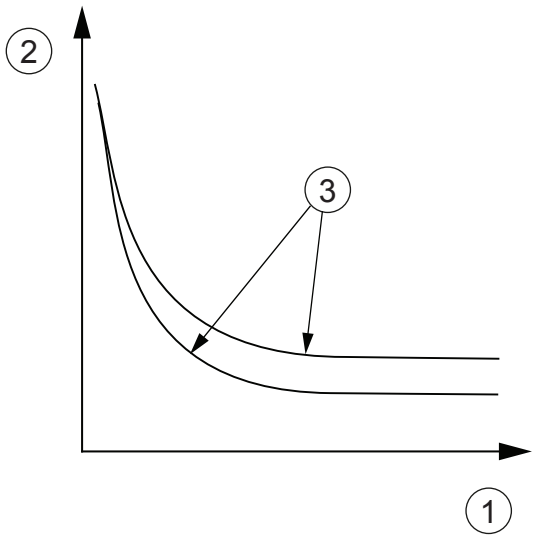
You can activate and set the ASR in the tractor terminal. There are five setting values available, from which the higher values allow for a higher slipping percentage. You can use any of the setting values on any surface type, depending on the work at hand and your preference. If the slipping percentage is not the best possible for a certain task, you can change the value or deactivate the ASR at any time. If you do not know which setting to use, we recommend that you select setting 5. The following table provides examples for selecting the setting depending on surfaces and tasks.

Surface	Driving speed (km/h)	Setting value	Desired slipping (%)
Default setting	any	off	-
Water, high vegetation	any	off	-
Field (maximum force)	any	5	< 50
Field	5 - 25	3	20 - 30
Field (maximum efficiency)	5 - 25	2	10 - 20
Field (maximum efficiency)	2 - 4	1	10 - 20
Field	< 1	off	-
Asphalt	any	off	-
Gravel	any	5 / off	< 100
Ice and snow	5 - maximum	3 - 5	< 50

When driving on soft surfaces, reducing the tire pressure and increasing the load with ballast weights can also make driving more efficient. This increases the tires'

contact area on the surface, which in soft surfaces makes the traction more efficient.

Although the optimal slipping percentage on a soft surface at typical driving speeds is between 15...25%, the ASR allows for much higher slipping percentages when the driving speed is very slow. This helps with accelerating back to the desired driving speed for example after turning the tractor or changing the driving direction with the power shuttle. When the driving speed increases, the allowed slipping decreases until the optimal level is achieved. This level is then maintained up to the maximum driving speed.



1. Driving speed
2. Slipping percentage
3. Optimal slipping percentage of two ASR setting curves

It is possible to override the ASR temporarily by pressing the drive pedal fully down. The ASR is in use up to the full speed when the driving speed is controlled by the hand throttle or the driving speed cruise control.

3.8.27.2 Using the anti-slip regulation

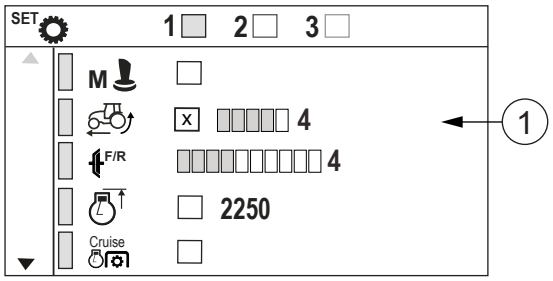
You can activate and set the anti-slip regulation (ASR) in the tractor terminal. When the ASR is activated, the symbol appears on the tractor terminal. When the ASR regulates slipping, the symbol blinks.

1. **Press ESC.**
2. **Navigate to the menu 2 with the up and down arrow buttons.**
3. **Press the right arrow button to enter the transmission settings view.**

   NOTE: You can enter the settings view by pressing the push button for tractor terminal transmission settings view.

4. **Move the navigation box to the ASR 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.



1. Setting the ASR

5. **Select the desired status of the ASR with the up or down arrow button.**
   - When the box is checked the ASR is activated.
   - When the box is not checked the ASR is deactivated.

6. **Change the slip regulation value with the up or down arrow button.**

   The value can be chosen between 1 and 5. Value 1 allows for lowest slipping percentage. Value 5 allows for highest slipping percentage.

   The value is automatically saved when you deactivate the selected field by moving the navigation box to another parameter or by pressing the ESC button.

With a short press of the ESC button you can return to the menu 2. A long press of the ESC button returns to the previously active drive display.

3.8.28 QuickSteer

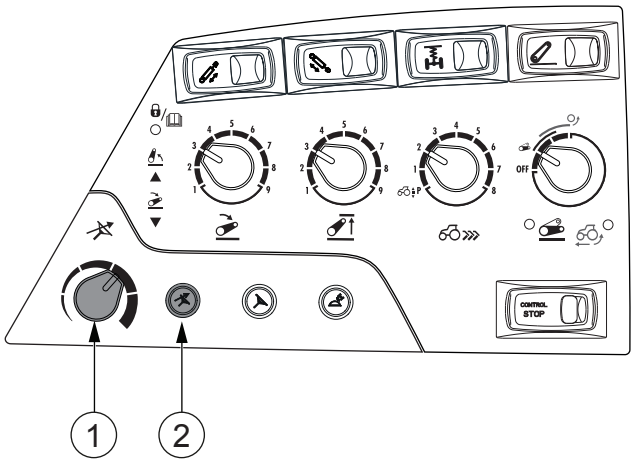
3.8.28.1 QuickSteer

QuickSteer is a steering system controlled by an electrohydraulic steering valve. QuickSteer means adjustable steering ratio which gives a great advantage whenever the driver needs to steer a lot, for example when driving in a small yard or when doing front loader work. QuickSteer is optional equipment.

QuickSteer has five manually set steering speeds for both forward and reverse driving. The steering speed setting is dependent on the driving speed so that the difference between different steering speeds is more substantial at low driving speeds, whereas at the speed of 20 km/h the steering speed is fixed.

NOTE: When driving on a slippery road with QuickSteer activated, the steering speed decreases if the tractor is in a four-wheel slide and you try to increase the speed. Therefore, it is recommended to use the slowest QuickSteer setting when driving on slippery surfaces.

3.8.28.2 Using QuickSteer



1. QuickSteer control knob
2. QuickSteer activation button

1. **To turn the steering valve on, press the QuickSteer activation button.**

   The QuickSteer activation button light is lit green, and the QuickSteer symbol is displayed on the Proline instrument panel.

2. **Turn the QuickSteer control knob to set the steering speed.**

3. **To turn the steering valve off, press the QuickSteer activation button.**

   The steering valve can be turned off only with the forward drive system. When the driver's seat is turned to the TwinTrac reverse drive system (optional equipment) the valve is always on, even if QuickSteer is not active.

   Pressing the Auto-Guide steering valve ON/OFF button also deactivates QuickSteer and activates the steering of Auto-Guide.

   NOTE: If the light on the QuickSteer activation button or the Auto-Guide steering valve ON/OFF button (optional equipment) is flashing, there is a fault in the steering valve. A fault code is shown on the armrest display. Reset the steering valve to recover from the fault.

   When QuickSteer is activated, driving speed is limited to 25 km/h. You have to deactivate QuickSteer in order to drive at a speed higher than the limit. If you want to activate QuickSteer again, the driving speed has to be below 25 km/h.

   NOTE: In case of a fault in the steering valve, the vehicle speed is forced to ramp down and only slow speed driving (2 km/h) is allowed with the drive pedal. Turning the steering valve off eliminates the driving speed restriction.

3.8.28.3 Resetting QuickSteer

- **Press the QuickSteer activation button or the Auto-Guide steering valve ON/OFF button (optional equipment) once.**

  The steering valve is turned OFF after which the system turns the valve back ON. The valve is turned back on automatically only if the TwinTrac reverse drive system is in use.

  If the light is still blinking, the fault persists. In this case, contact an authorised Valtra workshop.

3.8.29 TwinTrac reverse drive system

3.8.29.1 TwinTrac reverse drive system

TwinTrac is a driving system that allows the driver to turn the seat around and face the reverse direction while driving with the TwinTrac driving controls. The driving controls and functions of the TwinTrac driving system are similar to the main driving controls. TwinTrac is optional equipment.

Turning the driver's seat to the TwinTrac position activates TwinTrac and turns the electrohydraulic steering valve ON. You cannot turn the electrohydraulic steering valve OFF while using TwinTrac.

Turning the driver's seat to the normal driving position deactivates TwinTrac and turns the electrohydraulic steering valve OFF.

When the tractor is stationary, the driving position (forward or reverse) becomes inactive in 5 seconds after the power shuttle lever has been set in position P.

Steering for TwinTrac driving is active also when the seat is turned to TwinTrac driving even if neither of the driving positions is active. In this case, the steering wheel brake is on moderate level, making accidental steering movements less likely.

Steering for forward driving remains active when the driver's seat is turned to the TwinTrac driving position.

IMPORTANT: If the TwinTrac driving steering fails while driving, use the normal driving position steering or, if possible, turn the seat to the normal driving position.

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

3.8.29.2 Activating and deactivating TwinTrac

CAUTION: Do not drive on public roads when using the reverse drive controls.

IMPORTANT: Keep the driving speed below 25 km/h when using the reverse drive controls.

1. **Set the power shuttle to position P.**

   If the main power shuttle lever is not in position P, the driving directions cannot be engaged using the TwinTrac driving controls and the tractor will not move.

2. **Turn the driver's seat to the TwinTrac position.**

   You can now operate the tractor in the same way as with the normal driving position.

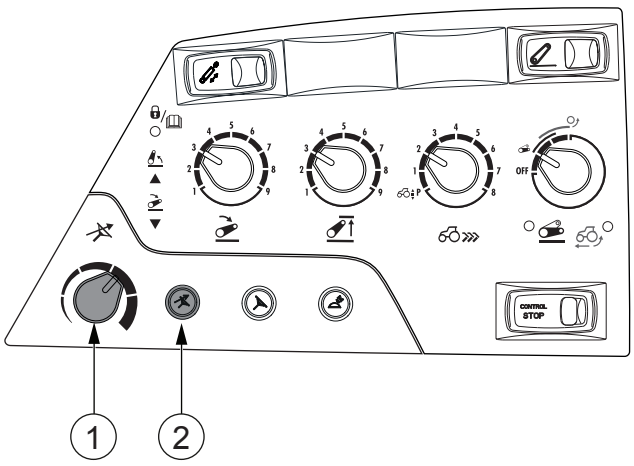
3. **To deactivate TwinTrac:**
   - **Set the TwinTrac power shuttle to position P.**
   - **Turn the driver's seat to the normal driving position.**

3.8.29.3 Using TwinTrac with QuickSteer

You can use either the normal steering or the electrically controlled QuickSteer to steer the tractor.

NOTE: When the driver's seat is turned to the TwinTrac driving position, the steering valve is always on even if QuickSteer is not activated. In this case, the slowest steering speed is used.

NOTE: If the light on the QuickSteer activation button or the Auto-Guide steering valve ON/OFF button (optional equipment) is flashing, there is a fault in the steering valve. A fault code is shown on the armrest display. Reset the steering valve to recover from the fault.



1. QuickSteer control knob
2. QuickSteer activation button

1. **Press the QuickSteer activation button to turn the steering valve on.**

   The QuickSteer activation button light is lit green, and the QuickSteer symbol is lit on the Proline instrument panel.

2. **Turn the QuickSteer control knob to set the QuickSteer steering speed.**

Press the QuickSteer activation button again to turn the steering valve off.

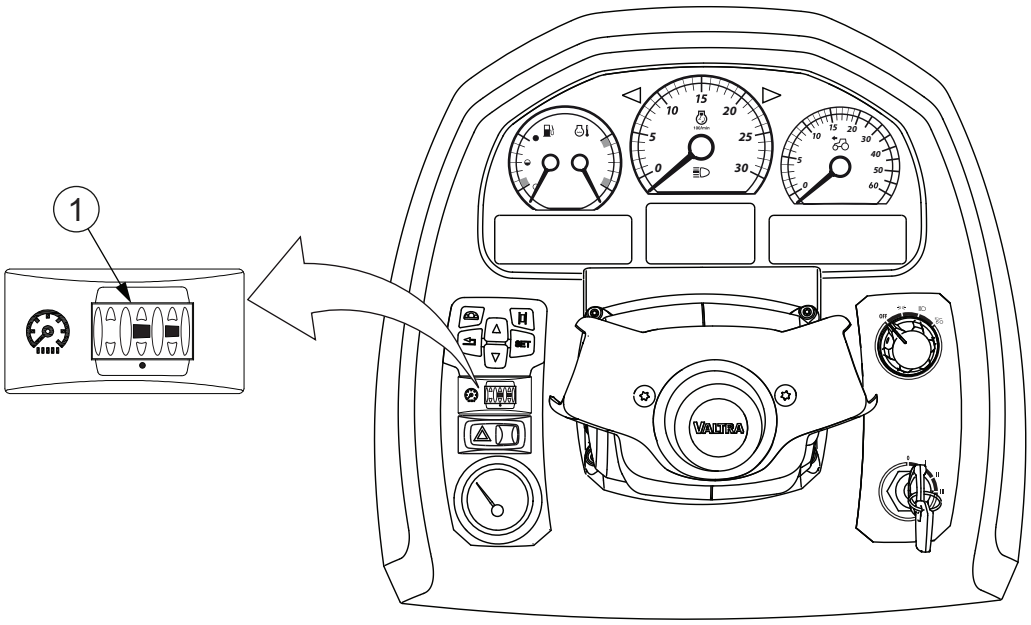
3.9 Displays

The tractor is equipped with the tractor terminal display on the armrest, Proline instrument panel display on the dashboard and the pillar display on the A-pillar and, if the tractor includes the TwinTrac reverse drive system (optional), on the C-pillar display.The C-pillar display shows the same information as the A-pillar display.

The displays give information on the power shuttle, driving speed, fuel consumption and so on. You can view and edit different values and setting parameters via the displays.

3.9.1 Adjusting display brightness

The brightness of the tractor terminal, Proline instrument panel display and A-pillar display is adjusted with the dimmer. In addition, the dimmer adjusts the brightness of the lights in the light panel, air condition panel, the whole Proline instrument panel and all the switches and buttons that have a light.



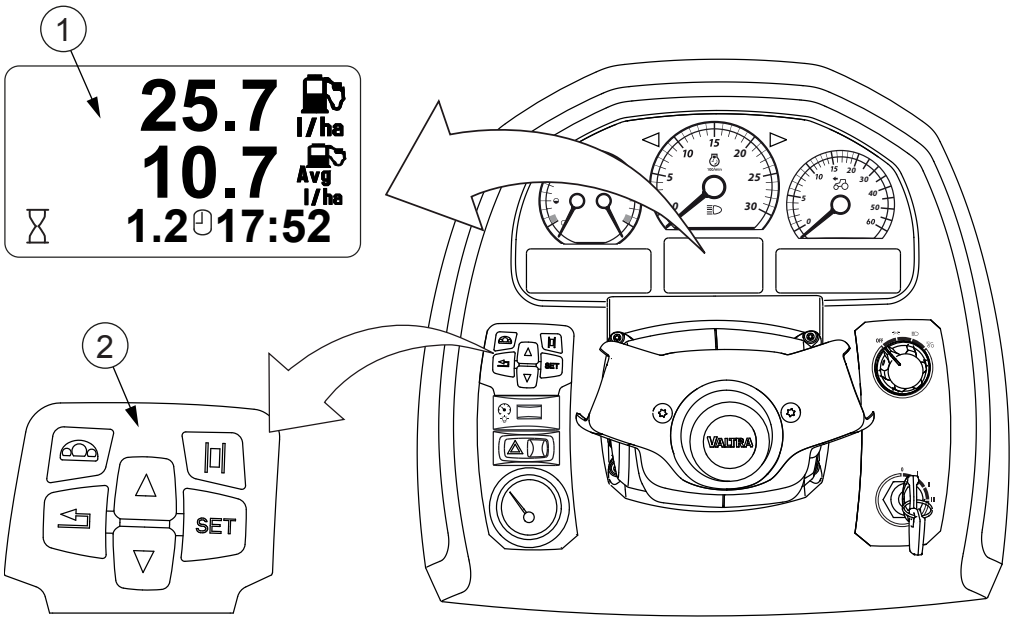
1. Dimmer

- **Scroll the dimmer left or right to increase or decrease the brightness of the displays.**

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3.10 Proline instrument panel display

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



1. Proline instrument panel display
2. Control panel for A-pillar display and Proline

The different views are shown on the display in either two or three rows, depending on the setting view.

- The bottom row view is fixed.
- Some of the views show the data in two rows and some in three.

3.10.1 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 in 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.

3.10.2 Single-row and two-row views

The Proline instrument panel display functions are seen in the middle of the view in the size of two rows or on the top and middle row, depending on the function.

Different functions can be displayed at the same time on both rows.

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

The following functions can be displayed on the display:

Symbol	Function
	Working time (h:mm)
	Battery charge (V)
cruise RPM cruise KMH	Cruise control • RPM = engine speed • KMH = driving speed
km/h/mph	Driving speed (km/h/mph)
	Wheel slip (%, 0-100)
R	Rear power take-off (PTO) speed (rpm)
F	Front power take-off (PTO) speed (rpm)
min⁻¹	Engine speed (rpm)
l/ha	Immediate fuel consumption (ha, acre)
AVG l/ha	Average fuel consumption (ha, acre)
l/h	Immediate fuel consumption
AVG l/h	Average fuel consumption
	Fuel consumption
AC R	Lower link position (%, 0-100)
	Gearbox temperature (C/F)
	Travel distance (m/km/miles)
	Square area (ha)
	Periodical maintenance

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3.10.2.1 Working time view

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

The working time ⧖ appears 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.

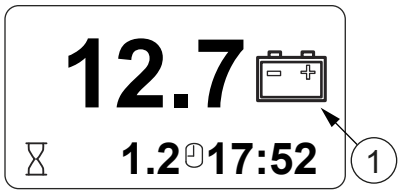
The working time is stored in the memory when the power is turned off.

You can reset the working time counter.

3.10.2.2 Battery voltage view

The battery voltage is shown in volts (V).

The battery voltage view shows the voltage of the battery. The voltage is shown beside the battery symbol in accuracy of one decimal place.

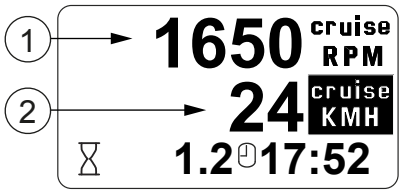


1. Battery voltage

3.10.2.3 Cruise control view

The cruise control controls the rate of motion or the engine speed of the tractor.

The cruise control types cruise RPM cruise KMH appear on the top and middle row of the display.



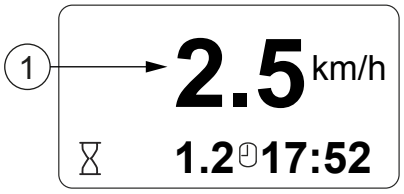
1. RPM = constant engine speed
2. KMH = constant driving speed (engaged)

The numerical value in front of the symbol stands for the value that has been saved for the 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.

3.10.2.4 Driving speed view

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



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.

3.10.2.5 Wheel slip view

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



1. Wheel slip

The wheel slip view 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. For driving speeds below 0.3 km/h, zero is displayed.

3.10.2.6 Rear power take-off speed view

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



1. Rear power take-off speed

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

3.10.2.7 Front power take-off speed view

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

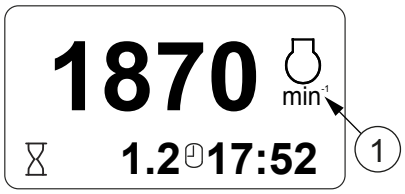


1. Front power take-off speed

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

3.10.2.8 Engine speed view

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



1. Engine speed

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

3.10.2.9 Fuel consumption views

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

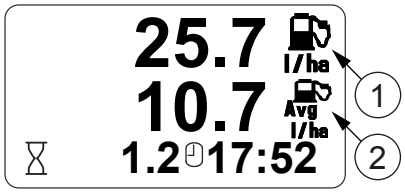
The instant fuel consumption is shown on the top row of the display and the average fuel consumption is shown on the middle row. You can reset the fuel consumption information.

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.

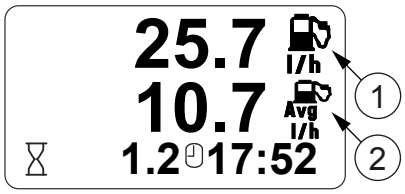
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Instant and average fuel consumption on the area worked



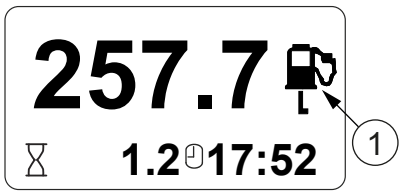
1. Instant fuel consumption on the area worked
2. Average fuel consumption on the area worked

Instant and average fuel consumption in an hour



1. Instant fuel consumption in an hour
2. Average fuel consumption in an hour

Total fuel consumption



1. Total fuel consumption

3.10.2.10 Rear lower links' position view

The view shows the position of the rear lower links AC R.



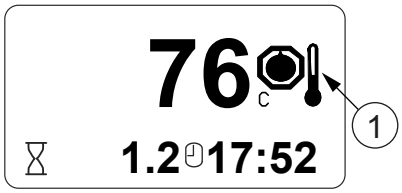
1. Position of the rear lower links

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.

3.10.2.11 Gearbox temperature view



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 between +40-+119°C (+104-+246°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.

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3.10.2.12 Travel distance and surface area view

The view shows the travel distance in metres, kilometres, yards or miles and the surface area in hectares or acres. You can also reset the distance and area readings.

The travel distance and surface area appear on the top and middle row of the display.



1. Travel distance
2. Surface area

The travel distance is displayed as follows:

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

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.

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

3.10.3 Periodical maintenance view



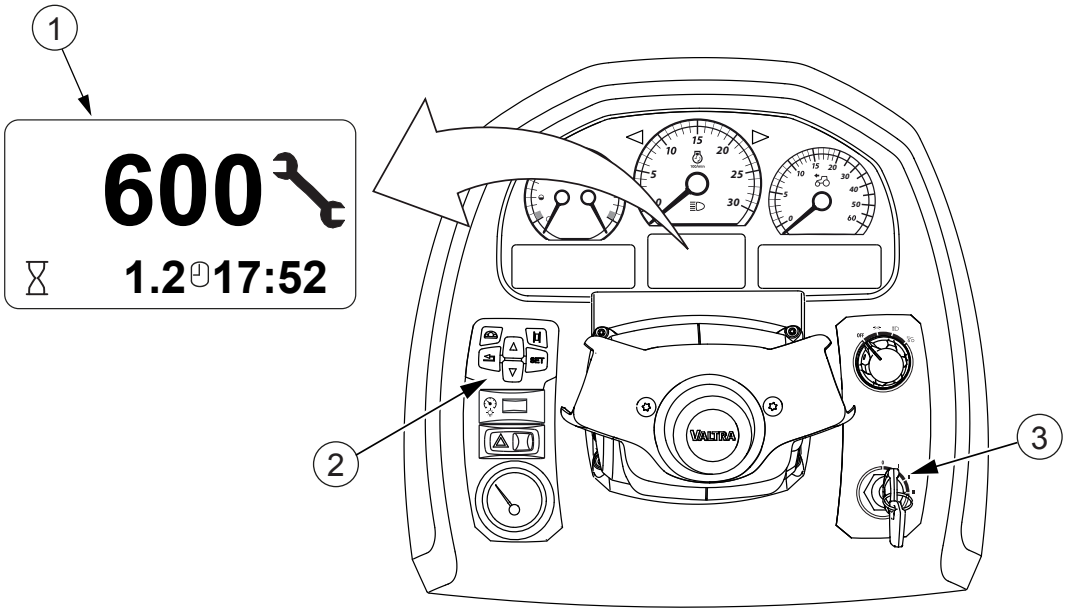
1. Periodical maintenance view

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.

3.10.3.1 Clearing the periodical maintenance view

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



1. Periodical maintenance view
2. Control panel for A-pillar display and Proline
3. Ignition

- **Press and hold SET on the control panel for A-pillar display and Proline.**
- **Simultaneously turn the ignition on.**

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

3.10.4 Resetting views

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



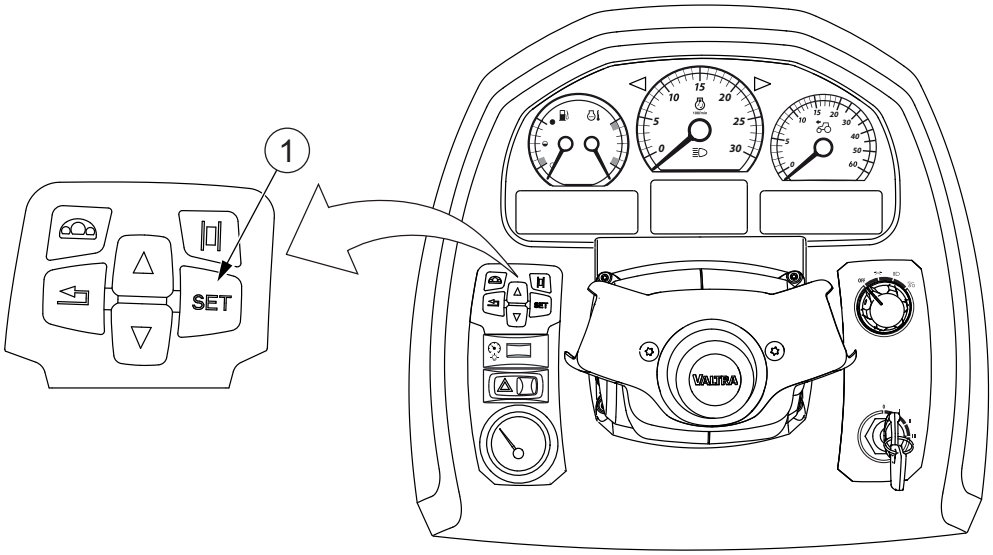
1. Reset view
2. Symbols for views that are reset

1. **Navigate to the Reset view with the arrow buttons.**
2. **Press and hold the SET button until the text RESET blinks three times.**
3. **When the blinking stops, release the SET button.**
   The counters are reset to zero.

3.10.5 Changing parameters

3.10.5.1 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 **SET** button until the symbol for the value to be set is blinking.

2. **Display the available parameters.**

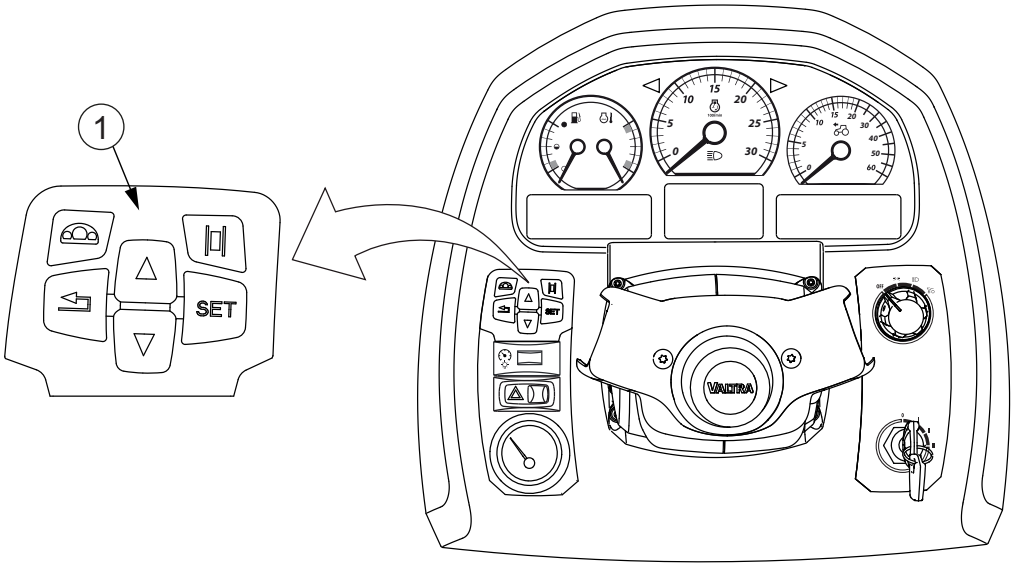
   Press the side of the display setting switch opposite to the symbol. The available parameters are presented in the following table.

Parameter	Parameter value
Implement width	0–6 500
Set clock	Hours and minutes
Clock mode	12–hour or 24–hour
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 the button to save the value and return to the previous display.

3.10.5.2 Changing the parameter value



1. Control panel for A-pillar display and Proline

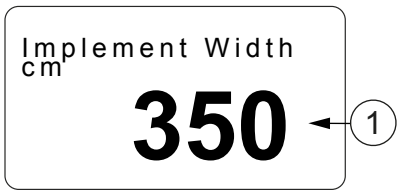
- **Increase a parameter value.**
  - **Press the up arrow button.**
    The parameter value increases one step at a time.
  - **Press and hold down the up arrow button.**
    The parameter value increases continuously.

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- **Decrease a parameter value.**
  - **Press the down arrow button.**
    The parameter decreases one step at a time.
  - **Press and hold down the down arrow button.**
    The parameter value decreases continuously.
- **Select the next parameter to be changed.**

  Press the **SET** button.

3.10.5.3 Setting the implement width



1. Implement width

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

3.10.5.4 Changing the hour display



1. Hour display

1. **Activate the hour display in the setting mode with the SET button.**

   When the hour display is blinking, you can set the hours.
2. **Change the value with the arrow buttons.**

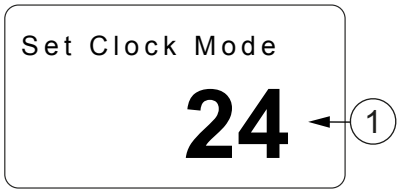
3.10.5.5 Changing the minute display



1. Minute display

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

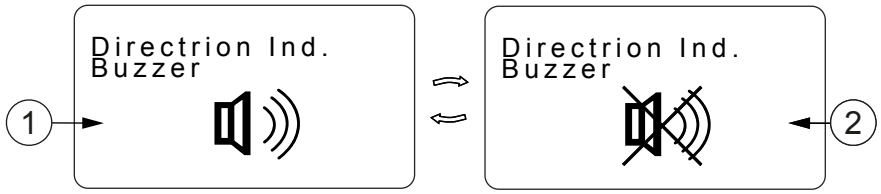
3.10.5.6 Changing the clock mode



1. Clock mode

1. **Activate the clock mode in the setting mode with the SET button.**
2. **Change the display to either 12-hour or 24-hour mode with the arrow buttons.**

3.10.5.7 Activating the direction indicator buzzer



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

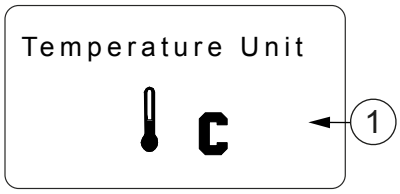
1. **Activate the direction indicator buzzer setting with the SET button.**

2. **Change the direction indicator buzzer to either on or off with the arrow buttons.**

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

3.10.5.8 Changing the temperature unit

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

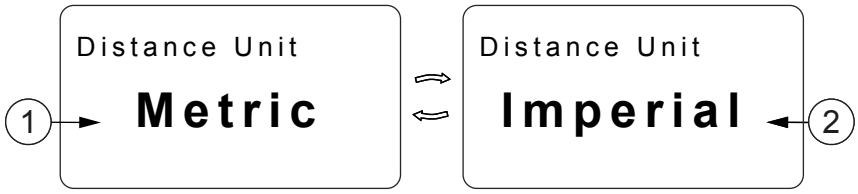


1. Temperature unit

1. **Activate the unit of temperature in the setting mode with the SET button.**
2. **Change the unit to C or F with the arrow buttons.**

3.10.5.9 Changing the length unit

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



1. Metric units
2. Imperial units

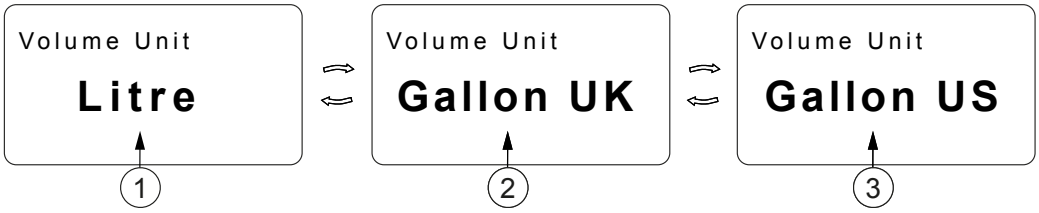
1. **Activate the unit of length in the setting mode with the SET button.**
2. **Change the unit to either metric or imperial mode with the arrow buttons.**

   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

3.10.5.10 Changing the volume unit

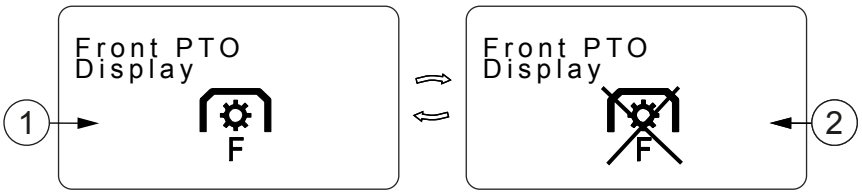
You can change the unit of volume to be shown in either litre, gallon UK or gallon US mode.



1. Litre
2. Gallon UK
3. Gallon US

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

3.10.5.11 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 with the SET button.**
2. **Activate or deactivate the front PTO speed view with the arrow buttons.**

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

3.10.5.12 Adjusting the display contrast

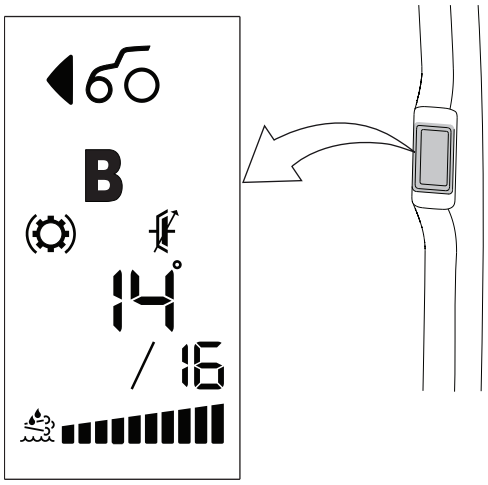


1. Display contrast

1. **Activate the display contrast in the setting mode with the SET button.**
2. **Adjust the display contrast with the arrow buttons.**
   The minimum contrast value is 80 and the maximum value is 120.

3.11 A-pillar display

The A-pillar display is located on the right-hand side front pillar.



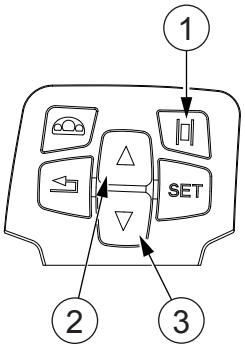
The A-pillar display gives information on the tractor's current status such as transmission or driving speed, and some general information like outside temperature.

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

3.11.1 A-pillar display control panel

The A-pillar display control panel is located on the dashboard.

You can use the control panel for changing between different views in the display.



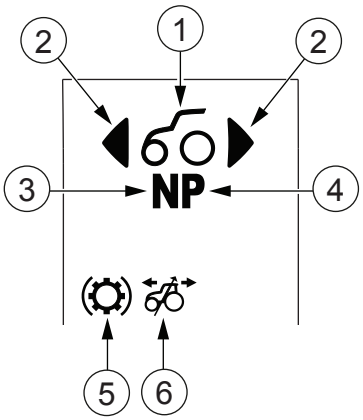
1. A-pillar display selection
2. Arrow up
3. Arrow down

- You can change the control panel operation from the Proline instrument panel to A-pillar with the A-pillar display selection button. By default, Proline is active in the control panel.
- You can scroll between functions and views with the up and down arrow buttons.

3.11.2 Drive display

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

3.11.2.1 Power shuttle section



1. Tractor symbol
2. Forward/reverse driving direction arrow
3. Transmission neutral symbol
4. Parking brake symbol
5. Standstill symbol
6. Speed balance symbol

Tractor symbol

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

Forward/reverse driving direction arrow

The arrow shows which driving direction, forward or reverse, is engaged. The arrow flashes if the power shuttle has been operated at a driving speed over 10 km/h.

Transmission neutral symbol

The neutral (N) symbol flashes when the transmission is in neutral state and when the automatic traction control is activated.

Parking brake symbol

The parking brake (P) symbol is shown when the parking brake is on. The symbol flashes when the parking brake is set but not yet engaged.

Standstill symbol

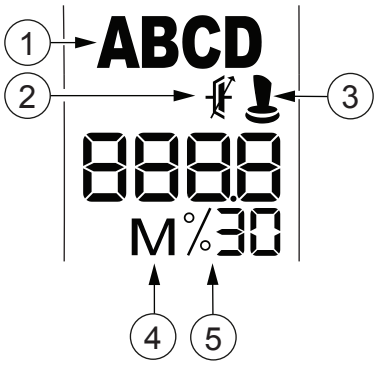
The standstill symbol is lit when the standstill function is active.

Speed balance symbol

Speed balance symbol is shown if the speed balance control knob has been turned to either direction. When the speed balance control knob is in the middle

position, that is, driving speed to either direction is not reduced by using the knob, this part of the display is empty.

3.11.2.2 Transmission section



1. Speed range symbol
2. Turbine clutch imitation symbol
3. Transmission mode, drive lever driving symbol
4. Transmission mode, manual driving symbol
5. Transmission ratio symbol

Speed range symbol

The selected speed range letter (A, B, C, D) is shown in the transmission section. When changing the speed range, the letter for the requested speed range is flashing until the selected speed range is engaged.

Turbine clutch imitation

The turbine clutch imitation symbol is lit when the turbine clutch imitation function is being used. The symbol flashes when the turbine clutch imitation is enabled during driving.

The symbol is also displayed if the brakes are applied heavily (drive is disengaged).

Transmission mode symbols

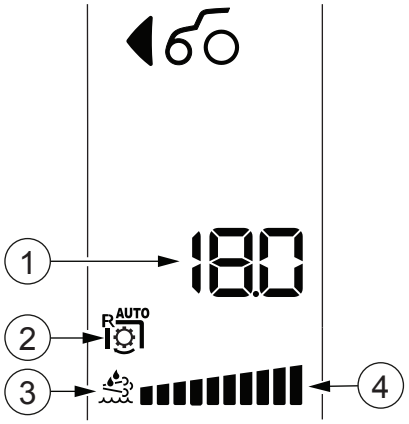
The drive lever symbol shows when the drive lever driving mode is in use. The letter M indicates that the manual driving mode is in use. When the automatic drive mode is active (default), this part of the display is empty.

Transmission ratio symbol

The transmission ratio symbol is lit when the manual driving mode is being used. In the manual mode, the number field in the middle of the display shows the transmission ratio in percentage %00 (CVT ratio) as determined by the position of the transmission adjustment lever. In the automatic mode, the maximum speed /00 (kmh/mph) is displayed.

3.11.2.3 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. Value of selected property
2. Power take-off (PTO) symbol
3. AdBlue symbol
4. AdBlue level bar

Driving speed information

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)

Power take-off (PTO) information

- In the basic mode view, the symbol for the rear PTO R is shown only if the rear 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 symbol for the front PTO F is shown only if the front PTO is rotating. If front PTO is selected as fixed, also the rotating speed is shown on the bottom line. The accuracy of the speed view is 10 rpm.

  If both the rear PTO and front PTO are rotating, the rear PTO speed is shown.
- The symbol for the Auto PTO R AUTO is displayed when the Auto PTO function is enabled.

AdBlue information

- The AdBlue level bar indicates the level of the AdBlue/DEF under normal operation.

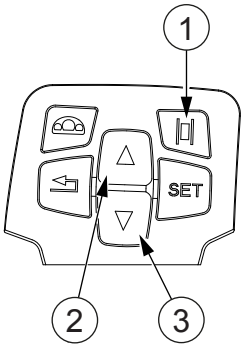
AdBlue level bar indication	AdBlue level
10%	AdBlue symbol is lit for 10 seconds.
5%	AdBlue symbol is lit continuously.
0%	AdBlue symbol blinks. Engine's power output begins to decreases in stages. After 30 minutes the engine remains idle.

IMPORTANT:

In some situations (for example, after working with a heavy load) when you engage the parking brake, the engine may perform cooling of the after-treatment system by increasing the idling rpm momentarily. The word COOL flashes on the A-pillar display.

3.11.2.4 Changing general information section views

You can scroll the function views by pressing the up and down arrows in the control panel.



1. A-pillar display selection
2. Arrow up
3. Arrow down

1. **To operate the A-pillar display with the control panel, press the A-pillar display selection button.**

2. **Press the up and down arrows in the control panel to scroll between the function views.**

   The views are organised in the following order:

   1. Rear PTO / Front PTO / Driving Speed / Temperature (the highest priority is shown)
   2. Driving Speed / Temperature (the highest priority is shown)
   3. Rear PTO (fixed view)
   4. Front PTO (optional equipment) (fixed view)
   5. Temperature (fixed view)

   When both the rear power take-off and front power take-off are in use, the rear power take-off speed is shown on the A-pillar display.

   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 temperature.

The last used display mode is saved when you turn off the power.

3.12 Tractor terminal

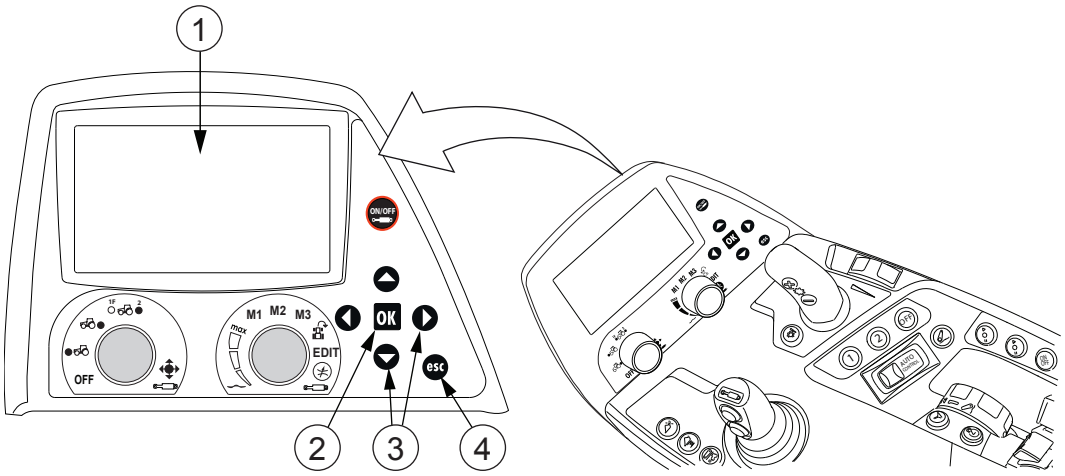
The tractor terminal display and keypad are placed on the right-hand side armrest.

In the tractor terminal application views, you can view and 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 measurement units.
- The settings for auxiliary hydraulics functions.
- The settings for transmission parameters.
- The settings of the tractor terminal parameters.
- The active service codes.

3.12.1 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

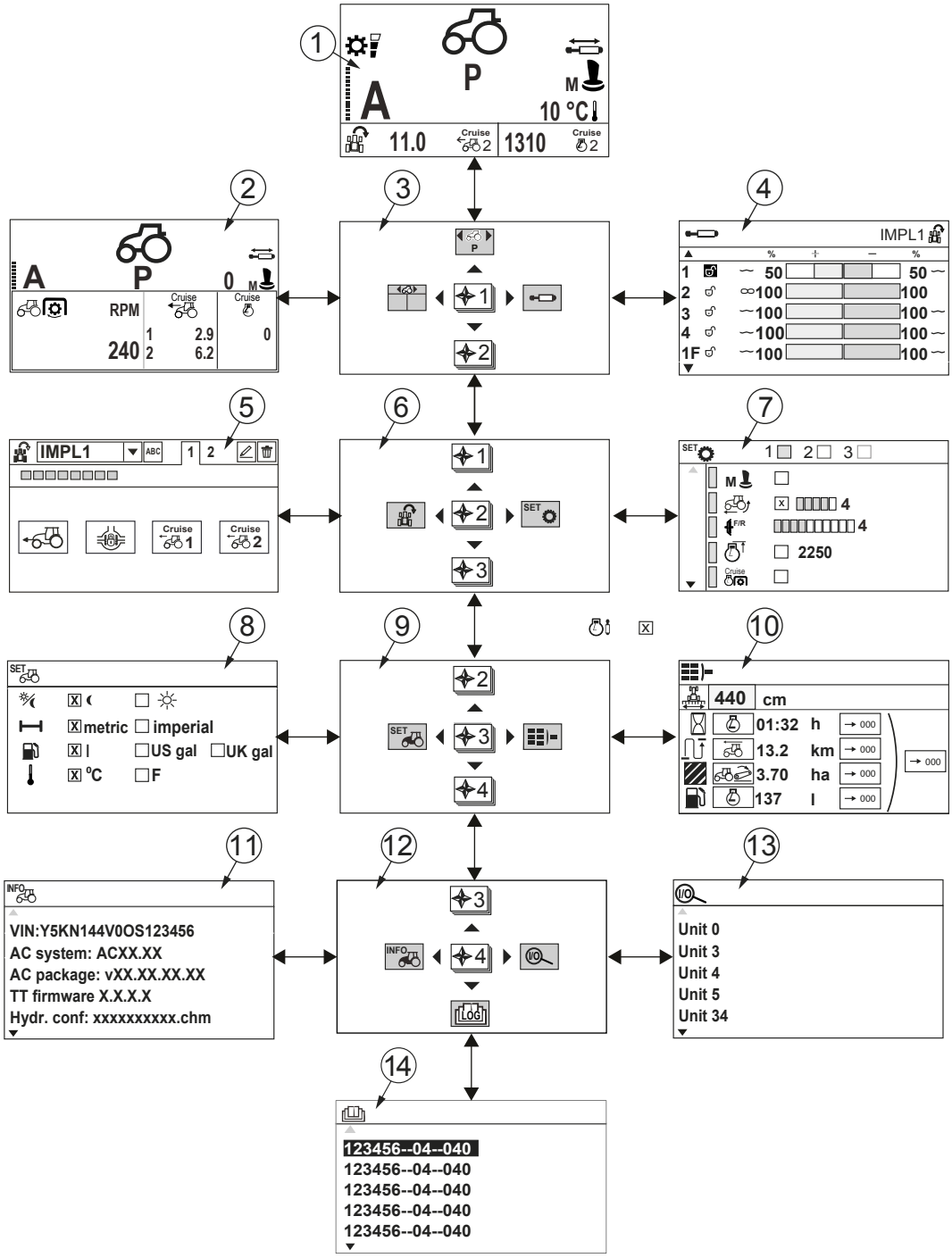
Button	Function
	• A short press moves you from the present field in the selected direction. • A longer press moves you continuously in the selected direction.
	• A short press increases the activated value with one unit. • A longer press increases the value, for example, with ten units (depending on the selected value). • A continuous press increases the value until the upper limit is reached.
	• A short press decreases the activated value with one unit. • A longer press decreases the value, for example, with ten units (depending on the selected value). • A continuous press decreases the value until the lower limit is reached.
OK	• 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.
esc	• 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.

3.12.2 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.

https://truckmanualshub.com/



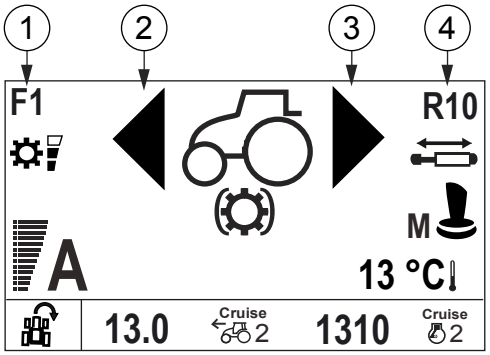
1. Large drive view
2. Split drive view
3. Menu 1
4. Hydraulics settings view
5. U-Pilot view
6. Menu 2
7. Transmission settings view
8. Changing units view
9. Menu 3
10. Editing counters view
11. Tractor information view
12. Menu 4

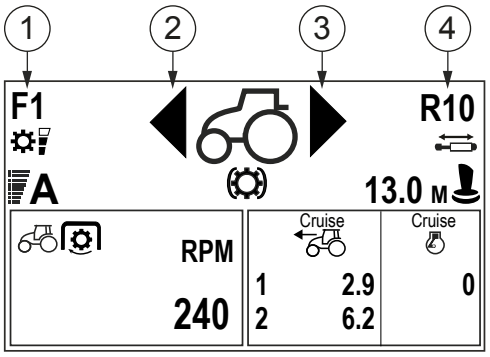
13. I/O query view
14. Service code view

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

3.12.3 Power shuttle-related drive view symbols

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

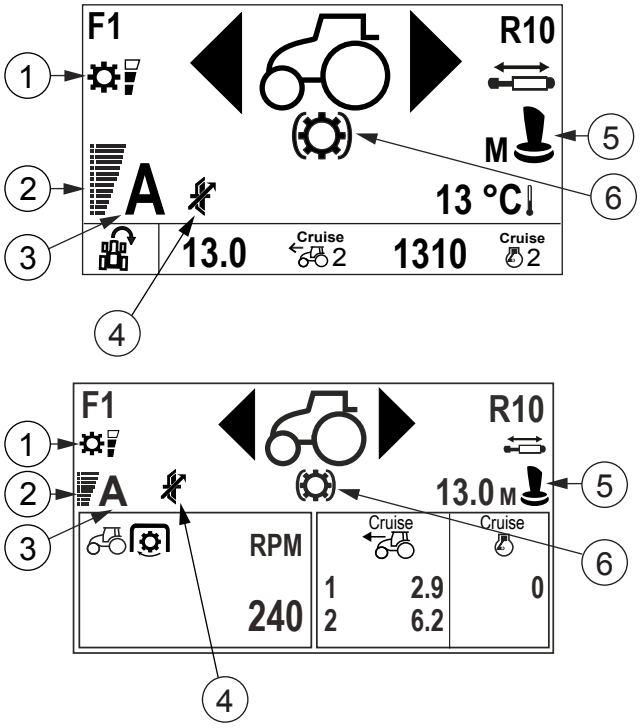




1	F1	The driving direction forward (F) and the relative maximum speed limitation are shown when the speed balance function is activated for forward driving direction.
2	◀	The driving direction forward arrow is lit when forward driving direction is engaged. The arrow flashes if the power shuttle has been operated at a driving speed of over 10 km/h.
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.
4	R10	The driving direction backwards (R) and the relative maximum speed limitation are shown when the speed balance function is activated for backward driving direction.

3.12.4 Transmission-related drive view symbols

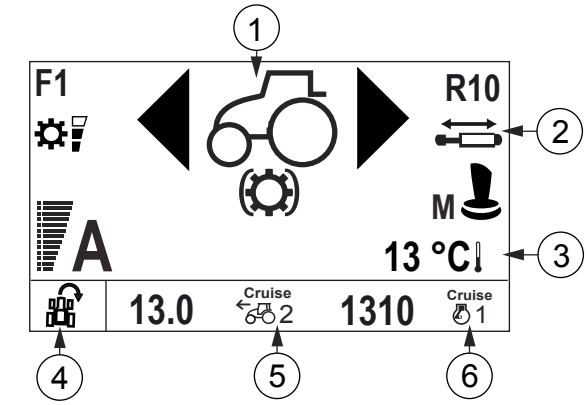
The transmission-related symbols in both large and split drive views:

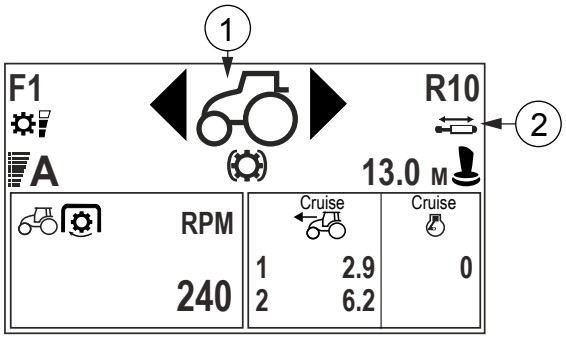


1	AUTO	The symbol is lit when the Auto PTO start function is active.
		The symbol indicates the level of transmission aggressiveness. The field is empty when the engine brake setting is on normal engine braking mode and Auto PTO start function is not active.
2		The bar graph shows the current transmission ratio as determined by the transmission adjustment lever and the driving pedal.
3	A	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.
4		This symbol indicates that the turbine clutch imitation is activated.
5	M	The drive lever symbol is lit without the letter M when the drive lever mode is activated. The drive lever symbol is lit with the letter M when the manual drive lever mode is activated.
6		The standstill symbol is lit when the standstill function is active.
		The wheel slip symbol is lit when the acceleration slip regulation (ASR) is active. The symbol blinks when the ASR regulates slipping.

3.12.5 General information drive view symbols

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





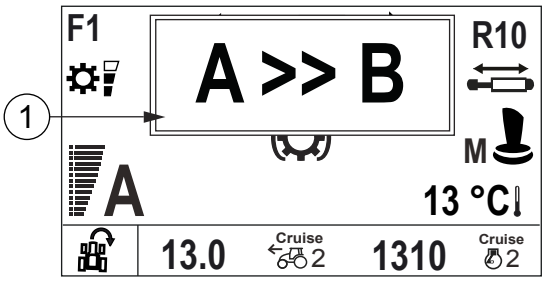
1		The tractor symbol is lit when the power is on.
		The hourglass symbol is displayed when the transmission is not ready for driving because the hydrostat is automatically bled after starting the engine. The bleeding process takes about 10 seconds.
	STOP	The STOP symbol light starts flashing (the engine 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 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.
		Auxiliary hydraulic control's safety timeout symbol flashes on the display approximately 30 seconds before the auxiliary hydraulic controls are disabled by the auxiliary hydraulic control's safety timeout function.
2		The hydraulic cylinder symbol flashes when there is pressure requested at least from one auxiliary hydraulic valve.
		The floating state symbol flashes on the display when there is at least one auxiliary hydraulic valve in the floating state.
		The symbols flash in turns if there is at least one auxiliary hydraulic valve in the floating state and pressure is requested at least from one auxiliary hydraulic valve.
		Auxiliary hydraulic control's safety time-out symbol appears on the display when the auxiliary hydraulic controls are disabled by the auxiliary hydraulic control's safety time-out function.

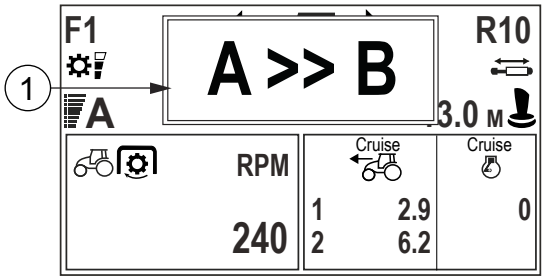
Table continued on next page

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: • 0-10: 0.1 • 10-15: 0.2 • > 15: 1 When the driving speed is under 1 km/h the speed is shown in m/h
4		The U-Pilot symbol is lit when the U-Pilot is active.
5	Cruise 1	The driving speed cruise symbol for the memory slot 1 with the programmed driving speed are shown on the display. The icon with inverted colours indicates the active cruise mode.
	Cruise 2	The driving speed cruise symbol for the memory slot 2 with the programmed driving speed are shown on the display. The icon with inverted colours indicates the active cruise mode.
6	Cruise 1	The engine speed cruise symbol with the programmed engine speed are shown on the display. The icon with inverted colours indicates the active cruise mode.

3.12.6 Pop-up views

Pop-up views appear on the display to indicate, for example, when certain values are changed or functions activated.

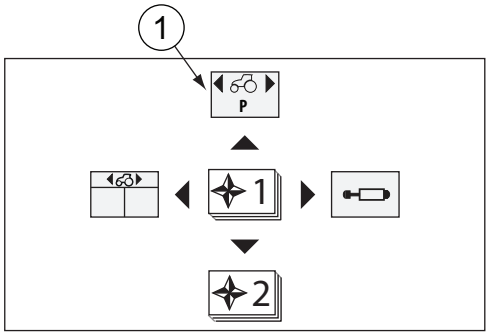




1	A >> B	The speed range change pop-up view is shown when the speed range is being changed. Both the old and the new speed range are displayed on the pop-up view.
	105°C	The hydrostat temperature pop-up view is shown when the hydrostat temperature rises to 105 °C (or over it). Additional warning is given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

3.12.7 Entering the large drive view

You can enter the large drive view from the menu 1.

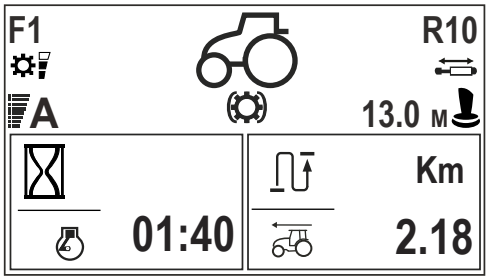


1. Large drive view

1. **Press ESC.**
2. **Navigate to the menu 1 with the up and down arrow buttons.**
3. **Press the up arrow button.**
   The large drive view is displayed.

3.12.8 Split drive view

The split drive view is divided into three fields.



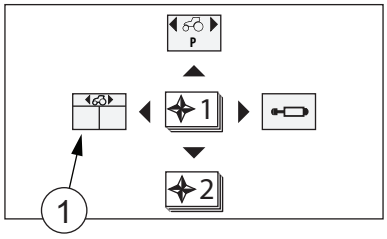
The upper part of the small drive view shows the same functions as the large drive view except for the following functions:

- Outside temperature
- Cruise control

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

3.12.9 Entering the split drive view

You can enter the split drive view from the menu 1.



1. Split drive view

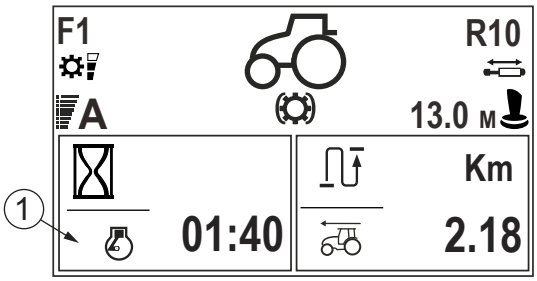
1. **Press ESC.**
2. **Navigate to the menu 1 with the up and down arrow buttons.**
3. **Press the left arrow button.**
   The split drive view is displayed.

3.12.10 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 or the selector for the predefined factory/user settings.**
   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.**

   You can activate the lower right field also by pressing OK or the selector for the predefined factory/user settings.

3. **Select the desired view in the field with the up and down arrow buttons or by rotating the selector for the predefined factory/user settings.**

4. **Press ESC to leave the activated field.**

   If the lower right field is activated you can also leave the field by pressing OK or the selector for the predefined factory/user settings.
   The selected field stays on the screen.

3.12.11 Lower field views

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

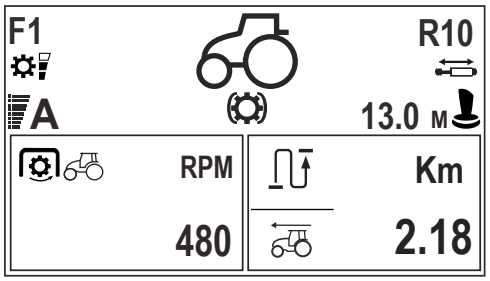
The functions selected for the lower fields are shown in the following order:

Symbol	Function
	Rear lower link position on a percentage scale
	Engine speed in rpm
	Front power take-off rpm speed
	Rear power take-off rpm speed
	Wheel slip percentage
Settings for the auxiliary hydraulics valves	
M1 M2 M3	Memory locations for auxiliary hydraulics valve settings
1 2 3 4 5	Settings for the rear hydraulic valves 1-5 of the memory locations M1, M2 and M3.
F1 F2 F3	Settings for the front hydraulic valves F1, F2 and F3 of the memory locations M1, M2 and M3.
Temperatures	
	Gearbox temperature (°C/°F)
	Hydrostat temperature (°C/°F)
	Hydraulic oil temperature (°C/°F)
	Outside temperature (°C/°F)
	Engine temperature (°C/°F)
Time, area and distance	
	Time
	Area shown in selected unit
	Travel distance shown in selected unit
Selectable triggers for measuring consumption, area and distance	
	Front power take-off
Table continued on next page	

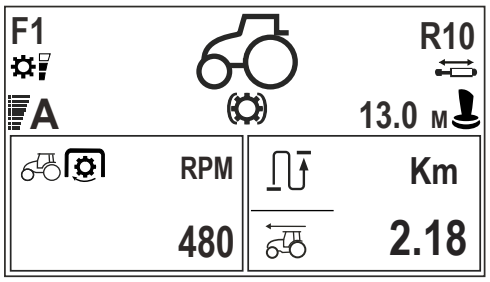
Symbol	Function
	Rear power take-off
	Rear linkage lowered to the working position
	Rear linkage raised to the transport position
	Engine speed cruise control
	Driving speed cruise control
	Battery level voltage
	Urea level in percent
Cruise control views, displaying the following information:	
cruise  1	Constant engine speed 1 (rpm)
cruise  1	Constant driving speed 1 (km/h/mph)
cruise  2	Constant driving speed 2 (km/h/mph)

3.12.11.1 Power take-off speed views

Front PTO speed

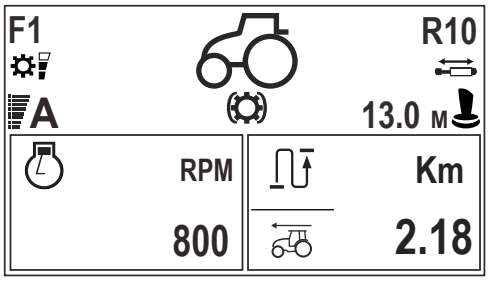


Rear PTO speed



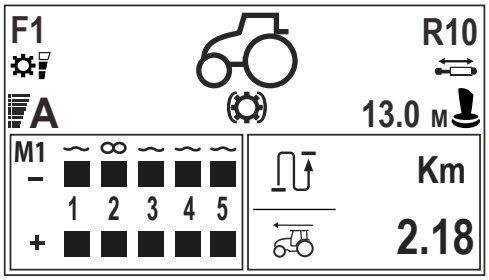
The PTO rotation speed is shown with an accuracy of 10 rpm.

3.12.11.2 Engine speed view



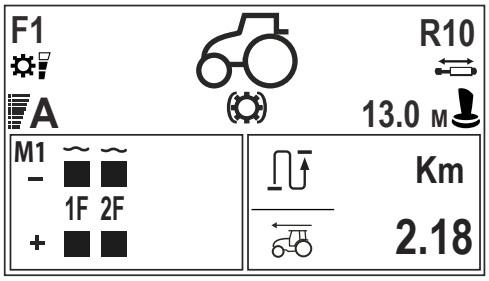
The view shows the engine speed with an accuracy of 10 rpm.

3.12.11.3 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.

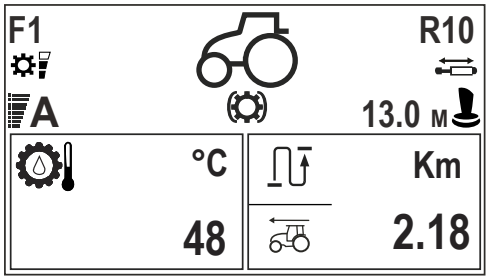
3.12.11.4 Front hydraulic valve settings view



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.

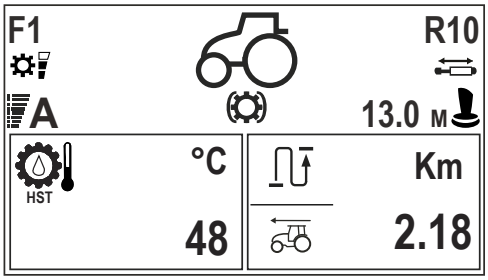
3.12.11.5 Gearbox temperature view



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 "Hi" is displayed.

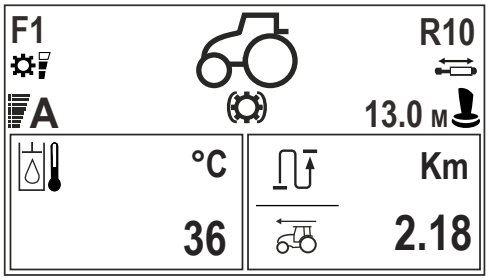
3.12.11.6 Hydrostat temperature view



The hydrostat 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.

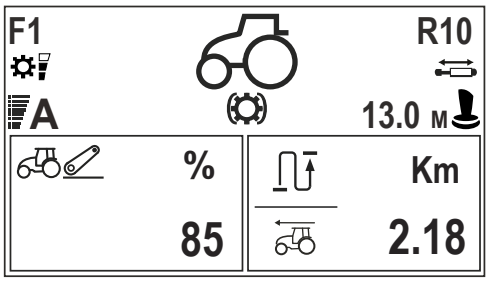
3.12.11.7 Working hydraulics oil temperature view



The hydraulic temperature is displayed as follows:

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

3.12.11.8 Rear lower link position view

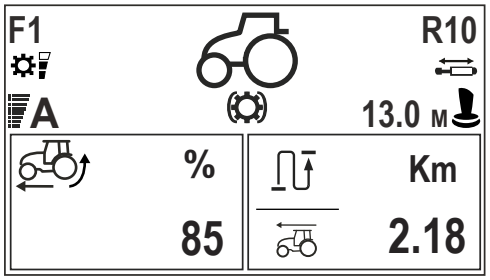


The display shows the symbol  and the position of the rear lower links on a percentage scale 0–100.

- 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.

3.12.11.9 Wheel slip view

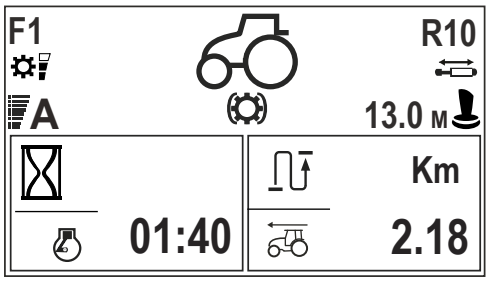


The wheel slip percentage is attained by comparing the speed information of the radar to the rotation speed of the back wheels.

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

3.12.11.10 Working time view

The working time view can show the time spent on certain tasks. The time depends on the selected trigger. For example, if the engine running time is selected as the trigger, the working time is calculated starting from the engine start and stopping at the engine stop.

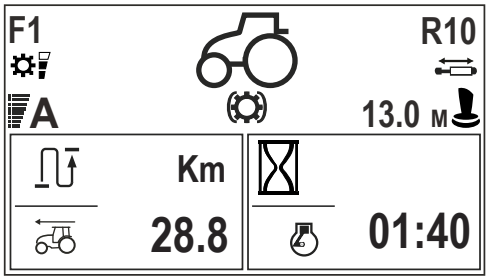


The working time is stored in the memory when the power is turned off.

You can reset the working time counter.

3.12.11.11 Travel distance view

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



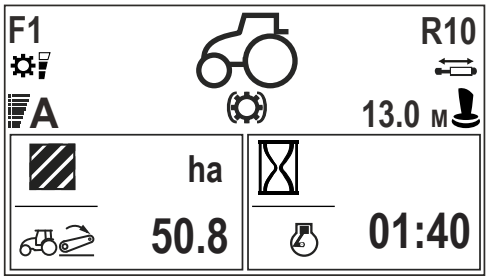
The travel distance is displayed as follows:

- 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.

3.12.11.12 Surface area view

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



The surface area view shows the size of the area worked. The area reading increases only when the selected trigger has triggered the surface area calculation. For example, if the rear linkage position is used as the trigger, the area is calculated 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.

The correct area calculation requires that the implement width is set correctly.

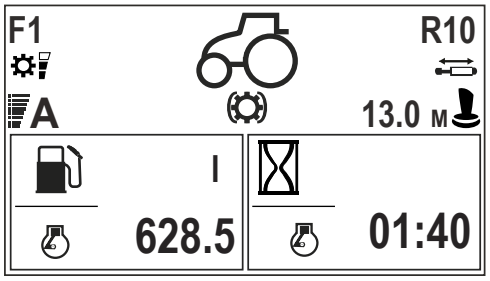
You can reset the area reading.

3.12.11.13 Fuel consumption views

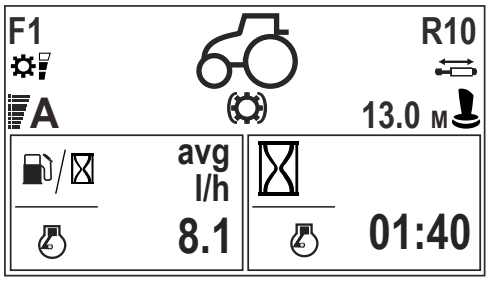
There are five different fuel consumption settings that can be displayed in the lower fields of the split drive view.

You can select litre, gallon UK or gallon US as the unit of volume. You can change the unit of area (ha, acre) by changing the unit of length.

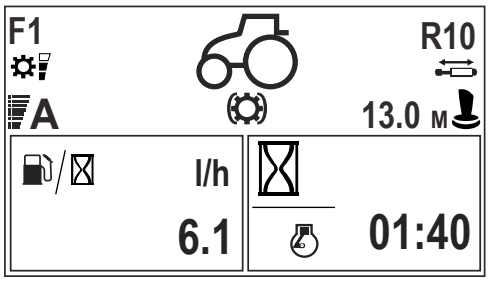
Total fuel consumption



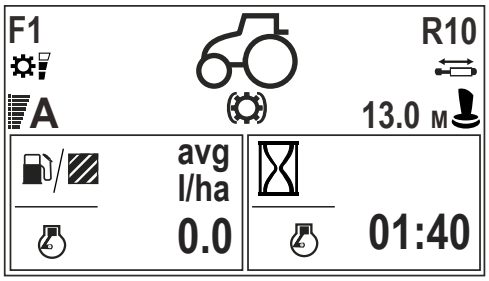
Average fuel consumption in an hour



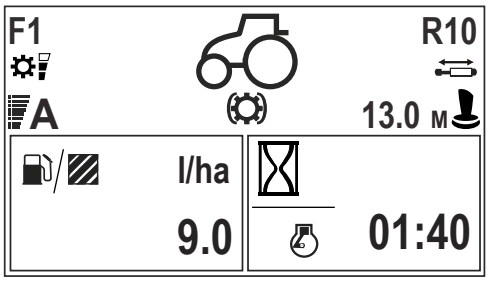
Immediate fuel consumption in an hour



Average fuel consumption on the area worked



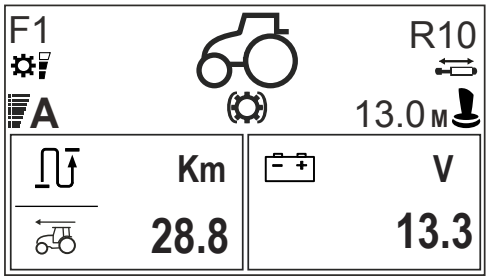
Immediate fuel consumption on the area worked



You can reset the fuel consumption information.

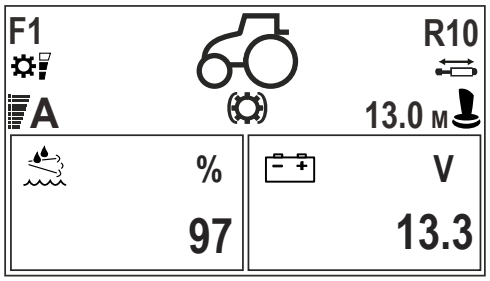
3.12.11.14 Battery voltage view

The battery voltage is shown in volts (V) in the lower fields of the split drive view.



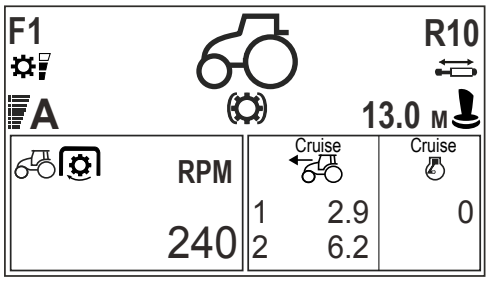
The battery voltage view shows the voltage of the battery. The voltage is shown beside the battery symbol in accuracy of one decimal.

3.12.11.15 Urea level view



The urea level is shown in percentage in the lower fields of the split drive view.

3.12.11.16 Cruise control view



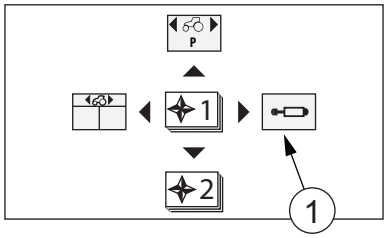
There are two memory slots for constant driving speed and one memory slot for constant engine speed.

The cruise control status indications are:

Cruise	Constant engine speed
Cruise 1	Constant driving speed. The numbered lines indicate the two memory slots.

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

3.12.12 Entering the hydraulics settings view

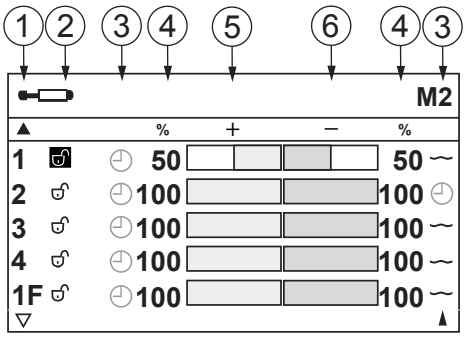


1. Auxiliary hydraulics settings view

1. **Press ESC.**
2. **Navigate to the menu 1 with the up and down arrow buttons.**
3. **Press the right arrow button.**

   The auxiliary hydraulics settings are displayed.

3.12.13 Hydraulics view symbols



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

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

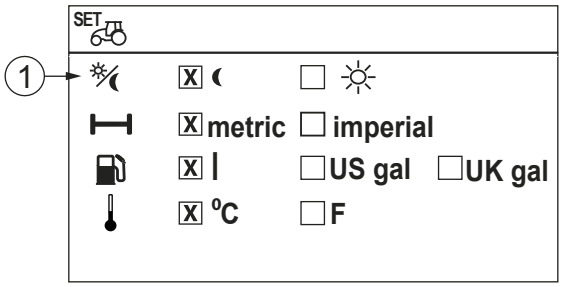
- 0–60 s timed duration of the position lock
- = the position lock continuously on
- = floating position (only in the – port)
- empty = no function active

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3.12.14 Selecting the display theme

NOTE: To switch between the day theme and night theme in the tractor terminal large drive and split drive views, shortly press the right or left arrow button.

1. **Press ESC.**
2. **Navigate to the menu 3 with the up and down arrow buttons.**
3. **Press the left arrow button in the menu 3 to enter the changing units view.**
4. **Move the navigation box to the display scheme selection position with the up and down arrow buttons.**



1. Display scheme selection

5. **Press the right arrow button.**
6. **Select the desired display scheme with the up and down arrow buttons.**
7. **Press the left arrow button to return to the changing units view main level.**

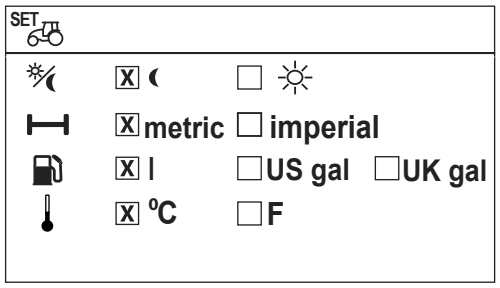
With a short press of the ESC button you can return to the menu 3. A long press of the ESC button returns to the previously active drive display.

3.12.15 Changing units

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

1. **Press ESC.**
2. **Navigate to the menu 3 with the up and down arrow buttons.**

3. Press the left arrow button in the menu 3 to enter the changing units view.



4. Move the navigation box to the position of the unit you are going to change with the up and down arrow buttons.
5. Select the unit with the left and right arrow buttons.

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

NOTE: You can adjust the display theme with the arrow buttons when in large drive view or split drive view.

With a short press of the ESC button you can return to the menu 3. A long press of the ESC button returns to the previously active drive display.

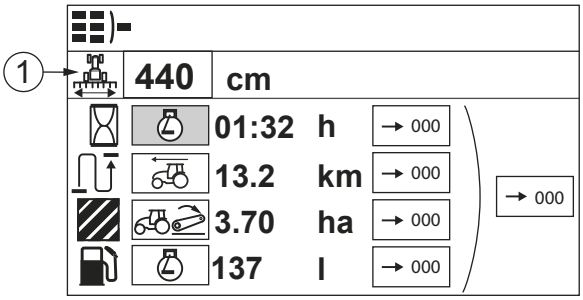
3.12.16 Changing parameters

3.12.16.1 Setting the implement width

You can enter the editing counters view through the split drive view or through the menu 3.

1. **Enter the editing counter view.**
   - **To enter the editing counter view from the split drive view, press the OK button until the view is changed.**

   OR
   - **Press ESC.**
   - **Navigate to the menu 3 with the up and down arrow buttons.**
   - **Press the right arrow button in the menu 3 to enter the editing counters view.**



1. Implement width

2. **Press OK or the selector for the predefined factory/user settings.**

   The digit to be edited is underlined.

3. **Select the digit to be edited with the right and left arrow buttons.**

4. **Change the digit value with the up or down arrow buttons or by rotating the selector for the predefined factory/user settings.**

5. **Press the OK button or the selector for the predefined factory/user settings to return to the editing counter view main level.**

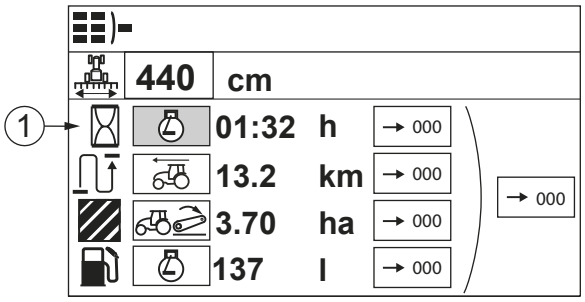
With a short press of the ESC button you can return to the menu 3. A long press of the ESC button returns to the previously active drive display.

3.12.16.2 Editing counters

In the editing counters view, you can change the functions which trigger the counting.

1. **Enter the editing counters view.**
   - **To enter the editing counters view from the split drive view, press the OK button until the view is changed.**

   OR
   - **Press ESC.**
   - **Navigate to the menu 3 with the up and down arrow buttons.**
   - **Press the right arrow button in the menu 3 to enter the editing counters view.**
2. **Select the function to be changed with the up and down arrow buttons.**



1. Selected function

3. **Press OK button or the selector for the predefined factory/user settings.**
4. **Select the new function with the up and down arrow buttons or by rotating the selector for the predefined factory/user settings.**
5. **Press OK button or the selector for the predefined factory/user settings to return to the editing counters view main level.**

With a short press of the ESC button you can return to the menu 3. A long press of the ESC button returns to the previously active drive display.

3.12.16.3 Resetting counters

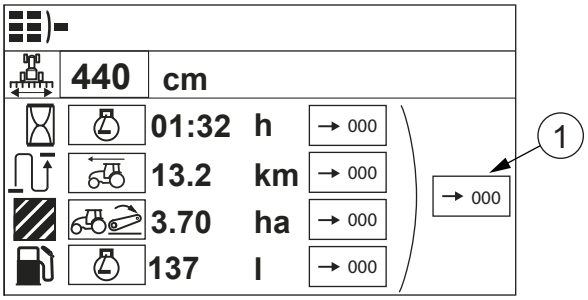
1. **Enter the editing counter view.**
   - **To enter the editing counter view from the split drive view, press the OK button until the view is changed.**

   OR
   - **Press ESC.**
   - **Navigate to the menu 3 with the up and down arrow buttons.**
   - **Press the right arrow button in the menu 3 to enter the editing counters view.**

2. **Select the counter to be reset with the up and down arrow buttons**

   You can reset one counter or all counters.

3. **Move the navigation box with the right and left arrow buttons to select one counter or all counters to be reset.**



   1. Reset all counters

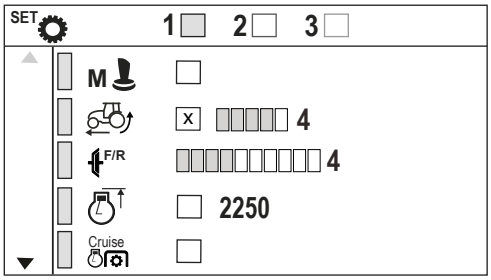
4. **Press OK or the selector for the predefined factory/user settings until "000" is displayed to reset the counter.**

5. **Press the left arrow button as may times as needed to return to the editing counter view main level.**

With a short press of the ESC button you can return to the menu 3. A long press of the ESC button returns to the previously active drive display.

3.12.17 Transmission settings view

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



The following adjustments can be made in this view:

M	Transmission manual mode
	Acceleration slip regulator
F/R	Power shuttle engagement speed setting
	Engine speed limit adjustment
Cruise	Power take-off (PTO) cruise setting

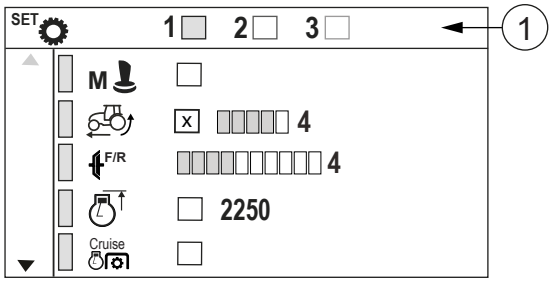
Table continued on next page

	Hydraulics assistant setting
C↔D AUTO	Automatic speed range change C<->D.
F R	Four-wheel drive automatics adjustment
	Driving speed limit adjustment
START	Rear power take-off engagement adjustment
	Clutch pedal curve
	Joystick safety stop speed
	Wheel index
	Speed sensor calibration
CAL	Steering angle calibration (optional)

3.12.17.1 Selecting the transmission settings memory slot

There are three memory slots available for the transmission settings.

1. **Press ESC.**
2. **Navigate to the menu 2 with the up and down arrow buttons.**
3. **Press the right arrow button to enter the transmission settings view.**
4. **Press the left or right arrow to choose desired memory slot.**



1. Transmission settings memory slots

With a short press of the ESC button you can return to the menu 2. A long press of the ESC button returns to the previously active drive display.

3.12.17.2 Resetting the transmission settings memory slot values to default

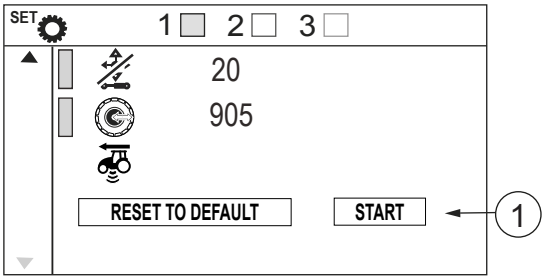
1. **Press ESC.**
2. **Navigate to the menu 2 with the up and down arrow buttons.**

3. **Press the right arrow button.**

   The transmission settings view is displayed.

4. **Select the wanted memory slot with the left and right arrow buttons.**

5. **Move the navigation box to the reset to default row with the down arrow button or by rotating the selector for the predefined factory/user settings.**



   1. Reset to default row

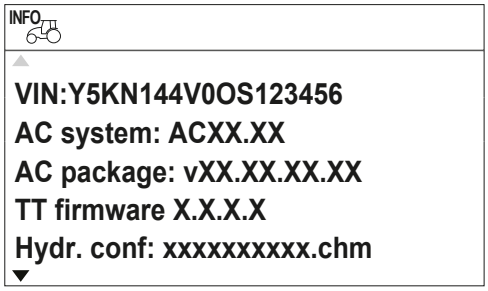
6. **Press OK button or the selector for the predefined factory/user settings to reset the settings.**

   The settings in a selected memory slot are reset to default.

With a short press of the ESC button you can return to the menu 2. A long press of the ESC button returns to the previously active drive display.

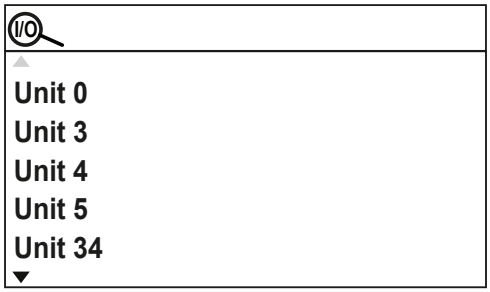
3.12.18 Tractor information view

The tractor information view provides detailed information about the identification numbers and different software versions of the tractor. The information can be used when clearing fault situations, for example.



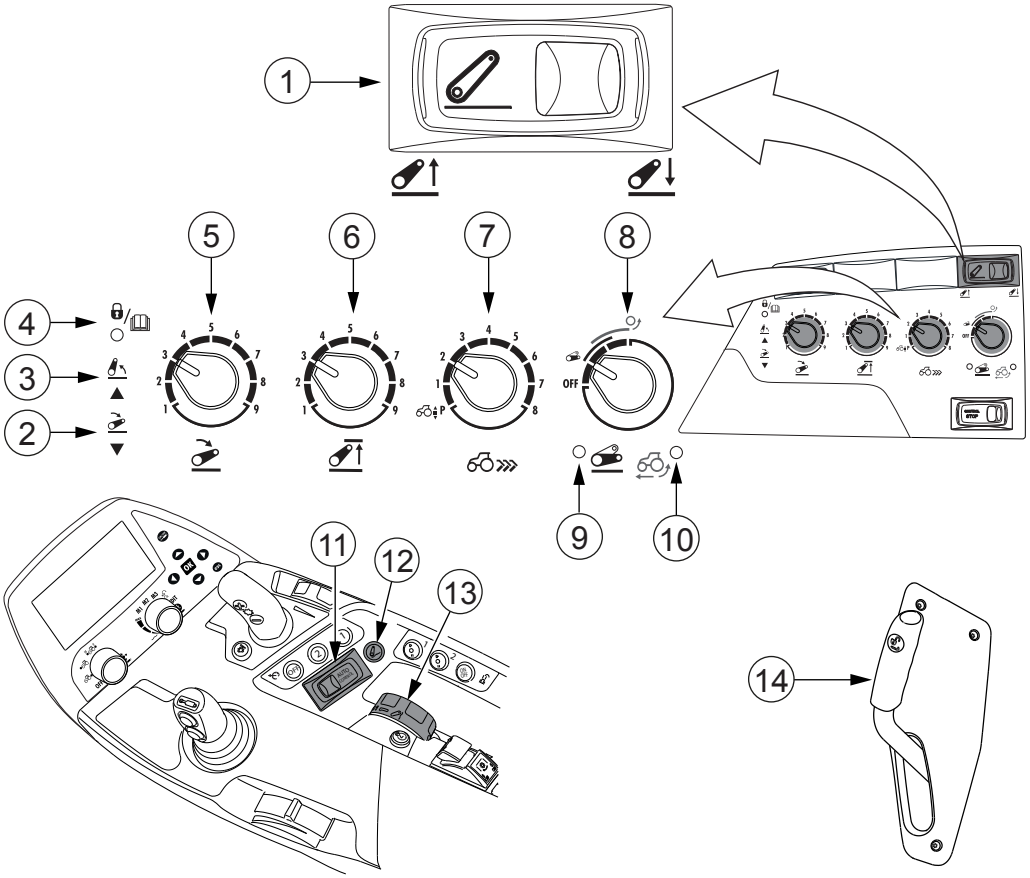
3.12.19 I/O query view

The I/O query view shows the input and output unit statuses of the electrical control units (ECU). The information can be used when clearing fault situations, for example.


I/O
Unit 0
Unit 3
Unit 4
Unit 5
Unit 34

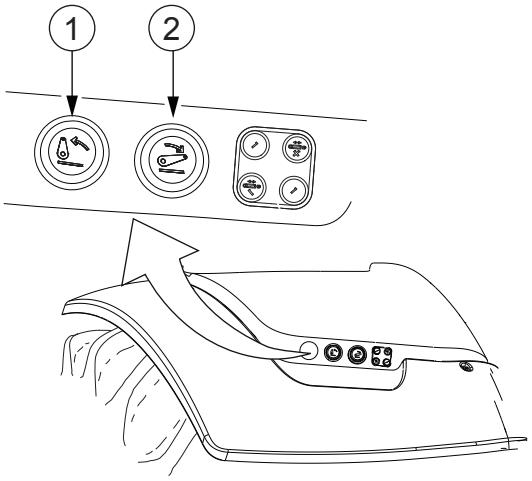
3.13 Rear linkage

Controls in the cabin



1. Lifting/lowering switch
2. Lowering indicator light
3. Lifting indicator light
4. Diagnostic light
5. Lowering speed selector
6. Max lifting height selector
7. Draft control selector
8. Drive balance control, including slip control system
9. Drive balance control light
10. Slip control light (optional)
11. Lift/stop/lower switch
12. Override button for position control knob
13. Position control knob
14. Trailer hitch release lever (optional)

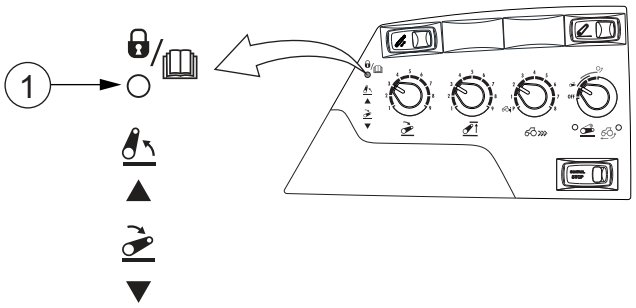
Controls in the rear mudguards



1. Lifting push button
2. Lowering push button

3.13.1 Diagnostic light

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



1. Diagnostic light

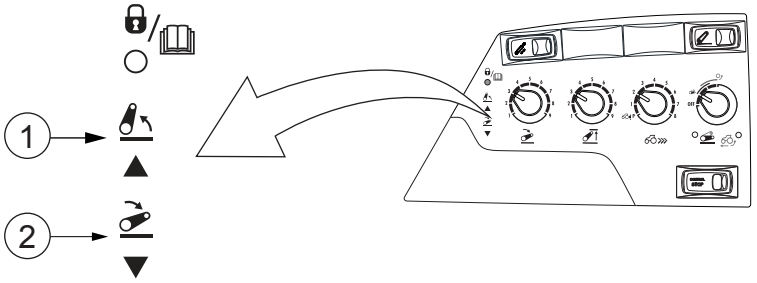
IMPORTANT: If the diagnostic light is flashing and a service code is displayed, there is failure in the system. Contact an authorised Valtra workshop

https://truckmanualshub.com/

3.13.2 Lifting/lowering indicator lights

The indicator lights indicate when the lower links are moving.

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



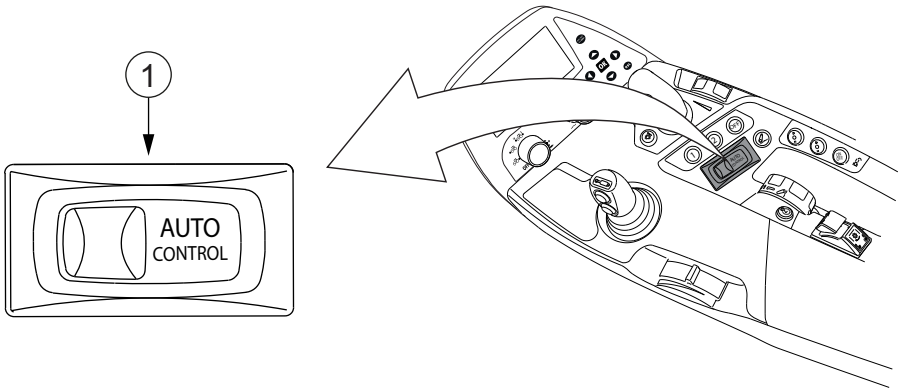
1. Lifting indicator light
2. Lowering indicator light

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

3.13.3 Activating the linkage

Use the lift/stop/lower switch to activate the linkage.

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



1. Lift/stop/lower switch

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

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

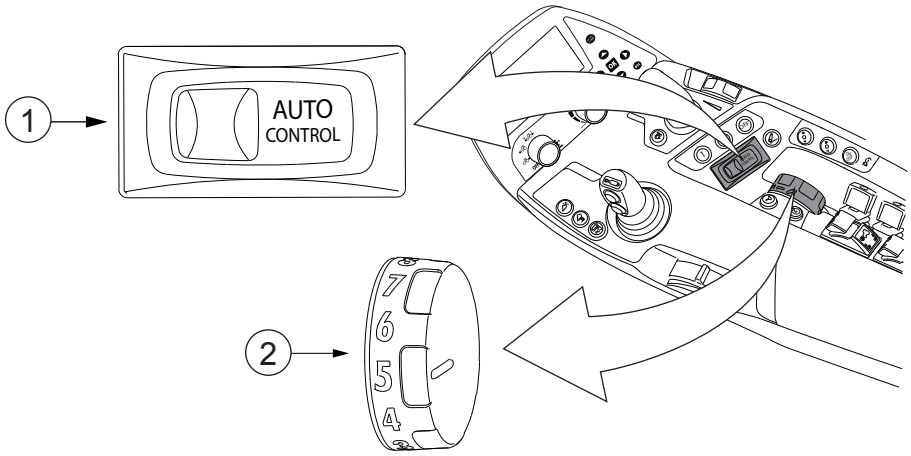
   The diagnostic light goes out and the lower links move to the preset position. The first movement is done at a reduced speed.

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

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

3.13.4 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.

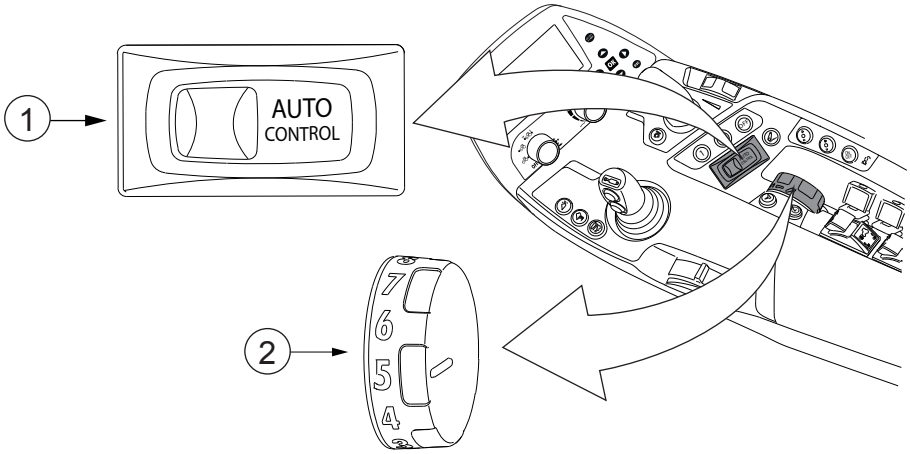
- **To stop the lower links, set the lift/stop/lower switch to the centre position.**
  This is called the stop position.

3.13.5 Using the position control knob

The position control knob allows continuous control of the lower links' position. You can use the knob to lift or lower the lower links. You can also use to knob to

set the height where the links move when using the Lift/stop/lower switch lowering (Autocontrol) function.

NOTE: The position of the lower links is displayed on the Proline instrument panel display and on the tractor terminal display in the rear lower links' position view.



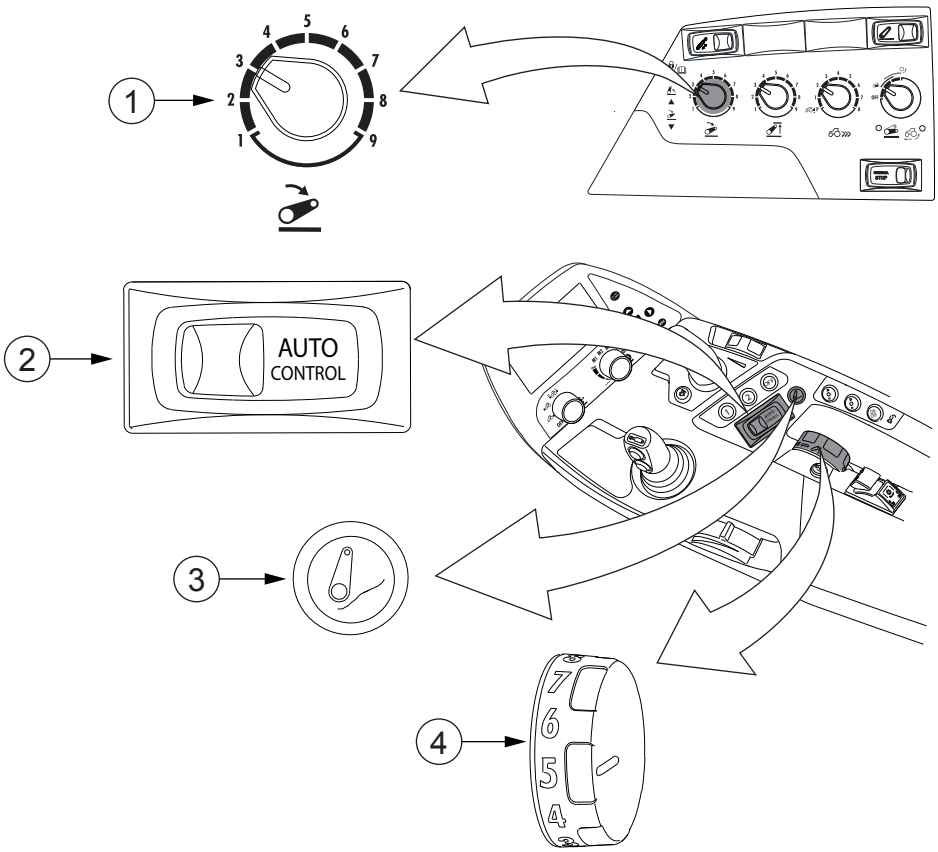
1. Lift/stop/lower switch
2. Position control knob

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

3.13.6 Overriding the position set by position control knob

Use the override button for 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. It allows a quicker entry of the plough to the correct depth in the beginning.



1. Lowering speed selector
2. Lift/stop/lower switch
3. Override button for position control knob, float
4. Position control knob

1. **Set the lowering speed with the lowering speed selector.**
2. **Set the lower limit of the lower links with the position control knob.**
3. **Press down the symbol side of the lift/stop/lower switch to lower the links.**
4. **Press down the override button for position control knob.**
   The lower links pass the limit set by the position control knob, the lowering indicator light is lit, and the lower links are floating.
5. **Release the override button for position control knob.**

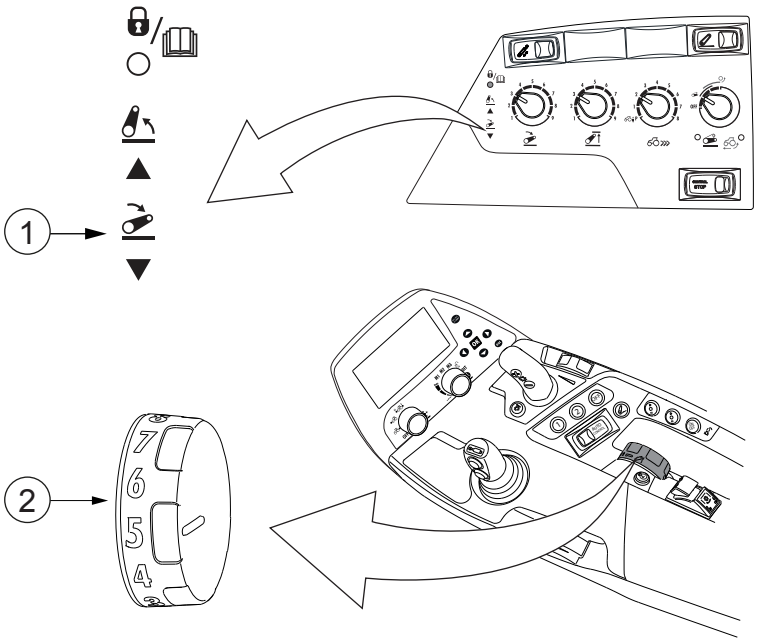
   The lower links return to the height set by the position control knob.

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NOTE: If the lift/stop/lower switch is in the lifting (transport) position, the linkage lifts slightly when pressing the override button for position control knob. This supplementary feature can be used to help release and lock the pick-up hitch when the upper limit is set to maximum.

3.13.7 Using the linkage floating position

Use the floating position when working with 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: 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 of the wheels may be lost.

- **To activate the floating position, turn the position control knob clockwise to its extreme position.**

  The lower links can now move freely up and down following the movements of the implement. The lower indicator light is lit continuously.

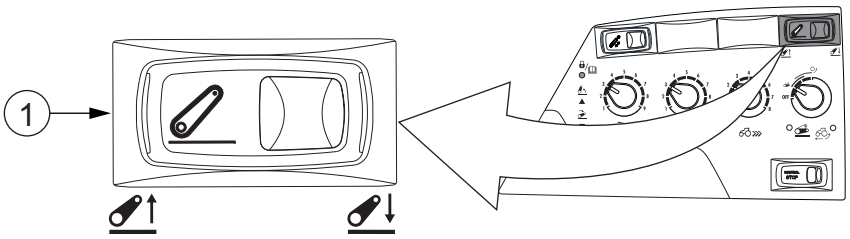
- **To deactivate the floating position, turn the position control knob anti-clockwise.**

  The floating stops when the position control knob is moved approximately to position 1. The lower indicator light goes out.

3.13.8 Using the lifting/lowering switch

When attaching implements, using the lifting/lowering switch gives you a full control on the implement's movement. If necessary, you can stop the movement immediately by releasing the switch.

The lifting/lowering switch functions even when the rear linkage is not activated.



1. Lifting/lowering switch

- **To lift the linkage, press the symbol side of the lifting/lowering switch.**

  The longer the switch is pressed the faster the linkage lifts.

- **To lower the linkage, press the side of the lifting/lowering switch opposite to the symbol.**

  The longer the switch is pressed the faster the linkage lowers.

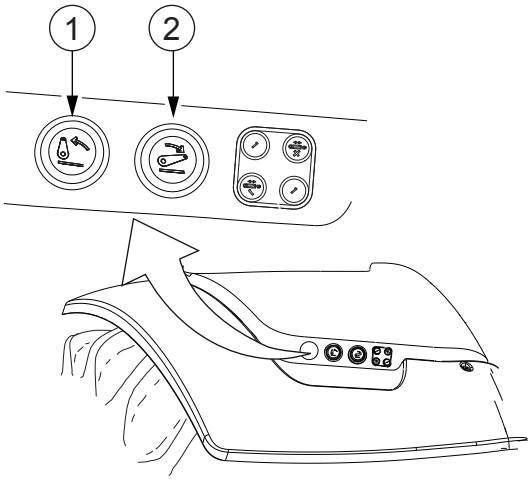
- **To stop the movement of the linkage, release the lifting/lowering switch to the centre position.**

  NOTE: The linkage has to be activated again every time the lifting/lowering switch or the lifting/lowering push buttons have been used, if necessary.

3.13.9 Using the lifting/lowering push buttons

When using the lifting/lowering push buttons, the lifting/lowering continues for as long as you keep pushing the respective button. The movement stops immediately when releasing the button. Thus, you have steady control over the linkage movements.

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1. Lifting push button
2. Lowering push button

- **To lift the linkage, press the lifting push button.**

  The longer the lift button is pressed the faster the linkage lifts.

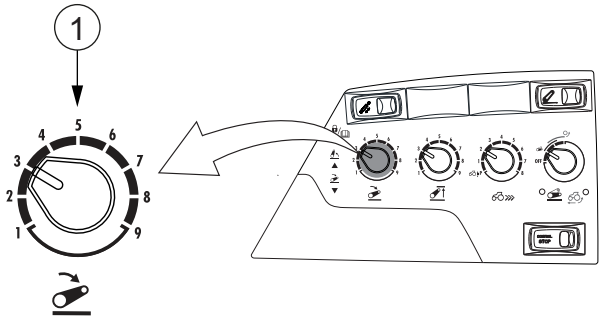
- **To lower the linkage, press the lowering push button.**

  The longer the lower button is pressed the faster the linkage lowers.
  NOTE: The linkage has to be activated again every time the lifting/lowering switch or the lifting/lowering push buttons have been used, if necessary.

3.13.10 Setting the lowering speed

The needed lowering speed depends on the type of implement used. Use low lowering speed with heavy and sensitive implements. The setting does not affect the lifting speed.

The lowering speed is independent of the load.



1. Lowering speed selector

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

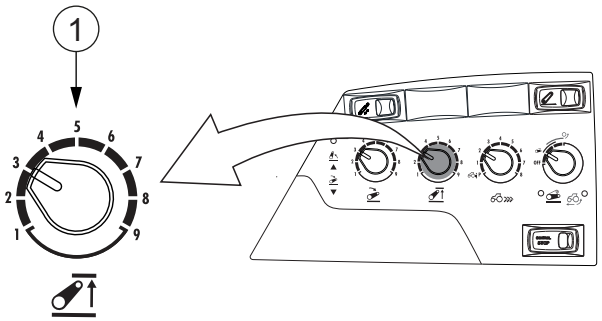
  Nine different levels are available.

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

3.13.11 Limiting the lifting height

The height limit is a useful feature, for example, when there is a risk that the implement could hit the cabin or when using the power take-off (PTO) driven implements.

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 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 lifting/lowering switch or the lifting/lowering push buttons are used.

3.13.12 Draft control

You can use the draft control when working with implements that operate below the surface of the ground. The draft control keeps the implement's depth and draft load constant. This function is useful especially with implements attached to the three-point linkage. Such implements are, for example, ploughs and cultivators.

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

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

- 1 = small influence
- 8 = very large influence

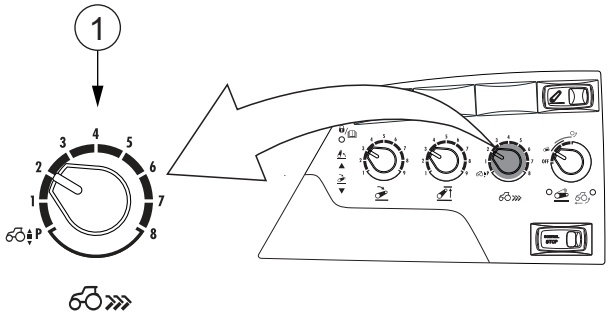
Position 5 is normally used for ploughing. If larger draft control is required (that is, the plough is too deep and needs a slight lift), position 6 can be used instead.

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 is displayed on the Proline instrument panel display and on the tractor terminal display in the rear lower links' position view.

3.13.12.1 Activating and deactivating the draft control

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



1. Draft control selector

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

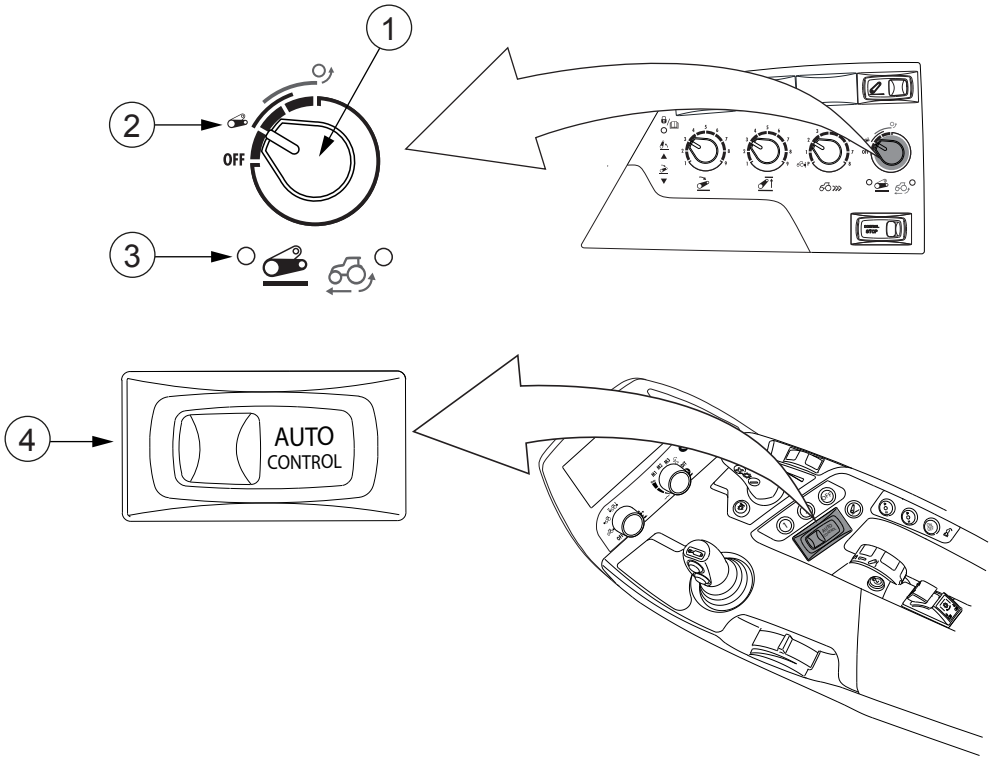
  Turning the selector to position P ensures that the linkage is controlled accurately by the position control knob.

3.13.13 Drive balance control

The drive balance control system makes driving the tractor more even and stable when transporting heavy implements on the linkage. The system makes the linkage to lift or lower slightly when needed, thus balancing the tractor-implement combination. When the drive balance control is in use the transport height is a little lower than the one set by the lifting height selector and can vary a bit. The drive balance control can be used on the road and in the field.

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

3.13.13.1 Using the drive balance control



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

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

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

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

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

3.13.14 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 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.

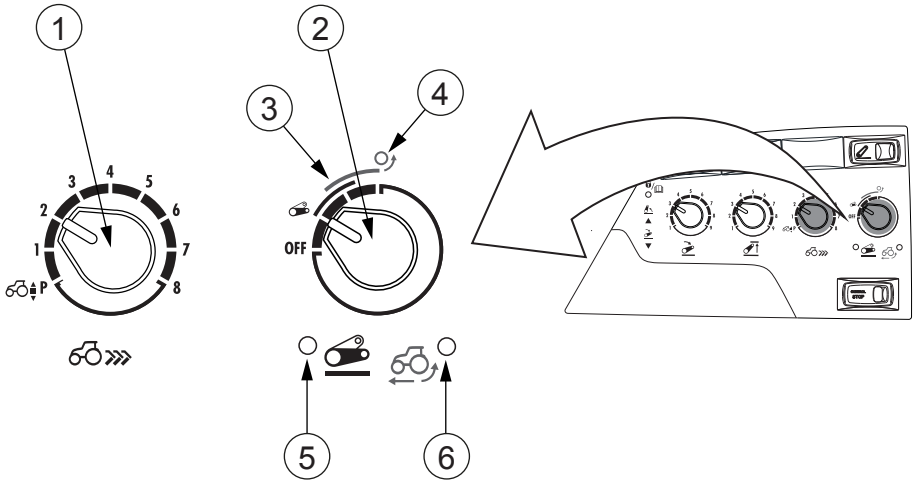
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When all wheels slip, the real driving speed can only be measured with the radar under the cab.

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

3.13.14.1 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 selector
3. Drive balance control and slip control position
4. Slip control position
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).

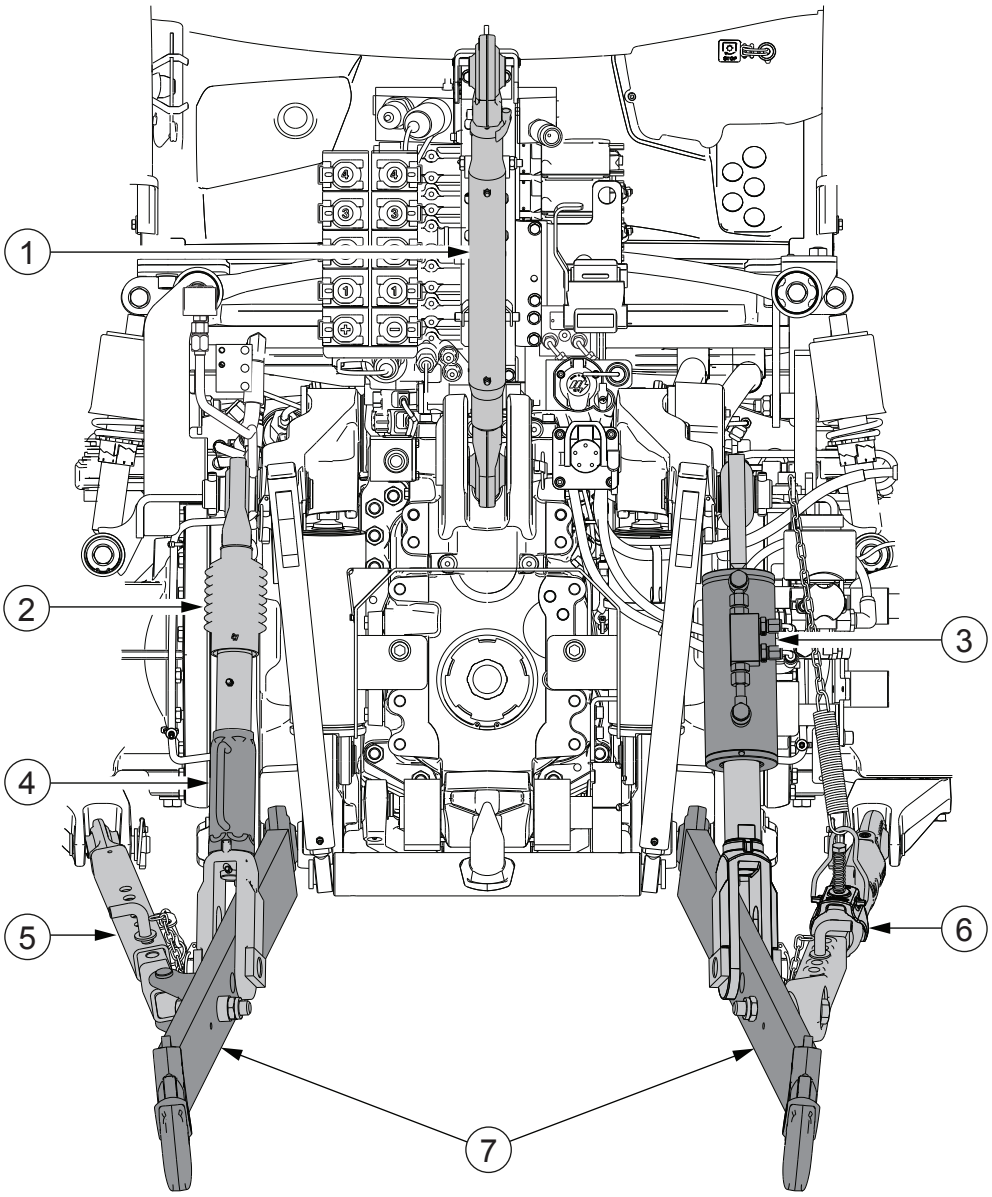
  The slip control light is lit when the slip control is activated and driving speed is more than 1 km/h.

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

  Only the slip control is activated.

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

3.14 Three-point linkage



1. Top link
2. Lift link
3. Hydraulic levelling link (optional) or Lift link (optional)
4. Levelling screw
5. Side limiter
6. Automatic side limiter (optional)
7. Lower links

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

WARNING: Ensure that the ball hitch lower link hooks latch correctly.

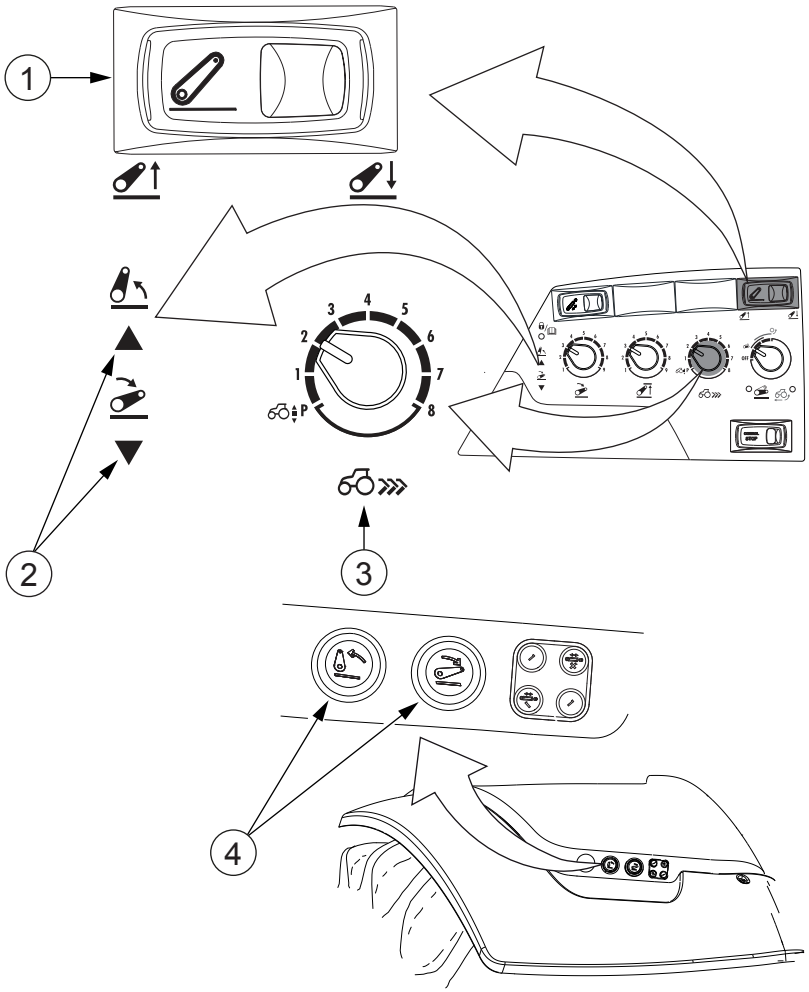
The top link has two different attaching holes on the tractor. Thus, it is possible to get different lifting geometry for different implements. When the top link is in the lower hole, the implement inclines forward. The upper hole gives almost horizontal lifting movement.

3.14.1 Attaching implements

DANGER: Always use the lifting/lowering push buttons or the lifting/ lowering switch when attaching or releasing implements.

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

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



1. Lifting/lowering switch
2. Lifting/lowering indicator lights
3. Draft control selector
4. Lifting/lowering push buttons

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

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

2. **Press the lifting/lowering switch or the lifting/lowering push buttons to lift or lower the lower links.**

   The lower links lift or lower for as long as you press the switch/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.

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

   CAUTION: The lifting height selector does not limit the lifting height when the lifting/lowering switch or the lifting/lowering 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 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.

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

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

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

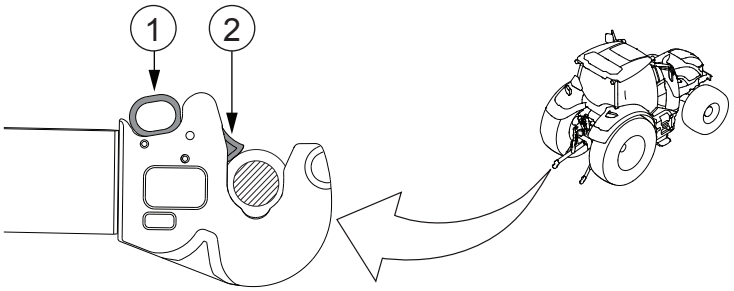
   Correct adjustment of harrows, ploughs and cultivators reduces the required tractor power. An incorrectly adjusted plough, for instance, creates a badly shaped furrow, tends to twist the tractor away from the driving direction, increases fuel consumption and wastes power due to wheel slip.

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

   After using the lifting/lowering switch or the lifting/lowering push buttons, you have to activate the position control system again.

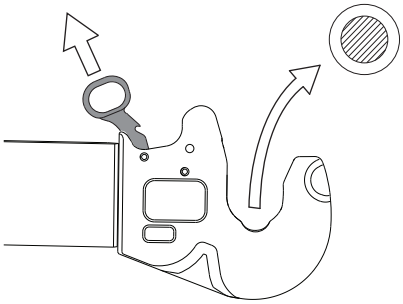
3.14.2 Using quick couplings for lower links

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

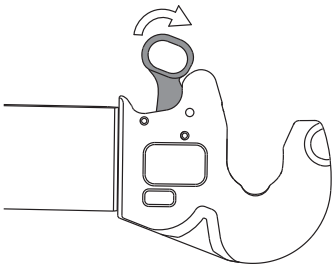


1. Lever
2. Clamp

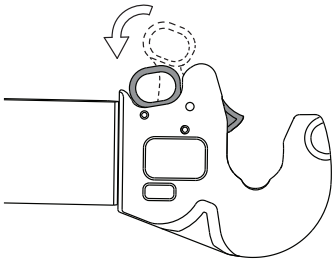
1. **Pull the lever to release the implement.**



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



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



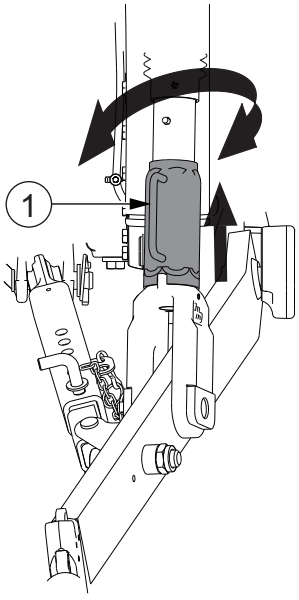
The ball joints lock automatically when attaching the implement.

When locked, the clamp is in view and the lever is in the lower position.

3.14.3 Adjusting lift links

3.14.3.1 Adjusting lift links

IMPORTANT: When adjusting the lift links, make sure that they do not hit the tractor or damage the implement.



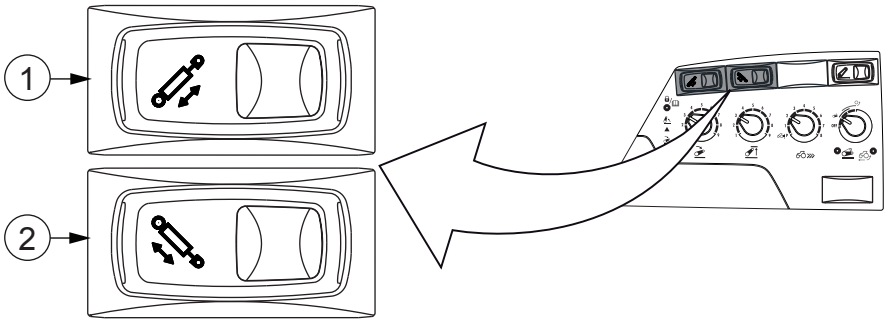
1. Levelling screw

1. **Move the linkage to the position where the lift links are free of load.**
2. **Lift up the levelling screws and turn them in the required direction to adjust the length of the lift links.**
3. **Lower the levelling screws back to the locked position after adjustment.**

3.14.3.2 Adjusting hydraulic lift link

The hydraulic lift link is connected to the rear on/off valve 1 or 2.

IMPORTANT: When adjusting the hydraulic lift link, make sure that the implement does not hit the tractor or ground to avoid damages.

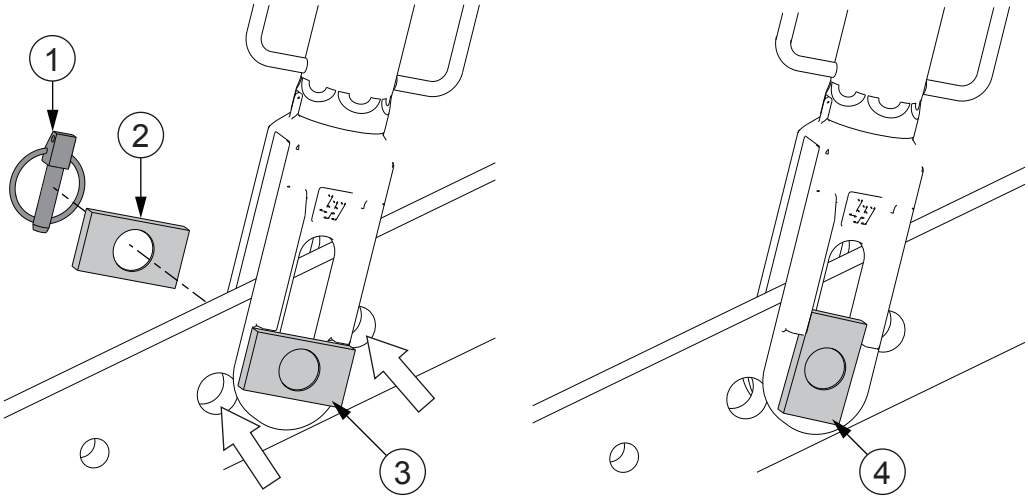


1. Switch for rear on/off valve 1
2. Switch for rear on/off valve 2 (optional)

1. **Move the linkage to the position where the lift links are free of load.**
2. **Lift the hydraulic lift link up by pressing the side opposite to the symbol of the switch for rear on/off valve 1 or 2.**
3. **Lower the hydraulic lift link down by pressing the symbol side of the switch for rear on/off valve 1 or 2.**

3.14.4 Adjusting lower links

You can adjust the lower links into fixed or floating position. You can also attach the lower links into three positions, giving different lifting ranges and lifting power.



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1. Lock pin
2. Plate
3. Carrier pin and plate position providing fixed position of lower links
4. Carrier pin and plate position allowing floating position of lower links

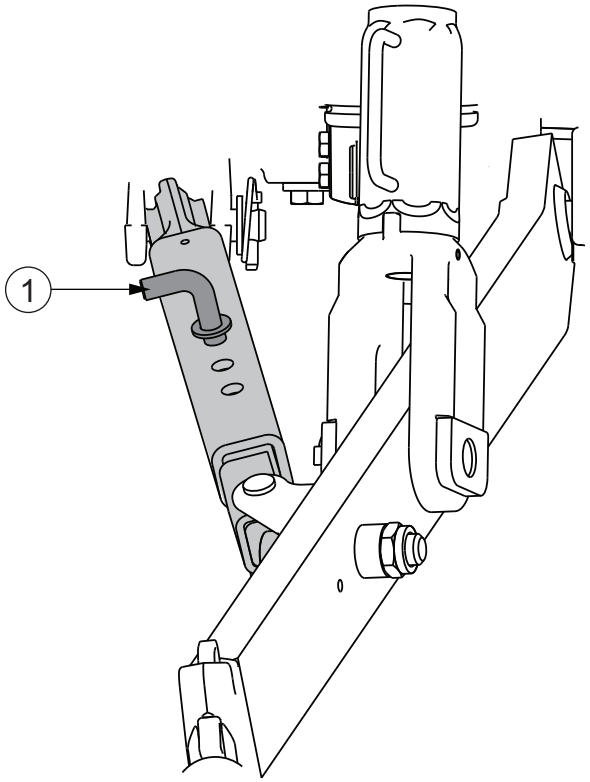
1. **Remove the lock pin and pull out the carrier pin.**
2. **Attach the lift links to the lower links with the carrier pin and plate.**

   Floating position allows a slight vertical movement of the lower links.

   The lifting range is highest and the lifting force lowest in hole closest to the tractor. And the other way around, the lifting range is lowest and the lifting force highest in the hole farthest away from the tractor.
3. **Attach the lock pin.**

3.14.5 Adjusting side limiters

You can adjust the lateral distance between the lower links by changing the length of the side limiters.



1. Limiting pin

1. **Unfasten the limiting pin.**
2. **Adjust the distance between the lower links.**

   Check that the lower links do not come into contact with tyres.

3. **Fasten the pin to the appropriate hole to obtain the desired distance between the lower links.**

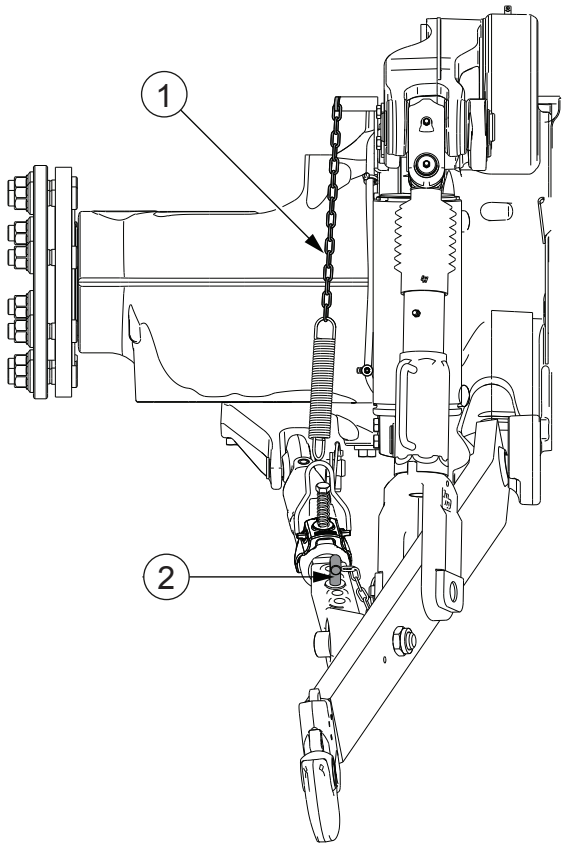
   Attaching the pin to the oval hole allows a slight lateral movement of the lower links.

3.14.6 Automatic side limiters

The automatic side limiters are used to limit the distance between the lower links. They can be set to a fixed position, similar to the standard side limiters, or they can be set to be released to floating position automatically. The automatic side limiters are optional equipment.

IMPORTANT: Adjust the automatic side limiters so that they do not come into contact with the rear wheels.

3.14.6.1 Setting automatic side limiters to fixed position



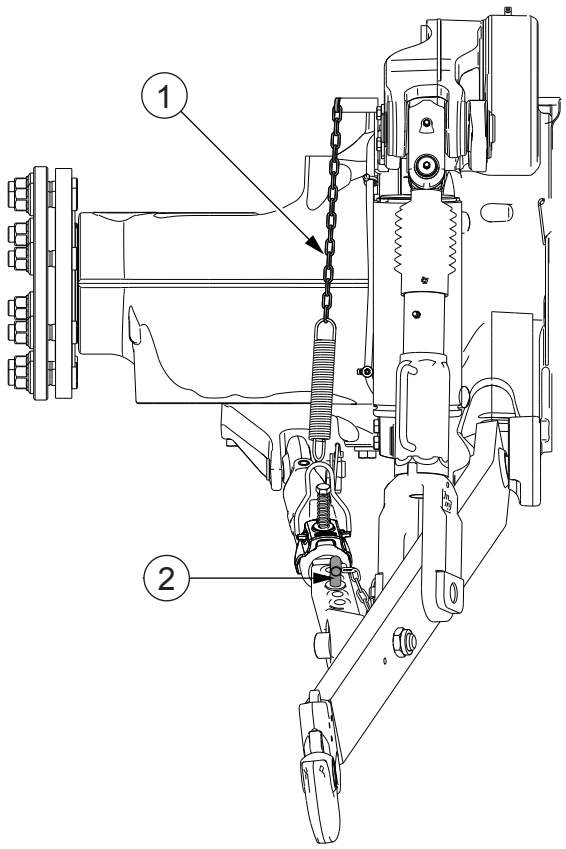
1. Holding chain
2. Limiting pin

1. **Adjust the chain to the length where it does not release the side limiter's locking when the linkage is lowered down.**
2. **Pull out the limiting pin.**

3. **Adjust the length of the side limiter.**
4. **Put the limiting pin back to lock the length of the side limiter.**

3.14.6.2 Setting automatic side limiters to floating position

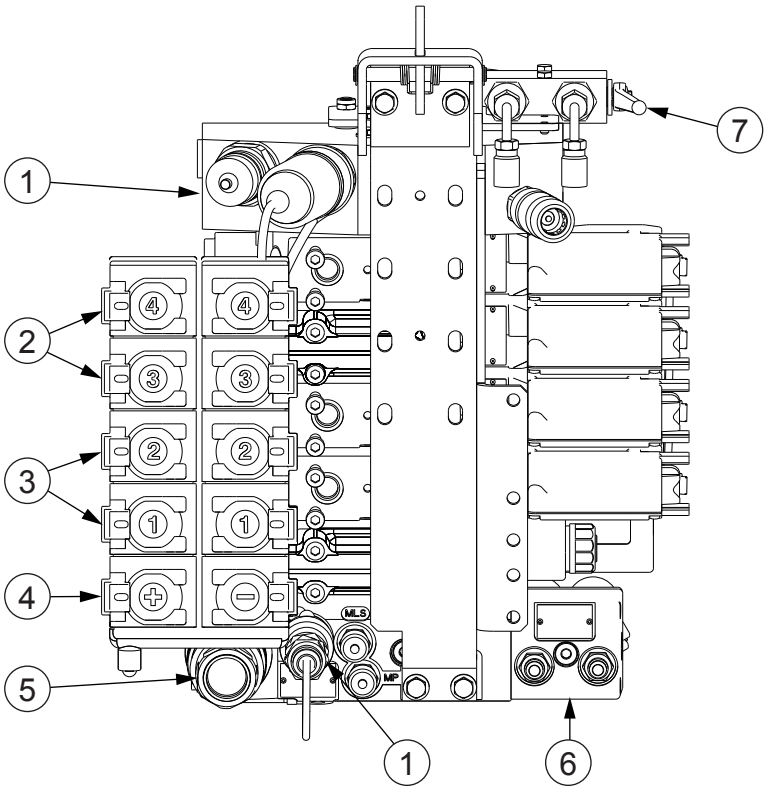
You can set the automatic side limiters so that when lowering the linkage, the side limiter is released to a floating position.



1. Holding chain
2. Limiting pin

1. **Adjust the chain to the length where it will release the side limiter's locking, at a desired height, while lowering the linkage.**
2. **Pull out the limiting pin.**
3. **Adjust the length of the side limiter.**
4. **Put the limiting pin back to lock the length of the side limiter.**

3.15 Auxiliary hydraulics



1. Power Beyond couplings (optional)
2. Rear valves 3 and 4 (optional)
3. Standard rear valves 1 and 2
4. Standard on/off valve
5. Return coupling
6. On/off valve 2 (optional)
7. Front linkage shut-off valve (optional)

All the auxiliary hydraulics standard and optional valves are electrically controlled.

Standard valves on the rear side:

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

The tractor is equipped with an auxiliary hydraulic return coupling 1” (25 mm).

Optional valves on the rear side:

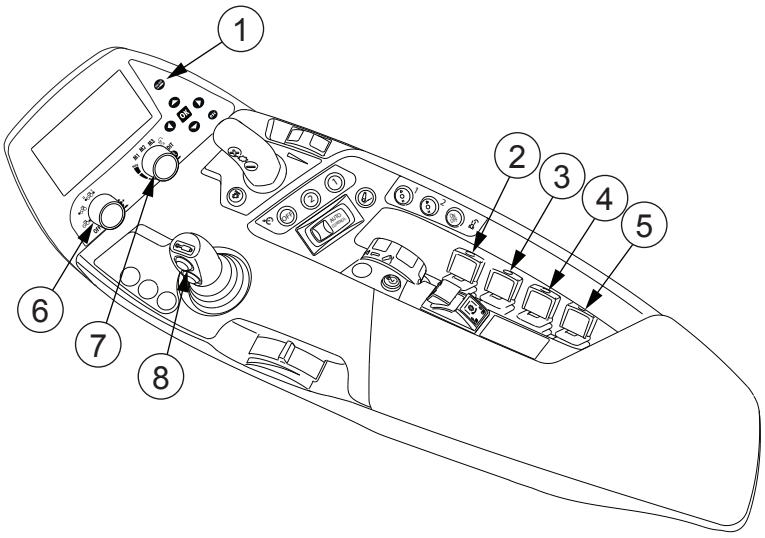
- One on/off valve
- One or two or three valves with control levers (3, 4 and 5)
- Power Beyond couplings (when Power Beyond, always with two optional valves)
- Front linkage shut-off valve (when the front linkage has been connected to the rear valves)

Optional valves on the front side:

- Two valves with joystick control (1F and 2F)
- Two valves with control levers (3F and 4F)
- Two 6/2 change valves for simultaneous coupling of front linkage and front loader

3.15.1 Auxiliary hydraulic controls and functions

The auxiliary hydraulic controls are positioned on the armrest.



1. Auxiliary hydraulics on/off push button
2. Control lever for auxiliary hydraulics rear valve 3 (optional)
3. Control lever for auxiliary hydraulics rear valve 4 (optional)
4. Control lever for auxiliary hydraulics rear valve 5 (optional) / front valve 3F (optional)
5. Control lever for auxiliary hydraulics front valve 3F (optional) / front valve 4F (optional)
6. Joystick functions selector
7. Selector for the predefined factory/user settings
8. Joystick with push buttons

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.

All the standard and optional 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:

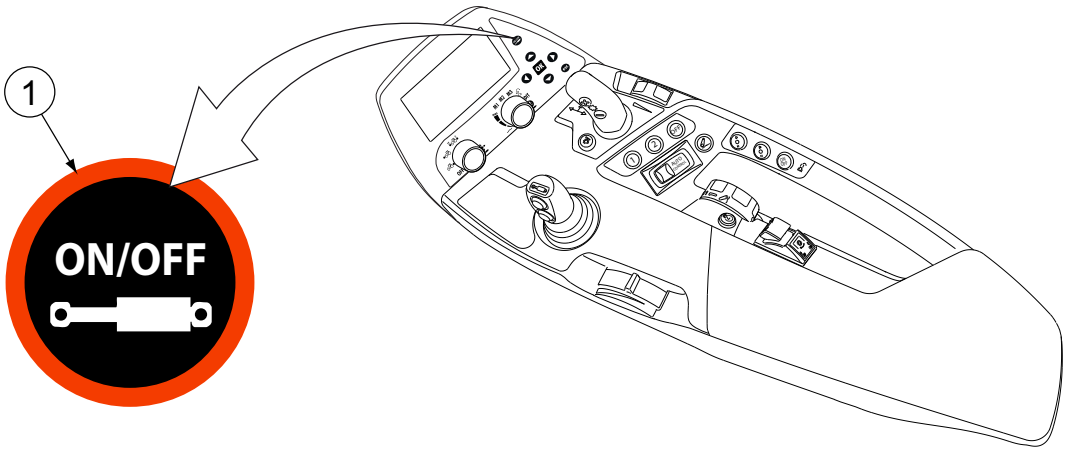
- Position lock:
  - You can lock a valve function in the ON position.
- Position lock hold time:
  - You can set a timer for a valve function to hold the position lock for a particular time between 0-60 seconds or select continuous position lock.
- Floating position, only in the (-) port:
  - You can 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.

You can set a valve to be used as a single-action valve by connecting an external device to one coupling only.

3.15.1.1 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

- **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.

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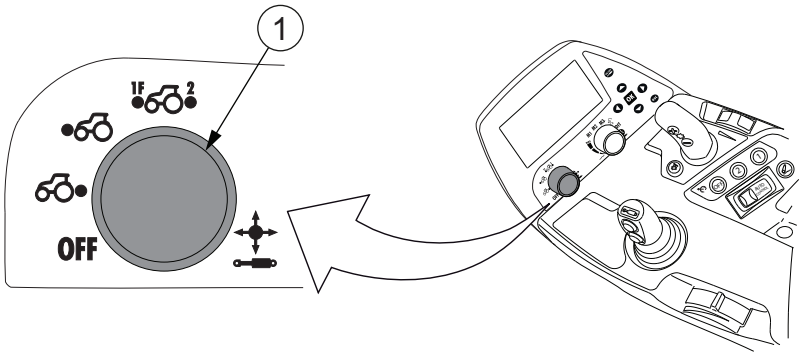
- **To deactivate the auxiliary hydraulics, press the on/off push button.**

  The indicator light goes out.

  IMPORTANT:

  The off function can be used as an emergency stop for the auxiliary hydraulics.

3.15.1.2 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.

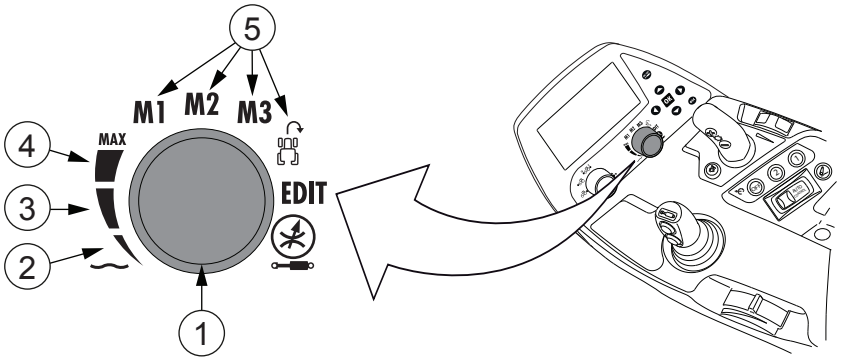
NOTE:

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 (optional)**
- **Select the icon to control the lifting/lowering of the front hydraulic valve 1F and rear hydraulic valve 2.**

3.15.1.3 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. 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 selector.



1. Selector for the predefined factory/user settings
2. Factory setting for slow output and floating position for auxiliary hydraulics valves
3. Factory setting for medium output
4. Factory setting for maximum output
5. Memory positions for predefined user settings

In the slow output setting, the floating position must be activated using the joystick or valve control lever.

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.

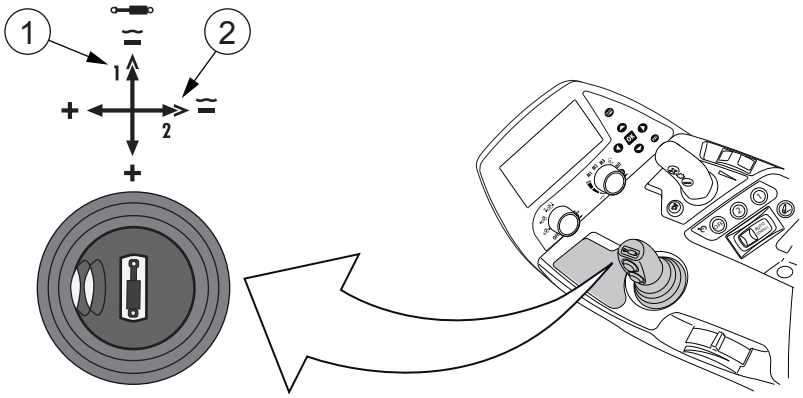
- **To select one of the three predefined factory settings, turn the selector to one of the three factory defined positions.**
- **To select one of the four predefined user settings, turn the selector to one of the positions M1, M2, M3 or .**

  The position U-pilot holds 30 memory positions for U-pilot programs, which can also be used just to save predefined settings for auxiliary hydraulic valves. To use these, the U-pilot memory position must be selected from the U-pilot view on the tractor terminal.

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3.15.1.4 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 (optional) with the joystick.



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

Use the joystick functions selector to choose the valves.

Position 1	1F	1	1F
Position 2	2F	2	2

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 around its vertical axis, because the joystick may become damaged and the wires can break.

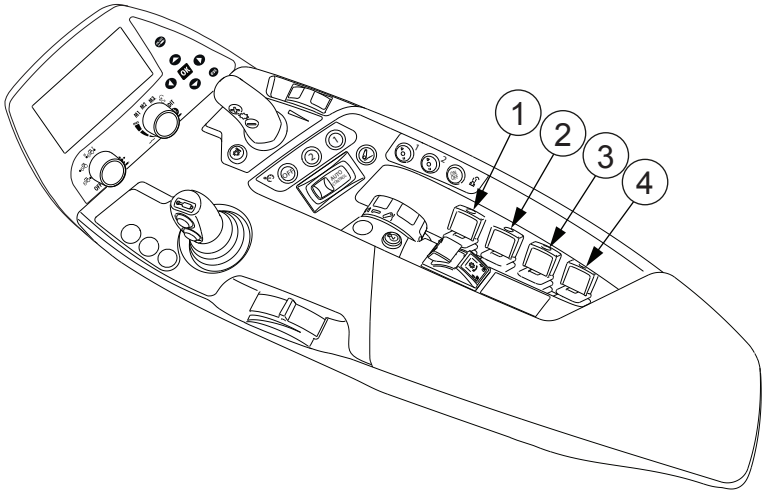
1. **To use the lifting function (+), pull the joystick backward or left.**
2. **To use the lowering function (-), push the joystick forward or right.**
3. **To use the position lock or the floating position:**
   - **Activate the position lock or the floating position from the tractor terminal.**
   - **Set the valve to the position lock or the floating position by briefly (less than one second) pushing the joystick into the extreme forward or right position.**

     Pushing the joystick continuously forward/right keeps the floating position activated until you release the joystick.
   - **To deactivate the position lock or the floating position, push the joystick slightly forward/backward or right/left.**

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

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

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



1. Control lever for auxiliary hydraulics rear valve 3 (optional)
2. Control lever for auxiliary hydraulics rear valve 4 (optional)
3. Control lever for auxiliary hydraulics rear valve 5 (optional) / front valve 3F (optional)
4. Control lever for auxiliary hydraulics front valve 3F (optional)/ front valve 4F (optional)

- **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:**
  - **Activate the position lock or the floating position from the tractor terminal.**
  - **Push the control lever in the wanted direction and to the extreme position.**

    Push the control lever past the max flow point with increased force to lock it in the extreme position. The control lever stays in the extreme position even if the timer is not working.
- **To deactivate the position lock or the floating position, return the control lever manually to the middle position.**

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3.15.1.6 Using the auxiliary hydraulics on/off valves

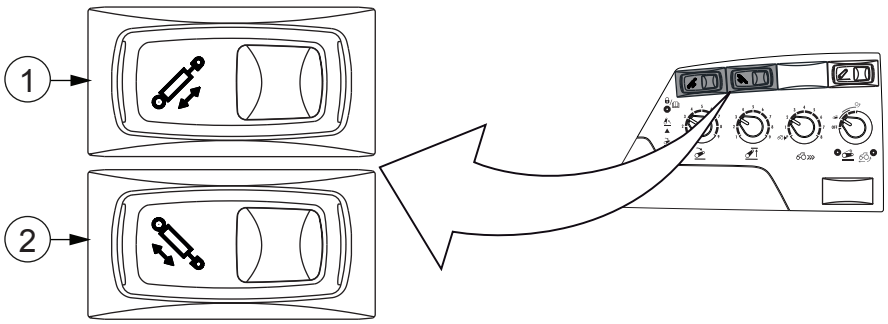
By default, the tractor is equipped with one auxiliary hydraulics on/off valve. This standard on/off valve controls the lowest quick couplings at the rear. You can use the standard rear on/off valve to control the hydraulic top link, for example.

The rear on/off valve 2 is optional. The implement is attached permanently to this valve. You can use the rear on/off valve 2 to control the hydraulic levelling link or hydraulic pick-up hitch 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.

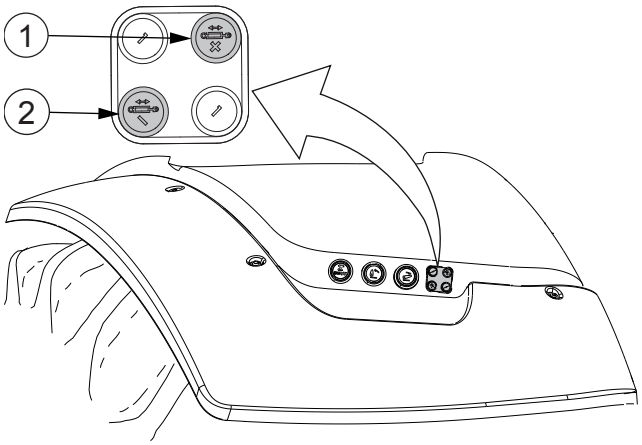


1. Switch for rear on/off valve 1
2. Switch for rear on/off valve 2 (optional)

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

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

   The optional push buttons on the rear mudguards can be used for controlling the rear on/off valve 1.These buttons work in the same way as the switch for rear on/off valve 1 in the cab.



1. Push button for the rear on/off valve 1, lifting function (+)
2. Push button for the rear on/off valve 1, lowering function (-)

3.15.1.7 Controlling the rear valve 1 from rear mudguard push buttons

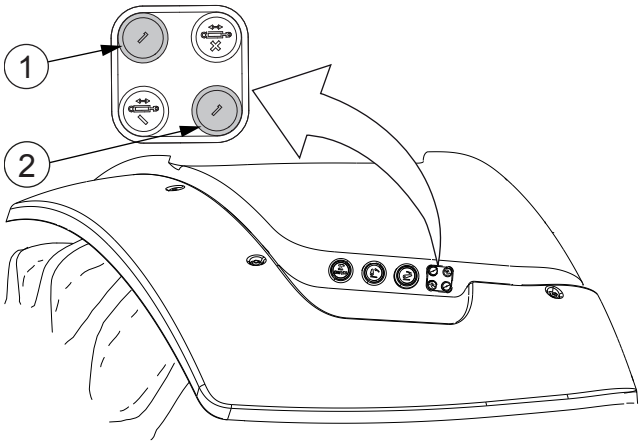
You can control the auxiliary hydraulic functions on the rear valve 1 from outside the cab by using the push buttons on the rear mudguards. This is useful, for example, for adjusting the length of a hydraulic top link when attaching implements.

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

IMPORTANT:

The rear mudguard push buttons work only when the driving speed is lower than the safety limit of 2 km/h.

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 mudguard.

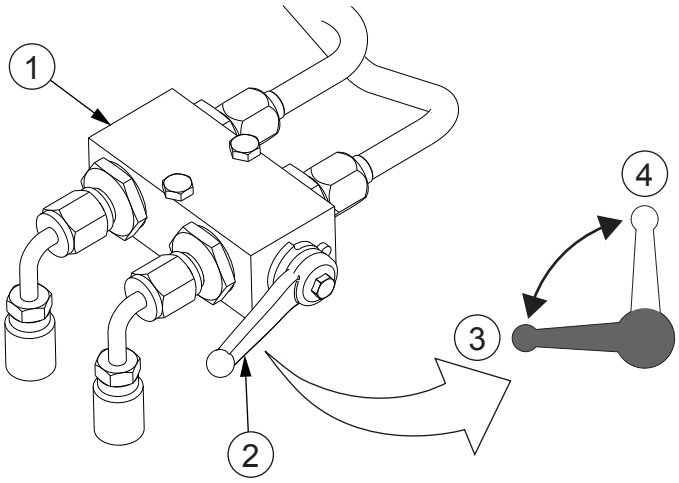
1. **Press the left (blue) push button 1 on the rear mudguard to increase the pressure in the (+) port of the rear valve 1.**
2. **Press the right (green) button 1 on the rear mudguard to increase the pressure in the (-) port of the rear valve 1.**

3.15.1.8 Using the front linkage shut-off valve

If the front linkage (optional) is connected to the rear valves, the tractor is equipped with a shut-off valve. With the shut-off valve you can open and close the oil flow to the front linkage, thus enabling to connect two implements to the same valve. The shut-off valve is located on the top of the rear valves.



WARNING: When the front linkage is being connected to the rear valve, make sure there is no load on the front linkage or rear implement connected to the same valve. The load on the front linkage or rear valve implement discharges when the shut-off valve lever is turned. This may cause the implements to move abruptly.



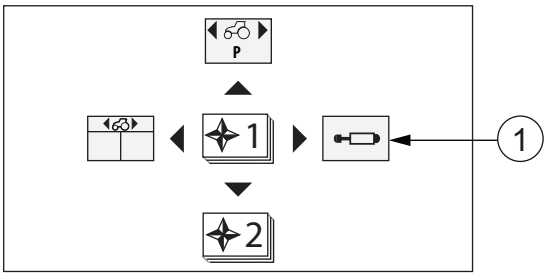
1. Shut-off valve
2. Shut-off valve lever
3. Lever in front linkage position
4. Lever in rear valve position

- **To use the front linkage:**
  - **Disconnect quick couplings from the rear valve to which the front linkage shut-off valve is connected.**
  - **Pull the shut-off valve lever to the horizontal position.**
- **To use the rear valve, push the shut-off valve lever to the top position.**

3.15.2 Changing the auxiliary hydraulics settings

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

1. **Press ESC button.**
2. **Press the right arrow button to enter the hydraulics settings view.**



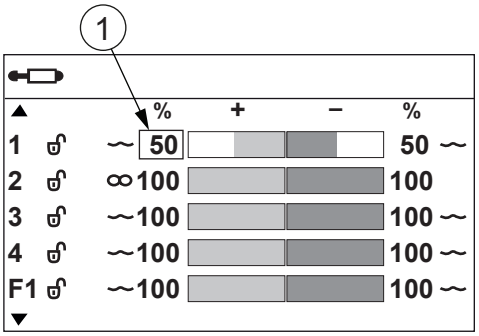
1. Auxiliary hydraulics settings view

If the U-Pilot memory is selected, the implement name and the U-Pilot symbol are shown on the top right corner of the display.

3. **Select the valve point to be set 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.

4. **Press OK or the selector for the predefined factory/user settings to activate the valve point to be set.**
   The selected valve point starts to flash.



1. Selected valve point

5. **Set the value and the function with the up and down arrow buttons or by rotating the selector for the predefined factory/user settings.**

   The port flow can be set between 1–100%.
   By pressing an arrow button or by rotating the selector for the predefined factory/user settings, the functions appear successively:

   - Position lock time 1–60 seconds
   - 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.

6. **The value is automatically saved when you deactivate the selected field by moving the navigation box to another parameter or by pressing the ESC button.**

With a short press of the ESC button you can return to the menu 1.

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

3.15.2.1 Auxiliary hydraulic control's safety time out

The auxiliary hydraulic control's safety time out is a safety function that prevents unintentional movement of implements connected to the auxiliary hydraulics.

The auxiliary hydraulic control's safety time out deactivates the joystick after 1 km of driving if the driving speed stays over the adjustable limit and the joystick has not been used. You can adjust the speed limit between 5 and 65 km/h in steps of 5 km/h. Setting the speed limit to 65 km/h disables the auxiliary hydraulic control's safety time out. The default setting is 20 km/h.

CAUTION:

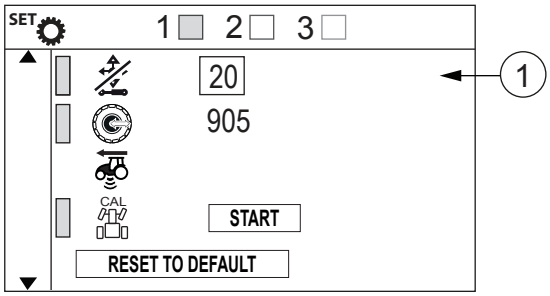
Adjust the speed limit as low as it is possible without disturbing your work. A high speed limit reduces the effect of this safety feature.

If the joystick is deactivated by this function, you have to activate the joystick functions selector again to use the joystick.

The auxiliary hydraulic control's safety time out symbol flashes on the tractor terminal display approximately 30 seconds before the joystick is deactivated by the auxiliary hydraulic control's safety time out function. The symbol is lit continuously on the tractor terminal display when the auxiliary hydraulic controls are disabled.

3.15.2.2 Adjusting the auxiliary hydraulic control's safety time out speed limit

You can adjust the auxiliary hydraulic control's safety time out speed limit through the tractor terminal transmission settings.



1. Auxiliary hydraulic control's safety time out adjustment

1. **Press ESC button.**
2. **Navigate to the menu 2 with the up and down arrow buttons.**
3. **Press the right arrow button to enter the transmission settings view.**

   NOTE: You can enter the settings view by pressing the push button for tractor terminal transmission settings view.

4. **Move the navigation box to the auxiliary hydraulic control's safety time out adjustment 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 the right arrow button.**

6. **Change the time value for the auxiliary hydraulic control's safety time out speed limit with the up or down arrow button.**

   CAUTION:
   Adjust the speed limit as low as it is possible without disturbing your work. A high speed limit reduces the effect of this safety feature.

   The value can be selected between 5 and 65 km/h.

   The value is automatically saved when you deactivate the selected field by moving the navigation box to another parameter or by pressing the ESC 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 to the menu 2.

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

3.15.2.3 Activating and deactivating the hydraulics assistant

The hydraulics assistant function increases the engine speed when added output is required for hydraulics. You can use the hydraulics assistant with the automatic driving mode.

Using the hydraulics assistant has no effect on the driving speed because the system automatically reduces the transmission ratio.

You can activate and deactivate the hydraulics assistant in the tractor terminal display transmission settings view.

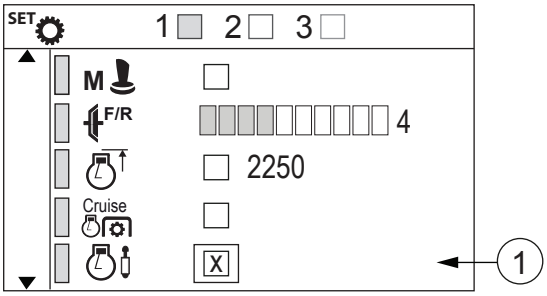
1. **Press ESC button.**
2. **Navigate to the menu 2 with the up and down arrow buttons.**
3. **Press the right arrow button to enter the transmission settings view.**

   NOTE: You can enter the settings view by pressing the push button for tractor terminal transmission settings view.

4. **Move the navigation box to the hydraulics assistant 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. **Set the desired status of the hydraulics assistant by pressing the up or down arrow button.**



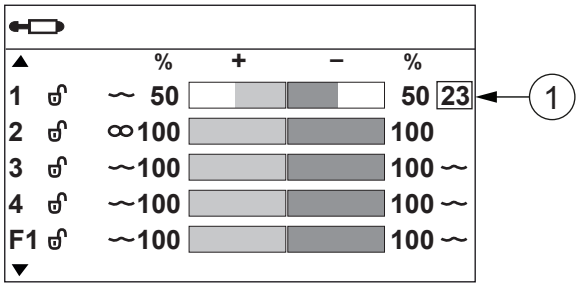
1. Hydraulics assistant is activated.

The value is automatically saved when you deactivate the selected field by moving the navigation box to another parameter or by pressing the ESC button.

With a short press of the ESC button you can return to the menu 2. A long press of the ESC button returns to the previously active drive display.

3.15.2.4 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. Position lock

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

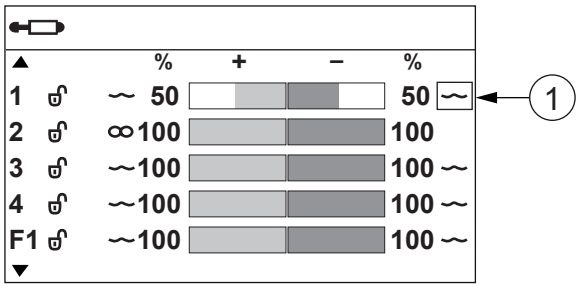
1. **Set the time for the position locking (1-60 seconds) or select the symbol continuous ∞ in the armrest display.**
2. **Activate the position locking either with the joystick or the control lever.**
   - Push the joystick quickly to the extreme position in question.
   - Turn the control lever to the extreme position in question. The control lever stays in the extreme position.

3. **To interrupt a timed position locking before the timer runs out:**
   - Move the joystick to the position in question.
   - Release the control 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 lowering circuit. If the tractor is equipped with such a valve, a dedicated, properly configured loader valve must be installed.

3.15.2.5 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. Floating position

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

1. **Set the floating position for the preferred valve port in the armrest display.**
2. **Activate the floating position either with joystick or the control lever.**
   - Push the joystick quickly to the extreme position in question.
   - Turn the control lever to the extreme position in question. The control lever stays in the extreme position.
3. **To interrupt the floating position function before the timer runs out:**
   - Move the joystick to the position in question.
   - Release the control lever to the middle position.

3.15.3 Connecting to the valves

3.15.3.1 Using quick couplings

1. **Start the engine.**
2. **Ensure that the auxiliary hydraulics is activated.**

3. **Release the load from the auxiliary hydraulics (especially from the hydraulic cylinders).**

   WARNING: When the front linkage is being connected to the rear valve, make sure there is no load on the front linkage or rear implement connected to the same valve. The load on the front linkage or rear valve implement discharges when the shut-off valve lever is turned. This may cause the implements to move abruptly.

4. **Stop the flow through the auxiliary hydraulics valves by setting the control levers to the middle position.**

5. **Activate the floating positions on the needed valves.**

   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).

   NOTE: Make sure there is no load on valves as the load will come down when setting the valves to the floating position.

   The valves go to the floating position, and the pressure exhausts from the quick couplings.

6. **Stop the engine.**

7. **Attach or release the quick 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 with the standards.

   IMPORTANT: Clean the quick 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.

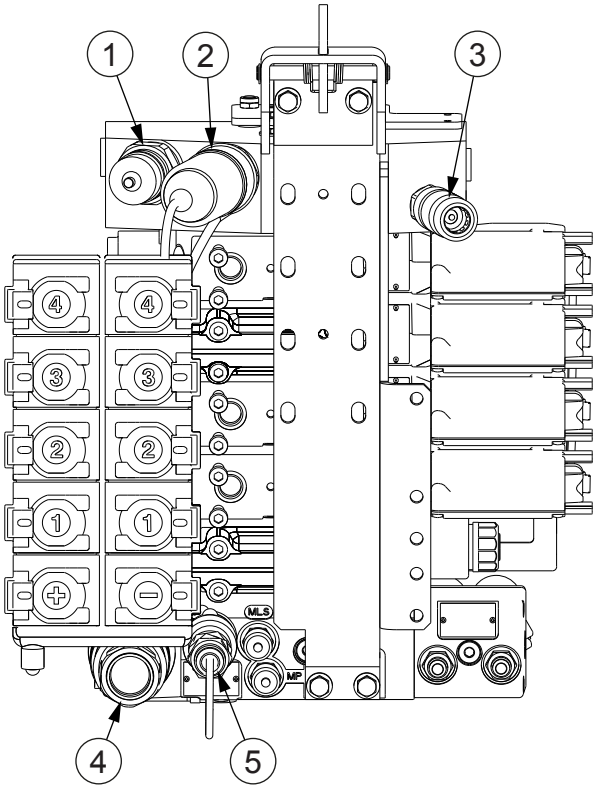
8. **Start the engine.**

   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).

3.15.3.2 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 to which the implement load-sensing system has to be connected (LS line).

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1. Return coupling (T2), male quick coupling 1” (25 mm)
2. Pressure coupling, female quick coupling 3/4” (20 mm)
3. LS coupling, female quick coupling 3/8” (10 mm)
4. Free return coupling (T1), male quick coupling 1” (25 mm)
5. Case drain coupling (T0), female quick coupling 1/2” (12.5 mm)

IMPORTANT: Use only couplings that comply with 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.

   Always prefer the free return coupling T1 as the primary tank port. Use return port T2 only if two return ports are needed; the counterpressure in the return port T2 is 8 bars higher at 150 l/min than in the free return port T1. The case drain coupling T0 does not have any counterpressure and can only be used as case drain line.

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 implement (and any other device) is not used, the pump line has only standby pressure caused by the pump controller (normally 20…25 bar). This improves fuel economy and decreases oil temperature since there is flow only when the implement requires it.

3.15.3.3 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 control lever to the (+) direction.**
   The tipping device moves up.
2. **To remove the pressure from the working device, move the respective valve control lever to the (-) direction.**

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

3.15.3.4 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.**

  NOTE:

  If the hydraulic motor has been connected to the (–) port, you can stop the motor in a smoother way by setting the valve to the floating position.

- **To rotate the hydraulic motor in both directions when you are attaching the couplings to both (+) and (-) ports, mount the separate shock valves to the hydraulic motor if they are not already standards in the hydraulic motor.**

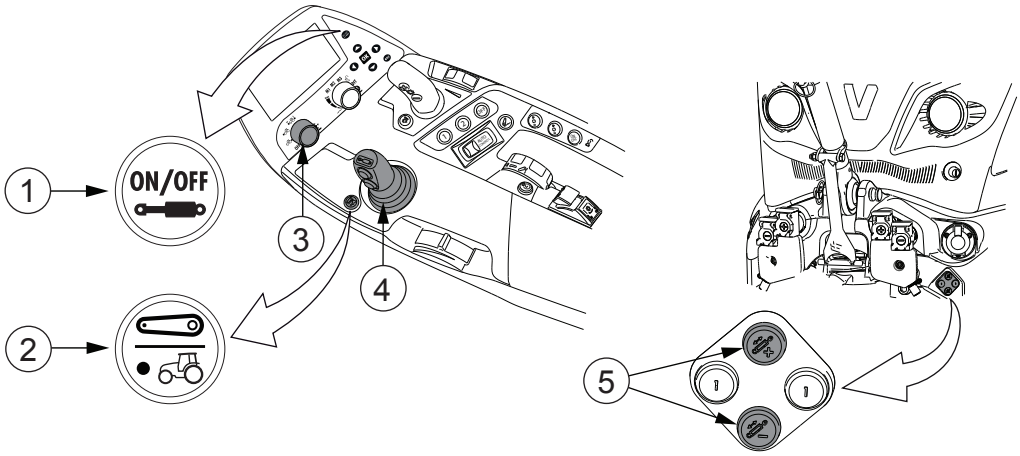
NOTE: Pay attention to the hydraulics oil temperature, because high temperatures can shorten the oil life time or damage the hydraulic pump or the hydraulic motor. You can follow the hydraulics oil temperature on the tractor terminal display. Stop the engine if the maximum temperature is reached.

3.16 Front linkage

3.16.1 Using the front linkage

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

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1. Auxiliary hydraulics on/off push button
2. Changeover button for front linkage/front loader (optional)
3. Joystick functions selector
4. Joystick
5. Lifting/lowering push buttons on the front end

- **Activate the auxiliary hydraulics by pressing the on/off push button.**

  The on/off symbol on the push button is lit green.

- **Turn the joystick functions selector to position •.**

- **If the tractor is equipped with a changeover button for front linkage/front loader, press the button if the push button light is not lit.**

  When lit, the front linkage is in use.

- **To raise the front linkage, pull the joystick rearwards or press the lifting push button on the front end.**

- **To lower the front linkage, push the joystick forwards or press the lowering push button on the front end.**

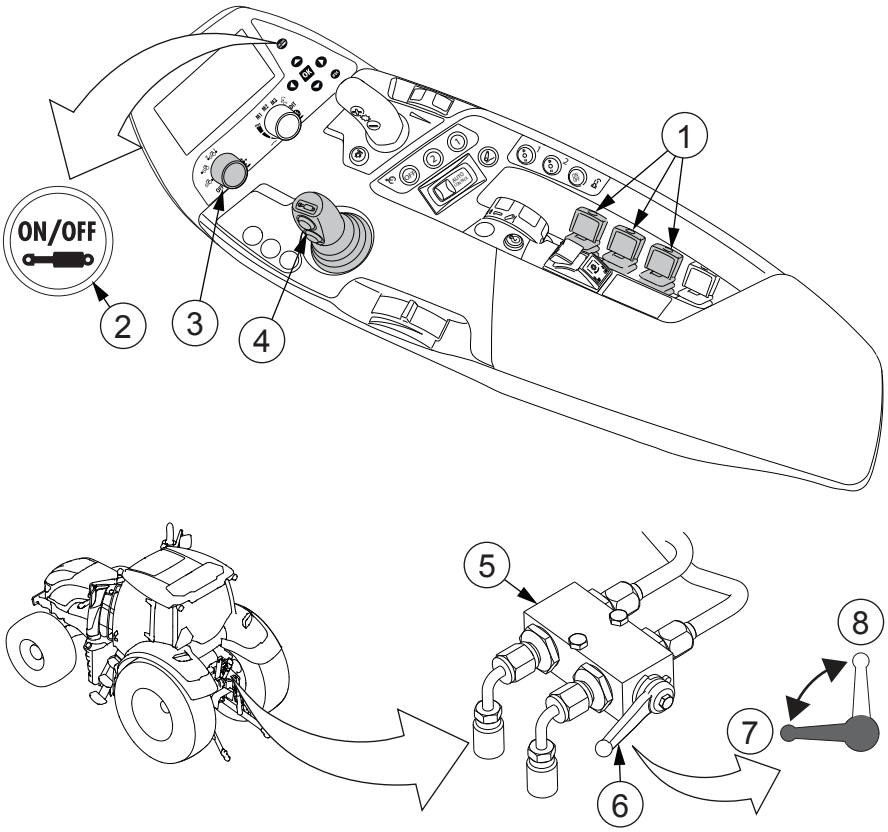
- **If the implement follows the ground, use the floating position.**
  - **Activate the floating position from the tractor terminal.**
  - **Set the valve to the floating position by briefly (less than one second) pushing the joystick into the extreme forward position.**

    Pushing the joystick continuously forward activates the floating position until you release the joystick.
  - **To deactivate the floating position, push the joystick slightly forward or backward.**

  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 of the wheels may be lost.

3.16.2 Using the front linkage connected to the rear valves

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



1. Control lever for auxiliary hydraulics rear valve
2. Auxiliary hydraulics on/off push button
3. Joystick functions selector
4. Joystick
5. Shut-off valve
6. Shut-off valve lever
7. Lever in front linkage position
8. Lever in rear valve position

- **Activate the auxiliary hydraulics by pressing the on/off push button.**

  The on/off symbol on the push button is lit green.

- **Turn the joystick functions selector to position •.**

- **Disconnect quick couplings from the rear valve to which the front linkage shut-off valve is connected.**

  WARNING: When the front linkage is being connected to the rear valve, make sure there is no load on the front linkage or rear implement connected to the same valve. The load on the front linkage or rear valve implement discharges when the shut-off valve lever is turned. This may cause the implements to move abruptly.

- **Pull the front linkage shut-off valve to the horizontal position.**
- **To raise the front linkage, pull the joystick or control lever rearwards.**
- **To lower the front linkage, push the joystick or control lever forwards.**
- **If the implement follows the ground, use the floating position.**
  - **Activate the floating position from the tractor terminal.**
  - **Set the valve to the floating position by briefly (less than one second) pushing the joystick or control lever into the extreme forward position.**

    Pushing the joystick/control lever continuously forwards activates the floating position until you release the joystick/control lever.
  - **To deactivate the floating position, push the joystick/control lever slightly forward or backward.**

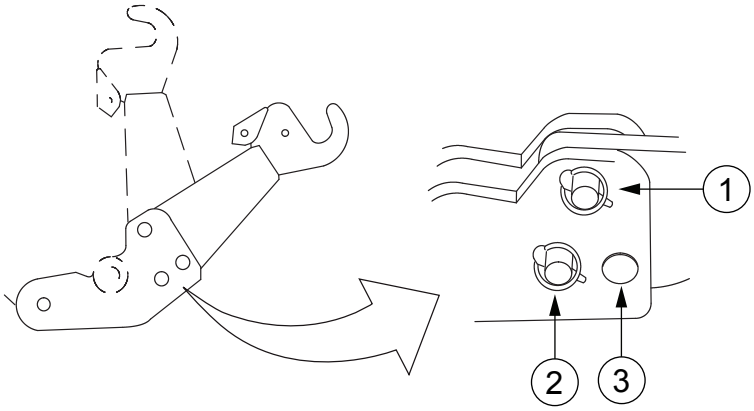
  IMPORTANT: Always use the floating position for implements following the ground contour. Otherwise there is a risk that the implement may get damaged or the traction of the wheels may be lost.

3.16.3 Setting front linkage lifting link positions

You can set the lifting links to different positions mechanically by changing the positions of the fastening bolts.

CAUTION: When driving on public roads, with or without an implement, always lift the front linkage fully up.

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



1. Fastening hole 1
2. Fastening hole 2
3. Fastening hole 3

1. **Set the lifting links to the desired position and fit the fastening bolts to the holes.**

Lifting link position	Fastening bolt location
Working	Fastening bolts are fitted in holes 1 and 2 or 1 and 3.
Transport	Lifting links are folded fully up and fastening bolts are fitted in holes 1 and 3.
Floating	Fastening bolt is fitted in hole 1 only. **NOTE**: When using the mechanical floating position, the maximum load on the ball hitch couplers is 25 kN.

2. **Secure the fastening bolts with locking pins.**
3. **When you drive on public roads and there is an implement on the front linkage covering the headlights, switch the upper headlights on (optional equipment).**

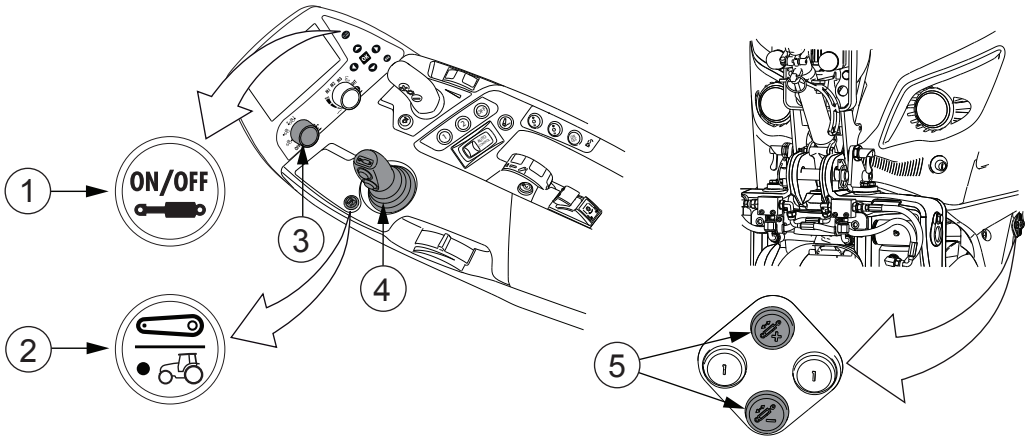
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3.17 Pivoting front linkage

3.17.1 Pivoting front linkage

3.17.1.1 Using the pivoting front linkage

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



1. Auxiliary hydraulics on/off push button
2. Changeover button for front linkage/front loader (optional)
3. Joystick functions selector
4. Joystick
5. Lifting/lowering push buttons on the front end

- **Activate the auxiliary hydraulics by pressing the on/off push button.**

  The on/off symbol on the push button is lit green.

- **Turn the joystick functions selector to position •.**

- **If the tractor is equipped with a changeover button for front linkage/front loader, press the button if the push button light is not lit.**

  When lit, the pivoting front linkage is in use.

- **To raise the pivoting front linkage, pull the joystick rearwards or press the lifting push button on the front end.**

- **To lower the pivoting front linkage, push the joystick forwards or press the lowering push button on the front end.**

- **To turn the pivoting front linkage to the right, push the joystick to the right.**

- **To turn the pivoting front linkage to the left, push the joystick to the left.**

- **If the implement follows the ground, use the floating position.**
  - **Activate the floating position from the tractor terminal.**
  - **Set the valve to the floating position by briefly (less than one second) pushing the joystick into the extreme forward position.**

    Pushing the joystick continuously forward activates the floating position until you release the joystick.
  - **To deactivate the floating position, push the joystick slightly forward or backward.**

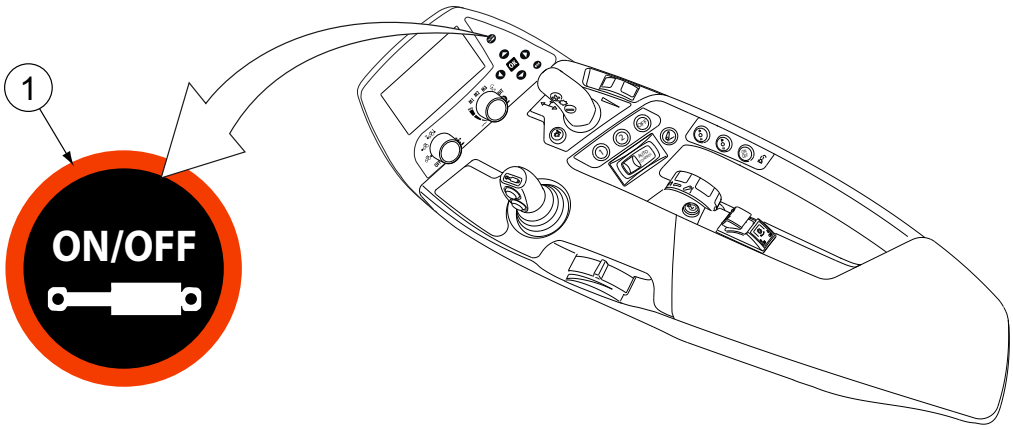
  IMPORTANT: Always use the floating position for implements following the ground contour. Otherwise there is a risk that the implement may get damaged or the traction of the wheels may be lost.

3.17.2 Valtra LHLink

Valtra LHLink allows the front linkage to turn when the front wheels turn. You can adjust the turning of the front linkage as well as the offset pivoting. The turning of the front linkage can be controlled either manually or automatically. Valtra LHLink is useful, for example, when mowing or sweeping around the corners.

3.17.2.1 Activating and deactivating the Valtra LHLink

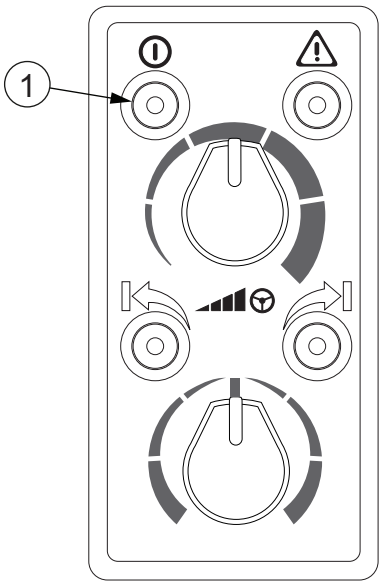
- **Activate the auxiliary hydraulics by pressing the ON/OFF push button.**



1. Auxiliary hydraulics on/off push button

The indicator light on the push button is lit.

- **Activate the Valtra LHLink by pressing the on/off button.**



1. LHLink on/off button

The Valtra LHLink is activated when the indicator light on the button is lit.

- **If the indicator light blinks, slowly turn the steering wheel to match the turning angle of the front wheels to the front linkage.**

  The indicator light is lit.

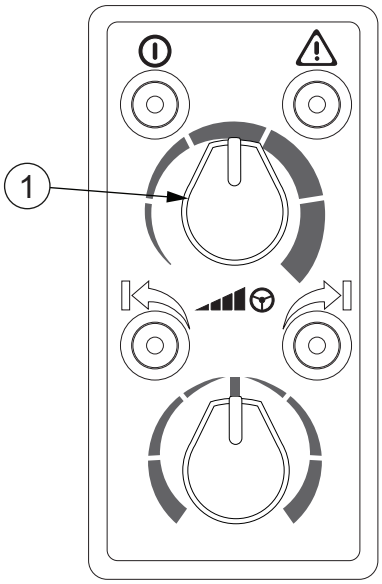
- **Turn off the Valtra LHLink by pressing the on/off button.**

  The indicator light on the button blinks and goes out.

3.17.2.2 Adjusting the turning ratio

The turning ratio controller controls how much the Valtra LHLink turns in relation to the front wheels.

CAUTION: When the steering wheel is not in the centre position and the turning ratio controller knob is adjusted, the LHLink may turn unexpectedly.



1. Turning ratio controller knob

- **To decrease the turning of the Valtra LHLink, rotate the controller knob to leftwards.**

  The Valtra LHLink turns less in relation to the front wheels.

- **To turn the Valtra LHLink in relation with the front wheel, rotate the controller knob to middle position.**

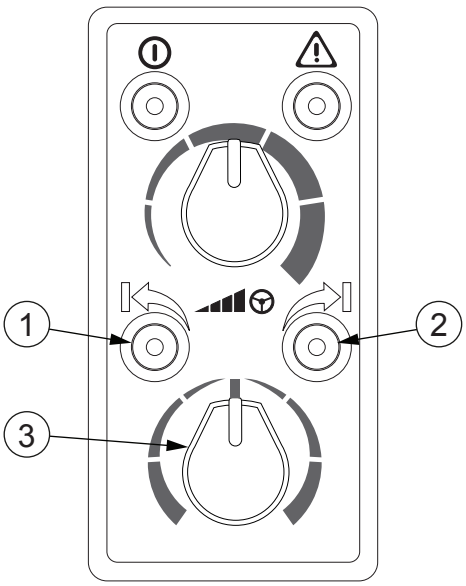
  The Valtra LHLink turns in relation to the front wheels.

- **To increase the turning of the Valtra LHLink, rotate the controller knob to rightwards.**

  The Valtra LHLink turns more in relation to the front wheels.

3.17.2.3 Limiting the turning range

You can limit the left and right maximum turning angle of the Valtra LHLink.



1. Left limit button
2. Right limit button
3. Offset pivot controller

1. **Turn the Valtra LHLink to the desired left or right maximum turning angle.**

   You can use the steering wheel or the offset pivot controller.

2. **Press the left or right limit button to activate the turning range limit.**

   The indicator light on the button is lit.

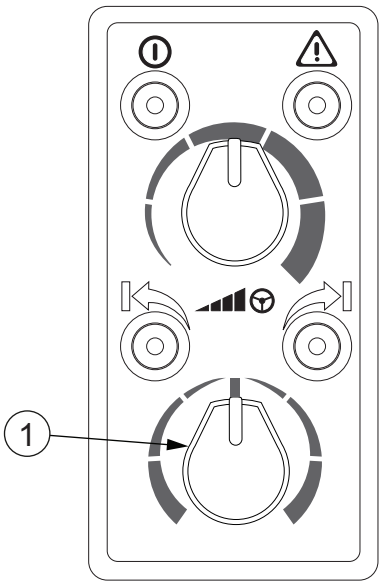
3. **To deactivate the turning range limit, press the left or right limit button again.**

   The indicator light on the button goes out.

   If the Valtra LHLink is turned close to its maximum turning angle when you deactivate the turning angle limit, you must reactivate the Valtra LHLink.

3.17.2.4 Adjusting the offset pivot

By adjusting the offset pivot you can manually turn the Valtra LHLink without turning the front wheels.



1. Offset pivot controller

- **To turn the Valtra LHLink to left, rotate the offset pivot controller leftwards.**
- **To turn the Valtra LHLink to centre position, rotate the offset pivot controller to middle position.**
- **To turn the Valtra LHLink to right, rotate the offset pivot controller rightwards.**

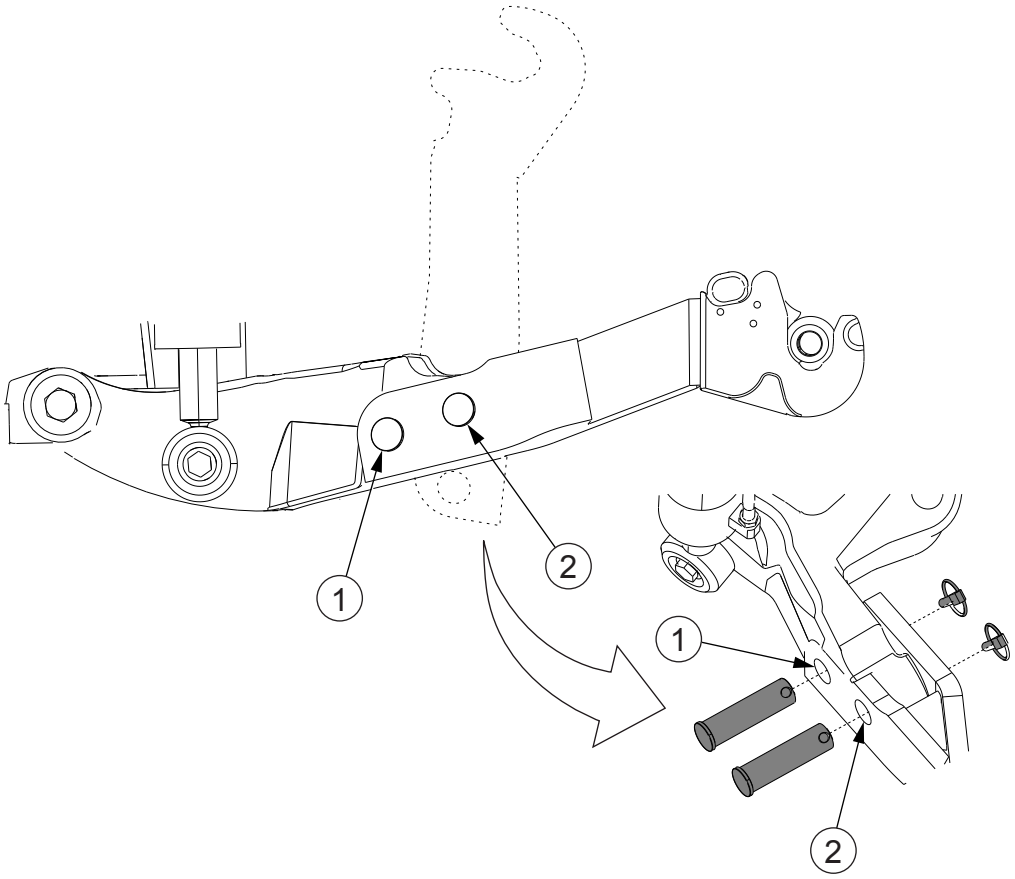
3.17.3 Setting lifting link positions

You can set the lifting links to different positions mechanically by changing the positions of the fastening bolts.

CAUTION: When driving on public roads, with or without an implement, always centre and lift the pivoting front linkage fully up.

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

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1. Fastening hole 1
2. Fastening hole 2

1. **Set the lifting links to the desired position and fit the fastening bolts to the holes.**

Lifting link position	Fastening bolt location
Working	Fastening bolts are fitted in holes 1 and 2.
Transport	Lifting links are folded up and fastening bolt is fitted in hole 2. The other bolt is in place holding the lifting link up-folded.
Floating	Fastening bolt is fitted in hole 2 only. **NOTE**: When using the mechanical floating position, the maximum load on the ball hitch couplers is 25 kN.

2. **Secure the fastening bolts with locking pins.**
3. **When you drive on public roads and there is an implement on the front linkage covering the headlights, switch the upper headlights on (optional equipment).**

3.18 Valtra front loader

3.18.1 Using the Valtra front loader

Valtra front loader is optional equipment.

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

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

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

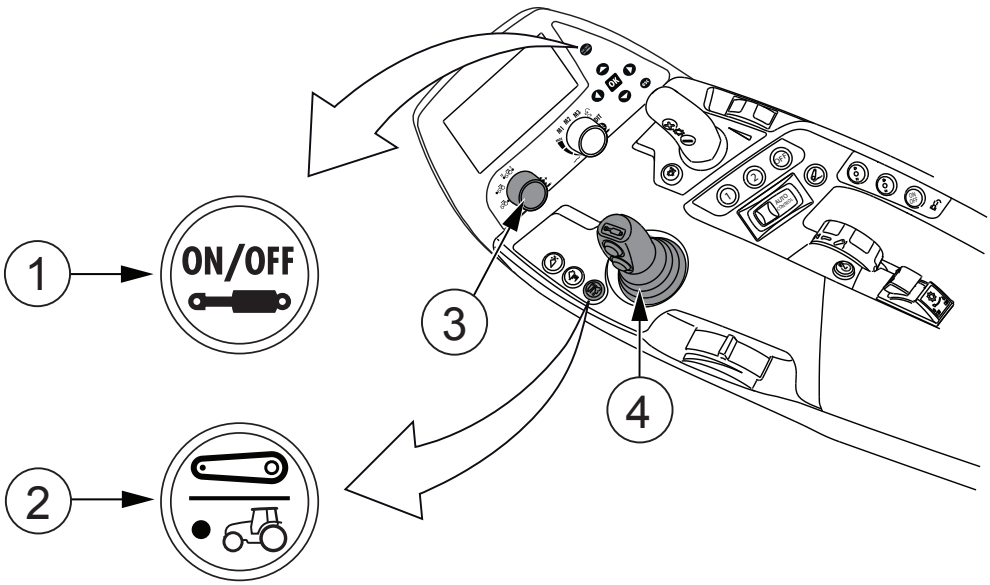
WARNING: The programmable features of the joystick or other controls MUST NOT be used to operate a loader. In order to prevent involuntary loader motion, the loader joystick controller must be of a self-neutralising type. When the operator releases his grip on the joystick, the joystick must return to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

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

IMPORTANT: It is not recommended to attach the front loader to the valves with the timer function. If you do so, be sure that the timer is disabled when attaching.

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

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1. Auxiliary hydraulics on/off push button
2. Changeover button for front linkage/front loader (optional)
3. Joystick functions selector
4. Joystick with push buttons

- **Activate the auxiliary hydraulics by pressing the on/off push button.**

  The on/off symbol on the push button is lit green.

- **Switch the joystick functions selector to position ●.**

- **If the tractor is equipped with a front linkage/front loader changeover push button, check that the push button light is not lit.**

  When lit, the front linkage is activated.

- **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 (optional), press the lower push button in the joystick.**

  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 (optional), press the upper push button in the joystick.**

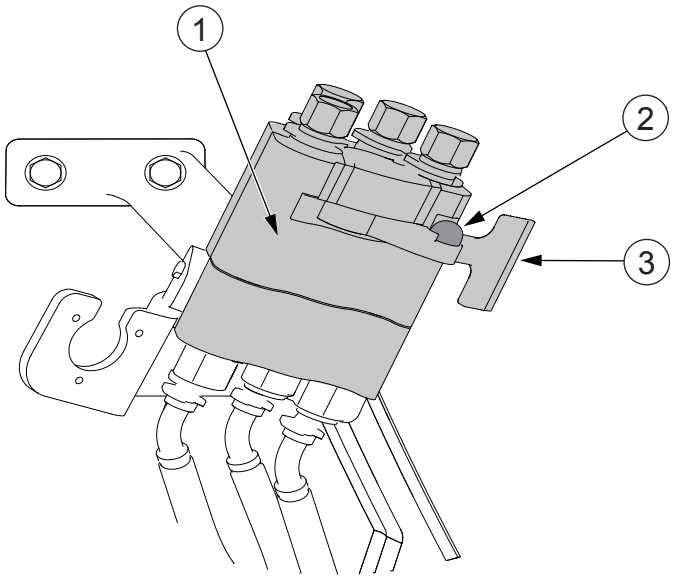
  By pressing the button and simultaneously turning the joystick sideways towards yourself, the pressure is in the red connectors. By turning the joystick away from yourself, the pressure is in the blue connectors.

- **To make the front loader follow the ground, use the floating position.**
  - **Activate the floating position from the tractor terminal.**
  - **Set the valve to the floating position by briefly (less than one second) pushing the joystick into the extreme forward position.**

    When pushing the joystick continuously forward, the floating position is activated until you release the joystick.

3.18.2 Using the Valtra Quick front loader coupling device

The quick coupling device is optional 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.

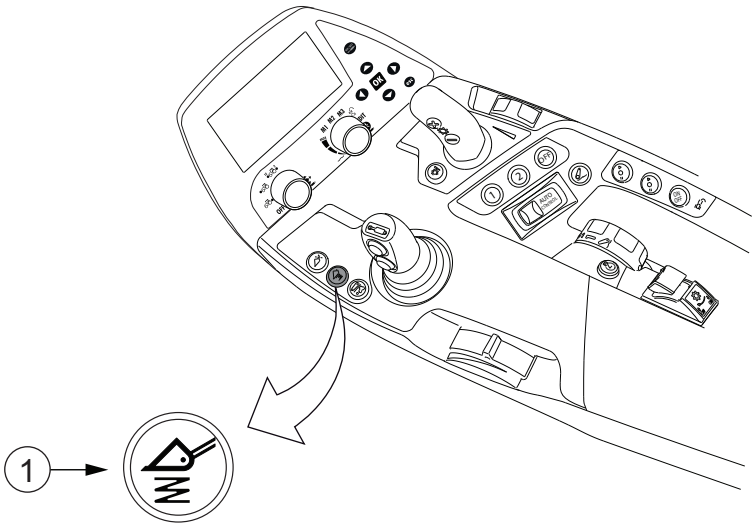
- **To release the hose multicoupler, press down the lock button and turn the lever to the open position.**
- **To attach the multicoupler, turn the lever to the closed position.**

  The lock button pops up.

3.18.3 Using 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. The Softdrive function is optional.

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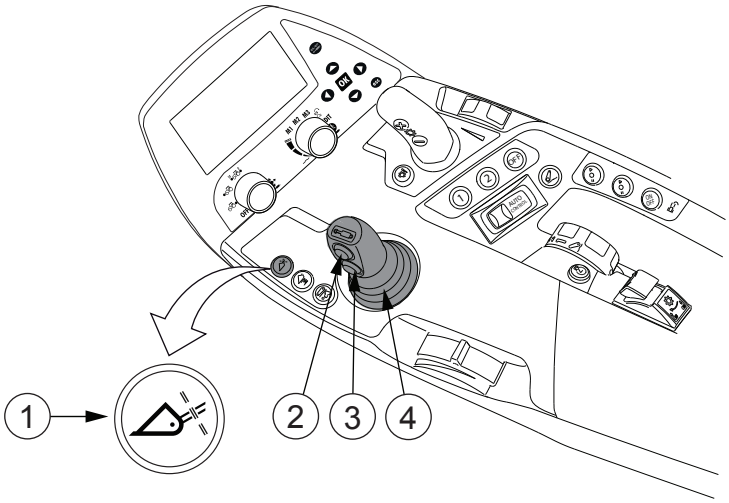


1. Button for Softdrive

- **To activate or deactivate the Softdrive function, press the button for Softdrive.**

  When activated, the light of the button is lit green.
  NOTE: You can keep Softdrive activated during most working activities. It is recommended that you deactivate Softdrive only if special precision is required.

3.18.4 Locking the equipment

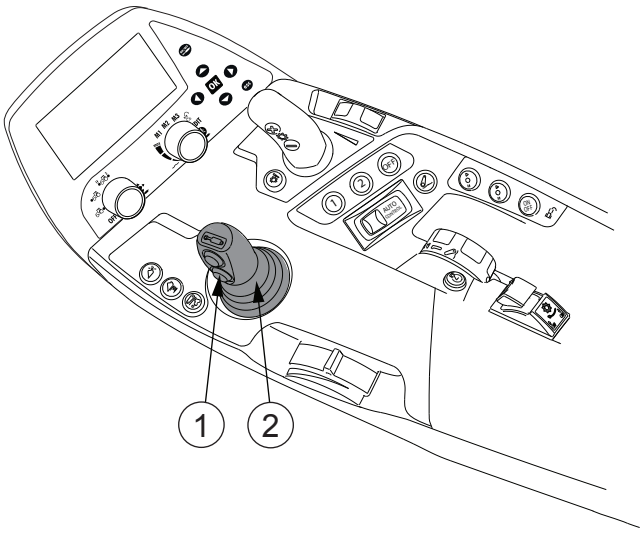


1. Button for hydraulic implement locking (optional)
2. Upper joystick push button
3. Lower joystick push button
4. Joystick

- To lock the equipment to the loader frame:
  - Simultaneously press the button for hydraulic implement locking and the lower joystick push button, and move the joystick to the left.
- To release the equipment from the loader frame:
  - Simultaneously press the button for hydraulic implement locking and the lower joystick push button, and move the joystick to the right.

3.18.5 Controlling the extra cylinder with the change valve

You can open and close for example the bale grip using the change valve.



1. Lower joystick push button
2. Joystick

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

3.19 Power take-off

3.19.1 Attaching implements to the power take-off

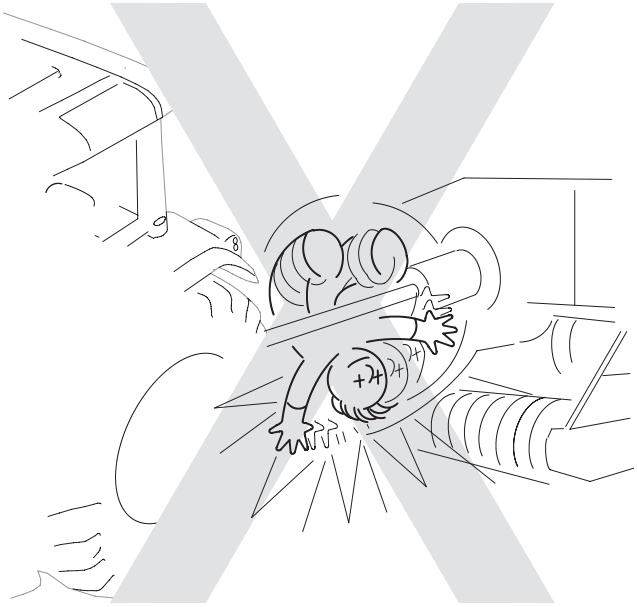
Before attaching implements to the tractor power take-off (PTO), make sure the implement is designed for the used PTO speed (540 rpm or 1 000 rpm).

CAUTION: Observe all safety precautions in any operation involving implements driven by the PTO.

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

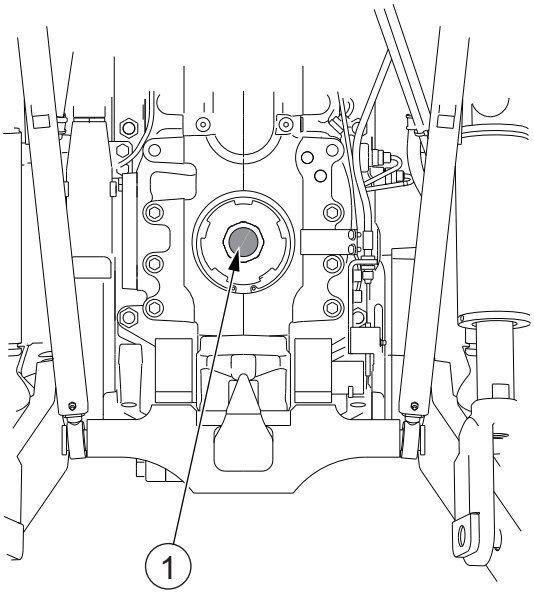
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WARNING: When a PTO-driven implement is being used, no personnel are allowed near the PTO drive shaft. Service work on the PTO drive shaft should be carried out with the PTO disengaged, the engine stopped and the ignition key removed from the ignition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



WARNING: After the 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 PTO drive shaft end should always be attached when the PTO is not in use.



1. PTO cover

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

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

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

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

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

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

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

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

- **Engage the PTO at a low engine speed to protect the PTO.**
- **In freezing weather, ensure that the transmission oil is warm before engaging the PTO.**

  Before engaging the PTO in freezing weather:

  - let the engine and transmission oil warm up for a little while at low engine revs. To speed up the transmission oil warming, adjust the engine speed to 1 500 rpm and keep the steering wheel turned to the extreme position.

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

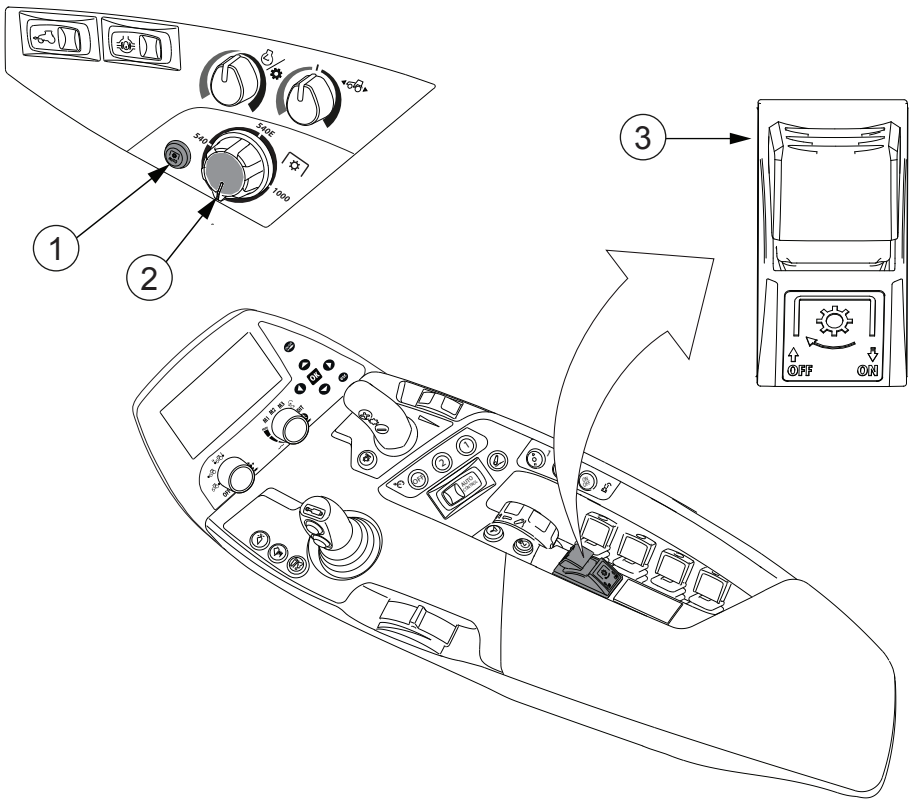
3.19.2 Rear power take-off

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.

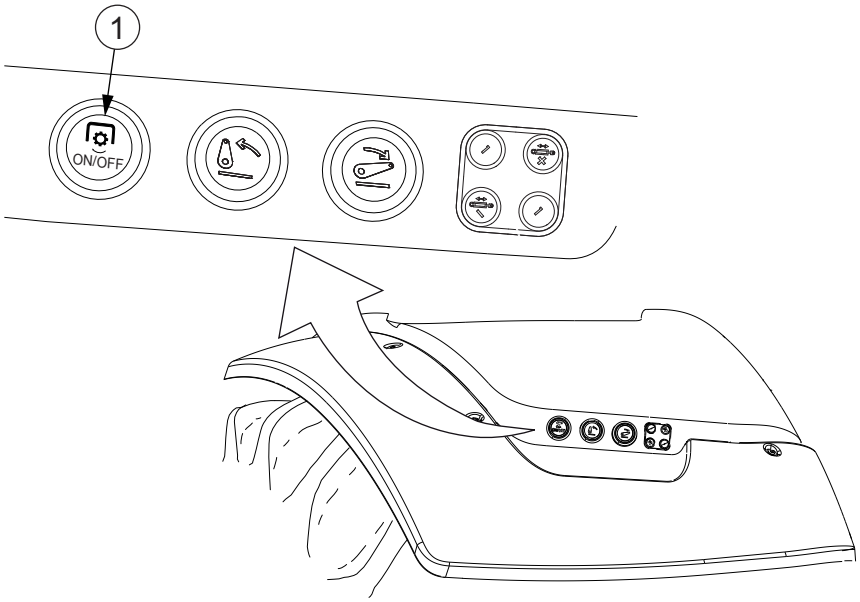
The rear power take-off controls are the following:

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1. Button for rear PTO automatic start/stop
2. Speed control knob for rear PTO
3. Switch for rear PTO

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



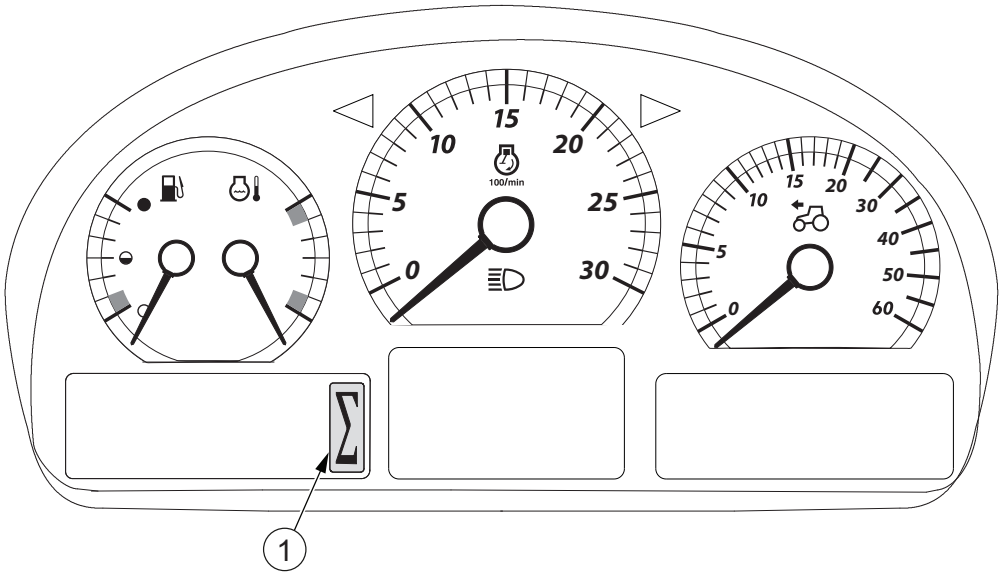
1. Rear PTO on/off push button

Sigma Power

In models N134 D and N154e D, the Sigma Power control system is extra equipment.

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

3.19.2.1 Recommended rear power take-off shafts

Both 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 approximately 1890 rpm)

Normally a 6-spline shaft (optional) with a diameter of 35 mm is recommended.

The ISO norm does not limit the power of a 540-rpm 6-spline PTO shaft with a diameter of 35 mm.

IMPORTANT: For power over 67 hp (50 kW), use a 1000-rpm output to ensure the durability of the PTO shafts.

Implements for 1000 rpm (at engine speed of approximately 1900 rpm)

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

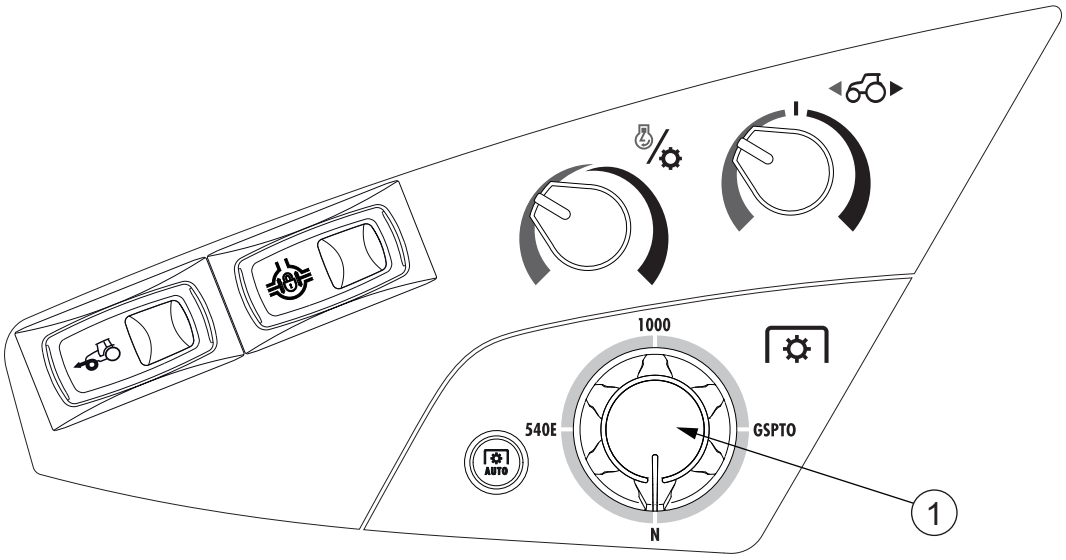
Heavy use

Normally a 20-spline shaft with a diameter of 45 mm is recommended. If necessary, a torque-limiting clutch with the maximum torque of 1000 Nm should be used.

3.19.2.2 Activating rear power take-off

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

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



1. Speed control knob for rear PTO

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

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

  - 540/1000
  - 540/540E/1000
  - 540/1000/1000E
  - 540E/1000/GSPTO
  - 540E/1000E/GSPTO

  IMPORTANT: When using the speed 540E, the shaft speed of 540 rpm is achieved with an engine speed of approximately 1520 rpm. If the engine speed is accelerated, the PTO shaft speed can rise up to 800 rpm.

- **Activate the ground speed PTO (optional) by turning the speed control knob to the GSPTO position.**

If the system is unable to engage the desired speed range, it will try to engage it again automatically. Another speed range is first engaged and then a new attempt is made on the desired speed range. If it still does not engage, you can restart the engaging operation by first turning the speed selection knob to another position and then back to the desired position.

The indicator light  on the instrument panel has five different modes to describe the rear PTO operation.

- The light is lit when the PTO is on or the proportional ground speed power take-off has been engaged.
- The light blinks quickly if the PTO is rotating but no longer engaged.
- The light blinks with normal speed when the PTO is not rotating and the gear selected with the speed control knob is engaged.
- The light blinks slowly if the PTO is not rotating and the gear selected with the speed control knob is not engaged.
- The light is not lit when the PTO is not on and the speed control knob is in the N position.

3.19.2.3 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 knob.

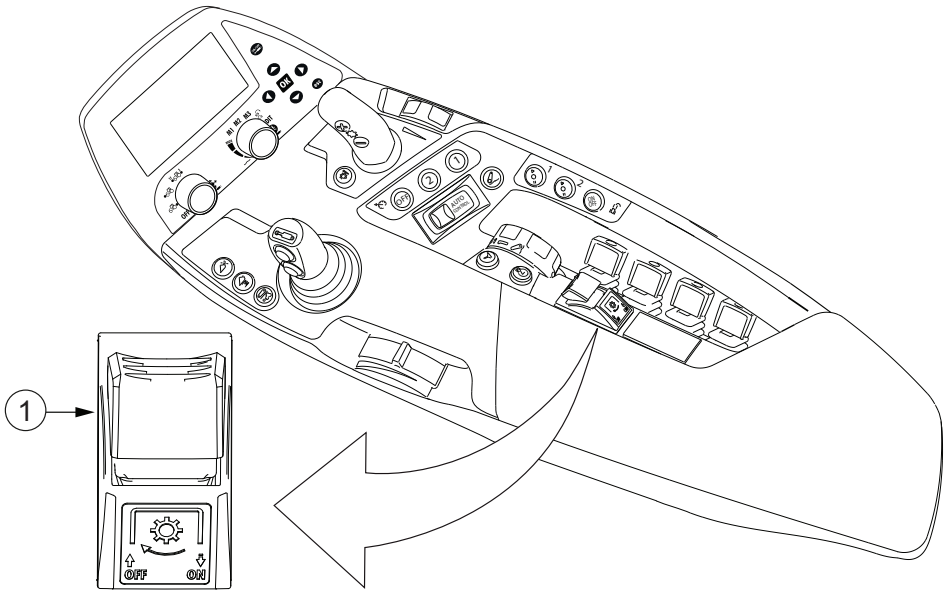
You can start the rear PTO in two ways:

- By using the switch for rear PTO. The switch for rear PTO has two positions, on and off, and it returns to the centre position automatically.
- By using the rear PTO on/off push button (optional) on the rear mudguard.

If the tractor is equipped with front PTO (optional), the front PTO switch on the armrest is located in front of the rear PTO switch.

- **Start the rear PTO by pressing the switch down and pulling it backward.**

  The indicator light on the proline instrument panel is lit.

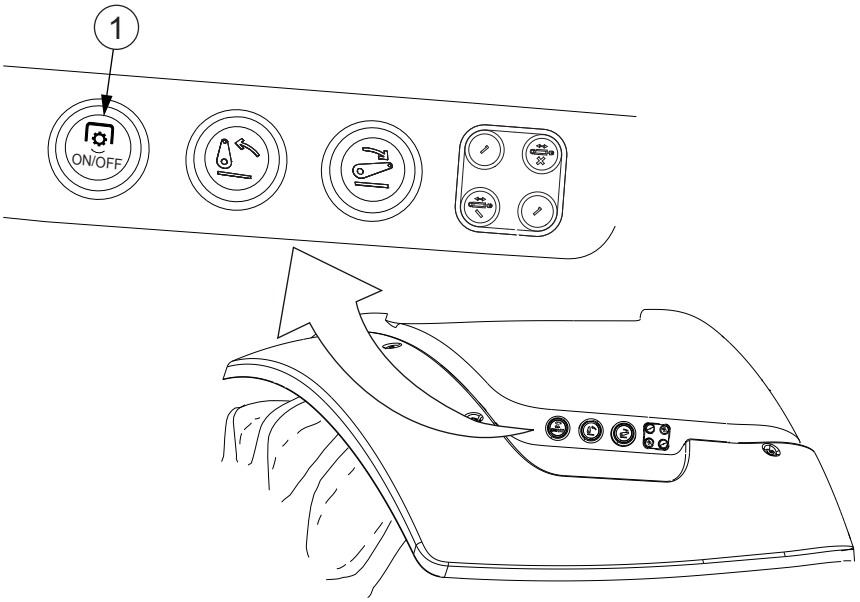


1. Switch for rear PTO

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- **To start the rear PTO with the rear PTO on/off push button (optional) on the mudguard, press the 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.



1. Rear PTO on/off push button

3.19.2.4 Stopping rear power take-off temporarily

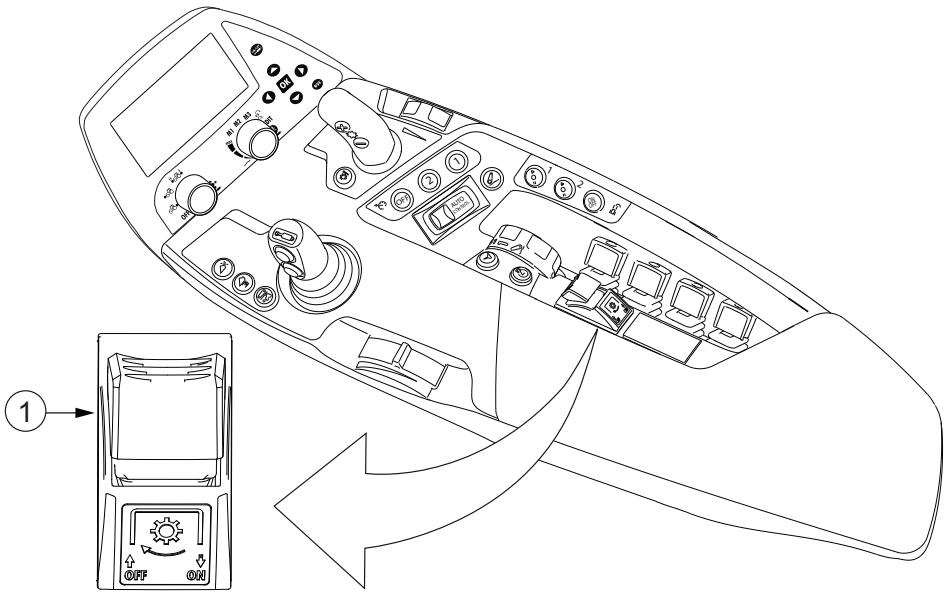
You can stop the rear power take-off (PTO) temporarily in the following ways:

- By using the switch for rear PTO.
- By using the speed control knob for rear PTO.
- By using the rear PTO on/off push button (optional) on the rear mudguard.

WARNING: When you do not need the PTO, keep the PTO switch in the N position.

WARNING: Use the PTO speed control knob for the actual disengagement and engagement of the PTO. For example, when leaving the cab, turn the knob to the N position, except when using the PTO on/off push button on the mudguard (optional).

- **Press down the switch for rear PTO and push it forward.**



1. Switch for rear PTO

- If the PTO is in use, so that the indicator light on the proline instrument panel is lit, you can stop the PTO also by pressing the switch and pulling it backward.

- **Turn the PTO speed control knob to the N position 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 

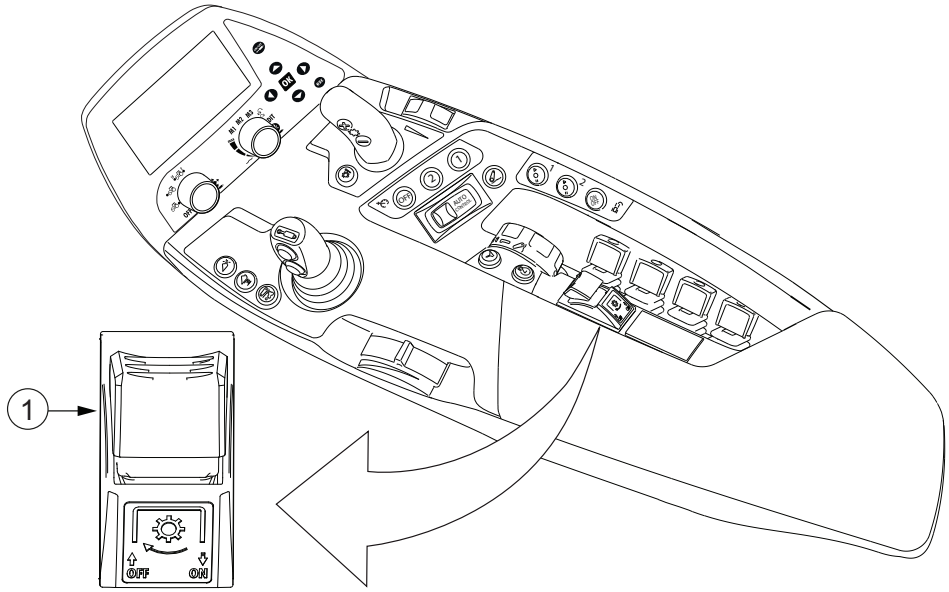
on the proline instrument panel blinks, indicating that the PTO speed control knob is engaged.

3.19.2.5 Deactivating rear power take-off

WARNING: When you do not need the PTO, keep the PTO switch in the N position.

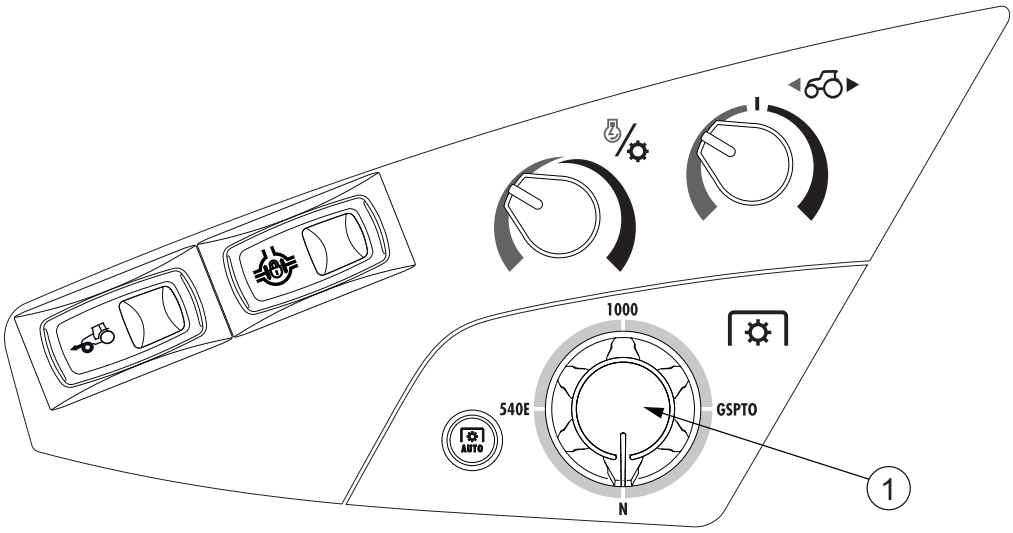
WARNING: Use the PTO speed control knob for the actual disengagement and engagement of the PTO. For example, when leaving the cab, turn the knob to the N position, except when using the PTO on/off push button on the mudguard (optional).

- **Press down the rear PTO switch and push it forward.**



1. Switch for rear PTO

- **Turn the PTO speed control knob to the N position (PTO deactivated).**



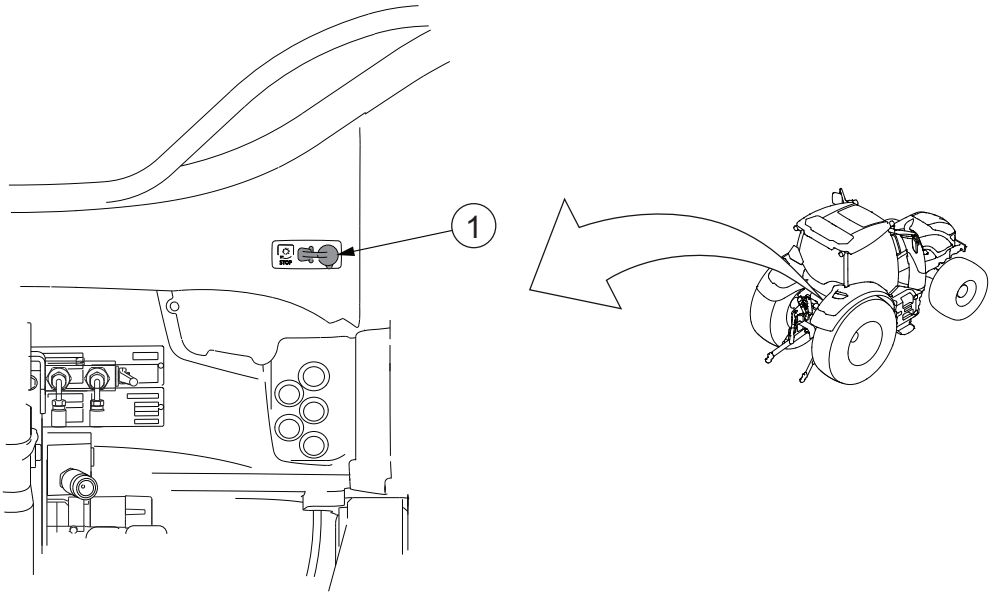
1. Speed control knob for rear PTO

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

3.19.2.6 Stopping the rear power take-off in emergency

In case of emergency, you can stop the rear power take-off (PTO) either by the speed control knob for rear 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.



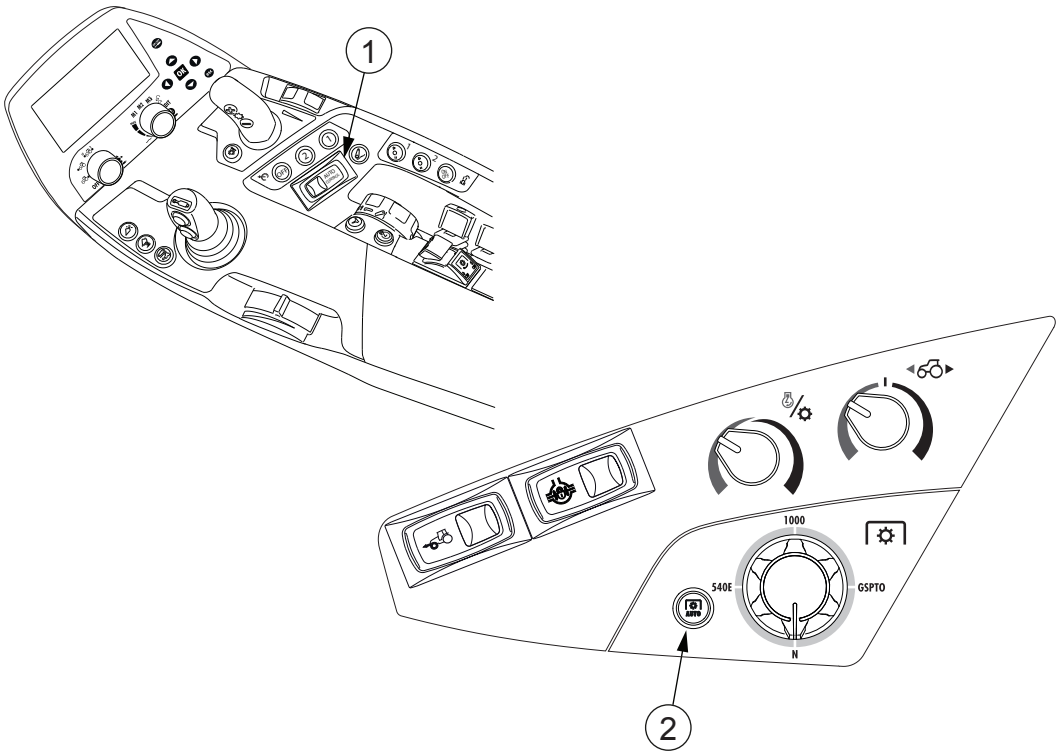
1. PTO emergency stop socket

- To stop the PTO from inside the cab, turn the speed control knob for rear PTO to the N position to deactivate the PTO.
- To restart the PTO:
  - Activate the PTO speed range by the speed control knob 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.

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3.19.2.7 Using the rear power take-off automatic start/stop

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



1. Lifting/stop/lowering switch
2. Button for rear PTO automatic start/stop

- **Activate the PTO automatic start/stop by pressing the button for rear PTO automatic start/stop.**

  You can activate the PTO automatic start/stop only if the PTO is engaged and the linkage is not in the transport position. The automatic start/stop cannot be active together with the U-pilot.

  The light in the button is lit when the PTO automatic start/stop is activated.

  The PTO is stopped automatically when you have activated the automatic start/stop and set the lift/stop/lower switch to the transport position and when the linkage has raised the lower links to the position of at least 70% of the maximum lifting height. After an automatic stop, the light on the button and the display symbol start to blink, indicating that the PTO automatic start is standing by.

  The automatic start takes place only if the PTO has been stopped with the automatic start/stop. The PTO starts automatically if the driving speed is between 1 and 25 km/h, the linkage is lowered with the lifting/stop/lowering switch and the lower links have been lowered to 90% of the maximum lifting height.

- **Deactivate the automatic start/stop in any of the following ways:**
  - Press the button for rear PTO automatic start/stop.
  - Use the switch for rear PTO.
  - Keep the linkage raised, that is, in the standby position for at least 90 seconds.

  The automatic start/stop is also deactivated if the driving speed at the moment of lowering the linkage is outside the speed limits 1–25 km/h. When the automatic start/stop is deactivated, the button is not lit.

3.19.2.8 Proportional ground speed power take-off

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

CAUTION: When using the proportional ground speed 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 proportional ground speed PTO is primarily used in the A and B speed ranges. The proportional ground speed PTO is designed for the highest torque values of the speed ranges A and B. In speed ranges C and D, the driving speed easily exceeds the shaft's maximum rotating speed. In this case, the automatics actively limit the driving speed to 15 km/h. The engine speed sets to idle until the driving speed has decreased below the limit. A faster rotating speed could damage the propeller shaft between tractor and implement. The trailer should be equipped with a means of disconnecting the drive from the trailer.

IMPORTANT: If the ground speed power take-off is activated and the PTO speed exceeds 1800 rpm, the buzzer alarms and message “SLOW DOWN, PTO SPEED TOO HIGH!” is shown on the instrument panel display. If this occurs, immediately decrease the rpm to prevent damage to the rotating parts of the PTO.

When the proportional ground speed PTO is activated, the maximum speed is limited to 15 km/h.

The proportional ground speed PTO can be engaged if the driving speed is 2 km/h or less. There is no speed limit for disengaging the ground speed PTO.

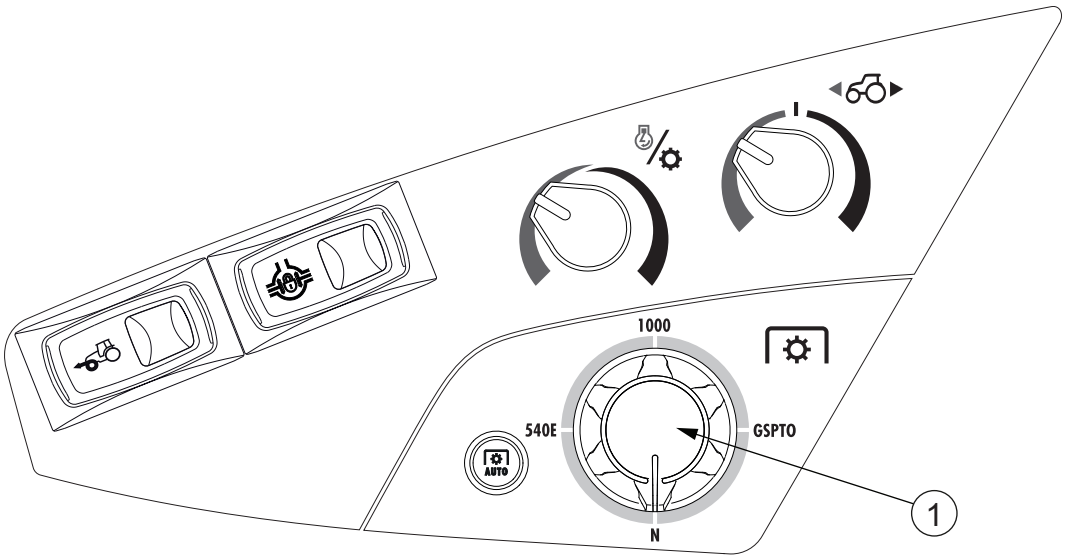
Before using a trailer with a powered axle, make sure that the drive is compatible with the PTO of the tractor. The speed of the trailer should be 0-3% lower than driving speed of the tractor.

For heavy proportional use it is recommended to use the 1¾” (45 mm) shaft.

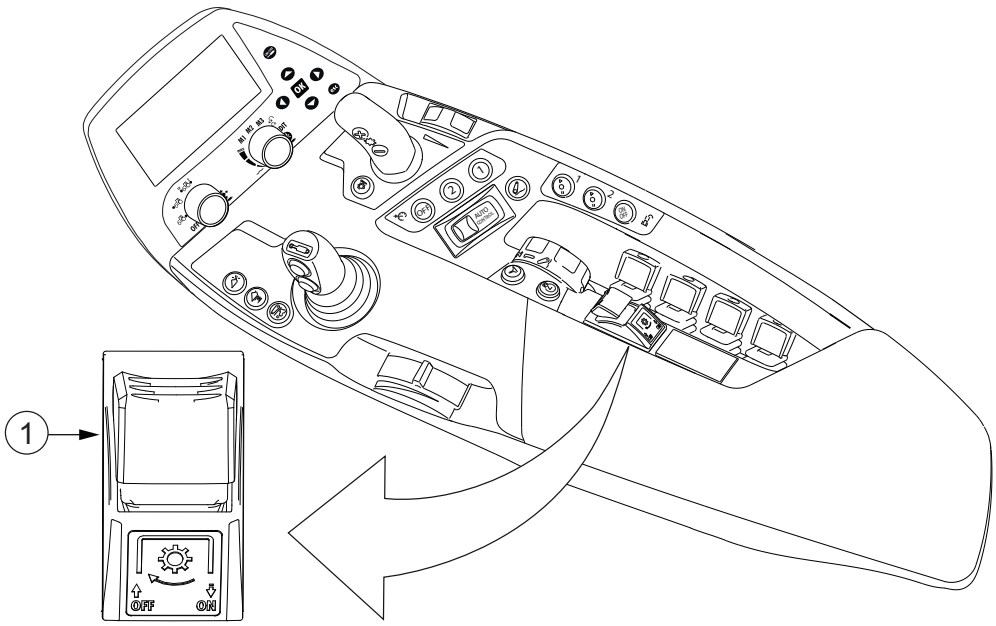
You can engage the ground speed PTO by turning the speed control knob to the GSPTO position and activate it by pressing the switch for rear PTO.

The activation and deactivation of the ground speed PTO is indicated in the proline instrument panel.

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1. Speed control knob for rear PTO



1. Switch for rear PTO

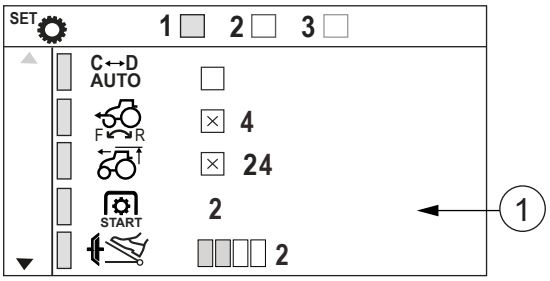
3.19.2.9 Adjusting the rear power take-off engagement

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. **Press ESC.**
2. **Navigate to the menu 2 with the up and down arrow buttons.**
3. **Press the right arrow button to enter the transmission settings view.**

   NOTE: You can enter the settings view by pressing the push button for tractor terminal transmission settings view.
4. **Select the wanted memory slot with the left and right arrow buttons.**
5. **Move the navigation box to the rear PTO engagement adjustment position with the up and down arrow buttons or by rotating the selector for the predefined factory/user settings.**



1. Rear PTO engagement adjustment

6. **Press the right arrow button, OK button or the selector for the predefined factory/user settings.**
7. **Set the rear PTO engagement value with the up or down arrow button or by rotating the selector for the predefined factory/user settings.**

   The value range is between 0–5, where:

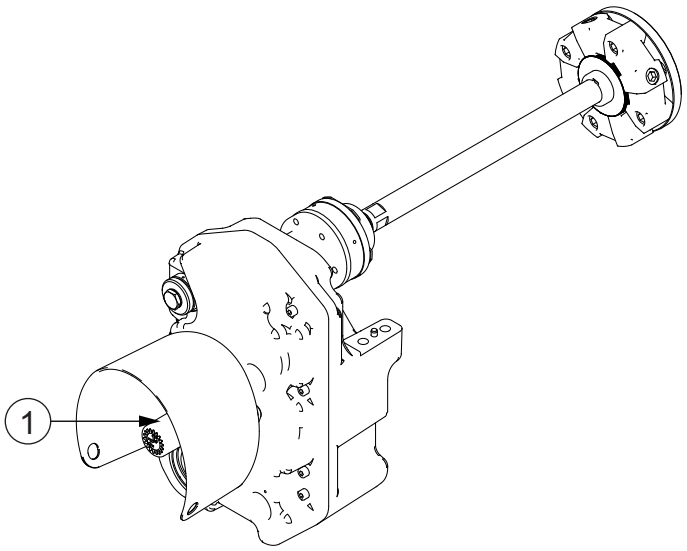
   - 0 is for light or normal implements (factory setting).
   - 5 is for heavy implements.

   The new value is activated. You cannot restore the previous settings.
8. **Press the left arrow button or selector for the predefined factory/user settings to return to the transmission settings view main level.**

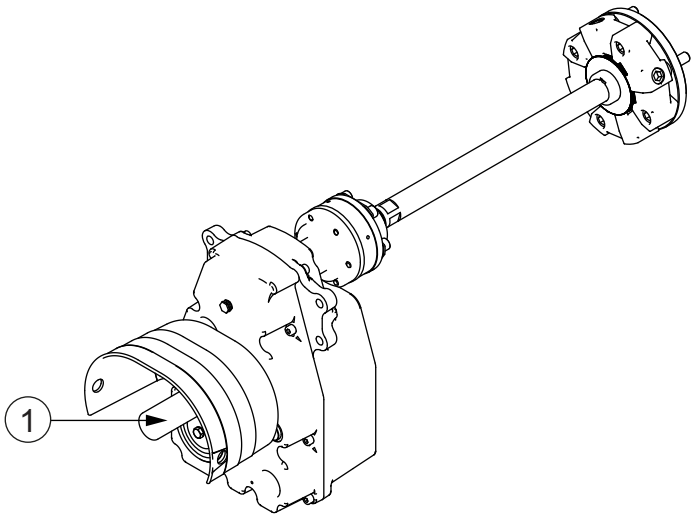
With a short press of the ESC button you can return to the menu 2. A long press of the ESC button returns to the previously active drive display.

3.19.3 Front power take-off

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

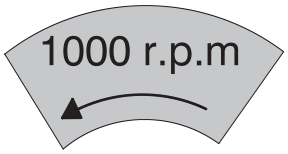


1. Front PTO



1. Front PTO for LHLink or pivoting front linkage

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



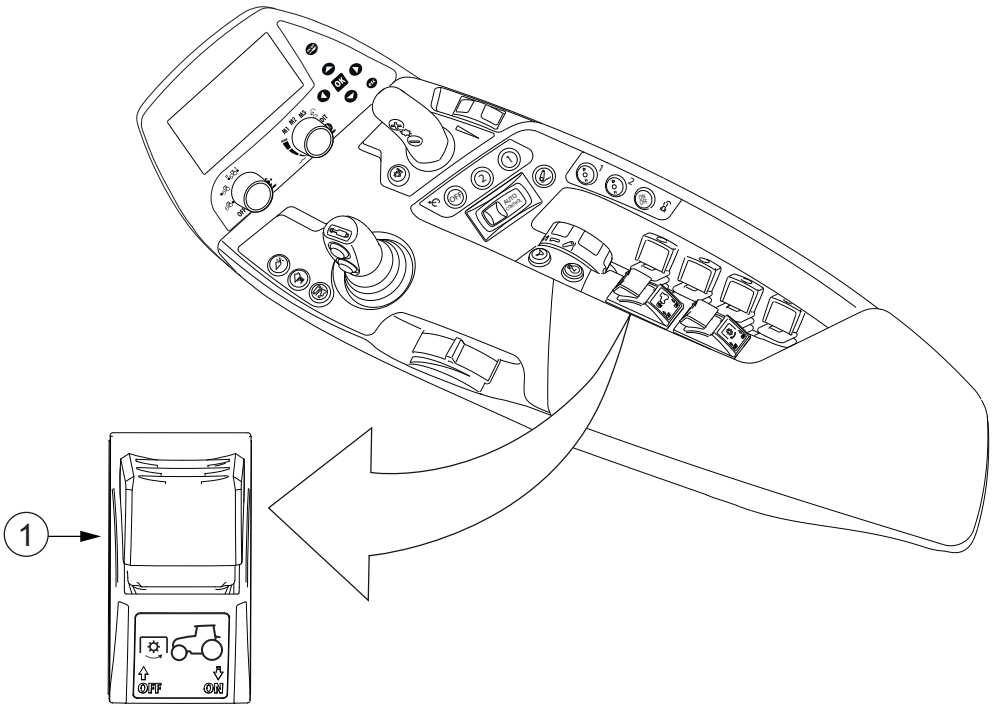
IMPORTANT: The front power take-off shaft's nominal rotating speed is 1000 rpm and the rotating direction is counterclockwise when viewed from the front. Check that the implement is compatible before attaching.

IMPORTANT: The maximum allowed input torque for the front PTO gearbox is 759 Nm and the nominal is 692 Nm. If the tractor is equipped with the LHLink or the pivoting front linkage, the maximum allowed input torque for the front PTO gearbox is 732 Nm and the nominal is 549 Nm.

IMPORTANT: Always make sure that the cardan shaft does not touch the hydraulic connectors at any working position.

3.19.3.1 Activating and deactivating front power take-off

The front power take-off (PTO) switch is spring-returned and has two positions, on and off.



1. Switch for front PTO

- **Start the front PTO by pressing down the switch for front PTO and pulling it backward.**
- **Deactivate the front PTO by pressing down the switch for front PTO and pushing it forward.**

3.19.4 Power take-off cruise control

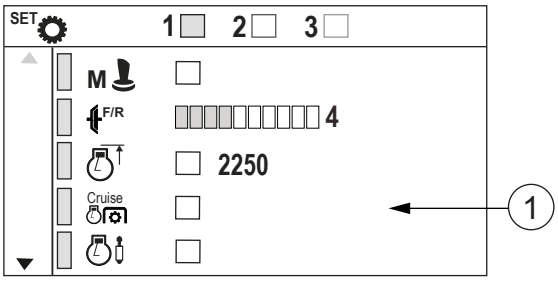
The power take-off (PTO) cruise control function stores the engine speed value to the engine speed cruise control memory slot. You can activate the PTO cruise control through the tractor terminal transmission settings view.

The PTO cruise control also functions with the front PTO. If both rear and front PTO are engaged, the one with the lower speed takes precedence.

3.19.4.1 Activating and deactivating the power take-off cruise control

1. **Press the ESC button.**
2. **Navigate to the menu 2 with the up and down arrow buttons.**
3. **Press the right arrow button to enter the transmission settings view.**

   NOTE: You can enter the settings view by pressing the push button for tractor terminal transmission settings view.
4. **Select the wanted memory slot with the left and right arrow buttons.**
5. **Move the navigation box to the power take-off (PTO) cruise control setting position Cruise with the up and down arrow buttons or by rotating the selector for the predefined factory/user settings.**
6. **Press the right arrow button, OK button or the selector for the predefined factory/user settings.**
7. **Select the desired status of the PTO cruise control by pressing the up or down arrow button or the selector for the predefined factory/user settings.**



1. Setting for the PTO cruise control

- When the box is checked the PTO cruise control is activated.
- When the box is not checked the PTO cruise control is deactivated.

8. **Press the left arrow button or selector for the predefined factory/user settings to return to the transmission settings view main level.**

With a short press of the ESC button you can return to the menu 2. A long press of the ESC button returns to the previously active drive display.

3.19.4.2 Using the power take-off cruise control

The power take-off (PTO) cruise control must be activated in the tractor terminal transmission settings view.

1. **Select the PTO speed.**
   The engine speed corresponding to the selected nominal PTO speed is saved to the engine speed cruise control memory slot.

2. **Start the PTO.**

   NOTE: When the PTO cruise is activated in the tractor terminal and the PTO is started, the engine speed increases to the speed stored in the engine speed cruise control memory slot.

3. **Press the engine speed cruise control memory button to activate the engine speed cruise control.**
   Now the PTO runs at its nominal speed.

3.20 U-Pilot headland automatics

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

The idea of the U-Pilot is that the operator runs the whole operational cycle activating the required functions. The functions activated and the travelled distances between the functions are stored in the tractor memory. After this, the programme can be started with one press of a button.

The actual driving speed can differ from the driving speed used during recording the U-Pilot, but the distances between the different functions are kept the same.

The U-Pilot has two memory slots. For example, you can use the memory slots to use separate programmes for coming to headland and leaving the headland.

You can save 30 programmes which can be used in both memory slots. You can also edit the saved programmes.

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

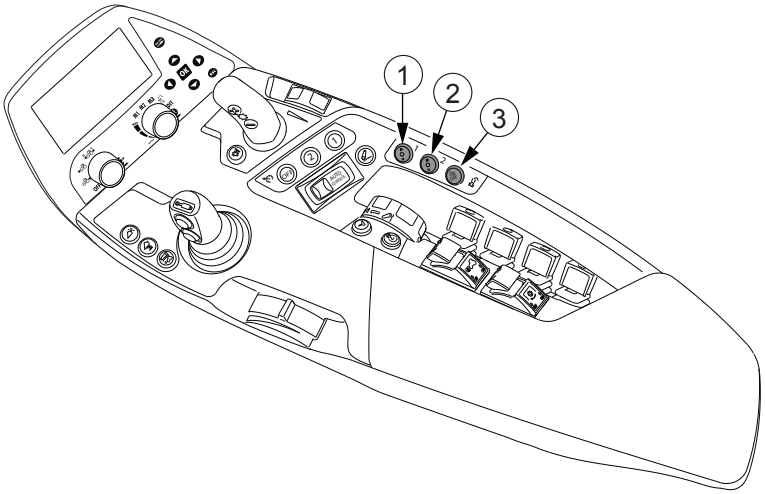
CAUTION: The switches do not show the equipment status when using the U-Pilot.

3.20.1 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 (tractor must move even if the distance unit is time).
- The maximum amount of operations for one programme 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.
- The maximum amount of programmes is 30.

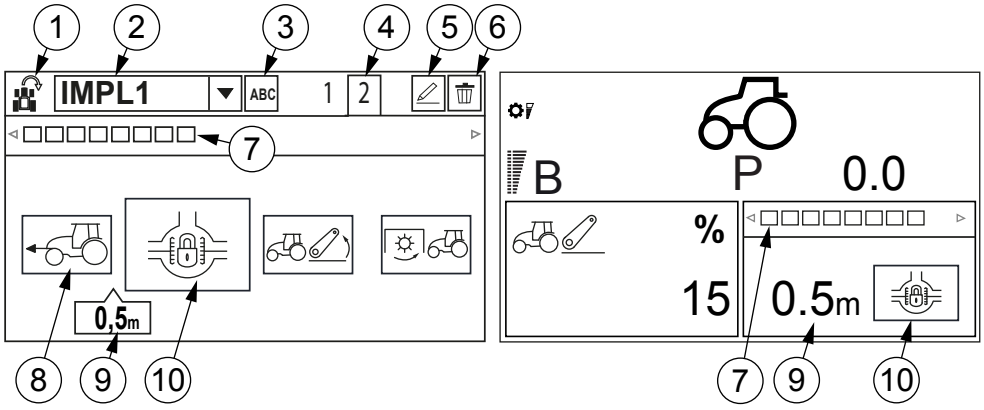
3.20.2 U-Pilot controls



1. Activation / recording button 1 for U-Pilot
2. Activation / recording button 2 for U-Pilot
3. U-Pilot on/off button

3.20.3 U-Pilot view

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



1. U-Pilot status
2. Selected programme
3. Renaming symbol
4. Selected memory slot
5. Edit mode symbol
6. Delete symbol
7. Programme steps
8. Previous operation
9. Distance to the next operation
10. Next/ongoing operation

The U-Pilot view appears on the tractor terminal display automatically when the U-Pilot is activated. The view can be changed to any other view. U-Pilot operations can be followed also in the split drive view.

3.20.4 U-Pilot view symbols

U-Pilot operations are indicated with symbols.

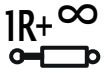
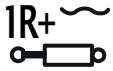
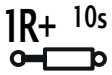
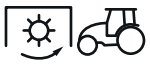
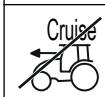
Symbol	Operation	Switch positions when running a programme	Limitation
	Rear linkage up.	Lift/stop/lower switch in stop or lower position.	1), 2)
	Rear linkage down.	Lift/stop/lower switch in stop or lower position.	1), 2)
	Position control knob override activated.		
	Position control knob override deactivated.		
	Hydraulic valve, position lock activated. **NOTE**: The valve number and port are displayed on the symbol top left corner.	Hydraulics activated.	1), 2), 3)
	Hydraulic valve, floating position activated. **NOTE**: The valve number and port are displayed on the symbol top left corner.	Hydraulics activated.	1), 2), 3)
	Hydraulic valve, timed duration position lock activated. **NOTE**: The valve number and port are displayed on the symbol top left corner.	Hydraulics activated.	1), 2), 3)
	Front power take-off (PTO) engaged.		
	Front PTO disengaged.		
	Rear PTO engaged.		
	Rear PTO disengaged.		
	Driving speed cruise control 1 activated.		2)
	Driving speed cruise control 2 activated.		2)
	Driving speed cruise control deactivated.		2)

Table continued on next page

Symbol	Operation	Switch positions when running a programme	Limitation
Cruise 1	Engine speed cruise control 1 activated.		2)
Cruise	Engine speed cruise control deactivated.		2)
	Four-wheel drive (4WD) engaged.		4)
	4WD disengaged.		4)
	Differential lock engaged.		4)
	Differential lock disengaged.		4)
	Current socket activated. 5)		
	Current socket deactivated. 5)		
PAUSE	Pause in the programme.		
END	End of the programme.		

1) The system checks the correct positions of these switches before recording and running. 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) The function is not possible if the valve controls the front loader.
4) 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.

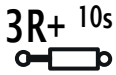
   The rear PTO is an exception. The AUTO mode of the rear PTO cannot be active together with the U-Pilot.
5) The power switch controls the current socket next to it and the power outlet at the rear end of the tractor.

3.20.5 U-Pilot programme examples

Example

Using a reversible plough

Coming to headland:

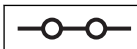
	Lift of the plough.
	Four-wheel drive (4WD) disengaged.
	Differential lock disengaged.
	Reversion of the plough.
END	End of the programme.

Leaving the headland:

	Lowering of the plough.
	4WD engaged.
	Differential lock engaged.
END	End of the programme.

Example

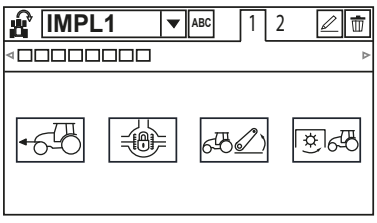
Activate current socket with U-Pilot programme

	Current socket activated.
END	End of the programme.

3.20.6 Using U-Pilot programmes

3.20.6.1 Selecting a U-Pilot programme

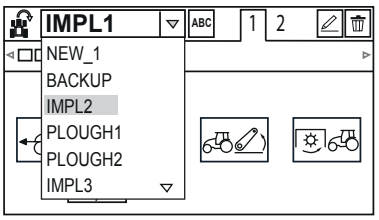
1. **Press ESC button.**
2. **Navigate to the menu 2 with the up and down arrow buttons.**
3. **Press the left arrow button to enter the U-Pilot view.**



4. **Select the memory slot with the left and right arrow buttons.**
5. **Press the OK button or the selector for the predefined factory/user settings.**

6. **Move the selection to the programme selection menu with the left and right arrow buttons.**

7. **Press the OK button or the selector for the predefined factory/user settings.**



8. **Press the up and down arrow buttons or rotate the selector for the predefined factory/user settings to select the U-Pilot programme.**

   NOTE: You can discard the made changes and return the previous view by pressing ESC.

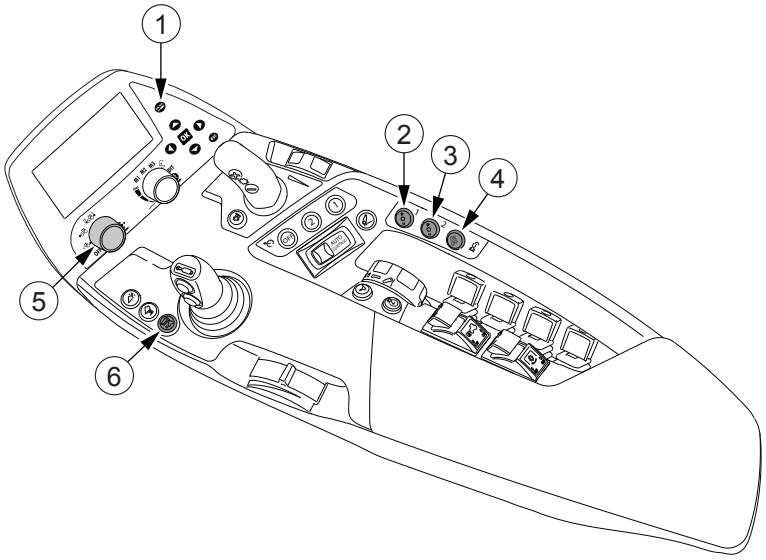
9. **Press the OK button or the selector for the predefined factory/user settings.** The programme is selected and the hydraulics settings are copied to the auxiliary hydraulics' U-Pilot memory position.

With a short press of the ESC button you can return to the menu 2. A long press of the ESC button returns to the previously active drive display.

3.20.6.2 Recording a U-Pilot programme

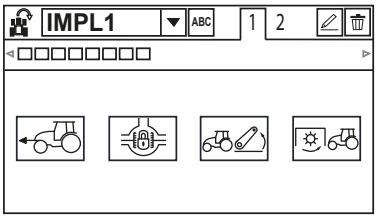
When recording functions for auxiliary hydraulics make sure that the switches and controls are in the correct positions.

- The auxiliary hydraulics is activated. Settings can be adjusted in the auxiliary hydraulics settings view.
- When using rear valves 1 and 2, the joystick functions selector is in position •.
- When using front valves 1F and 2F, the joystick functions selector is in position •. If the tractor is equipped with a front loader, the 1F and 2F valve functions can not be saved.
- When using front valve 1F and rear valve 2, the joystick functions selector is in position 1F ○ 2 •.
- If the tractor is equipped with both front linkage and a front loader, only the front linkage functions can be saved. The front linkage has to be selected with the change-over button for front linkage/front loader.



1. Auxiliary hydraulics on/off push button
2. Activation / recording button 1 for U-Pilot
3. Activation / recording button 2 for U-Pilot
4. U-Pilot on/off button
5. Joystick functions selector
6. Change-over button for front linkage / front loader (optional)

1. **Press the U-Pilot on/off button.**
   The indicator light on the button is lit. The U-Pilot view appears on the tractor terminal display.



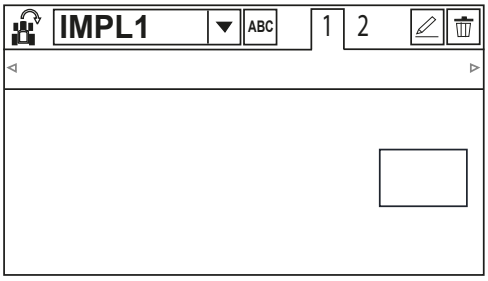
2. **Select the programme to the memory slot you are going to use.**

   If there is no programme selected a new programme “NEW_1” is generated automatically.

   NOTE: The recorded programme overwrites the selected programme.

3. **Press the U-Pilot activation/recording button of the memory slot you are going to use for more than 2 seconds.**

   The red indicator light on the button is flashing. Symbol ● is in the upper left corner of the display when a programme is being recorded. An empty U-Pilot view appears.



4. **Perform the operations in the required order.**

   The distance between operations is saved as meters but you can change it to seconds afterwards.

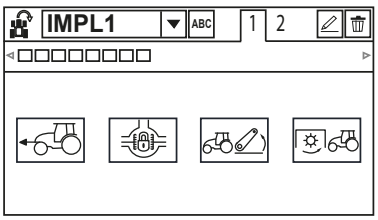
5. **When all the operations are recorded, press the U-Pilot activation/recording button to save the programme.**

   The symbol ✓ is displayed for a moment. The indicator lights of the U-Pilot activation/recording buttons are lit. The current hydraulic valve settings are saved to the auxiliary hydraulics' U-Pilot memory position.

3.20.6.3 Previewing a U-Pilot programme

Before running the U-Pilot programme it is possible to preview it.

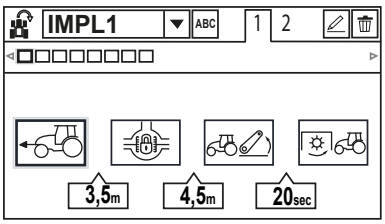
1. **Press ESC button.**
2. **Navigate to the menu 2 with the up and down arrow buttons.**
3. **Press the left arrow button to enter the U-Pilot view.**



4. **Select the memory slot you want to preview with the left and right arrow buttons.**
5. **Press the down arrow button.**

   The U-Pilot programme is now available for preview.

6. **Press the left and right arrow buttons or rotate the selector for the predefined factory/user settings to preview the U-Pilot programme.**



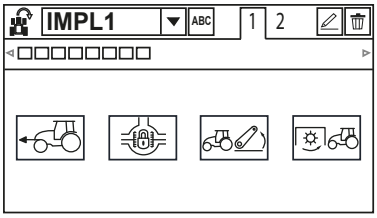
7. **Press the up arrow button to stop the preview.**

With a short press of the ESC button you can return to the menu 2. A long press of the ESC button returns to the previously active drive display.

3.20.6.4 Running a U-Pilot programme

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

- **Press the U-Pilot on/off button.**
  The indicator light on the button is lit. The U-Pilot view appears on the tractor terminal display.



- **Select the programme to the memory slot you are going to use.**

- **Press shortly the U-Pilot activation/recording button of the memory slot you are going to use.**

  NOTE: The U-Pilot checks the switch positions of the auxiliary hydraulics and linkages if used in the programme. If the switch position is not correct, the function symbol flashes on the display.

Flashing symbol	Solution
ON/OFF 	Activate the hydraulics.
	Press the change-over button for front linkage/ front loader.
	Press the lift/stop/lower switch to stop or lower position.
	Activate the auxiliary hydraulic valve.

  When everything is in order the symbols disappear and the programme starts. Symbol  is in the upper left corner of the display when the programme is running.

- **To pause, press the U-Pilot activation/recording button any time during the programme.**
- **To end a pause, press the U-Pilot activation/recording button again.**
- **To end the programme immediately, press the U-Pilot on/off button.**

  The functioning of the hydraulics, PTOs and linkages are stopped. The text STOP is displayed. After few seconds the previously active drive view appears on the display.
  The programme cannot be resumed after stopping it. You have to reactivate the U-Pilot by turning it off and then back on by pressing the U-Pilot on/off button. Then you can start the programme from the beginning.
  IMPORTANT: When manually performing any operation that is included in the programme and that has a significant risk (linkages, power take-off (PTO), hydraulics), the ongoing programme stops immediately.

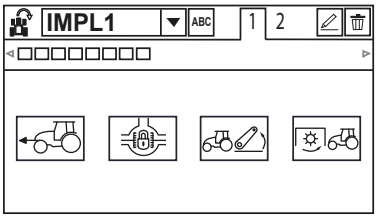
  Interruption of the programme causes the following, if the operation is included in the programme:

  - The hydraulic operations controlled by the programme are cancelled.
  - The movement of the linkages is stopped.
  - The PTOs are disengaged.
  - The current socket is disconnected.
  - The differential lock is disengaged.
  - The cruise control is disengaged.
  - The state of the four-wheel drive (4WD) does not change.

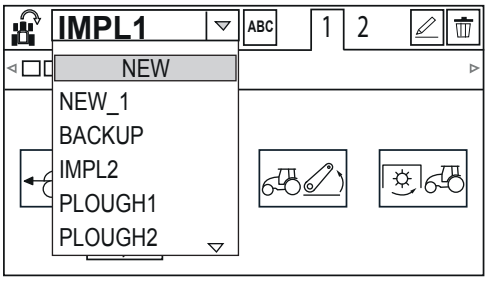
3.20.7 Managing U-Pilot programmes

3.20.7.1 Adding a new U-Pilot programme

1. Press ESC button.
2. Navigate to the menu 2 with the up and down arrow buttons.
3. Press the left arrow button to enter the U-Pilot view.



4. Move the selection to the programme selection menu with the left and right arrow buttons.
5. Press the OK button or the selector for the predefined factory/user settings.
6. Press the up and down arrow buttons or rotate the selector for the predefined factory/user settings to select the U-Pilot programme “NEW”.



7. Press the OK button or the selector for the predefined factory/user settings.

   A new empty programme is created with an automatically generated name.

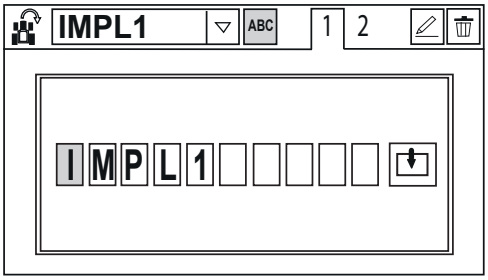
Rename the programme if needed.

With a short press of the ESC button you can return to the menu 2. A long press of the ESC button returns to the previously active drive display.

3.20.7.2 Renaming a U-Pilot programme

1. Select the programme you are going to rename.
2. Press left and right arrow buttons to move the selection over the renaming symbol ABC.

3. **Press the OK button or the selector for the predefined factory/user settings.**
   The programme renaming view appears.



4. **Rename the programme.**
   - **Move the selection over the character you are going to change by pressing left and right arrow buttons or by rotating the selector for the predefined factory/user settings.**
   - **Select the character by pressing up and down arrow buttons, the OK button or the selector for the predefined factory/user settings.**
   - **Change the character by pressing up and down arrow buttons or by rotating the selector for the predefined factory/user settings.**
   - **Accept the change by pressing left and right arrow buttons, the OK button or the selector for the predefined factory/user settings.**
   - **Move the selection to next character to be changed by pressing left and right arrow buttons or by rotating the selector for the predefined factory/user settings.**

5. **Move the selection over the saving symbol by pressing left and right arrow buttons or by rotating the selector for the predefined factory/user settings.**

6. **Save the changes by pressing the OK button or the selector for the predefined factory/user settings.**

   NOTE: You can discard the made changes and return the previous view by pressing ESC.

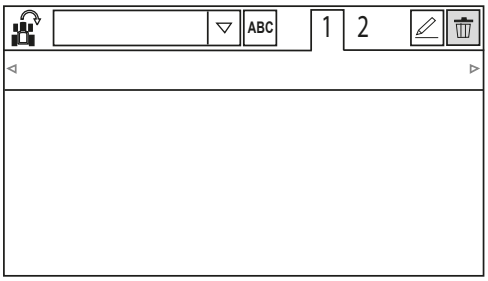
With a short press of the ESC button you can return to the menu 2. A long press of the ESC button returns to the previously active drive display.

3.20.7.3 Removing a U-Pilot programme

1. **Select the programme you are going to remove.**

2. **Press left and right arrow buttons to move the selection over the delete symbol .**

3. **Press the OK button or the selector for the predefined factory/user settings.**
The programme is deleted and the U-Pilot view shows the next available programme.



With a short press of the ESC button you can return to the menu 2. A long press of the ESC button returns to the previously active drive display.

3.20.7.4 Recovering a deleted U-Pilot programme

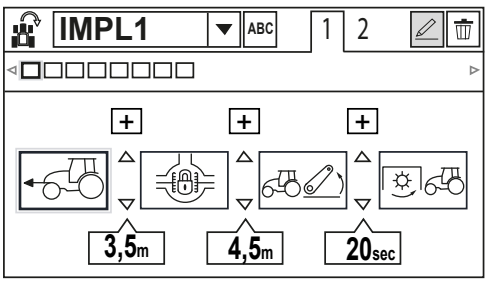
When you delete or overwrite a U-Pilot programme it is saved as a programme called BACKUP. You can recover only the latest programme that is deleted or overwritten.

1. **Select the programme called BACKUP.**
2. **Rename the programme.**

3.20.8 Editing U-Pilot programmes

3.20.8.1 Entering the programme editing view

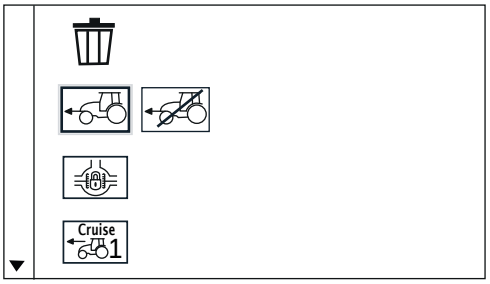
1. **Select the memory slot and programme you are going to edit.**
2. **Press left and right arrow buttons to move the selection over the edit mode symbol**  .
3. **Press the OK button or the selector for the predefined factory/user settings.**
The programme editing view appears.



3.20.8.2 Changing a programme function

1. **Enter the programme editing view.**

2. **Press left and right arrow buttons or rotate the selector for the predefined factory/user settings to move the selection over the function you are going to change.**
3. **Press the OK button or the selector for the predefined factory/user settings.** The function selection view appears.



4. **Press arrow buttons or rotate the selector for the predefined factory/user settings to move the selection over the needed function.**

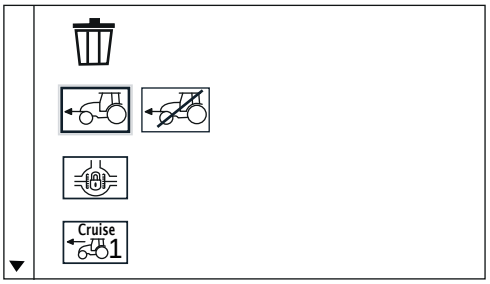
   NOTE: You can discard the made changes and return the previous view by pressing ESC.

5. **Press the OK button or the selector for the predefined factory/user settings.** The function is changed to the programme.

With a short press of the ESC button you can return to the menu 2. A long press of the ESC button returns to the previously active drive display.

3.20.8.3 Removing a programme function

1. **Enter the programme editing view.**
2. **Press left and right arrow buttons or rotate the selector for the predefined factory/user settings to move the selection over the function you are going to remove.**
3. **Press the OK button or the selector for the predefined factory/user settings.** The function selection view appears.



4. **Press arrow buttons or rotate the selector for the predefined factory/user settings to move the selection over the delete symbol**  .

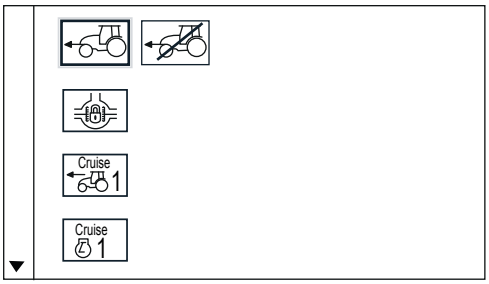
   NOTE: You can discard the made changes and return the previous view by pressing ESC.

5. **Press the OK button or the selector for the predefined factory/user settings.**
   The function is removed from the programme.

With a short press of the ESC button you can return to the menu 2. A long press of the ESC button returns to the previously active drive display.

3.20.8.4 Adding a new programme function

1. **Enter the programme editing view.**
2. **Press left and right arrow buttons or rotate the selector for the predefined factory/user settings to move the selection between the functions you are going to add the new function.**
3. **Press the up arrow button.**
   The function selection view appears.



4. **Press arrow buttons or rotate the selector for the predefined factory/user settings to move the selection over the needed function.**

   NOTE: You can discard the made changes and return the previous view by pressing ESC.

5. **Press the OK button or the selector for the predefined factory/user settings.**
   The function is added to the programme with 1 m distance to other functions.

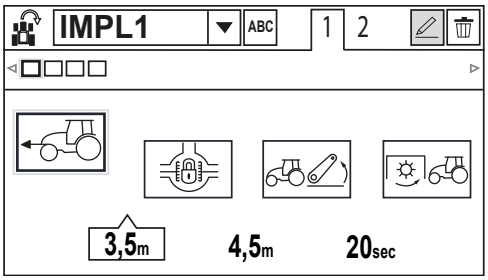
With a short press of the ESC button you can return to the menu 2. A long press of the ESC button returns to the previously active drive display.

3.20.8.5 Moving a programme function

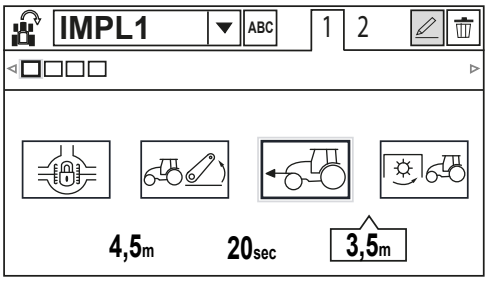
1. **Enter the programme editing view.**
2. **Press left and right arrow buttons or rotate the selector for the predefined factory/user settings to move the selection to the function you are going to move.**

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3. **Press the up arrow button.**
   The function symbol moves up a bit.



4. **Press left and right arrow buttons or rotate the selector for the predefined factory/user settings to move the function to the needed place.**

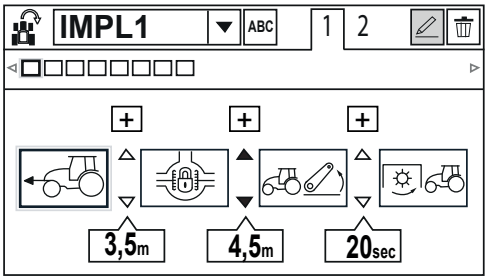


5. **Press the down arrow button.**
   The function and the distance to the next function drops to the selected position.

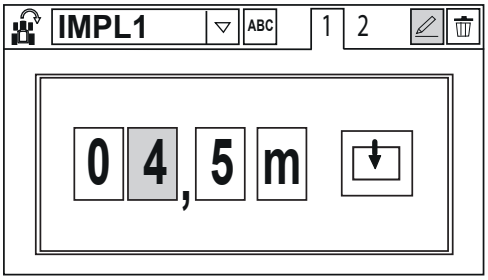
With a short press of the ESC button you can return to the menu 2. A long press of the ESC button returns to the previously active drive display.

3.20.8.6 Editing the programme function distance

1. **Enter the programme editing view.**
2. **Move the selection over the function distance you are going to change by pressing left and right arrow buttons or by rotating the selector for the predefined factory/user settings.**



3. **Press the down arrow button.**
   The distance edit view appears.



4. **Edit the distance.**

   You can also change the distance unit from meters to seconds.
   - **Move the selection over the character you are going to change by pressing left and right arrow buttons or by rotating the selector for the predefined factory/user settings.**
   - **Select the character by pressing up and down arrow buttons, the OK button or the selector for the predefined factory/user settings.**
   - **Change the character by pressing up and down arrow buttons or by rotating the selector for the predefined factory/user settings.**
   - **Accept the change by pressing left and right arrow buttons, the OK button or the selector for the predefined factory/user settings.**
   - **Move the selection to next character to be changed by pressing left and right arrow buttons or by rotating the selector for the predefined factory/ user settings.**

5. **Move the selection over the saving symbol by pressing left and right arrow buttons or by rotating the selector for the predefined factory/user settings.**

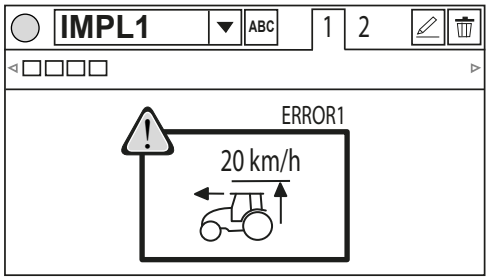
6. **Save the changes by pressing the OK button or the selector for the predefined factory/user settings.**

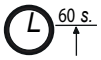
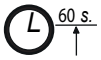
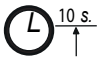
   NOTE: You can discard the made changes and return the previous view by pressing ESC.

With a short press of the ESC button you can return to the menu 2. A long press of the ESC button returns to the previously active drive display.

3.20.9 U-Pilot error codes

U-Pilot error codes are shown on the tractor terminal display.



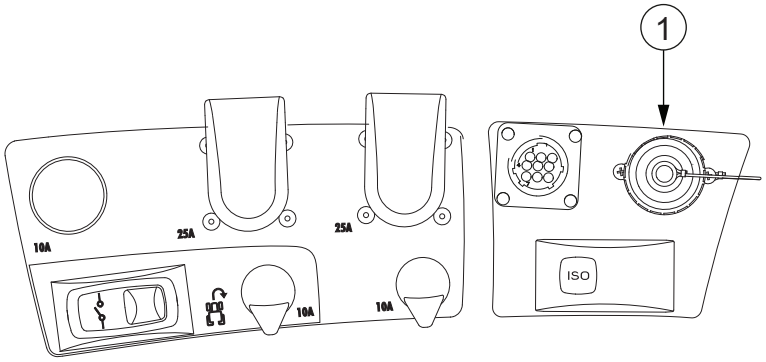
Symbol	Error number	Cause of error
	1	Recording or operation cancelled. Driving speed over 20 km/h.
	2	Recorded programme does not start. Driving speed over 20 km/h or under 0.5 km/h.
	3	Recording cancelled temporarily. Driving speed under 0.5 km/h.
	4	Not in use.
	5	Recording cancelled. Time limit 30 s for the driving speed under 0.5 km/h exceeded.
	6	Recording cancelled. Time limit 60 s for completing the first operation exceeded.
	7	Recording cancelled. Time limit 60 s for starting a new operation exceeded.
	8	Recording cancelled. Operator left the seat for more than 5 s.
	9	Recording cancelled. Distance between consecutive operations over 63.5 m.
	10	Recording cancelled. Travel length of the programme exceeds 100 m without a pause.
	11	Recording cancelled. Programme has more than 30 operations.
	12	Recorded programme cancelled. Operator left the seat for more than 5 s.
	13	Recorded programme cancelled. Time limit 10 s for the driving speed under 0.5 km/h exceeded.
	14	Recorded programme cancelled. Time limit 300 s for a pause exceeded.
	15	Saving or deleting the programme failed.
	16	Malfunction in the valve of the auxiliary hydraulics.

3.21 Implement signal connection

3.21.1 Implement signal connector

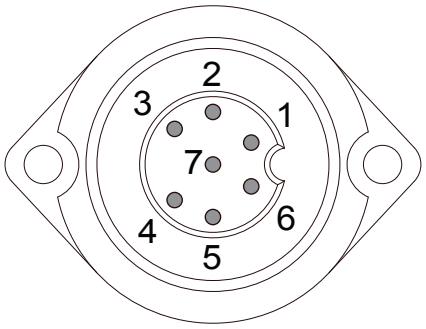
The implement signal connector (extra equipment) complies with the ISO 11786 standard.

The connector is located on the side panel in the cab.



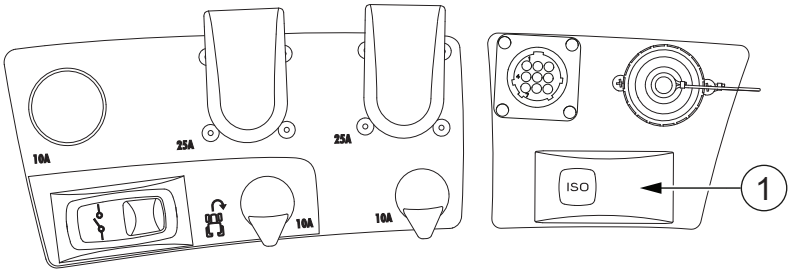
1. Implement signal connector

An implement connected to the connector can use the following tractor information:



1. Radar speed, 130 Hz/m/s
2. Transmission speed (wheel speed), 130 Hz/m/s
3. Rear power take-off (PTO) speed, (6 Hz/r/s)
4. Rear linkage, in work (< 1.5 V) / out of work (> 6.3 V)
5. Rear linkage position (0% = 0 V, 100% = 10 V)
6. Power supply (+12V, max 5A) (through the ignition switch)
7. Ground (GND)

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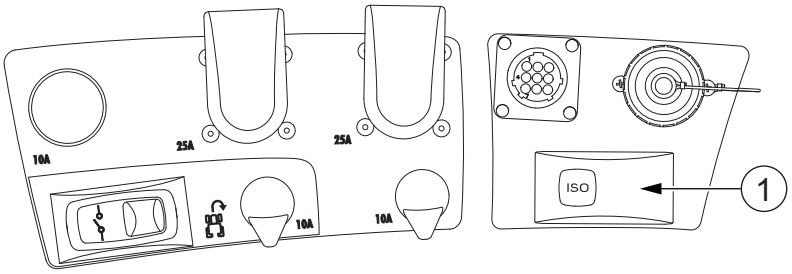


1. Indicator light for the implement signal connector

When the indicator light for the implement signal connector is green, the implement signal system is working normally. If light flashes there is an error in the system.

3.21.2 Resetting the implement signal connection

If the indicator light for implement signal connection (extra equipment) 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 indicator light continues to blink, contact an authorised Valtra workshop.**

3.22 ISOBUS implement control system

The Valtra ISOBUS implement control system (extra equipment) complies with the ISO 11783 standard.

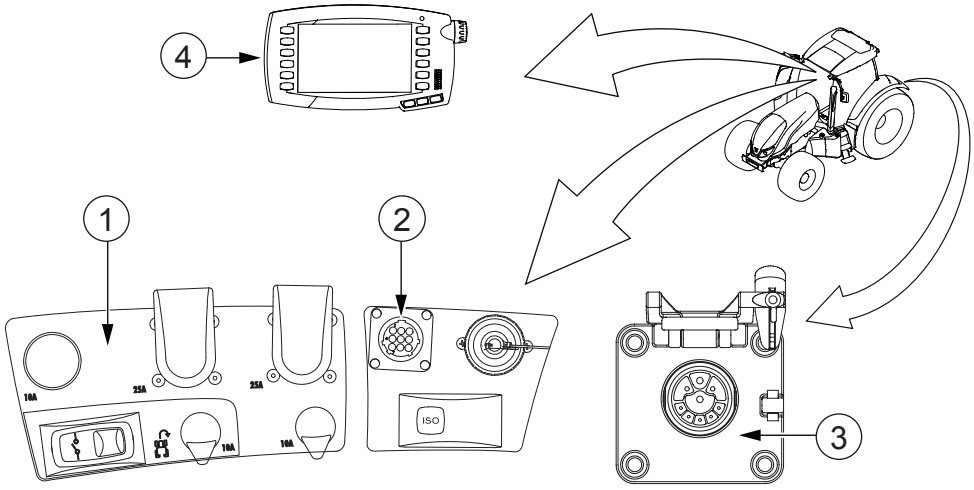
The system connects together the tractor, the implement and the ISOBUS terminal, and enables information exchange between these units.

The Valtra ISOBUS implement control system fulfils the Class 2 standard requirements. It transmits the following information to the implements connected to the ISOBUS.

- Tractor speed information (radar, wheels and engine)
- Distance and direction
- Rear linkage position
- Power take-off (PTO) status and speed
- Auxiliary hydraulics status
- Lighting control

The Valtra ISOBUS implement control system provides also electric power for ISOBUS components (25 A) and electric power for actuators and implements (60 A). The Valtra ISOBUS implement control system can maintain the power for a maximum of one hour if an implement or the terminal requires so.

NOTE: The main power of the tractor is on for a maximum of one hour after the ignition switch is turned to the  (OFF) position.



1. ISOBUS bus extension connector (under the side panel)
2. ISOBUS terminal connector
3. ISOBUS implement connector
4. Valtra C1000 ISOBUS Terminal

3.22.1 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.

3.22.2 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.

3.22.3 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 connector is located under the side panel.

3.22.4 ISOBUS terminal

The C1000 ISOBUS Terminal (extra equipment) is used to control ISOBUS implements and the auto-steering system.

The terminal fulfils the basic UT (Universal Terminal) requirements. For more information about the terminal, refer to the C1000 ISOBUS Terminal user manual.

There is also an in-build task controller in the terminal. Refer to the task controller user manual for more information.

The terminal has a connector also for a camera (extra equipment).

3.23 Auto-Guide Readiness

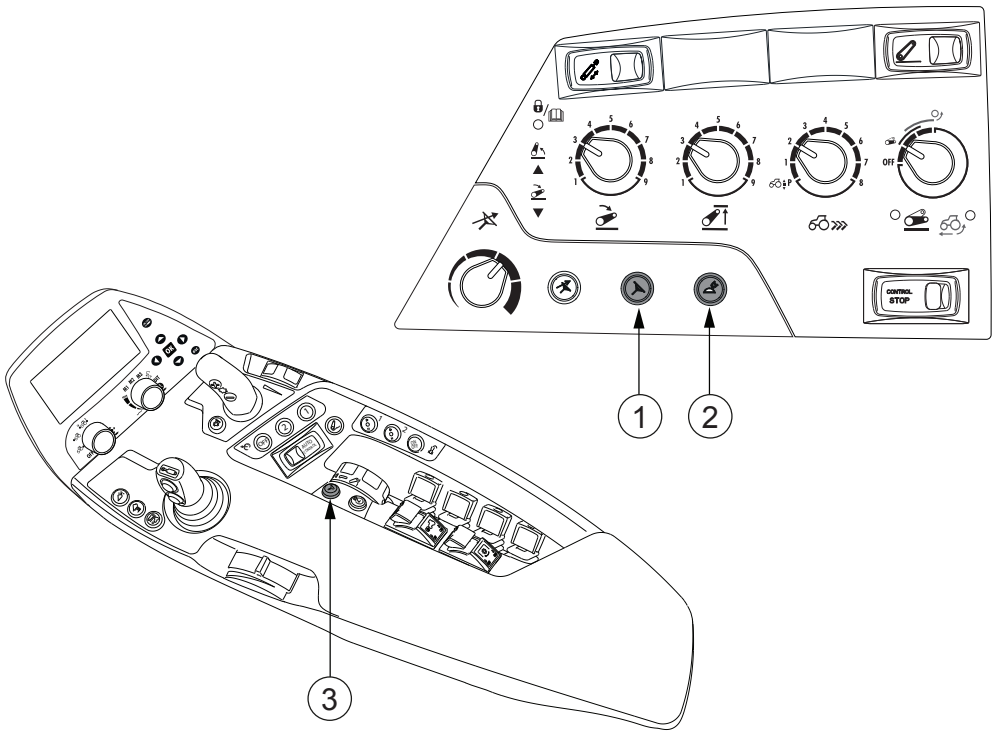
Auto-Guide Readiness makes it possible to install Auto-Guide 3000 steering system to the tractor. Auto-Guide 3000 is based on global navigation satellite system (GNSS) and it is capable of steering the tractor automatically. Auto-Guide Readiness is extra equipment. Refer to the Auto-Guide 3000 user manual for more information.

Auto-Guide Readiness consists of the following equipment:

- Electrohydraulic steering valve
- A bracket for automated steering system control unit (on the roof)
- Auto-Guide receiver on/off button
- Auto-Guide steering valve on/off button
- Auto-Guide remote activation button

3.23.1 Using Auto-Guide

Before Auto-Guide 3000 steering system can be used and the automatic steering activated, the receiver and the steering valve must be turned on. Refer to the Auto-Guide 3000 user manual for more information on timer settings of the receiver.



1. Auto-Guide steering valve on/off button
2. Auto-Guide receiver on/off button
3. Auto-Guide remote activation button

- **Press the Auto-Guide receiver on/off button on the side panel to turn the Auto-Guide receiver on or off.**

  When on, the symbol on the push button is green.

  Turning off the receiver also turns off the Auto-Guide steering valve if it was on.

  NOTE: The receiver can stay on even when tractor power is turned off. Refer to the Auto-Guide 3000 user manual for more information on timer settings. The main power of the tractor is on for a maximum of one hour after the ignition switch is turned to the (OFF) position.

- **Press the Auto-Guide steering valve on/off button on the side panel to turn the Auto-Guide steering valve on or off.**

  When on, the light on the push button is green and the symbol  is displayed on the Proline instrument panel.

  The steering valve is automatically turned off when the driver leaves the driver's seat for more than five seconds.

  Turning on the steering valve also turns on the Auto-Guide receiver, if the receiver was off.

  NOTE: When the steering valve is on, the driving speed is limited to 25 km/h. It is not possible to turn the steering valve on when the speed is above 25 km/h.

- **Press the Auto-Guide remote activation button to activate or deactivate the automated steering.**

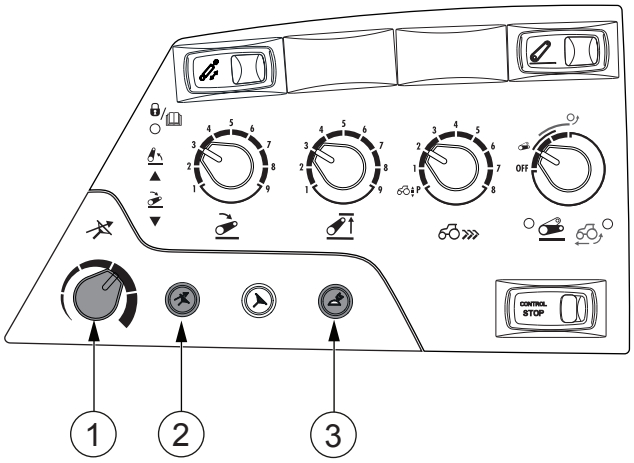
  When Auto-Guide is ready for steering, pressing Auto-Guide remote activation button activates the automated steering.

  If automated steering is already active, pressing the button deactivates the steering. Turning the steering wheel also deactivates the automated steering.

  Refer to Auto-Guide 3000 user manual for more information on the requirements which has to be met before activation is possible.

3.23.2 Using Auto-Guide with QuickSteer

If you want to use Auto-Guide with QuickSteer, turn the Auto-Guide receiver on and activate the QuickSteer.



1. QuickSteer control knob
2. QuickSteer activation button
3. Auto-Guide receiver on/off button

1. **Press the Auto-Guide receiver on/off button on the side panel to turn the Auto-Guide receiver on.**

2. **Press the QuickSteer activation button to activate the steering valve.**

   The QuickSteer activation button light is lit green, and the QuickSteer symbol is displayed on the Proline instrument panel. When using QuickSteer, do not turn the Auto-Guide steering valve on.

3. **Turn the QuickSteer control knob to set the steering speed.**

To deactivate the QuickSteer, press the QuickSteer activation button again.

3.23.3 Auto-Guide with TwinTrac and QuickSteer

You can use Auto-Guide 3000 also with the TwinTrac reverse drive system.

Turning the driver's seat to the TwinTrac position turns the steering valve on. You cannot turn the steering valve off when using TwinTrac.

You can use either normal steering or QuickSteer to steer the tractor.

Turning the driver's seat to normal position turns the steering valve off.

You can turn the steering valve back on by pressing the Auto-Guide steering valve on/off button or the QuickSteer activation button.

3.23.4 Resetting the Auto-Guide steering valve

If the light on the Auto-Guide steering valve on/off button is flashing, there is a fault in the steering valve. The fault code is shown on the tractor terminal. Reset the steering valve to recover from the fault.

- **Press the steering valve on/off button once.**

  The steering valve is turned off after which the system turns the valve back on.

  If the light is still flashing, the fault persists. In this case, contact an authorised Valtra workshop.

3.24 Towing devices

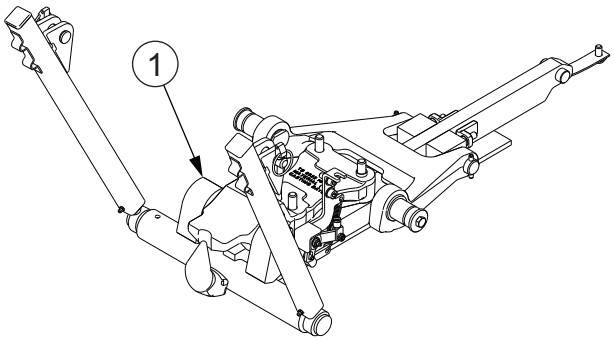
3.24.1 Nordic pick-up hitch

The Nordic pick-up hitch is optional with the fixed trailer hitch.

WARNING: When attaching a trailer or implement, do not exceed the maximum weight of the rear axle or the maximum load of the tyre type. See the technical specifications in this manual for the maximum permissible weights and loads.

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

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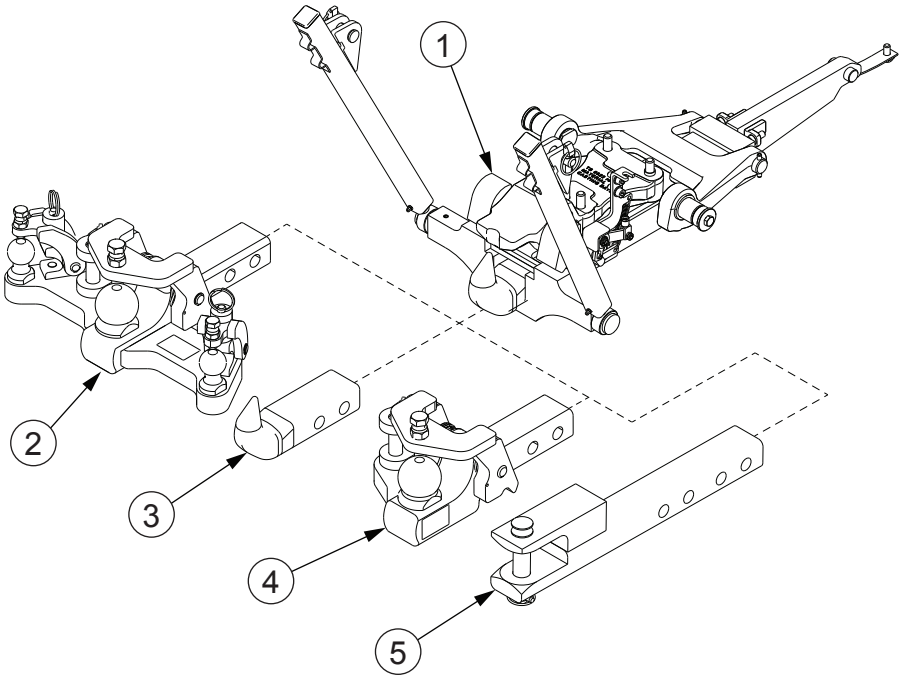
1. Nordic pick-up hitch

3.24.2 Euro pick-up hitch

The Euro pick-up hitch is optional with four changeable implements.

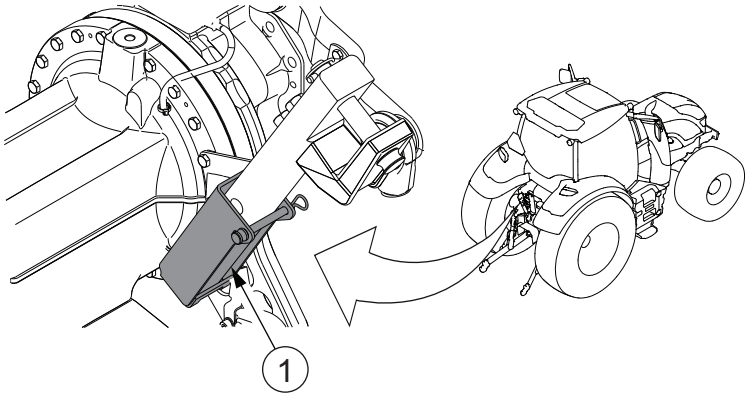
WARNING: When attaching a trailer or implement, do not exceed the maximum weight of the rear axle or the maximum load of the tyre type. See the technical specifications in this manual for the maximum permissible weights and loads.

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



1. Euro pick-up hitch
2. K80 ball hitch with steering balls (optional)
3. Trailer hitch
4. K80 ball hitch (optional)
5. Drawbar (optional)

When the trailer hitch or drawbar is not in use, it can be fastened to its bracket.



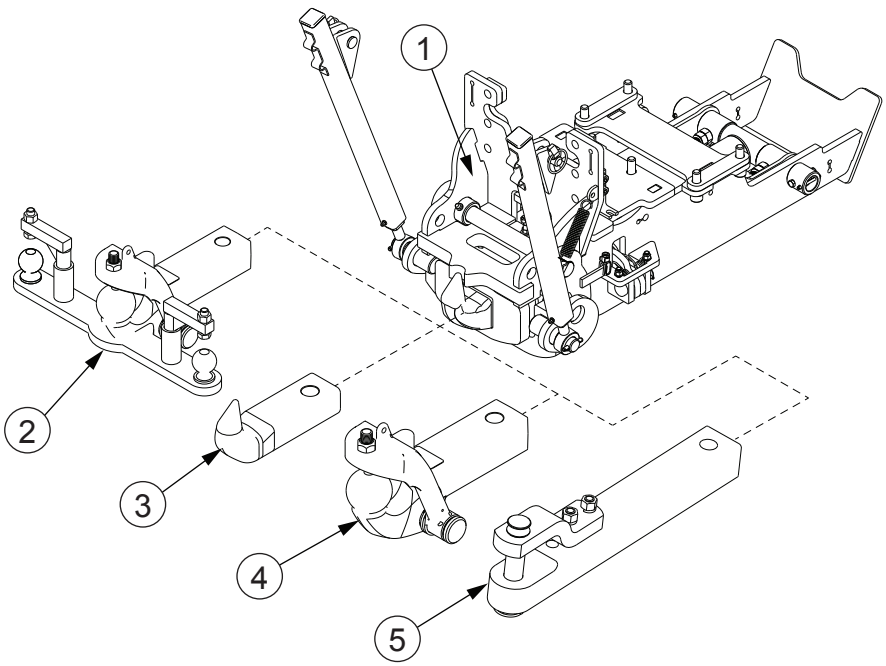
1. Bracket

3.24.3 Hydraulic pick-up hitch

The Hydraulic pick-up hitch with hydraulic extension is optional with four changeable implements.

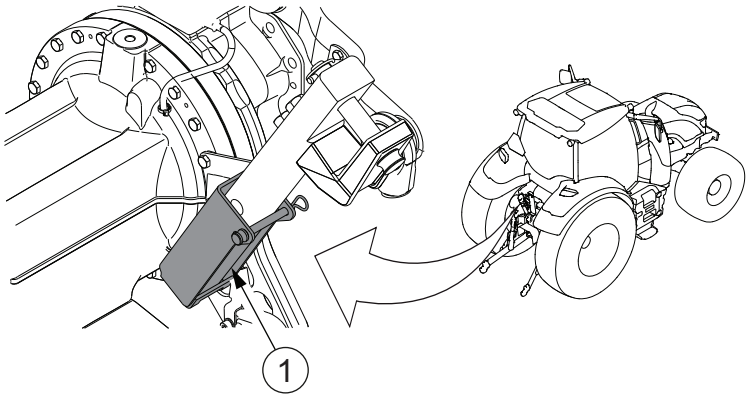
WARNING: When attaching a trailer or implement, do not exceed the maximum weight of the rear axle or the maximum load of the tyre type. See the technical specifications in this manual for the maximum permissible weights and loads.

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



1. Hydraulic pick-up hitch
2. K80 ball hitch with steering balls (optional)
3. Trailer hitch
4. K80 ball hitch (optional)
5. Drawbar (optional)

When the trailer hitch or drawbar is not in use, it can be fastened to its bracket.

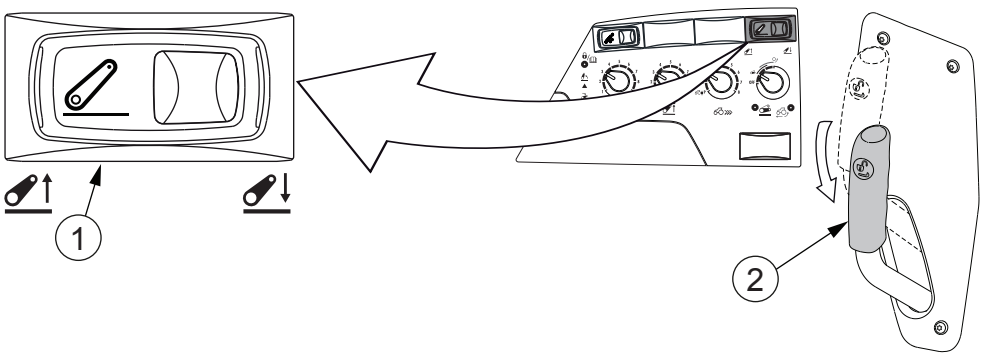


1. Bracket

3.24.4 Using the pickup hitch

3.24.4.1 Unlatching the pick-up hitch

WARNING: Never unlatch the pick-up hitch when driving.



1. Lifting/lowering switch
2. Trailer hitch release lever

1. **Press the symbol side of the lifting/lowering switch to fully raise the linkage.**
2. **Pull the hitch latch lever to unlatch the hitch.**

   Keep the lever pulled.
3. **Press the lifting/lowering switch side opposite to the symbol to lower the linkage.**

4. Release the hitch latch lever when the hitch has passed the locking latch.

3.24.4.2 Latching the Nordic and Euro pick-up hitch



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



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



WARNING: When attaching a trailer or implement, do not exceed the maximum weight of the rear axle or the maximum load of the tyre type. See the technical specifications in this manual for the maximum permissible weights and loads.



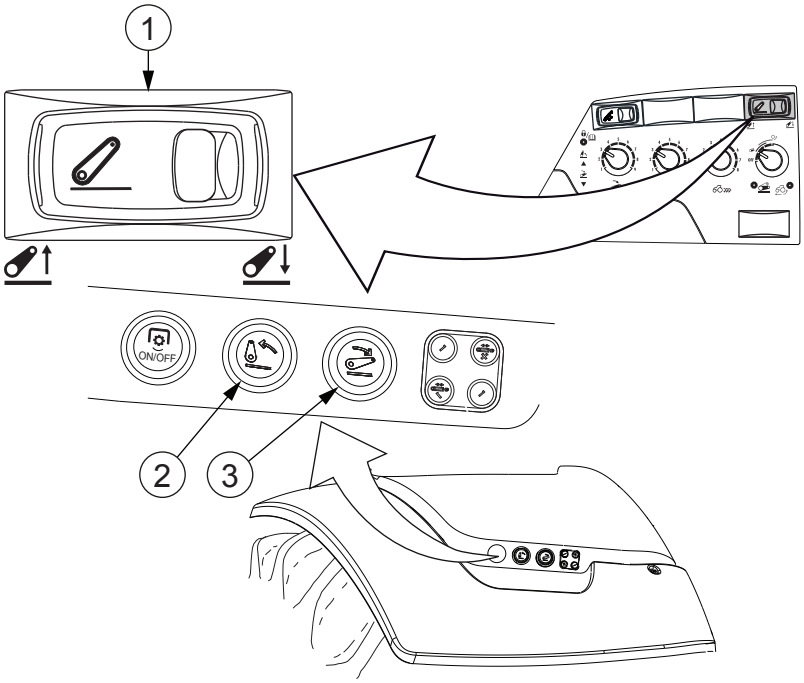
WARNING: Make sure that the maximum permissible towable mass is not exceeded. Check the tractor identification plate for permissible towable mass. Follow valid laws and regulations.



WARNING: Attach trailed single-axle vehicles to the pick-up hitch. When driving with a trailer with the tractor tilted to either side on a 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.

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1. Lifting/lowering switch
2. Lifting push button
3. Lowering push button

1. **Reverse the tractor up to the trailer/implement.**
2. **Align the pick-up hitch hook or drawbar pin to the eye of the trailer/implement beam.**
3. **Press the symbol side of the lifting/lowering switch or the lifting push button until the hitch latches.**

   You can hear a click and the trailer hitch release lever jumps a little.
4. **Press the lifting/lowering switch side opposite to the symbol or the lowering push button to lower the linkage slightly.**

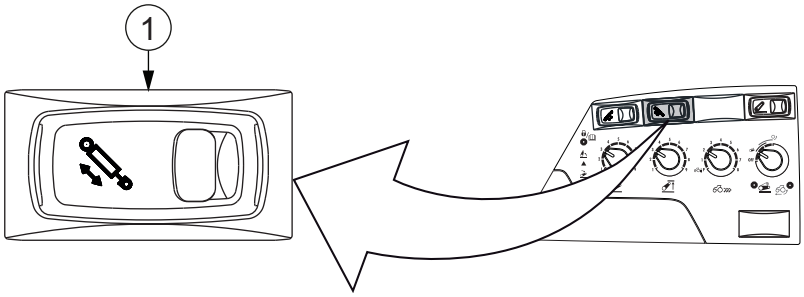
   WARNING: When using a trailer, make sure that the hitch latch is locked.

   Ensure that the hitch is supported by the latch and does not lower with the linkage.
5. **Check the linkage position.**

   IMPORTANT: Adjust the linkage so that it does not hit the towed device or power take-off shaft at any circumstance.

3.24.4.3 Extending the Hydraulic pick-up hitch

When the frame of the towing device is lowered, you can extend it hydraulically backwards to make it easier to attach the trailer hitch/drawbar/Ø80mm ball hitch to the drawbar eye. The cylinder of the hydraulic extension is connected permanently to the rear on/off valve 2.



1. Switch for rear on/off valve 2

1. Extend the towing device.

Press down the side opposite to the symbol of the switch for rear on/off valve 2.

2. Retract the towing device.

Press down the symbol side of the switch for rear on/off valve 2.

3.24.4.4 Latching the Hydraulic pick-up hitch

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

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

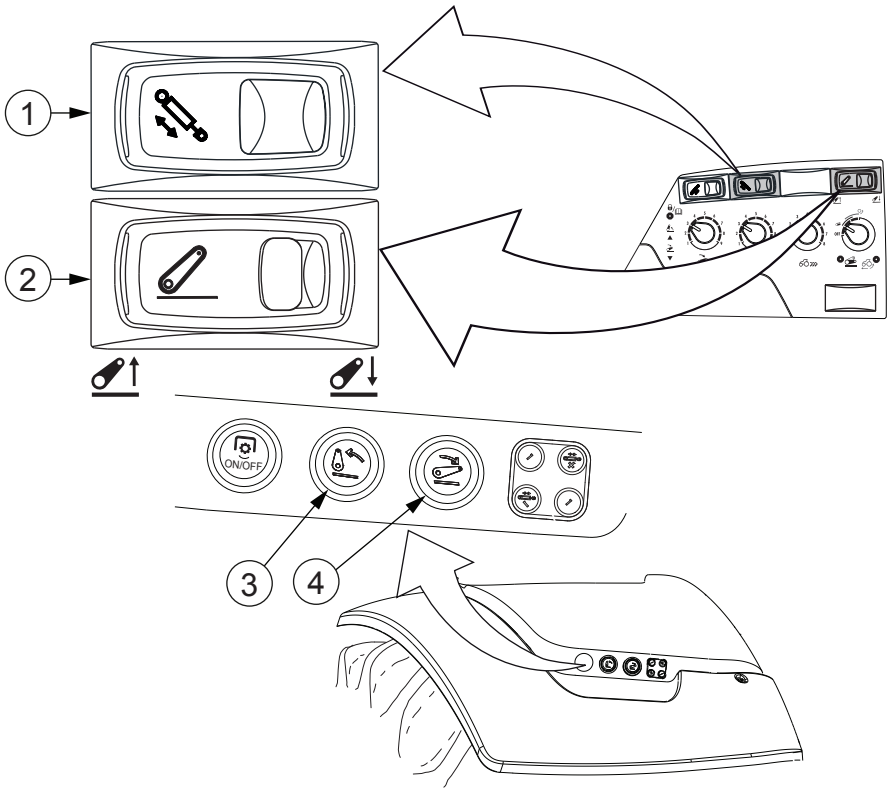
WARNING: When attaching a trailer or implement, do not exceed the maximum weight of the rear axle or the maximum load of the tyre type. See the technical specifications in this manual for the maximum permissible weights and loads.

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

WARNING: Attach trailed single-axle vehicles to the pick-up hitch. When driving with a trailer with the tractor tilted to either side on a 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.

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1. On/off valve switch 2
2. Lifting/lowering switch
3. Lifting push button
4. Lowering push button

1. **Reverse the tractor up to the trailer/implement.**
2. **Press the lifting/lowering switch side opposite to the symbol or the lowering push button to lower the linkage.**
3. **Press the on/off valve switch 2 side opposite to the symbol to extend the towing device backwards.**
4. **Align the pick-up hitch hook or drawbar pin to the eye of the trailer/implement beam.**
5. **Press the symbol side of the lifting/lowering switch or the lifting push button until the hitch latches.**
   You can hear a click and the trailer hitch release lever jumps a little.
6. **Press the lifting/lowering switch side opposite to the symbol or the lowering push button to lower the linkage slightly.**

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

   Ensure that the hitch is supported by the latch and does not lower with the linkage.

7. **Press the symbol side of the on/off valve switch 2 to retract the towing device.**

   The hydraulic extension locks, and you can hear a click when the hitch latches in longitudinal direction.

   WARNING: Make sure that the locking makes the click sound because only this tells that the hydraulic extension is locked. If it does not make the sound, it is possible that the extension is not locked.

8. **Ensure that the towing device extension is locked.**
   - **Press the side opposite to the symbol on the on/off valve switch 2.** Ensure that the hydraulic extension does not extend.
   - **Press the symbol side of the on/off valve switch 2.**

9. **Ensure that the towing device is fully locked.**

   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 locking position of the pick-up hitch in longitudinal direction has been checked by attempting to move the extension back and forth.

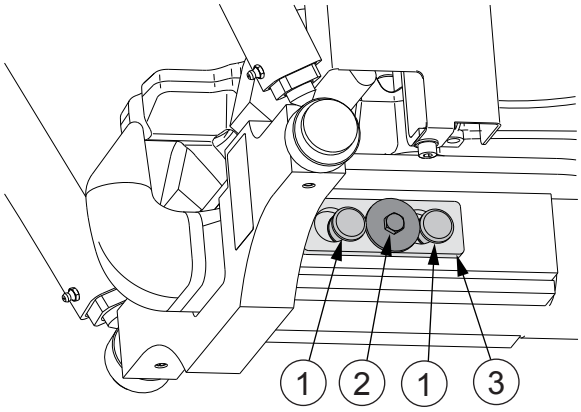
10. **Check the linkage position.**

    IMPORTANT: Adjust the linkage so that it does not hit the towed device or power take-off shaft at any circumstance.

3.24.5 Changing the pick-up hitch implement

3.24.5.1 Changing the Euro pick-up hitch implement

You can change the Euro pick-up hitch implement. When the trailer hitch or drawbar is not in use, you can fasten it to the bracket on the rear side.



1. Locking pins
2. Screw and washer
3. Locking plate

1. **Ensure that the pick-up hitch is in the locking position.**

   Lift to the locking position if not.

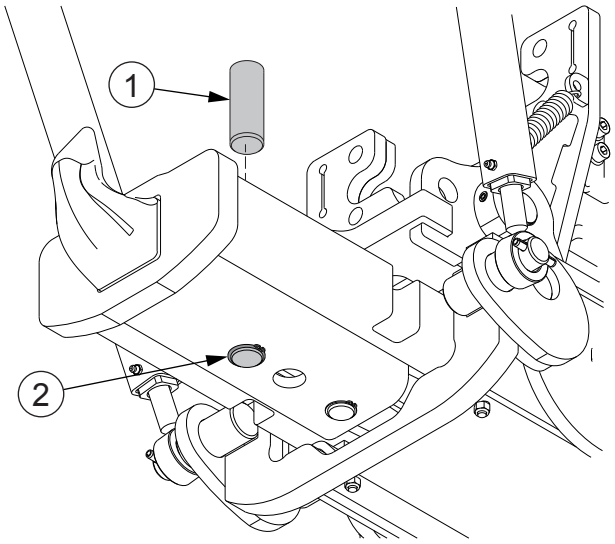
2. **Remove the screw and washer.**
3. **Push the locking plate forward and pull to the side to remove it.**
4. **Remove the locking pins by pulling.**

   Support the pick-up hitch implement by hand while removing the locking pins.
5. **Pull the implement out.**
6. **Attach the pick–up hitch implement.**
7. **Fit the locking pins.**
8. **Fit the locking plate and pull backwards into place.**
9. **Fit the screw and washer.**

   Tightening torque is 23 Nm.

3.24.5.2 Changing the Hydraulic pick-up hitch implement

You can change the Hydraulic pick-up hitch implement. When the trailer hitch or drawbar is not in use, you can fasten it to the bracket on the rear side.



1. Locking pin
2. Locking ring

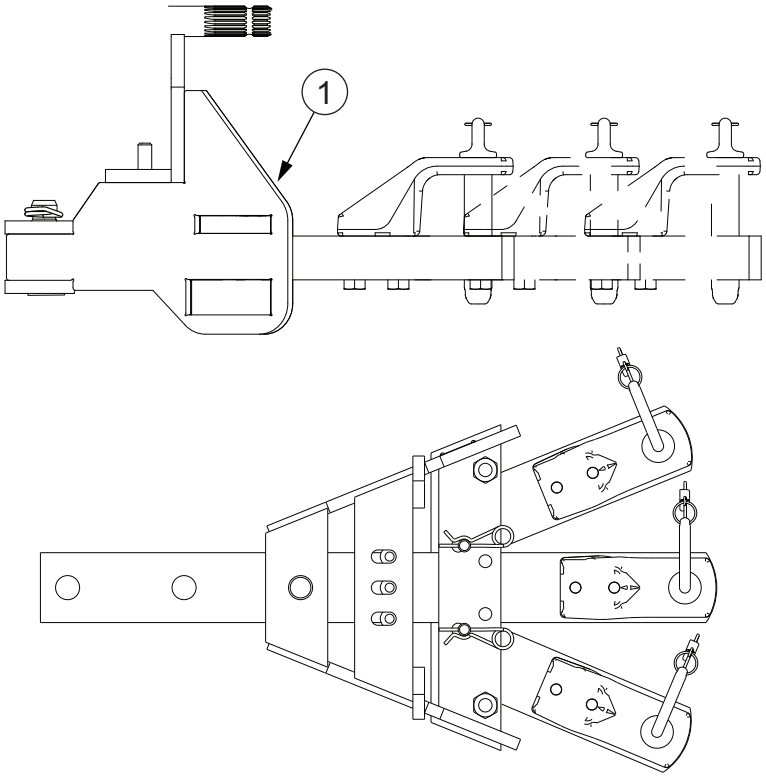
1. **Lower down and extend the towing device.**
2. **Raise the towing device to the locking position.**
3. **Remove the locking ring.**
4. **Remove the locking pin by pulling.**

   Support the pick-up hitch implement while removing the locking pin.
5. **Pull out the pick-up hitch implement.**
6. **Attach the pick-up hitch implement.**
7. **Attach the locking ring.**

8. **Retract the towing device.**

3.24.6 Agricultural drawbar

The agricultural drawbar (optional) is used without the pick-up hitch.



1. Agricultural drawbar

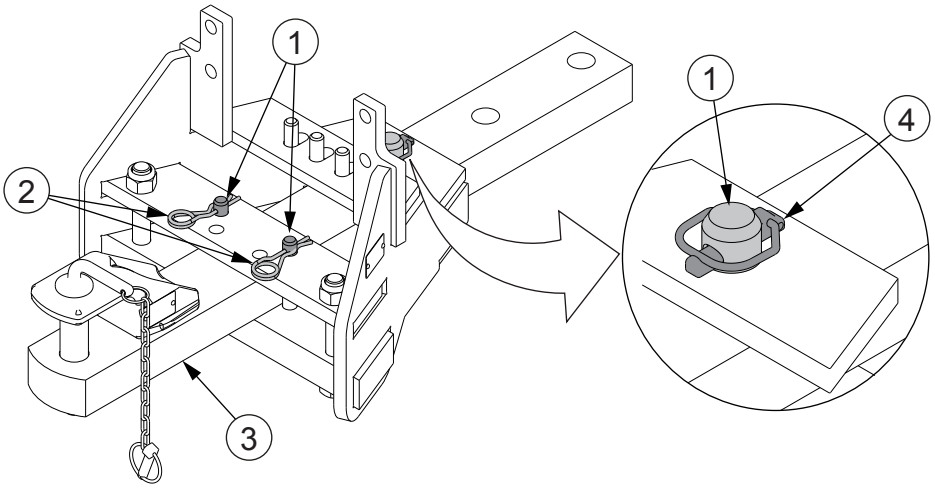
The agricultural drawbar is used for towing implements where only part of the implement weight is on the drawbar, for example balers. See the technical specifications in this manual for the maximum weight of the drawbar implement.

Agricultural drawbar:

- Adjustable to three different distances from the power take-off (PTO) shaft.
- In all positions, the drawbar can also be adjusted ± 21° to either side.

3.24.6.1 Adjusting the agricultural drawbar

You can adjust the agricultural drawbar to different distances and lateral positions.



1. Pin
2. Spring return pin
3. Drawbar
4. Ring pin

1. **To adjust the drawbar distance:**
   - **Secure the pin with hand and pull out the ring pin.**
   - **Adjust the drawbar distance.**
   - **Fit the pin and ring pin to secure the drawbar.**

   WARNING: Make sure that the locking pin is fitted correctly.

2. **To adjust the lateral position.**
   - **Secure the pins with hand and pull out the spring locking pins.**
   - **Adjust the drawbar position to either side.**
   - **Fit the pins and spring locking pins to secure them.**

   WARNING: Make sure that the locking pin is fitted correctly.

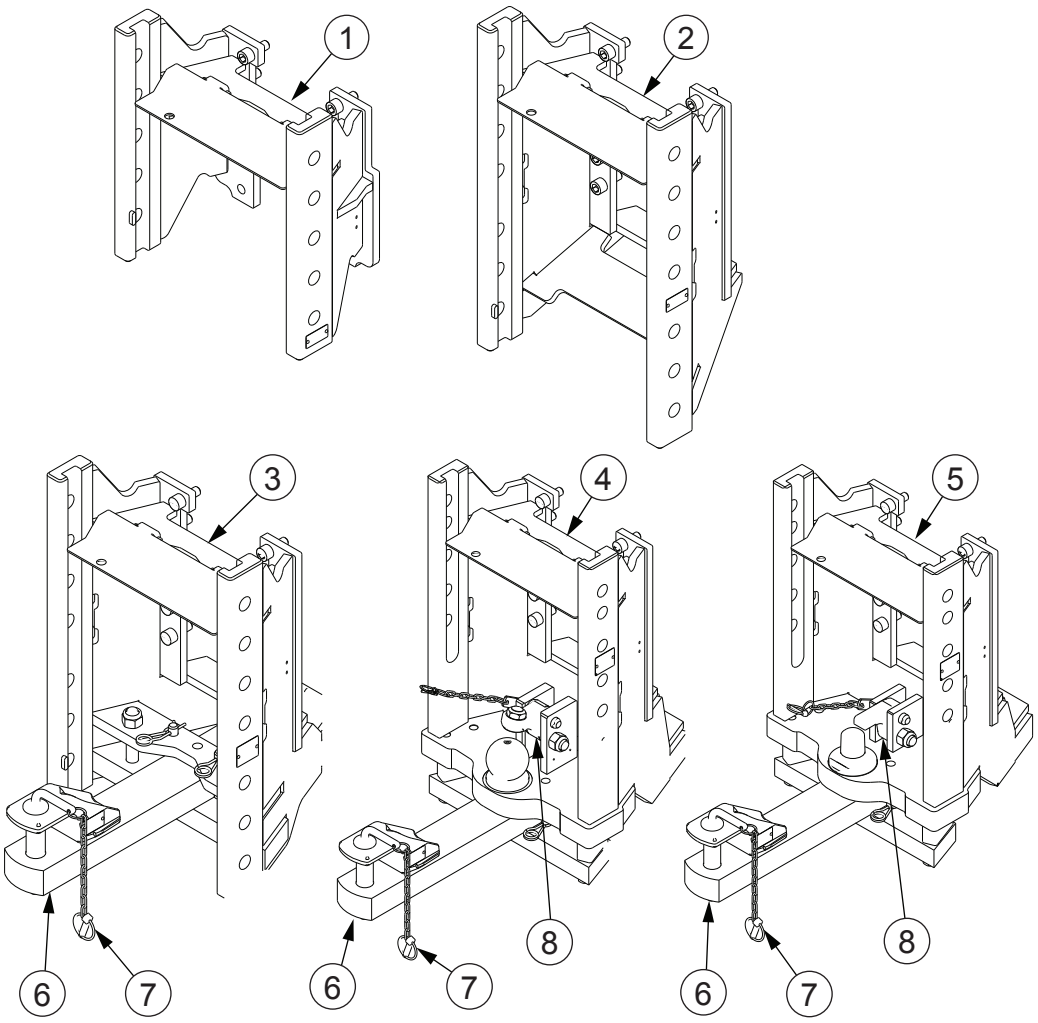
   Insert the straight part of the spring locking pin through the hole and the curve to correspond to the pin arc.

3.24.7 Towing device frames

The towing device frame options available are:

- Short towing device frame (used with pick-up hitch)
- Towing device frame (used without pick-up hitch or agricultural drawbar)
- Universal towing device frame with availability for drawbar
- Towing device frame with a fixed 80–mm ball coupling and the drawbar.
- Towing device frame with a fixed Piton-Fix pin and the drawbar

WARNING: According to law, the operator has to ensure that all relevant precautions are taken (lockings secured etc.).



1. Short towing device frame
2. Towing device frame
3. Universal towing device frame
4. Towing device frame with a fixed 80–mm ball coupling
5. Towing device frame with a fixed Piton-Fix pin
6. Drawbar (optional)
7. Drawbar pin locking
8. Locking

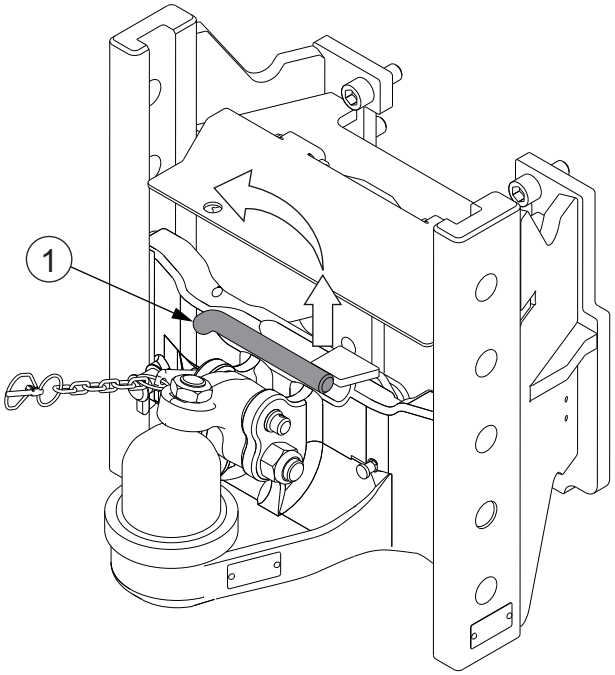
Locking to the trailer must be secured.

3.24.7.1 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.

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1. Lever

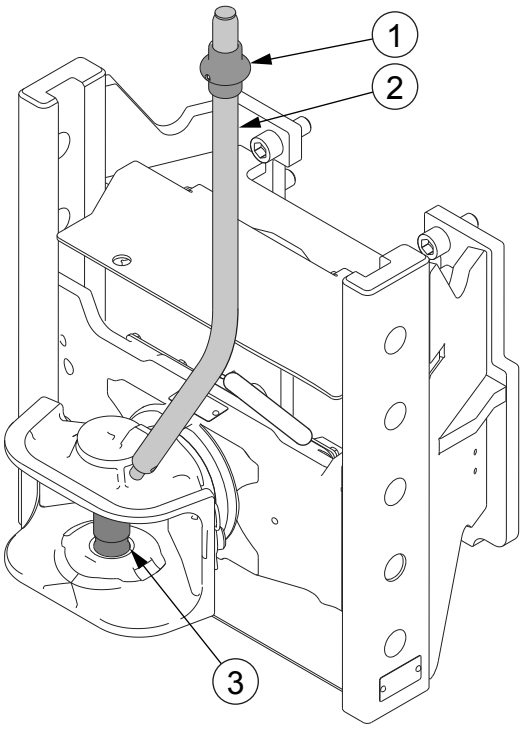
1. **Pull the lever upwards and turn it to the anticlockwise.**
2. **Move the jaw to the wanted height.**
3. **Release the lever.**

   The locking pins lock the lever to 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.

3.24.7.2 Attaching to the mechanical jaw

You can attach a trailer to the mechanical jaw using the coupling lever.



1. Ring
2. Coupling lever
3. Towing pin

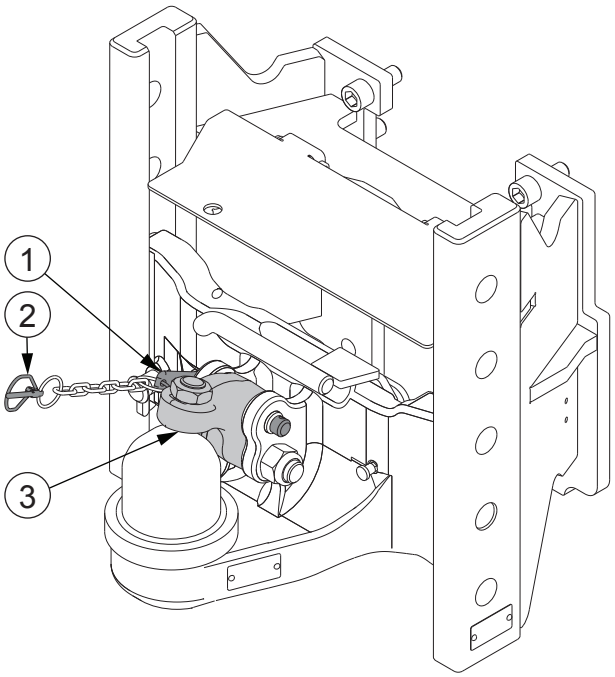
1. **Pull up the ring at the top of the coupling lever to lift up the towing pin.**

WARNING: After attaching the trailer, check that the towing pin is completely down and locked.

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3.24.7.3 Attaching to the mechanical jaw K80

You can attach a trailer to the mechanical jaw K80.



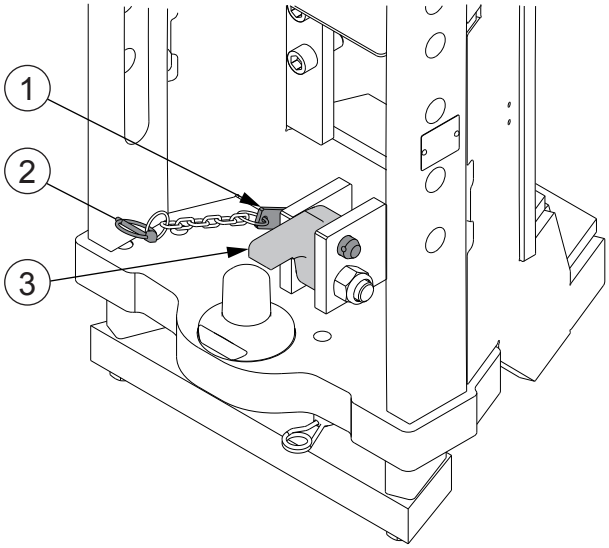
1. Pin
2. Locking pin
3. Locking

1. **Remove the locking pin.**
2. **Pull the pin off and open the locking.**
3. **Attach the trailer to the jaw.**
4. **Close the locking and fit the pin.**
5. **Fit the locking pin.**

WARNING: Make sure that the locking pin is fitted correctly.

3.24.7.4 Attaching to fixed Piton fix/fixed Ø80mm ball hitch

You can attach a trailer to the fixed Piton fix or fixed K80 jaw.



1. Pin
2. Locking pin
3. Locking

1. **Remove the locking pin.**
2. **Pull the pin off and open the locking.**
3. **Attach the trailer to the jaw.**
4. **Close the locking and fit the pin.**
5. **Fit the locking pin.**

WARNING: Make sure that the locking pin is fitted correctly.

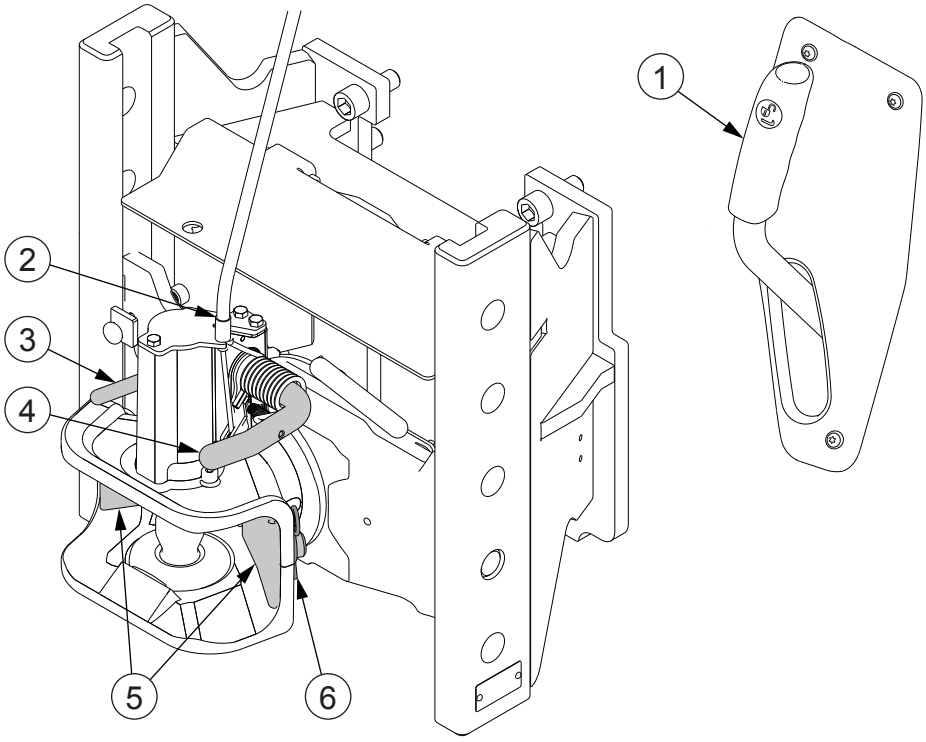
3.24.7.5 Attaching to the automatic jaw

You can attach a trailer to the automatic jaw using the opening and locking levers.

Use a solid drawbar because of the rotating jaw.

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

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1. Trailer hitch release lever (optional)
2. Cable for trailer hitch release lever (optional)
3. Towing pin locking lever
4. Towing pin opening lever
5. Adjusting part
6. Spring locking pin

1. **Check that the adjusting parts fit for the trailer to be coupled.**

   With the adjusting parts you can adjust the towing eye spacing.
   - **Pull the spring locking pins off and pull the adjusting parts off to remove them.**
   - **Fit the adjusting parts and fit the spring locking pins to secure them.**

     Insert the straight part of the spring locking pin through the hole and the curve to correspond to the pin arc.

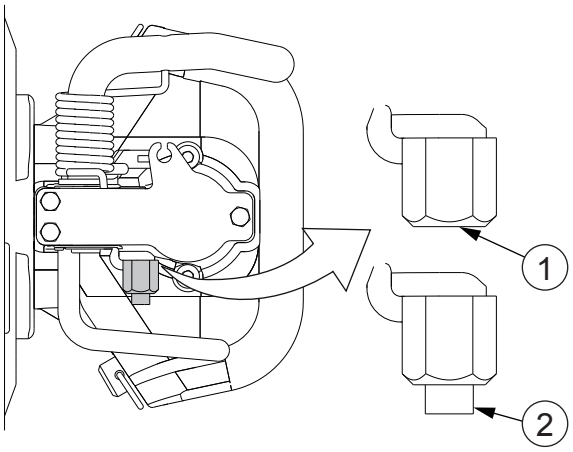
2. **Lift the towing pin up or pull down the trailer hitch release lever (optional).**

   To lift the pin with the opening lever, turn the lever to the upper position.

3. **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 locking lever downwards.

4. **Check that the towing pin is locked.**



1. Towing pin not locked
2. Towing pin locked

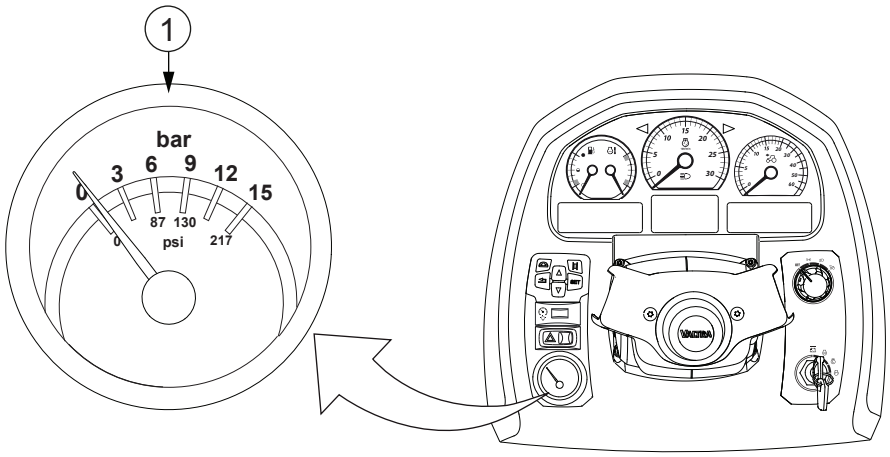
WARNING: The towing pin is locked in the down position when the security knob is out. When attaching the trailer, the towing locking pin must be secured.

3.25 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).

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.

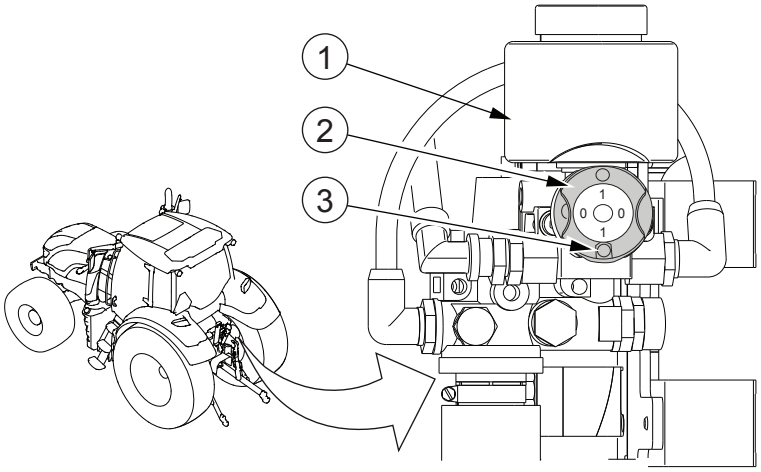


1. Air pressure system pressure gauge

https://truckmanualshub.com/

WARNING: The pressure of the air pressure system must be at its maximum, about 7-8 bar, before driving the 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 right axle housing.



1. Antifreeze container
2. Liquid streaming valve
3. Open position

When the ambient temperature is above +5°C, the liquid streaming valve can be kept closed.

3.26 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 towing device.
- Whether the trailer has one or more axles.
- The type of trailer drawbar eye

The total trailer weight is the load added to the empty trailer weight.

WARNING: If the towing device is worn out or otherwise damaged so that the drawbar come off, the towing device must be replaced.

IMPORTANT: When loading the towing device, at least 20% of the tractor weight has to be on the front wheels.

IMPORTANT: The maximum allowed wheel or towing device loading must not be exceeded.

3.26.1 Trailer turn signals

When using turn signals while towing a trailer, the first trailer turn signal indicator  on the instrument panel is blinking.

When towing two trailers, both trailer turn signal indicators  and  on the instrument panel are blinking.

If the trailer turn signal indicators do not blink as mentioned, there is a fault in one or more trailer bulbs.

IMPORTANT:
The tractor’s turn signal failure control for trailer/s is designed for trailers having one pair of turn signals. Check the condition of the turn signals before starting to drive. It is the driver's responsibility to check that all turn signals work correctly.

If both trailer turn signal indicators on the instrument panel blink in turn, there is a short-circuit in one of the turn signal lines of the vehicle combination. In this case, the line is turned off and this turn signal stops blinking. After 12 seconds the relay tries to switch the turn signal line back on. To speed up the recovery, you can switch the turn signals off and on again. If the fault still persists, contact an authorised Valtra workshop.

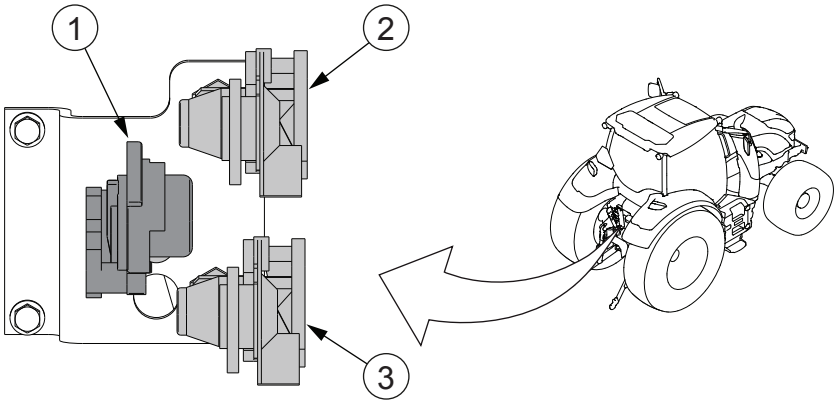
The tractor's direction indicator failure control works also for the trailer LED direction indicators, as required by law, when they include the Hella direction indicator failure control.

https://truckmanualshub.com/

3.26.2 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 (optional equipment) is controlled by the tractor brakes. The trailer brakes operate also when using the parking brake.



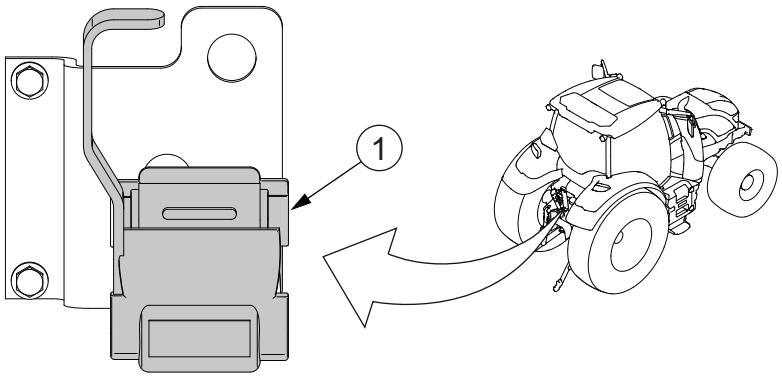
1. Brake line coupling with black cover
2. Brake line coupling with yellow cover
3. Container line coupling with red cover

On a two-hose system, the trailer is connected to two couplings:

- Container line with a red cover
- Brake line coupling with a yellow cover

On one-hose systems, the trailer is connected to the brake line coupling with a black cover.

The Duo-Matic system has only one coupling to connect.



1. Trailer coupling Duo-Matic

WARNING: Always test the operation of the trailer brakes in safe ground after connecting a trailer with brakes.

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.

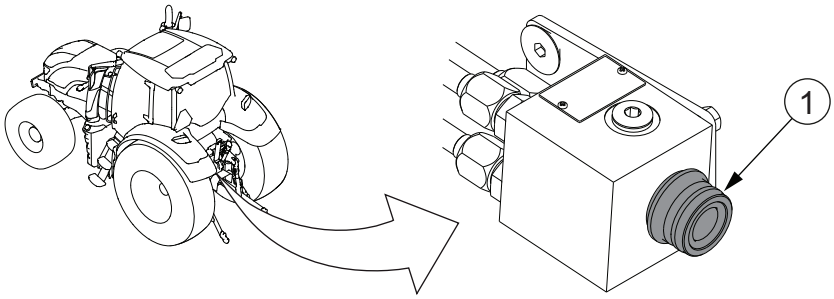
WARNING: The pressure of the air pressure system must be at its maximum, about 7-8 bar, before driving the tractor with a trailer equipped with air pressure brakes.

When the trailer couplings are not in use, they must be covered.

3.26.3 Hydraulic trailer brake valve

The hydraulic trailer brake valve (optional equipment) operates with the pressure of the tractor hydraulics, controlled by the tractor brakes.

The trailer brakes are connected to the tractor with a quick coupling at the rear part of the tractor.



1. Quick coupling for the trailer brakes (ISO 5676)

DANGER: The hydraulic trailer brakes do not engage when the parking brake is engaged.

DANGER: When the engine is not running, the trailer brakes do not work.

DANGER: The quick coupling for hydraulic trailer brakes must be connected when bleeding the brakes. If the quick coupling is not connected, the brakes will not be bled. This will cause the brakes to malfunction.

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: Always test the operation of the trailer brakes in safe ground after connecting a trailer with brakes.

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 running hours-based or annual maintenance schedule for your tractor.

With both maintenance schedules the maintenance tasks are carried out according to the periodical maintenance chart.

Running hours-based maintenance

Running hours-based maintenance schedule is recommended for all tractors and especially for tractors which have more than 1200 running hours in a year. The periodical maintenance from 50 hours onwards can also be ordered from the authorised Valtra workshop. In that case the periodical maintenance is carried out by Valtra authorised and trained service personnel.

Annual maintenance

Annual maintenance schedule is suitable for tractors which have less than 1200 running hours in a year. The schedule should be carried out by an authorised Valtra workshop but the operator has to carry out the normal daily and weekly service routines according to the periodical maintenance chart.

4.2 Service inspection

A service inspection is required for all new tractors after 50 running hours.

The service inspection is mandatory in order to retain the guarantee. The service is performed by your local dealer.

NOTE: The tractor is inspected according to the manufacturer's instructions before it is handed over to a customer.

Engine

The inspection of the engine contains the following services:

- Change of engine oil and filter
- Change of fuel system prefilter
- Change of fuel filter

Power transmission

The inspection of the power transmission contains the following services:

- Change of 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 hydraulic return filter

Other points

The inspection contains the following services as well:

- Lubrication according to maintenance chart
- Checking the front loader frame bolt tightness (Front loader is optional equipment)
- Running of transmission automatic calibration
- Road test of the tractor

During the road test all the functions of the controls and instruments are checked. After the road test, the oil leaks, coolant level and fuel system are checked.

4.3 Performing maintenance tasks

Follow these instructions when maintaining.

- Test drive the tractor and test that all instruments and controls are working properly.
- Always stop the engine before starting the work.
- Park the tractor on level ground, especially when doing oil checks.
- Apply the parking brake to ensure that the tractor cannot move.

  NOTE: If the ground is uneven, block the wheels.

- Wash down the tractor so that the service work can be done easily and quicker.

Observe that if the tractor has extra equipment like towing device, air conditioning, air pressure brakes and so on, the periodical maintenance and checks for them must also be carried out.

Follow the instructions concerning general service tasks:

- **Observe the utmost cleanliness in all maintenance work.**

  Thoroughly wipe off filler caps and plugs as well as surrounding parts of the tractor before filling up with fuel or oil.

  CAUTION: Keep the engine surface clean in order to avoid the risk of fire.

- **Check the oil level.**

  Be sure that the engine and oil have cooled down before checking the oil level. The oil must have run down to the bottom of the oil sump before the operation.

- **Open the radiator cap with care when the engine is hot as the cooling system is pressurized.**

  WARNING: Coolant may be hot and under high pressure.

- **Always disconnect the negative (-) battery cable when servicing or repairing the electric system.**

  IMPORTANT: Make sure that the main power is turned off before disconnecting or reconnecting the battery.

- **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 of the waste oil, liquid waste, oil filters and batteries properly and handle them carefully.**

NOTE: After completion of service work, reinstall all shields and covers.

4.3.1 Cleaning the tractor

Clean the tractor regularly.

Turn the ignition key to the  (OFF) position before washing.

NOTE:
Protect the environment by following the environmental regulations. The washing place must have a separator outlet when using detergents.

It is best to wash the new tractor for the first time a week after the start-up. Avoid rubbing the surface of the tractor too hard during the first months.

NOTE: Do not wax the paint work of the new tractor before the initial washing.

- **Wash the tractor using a pressure washer.**

  Keep the nozzle of the pressure washer at least 30 cm from the sealing points and paint work. The temperature of the washing water must not be higher than 50°C.

  NOTE:

  Do not use special nozzles, such as turbo nozzles, when washing. Follow the instructions of the pressure washer manufacturer.

- **Do not let the water get into the cab air filter when washing the cab sides.**

  The cab air filter is in the side plate of the roof, usually on the left.

- **Do not wash the inside of the cab with a pressure washer or running water.**

- **Do not point the pressure washer towards electrical equipment, electrical connectors, lead-through points, bearings, seals and locks.**

  Use lower pressure (6,5 MPa / 65 bar) and point the water diagonally to the above points. Do not point the pressure washer towards the radar sensor (minimum distance 1 m and maximum pressure 6,5 MPa / 65 bar).

- **When using a cold grease remover, do not keep the tractor in sunshine.**

  The paint work may get damaged, if the painted surface is hot.

- **Wax the painted surfaces.**

After washing, grease the lubricating points and the joints and lubricate the bearings with oil.

4.3.1.1 Cleaning the engine compartment

Keep the engine surface clean to avoid the risk of fire.

NOTE:

Protect the environment by following the environmental regulations. The washing place must have a separator outlet when using detergents.

- **Let the engine cool down for a few minutes before washing.**

  IMPORTANT: To avoid the risk of fire, do not wash the engine when it is hot.

- **Wash the engine carefully using pressure washer.**

  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.

  - 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.**

4.3.1.2 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.

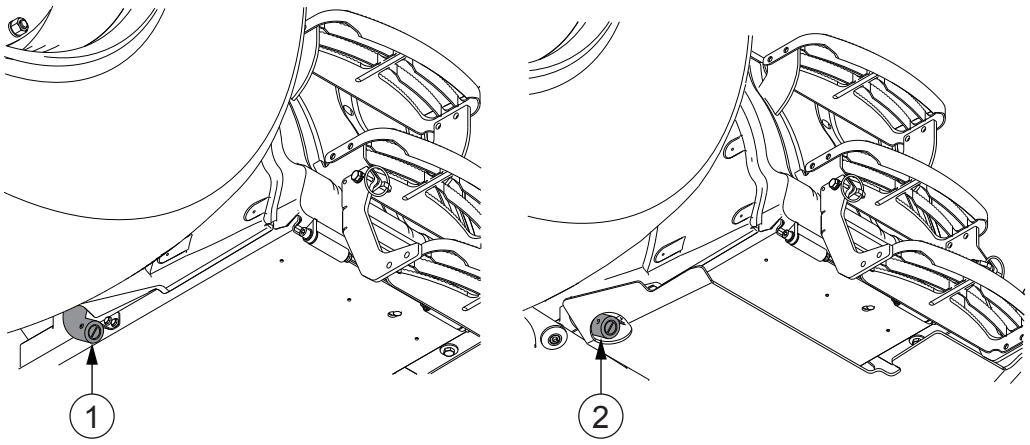
- **Do not use the window wiper on a dry window.**

  Ensure that there is enough fluid in the washer reservoir.

- **Never clean the polycarbonate windows using a sharp tool like an ice scraper.**

4.3.1.3 Cleaning the exhaust pipe of the fuel-operated heater

During the heating season, clean the exhaust pipe of the fuel-operated heater (optional equipment) daily to avoid the risk of fire.



1. Exhaust pipe
2. Exhaust pipe with bottom plate

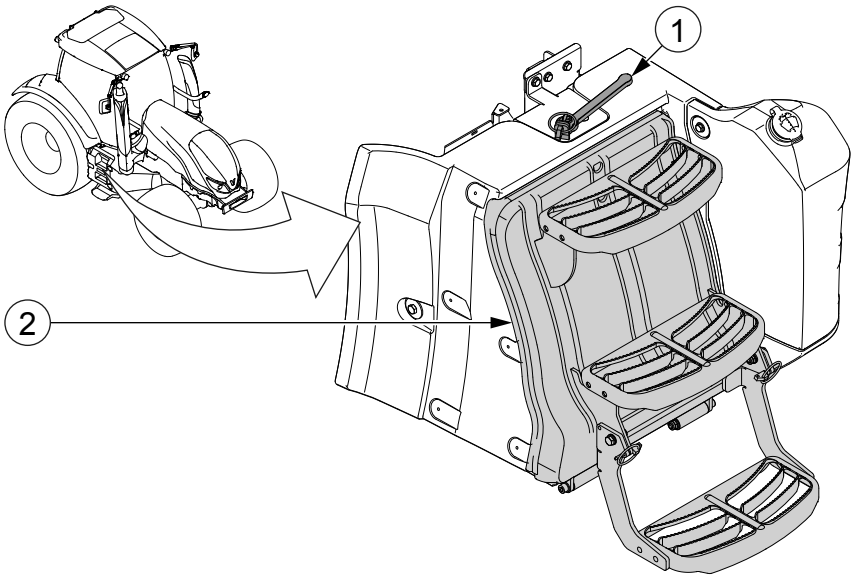
1. **Remove any dirt and hay from the exhaust pipe.**
2. **Brush the dirt from the exhaust pipe and its surroundings.**

   If the tractor is equipped with bottom plate, clean it as well.

4.3.1.4 Cleaning the fuel-operated heater and its surroundings

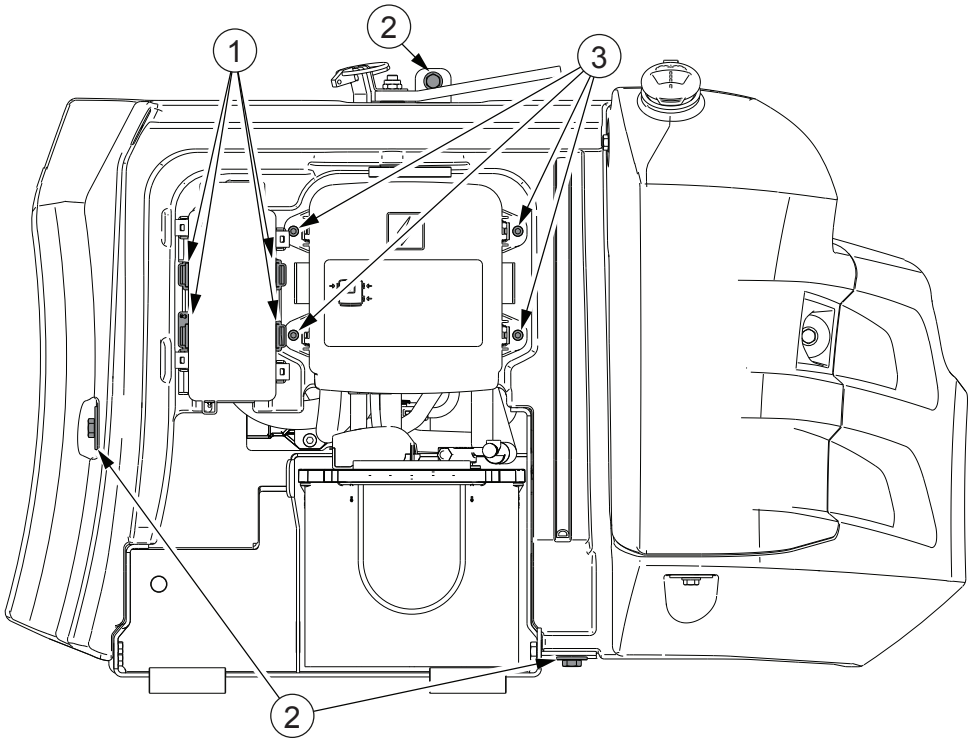
During the heating season, clean the fuel-operated heater (optional equipment) and its surroundings monthly to avoid the risk of fire. In dusty conditions, clean more frequently.

1. **Open the battery casing.**



1. Battery casing lock
2. Battery casing door

2. **Detach the engine electric centre from the battery casing.**



1. Engine electric centre fastening clip
2. Battery casing fastening screw
3. Main electric centre fastening screw

Leave the electric centre hanging by its harness.

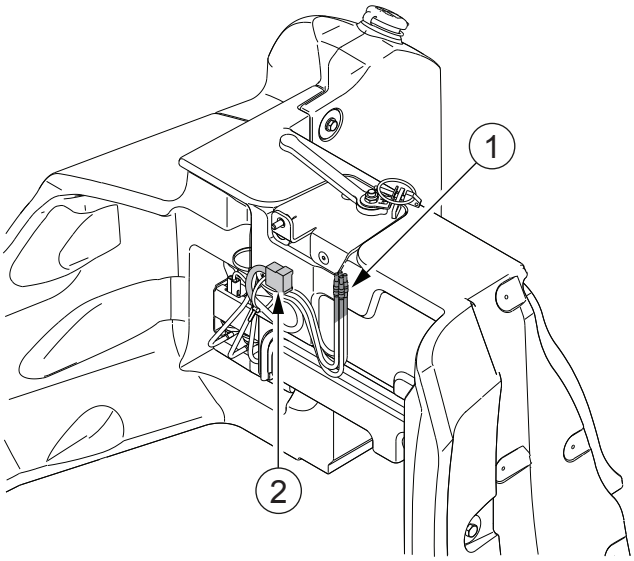
3. **Detach the main electric centre from the battery casing.**

Unscrew the main electric centre fastening screws. Leave the electric centre hanging by its harness.

4. **Unscrew the battery casing fastening screws.**

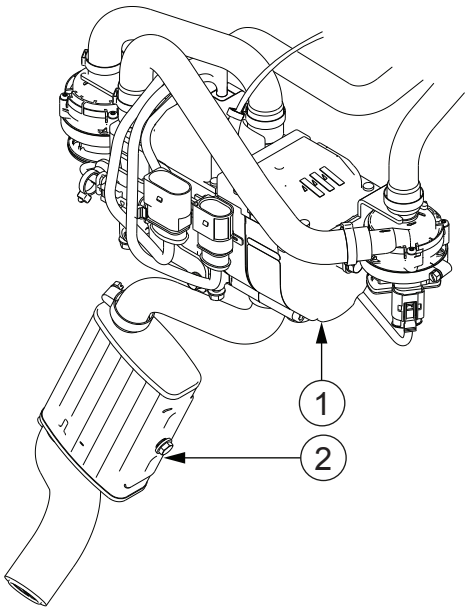
There are three fastening screws.

5. **Disconnect the hoses and electric connectors from the windscreen washer fluid reservoir.**



1. Windscreen washer fluid hose
2. Windscreen washer electric connector

6. **Remove the battery casing.**
7. **Remove any dirt or hay from the fuel-operated heater and its surroundings.**



1. Fuel-operated heater
2. Silencer

8. **Clean fuel-operated heater and its surroundings with a brush and compressed air.**

   Make sure the surface of the silencer is clean. If the tractor is equipped with bottom plate, clean it as well.

9. **Fit the battery casing.**
10. **Connect the hoses and electric connectors to the windscreen washer fluid reservoir.**
11. **Attach the main electric centre to the battery casing.**

    Tighten the 4 fastening screws.

12. **Attach the engine electric centre to the battery casing.**
13. **Close the battery casing.**

4.3.2 Greasing lubricating points fitted with grease nipples

1. **Always clean the grease nipples before applying the grease gun.**
2. **Apply grease through the nipples until clean grease oozes out (unless otherwise instructed).**

   NOTE: Preferably carry out lubrication with bearing points and joints unloaded and with the bearings in different positions.

3. **Wipe away superfluous grease which has been pressed out at the lubricating point.**

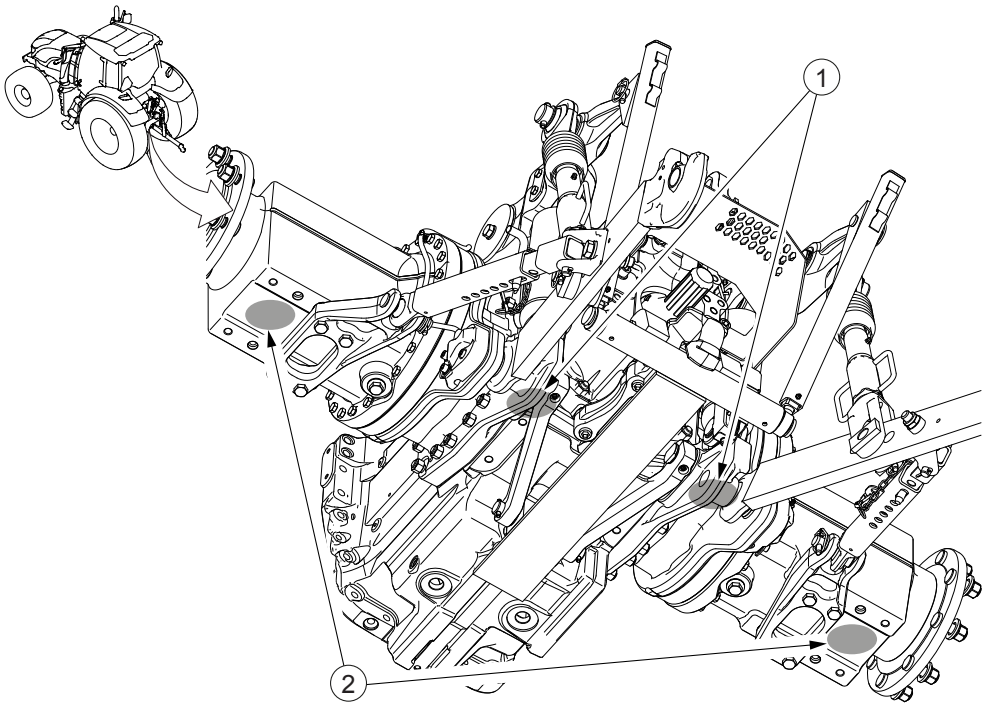
4.3.3 Supporting the tractor

Follow these instructions when supporting the tractor.

- **Make sure that the surface below the tractor is flat and hard.**
- **Make sure that the jack you use is sufficient and that you can lift the tractor with it.**
- **Put suitable blocks or stands as supports below the tractor.**

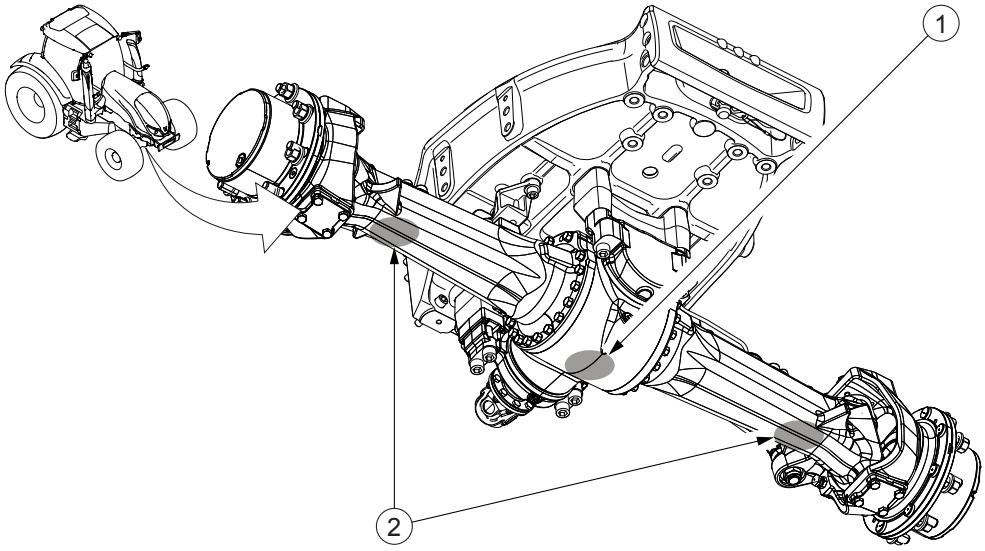
- **Make sure that the supports are below the correct support points on the frame.**

Rear



1. Main support point
2. Secondary support point

Front



1. Main support point
2. Secondary support point

4.4 Recommended fuel and lubricants

4.4.1 Fuel

Make sure the correct fuel is used.

The properties of light fuel oil that is only intended for heating do not meet the requirements of modern diesel engines, and cannot be used as fuel.

The high pressure pump of the Common Rail system requires the fuel to have sufficient lubricity, because it does not have separate oil lubrication. Adding oil to diesel fuel is forbidden, because it causes carbon build-ups, and if oil is mixed with even a small amount of water it clogs the filter.

Additionally, various fuel quality requirements imposed by taxation and seasonal changes have to be taken into consideration.

4.4.1.1 Quality requirements for engine fuel

The fuel must conform to the EN 590:2009 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. 15 mg/kg	EN ISO 14596:2007
Cetane number 4737	min. 51	EN ISO 5165:1998
Water content	max. 200 mg/kg	EN ISO 12937:2000
Lubricity/HFRR	max. 460 µm	ISO 12156-1

IMPORTANT: To mix fuel with any admixing material or additives 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 Storing AdBlue/DEF

In order to guarantee the stability of AdBlue/DEF (as per DIN 70070 standard), the following storage recommendations should be followed:

- **Use the original container for storage.**
- **Keep the container properly closed and in a cool, well-ventilated area.**

  IMPORTANT: AdBlue/DEF freezes at -11 °C. Take the necessary storage precautions to keep the product from freezing and to ensure the vehicle can be topped up at all times.

- **Keep the container away from heat and direct sunlight.**

  If AdBlue/DEF is stored at high temperatures, the solution may crystallise and release an ammonia odour.

- **Plug the AdBlue/DEF tank vent if the tractor is in storage for a long period.**

4.4.1.4 Biodiesel fuel

The possible alternative fuels to use are rapeseed methyl ester (RME) biodiesel according to the European norm EN 14214, or the US norm ASTM D6751, or second generation BTL biodiesel fuel pre-standard CWA 15940 (to be later updated to standard EN 15940).

When using the first generation biodiesel the engine capacity is almost the same as when using diesel fuel. Component surfaces which are in direct contact with fuel should not contain copper, lead or zinc. These substances react chemically with the biodiesel fuel forming deposit, which can clog the fuel injectors. Rubber materials that are incompatible with the biodiesel should not be used in the fuel injection system.

IMPORTANT: A maximum of 7% dilution of the biodiesel (B7) is allowed for biodiesel fuel according to the European norm EN 14214, or a dilution of 5% according to the US norm ASTM D6751. With second generation BTL biodiesel fuels using 100% biodiesel (B100) is allowed according to the biodiesel fuel pre-standard CWA 15940 (to be later updated to standard EN 15940).

4.4.1.5 AdBlue/DEF

The recommended additive is a urea-based fluid sold under the brand name AdBlue/DEF. AdBlue/DEF is a colourless fluid containing urea and distilled water.

The concentration of urea in AdBlue/DEF is 32.5%. The AdBlue/DEF additive must conform to the standard DIN 70070.

AdBlue/DEF is not a hazardous product, but it must be handled with care. In the event of spillage of AdBlue/DEF on the vehicle, rinse off with water and wipe with paper or a cloth.

IMPORTANT: Store AdBlue/DEF in temperatures under 30°C. Do not store in direct sunlight.

IMPORTANT: AdBlue/DEF freezes at -11 °C. Take the necessary storage precautions to keep the product from freezing and to ensure the vehicle can be topped up at all times.

IMPORTANT: If the AdBlue/DEF additive is modified or replaced by another fluid, which does not comply with standard DIN 70070, there is a risk that it will not provide the intended result, and it may damage the engine.

4.4.2 Grease

Use proper grease for the lubrication points.

NOTE: Always use proper grease. Each lubrication point requires its own type of grease.

NOTE: Avoid repeated skin contact with the grease.

NOTE: Protect nature and take care of empty packages.

4.4.2.1 Universal Grease - NLGI2 universal grease

Use Universal Grease for greasing for example wheel bearings, chassis water pumps, caterpillar rollers.

Universal Grease:

- is a lithium-based universal grease
- is suitable for greasing all heavy machines
- stands a temperature range of -25°C...+130°C

The grease is adhesive, protects against corrosion and resists water and varying temperatures.

4.4.2.2 Calsium LF - NLGI2 calsium grease LF

Use the Calsium LF grease for greasing points exposed to water. Calsium LF is a long-fibre, high-quality, calcium-based universal grease for vehicle use.

Calsium LF:

- is suitable for greasing all heavy machines
- is a long fibre grease
- is red-coloured
- stands a temperature range of -25°C...+80°C

The Calsium LF grease is intended to be used for chassis, water pumps, pins and especially for greasing points exposed to water. The grease is adhesive, protects against corrosion and resists water and varying temperatures.

4.4.2.3 Grease Moly - NLGI2 moly grease

Use Grease Moly for wheel bearings, chassis water pumps, caterpillar rollers et cetera. Grease Moly is a high-quality, lithium-based universal grease for vehicle use.

Grease Moly:

- is a lithium-based universal grease
- is suitable for greasing all heavy machines
- stands a temperature range of -25°C...+130°C

The grease is adhesive, protects against corrosion and resists water and varying temperatures.

Molybdenum sulphide as an additive (1-3%) improves the greasing in places exposed to shock loads.

4.5 Storing the tractor

4.5.1 Storing the tractor for a period shorter than two months

When storing the tractor for a period shorter than two months, check the following items.

- **The tractor has been regularly maintained.**
- **The tractor is clean and has been washed.**
- **The frost resistance/glycol concentration of the coolant is sufficient.**
- **The fuel tank is full.**
- **The AdBlue/DEF tank is full.**
- **The battery is disconnected with cable terminals and battery poles cleaned.**
- **The air conditioning is operated for a few minutes at least once a month.**

  IMPORTANT: Run the engine for at least 15 minutes. Shorter running times damage the engine.

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 carry out the general lubrication the tractor.**
- **Make sure that the frost resistance/glycol concentration of the coolant is sufficient.**
- **Lower the hydraulic lift to its lower position.**

- **Service the fuel tank.**
  - **Empty the tank of fuel.**
  - **Clean the tank.**
  - **Fill the fuel tank with fuel.**
  - **Change the prefilter in the fuel system.**
  - **Change the fuel filter and bleed the fuel system of air.**
- **Service the AdBlue/DEF tank.**
  - **Empty the tank of AdBlue/DEF.**
  - **Rinse with hot water.**
- **Service the engine.**
  - **Change the engine oil and oil filter.**
  - **Run the engine until it is thoroughly warm.**
- **Disconnect the battery.**

  Clean battery cable terminals and battery poles and store battery in a cool and dry place where the temperature is even. Charge the battery every second month.

  IMPORTANT: Make sure that the main power is turned off before disconnecting or reconnecting the battery.
- **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.**

  IMPORTANT: Run the engine for at least 15 minutes. Shorter running times damage the engine.

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.

- **Refit the battery (fully charged).**

  IMPORTANT: Make sure that the main power is turned off before disconnecting or reconnecting the battery.
- **Check the oil level in the engine.**
- **Check the oil level in the transmission and hydraulics.**
- **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

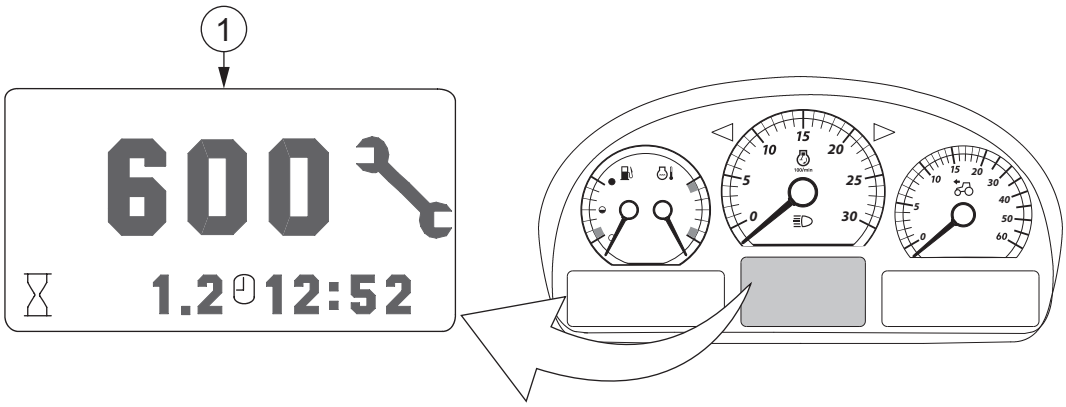
You must run the tractor in after a storing period longer than two months.

- Check the tyre pressures.
- Remove the protective covers from the exhaust pipe and air induction pipe.
- Turn the radiator fan carefully forwards and backwards, so that the shaft works loosely (it may be stuck to the sealing ring of the coolant pump).
- Check that the engine air filters are undamaged.
- Wash off any anti-corrosion oil applied to the exterior of the tractor.
- Check the belts' tightness.
- Check the oil level in the engine.
- Check the oil level in the transmission and hydraulics.
- Check the coolant level in the radiator.
- Refill the AdBlue/DEF tank with new AdBlue/DEF.
- Change the selective catalytic reduction (SCR) system supply module main filter.
- Bleed the fuel system of air.
- Refit the battery (fully charged).

  IMPORTANT: Make sure that the main power is turned off before disconnecting or reconnecting the battery.

- 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 2400 hours service you must also do the service required at 1200 hours, 600 hours, weekly and daily.

IMPORTANT: When using Biodiesel fuel there might be exceptions in the periodical maintenance.

NOTE: The service intervals shown apply for normal operating conditions but in more severe conditions servicing should be carried out more frequently.

- 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 600 h shows the tasks that must be carried out every 600 hours.
- The column 1200 h shows the tasks that must be carried out yearly or every 1200 hours.
- The column 2400 h shows the tasks that must be carried out every other year or every 2400 hours.

Maintenance check point	10 h	50 h	600 h	1200 h	2400 h
Check the engine oil level.	●	●	●	●	●
Check the coolant level.	●	●	●	●	●
Check and clean the radiator fins and engine cover grilles.	●	●	●	●	●
Check the oil level in the transmission and hydraulic system.	●	●	●	●	●
Check for oil and fuel leaks.	●	●	●	●	●
Grease the rear linkage.		●	●	●	●
Check and grease the pick-up hitch.		●	●	●	●
Check and grease the front linkage.		●	●	●	●
Check the front power take-off.		●	●	●	●
Grease the brake mechanism.		●	●	●	●
Grease the front axle mounting bearings.		●	●	●	●
Check the belts' tension.		●	●	●	●
Check the tyre pressure.		●	●	●	●
Check the emergency brake.		●	●	●	●
Check the windscreen washer fluid level.		●	●	●	●
Check the air pressure system antifreeze fluid level.		●	●	●	●
Check, clean and grease the battery terminals.			●	●	●
Change the engine oil and filter.			● 1)	●	●
Change the cab ventilation air filter.			● 2)	●	●
Change the recirculation air filter.			●	●	●
Check the front loader frame bolt tightness.			● 3)	●	●
Check the wheel nut tightness.			●	●	●
Check the brake pedal free travel.			●	●	●
Check the parking brake.			●	●	●
Change the oil filters of the transmission and hydraulic system.			●	●	●
Check the engine breathing system.			●	●	●
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 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.			●	●	●
Fill the air pressure system antifreeze container.			●	●	●
Update the software and calibrate the tractor.			● 4)	●	●
Adjust the engine valves.			● 5)		●
Change the oil in the hydraulic system.				●	●
Change the oil in the front axle differential and hubs.				●	●
Change the fuel filter and prefilter.				● 6) 7)	●
Change the engine air filters.				● 8)	●
Change the selective catalytic reduction system breather and supply module main filter.				● 9)	●
Check the front wheel toe-in.				●	●
Change the hydraulic breather.				●	●
Check the power shuttle operation.				●	●
Table continued on next page					

Maintenance check point	10 h	50 h	600 h	1200 h	2400 h
Change the oil in the transmission system.					•
Change the transmission breather.					•
Clean the suction strainer.					•
Bleed the brake system.					•
Clean the cooling system.					•
Change the cap of the coolant expansion tank.					•
Check the cab mounting.					•
Maintain the air conditioning.					•

1) NOTE: In extremely dusty conditions or when using first generation Biodiesel fuel with dilution over 7%, change the oil and filters every 250 hours. With second generation Biodiesel fuel the service interval is normal (600 hours).

2) NOTE: In extremely dusty conditions the cab ventilation air filter must be cleaned frequently.

3) IMPORTANT: The front loader frame bolt tightness must be checked every 50 hours if the front loader is used continuously with heavy loads.

4) NOTE: The software must be updated and the tractor calibrated after 600 operating hours. After the first update and calibration, do them at 1200 hours and after this every 1200 hours.

5) NOTE: The engine valves must be adjusted after 600 operating hours. After the first adjustment, adjust the valves at 2400 hours and after this every 2400 hours.

6) NOTE: When using first generation Biodiesel fuel with dilution over 7%, change the fuel filter and prefilter every 500 hours. With second generation Biodiesel fuel the service interval is 1000 hours.

7) NOTE: In extremely dusty or cold conditions, change the fuel filter and prefilter every 600 hours.

8) NOTE: In extremely dusty conditions the engine air filters must be changed more frequently.

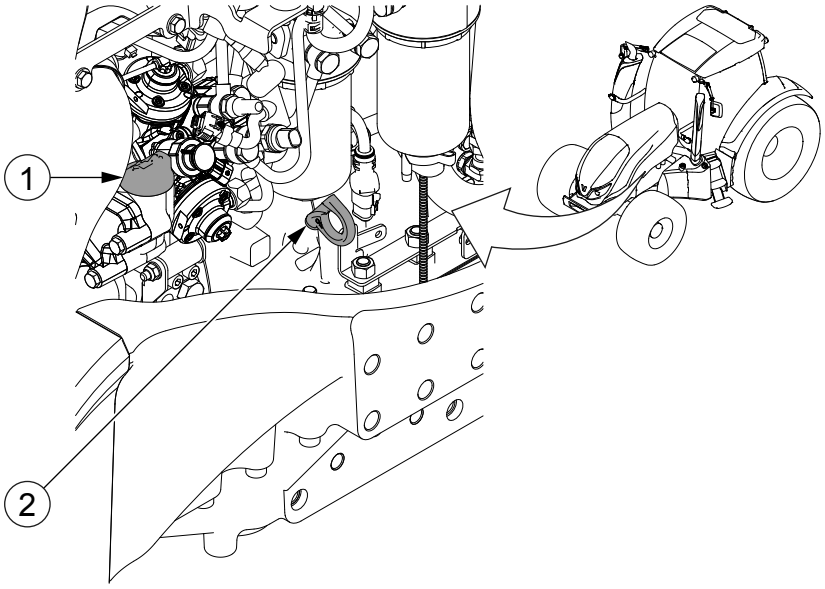
9) NOTE: In extremely dusty conditions the selective catalytic reduction system breather must be changed more frequently.

4.7.2 Daily maintenance

4.7.2.1 Checking the engine oil level

Check the engine oil level periodically.

The engine oil level must be checked when the oil has cooled off and has had time to run down to the bottom of the oil sump.



1. Oil filler cap
2. Dipstick

1. **Stop the engine and let it stand for a few minutes.**

   Park the tractor on level ground.

2. **Pull out the dipstick.**

   The oil level must be between the maximum and minimum marks on the dipstick.

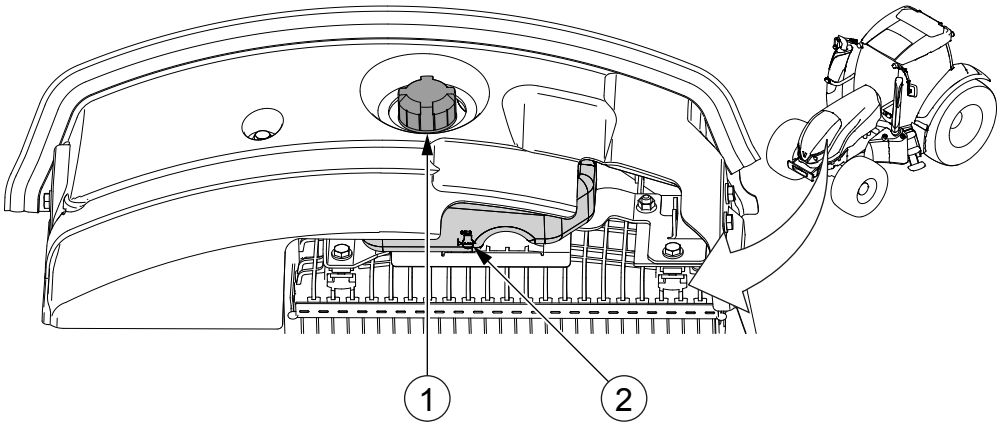
3. **Add oil through the oil filler cap, if necessary.**

4. **Inspect the oil sump and engine for leakage.**

4.7.2.2 Checking the coolant level

Check the coolant level periodically.

NOTE: Drain the cooling system completely every second year and refill it with new coolant.



1. Cap of the coolant expansion tank
2. Cold fluid level mark

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 mark for cold fluid.**

3. **Add more coolant to the tank, if necessary.**

   IMPORTANT: Never use only water as coolant.

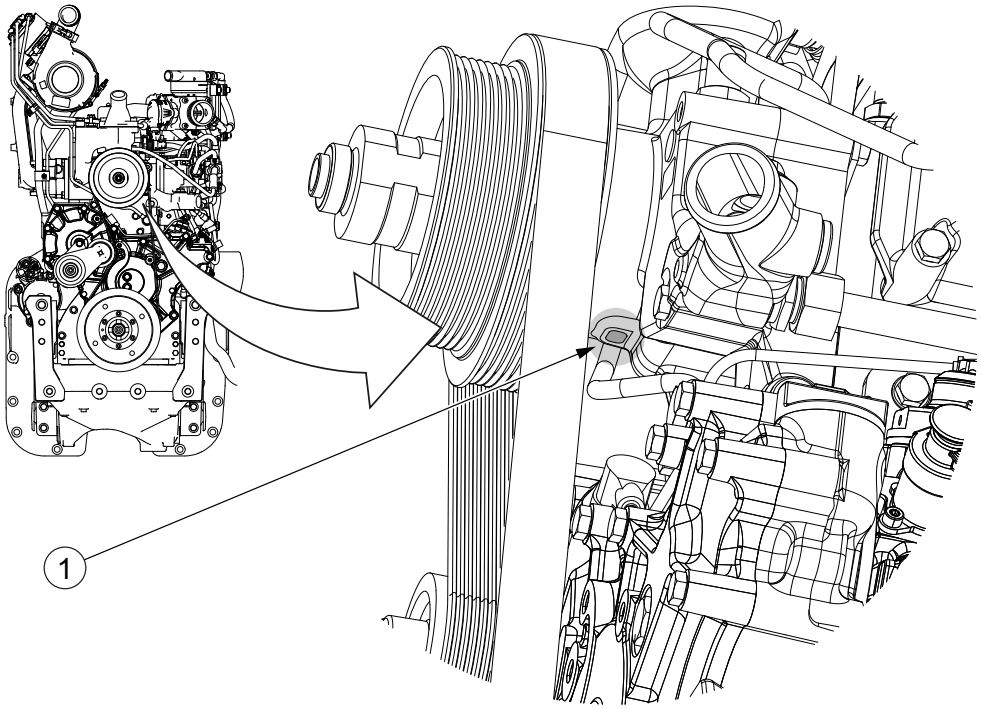
   - **Check the freezing point of the coolant.**

     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 antifreeze.**
   - **Run the engine for a while.**

     The antifreeze must be mixed with the coolant.
   - **Re-check the freezing point of the coolant.**

4. **Inspect the expansion tank for leakage.**

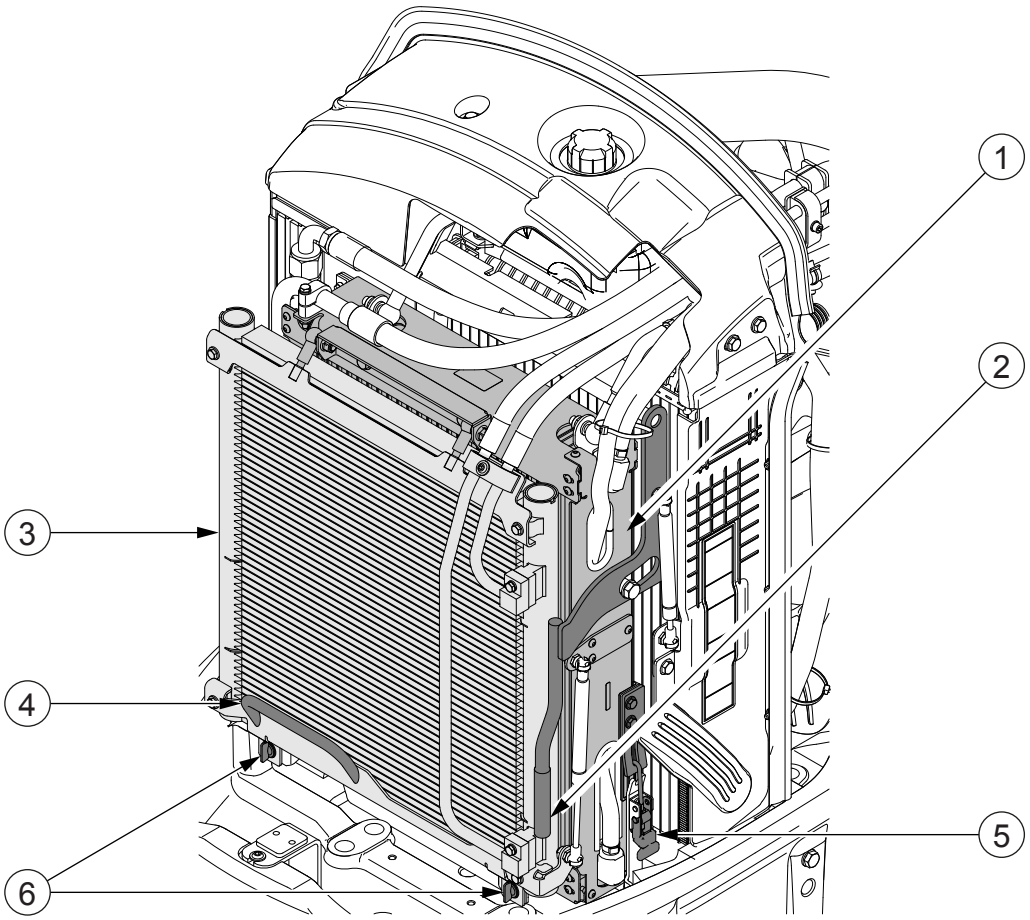
   IMPORTANT: There is a drain hole under the coolant pump that must not be blocked. If coolant drips out of the hole, the pump seal is damaged and must be replaced. In a new engine some leakage is possible until the pump settles in.



1. Coolant pump drain hole

4.7.2.3 Cleaning radiators

Clean all the radiator honeycombs periodically.



1. Transmission oil cooler
2. Transmission oil cooler handle
3. Air conditioning cooler (extra equipment)
4. Air conditioning cooler handle
5. Transmission oil cooler latch
6. Air condition cooler fastening screw

Fuel cooling is integrated into the transmission oil cooler.

1. **Open the engine cover.**
2. **Lift the transmission oil cooler to the upper position.**

   Hold the transmission oil cooler handle and release the transmission oil cooler latch. Prevent the transmission oil cooler from rising and turn the latch aside. The transmission oil cooler rises to the upper position.
3. **Lift the air conditioning cooler (extra equipment) to the upper position.**

   The air condition cooler is fastened with two screws.

4. **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.

5. **Direct the spray against the air streaming direction.**

6. **Lower the air conditioning cooler to the lower position.**

   Tighten the two fastening screws.

7. **Lower the transmission oil cooler to the lower position.**

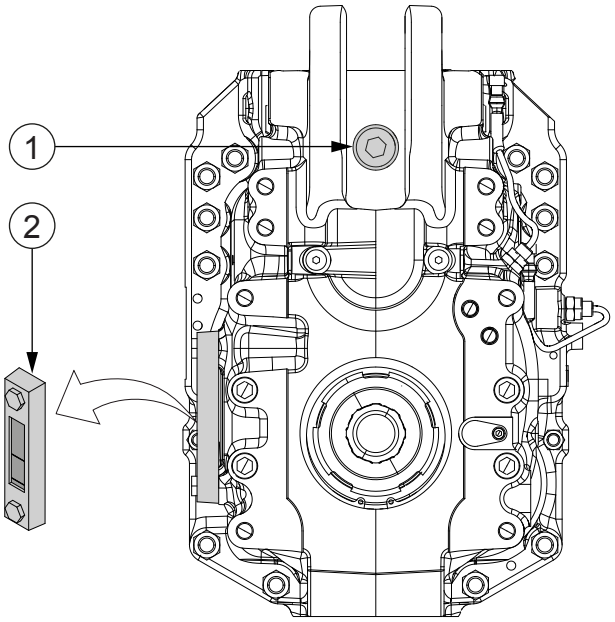
8. **Close the transmission oil cooler latch.**

9. **Close the engine cover.**

4.7.2.4 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 filling plug
2. Transmission oil level gauge

1. **Stop the engine and let it stand for a few minutes.**

2. **Check the oil level from the oil level gauge.**

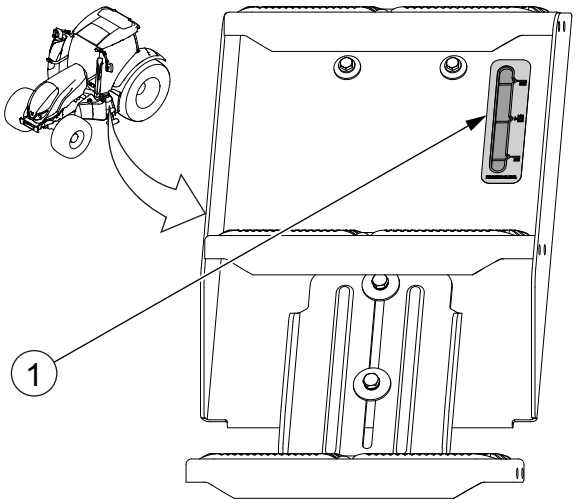
   The oil level must be between minimum and maximum lines.

3. **Add oil if necessary.**

4.7.2.5 Checking the oil level in the hydraulic system

Check the oil level in the hydraulic system periodically.

1. **Raise the front linkage and lower the front loader and rear linkage.**
   Maximum amount of oil returns to the hydraulic oil reservoir.
2. **Stop the engine and let it stand for a few minutes.**
3. **Check the oil level from the oil level gauge.**

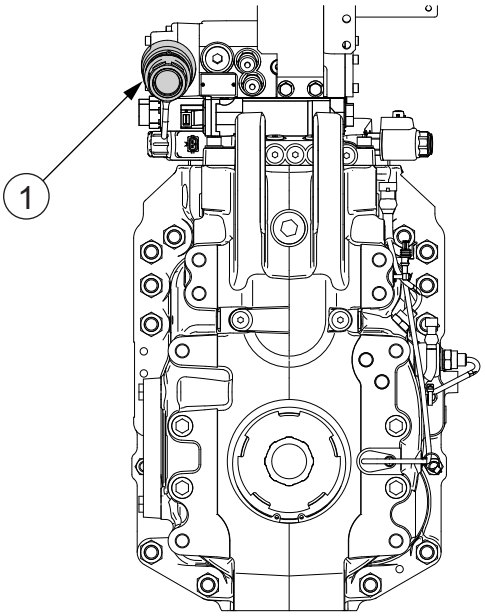


1. Hydraulic oil level gauge

The oil level must be between minimum and maximum lines.

4. **Add oil, if necessary.**

   Fill by pump through the hydraulic return coupling.

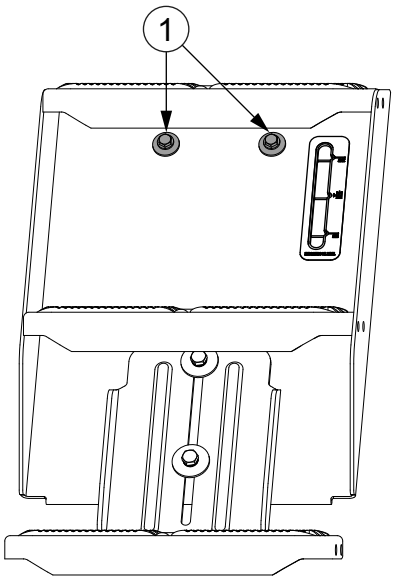


1. Hydraulic return coupling

IMPORTANT:

If adding oil through the hydraulic return coupling is not possible you can add oil through the hydraulic oil fill cap. This is not recommended and should only be done in an emergency.

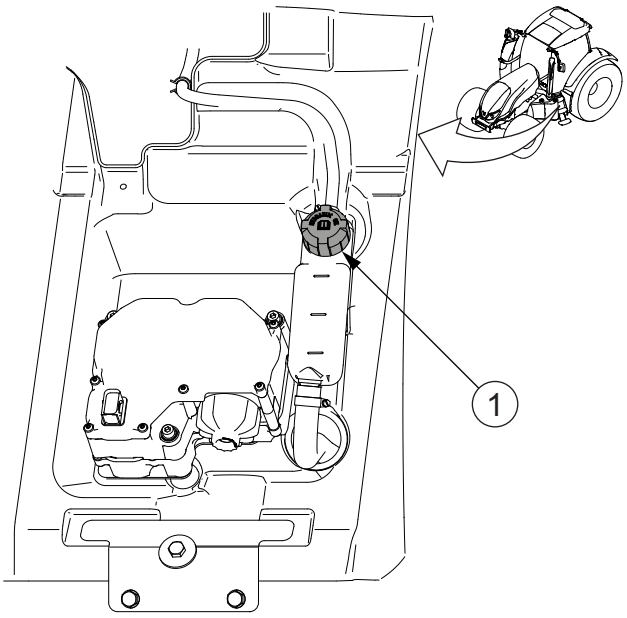
- **Open the steps.**



1. Fastening screw

Unscrew the two fastening screws.

- **Add oil through the hydraulic oil fill cap.**

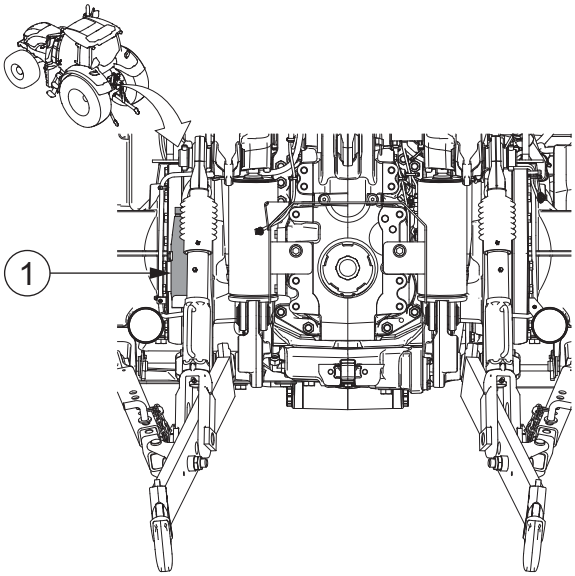


1. Hydraulic oil fill cap

IMPORTANT: Clean the filler cap before filling up with oil. Make sure there are no impurities in the oil before filling up.

- **Close the steps.**
  Fasten the steps with the two fastening screws.

5. **Check the leakage oil reservoir for the quick couplings and empty it occasionally.**



1. Leakage oil reservoir

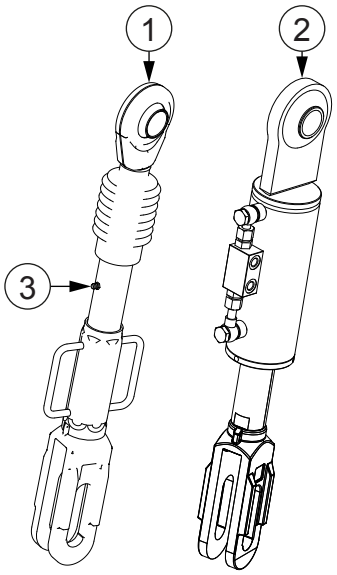
4.7.3 Weekly maintenance

4.7.3.1 Greasing the rear linkage

Grease the rear linkage periodically.

NOTE: Use Universal Grease for greasing.

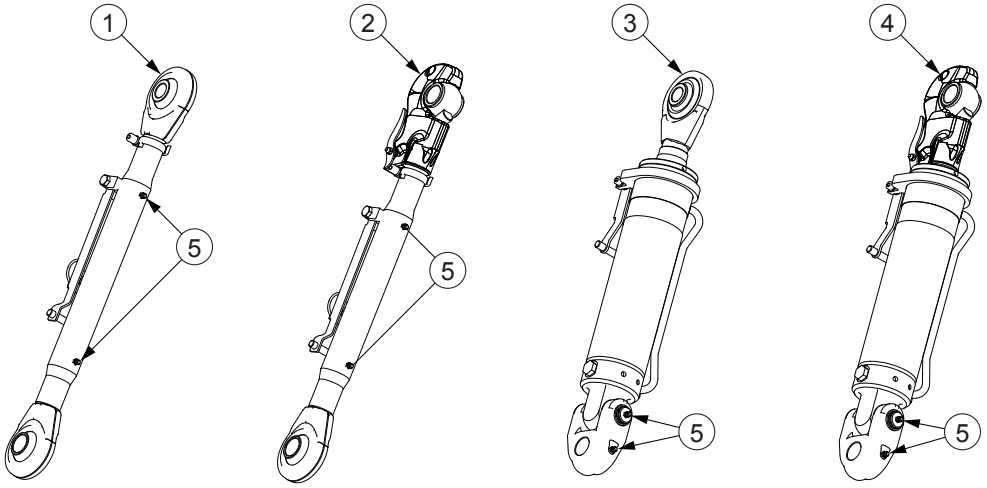
1. Grease the lift links.



1. Lift link
2. Hydraulic lift link
3. Grease nipple

There is one grease nipple in the regular lift link. There are no grease nipples in the hydraulic lift link.

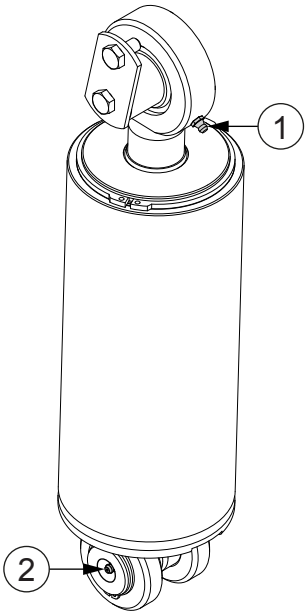
2. **Grease the top link.**



1. Top link
2. Top link with ball hitch
3. Hydraulic top link
4. Hydraulic top link with ball hitch
5. Grease nipple

There are two grease nipples in the top link.

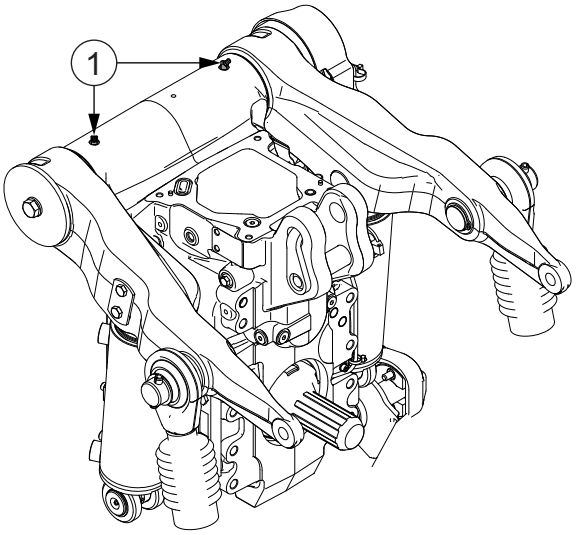
3. **Grease the lifting cylinder pins.**



1. Upper pin grease nipple
2. Lower pin grease nipple

There are two grease nipples in the lifting cylinder.

4. **Grease the differential axle.**

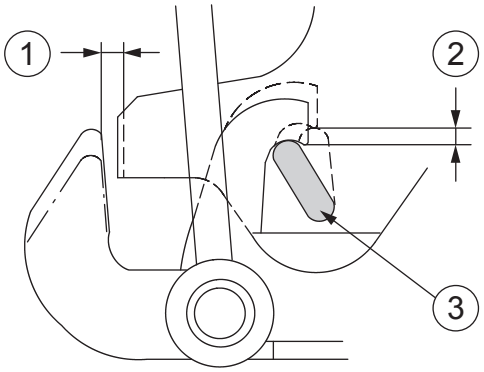


1. Grease nipple

There are two grease nipples.

4.7.3.2 Checking the pick-up hitch

Check the pick-up hitch periodically.



1. Distance between the pick-up hitch and mating surface
2. Pick-up hitch movement
3. Locking latch

- **Make sure that the locking latch moves to both extreme positions.**

  When the locking latch is turned upwards the Nordic and Euro pick-up hitch must move up 6-8 mm and the hydraulic pick-up hitch must move up 8–10 mm.

- **Check the wear of the pick-up hitch.**

  The distance between the pick-up hitch and mating surface must be under 10 mm.

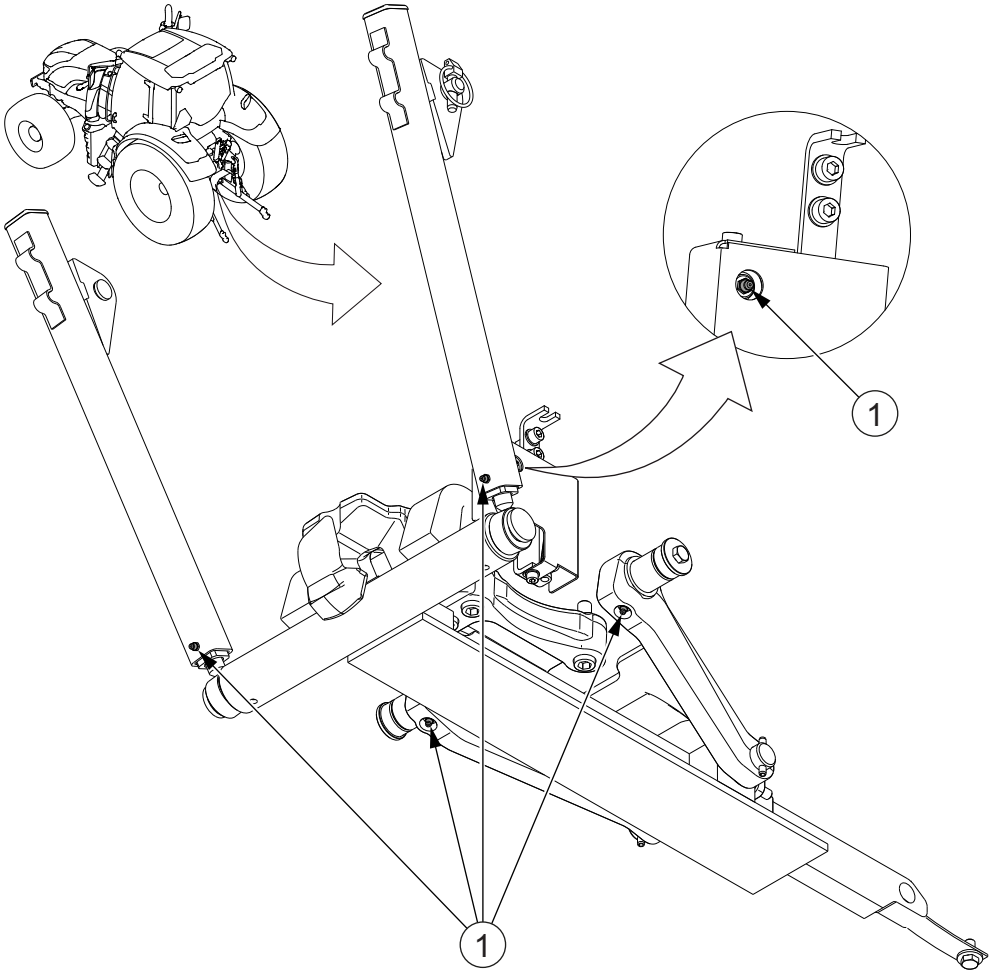
  WARNING: When the pick-up hitch has worn down to 44 mm at the thinnest part, it has to be replaced.

4.7.3.3 Greasing the Nordic and Euro pick-up hitch

Grease the pick-up hitch periodically.

NOTE: Use Universal Grease for greasing.

- **Apply grease to the grease nipples.**



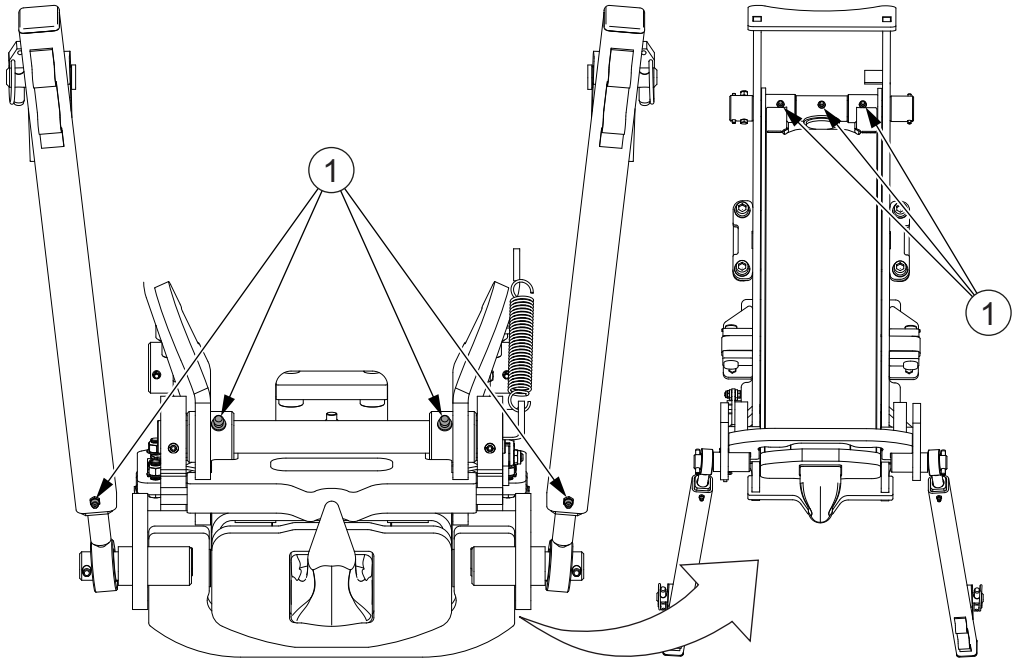
1. Grease nipple

4.7.3.4 Greasing the hydraulic pick-up hitch

Grease the hydraulic pick-up hitch periodically.

NOTE: Use Universal Grease for greasing.

- **Apply grease to the grease nipples.**



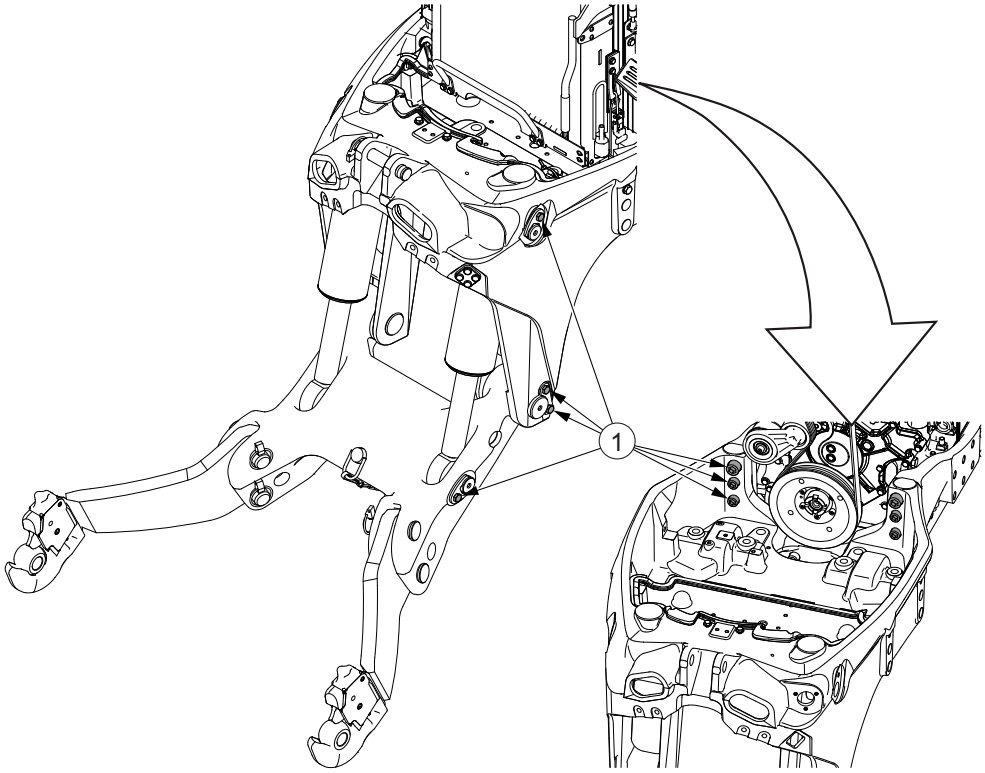
1. Grease nipple

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4.7.3.5 Checking and greasing the front linkage

Check and grease the front linkage periodically.

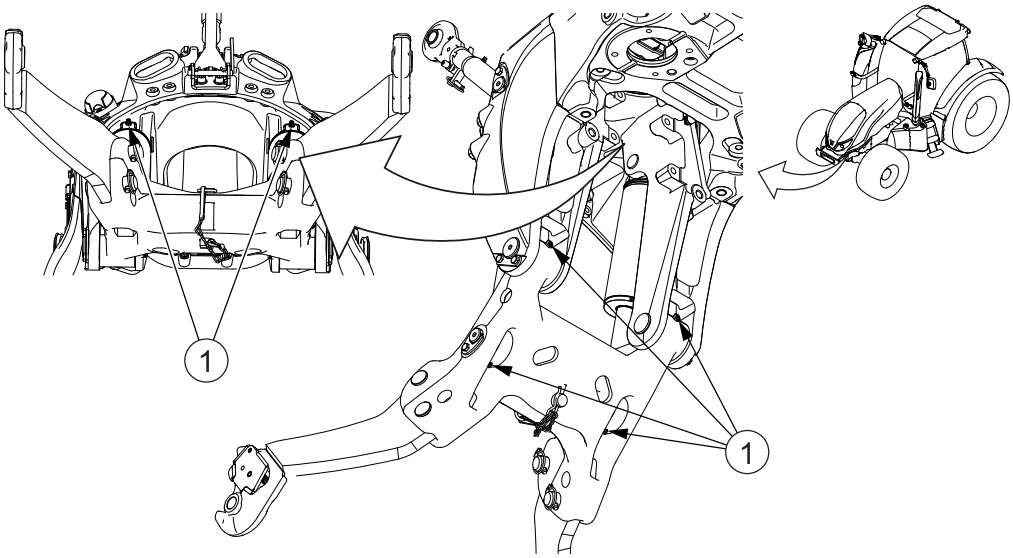
- **Check regularly that all screws and nuts are tight.**



1. Screws and nuts

- **Tighten all screws and nuts of the front linkage after the first 15-25 running hours.**
- **Check that the hydraulic connections have no leaks.**

- **Grease the lifting cylinder pins and the lifting links shaft.**



1. Grease nipple

It is easier to grease all the nipples when the links are lifted up.

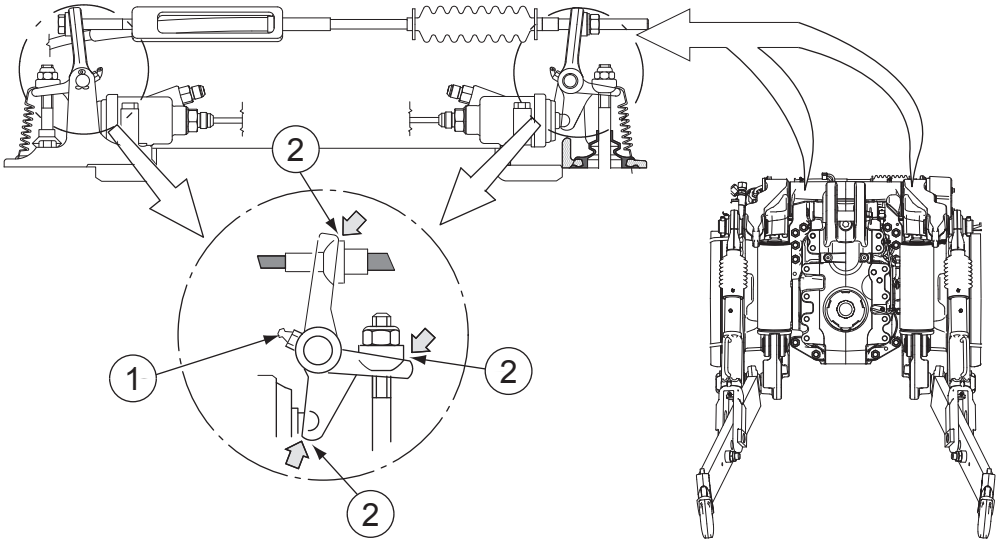
4.7.3.6 Checking the front power take-off

Check the front power take-off periodically.

- **Tighten all fixing screws after the first 10 running hours.**
- **Check regularly that all fixing screws are tight.**
- **Inspect the front power take-off for oil leaks.**

4.7.3.7 Greasing the brake mechanism

Grease the brake mechanism periodically. Use Calsium LF grease when greasing the brake mechanism.



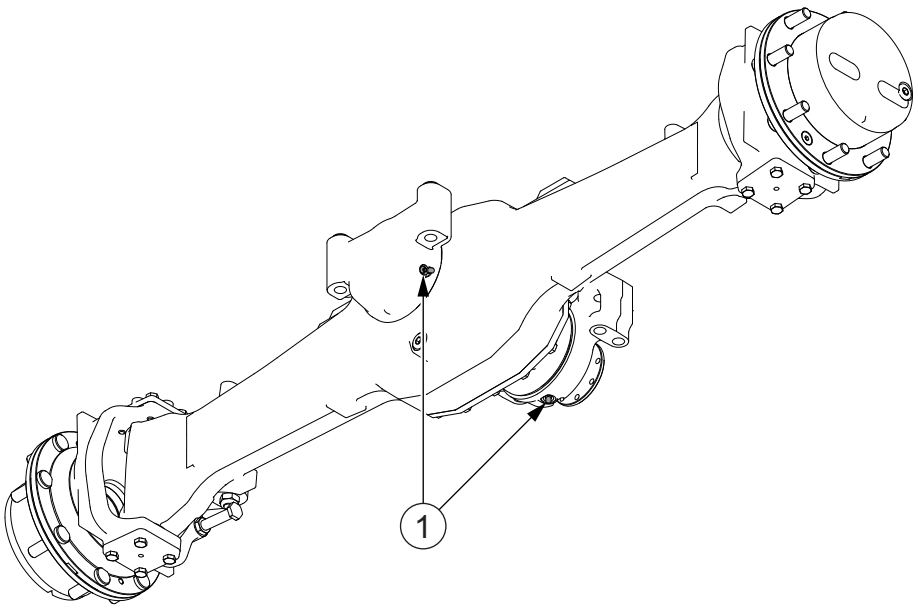
1. Grease nipple
2. Sliding surfaces

1. **Grease the nipples on both sides of the brake cam.**
2. **Grease the sliding surface on the brake mechanism.**

4.7.3.8 Greasing front axle mounting bearings

You must grease the front axle mounting bearings periodically.

NOTE: Use Universal Grease for greasing.



1. Greasing nipple

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.

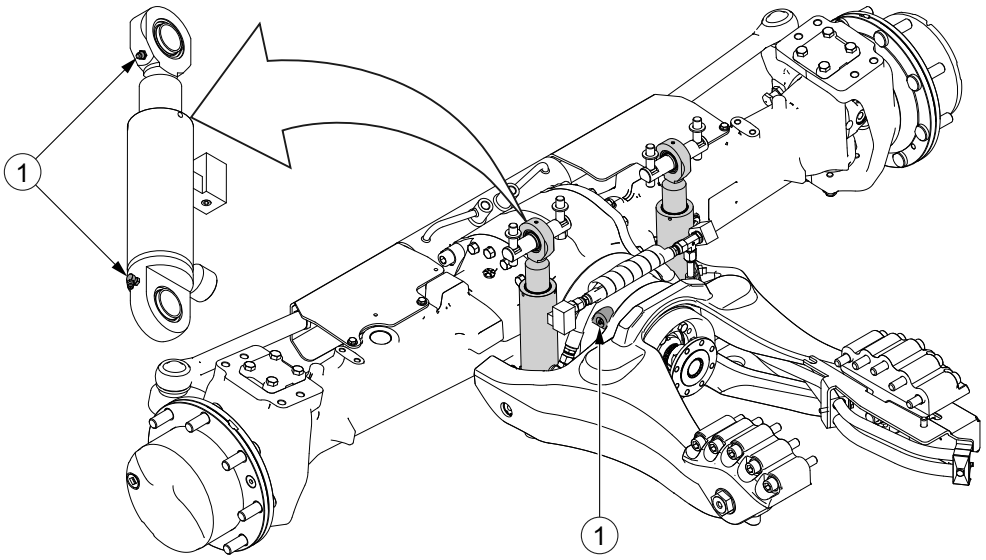
4.7.3.9 Greasing suspended front axle mounting bearings

Grease the suspended front axle mounting bearings periodically.

NOTE: Use Universal Grease for greasing.

1. **Frequently check that all screws and nuts are tight.**

2. **Apply grease to the grease nipples.**



1. Grease nipple

4.7.3.10 Checking belts' tension

Check the belts' tension periodically.

NOTE: Always keep a spare fan belt handy.

Changing the alternator belt when there are no optional equipment requires special tools. Contact an authorized Valtra workshop in case this belt needs to be changed.

1. **Check the overall condition of the belts.**

   A slack, worn or oily belt can cause problems with battery charging and the cooling system.

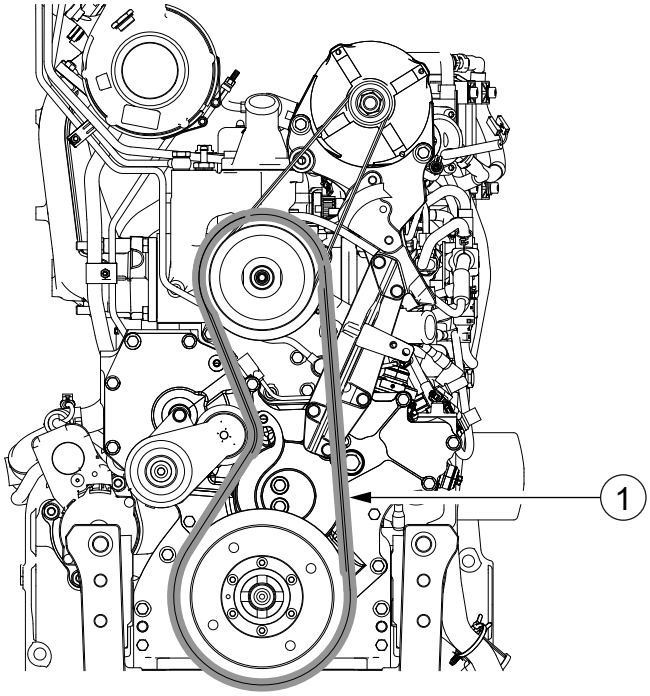
2. **Check the belt tension.**

   Turn the belt from its longest free-running part with your fingers. The belt should turn about 90 degrees but not more.

3. **Adjust or change the belt if needed.**

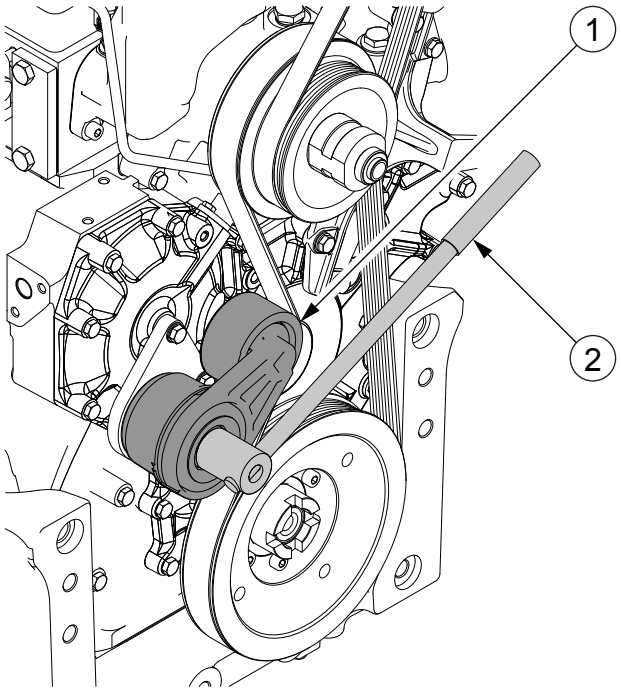
4.7.3.11 Changing the fan belt

Change the fan belt if needed.



1. Fan belt

1. **Remove the old belt by cutting.**



1. Automatic belt tensioner
2. 1/2" wrench

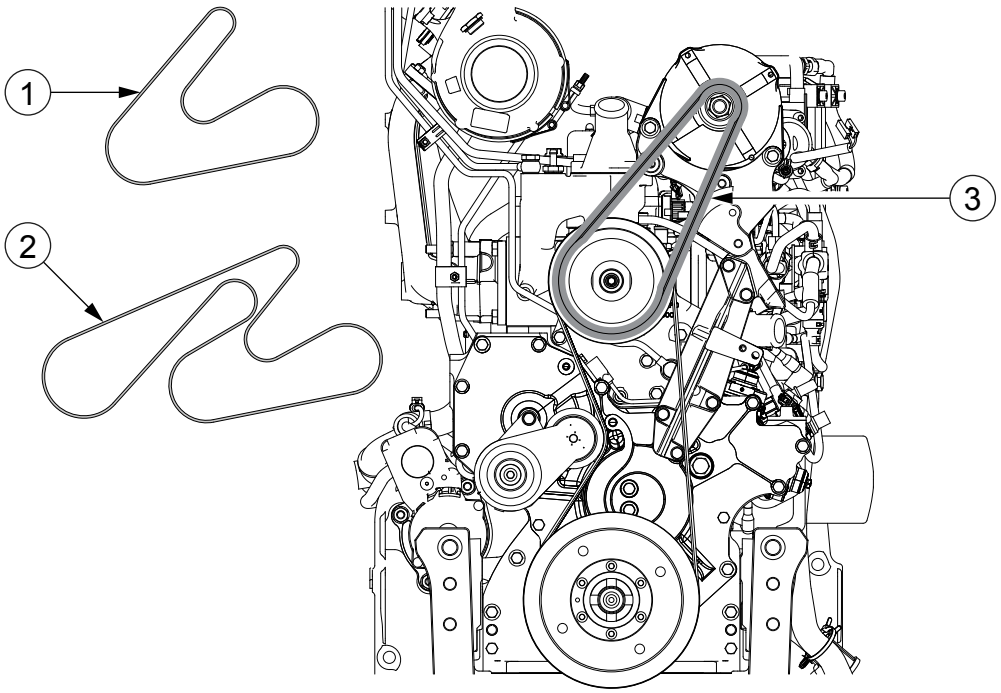
Loosen the automatic belt tensioner by using a 1/2" wrench.

2. **Fit the new fan and alternator belt.**

Loosen the automatic belt tensioner by using a 1/2" wrench.

4.7.3.12 Changing the alternator belt

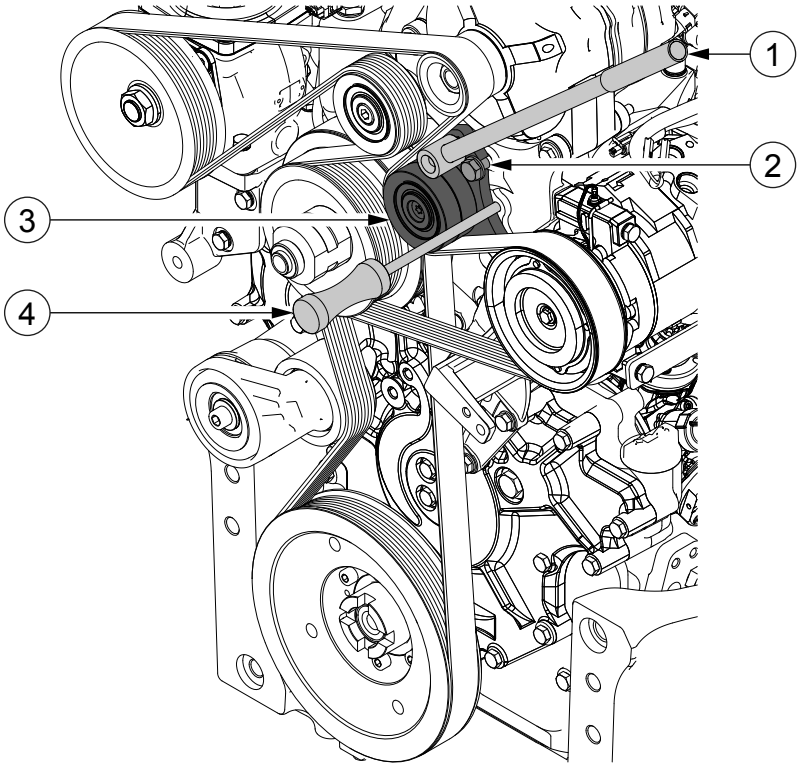
Change the alternator belt if needed.



1. Alternator and air conditioning compressor (optional equipment) belt
2. Alternator, air conditioning compressor (optional equipment) and air pressure compressor (optional equipment) belt
3. Alternator belt

Changing the alternator belt when there are no optional equipment requires special tools. Contact an authorized Valtra workshop in case this belt needs to be changed.

1. **Loosen the idler fastening bolt.**



1. Socket wrench
2. Idler fastening bolt
3. Idler
4. Pin punch or screwdriver (diameter 8 mm)

2. **Fit the pin punch to the hole in the idler support.**

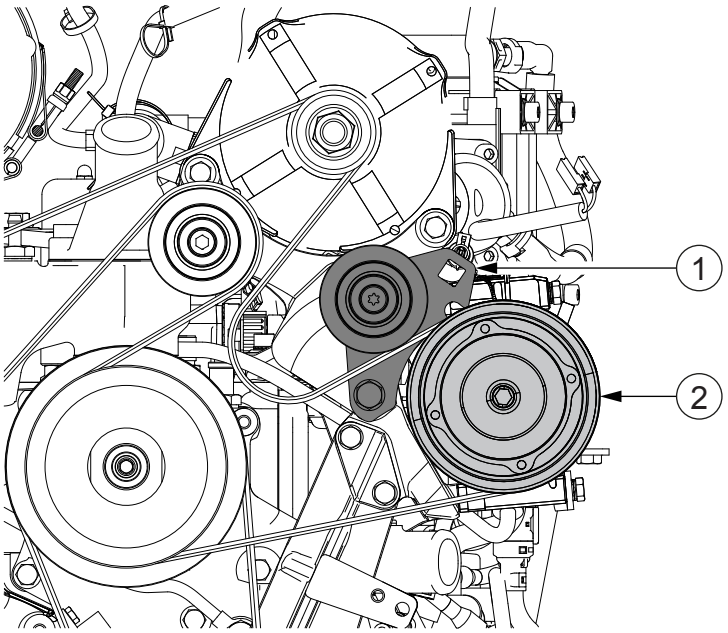
   Use the socket wrench to turn the idler out of the way.

3. **Remove the idler fastening bolt.**

4. **Remove the pin punch.**

   Use the socket wrench to hold the idler in place.

5. **Ease the idler carefully against the air conditioning compressor belt pulley with the socket wrench.**



1. Idler
2. Air conditioning compressor belt pulley

Do not let the idler hit the air conditioning compressor belt pulley.

6. **Remove the old belt.**
7. **Fit the new alternator belt.**
8. **Turn the idler back to the normal position.**
9. **Fit the pin punch to the hole in the idler support.**

   Use the socket wrench to turn the idler out of the way.
10. **Fit the idler fastening bolt.**
11. **Remove the pin punch.**
12. **Tighten the idler fastening bolt.**

4.7.3.13 Checking the tyre pressure

Check the tyre pressure periodically, especially after changing the tyres.

IMPORTANT: Change tyres and wheels at a professional tyre workshop.

- **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.

4.7.3.14 Checking the emergency brake

Check the emergency brake periodically.

1. **Use the emergency brake to check that it is functioning.**

   You can test the emergency brake in a normal braking situation.

   WARNING: Check the emergency brake in slow driving speed (approximately 10 km/h). Using the emergency brake can lead to wheels locking up.

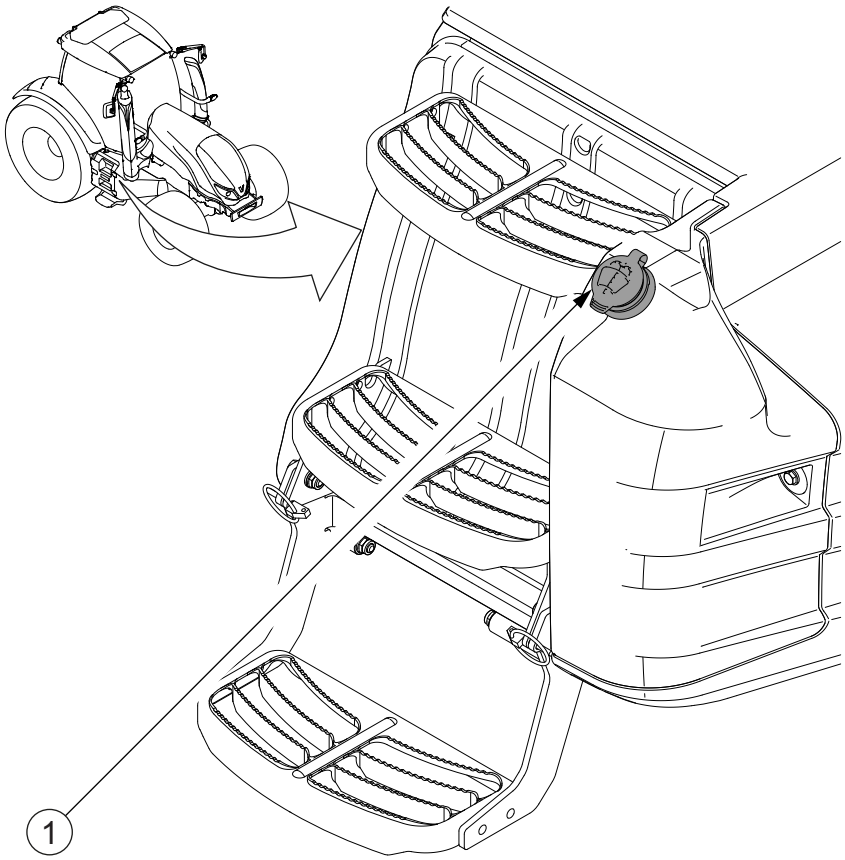
   WARNING: Using the emergency brake releases traction.

2. **Adjust the parking brake, if necessary.**

   Normally there is no need for adjusting, because the parking brake is adjusted, when the drive brakes are adjusted.

4.7.3.15 Checking the windscreen washer fluid amount

Check the windscreen washer fluid amount periodically.



1. Cap of the windscreen washer fluid reservoir

The washer fluid reservoir is common for the front, rear, and side window washers. The rear and side window washers are extra equipment.

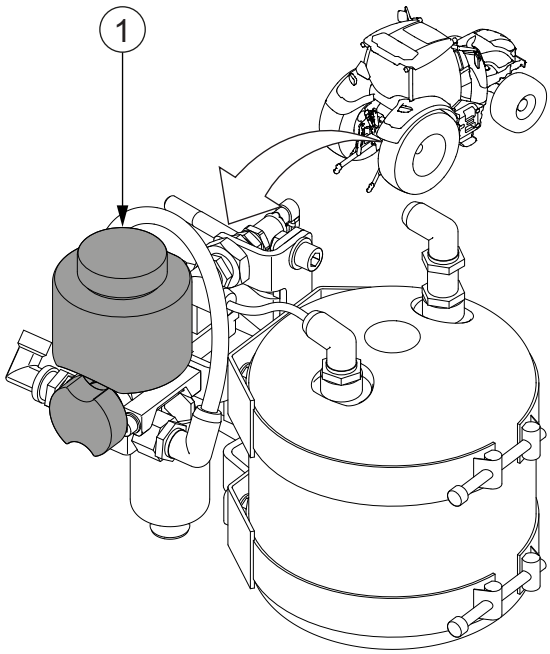
1. **Check the amount of windscreen washer fluid.**

2. **Add more windscreen washer fluid, if necessary.**

   NOTE: When the temperature is under 0 °C, use an antifreeze agent in the fluid.

4.7.3.16 Checking the air pressure system antifreeze fluid amount

Check the air pressure system antifreeze fluid amount periodically.



1. Air pressure system antifreeze container

1. **Check the amount of air pressure system antifreeze fluid.**
2. **Add more antifreeze fluid, if necessary.**

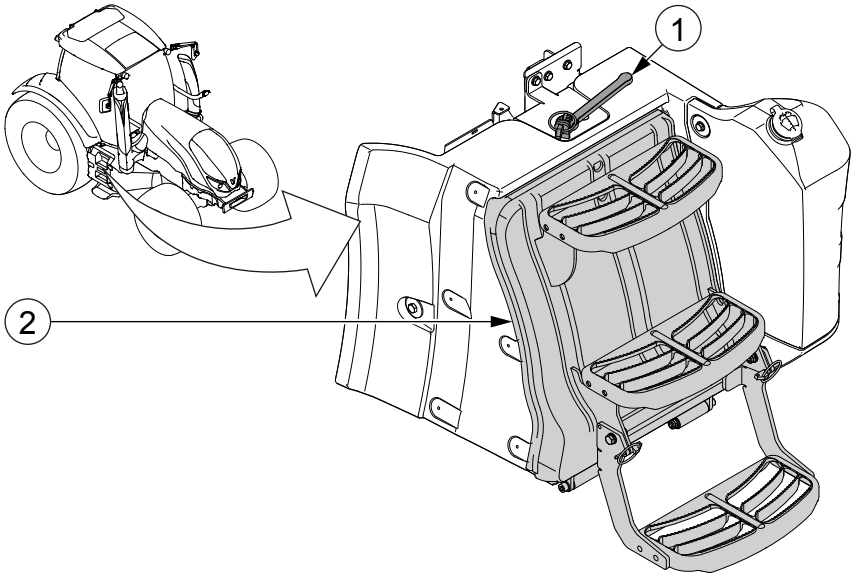
   NOTE: Use glycol- or alcohol-based pneumatic equipment antifreeze liquid.

4.7.4 Maintenance every 600 hours

4.7.4.1 Checking, cleaning and greasing the battery terminals

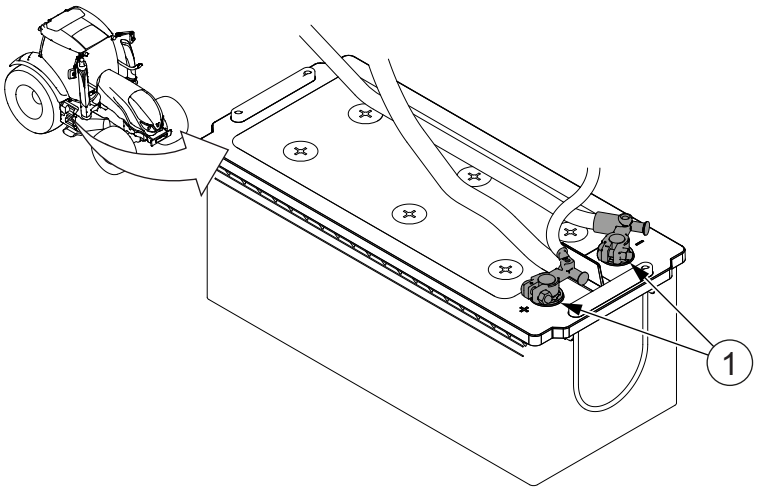
Check, clean and grease the battery terminals periodically.

1. **Open the battery casing.**



1. Battery casing lock
2. Battery casing door

2. **Clean the battery terminals.**



1. Battery terminals

Also clean the surroundings of the battery.

3. **Check the battery cable fixings into the conical battery poles.**
4. **Check the protective plastic cover of the positive lead.**

5. **Check the condition of the battery cables.**
6. **Check the fixing of the battery in the battery casing.**
7. **Grease the battery terminals.**

   NOTE: Use Universal Grease for greasing.

8. **Close the battery casing.**

4.7.4.2 Changing the engine oil and the oil filter

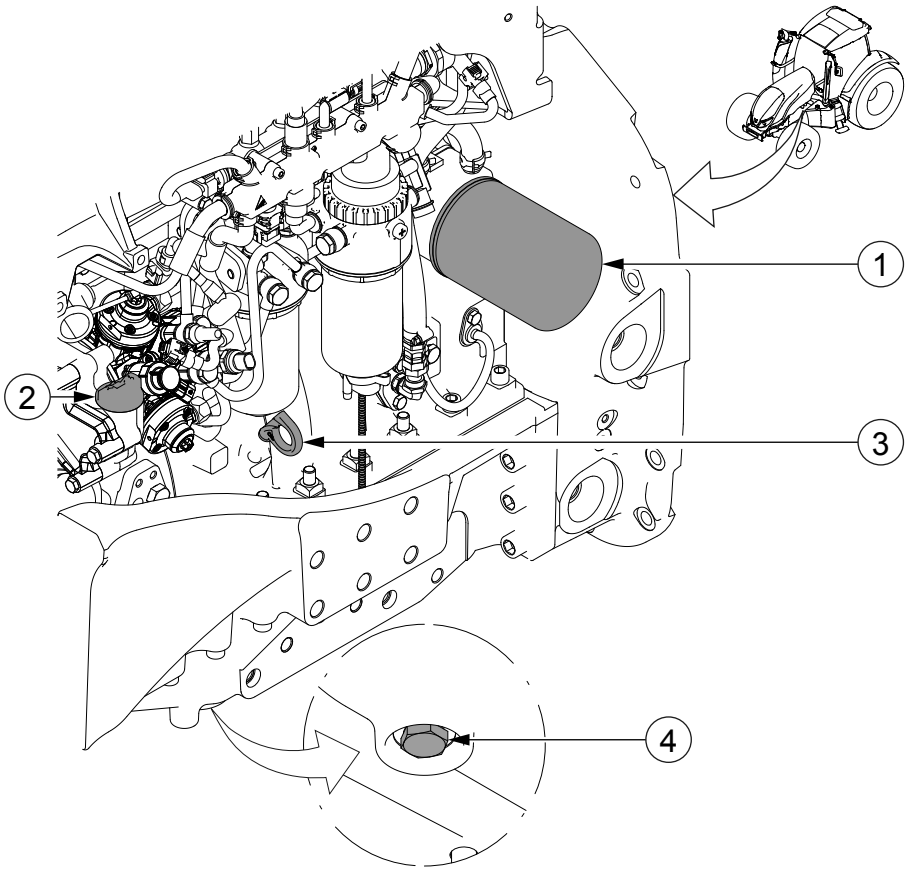
Change the engine oil filter periodically.

Always use original AGCO Parts engine oil filters.

NOTE: In extremely dusty conditions or when using first generation Biodiesel fuel with dilution over 7%, change the oil and filters every 250 hours. With second generation Biodiesel fuel the service interval is normal (600 hours).

NOTE: If the amount of operating hours is low, the oil and filters must be changed at least once a year.

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1. Oil filter
2. Filler hole
3. Dipstick
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. **Lubricate the rubber gasket of the new filter.**
   Use clean motor oil.
8. **Attach the new filter.**
   Tighten the new filter by hand (not too tight).
9. **Fill the recommended oil in the filler hole.**

10. **Check the oil level from the dipstick.**

    The oil is filled until the upper mark on the dipstick is reached.

11. **Wipe off any oil which has run out onto the chassis.**

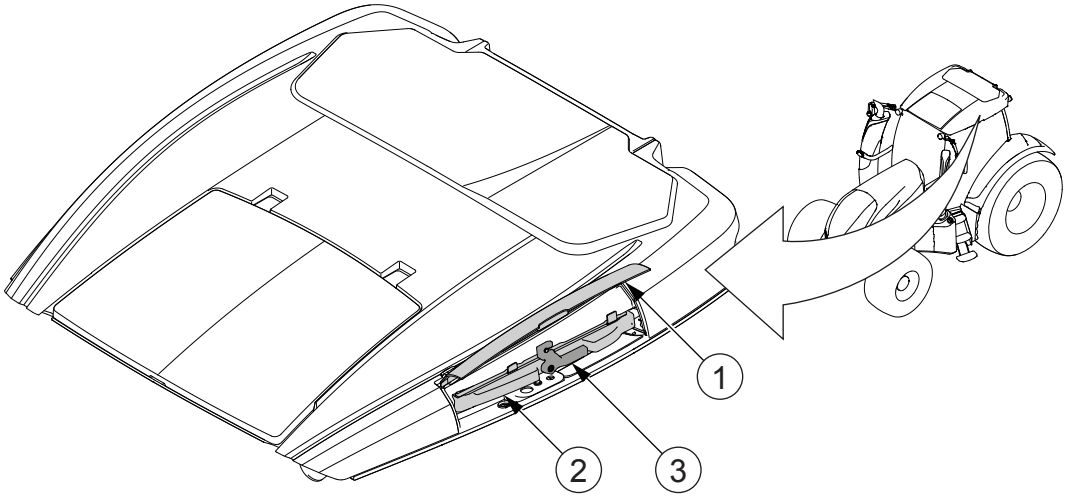
12. **Start the engine.**

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 Changing the cab ventilation air filter

Change the cab ventilation air filter periodically.



1. Air filter housing hatch
2. Ventilation air filter support frame
3. Ventilation air filter support frame latch

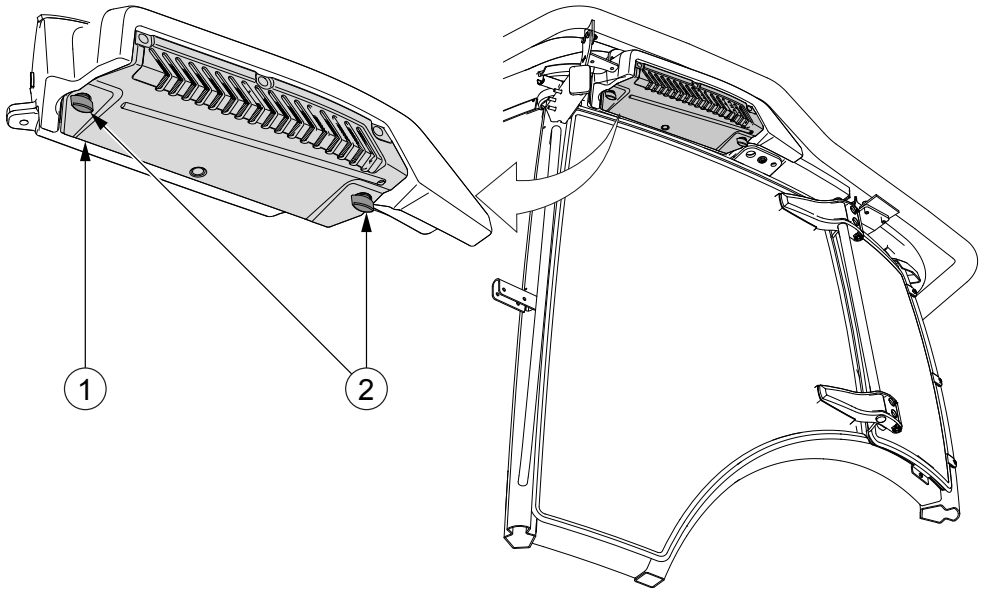
1. **Open the air filter housing from the upper left-hand corner of the cab roof.**
2. **Open the support frame latch.**
3. **Extract the support frame.**
   - **Lower the support frame slightly.**
   - **Pull the support frame outwards.**
4. **Replace the ventilation air filter with a new one.**

   Change ventilation air filter more often if necessary.
5. **Insert the support frame.**
   - **Push the support frame into the air filter housing.**
   - **Raise the support frame slightly.**
6. **Close the support frame latch.**
7. **Close the air filter housing.**

4.7.4.4 Changing the Skyview equipment cab ventilation air filter

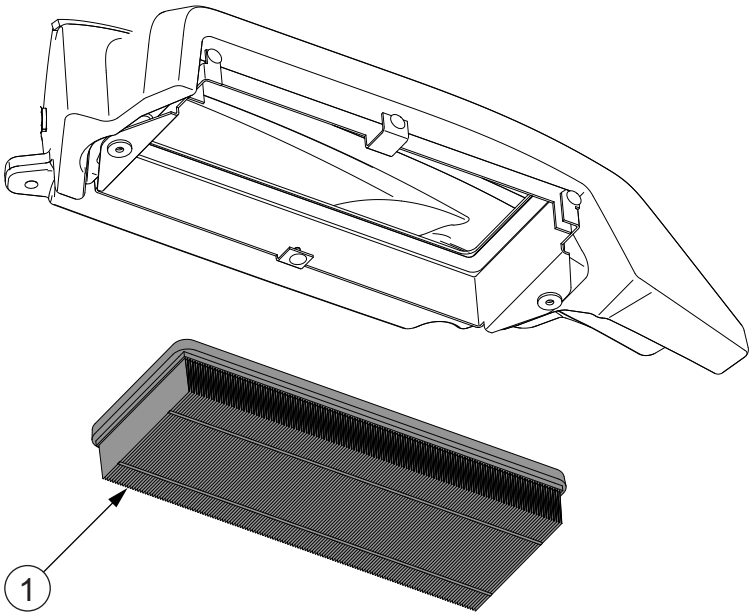
Change the Skyview equipment cab ventilation air filter periodically.

1. **Open the air filter housing from the upper left-hand corner of the cab roof.**



1. Air filter housing hatch
2. Knurled head screw

2. **Replace the ventilation air filter with a new one.**



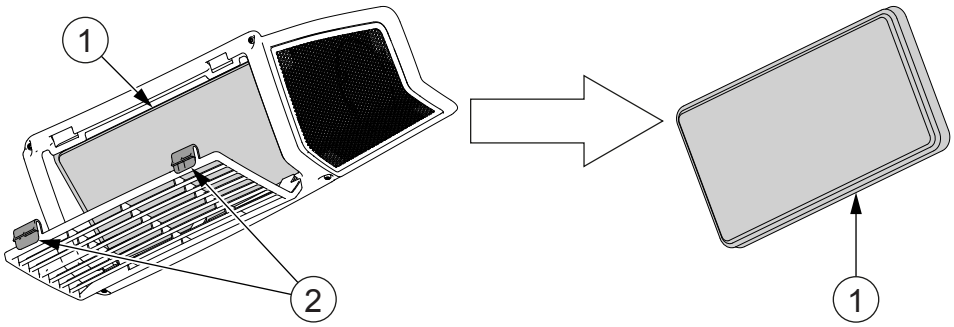
1. Ventilation air filter

Change ventilation air filter more often if necessary.

3. **Close the air filter housing.**

4.7.4.5 Changing the recirculation filter

Change the recirculation filter periodically.



1. Filter element
2. Grille fastening clip

1. **Open the grille.**
2. **Extract the filter element.**
3. **Change the filter element.**

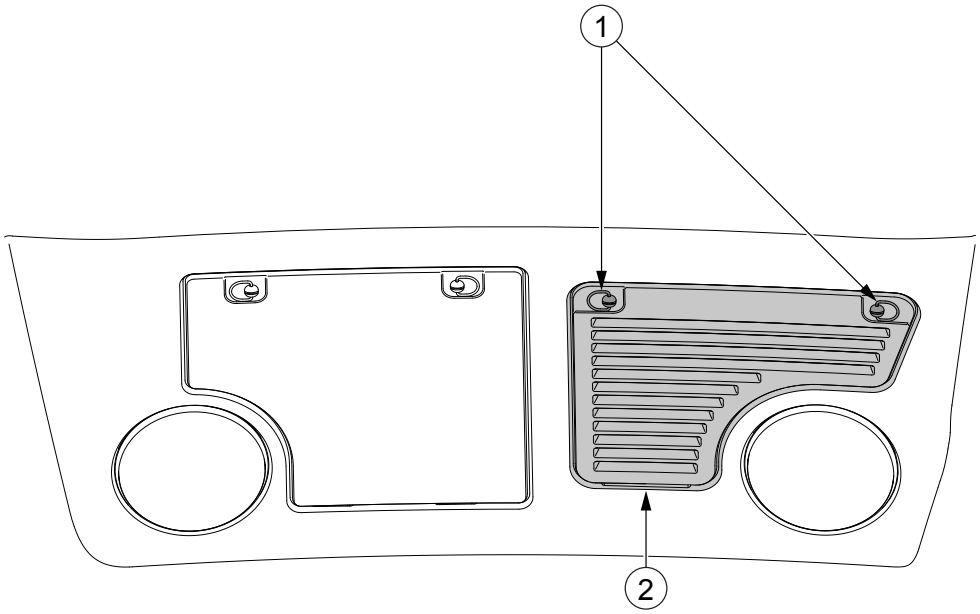
   Make sure that the seal around the filter element fits into the grooves in the air passage.

   NOTE: Change the filter more frequently if needed.

4.7.4.6 Changing the Skyview equipment cab recirculation filter

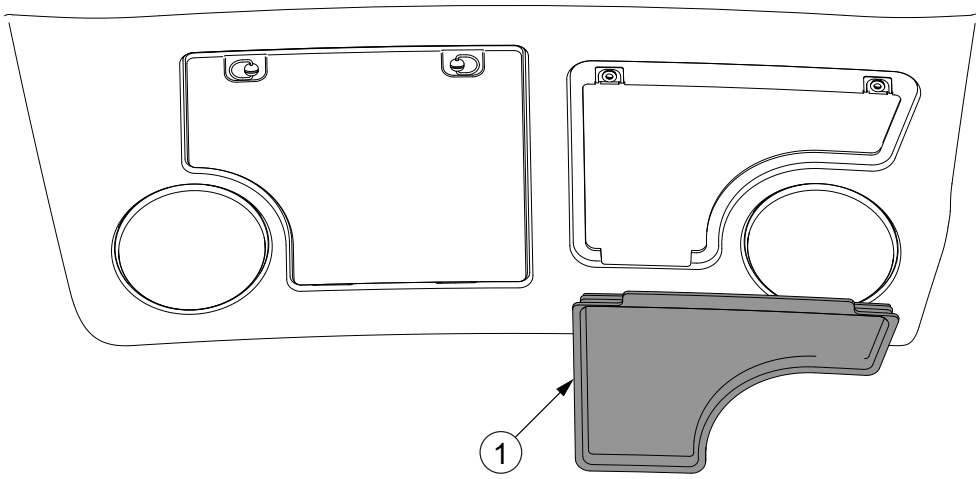
Change the Skyview equipment cab recirculation filter periodically.

1. **Open the grille.**



1. Grille fastening clip
2. Grille

2. **Extract the filter element.**



1. Filter element

3. **Change the filter element.**

   Make sure that the seal around the filter element fits into the grooves in the air passage.

   NOTE: Change the filter more frequently if needed.

4. **Close the grille.**

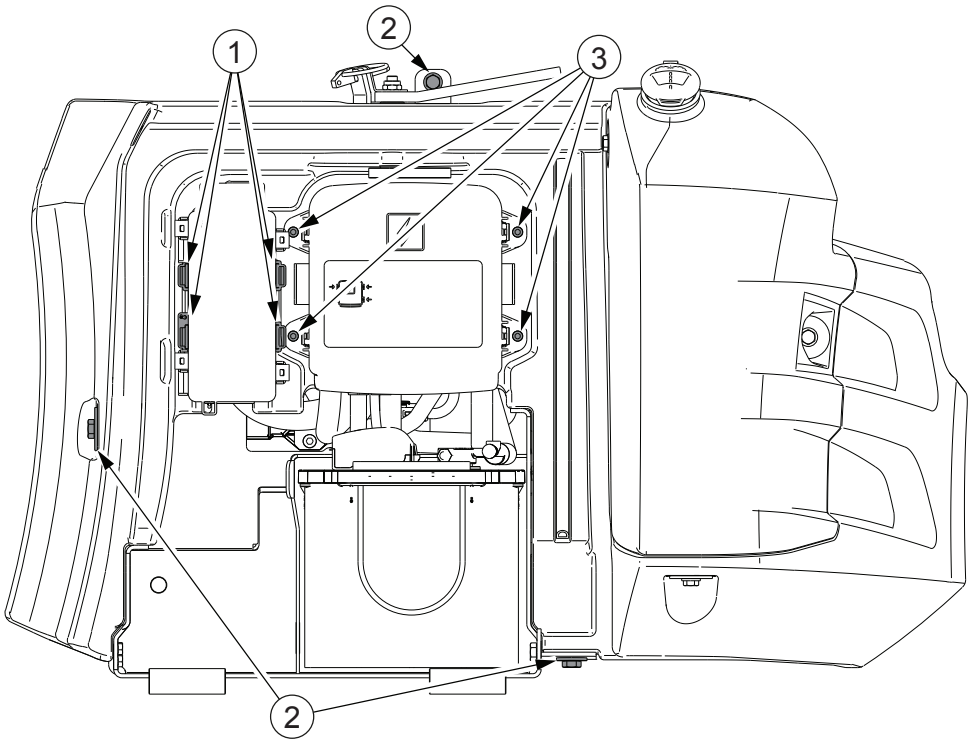
4.7.4.7 Checking the front loader frame bolt tightness

Check the front loader frame bolt tightness periodically.

IMPORTANT: The front loader frame bolt tightness must be checked every 50 hours if the front loader is used continuously with heavy loads.

1. **Open the battery casing.**

2. **Detach the engine electric centre from the battery casing.**



1. Engine electric centre fastening clip
2. Battery casing fastening screw
3. Main electric centre fastening screw

Leave the electric centre hanging by its harness.

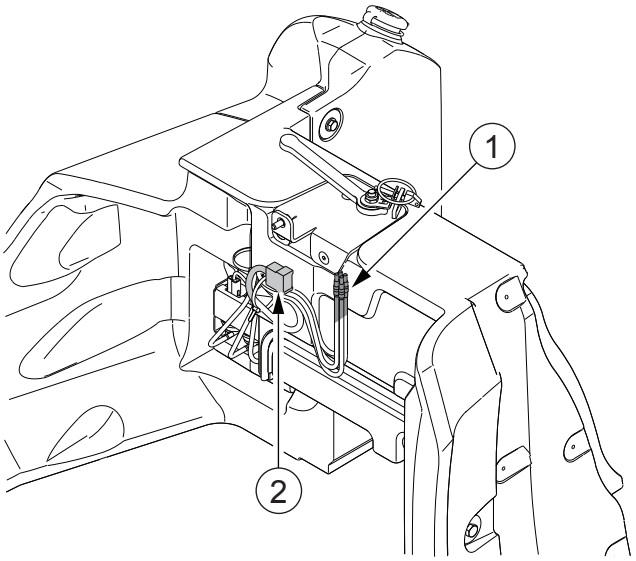
3. **Detach the main electric centre from the battery casing.**

Unscrew the main electric centre fastening screws. Leave the electric centre hanging by its harness.

4. **Unscrew the battery casing fastening screws.**

There are three fastening screws.

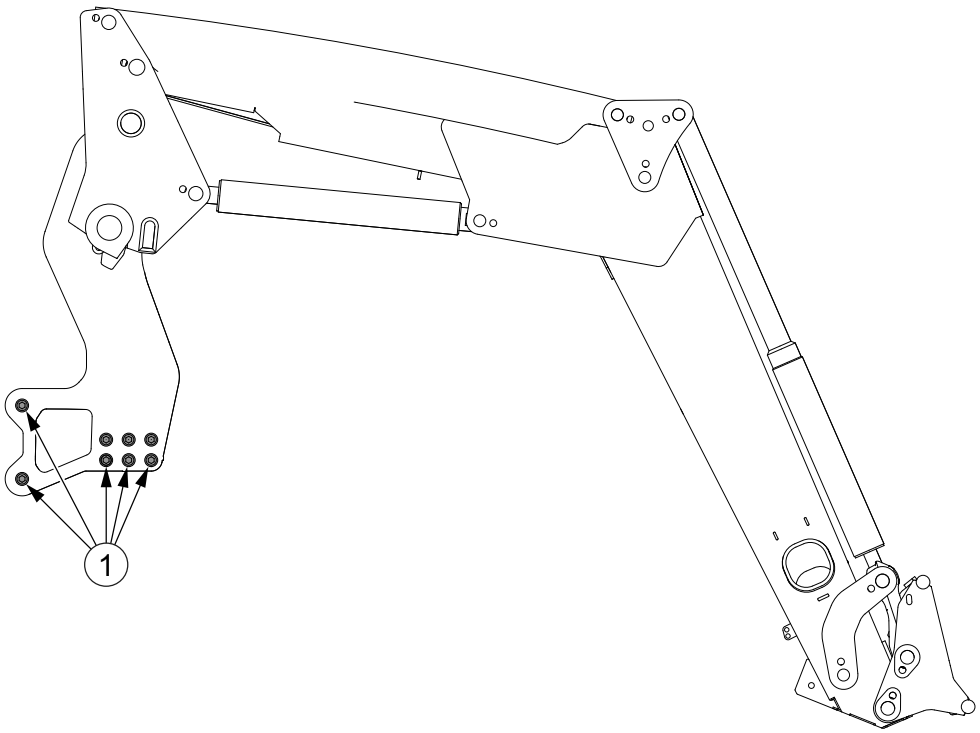
5. **Disconnect the hoses and electric connectors from the windscreen washer fluid reservoir.**



1. Windscreen washer fluid hose
2. Windscreen washer electric connector

6. **Remove the battery casing.**

7. **Tighten the front loader frame bolts on the right hand side.**

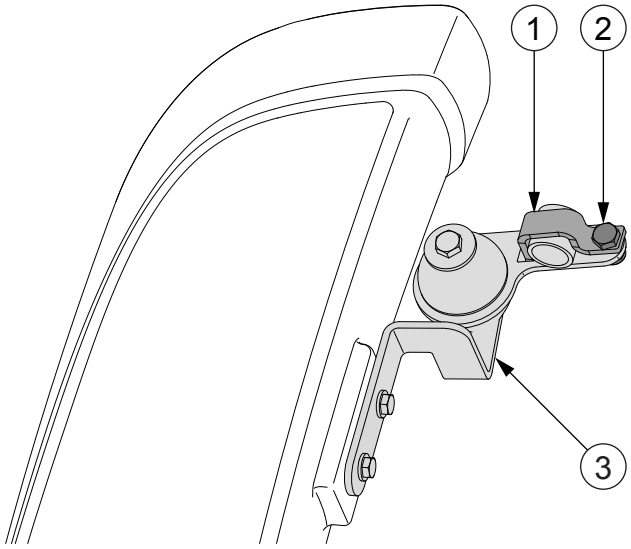


1. Front loader frame bolt

The tightening torque is 600 Nm.

8. **Fit the battery casing.**
9. **Connect the hoses and electric connectors to the windscreen washer fluid reservoir.**
10. **Attach the main electric centre to the battery casing.**

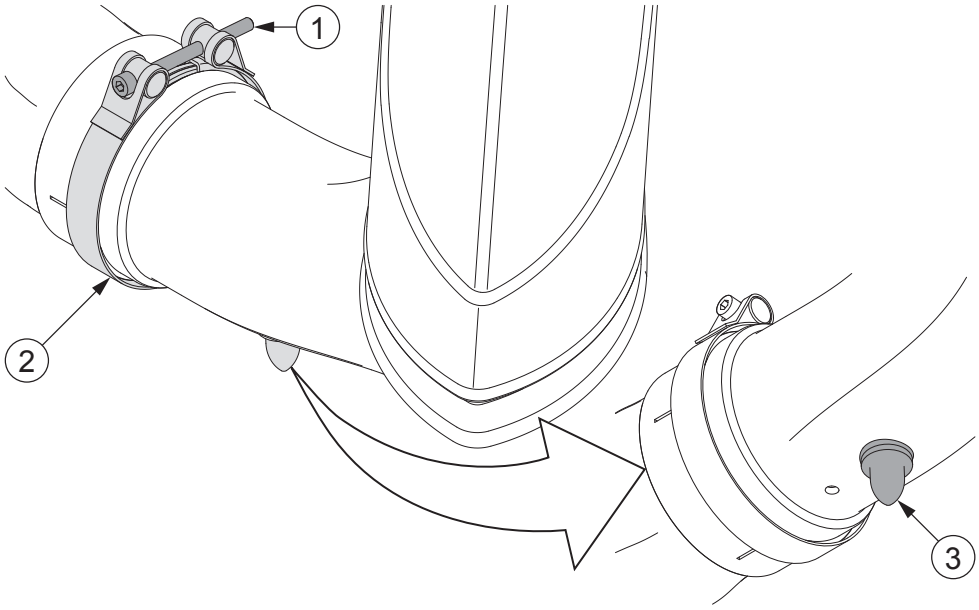
    Tighten the 4 fastening screws.
11. **Attach the engine electric centre to the battery casing.**
12. **Close the battery casing.**
13. **Remove the latch of the air intake pipe.**



1. Latch
2. Fastening screw
3. Air intake pipe support

Unscrew the fastening screw and remove the latch.

14. Remove the clamp of the air intake pipe.

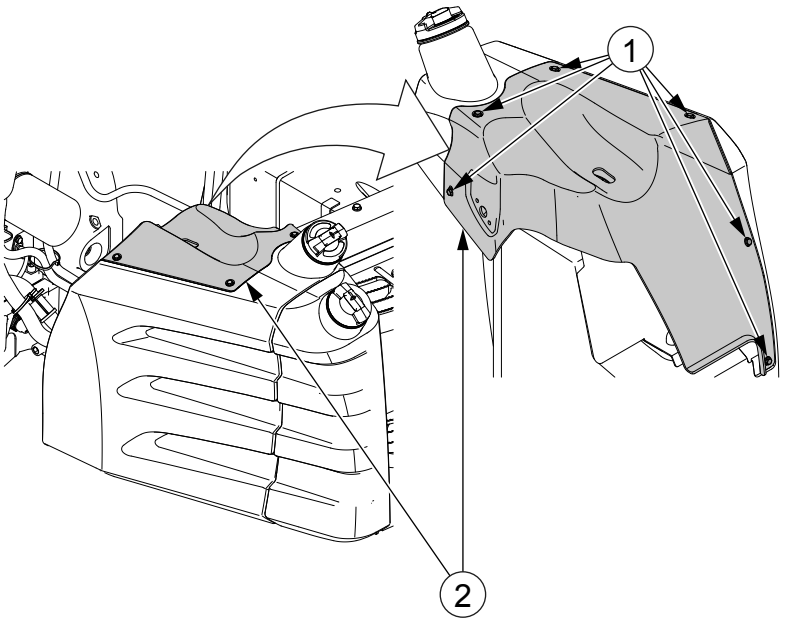


1. Clamp screw
2. Clamp
3. Rubber pin

15. Remove the air intake pipe.

Pull the rubber pin off the fitting.

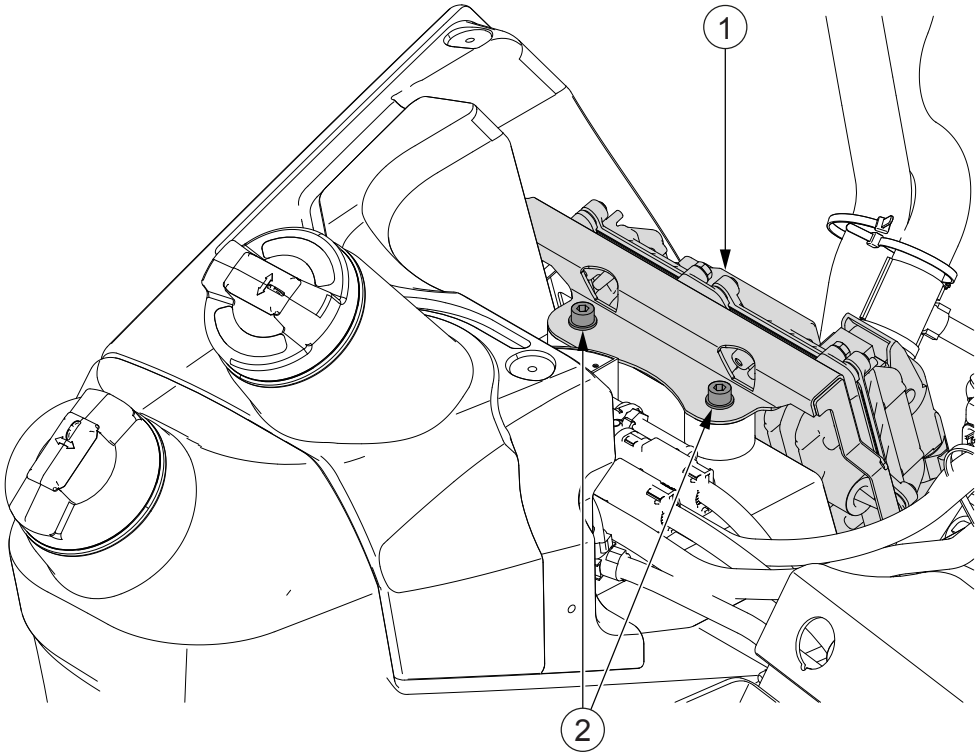
16. Remove the cover plate on the AdBlue tank.



1. Fastening screw
2. Cover plate

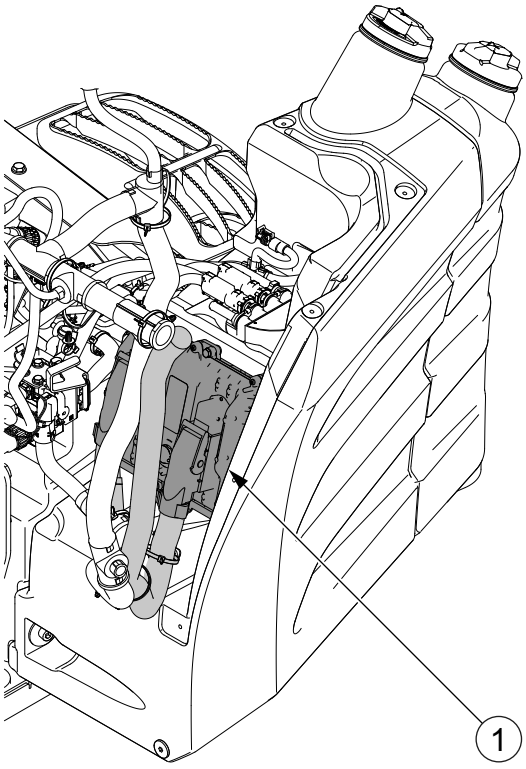
The cover plate is fastened with 6 screws.

17. Unscrew the fastening screws of the engine control unit bracket.



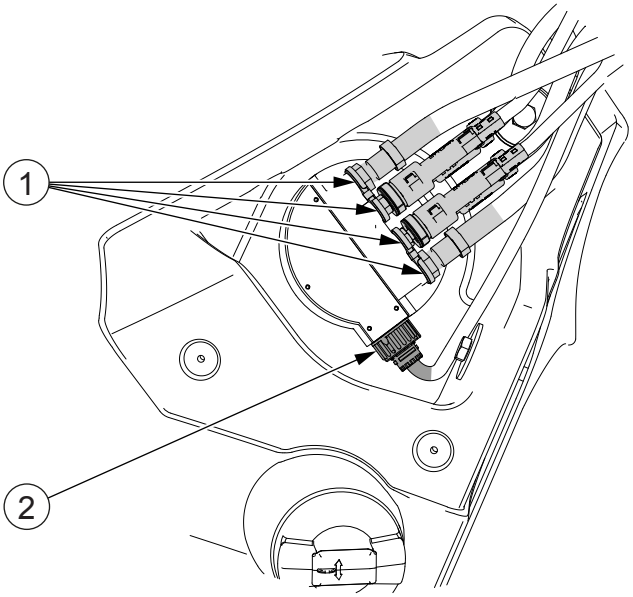
1. Engine control unit bracket
2. Fastening screw

18. Turn the engine control unit bracket aside.



1. Engine control unit bracket

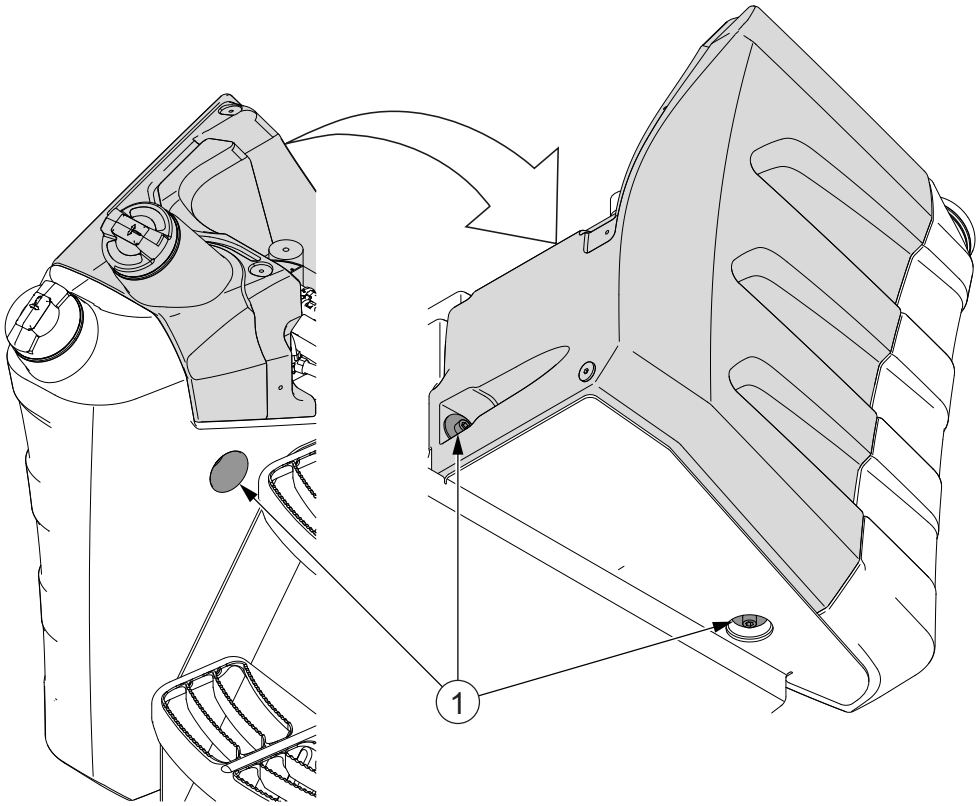
19. Disconnect the electric connector and hoses from the tank heating sensor cap.



1. Tank heating sensor cap hoses
2. Electric connector

Plug the hoses.

20. Unscrew the AdBlue tank fastening screws.

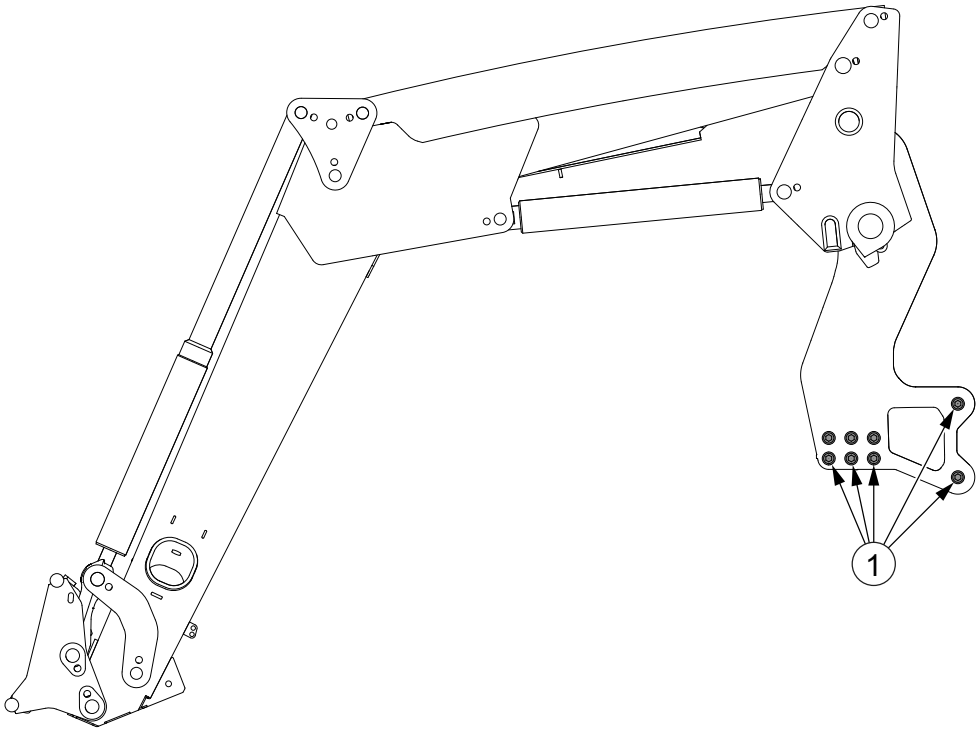


1. Fastening screw

The AdBlue tank is fastened with 3 screws.

21. Move the AdBlue tank so that you can reach the front loader frame bolts.

22. **Tighten the front loader frame bolts on the left hand side.**



1. Front loader frame bolt

The tightening torque is 600 Nm.

23. **Fit the AdBlue tank.**
24. **Connect the electric connector and hoses to the tank heating sensor cap.**
25. **Fit the engine control unit bracket.**
26. **Tighten the AdBlue tank fastening screws.**
27. **Fit the cover plate on the AdBlue tank.**
28. **Fit the air intake pipe.**

4.7.4.8 Checking the front loader frame bolt tightness with Forest equipment

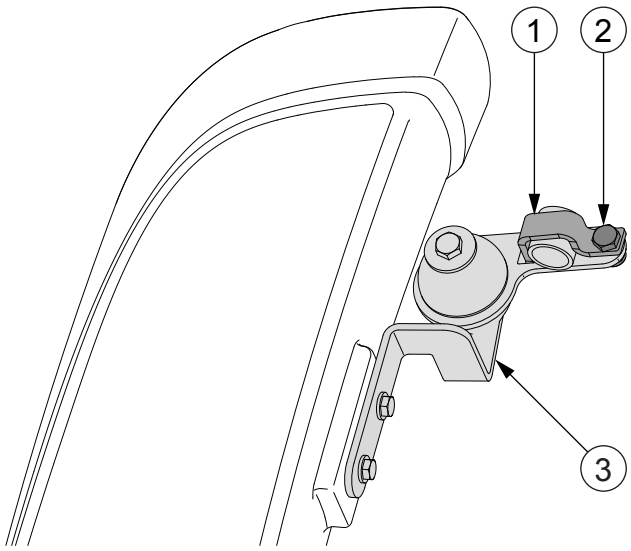
Check the front loader frame bolt tightness periodically.

IMPORTANT: The front loader frame bolt tightness must be checked every 50 hours if the front loader is used continuously with heavy loads.

Forest equipment is optional equipment.

1. **Tighten the front loader frame bolts on the right hand side.**

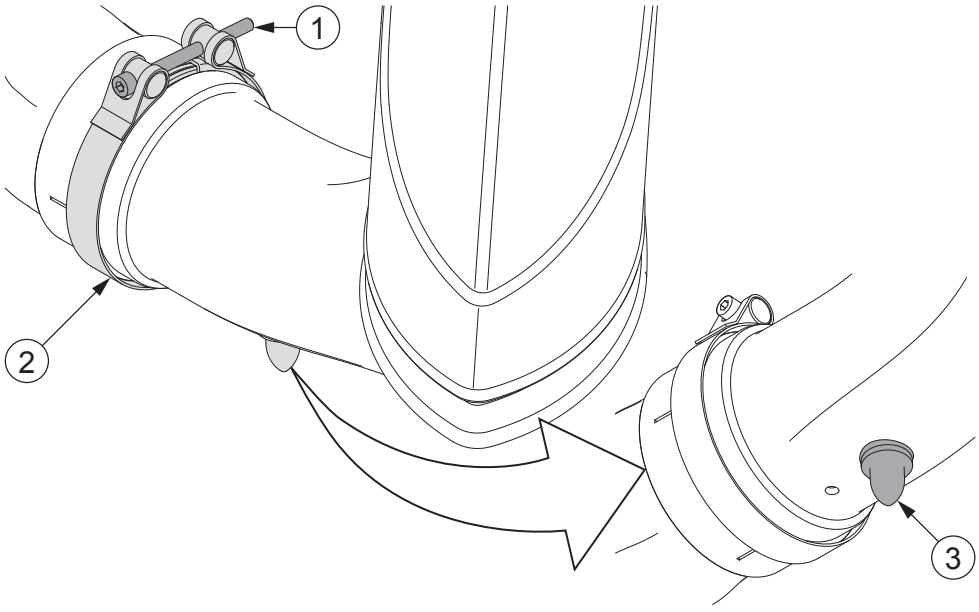
2. **Remove the latch of the air intake pipe.**



1. Latch
2. Fastening screw
3. Air intake pipe support

Unscrew the fastening screw and remove the latch.

3. **Remove the clamp of the air intake pipe.**

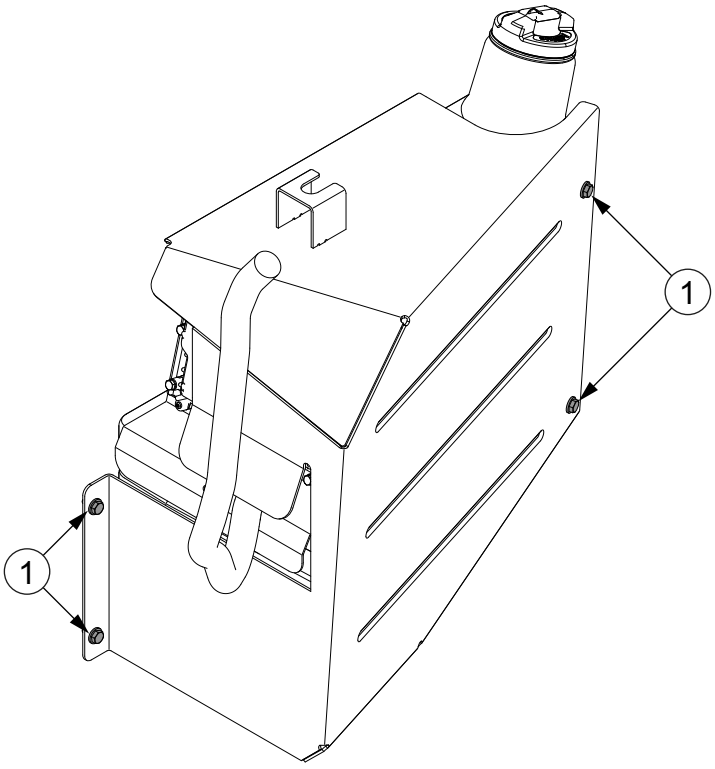


1. Clamp screw
2. Clamp
3. Rubber pin

4. **Remove the air intake pipe.**

Pull the rubber pin off the fitting.

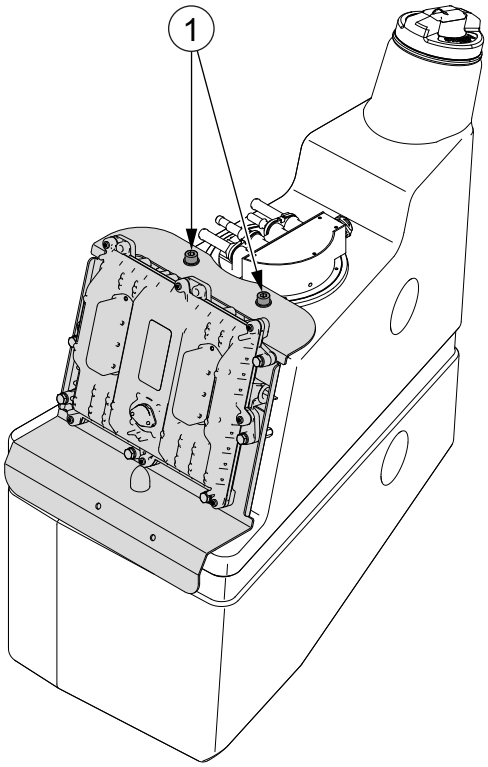
5. **Remove the cover plate on the AdBlue tank.**



1. Fastening screw

The cover plate is fastened with 4 screws.

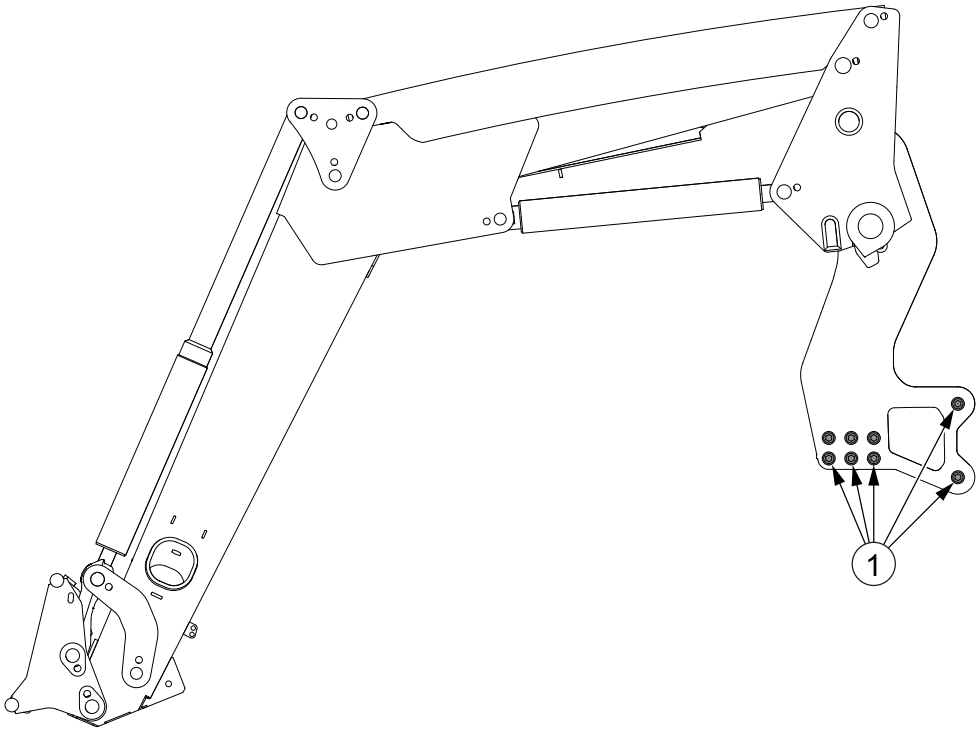
6. **Unscrew the fastening screws of the engine control unit bracket.**



1. Fastening screw

7. **Turn the engine control unit bracket aside.**

8. **Tighten the front loader frame bolts on the left hand side.**



1. Front loader frame bolt

The tightening torque is 600 Nm.

9. **Fit the engine control unit bracket.**
10. **Fit the cover plate on the AdBlue tank.**
11. **Fit the air intake pipe.**

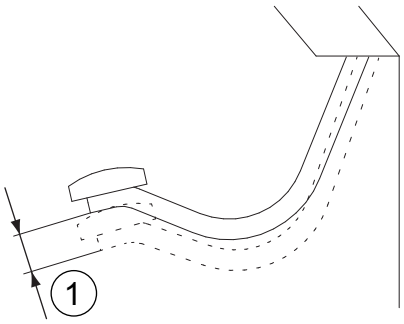
4.7.4.9 Checking the wheel nut tightness

Check the wheel nut tightness periodically to avoid unnecessary risks.

- **Check the tightness of the wheel nuts.**
- **Check the tightness of the wheel disc/rim bolts.**

4.7.4.10 Checking the brake pedal free travel

Check the brake pedal free travel periodically.



1. Free travel of the pedal

1. **Check the free travel of the brake pedal.**

   The pedal free travel must be 50-60 mm. Check with both pedals latched together.

   NOTE: The free travel may be larger if the tractor is equipped with trailer air pressure brakes or trailer fluid brake valve.

2. **Adjust the free travel if necessary.**

4.7.4.11 Adjusting the brake pedal free travel

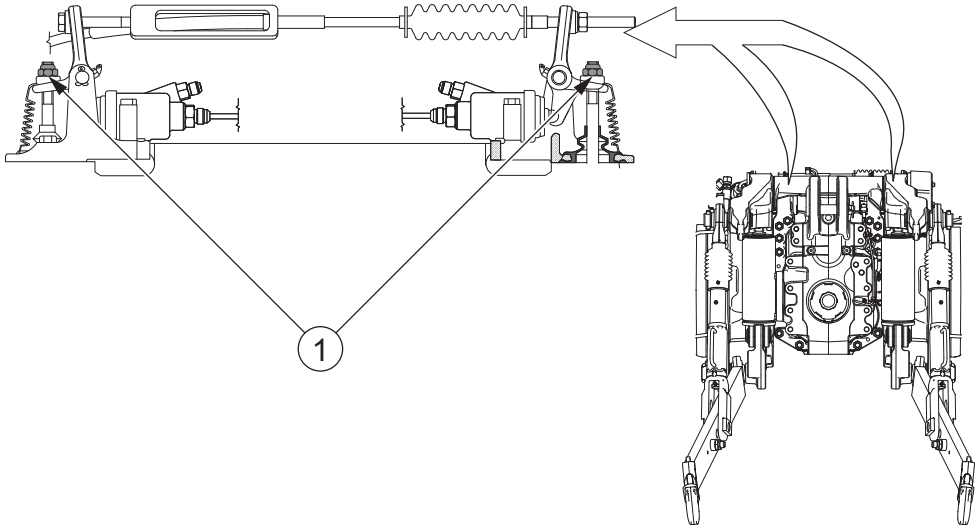
Adjust the travel of brake pedals when needed.

1. **Make sure that the tractor cannot move by itself.**
2. **Raise the rear wheels off the ground.**
3. **Start the tractor.**
4. **Move the power shuttle lever to centre position (N).**
5. **Keep the clutch pedal pressed down.**

   The clutch pedal has to be pressed down in order to rotate wheels.

6. **Tighten the brake adjusting nuts.**

   Adjust the nuts with the torque wrench to 20 Nm.



1. Adjusting nut

7. **Slacken the nuts.**

   Slacken the nuts 4.3 turns.

8. **Check that the wheels can rotate freely.**

9. **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.

10. **Check that the pedal free travel is the same on both wheels.**

    The pedal free travel must be 50-60 mm. Check with both pedals latched together.

    If the pedal free travel is not correct, readjust the travel.

11. **Check the free travel on the rear brake pedal.**

    The reverse drive system is extra equipment.

    The pedal free travel must be 65-75 mm.

    If the pedal free travel is not correct, bleed the brakes.

4.7.4.12 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.**

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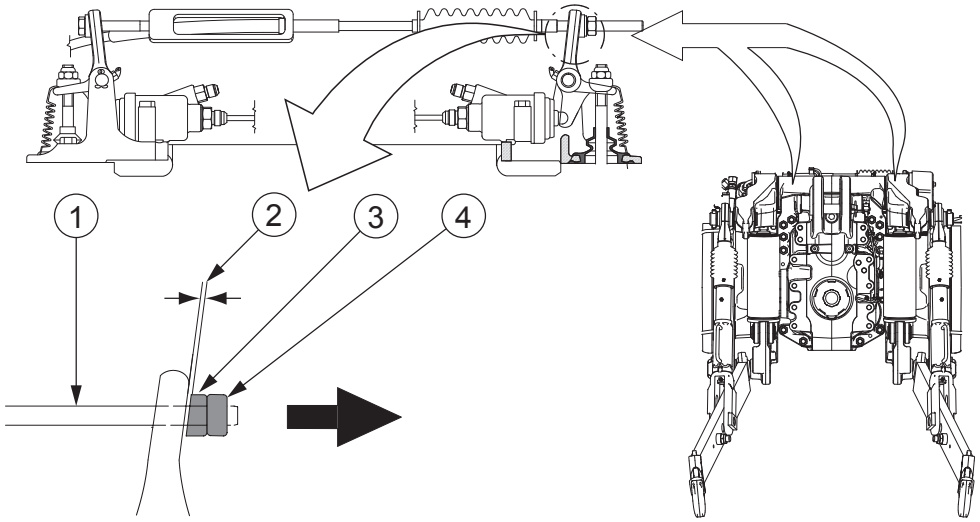
4.7.4.13 Adjusting the parking brake

The parking brake is adjusted in the factory and readjustment is not necessary unless parts of the brake mechanism have been changed. Adjusting the driving brakes affects the parking brake.

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.**



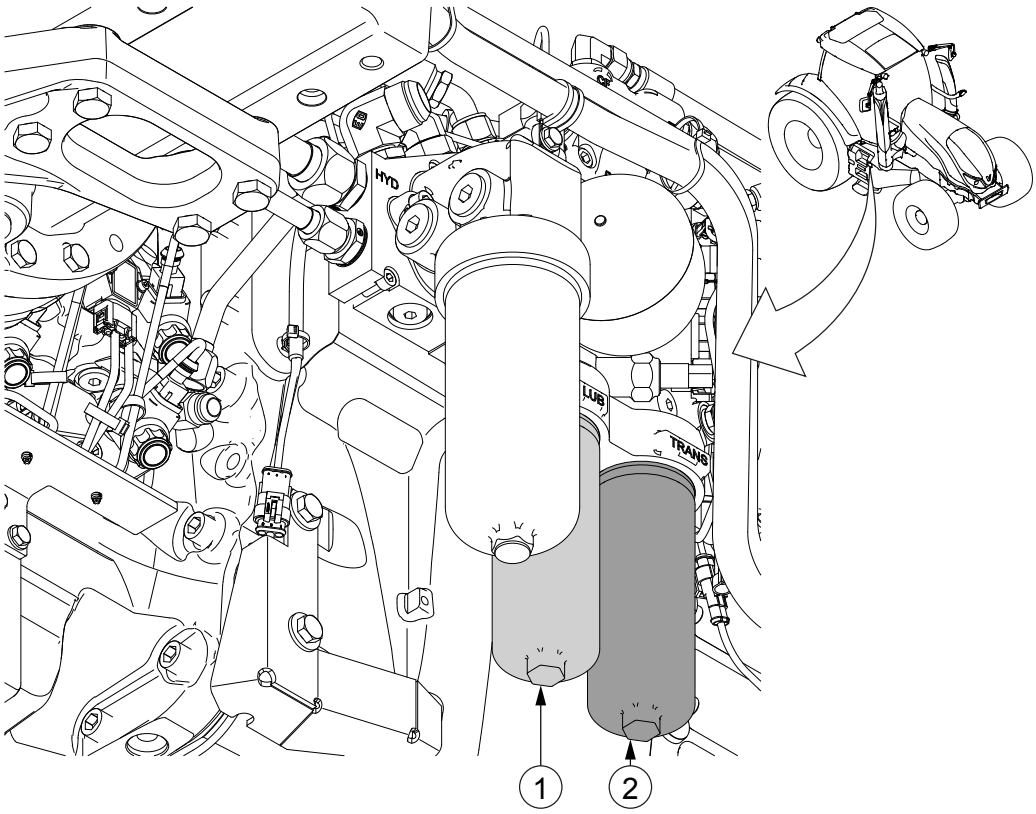
1. Cable
2. Clearance
3. Adjusting nut
4. Locking nut

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 Valtra workshop.

4.7.4.14 Changing transmission oil filters

Change the transmission oil filters periodically.



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.

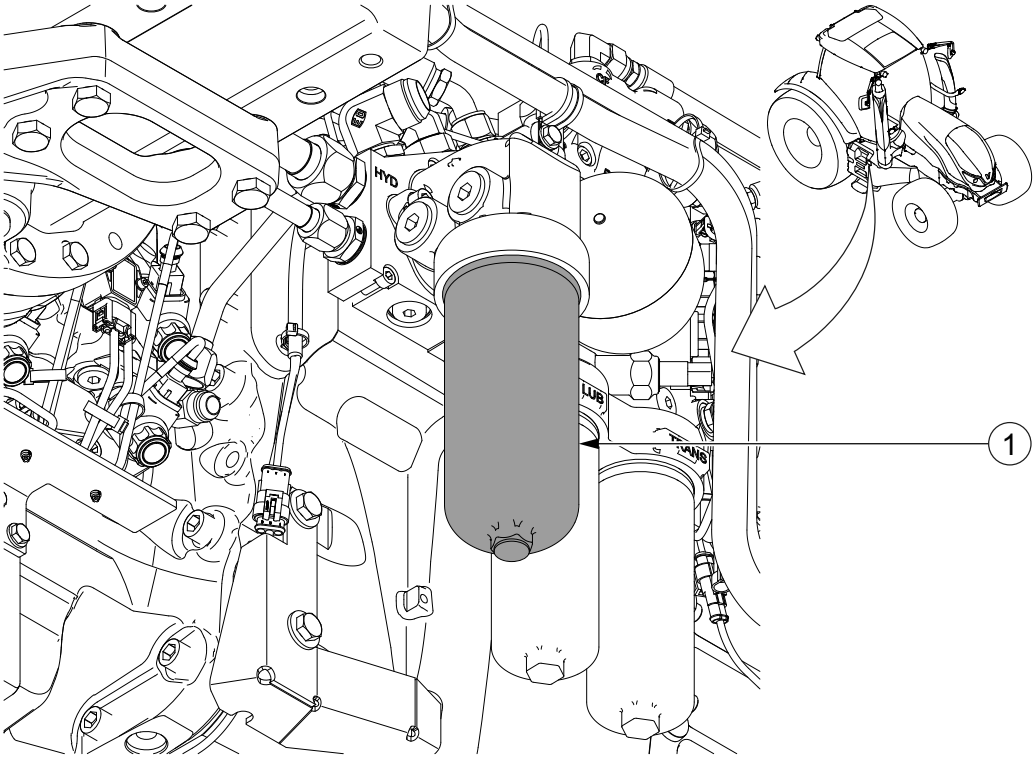
1. **Fit a suitable container under the filter.**
2. **Clean the filter housing and the surrounding area.**
3. **Remove the filter housing and the filter element.**
4. **Wash the filter housing in clean diesel fuel.**
5. **Lubricate the seal of the new filter element.**
6. **Fit the new filter into place.**
7. **Refit the filter housing.**

   Screw in the housing fully by hand and then unscrew by one quarter-turn.

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4.7.4.15 Changing the hydraulic system oil filter

Change the hydraulic system oil filter periodically.



1. Return oil filter of the auxiliary hydraulic system

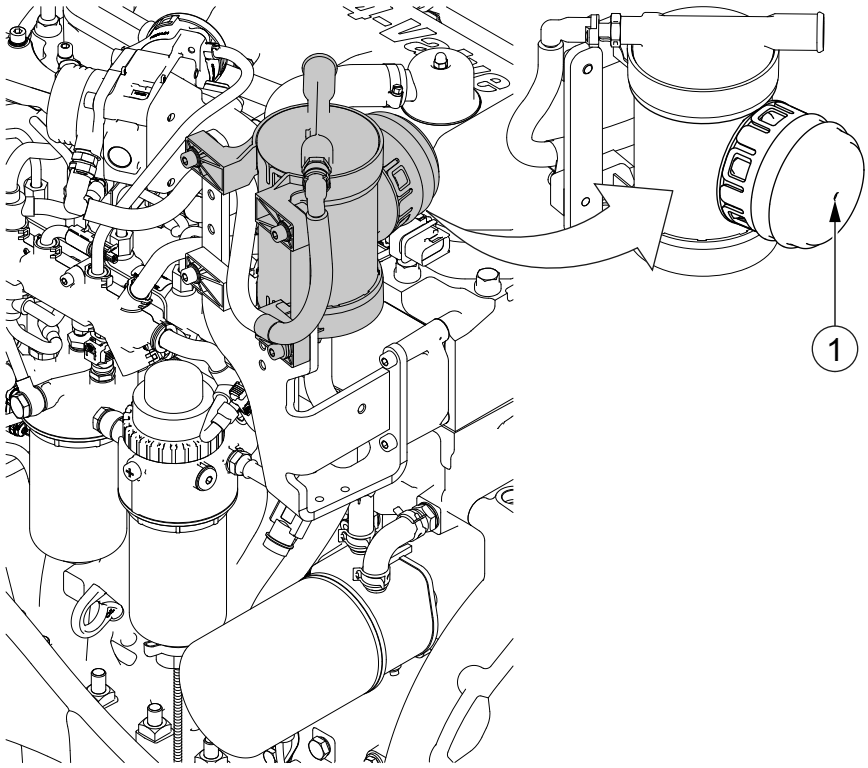
Oil filters are located on the right side of the tractor under the cab. The return oil filter is labelled with the text HYD on the mounting piece on top of it.

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.

4.7.4.16 Checking the engine breathing system

Check the engine breathing system periodically.

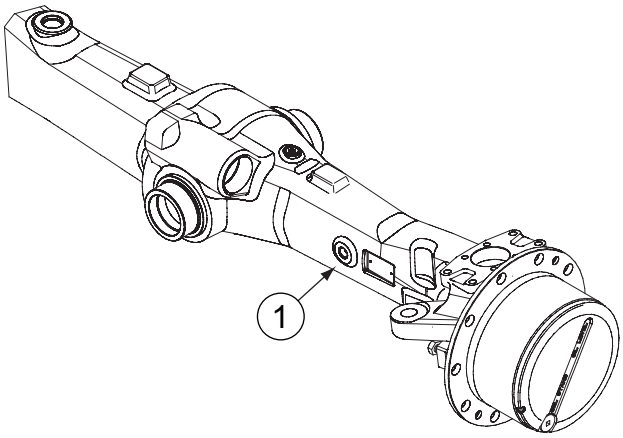


1. Ventilation hole

- **Check that the ventilation hole is not blocked.**

4.7.4.17 Checking the oil level in the front axle differential

Check the oil level in the front axle differential periodically.



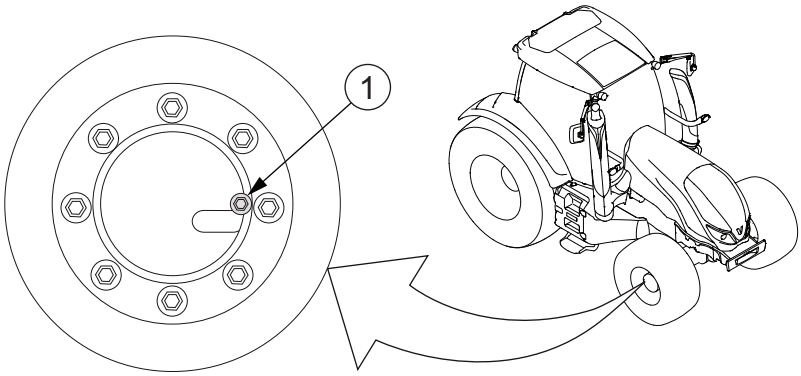
1. Inspection hole

1. **Check that the oil is in level with the inspection hole.**

2. **Add more oil if necessary.**

4.7.4.18 Checking the oil level in front axle hubs

Check the oil level in the front axle hubs periodically.

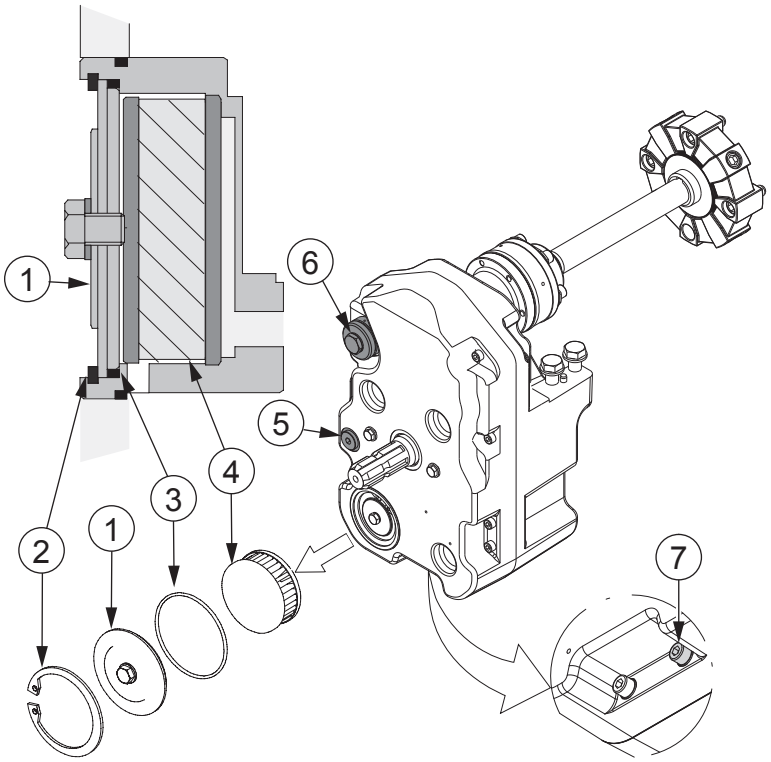


1. Oil surface indicator line

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.**

4.7.4.19 Changing the front PTO housing oil and washing the oil filter

Change the oil of the front power take-off (PTO) housing and wash the oil filter periodically.



1. End plate
2. Lock ring
3. O-ring
4. Filter
5. Oil level hole
6. Breather
7. Front PTO housing fastening screw

1. **Open the oil level hole plug.**
2. **Drain the oil by opening the two front PTO housing fastening screws at the bottom of the housing.**
3. **Release the filter by loosening the lock ring and the end plate.**
4. **Clean the filter with diesel.**
5. **Dry the filter with compressed air.**
6. **Attach the filter and the parts in the contrary order.**

   Check that the O-ring fits the groove of the end plate.
7. **Tighten the two front PTO housing fastening screws at the bottom of the housing.**

8. **Fill up the housing with oil to the level of the hole.**

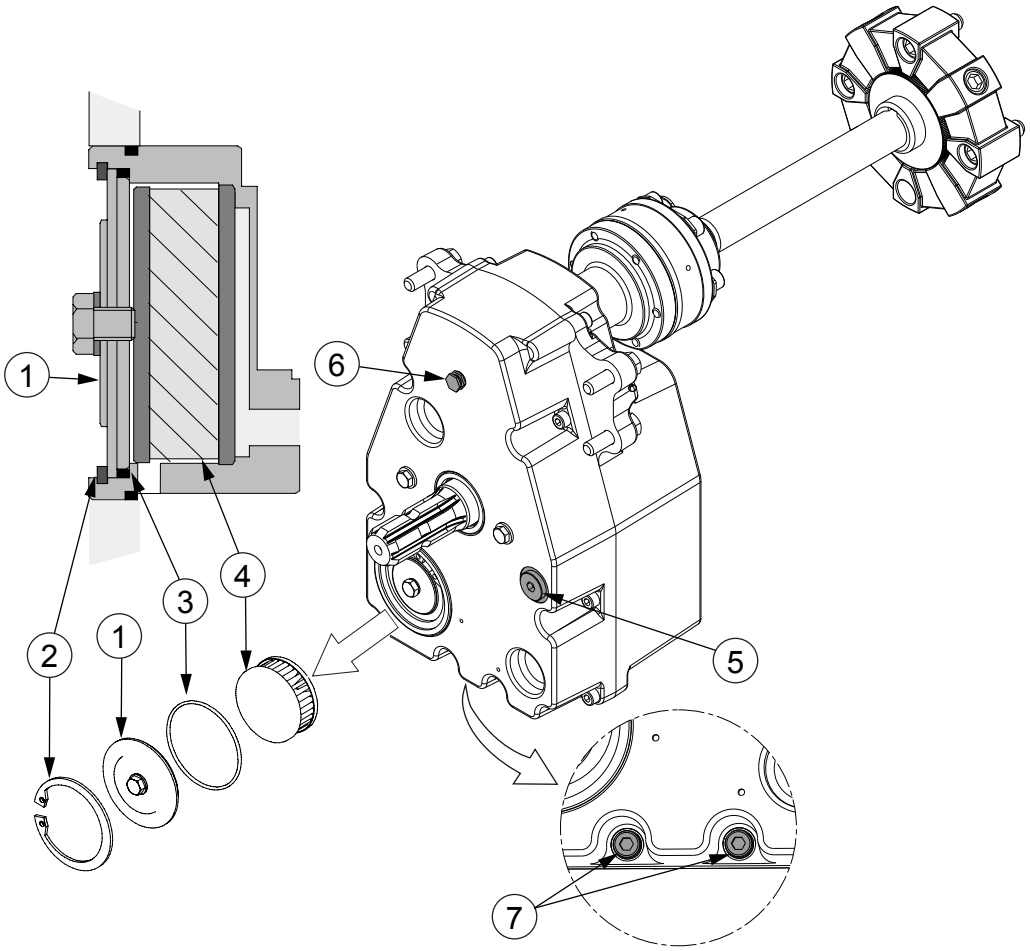
   The breather can be loosened for bleeding. Check that the breather is not blocked. When filling, the tractor has to stand on even ground.

9. **Fit the oil level hole plug.**

10. **Use the front PTO a moment and check oil.**

4.7.4.20 Changing the front PTO housing oil and washing the oil filter with pivoting front linkage

Change the oil of the front power take-off (PTO) housing and wash the oil filter periodically.



1. End plate
2. Lock ring
3. O-ring
4. Filter
5. Oil level hole
6. Breather
7. Front PTO housing fastening screw

1. **Open the breather.**

2. **Drain the oil by opening the two front PTO housing fastening screws at the bottom of the housing.**
3. **Release the filter by loosening the lock ring and the end plate.**
4. **Clean the filter with diesel.**
5. **Dry the filter with compressed air.**
6. **Attach the filter and the parts in the contrary order.**

   Check that the O-ring fits the groove of the end plate.
7. **Tighten the two front PTO housing fastening screws at the bottom of the housing.**

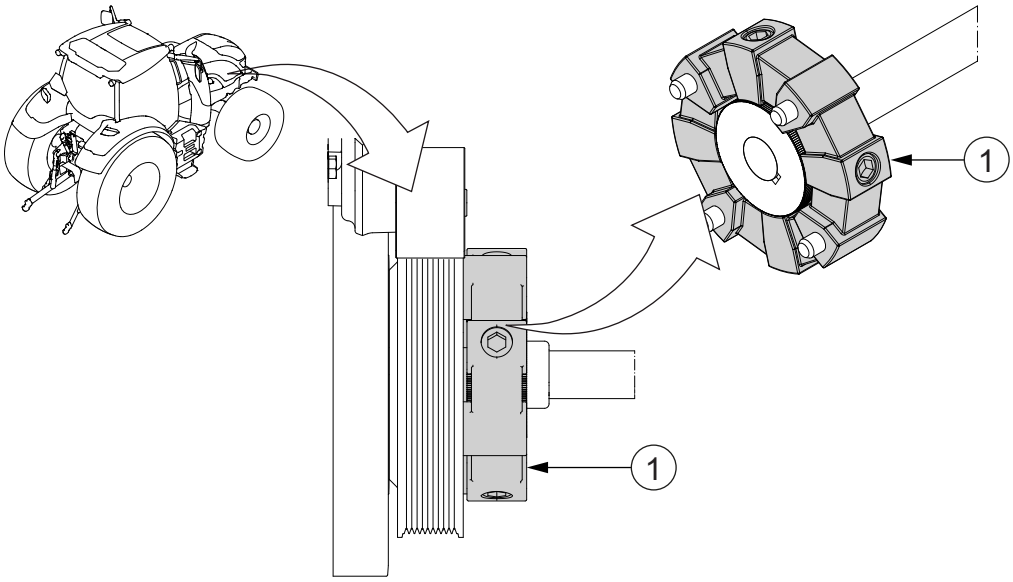
   Tightening torque for the screws is 42 Nm.
8. **Fill up the housing with oil to the level of the hole.**

   The breather can be loosened for bleeding. Check that the breather is not blocked. When filling, the tractor has to stand on even ground.
9. **Use the front PTO a moment and check oil.**

4.7.4.21 Checking front PTO couplings

Check the front power take-off (PTO) couplings periodically.

- **Check that all fixing screws are tight.**
- **Check the rubber coupling for tears.**



1. Rubber coupling

- **Change the rubber coupling when needed.**

  It is recommended to let an authorised Valtra workshop change the coupling.

4.7.4.22 Checking and greasing the trailer air-pressure brake system

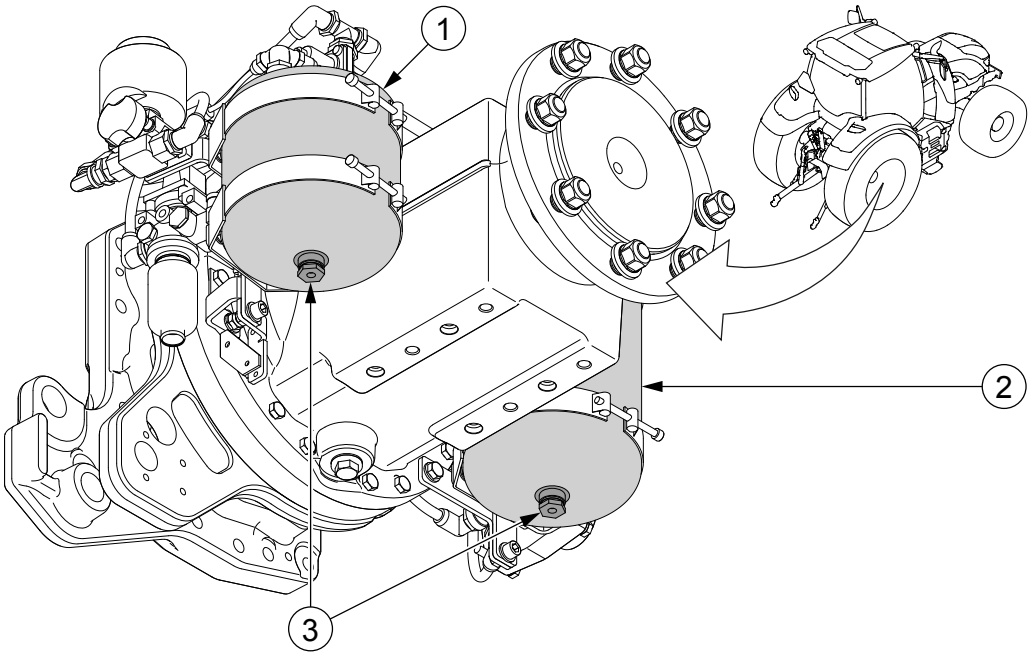
Check and grease the trailer air-pressure brake system periodically.

1. **Grease the rubber surfaces of the trailer quick couplings with Calsium LF grease.**
2. **Check the integrity of the system.**

   The system has to be air tight so that after stopping the engine, the pressure does not decrease more than 0.15 bar during 10 minutes (2%). When needed, repair the leaks.

4.7.4.23 Checking the air pressure system's automatic water draining

If the tractor is equipped with an air pressure system (extra equipment), there is a pressure air reservoir under the cab. If the tractor is equipped with pneumatic brakes (extra equipment), there are 2 pressure air reservoirs under the cab. The reservoirs have automatic valves for water draining. The valve functions must be checked frequently.



1. Air pressure system pressure air reservoir
2. Pneumatic brakes pressure air reservoir
3. Automatic water draining valve

1. **Push a blunt stick through the draining valve hole.**

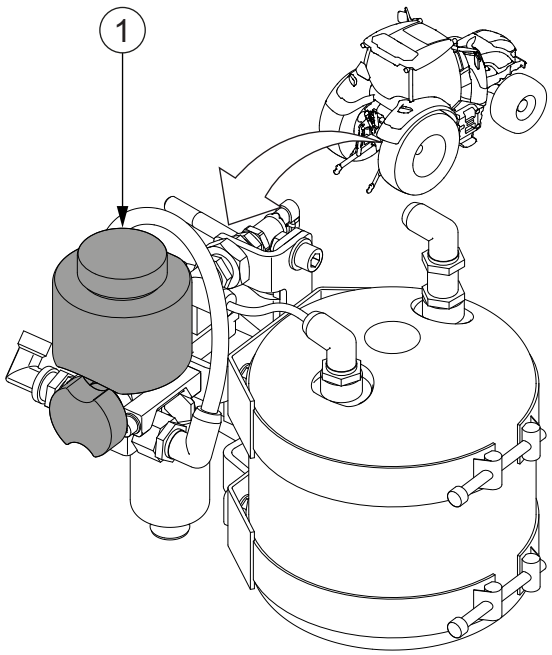
   IMPORTANT: The stick must not be sharp, because it can damage the valve. If the air that comes out is free of water, the automatic water draining valve is operating correctly.

2. **If there is water with the air, push the stick through the valve hole until there is no pressure in the reservoir.**

3. **Open the valve and clean the seal inside it.**
4. **Mount the valve back.**
5. **If the valve does not operate properly after cleaning, replace it with a new valve.**
6. **Follow the same procedure for the other pressure air reservoir.**

4.7.4.24 Filling the air pressure system antifreeze container

Fill the air pressure system antifreeze container periodically.



1. Air pressure system antifreeze container

1. **Fill the air pressure system antifreeze container.**

   NOTE: Use glycol- or alcohol-based pneumatic equipment antifreeze liquid.

4.7.4.25 Adjusting engine valves

Contact an authorised Valtra workshop for the engine valve adjustment.

NOTE: The engine valves must be adjusted after 600 operating hours. After the first adjustment, adjust the valves at 2400 hours and after this every 2400 hours.

4.7.4.26 Updating the software and calibrating the tractor

Contact an authorised Valtra workshop for updating the software and calibrating the tractor.

NOTE: The software must be updated and the tractor calibrated after 600 operating hours. After the first update and calibration, do them at 1200 hours and after this every 1200 hours.

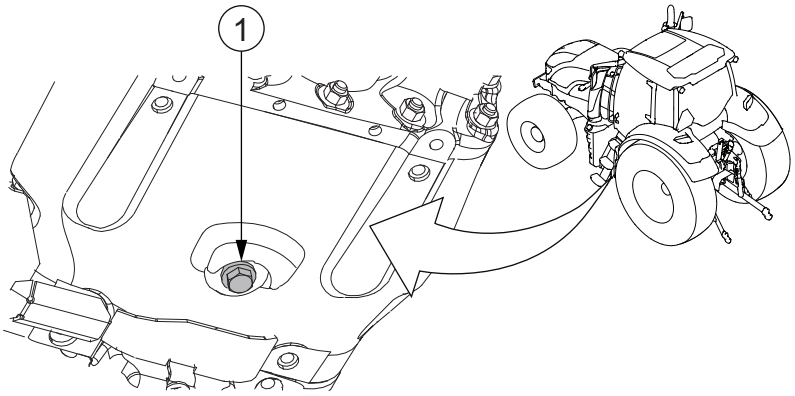
4.7.5 Maintenance every 1200 hours or yearly

4.7.5.1 Changing oil in the hydraulic system

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. **Raise the front linkage and lower the front loader and rear linkage.**

   Maximum amount of oil returns to the hydraulic oil reservoir.
3. **Remove the drain plug under the housing.**

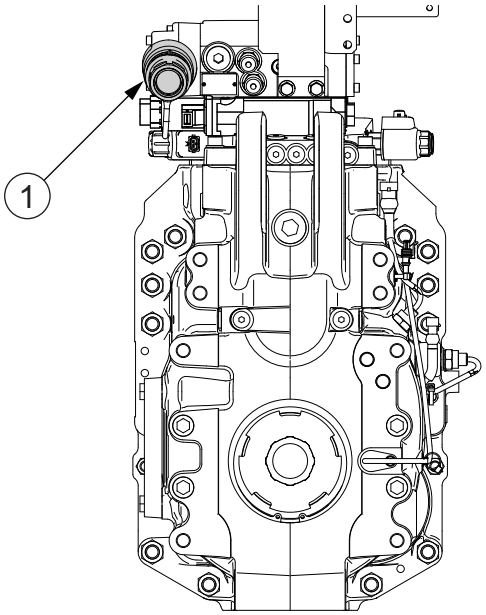


1. Hydraulic oil drain plug

4. **Drain the oil into a suitable container.**
5. **Clean and refit the plug.**

   Renew the copper washer.

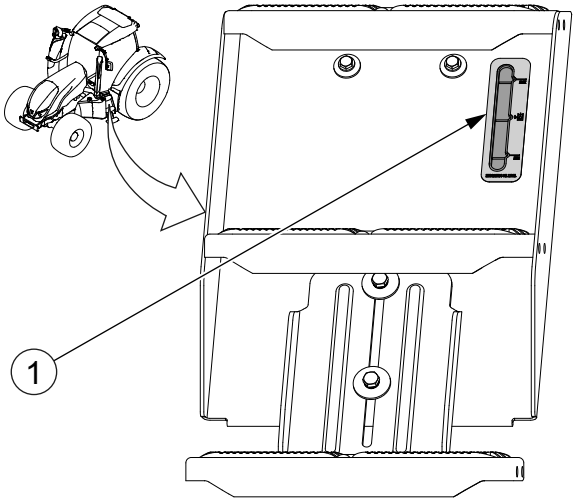
6. **Refill by pump through the hydraulic return coupling.**



1. Hydraulic return coupling

The oil must go through the return filter so that no impurities enter the system.

7. **Check the oil level from the oil level gauge.**



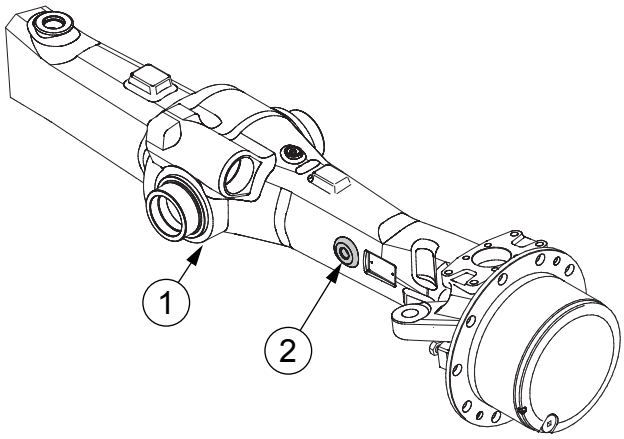
1. Hydraulic oil level gauge

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.

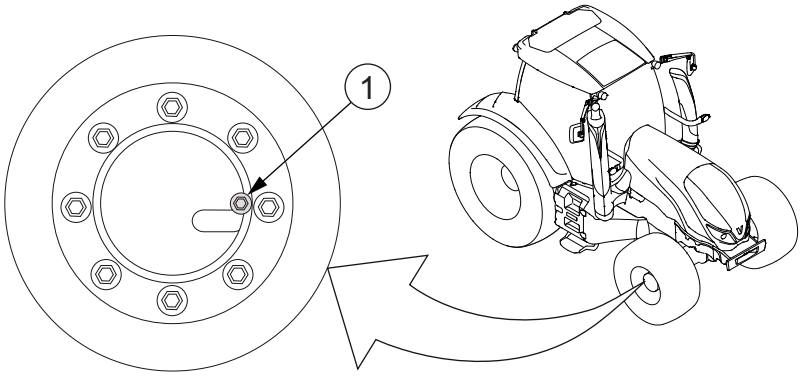


1. Drain plug
2. Inspection hole

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. Inspection hole

1. **Turn the wheel until the inspection hole is pointing downwards.**
2. **Unscrew the plug and drain the oil into a suitable container.**
3. **Turn the wheel until the line of the inspection hole is horizontal.**
4. **Fill up with oil to the level of the hole.**

5. **Clean the plug and refit it.**

4.7.5.4 Changing the fuel filter

Change the fuel filter periodically.

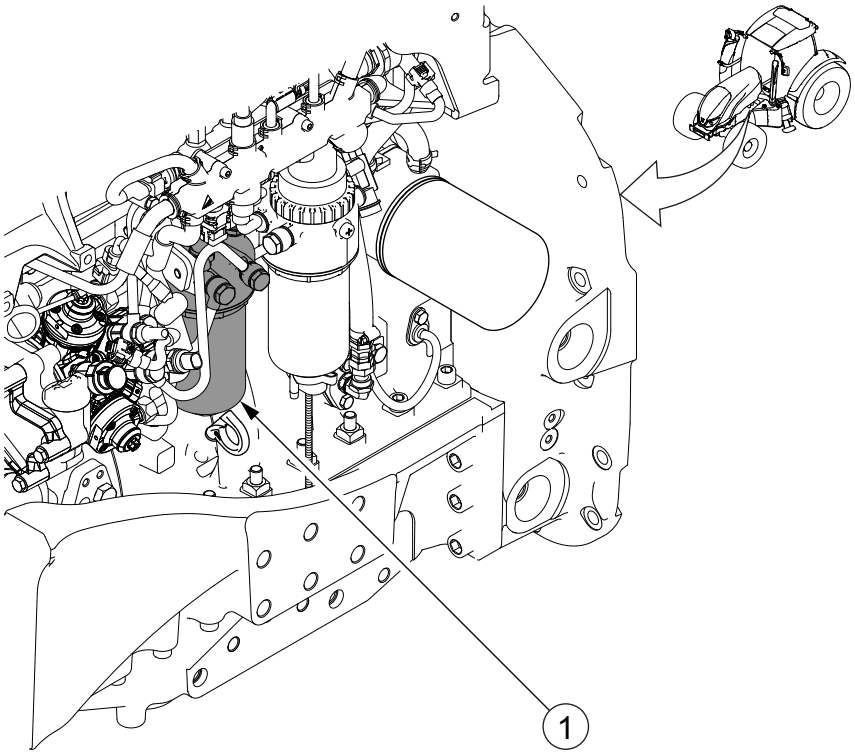
Always use original AGCO parts fuel filters.

IMPORTANT: Using other fuel filters than the original ones, even for a short period of time, may cause lower performance and expensive damages.

NOTE: In extremely dusty or cold conditions, change the fuel filter and prefilter every 600 hours.

NOTE: When using first generation Biodiesel fuel with dilution over 7%, change the fuel filter and prefilter every 500 hours. With second generation Biodiesel fuel the service interval is 1000 hours.

1. **Clean the filter and its surroundings.**



1. Fuel filter

2. **Remove the fuel filter.**

   Turn the filter anticlockwise and remove it from the mounting bracket.
   IMPORTANT: Unscrew the filter by hand, do not use a filter wrench.

3. **Lubricate the O-rings with fuel.**

4. **Fill the new filter with fuel.**

   Pour the fuel into the filter outer shell.

5. **Attach the filter.**

Bleed the fuel system.

4.7.5.5 Changing the fuel prefilter

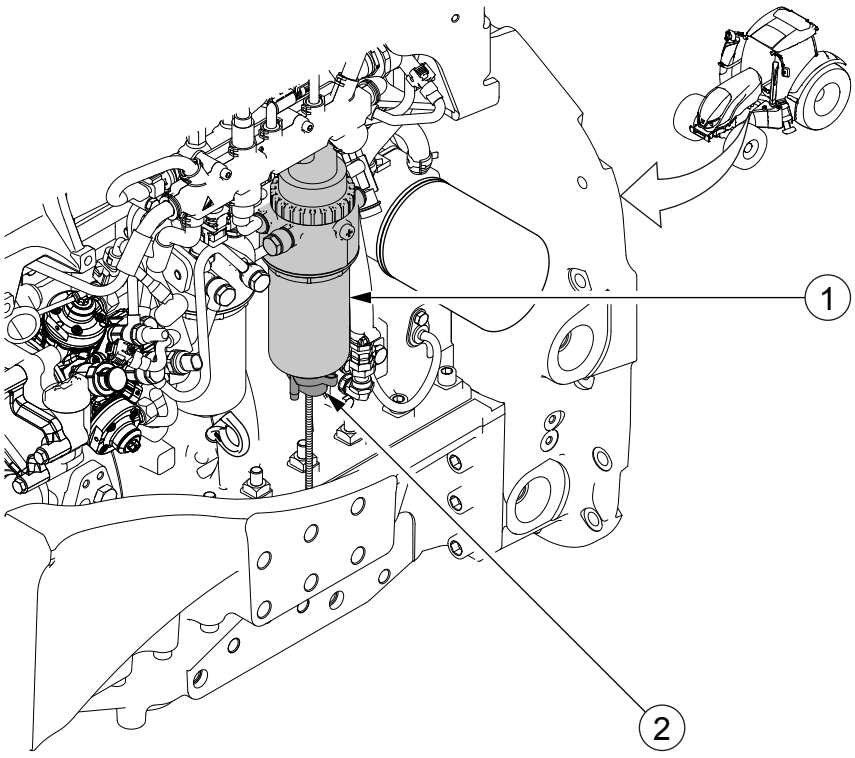
Change the fuel prefilter periodically.

Always use original AGCO parts 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.

NOTE: In extremely dusty or cold conditions, change the fuel filter and prefilter every 600 hours.

NOTE: When using first generation Biodiesel fuel with dilution over 7%, change the fuel filter and prefilter every 500 hours. With second generation Biodiesel fuel the service interval is 1000 hours.



1. Fuel prefilter
2. Water detector

1. **Clean the filter and its surroundings.**

2. **Disconnect the water detector wire.**
3. **Place a suitable container under the filter.**

   IMPORTANT: Do not drain fuel onto the ground!
4. **Remove the filter.**

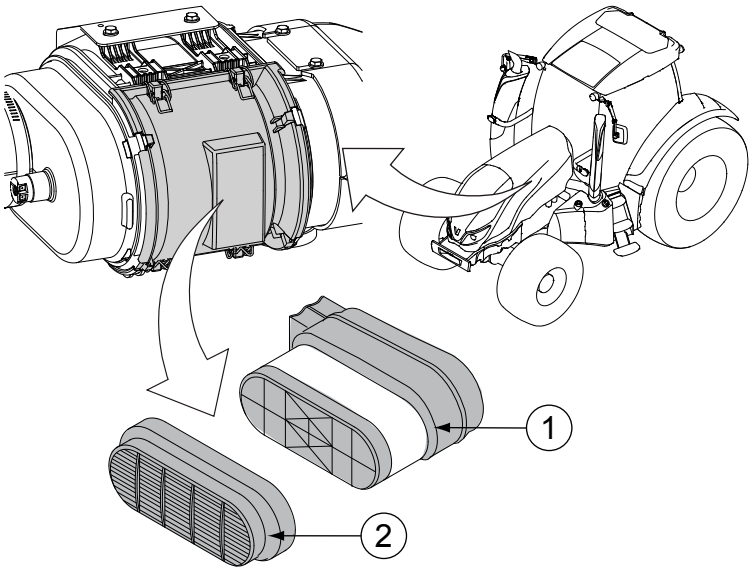
   IMPORTANT: Unscrew the filter by hand, do not use a filter wrench.
5. **Move the water detector from the old filter to the new filter.**
6. **Lubricate the O-rings with fuel.**
7. **Fill the new filter with fuel.**

   Pour the fuel into the filter outer shell.
8. **Attach the filter.**
9. **Connect the water detector wire.**

Bleed the fuel system.

4.7.5.6 Changing engine air filters

Change the main air filter and safety filter periodically.



1. Main air filter
2. Safety air filter

The safety filter protects the engine if the main air filter gets damaged.

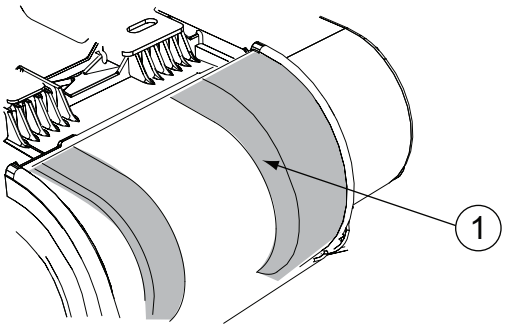
IMPORTANT: Never run the tractor without the safety filter.

NOTE: Do not clean the filters. Always change the filters according to the maintenance schedule.

NOTE: In extremely dusty conditions the engine air filters must be changed more frequently.

NOTE: Unless it is necessary, do not open the cover of the air filter housing.

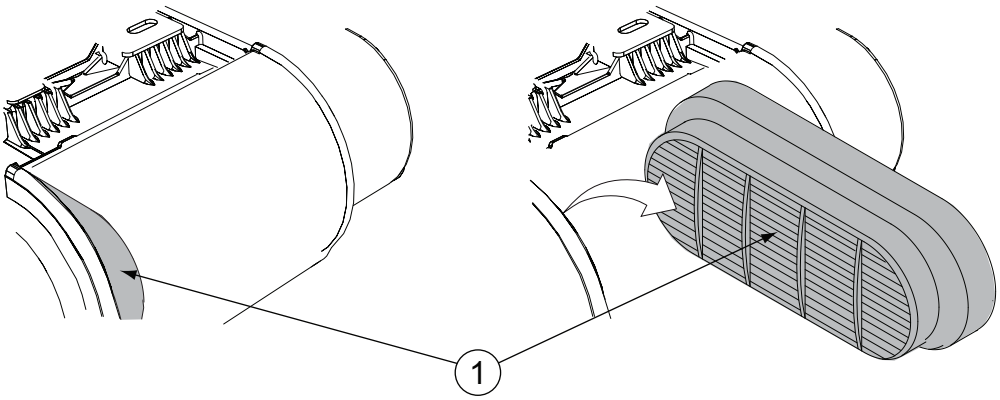
1. **Open the air filter housing.**
2. **Take out the main filter.**



1. Main air filter

3. **Remove the safety filter.**

   IMPORTANT: Take the utmost care when removing the safety filter so that no dirt enters the induction pipe.



1. Safety air filter

4. **Check that the seals of the filters are in good condition.**
5. **Check that the sealing surfaces of the air filter housing are clean.**
6. **Fit the new safety filter back in place.**

   Make sure that it is correctly positioned in the housing.

7. **Fit the new main filter in place.**

   Make sure that it is correctly positioned in the housing.

8. **Fasten the cover of the air filter housing.**

4.7.5.7 Changing the selective catalytic reduction system breather and supply module main filter

NOTE: In extremely dusty conditions the selective catalytic reduction system breather must be changed more frequently.

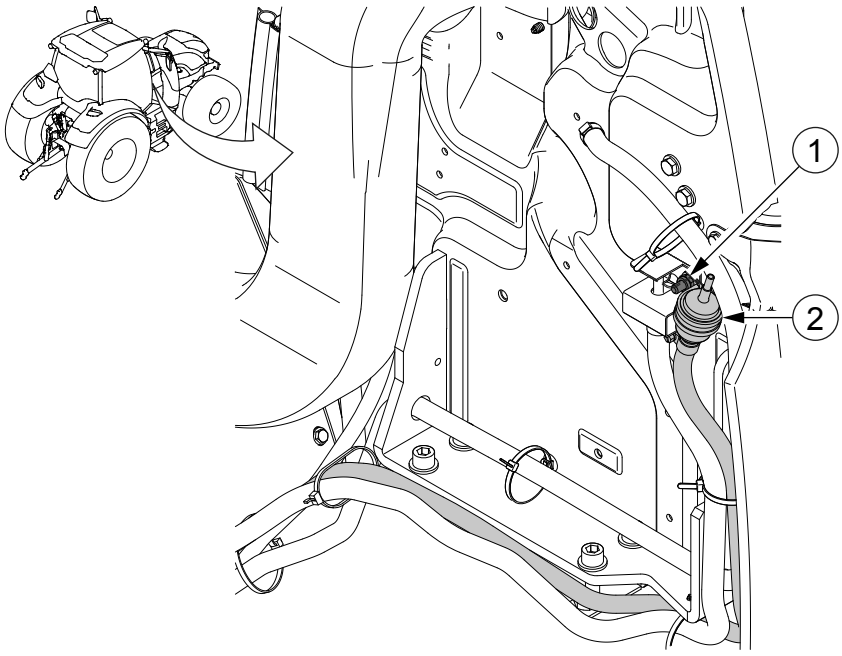
IMPORTANT: The area around the filter cover must be checked for cracks. No cracks in the material are allowed. If there are cracks in the housing the entire supply module must be replaced. If there are cracks in the filter cover it must be replaced.

IMPORTANT: All sealing surfaces on the filter cover, equalizing element, filter element and supply module housing must be absolutely clean and undamaged.

IMPORTANT: Do not install used or wet filter or equalizing element. Danger of engine damage and poor filtration.

IMPORTANT: Do not use mineral or silicone oils or greases when assembling the filter seals. All seals have a non-stick coating.

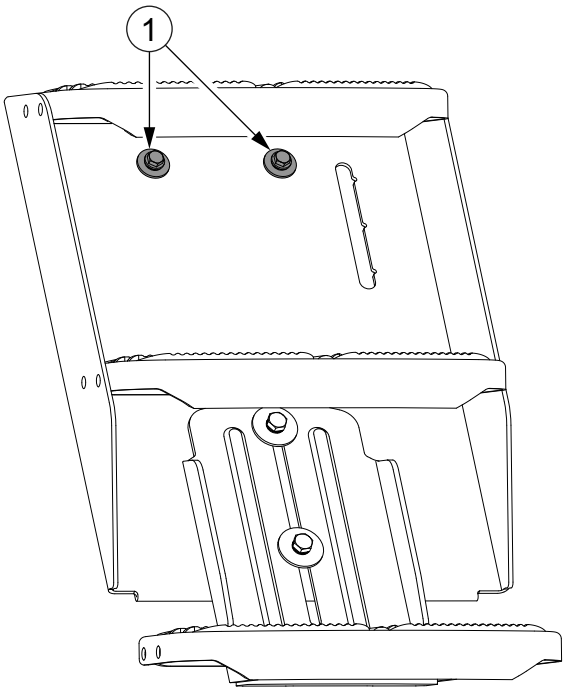
1. **Change the breather.**



1. Fastening screw
2. Breather

Unscrew the fastening screw and pull the breather to the side. Fit the breather back after changing and tighten the fastening screw.

2. **Open the steps.**

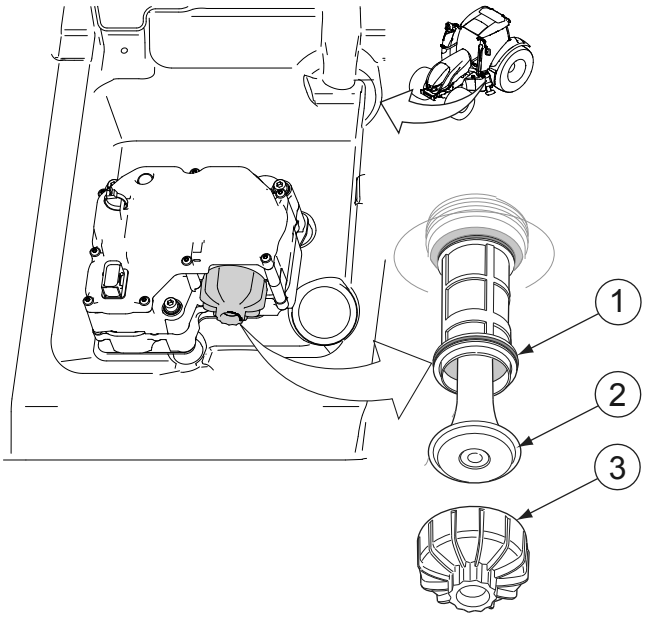


1. Fastening screw

Unscrew the two fastening screws.

3. **Clean the filter cover and its surroundings.**

4. **Remove the filter cover.**



1. Filter
2. Equalizing element
3. Filter cover

Use 27 mm wrench.

5. **Pull out the filter parts.**
6. **Fit the new filter elements.**
7. **Fit the filter cover.**

   The tightening torque is 20-25 Nm.
8. **Close the steps.**

   Fasten the steps with the two fastening screws.

4.7.5.8 Checking the front wheel toe-in

Check the front wheel toe-in periodically.

1. **Make a vertical mark on the rear edge of 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 front 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.**

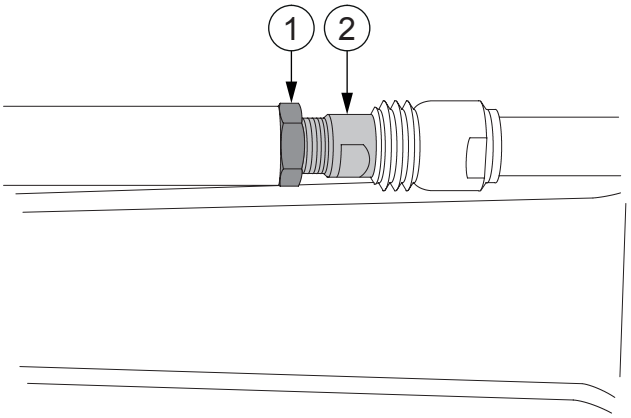
4.7.5.9 Adjusting the front wheel toe-in

Adjust the front wheel toe-in 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

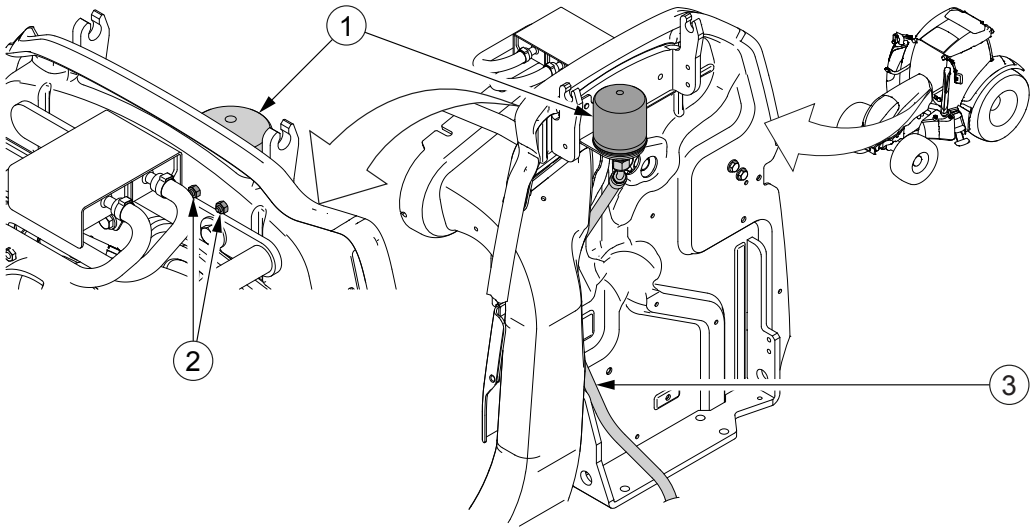
3. **Turn the adjustment screw in the right direction.**
4. **Measure both tie rods.**

   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.**

4.7.5.10 Changing the hydraulic breather

Change the hydraulic breather periodically.

IMPORTANT: If the tractor is used continuously in dusty conditions, the breather must be changed more frequently.



1. Hydraulic breather
2. Hydraulic breather bracket nuts
3. Hydraulic breather hose

1. **Unscrew the hydraulic breather bracket nuts.**
2. **Pull the hydraulic breather bracket to the side.**

   The hydraulic breather can be pulled to the side from the hydraulic breather hose.
3. **Unscrew the old breather.**
4. **Tighten the breather by hand.**
5. **Fit the hydraulic breather bracket.**
6. **Tighten the hydraulic breather bracket nuts.**

   Tightening torque for the nuts is 10 Nm.

4.7.5.11 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 1200 operating hours.

4.7.6 Maintenance every 2400 hours or every other year

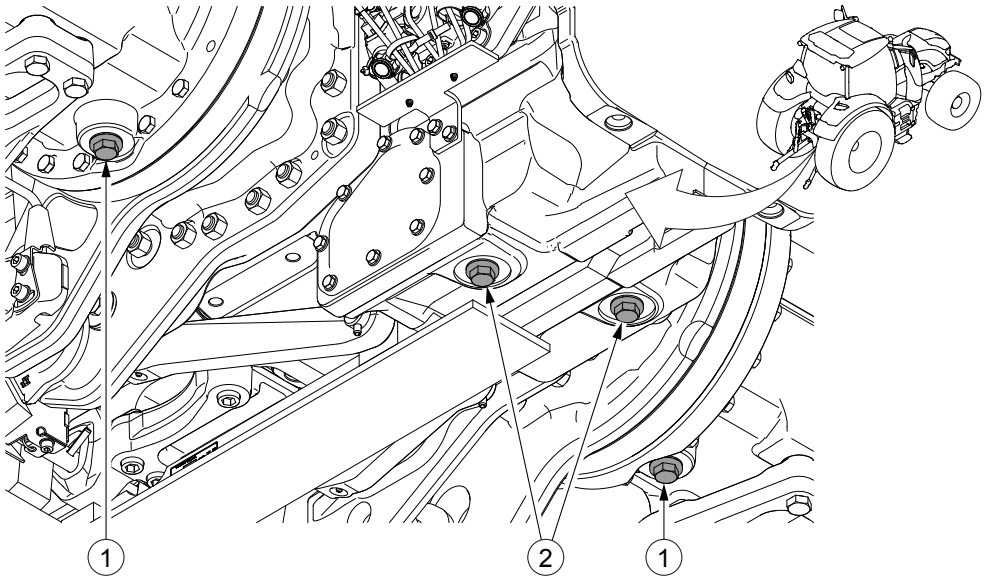
4.7.6.1 Changing oil in the transmission system

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.

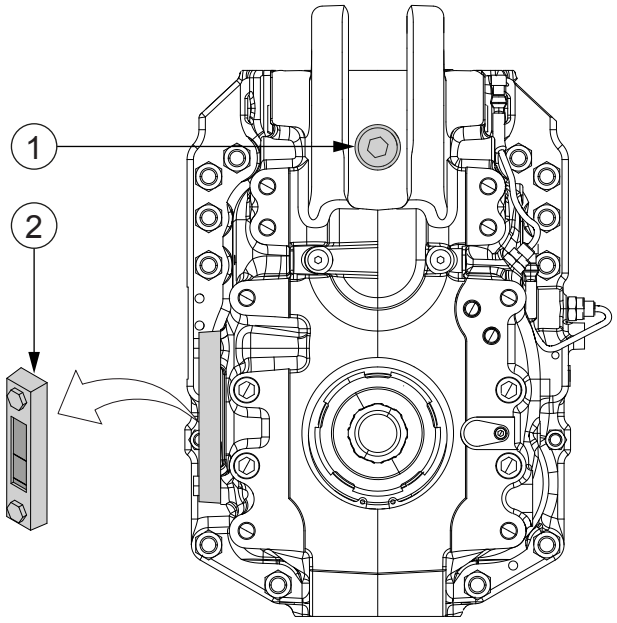
2. **Remove the drain plugs under the gearbox and final drives.**



1. Final drives drain plugs
2. Gearbox drain plug

3. **Drain the oil into a suitable container.**
4. **Clean and refit the plugs.**
5. **Clean the suction strainer.**
6. **Change the transmission oil filters.**

7. **Fill the oil through the filler cap.**



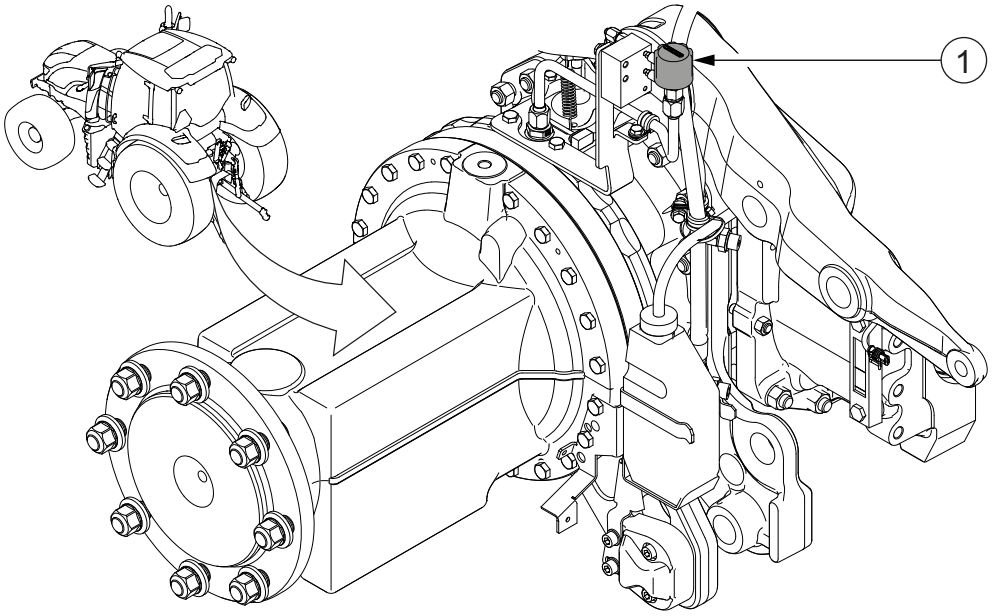
1. Transmission oil filling plug
2. Transmission oil level gauge

8. **Check that the oil level is between the marks.**
9. **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.

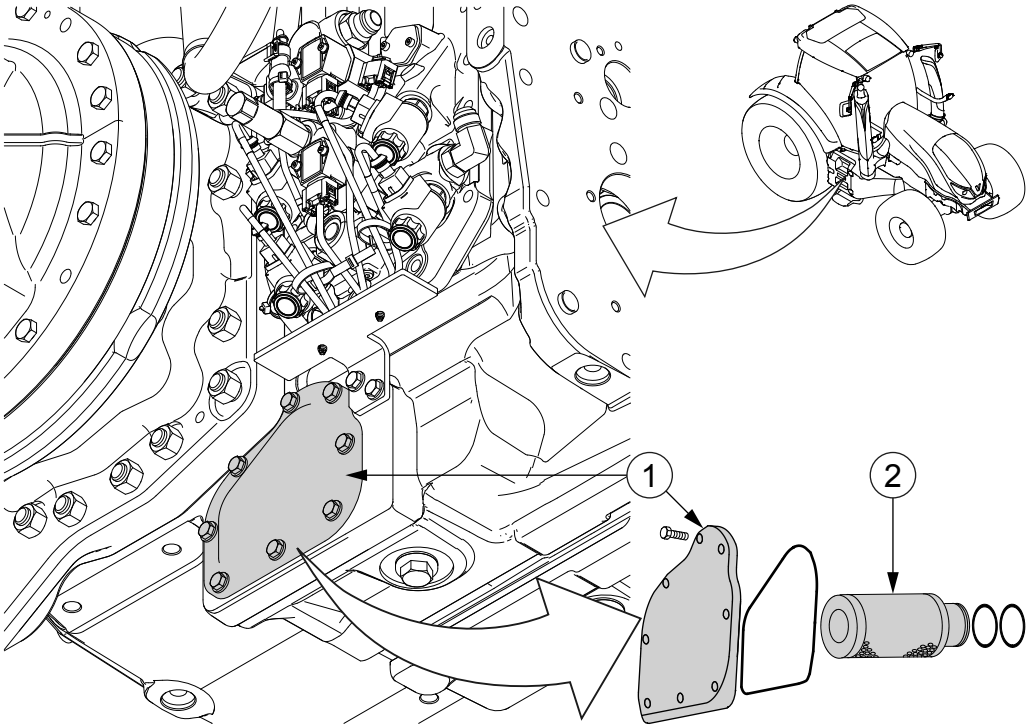


1. Breather

1. **Unscrew the old breather.**
2. **Lubricate the seal on the new breather.**
3. **Tighten the breather by hand.**

4.7.6.3 Cleaning the suction strainer

Drain the oil from the transmission.



1. Suction strainer cover
2. Suction strainer

1. **Remove the suction strainer cover.**
2. **Wipe off any oil which has run out on the chassis.**
3. **Clean the suction strainer in diesel fuel.**

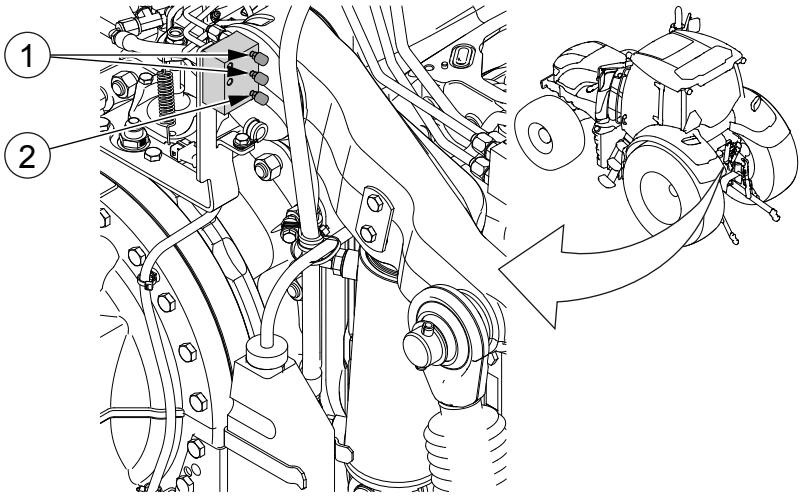
   Replace the suction strainer if it is damaged.
4. **Dry the suction strainer with compressed air.**
5. **Refit the suction strainer, gaskets and cover.**

Fill the transmission with oil.

4.7.6.4 Bleeding the brake system

The 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.

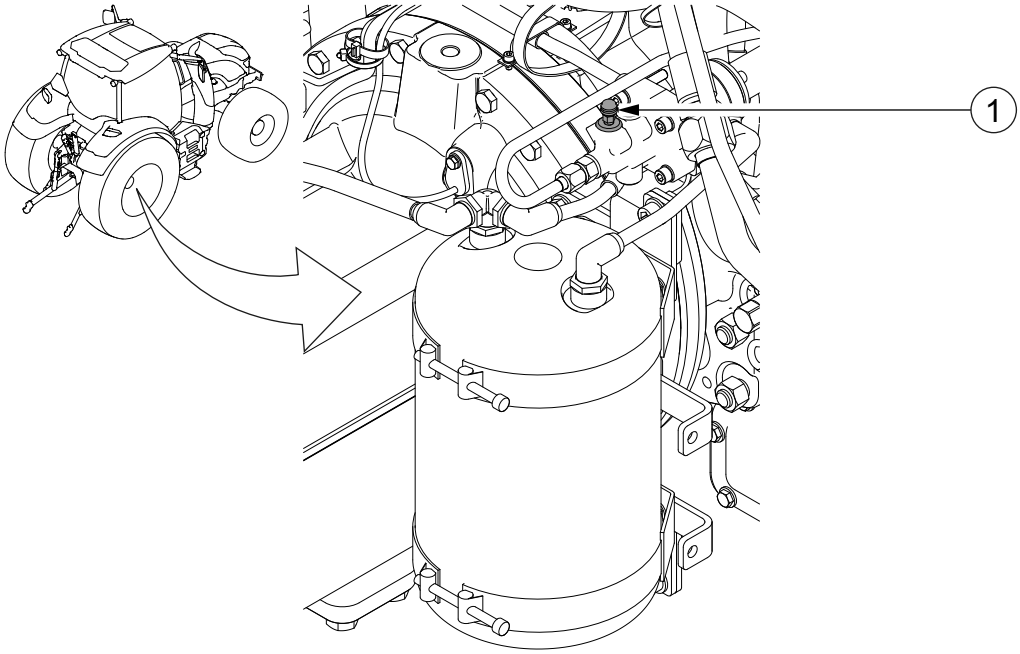
https://truckmanualshub.com/



1. Bleeding nipple of the tractor brake cylinder
2. Bleeding nipple of the tractor hydraulic brake valve of the trailer

Both brake pedal circuits of the tractor brake cylinder, right and left, have their own bleeding nipple. The nipples are placed on the bleed plate on top of the left axle housing.

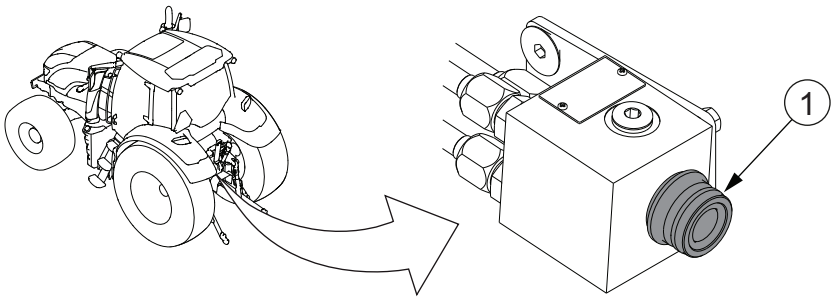
The nipple of the tractor hydraulic brake valve of the trailer (extra equipment) is also placed on the bleed plate on top of the left axle housing.



1. Bleeding nipple of the trailer air pressure brakes

The control valve of the trailer air pressure brakes (extra equipment) is situated on the right side under the cab on the air pressure reservoir.

1. **Connect a trailer or a quick coupler with plug to the quick coupling for hydraulic trailer brakes (optional).**



1. Quick coupling for the trailer brakes (ISO 5676)

DANGER: The quick coupling for hydraulic trailer brakes must be connected when bleeding the brakes. If the quick coupling is not connected, the brakes will not be bled. This will cause the brakes to malfunction.

2. **Start the tractor and let it run for approximately three minutes.**

   This ensures that the oil from the pump is completely free from air.

3. **Lock the brake pedals together.**

4. **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 onto the ground.

5. **Pump the pedals slowly until there are no air bubbles in the oil.**

6. **Close the bleeding nipples.**

7. **Check that the pedal free travel is the same on both wheels.**

   Check the free travel while driving with the pedals latched together.

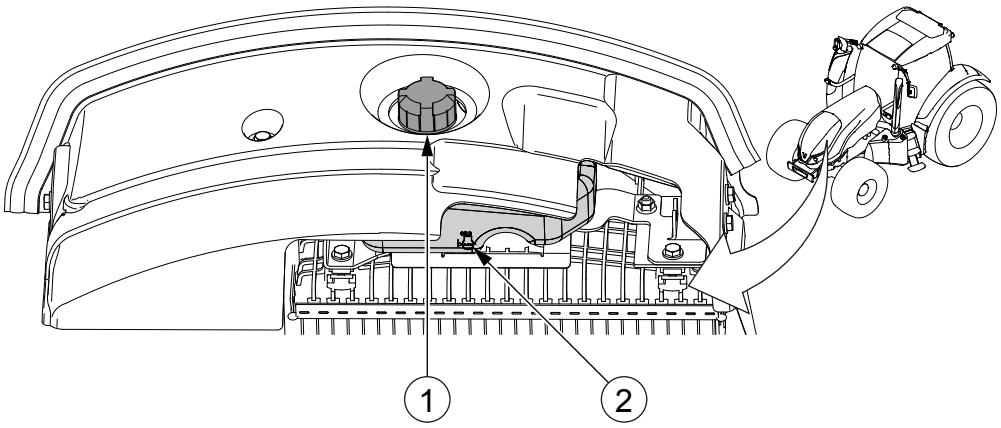
8. **Check the free travel on the rear brake pedal.**

   The reverse drive system is extra equipment.

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4.7.6.5 Cleaning the cooling system

Clean the cooling system periodically.



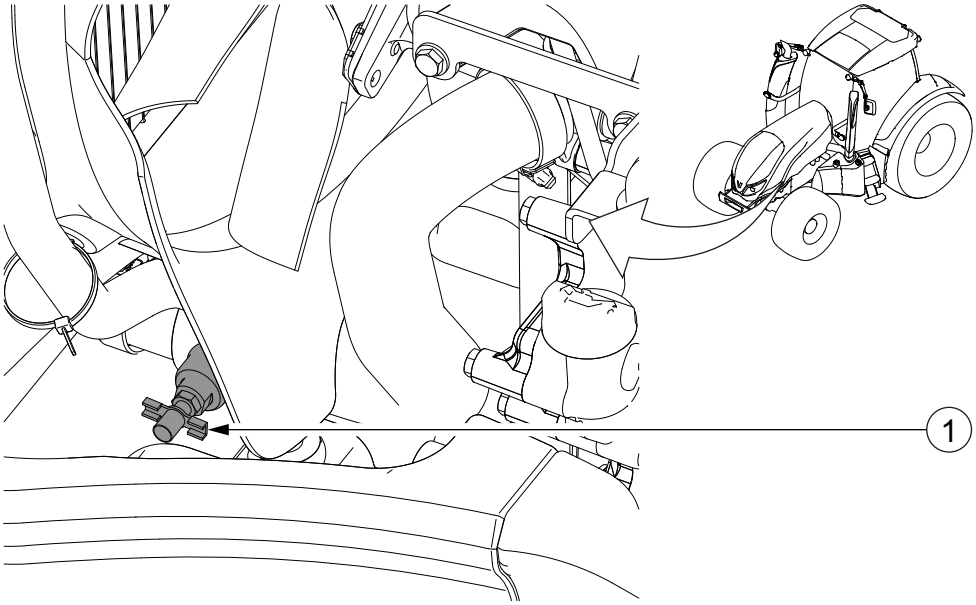
1. Cap of the expansion tank
2. Cold fluid level mark

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.

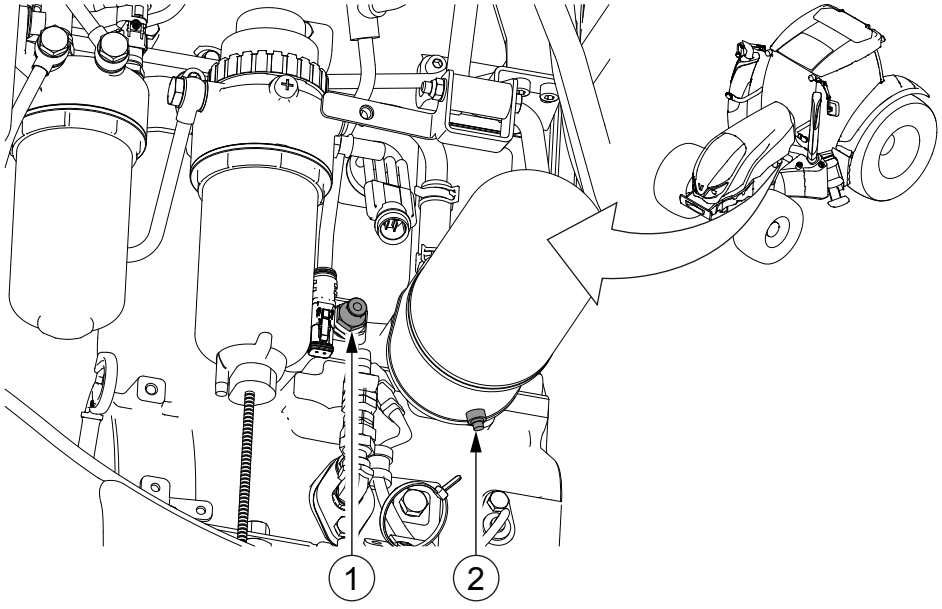
3. **Connect a hose from the radiator draining cock to a clean container and open the plug.**



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 onto the ground!



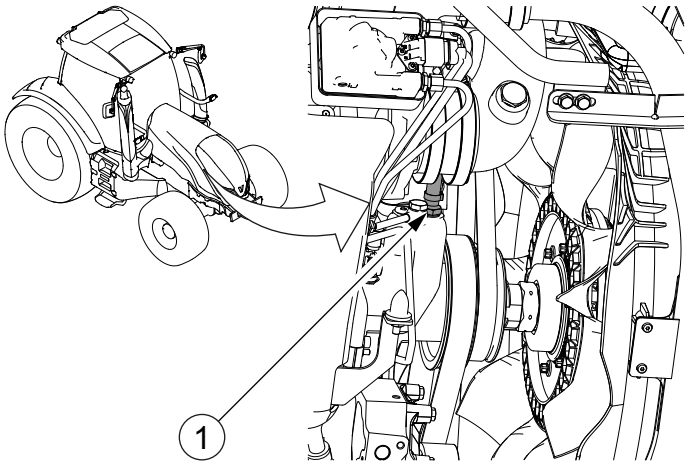
1. Drain cock on the cylinder block
2. Drain plug on the oil cooler

The cooler is located between the engine block and oil filter.

5. **Turn the heater control in the cab clockwise.**

6. **Drain the coolant 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 (Ø 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.

    NOTE: Always use a recommended coolant.

    IMPORTANT: Never fill up with cold fluid while the engine is warm.

    IMPORTANT: Never use only water as coolant.

After changing the fluid, run the engine for a while and check the level of the fluid.

4.7.6.6 Maintaining the air conditioning

Maintain the air conditioning periodically.

IMPORTANT: If the air conditioning system has not been used for a while, free the compressor before starting the engine by rotating the pulley nut with a wrench.

CAUTION: Do not attempt to remove any part of the air conditioning system.

NOTE: Make sure that the compressor starts. At low temperatures, the thermostat prevents the compressor from starting.

- **Do not attempt to repair the air conditioning system.**

  Contact an authorised Valtra workshop if problems occur.
- **Clean the condenser at regular intervals to remove dust, insects and other particles.**
- **Check that there are no leaks in the condenser, evaporator, hoses and couplings.**
- **Check the cleanliness of the outlet pipe of the condensation pipe.**
- **Avoid contact with the refrigerant.**

  WARNING: If 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.
- **It is recommended to change the drying container of the air conditioning condenser after every 2400 hours of operation. Contact an authorised Valtra workshop for changing the drying container.**
- **If the air conditioning is not functioning properly, contact an authorised Valtra workshop for checking of the system.**

4.8 Checks and adjustments

4.8.1 Changing tyres

WARNING: When welding the discs, the tyre must be removed from the rim/disc. There is a danger of explosion.

When selecting tyres, always contact your dealer to ensure the correct transmission ratio for four-wheel drive (4WD).

1. **Change the tyres.**

   IMPORTANT: Change tyres and wheels at a professional tyre workshop.
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.

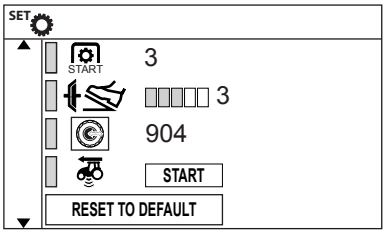
NOTE: If tyres of different dimensions are fitted to the tractor after delivery, the tyre parameter must be reset.

1. **Press ESC button.**
2. **Navigate to the menu 2 with the up and down arrow buttons.**
3. **Press the right arrow button to enter the transmission settings view.**

   NOTE: You can enter the settings view by pressing the push button for tractor terminal transmission settings view.

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. **Change the tyre parameter value with the up or down arrow button.**

   The value is automatically saved when you deactivate the selected field by moving the navigation box to another parameter or by pressing the ESC button.

With a short press of the ESC button you can return to the menu 2. A long press of the ESC button returns to the previously active drive display.

4.8.1.2 Tyre parameters

Tyre	Parameter value
18.4R38 MICHELIN AGRIBIB	837
18.4-38/14 NOKIAN TR FOREST	820
20.8R38 MICHELIN AGRIBIB	871
20.8-38/14 NOKIAN TR FOREST	859
460/85R38 MITAS AC85	840
460/85R38 TRELLEBORG TM600	837
520/70R38 MITAS HC70	833
520/70R38 MICHELIN OMNIBIB	832
520/70R38 TRELLEBORG TM700	820
520/85R38 MITAS AC85	878
520/85R38 TRELLEBORG TM600	877
Table continued on next page	

Tyre	Parameter value
540/65R38 MITAS AC65	799
540/65R38 MICHELIN MULTIBIB	790
540/65R38 TRELLEBORG TM800	797
540/80R38 NOKIAN TRI2	880
580/70R38 MITAS HC70	875
580/70R38 MICHELIN OMNIBIB	866
580/70R38 TRELLEBORG TM700	856
600/65R38 MITAS AC65	836
600/65R38 MITAS SST	830
600/65R38 MICHELIN MULTIBIB	832
600/65R38 TRELLEBORG TM800	829
600/65R38 NOKIAN MULTIPLUS	842
650/60R38 MICHELIN XEOBIB	813
650/65R38 MITAS AC65	862
650/65R38 MITAS SST	863
650/65R38 MICHELIN MULTIBIB	856
650/65R38 TRELLEBORG TM800	859
650/65R38 TRI2 NOKIAN	877
650/65R38 MULTIPLUS NOKIAN	874
650/65R38 NOKIAN FOREST RIDER	878
710/60R38 MICHELIN XEOBIB	852

NOTE:

If the tractor has tyres not listed in the table, the tyre parameter can be calculated with the following formula:

X = Y / (2π)

X = Tyre parameter

Y = Rolling circumference of the tyre

Example:

The rolling circumference of the tyre is 5420 mm.

X = 5420 / (2π) = 863

The tyre parameter for the tyre is 863.

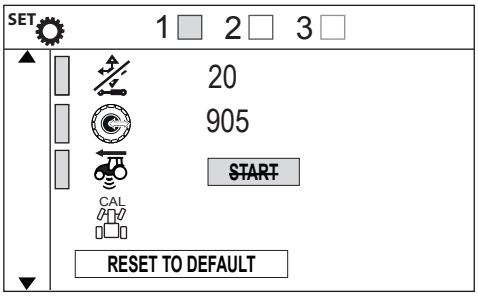
4.8.1.3 Calibrating speed sensors

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. **Press ESC button.**
6. **Navigate to the menu 2 with the up and down arrow buttons.**

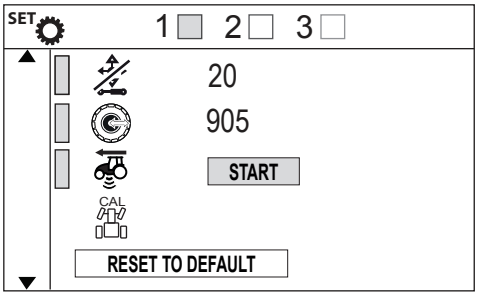
7. **Press the right arrow button to enter the transmission settings view.**

   NOTE: You can enter the settings view by pressing the push button for tractor terminal transmission settings view.

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:



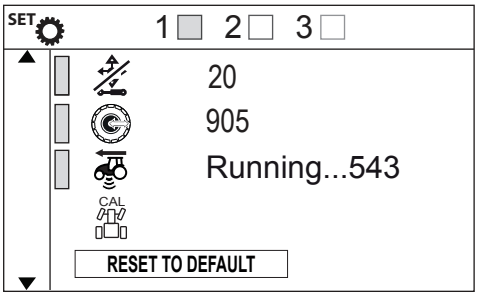
   - If the preconditions for calibrating the speed sensors are met, the following screen is displayed:



9. **Turn the wheels to the middle position.**
10. **Release the brake pedal and clutch pedal.**
11. **Select the forward driving direction.**
12. **Start the calibrating procedure by pressing OK.**

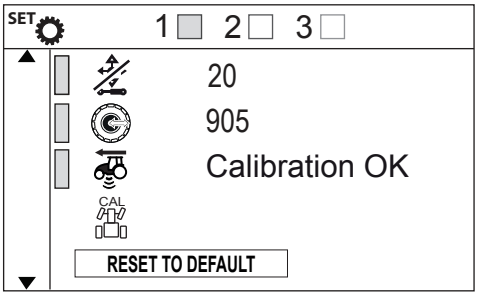
    The tractor automatically selects the optimal gear and engine speed for calibration. The tractor accelerates to the calibrating speed and the engine speed rises to the optimal level of 1700 rpm.

13. **Calibration starts when the driving speed is suitable for calibrating.**
    Forward arrows indicate that the calibration is in process.

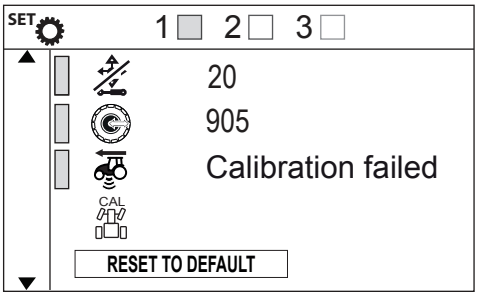


    In order for the calibration to proceed normally, the speed should stabilise within 7 seconds.

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 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.

With a short press of the ESC button you can return to the menu 2. A long press of the ESC button returns to the previously 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 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).

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.

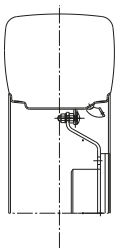
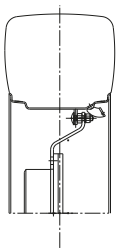
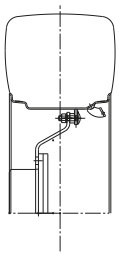
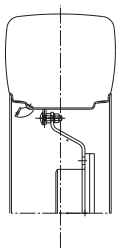
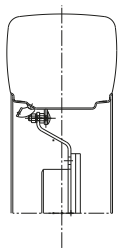
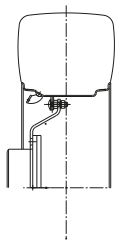
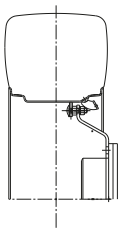
When using narrow track widths for the rear axle, check that the lower links do not touch the tyres. When required, lock the side regulators.

IMPORTANT: According to the EU directives the smallest allowed distance between the side of the tyre and the mudguard is 40 mm and between the top of the tyre to the mudguard is 60 mm.

4.8.2.1 Front axle track widths

The front axle track widths (in mm) are listed in the following tables.

Adjustable discs

							
440/65R28, 16.9R28, 420/70R28, 420/85R28, 480/70R28, 480/65R28	2045	1735	1645	1930	1840	–	2135 [1)]
14.9R28, 380/85R28	2045	1735	1645	1930	1840	–	2135
520/60R28, 540/65R28	2045 [1)]	1735	1645	1930	1840	–	2135 [1)]
13.6R24, 420/70R24, 440/65R24, 480/65R24	1963	1854	1763	1814	1723	–	2054

1) Vehicle overall width over 2 550 mm

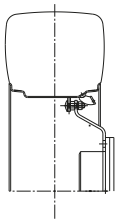
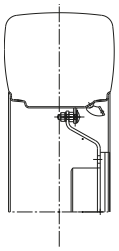
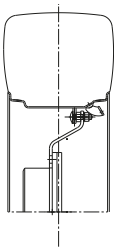
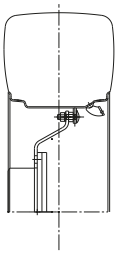
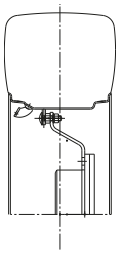
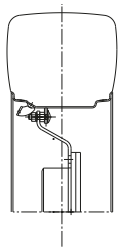
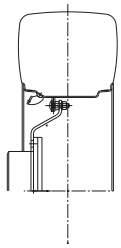
Fixed discs

		Track width	Valve
14.9R28, 16.9R28, 380/85R28, 420/85R28, 540/65R28, 440/80R28, 500/65R28	Standard	1840	Inside
	Wheel turned around	1746	Outside
600/60R28	Standard	1916	Inside
	Wheel turned around	1666	Outside
600/60R28 (Forest Rider)	Standard	1876	Inside
	Wheel turned around	1703	Outside
13.6-24/10, 14.9-24/14, 400/80R24	Standard	1840	Inside
	Wheel turned around	1782	Outside

4.8.2.2 Rear axle track widths

Adjustable discs

The rear axle track widths (in mm) are listed in the following tables.

							
18.4R38, 20.8R38, 460/85R38, 520/70R38	2114 [1]	2012	1714	1612 [2]	1910	1808	–
520/85R38	2122 [1]	2012	1722	1612 [2]	1918	1808	–
540/65R38, 580/70R38, 600/65/R38	2114 [1]	2012 [1]	1714	–	1910	1808	–
650/65R38	2113 [1]	2014 [1]	–	–	1910 [1]	1811	–
650/60R38	2114 [1]	2012 [1]	–	–	1910 [1]	1808	–
540/65R34, 600/65R34 [3]	2107 [1]	2014 [1]	1707	–	1904	1811	–
520/70R34 [3]	2108 [1]	2010	1708	1610 [2]	1908	1810	–
420/85R34 [3]	2108	2010	1708	1610 [2]	1908	1810	1508 [2]

1) Vehicle overall width over 2 550 mm
2) Not allowed with AutoComfort
3) Not allowed with the large fuel tank

Fixed discs

		Track width	Valve
18.4R38, 460/85R38	Standard	1876	Inside
	Wheel turned around	1650	Outside
20.8R38, 520/85R38, 540/80R38, 600/65R38	Standard	1850	Inside
	Wheel turned around	1676	Outside
16.9-34/14, 18.4-34/14, 480/80R34 [1)]	Standard	1884	Inside
	Wheel turned around	1654 [2)]	Outside
650/65R38, 650/65R38 Forest Rider	Standard	1850	Outside
710/60R38	Standard	1830	Outside

1) Not allowed with the large fuel tank
2) Not allowed with AutoComfort

4.8.3 Using chains

Chains can be used on the front wheels only when they are also used on the rear wheels.

IMPORTANT: Use chains only with tyres that are designed for chain usage. Follow the chain manufacturer's installation and user instructions carefully.

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 traction.

1. **Maximum allowed loading of twin-mounted wheels is one tyre multiplied by 1.76.**

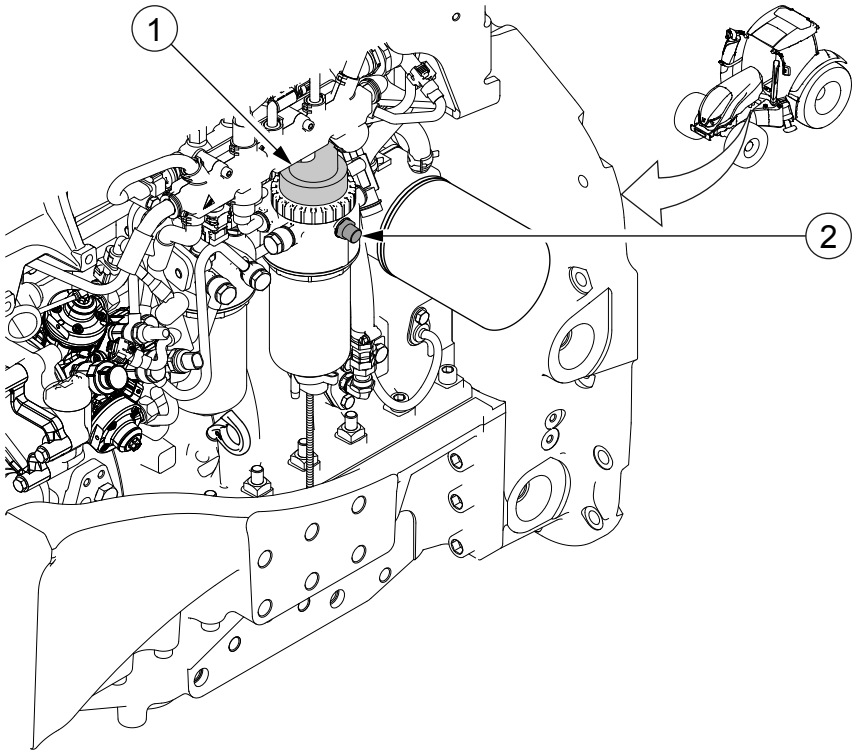
   IMPORTANT: Do not exceed the maximum permitted axle loading even if the tyres allow a heavier load.

2. **If dual/extension wheels are used, check that the tyre size does not exceed the permissible tyre sizes.**
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

After changing the fuel filters or if the engine has ran out of fuel the fuel system has to be bled.



1. Hand pump
2. Bleeding plug

WARNING: Do not work on the common rail high pressure fuel system when the engine is running. Wait at least 30 seconds after stopping the engine. The first high pressure component has to be loosened slowly, so that the pressure inside the fuel system can adjust to ambient pressure. If the jet of high pressure fuel contacts your skin, fuel penetrates the skin causing severe injuries. Get medical help immediately!

WARNING: Only an authorised person is allowed to repair the fuel system.

IMPORTANT: Do not use the hand pump when the engine is running. Do not use any tools or excessive force on the hand pump.

1. **Open the bleeding plug.**
2. **Put a transparent hose in the plug hole and lead it into a suitable container.**

3. **Pump fuel with the hand pump.**

   Continue the pumping until there are no air bubbles in the fuel stream.

4. **Remove the hose and close the bleeding plug.**
5. **Clean the engine of any overspill fuel.**
6. **Start the engine.**

   The fuel system removes automatically the air left in the system.

4.8.6 Electrical system

4.8.6.1 Safety precautions for the electrical system

Follow the safety precautions for the electrical system.

IMPORTANT: Make sure that the main power is turned off before disconnecting or reconnecting the battery.

IMPORTANT: Disconnect the negative lead of the battery first and connect it last.

IMPORTANT: Always connect the battery with the correct polarity.

IMPORTANT: Disconnect the negative battery lead before removing the alternator.

IMPORTANT: Never open the charging circuit while the engine is running.

IMPORTANT: Ensure good ventilation when charging.

IMPORTANT: Do not connect any additional electrical equipment, as this may damage components of the existing electrical system.

IMPORTANT: All electronic equipment is sensitive to electrostatic discharge (ESD). Take all necessary measures to minimize or eliminate the risk of equipment being damaged by ESD.

4.8.6.2 Checking the battery

Check and clean the battery on a regular basis.



DANGER: Avoid sparks or naked flames near the battery. The battery gives off an explosive hydrogen gas! The battery electrolyte is corrosive.

- **Check that the fan belts are correctly tightened.**

- **Keep the battery clean.**

  Wash it with lukewarm water after removal from the tractor.
  IMPORTANT: Always disconnect the negative lead before washing.

- **Clean the pole studs, the cable terminals and the battery retainer thoroughly.**

  Wash off oxidised spots with water. Wipe the outside of the battery when it is clean, and coat the pole studs and the cable terminals with petroleum jelly.

- **Refit the battery.**

  IMPORTANT: Always connect the positive lead first.
  - **Fit the cable terminal onto the pole stud.**
  - **Tap the cable terminal lightly with a screwdriver handle or a similar insulated tool to fully connect the cable terminal.**
  - **Tighten the cable terminal.**

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.

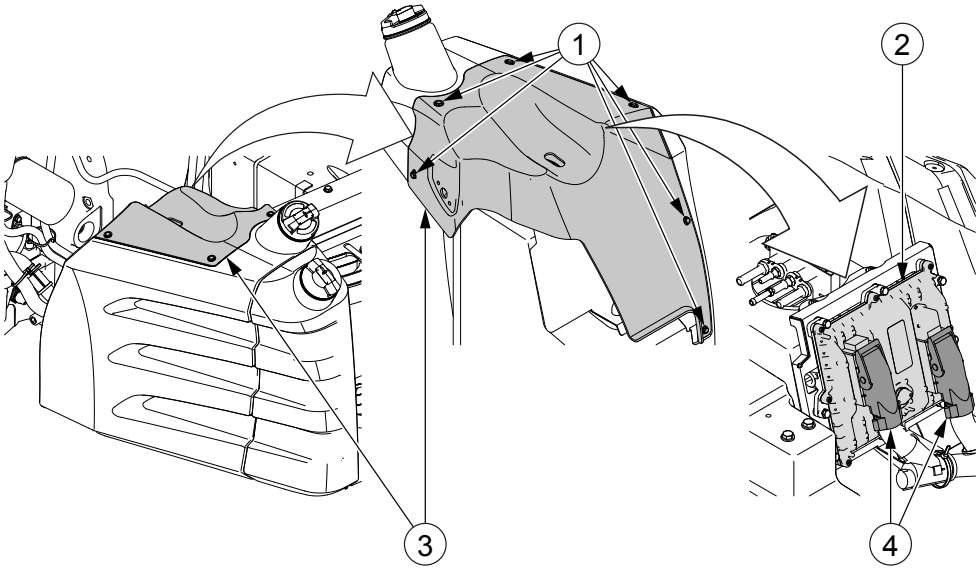
1. **Disconnect the battery leads.**

   Disconnect the negative lead first.
   IMPORTANT: Make sure that the main power is turned off before disconnecting or reconnecting the battery.

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 fastening screws
2. Engine control unit
3. Engine control unit cover
4. Engine control unit connectors

4. **Disconnect the engine control unit connectors.**

   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

There are 4 electric centres. The relays related to specific fuses are located in the electric centres. Other relays are placed outside the electric centres.

The electric centres must always be kept clean. If a fuse blows, the fault must be traced and repaired.

IMPORTANT: Fuses must not be replaced with new ones of higher rating as this may damage the electrical equipment.

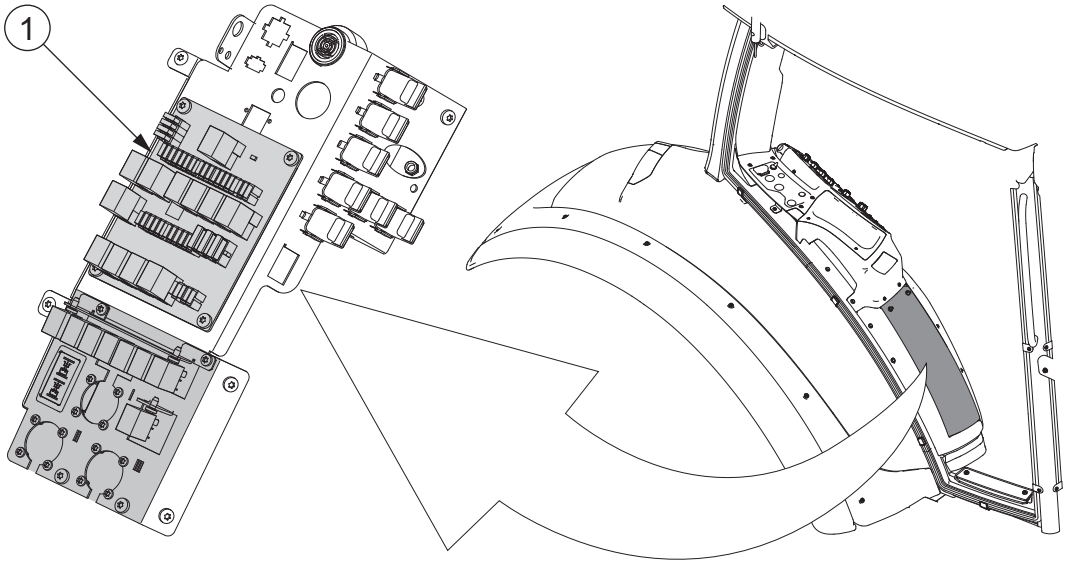
IMPORTANT: Always use original AGCO Parts fuses.

Power for extra equipment can be taken from the spare fuses or unused extra equipment fuses. A current source for extra equipment can be connected to the reserve fuse on the main electric centre. The current is then switched off with the main switch.

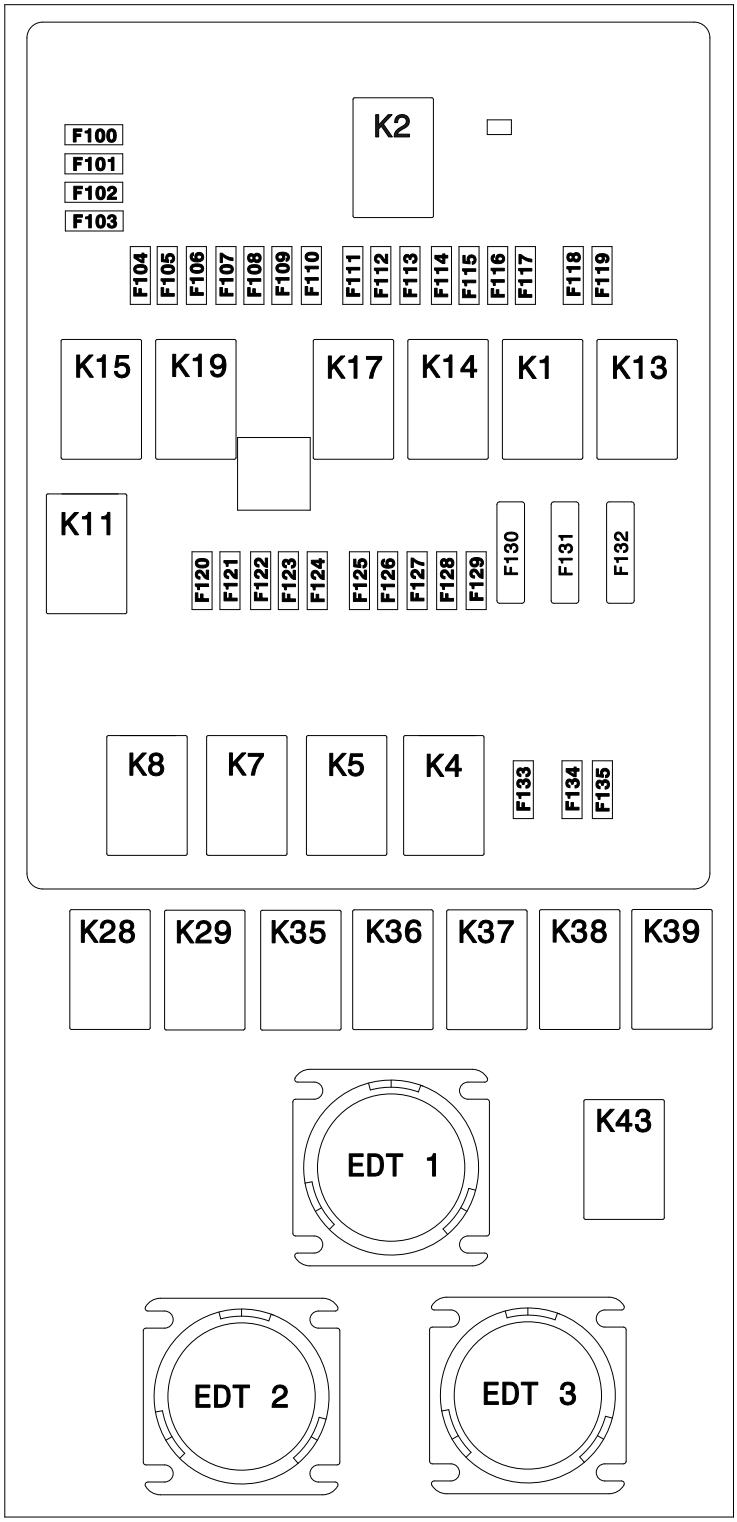
4.8.6.6 Fuses and relays in the cab electric centre

The fuses and relays in the cab electric centre are listed in the following tables.

The fuse diagram is on the reverse side of the electric centre cover. There is space for spare fuses. The cab electric centre contains 36 fuses and the nominal current rating of these fuses is 5-25 A.



1. Cab electric centre



Fuse	Nominal current	Description
F100	10A	Reserve
F101	10A	Parking lights right
F102	10A	Parking lights left
F103	15A	Windscreen wiper, light ensure
F104	15A	Seat heater
F105	10A	AutoComfort, TwinTrac, front axle suspension, SECU

Table continued on next page

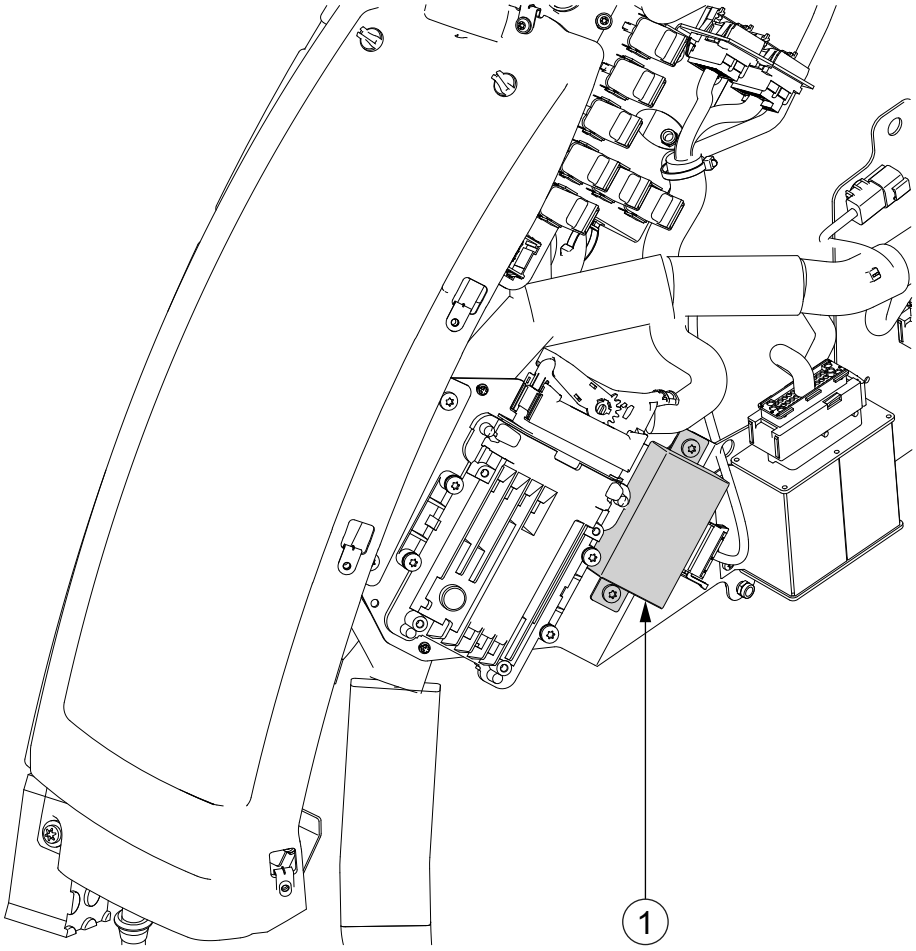
Fuse	Nominal current	Description
F106	10A	Semi-automatic range gear, power shuttle lever
F107	15A	Speed and pressure sensors
F108	15A	Front loader
F109	10A	ON/OFF valves, transmission sensors, A-pillar display
F110	10A	IO1, IO2
F111	5A	3-pin current socket, TopDock
F112	5A	Proline instrument panel, direction indicators
F113	5A	Tractor terminal, armrest
F114	10A	Additional heater
F115	10A	Side window wiper
F116	10A	Reserve
F117	10A	Isoadapter, TECU, safety camera
F118	5A	Memory
F119	10A	Reserve
F120	10A	Reserve
F121	10A	Reserve
F122	10A	AutoComfort, accessory power, SECU
F123	10A	CAN valves
F124	10A	Power switch / U-pilot controlled 2-pin current socket
F125	10A	Tractor terminal, transmission sensors, diagnostics sockets, TECU, TC
F126	10A	Brake pedals
F127	15A	Hazard lights
F128	10A	Brake lights
F129	10A	2–pin current sockets
F130	25A	3–pin current sockets
F131	5A	Light switch
F132	25A	TC, IO1, IO2, PTO control panel, air pressure gauge
F133	15A	Trailer socket
F134	15A	Selecto 4
F135	15A	Selecto 3

Relay	Description
K1	Brake lights
K2	Cab light (follow-me-home light)
K4	CAN valves
K5	Courtesy lights, main switch
K7	Reserve
K8	Reserve
K11	Light ensure
K13	Power switch / U-pilot controlled 2-pin current socket
K14	Auxiliary relay +15
K15	Parking lights
K17	Auxiliary relay +15
K19	Auxiliary relay +15
Table continued on next page	

Relay	Description
K21	Direction indicator [1]
K22	Window wiper [2]
K28	ON/OFF valve in
K29	ON/OFF valve out
K31	ISOBUS power [1]
K33	ISOBUS control unit power [1]
K34	Side window wiper [3]
K35	Bucket release
K36	Softdrive
K37	Selecto 3
K38	Selecto 4
K39	Front linkage / front loader
K40	ISOBUS CAN split relay [1]
K41	Side window wiper [3]
K43	Main power switch safety isolation
K100	Additional heater speed 1 [2]
K101	Additional heater speed 2 [2]

1) Placed in side panel.
2) Placed in front console.
3) Placed under the side window wiper cover.

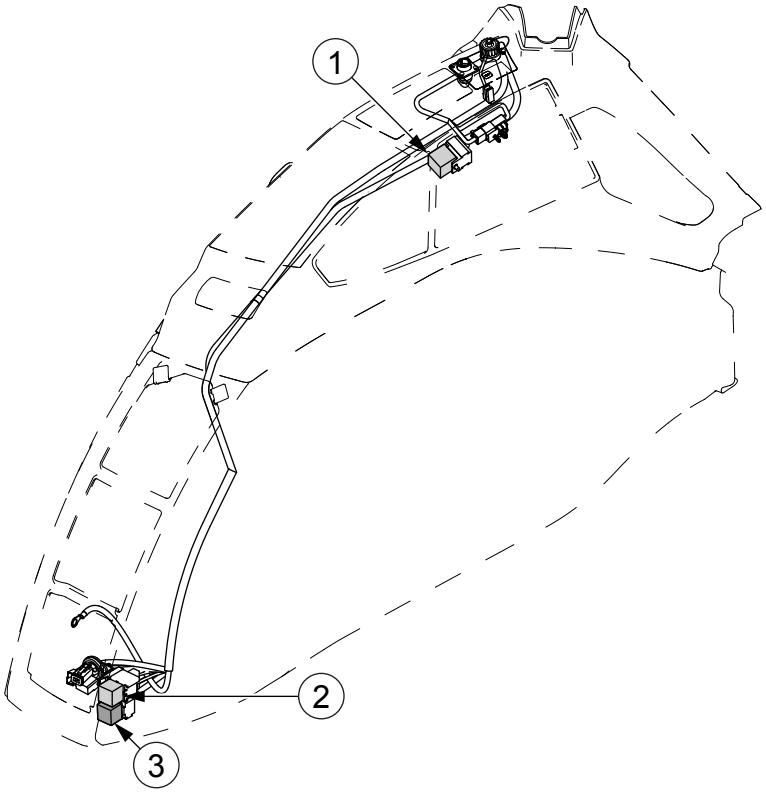
Location of relay K21



1. Relay K21

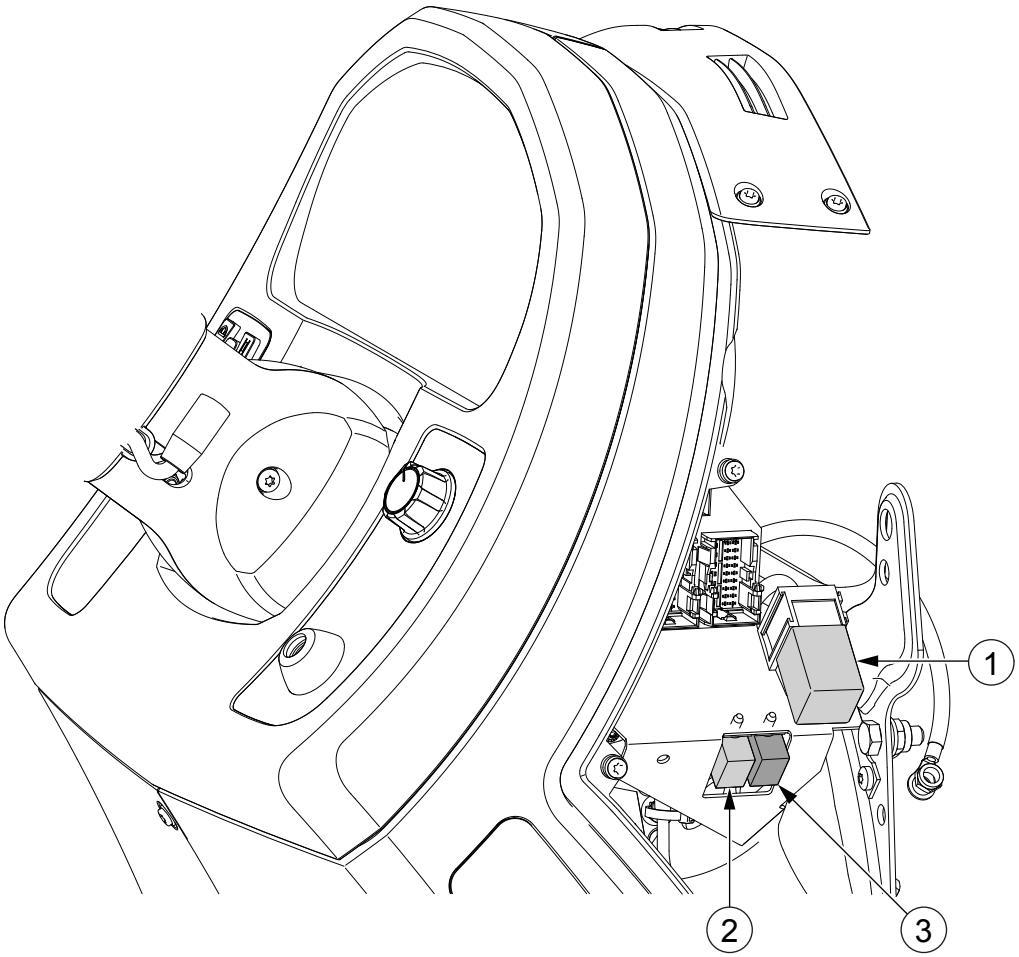
Location of relays K31, K33 and K40

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1. Relay K40
2. Relay K31
3. Relay K33

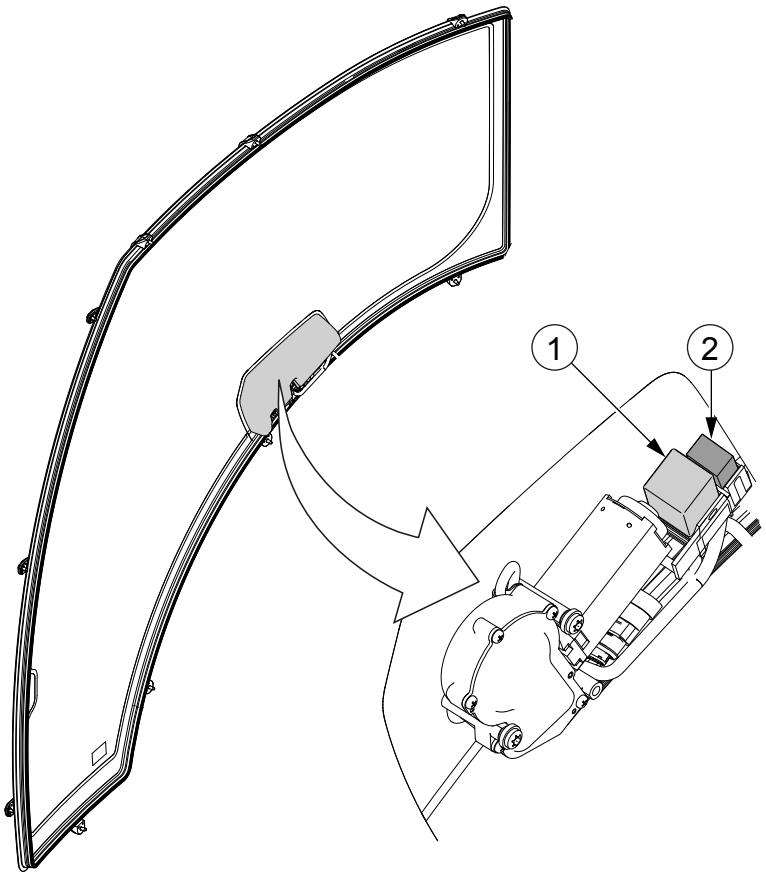
Location of relays K22, K100 and K101



1. Relay K22
2. Relay K101
3. Relay K100

Location of relays K34 and K41

https://truckmanualshub.com/

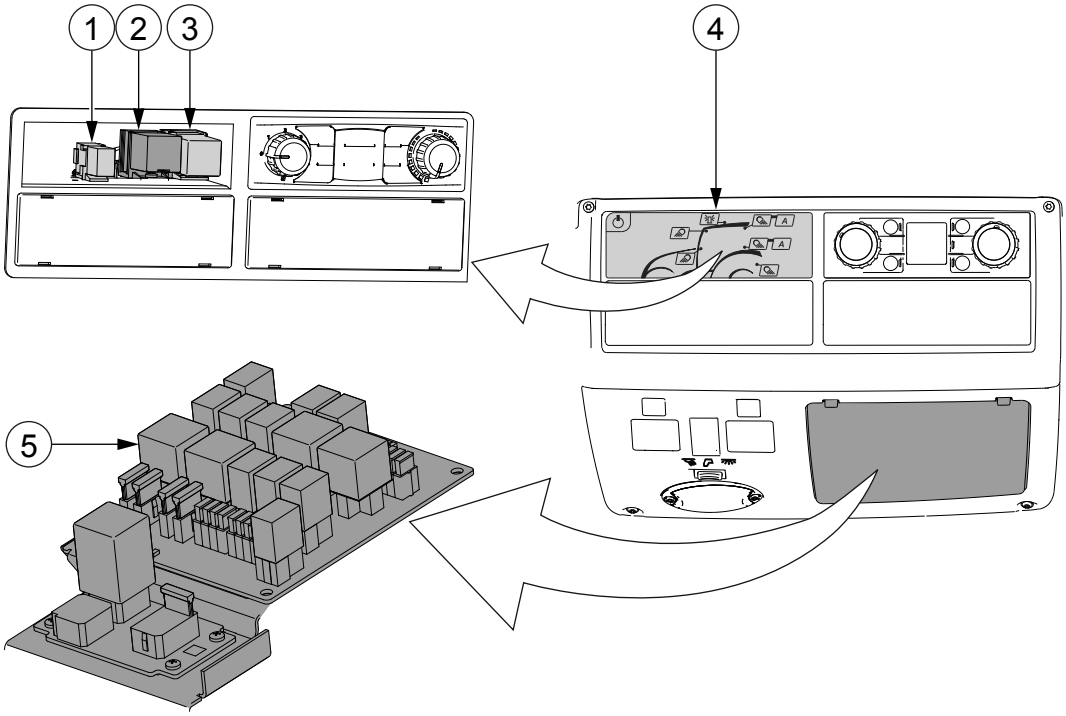


1. Relay K34
2. Relay K41

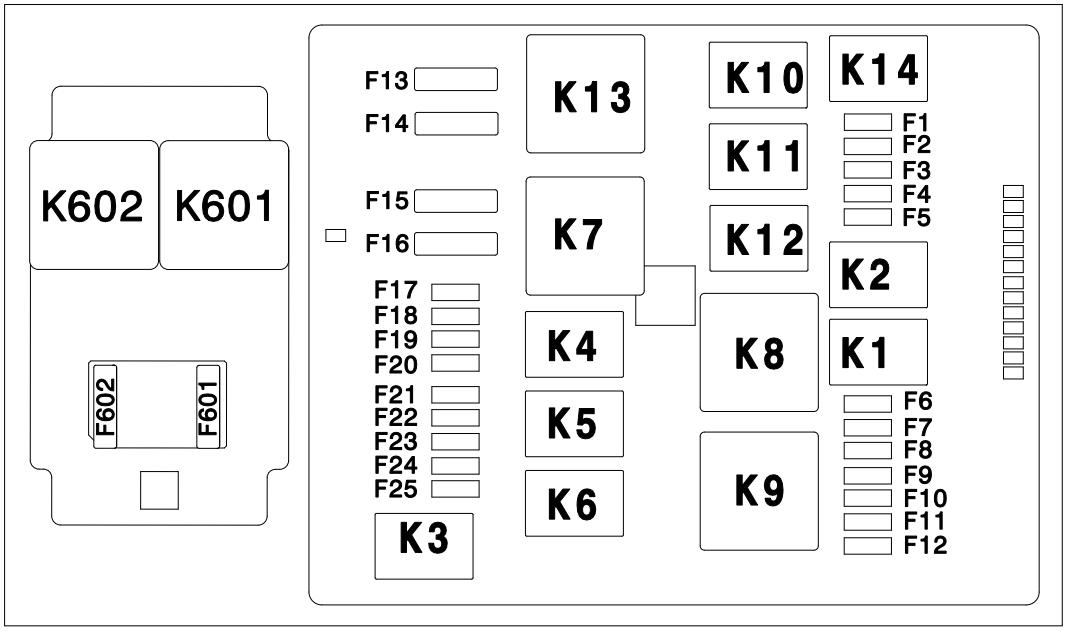
4.8.6.7 Fuses and relays in the roof electric centre

The fuses and relays in the roof electric centre are listed in the following tables.

The fuse diagram is on the reverse side of the electric centre cover. There is space for spare fuses. The roof electric centre contains 27 fuses and the nominal current rating of these fuses is 5-30 A.



1. Relay K26
2. Relay K56
3. Relay K25
4. Light panel
5. Roof electric centre



Fuse	Nominal current	Description
F1	10A	Rotary beacon
F2	15A	Reserve
F3	15A	Rear waist working lights
Table continued on next page		

Fuse	Nominal current	Description
F4	15A	Front waist working lights
F5	15A	Upper headlights high beams
F6	15A	Upper headlights dipped beams
F7	15A	Rear working lights left
F8	15A	Rear working lights right
F9	15A	Front working lights left
F10	15A	Front working lights right
F11	15A	Reserve
F12	15A	Reserve
F13	15A	Radio, subwoofer, coolbox
F14	25A	Automatic HVAC fan supply
F15	30A	Manual HVAC supply
F16	10A	Automatic HVAC control panel
F17	10A	Rear window wiper
F18	10A	Reserve
F19	10A	Mirrors, tachograph
F20	15A	Reserve
F21	10A	Window heating control
F22	10A	Reserve
F23	10A	Automatic HVAC control panel
F24	5A	Light panel
F25	10A	Trailer hitch light
F601	30A	Rear window heater
F602	30A	Windscreen heater

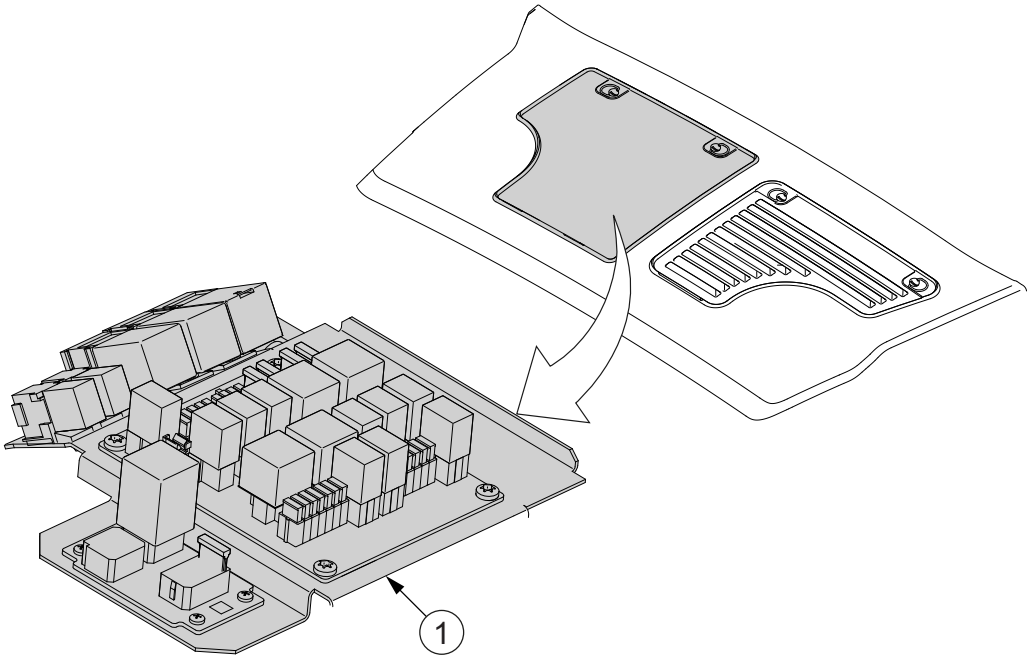
Relay	Description
K1R	Upper headlights dipped beams
K2R	Upper headlights high beams
K3R	Trailer hitch light
K4R	Auxiliary relay +15
K5R	Auxiliary relay +15
K6R	Auxiliary relay +15
K7R	Manual HVAC supply
K8R	Rear working lights
K9R	Front working lights
K10R	Reserve
K11R	Rear waist working lights
K12R	Front waist working lights
K13R	Accessory power, radio, coolbox, subwoofer, cab light
K14R	Rotary beacon
K601	Rear window heater
K602	Windscreen heater
K25	Rear window wiper intermittent [1)]
K26	Rear window wiper brake [1)]
K56	Cab light delay [1)]

1) Placed behind the light panel.

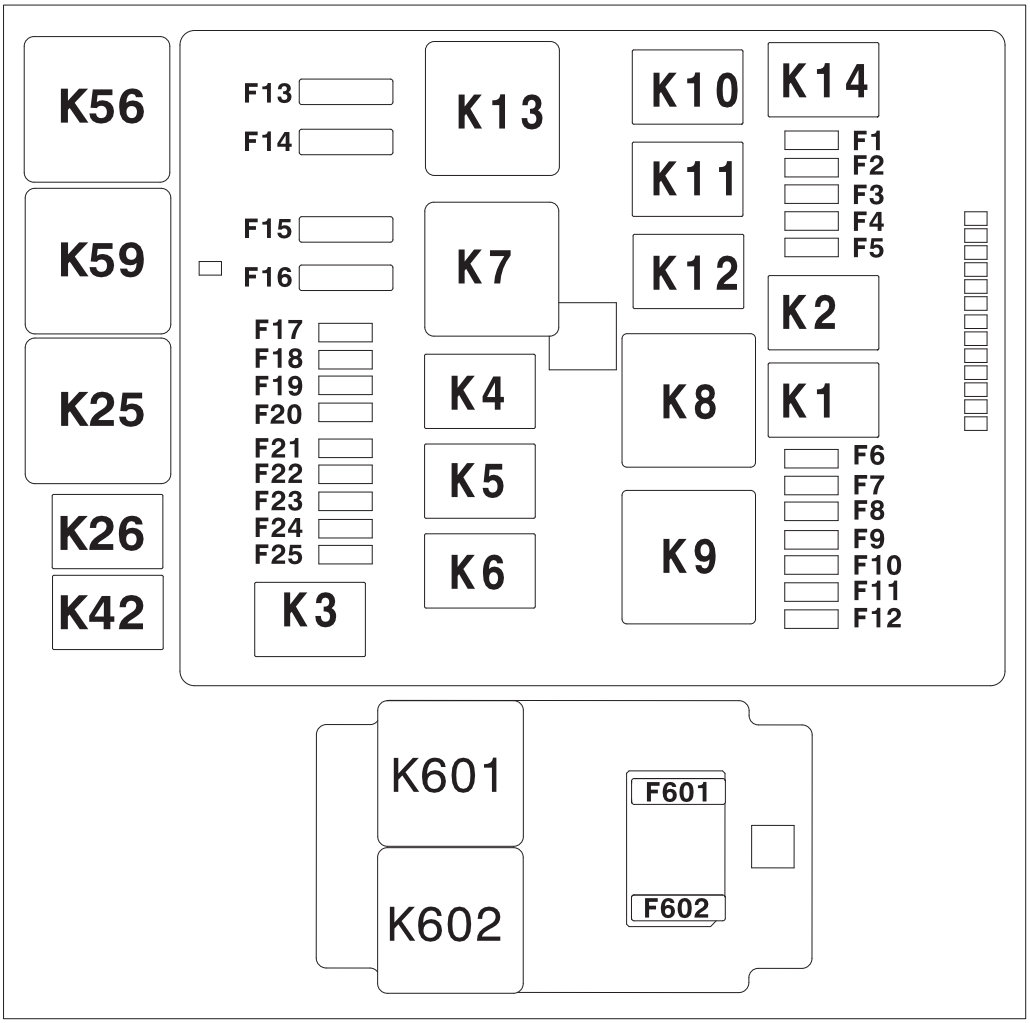
4.8.6.8 Fuses and relays in the Skyview equipment roof electric centre

The fuses and relays in the Skyview equipment roof electric centre are listed in the following tables.

The fuse diagram is on the reverse side of the electric centre cover. There is space for spare fuses. The roof electric centre contains 27 fuses and the nominal current rating of these fuses is 5-30 A.



1. Skyview equipment roof electric centre



Fuse	Nominal current	Description
F1	10A	Rotary beacon
F2	15A	Forest rear working light
F3	15A	Rear waist working lights
F4	15A	Front waist working lights
F5	15A	Upper headlights high beams
F6	15A	Upper headlights dipped beams
F7	15A	Rear working lights left
F8	15A	Rear working lights right
F9	15A	Front working lights left
F10	15A	Front working lights right
F11	15A	Reserve
F12	15A	Reserve
F13	15A	Radio, subwoofer, coolbox
F14	25A	Automatic HVAC fan supply
F15	30A	Manual HVAC supply
F16	10A	Automatic HVAC control panel
F17	10A	Rear window wiper

Table continued on next page

Fuse	Nominal current	Description
F18	10A	Roof window wiper
F19	10A	Mirrors, tachograph
F20	15A	Reserve
F21	10A	Window heating control
F22	10A	Reserve
F23	10A	Automatic HVAC control panel
F24	5A	Light panel
F25	10A	Trailer hitch light
F601	30A	Rear window heater
F602	30A	Windscreen heater

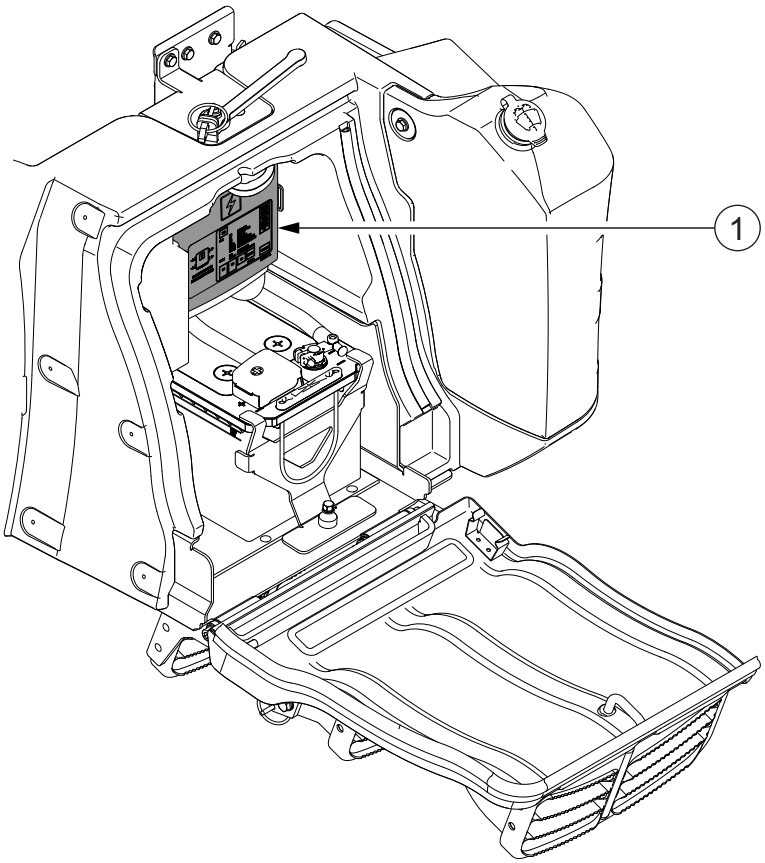
Relay	Description
K1R	Upper headlights dipped beams
K2R	Upper headlights high beams
K3R	Trailer hitch light
K4R	Auxiliary relay +15
K5R	Auxiliary relay +15
K6R	Auxiliary relay +15
K7R	Manual HVAC supply
K8R	Rear working lights
K9R	Front working lights
K10R	Forest rear working light
K11R	Rear waist working light
K12R	Front waist working light
K13R	Accessory power, radio, coolbox, subwoofer, cab light
K14R	Rotary beacon
K601	Rear window heater
K602	Windscreen heater
K25	Rear window wiper intermittent
K26	Rear window wiper brake
K42	Roof window wiper brake
K56	Cab light delay
K59	Roof window wiper intermittent

4.8.6.9 Fuses and relays in the main electric centre

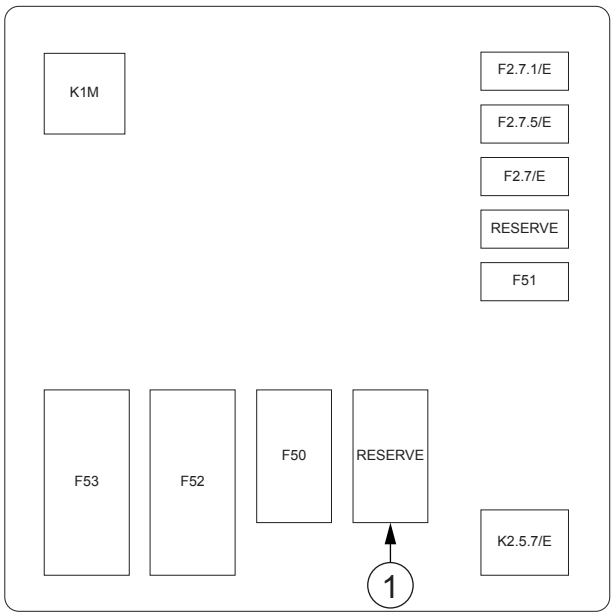
The fuses and relays in the main electric centre are listed in the following tables.

The fuse diagram is on the reverse side of the electric centre cover. The main fuse centre contains 7 fuses and the nominal current rating of these fuses is 5-150 A.

A current source for extra equipment can be connected to the reserve fuse on the main electric centre. The current is then switched off with the main switch.



1. Main electric centre



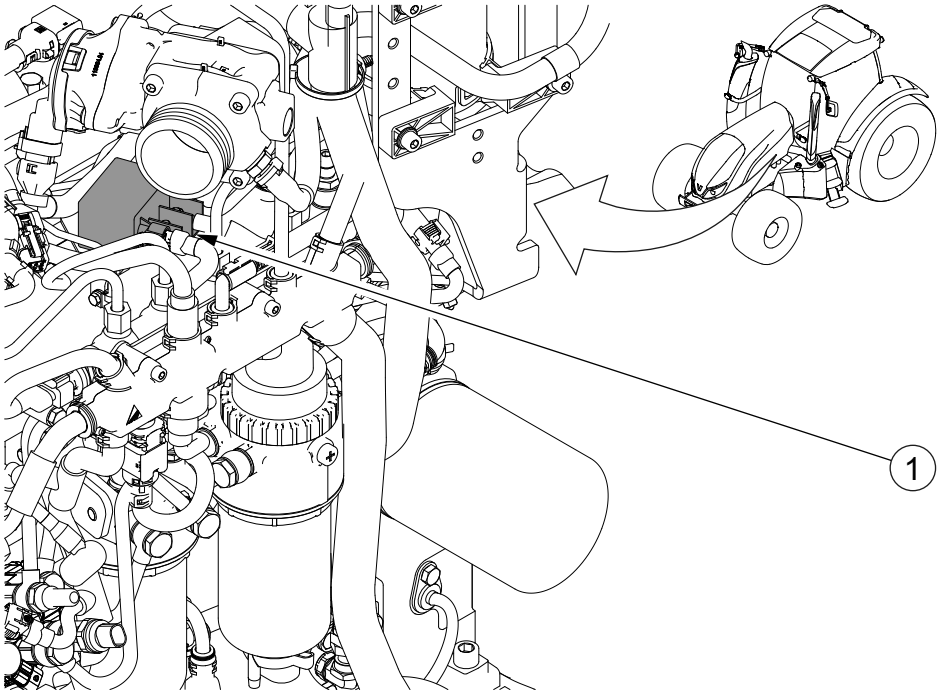
1. A current source for extra equipment

Fuse	Nominal current	Description
F50	60A	ISOBUS power
F51	25A	ISOBUS engine control unit power
F52	125A	Cabin main
F53	150A	Grid heater
F2.7/E	30A	Fuel heater main
F2.7.1/E	5A	Fuel heater actuator
F2.7.5/E	15A	Fuel heater vehicle fan

Relay	Description
K1M	Starter relay
K8M	Grid heater relay [1)]
K2.5.7/E	Fuel heater, HVAC fan

1) Placed on the left side of the engine.

Location of relay K8M



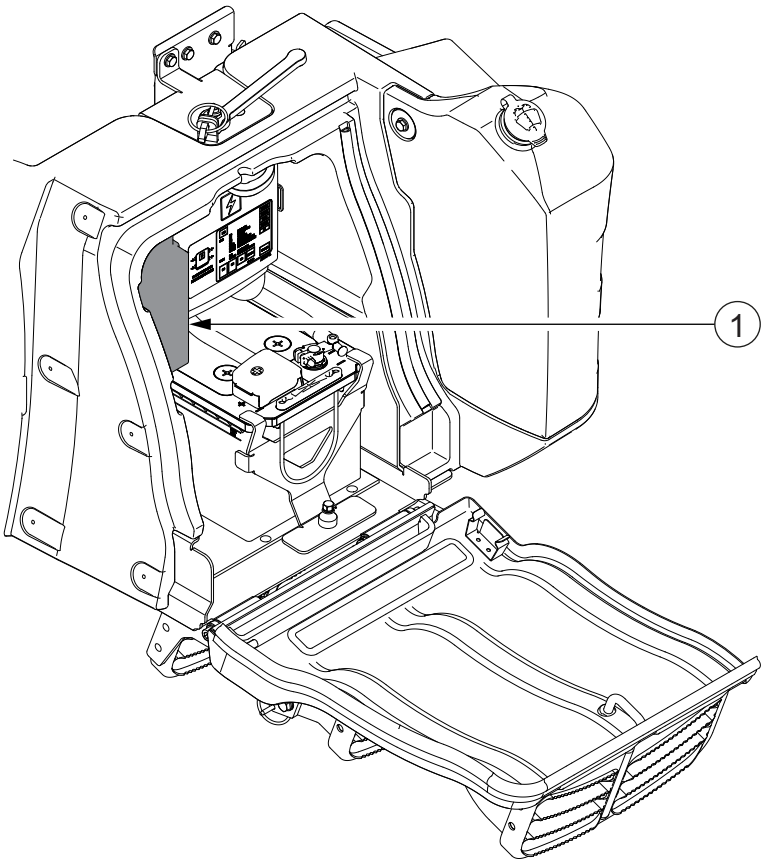
1. Relay K8M

4.8.6.10 Fuses and relays in the engine electric centre

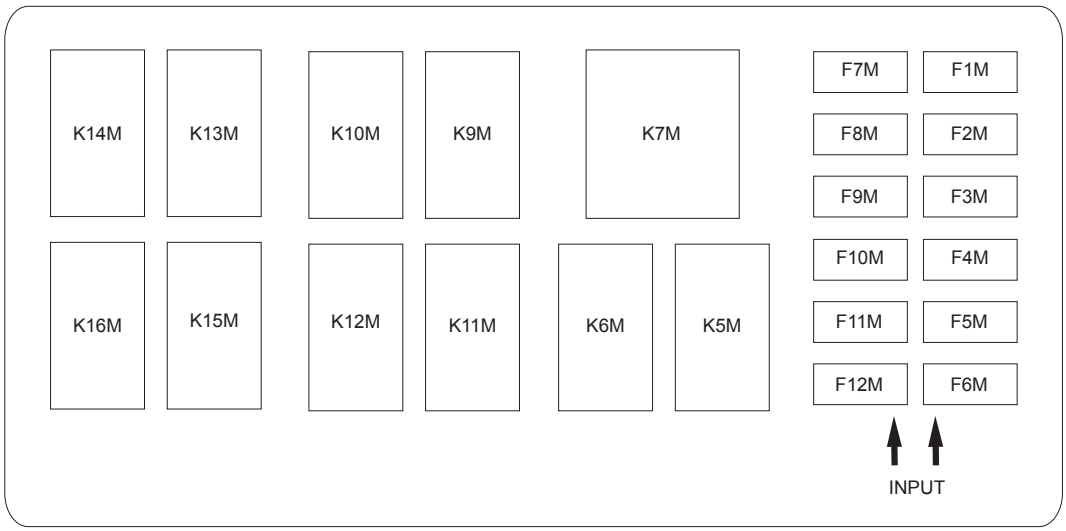
Fuses and relays in the engine electric centre are listed in the following tables.

The fuse diagram is on the reverse side of the electric centre cover. The engine electric centre contains 10 fuses and 2 empty places for spares. The nominal current rating of the fuses is 3-25 A.

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1. Engine electric centre



Fuses	Nominal current	Description
F1M	25A	DEF system heaters
F2M	25A	Engine control unit
F3M	3A	Engine control unit wake up
F4M	15A	Memory voltage
F5M	15A	Dipped beam

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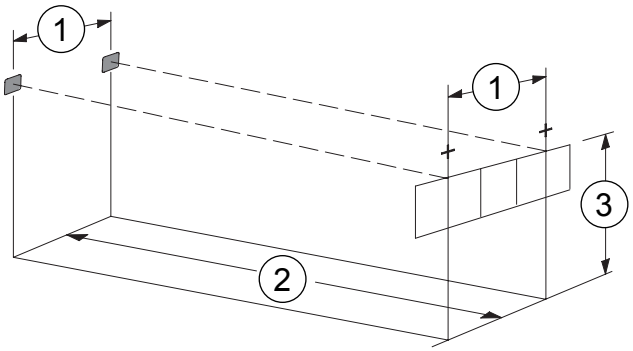
Fuses	Nominal current	Description
F6M	10A	High beam
F7M	10A	NOx sensors
F8M	10A	Waste gate
F9M	-	Reserve
F10M	-	Reserve
F11M	10A	HVAC clutch
F12M	3A	Engine control unit ignition key signal

Relay	Description
K5M	Reserve
K6M	DEF system heating main
K7M	Engine control unit main
K9M	High beam
K10M	Dipped beam
K11M	Reserve
K12M	Engine auxiliary
K13M	Alternator D+ cut off
K14M	Reserve
K15M	Alternator D+ cut off auxiliary
K16M	Compressor clutch control

4.8.6.11 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 beams.**

2. **Measure that the cut-off edge of the beam pattern comes at height of headlights above ground minus 50 mm when the tractor is 5 m from the wall.**
3. **Turn the high beams 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.**

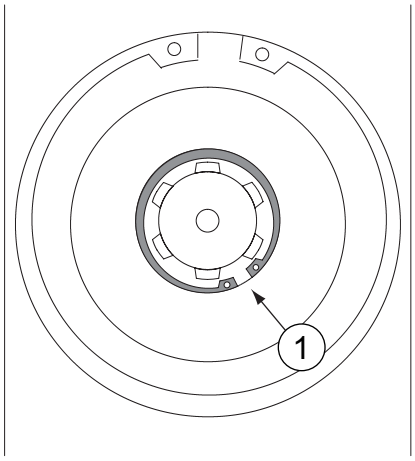
If the tractor has upper headlights (optional), adjust the lights so that the beam pattern hits the ground 30 m away from the tractor. Carry out the measurement on even ground.

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 drive 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.

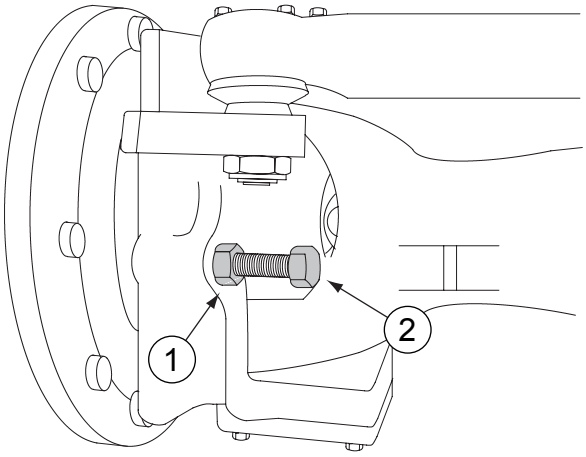
4.8.8 Steering system

4.8.8.1 Adjusting the steering angle

If the tractor is equipped with the electrohydraulic steering valve, the steering angle must be calibrated after it has been adjusted.

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 with full front axle oscillation in both directions and that the front axle and the wheels can turn fully. If necessary, adjust the steering lock stop screws on the powered front axle.

1. **Slacken the locking nut.**



1. Locking nut
2. Adjusting screw

2. **Adjust the adjusting screw.**

   IMPORTANT: Adjust the adjusting screws on both sides to the same length so that the turning angle is the same on both sides.

3. **Tighten the locking nut.**

4.8.8.2 Calibrating the steering angle

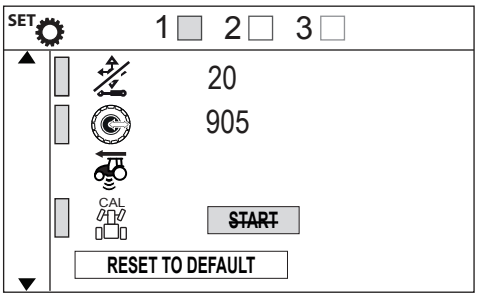
1. **Start the engine.**
2. **Activate the steering valve.**

   You can activate the steering valve by activating TwinTrac (optional equipment) or QuickSteer (optional equipment).

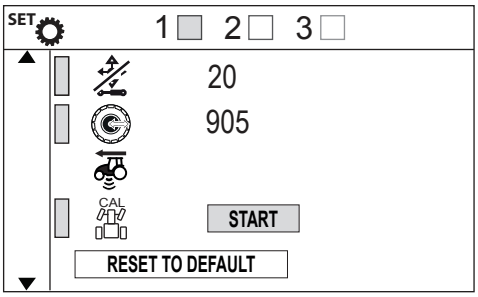
3. **Press ESC button.**
4. **Navigate to the menu 2 with the up and down arrow buttons.**
5. **Press the right arrow button to enter the transmission settings view.**

   NOTE: You can enter the settings view by pressing the push button for tractor terminal transmission settings view.

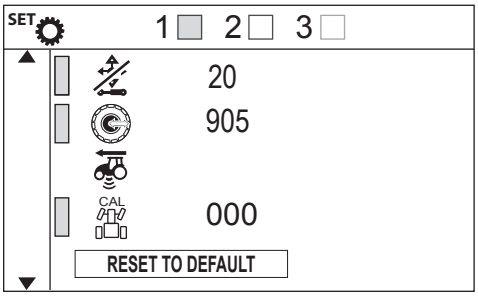
6. **Move the navigation box to the steering angle calibration position CAL with the arrow buttons.**
   - If the preconditions for calibrating the steering angle are not met, the following screen is displayed:



   - If the preconditions for calibrating the steering angle are met, the following screen is displayed:



7. **Turn the wheels to the middle position.**
8. **Start the calibrating procedure by pressing OK.**
   The angle value is displayed.



9. **Turn the steering wheel first to the left steering lock stop and the to the right steering lock stop.**
   Make sure that the angle values behave smoothly.
10. **End the calibrating procedure by pressing OK.**

With a short press of the ESC button you can return to the menu 2. A long press of the ESC button returns to the previously active drive display.

Check the calibration

- Activate TwinTrac or QuickSteer.
- Check that the steering wheel turns easily.
- Turn the steering wheel to the left steering lock stop.

  Check that the front wheels are also turned fully to the left.
- Turn the steering wheel to the right steering lock stop.

  Check that the front wheels are also turned fully to the right.

If the front wheels turn fully during the check, then the calibration has been successful.

If the check fails, then the calibration has been unsuccessful.

If the calibration was unsuccessful, perform the calibration again. If the calibration is still unsuccessful, contact an authorised Valtra workshop.

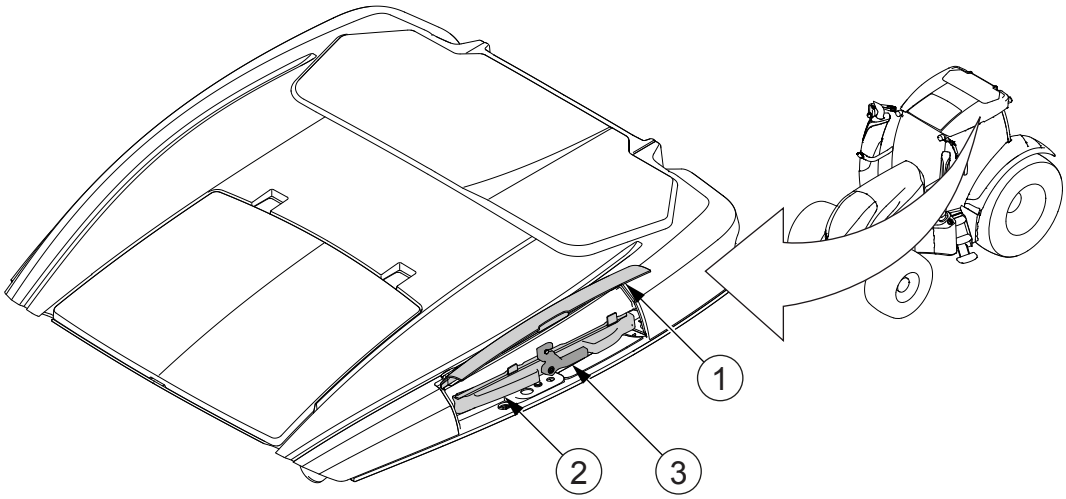
4.8.9 Cab and shields

4.8.9.1 Cleaning the cab ventilation air filter

Check and clean the cab ventilation air filter when necessary.

WARNING: The air filter element does not remove chemicals from the outside air. Follow the instructions of the pesticide manufacturer.

NOTE: In extremely dusty conditions the cab ventilation air filter must be cleaned frequently.



1. Air filter housing hatch
2. Ventilation air filter support frame
3. Ventilation air filter support frame latch

1. **Open the air filter housing from the upper left-hand corner of the cab roof.**
2. **Open the support frame latch.**

3. **Extract the support frame.**
   - **Lower the support frame slightly.**
   - **Pull the support frame outwards.**
4. **Remove the ventilation air filter.**
5. **Check the condition of the ventilation air filter.**

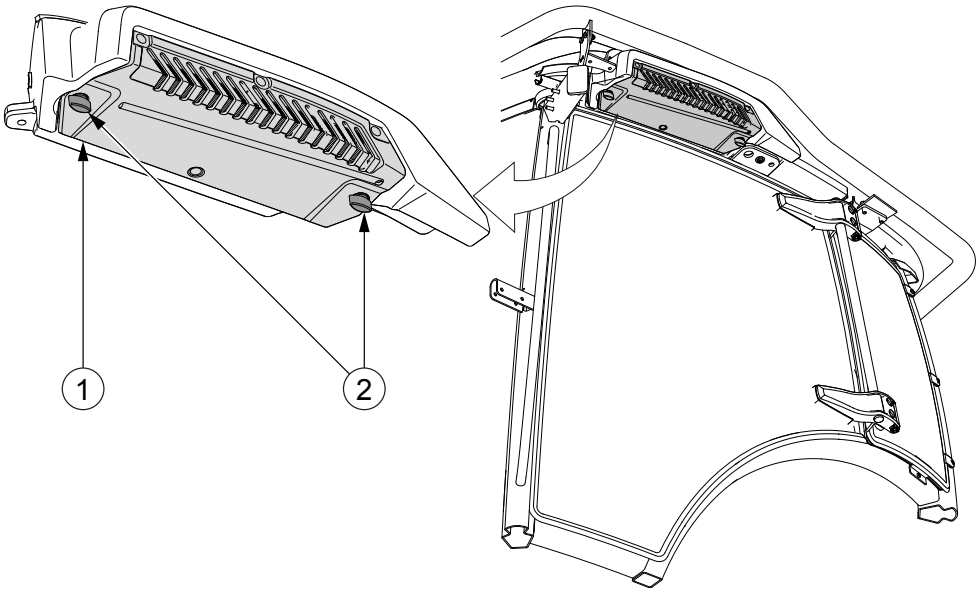
   A damaged ventilation air filter must be changed.
6. **Clean the ventilation air filter.**
   - **Knock the filter element against your palm so that most of the dirt comes off.**
   - **Clean the ventilation air filter with a vacuum cleaner from the dirty side first and then from the clean side or blow it clean with compressed air from the clean side towards the dirty side.**

   IMPORTANT: Make sure that the air pressure is not too high.

4.8.9.2 Cleaning the Skyview equipment cab ventilation air filter

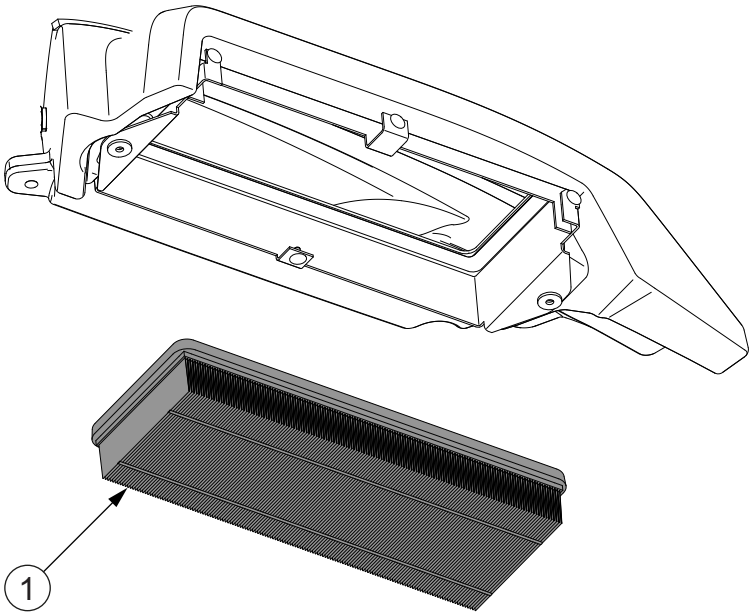
Check and clean the Skyview equipment cab ventilation air filter when necessary.

1. **Open the air filter housing from the upper left-hand corner of the cab roof.**



1. Air filter housing hatch
2. Knurled head screw

2. **Remove the ventilation air filter.**



1. Ventilation air filter

3. **Check the condition of the ventilation air filter.**

   A damaged ventilation air filter must be changed.

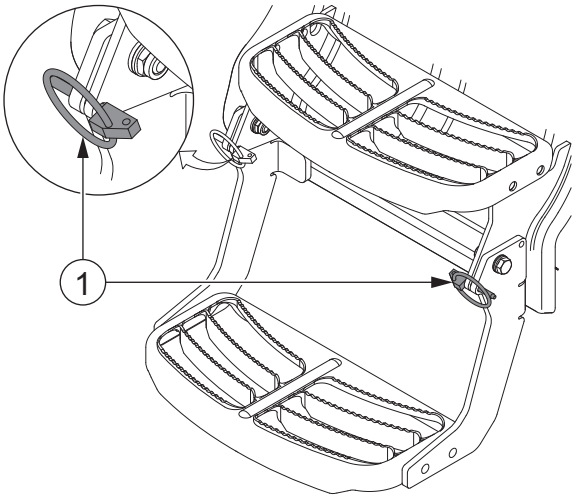
4. **Clean the ventilation air filter.**

   - **Knock the filter element against your palm so that most of the dirt comes off.**
   - **Clean the ventilation air filter with a vacuum cleaner from the dirty side first and then from the clean side or blow it clean with compressed air from the clean side towards the dirty side.**

   IMPORTANT: Make sure that the air pressure is not too high.

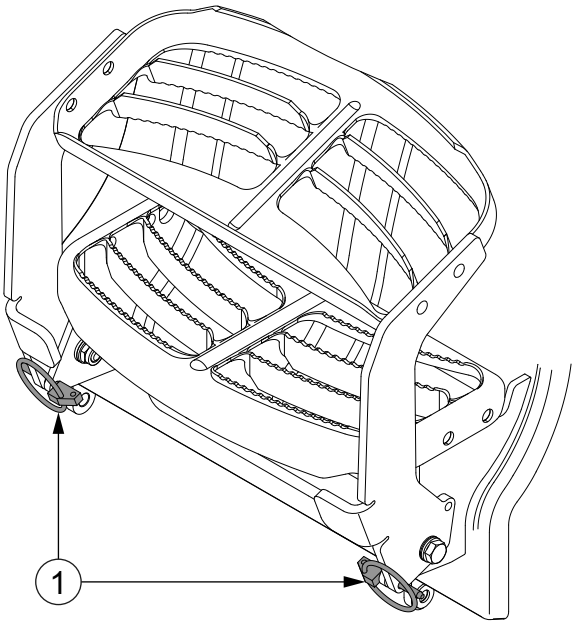
4.8.9.3 Adjusting steps for driving off-road

1. **On the right side, remove the pins.**



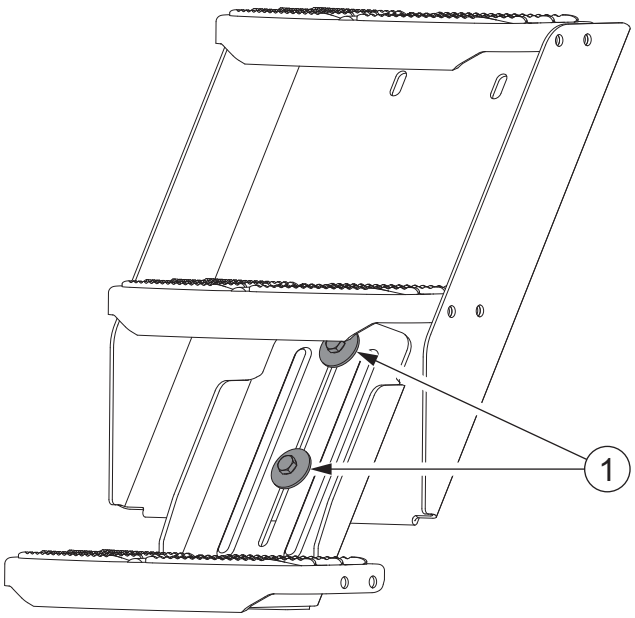
1. Pin

2. **Turn the right side step fully up and lock it in this position with the pins.**



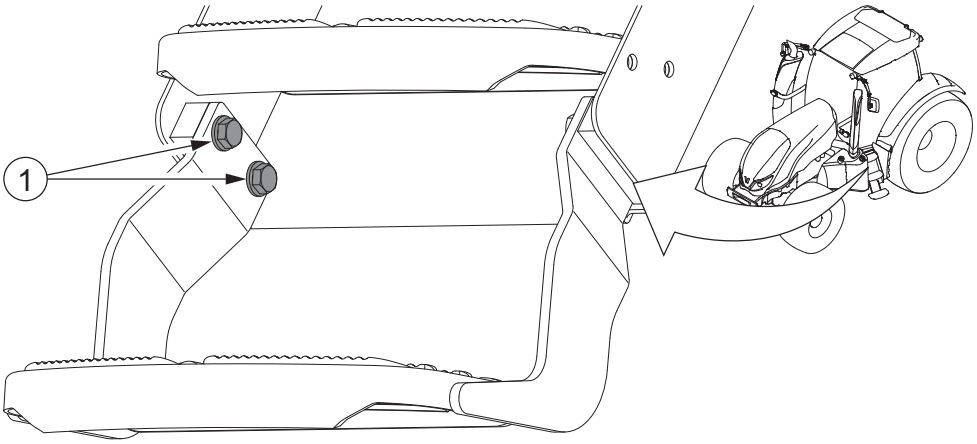
1. Pin

3. **On the left side, loosen the two screws holding the lowest step in the lowest position.**



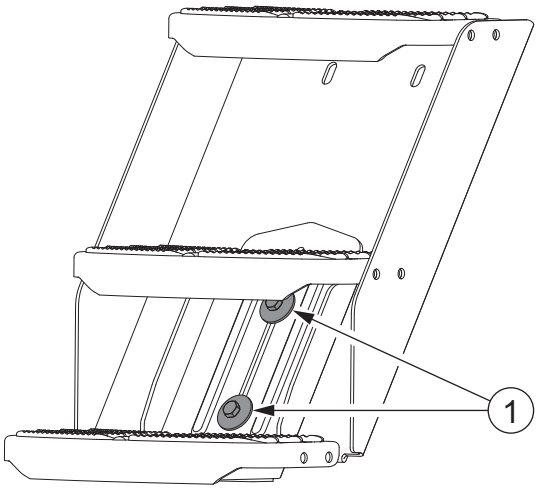
1. Screw

NOTE: With forest equipment (optional equipment) the lowest step is attached with screws. Unscrew the screws and remove the lowest step.



1. Screw

4. **Push the lowest step in the top position and fasten the two screws.**



1. Screw

4.8.9.4 Checking and adjusting front mudguards

Check and adjust the front mudguards if needed.

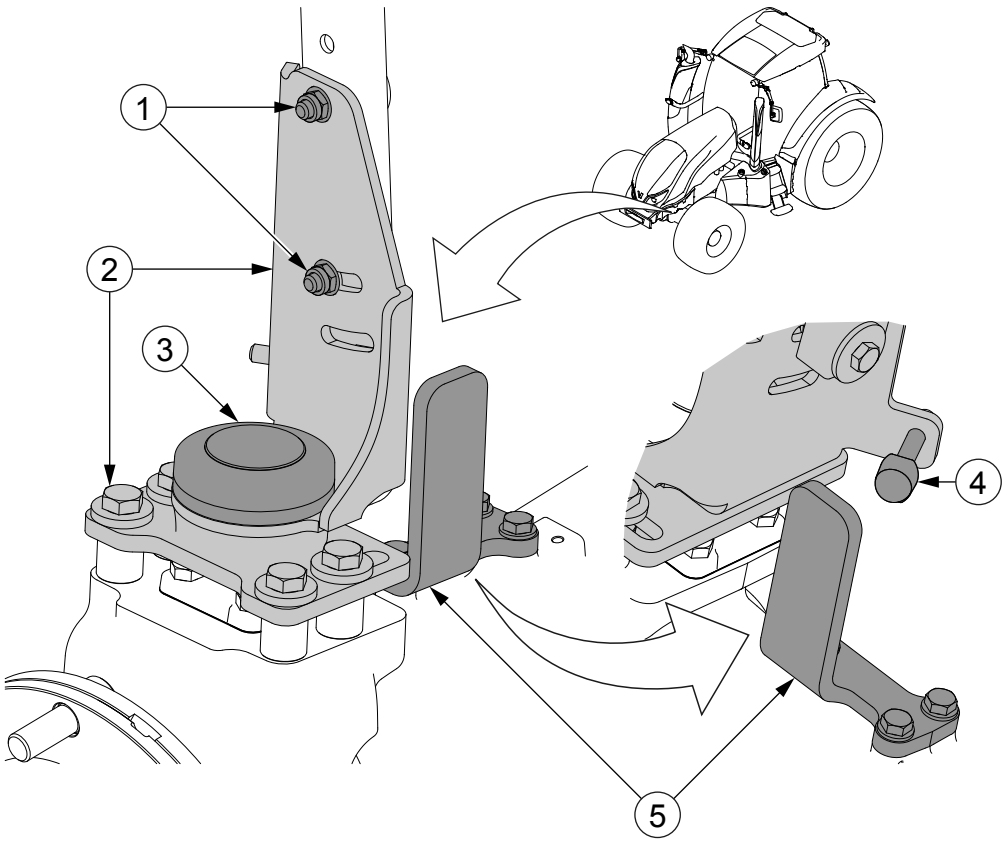
- **After transportation, check and adjust the front mudguards for maximum turning angle.**
- **If necessary, move them to the right width so that the mudguards do not touch the tractor chassis.**

  IMPORTANT: According to the EU directives the smallest allowed distance between the side of the tyre and the mudguard is 40 mm and between the top of the tyre to the mudguard is 60 mm.

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4.8.9.5 Adjusting flexible front mudguards

Adjust the flexible front mudguards, if needed.



1. Fixing screws
2. Flexible front mudguard frame
3. Turning mechanism
4. Adjustment screw
5. Stopper

The mudguards can be turned fully to the side to the service position, which eases the access to the engine compartment.

- **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 fully screw in the adjustment screw.

- **If necessary, limit the turning of the mudguards by adjusting the stoppers.**

  If the distance between the mudguard and the tyre requires, the stoppers can be installed as a mirror image.

- **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.

  The tightening torque of the fixing screws is 70 Nm.

  IMPORTANT: According to the EU directives the smallest allowed distance between the side of the tyre and the mudguard is 40 mm and between the top of the tyre to the mudguard is 60 mm.

  NOTE:

  The distance between the fixing screws must be as wide as possible. Use the highest and lowest possible holes for the fixing screws.

4.8.10 Valtra LHLink

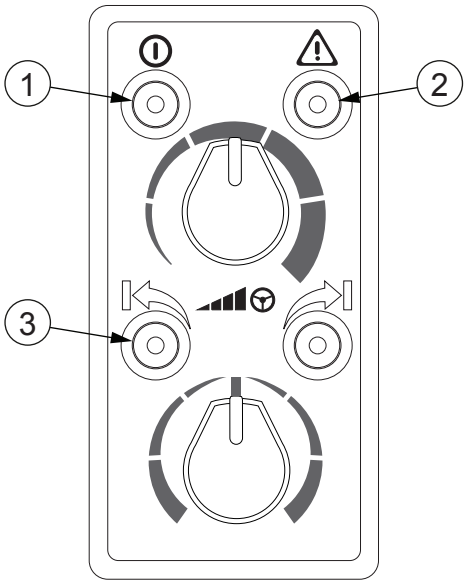
4.8.10.1 Calibrating the Valtra LHLink

Calibration has to be carried out if the steering angle position sensor has been changed or the Valtra LHLink does not centre to the middle position. Under normal conditions you do not need to perform the calibration.

WARNING: If the left and right direction are not calibrated in the right order, the Valtra LHLink turns to the opposite direction.

1. **Start the engine.**
2. **Activate the auxiliary hydraulics.**
3. **Turn the turning ratio controller knob and offset pivot controller to the centre position.**

4. **Press the LHLink on/off button and left limit button simultaneously for a 10 seconds.**

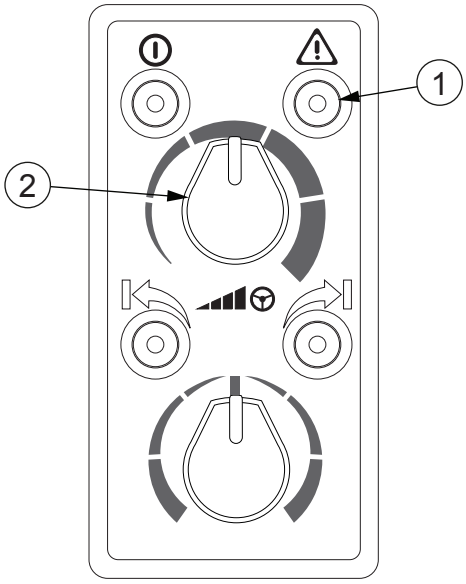


1. LHLink on/off button
2. Fault indicator light and button
3. Left limit button

The fault indicator light starts to blink and the calibration mode actives.

5. **Calibrate the turning ratio controller knob:**

   The fault indicator light blinks once every 2 seconds.

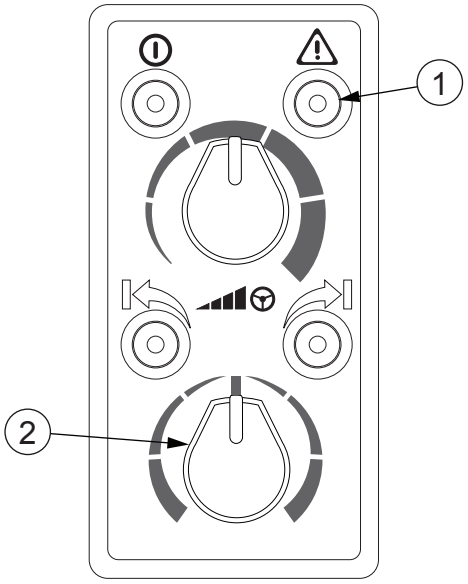


1. Fault indicator light and button
2. Turning ratio controller knob

- **Turn the turning ratio controller knob slowly to left extreme position.**
- **Turn the turning ratio controller knob slowly to right extreme position.**
- **Turn the turning ratio controller knob slowly to centre position.**
- **Press the fault indicator button to save the turning ratio controller knob calibration.**

6. **Calibrate the offset pivot controller:**

   The fault indicator light blinks two times every 2 seconds.

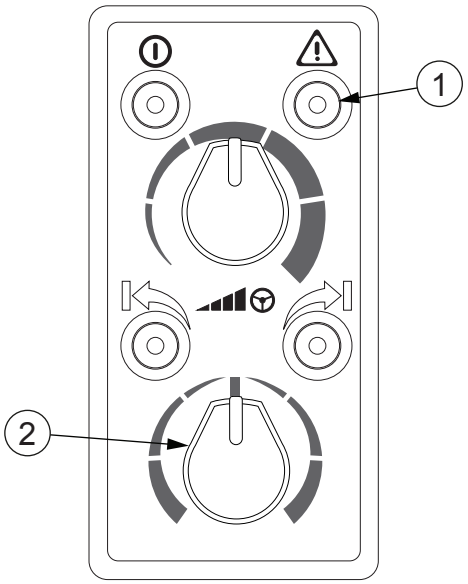


1. Fault indicator light and button
2. Offset pivot controller

- **Turn the offset pivot controller slowly to left extreme position.**
- **Turn the offset pivot controller slowly to right extreme position.**
- **Turn the offset pivot controller slowly to centre position.**
- **Press the fault indicator button to save the offset pivot controller calibration.**

7. **Calibrate the LHLink turning angle:**

   The fault indicator light blinks three times every 2 seconds and the indicator light in the on/off button is lit.



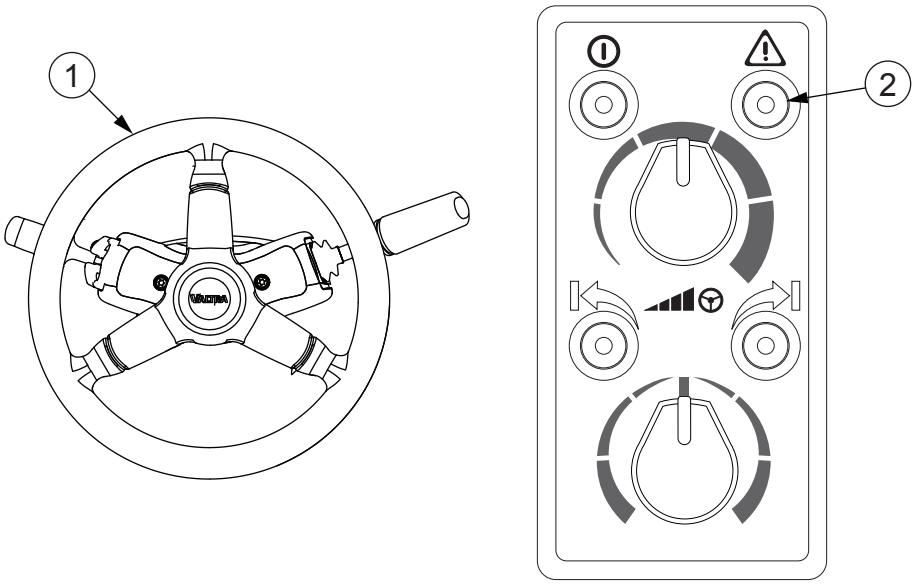
1. Fault indicator light and button
2. Offset pivot controller

- **Turn the LHLink to the left extreme position by rotating the offset pivot controller to the left.**
- **Turn the LHLink to the right extreme position by rotating the offset pivot controller to the right.**
- **Turn the LHLink to the centre position by rotating the offset pivot controller.**

  You must rotate the offset pivot controller slowly to the left from the centre position. When the LHLink has turned to the centre position, then return the offset pivot controller to the centre position.
- **Press the fault indicator button to save the LHLink turning angle calibration.**

8. **Calibrate the front wheel turning angle:**

   The fault indicator light blinks four times every 2 seconds and the indicator light in the on/off button is lit.



1. Steering wheel
2. Fault indicator light and button

- **Turn the steering wheel slowly to left extreme position.**
- **Turn the steering wheel slowly to right extreme position.**
- **Turn the steering wheel slowly to centre position.**
- **Press the fault indicator button to save the front wheel turning angle calibration.**

9. **Calibration is completed.**

   If the calibration has been successful, the indicator lights go out and the Valtra LHLink deactivates.

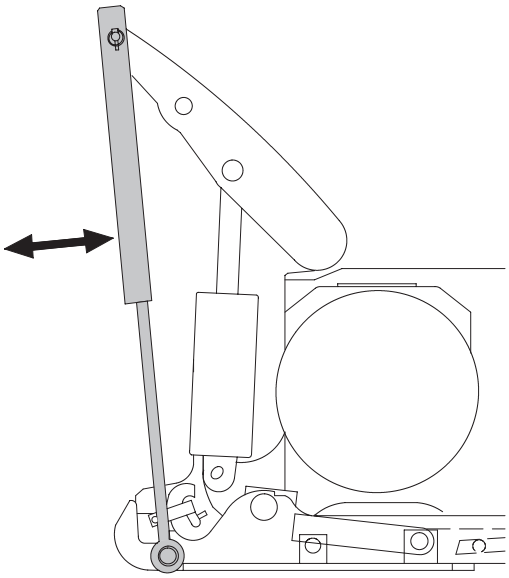
   If the calibration has been unsuccessful, perform the calibration again. If the calibration is still unsuccessful, contact an authorised Valtra workshop.

4.8.11 Towing devices

4.8.11.1 Adjusting lifting links of the pick-up hitch

Adjust the lifting links of the pick-up hitch if needed.

The lifting height selector must be in the maximum position when the towing hook is unloaded.



The lifting links must always have a certain amount of clearance when the rear linkage is in its upper position. However, they must be adjusted in such a way that the pick-up hitch is securely locked by the pawl, even when the towing hook is loaded.

1. **Raise the rear linkage to its upper position.**

   Use the lifting/lowering switch.

2. **Check the adjustment by moving the lifting links manually.**

   The adjustment is correct when the links are slightly tensioned. When the linkage is lowered, the towing hook is locked positively by the pawl.

3. **Make sure that the spring returns the pawl completely.**

4. **If necessary, adjust the length of the links by removing the cotter at the upper end of the links and turning them until the correct length is obtained.**

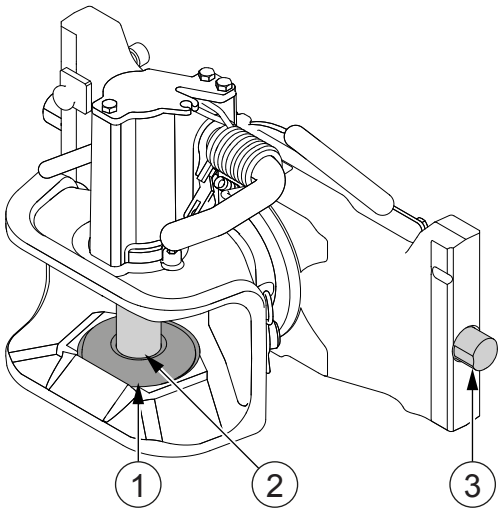
   The link shortens when turned clockwise and extends when turned anticlockwise.

5. **Check that both lifting links are of the same length after the adjustment.**

Correctly adjusted, the lifting links ensure that the rear linkage can be raised to its uppermost position. The pick-up hitch is locked when the linkage is lowered to the point where the hitch rests on the pawl. This prevents unnecessary loading on the hydraulic pump and overheating of the oil.

4.8.11.2 Maintaining the automatic jaw of the wagon towing device

Maintain the automatic jaw of the wagon towing device regularly.



1. Control unit of the puller pin
2. Main pin
3. 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.

  IMPORTANT: If the jaw is rusty, for example due to fertiliser, do not use a rust-loosening agent for removing the rust but take it to an authorised Valtra workshop.

5 Troubleshooting

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.	• 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.	• Contact an authorised Valtra 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 or shutdown the engine after a delay of approximately 30 s. This prevents serious damage to the engine.	• Avoid long-term and heavy use of the engine until the error is fixed.

NOTE: If the book symbol starts flashing, contact an authorised Valtra workshop, even if the error does not prevent driving the tractor.

5.2 Warnings on the Proline instrument panel display

The Proline instrument panel display indicates the following warnings.

You can clear the warning messages by pressing the **SET** button on the control panel.

Warning message on the instrument panel display	Action
Low Fuel Pressure 	• This message gives information about the pressure drop of the fuel before the running faults appear.
Hydraulic Oil Temperature High 	• The hydraulic oil temperature is too high. • The buzzer alarms once and the stop indicator light flashes until the hydraulic oil temperature drops below the warning limit. • Stop the engine, clean the hydraulic oil cooler and check the hydraulic oil level.
Hydraulic Oil Level Low 	• The hydraulic oil level is too low. • The buzzer alarms once and the stop indicator light flashes. • Stop the engine and check the hydraulic oil level. Add oil if needed.
SLOW DOWN HIDASTA	• The transmission speed is too high. • The buzzer alarms continuously. • Slow down. When the transmission speed has dropped low enough, the buzzer goes out and the display returns to the previously selected state. Transmission speed is monitored in all gear ranges.
Table continued on next page	

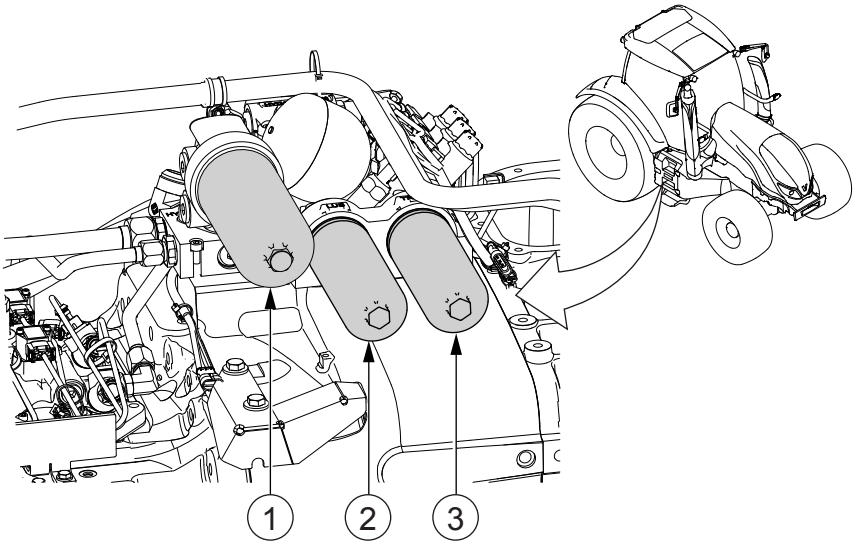
Warning message on the instrument panel display	Action
SLOW DOWN OVERLOAD	• The transmission load is too high. • The buzzer alarms continuously and a service code (7202) is displayed on the tractor terminal display. • If the operator reduces the transmission load in less than five seconds, the buzzer goes out and the instrument panel display returns to the previously selected state. The service code disappears from the tractor terminal display. • If the transmission load stays too high for more than five seconds, the service code (7203) is displayed on the tractor terminal display. At the same time the driving pedal and drive lever are deactivated and driving cannot be continued. The service code is stored to the tractor terminal service code log. • To continue driving, the power shuttle lever must be turned to the parking brake position and back to the wanted driving direction.
SLOW DOWN PTO SPEED TOO HIGH!	• The ground speed PTO speed is above limit of 1800 rpm. • The buzzer alarms once. • When the speed of the ground speed PTO has dropped low enough, the buzzer goes out and the display returns to the previously selected state.
SECONDARY BRAKE!	• The emergency brake is in use. • The message is displayed as long as the emergency brake button is pressed or emergency brake lever is pulled.
SECONDARY BRAKE FAULT!	• There is a fault in the emergency brake and it does not function. • A service code is displayed on the tractor terminal display. • Contact an authorised Valtra workshop.
PARKING BRAKE FAULT!	• There is a fault in the parking brake and it might not function properly. This can also prevent the function of the emergency brake. • The buzzer alarms continuously and a service code is displayed on the tractor terminal display. • Contact an authorised Valtra workshop.
Fuel Level Sensor Has Open Circuited	• Fuel level sensor has open-circuited. • Contact an authorised Valtra workshop.
Fuel Level Sensor Has Short Circuited	• Fuel level sensor has short-circuited. • Contact an authorised Valtra workshop.

5.3 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, the transmission lubrication filter is probably blocked. If the indicator light is lit when using auxiliary hydraulics, it is probably only the hydraulic return filter which is blocked.

NOTE: The lubrication filter and the low pressure filter of the transmission are identical.



1. Return oil filter of the auxiliary hydraulic system
2. Lubrication filter of the transmission system
3. Low pressure filter of the transmission system

Oil filters are located on the right side of the tractor under the cab. The oil filters are labelled with following text on the mounting piece on top of it:

- HYD for return oil filter
- LUB for transmission lubrication oil filter
- TRANS for low pressure filter.

1. **Release the pressure sensor wires of the return oil filter of the auxiliary hydraulics.**
2. **Attach an implement to the tractor and connect quick couplings.**
3. **Run the engine.**
4. **Operate the implement connected to the auxiliary hydraulics.**
5. **Check if the pressure oil filter clogging indicator light is lit.**

   If the indicator light is not lit, the fault is in the return oil filter.
6. **Change the return oil filter if the blocking is caused by this filter.**
7. **If the indicator light is still lit change the lubrication filter and the low pressure filter of the transmission system.**

   IMPORTANT:

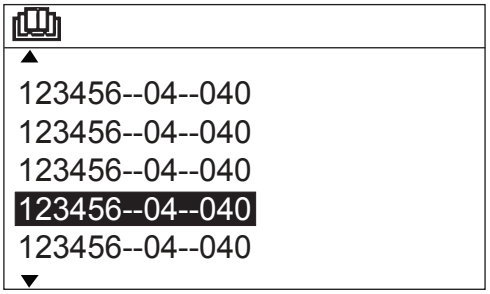
   If the blocking is in one of the transmission filters and it occurs considerably ahead of scheduled replacement of the filters, it may be an indication of partial damage to the transmission system. In this case, further investigations need to be made to avoid additional damage to the transmission system.

5.4 Viewing service codes

You can read active service codes on the tractor terminal display.

If there is an active service code, the book symbol flashes on the display.

1. **If the tractor terminal main menu is not displayed, press ESC button as many times as needed.**
2. **Press the down arrow four times.**
   The service codes are displayed on the display.



3. **Browse the service code list.**

   To browse the service 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.**

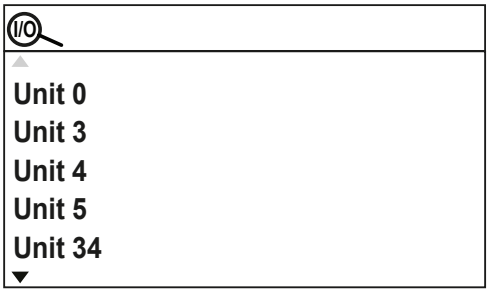
   With a short press of the ESC button you can return to the main menu. A long press of the ESC button returns to the previously active drive display.

5.5 Viewing the IO list

In a fault situation, you can give detailed information of the tractor to the service personnel by viewing the tractor IO list on tractor terminal display.

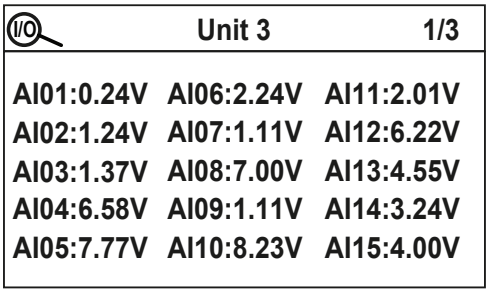
1. **If the tractor terminal main menu is not displayed, press ESC button as many times as needed.**
2. **Press the down arrow three times to navigate to the menu 3.**
3. **Press the right arrow to enter the IO list view.**

   A list of control units is displayed on the display.



4. **Press the up or down arrow button to navigate to the control unit informed by the service personnel.**
5. **Press the right arrow button to select the control unit.**

   A list of control unit pins is displayed on the display.



6. **Press the right or left arrow button to scroll the list.**

   Press the ESC button to return to the previous menu.
7. **Exit the IO list.**

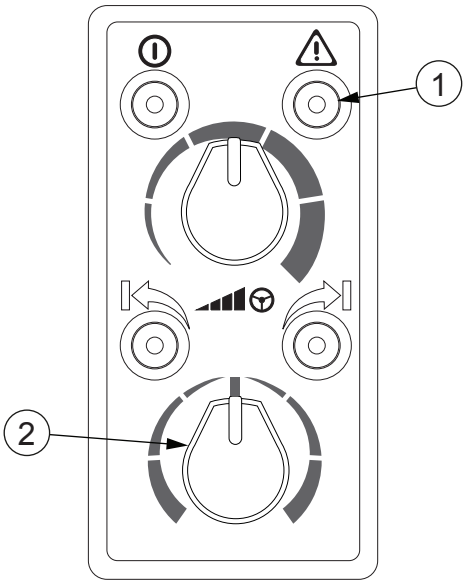
   Return to the main menu with a short press of the ESC button. Return to the previously active drive display with a long press of the ESC button.

5.6 Valtra LHLink fault codes

Faults in the Valtra LHLink are indicated by the fault indicator light on the button. The indicator light blinks a series every 10 seconds to indicate the fault.

Blinks	Fault
1	Offset pivot controller malfunction
2	Turning ratio controller malfunction
3	Pivoting front linkage turning angle sensor malfunction
4	Control valve malfunction
5	Other malfunction

If a fault occurs, the Valtra LHLink is deactivated. Contact an authorised Valtra workshop.



1. Fault indicator light and button
2. Offset pivot controller

1. **Clear the fault by pressing the fault indicator button.**

   You can use the Valtra LHLink limitedly, if the malfunction is not in the control valve or offset pivot controller.

2. **Use the Valtra LHLink in the event of a malfunction:**

   You turn the Valtra LHLink manually right and left with the offset pivot controller.
   - **Turn the offset pivot controller to the middle position to activate the turning feature.**
   - **Turn the offset pivot controller right or left to turn the Valtra LHLink.**

5.7 Steering system malfunctions

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

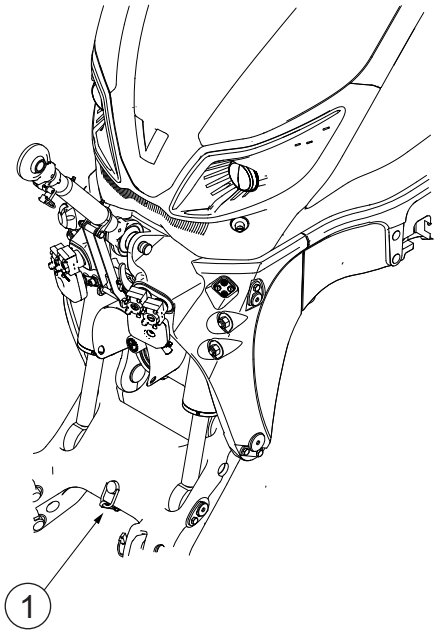
If the oil supply from the hydraulic pump fails for any reason, the tractor can still be steered with the steering wheel. In this case the steering valve acts as a pump and provides oil pressure for the steering cylinder. The steering is heavier to use than normally.

5.8 Towing the tractor

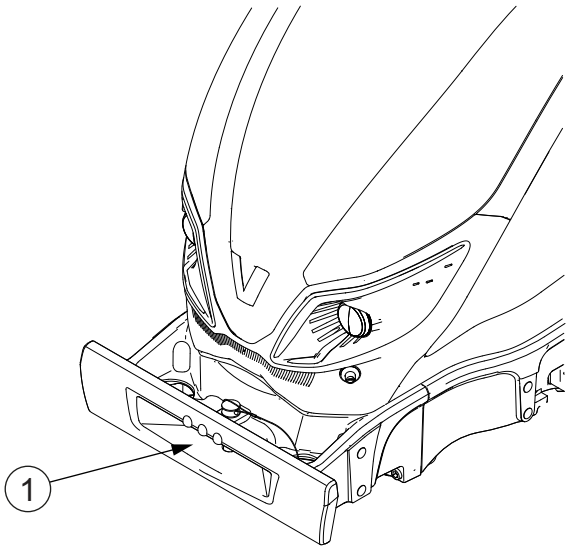
5.8.1 Towing the tractor when the engine is running

1. **Make sure that you connect the towing piece to the correct part on the tractor.**

   We recommend that you use a towing bar to tow the tractor horizontally.



1. Towing point when the tractor has the front linkage



1. Towing point when the tractor does not have the front linkage

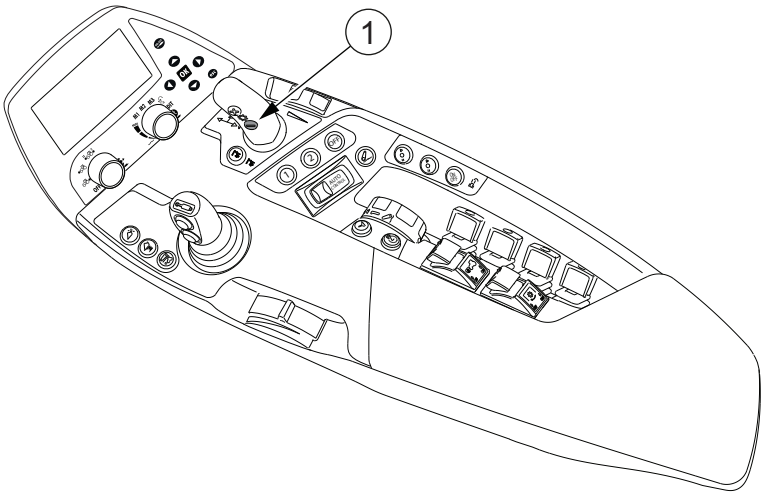
When you tow a tractor which has the front linkage, lift the front linkage and the lifting links to their top positions.

At the rear of the tractor, the towing point is the towing device of the tractor.

2. If possible, tow the tractor in the same vertical angle in which the tractor you want to tow is.

   CAUTION: If you tow the tractor horizontally while the tractor is on a slope, you can cause damage to the tractor.

3. Prepare the transmission for towing.



1. Speed range selection - button

- Engage the parking brake.
- Change to speed range A.
- Press down the speed range selection - button for a minimum of 3 seconds.

  This releases the traction.
  Transmission sets to neutral and N is displayed on the tractor terminal display.
- If N does not appear on the tractor terminal display, change the speed range to D.

  If you do not get the D range on, follow the towing speeds below.
- Release the parking brake.

  If you are on a slope, push and hold down the brake pedals to prevent the tractor from moving. Release the brake pedals when you are prepared to start the towing.

4. **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
   - **Do not tow the tractor alone.**

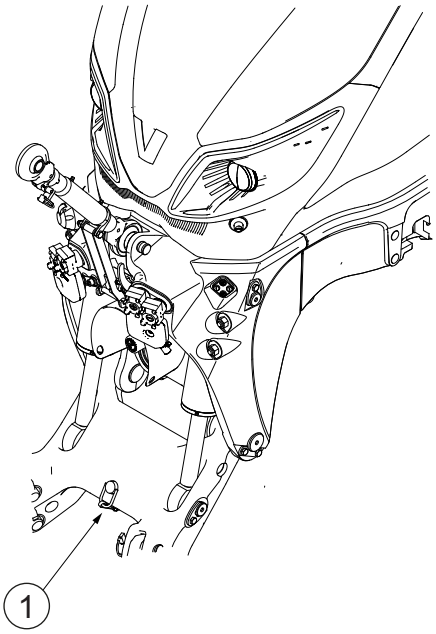
     Make sure that someone operates the steering and the brakes in the tractor you tow.

5.8.2 Towing the tractor when the engine is not running

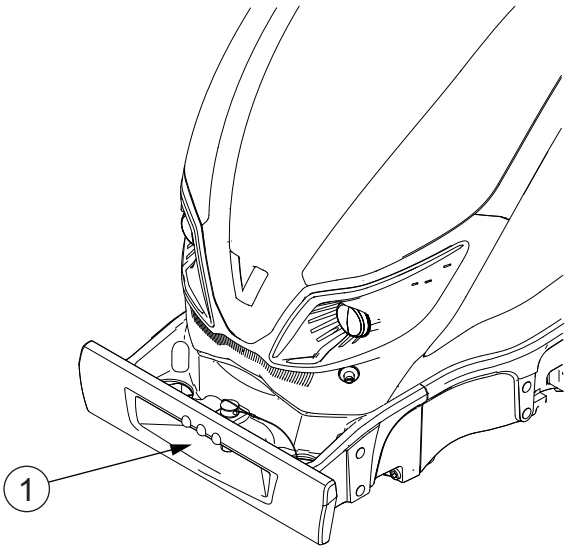
IMPORTANT: When the engine does not operate, the gearbox is not lubricated and the steering and brakes are heavier to use.

1. **Make sure that you connect the towing piece to the correct part on the tractor.**

   We recommend that you use a towing bar to tow the tractor horizontally.



1. Towing point when the tractor has the front linkage



1. Towing point when the tractor does not have the front linkage

When you tow a tractor which has the front linkage, lift the lifting links to the top position.

At the rear of the tractor, the towing point is the towing device of the tractor.

2. **If possible, tow the tractor in the same vertical angle in which the tractor you want to tow is.**

   CAUTION: If you tow the tractor horizontally while the tractor is on a slope, you can cause damage to the tractor.

3. **Release the parking brake.**

   Use suitable tools, for example a 17 mm wrench, for releasing the parking brake.

4. **Tow the tractor.**

   The maximum 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.

   - **Do not tow the tractor alone.**

     Make sure that someone operates the steering in the tractor you tow.

6 Technical specifications

6.1 Dimensions

With front tyres	420/85R28
With rear tyres	520/85R38
Length (mm)	4658
Width (mm)	max 2 550
Height to the roof with normal cab position and max tire radius 875 mm (mm)	2960 [1]
Height to the roof with low cab position and tire radius 825 mm (mm)	2850 [2]
Height to the exhaust pipe (mm)	2775
Wheel base (mm)	2665
Front axle ground clearance with SRI 675 mm (mm)	534
Rear axle ground clearance with SRI 875 mm (mm)	543
Height from the midpoint of the rear axle to the cab roof (mm)	2085 [3]
Height from the midpoint of the rear axle to the cab roof with suspended cab (mm)	2085

1) 3024 mm with the Skyview roof
2) 2914 mm with the Skyview roof
3) 2149 mm with the Skyview roof

6.2 Masses

	N134	N154	N174
Total mass with full fuel tank, driver (75 kg) and heaviest tires (kg) [1]	6460	6500	6500
Front axle mass (kg)	2430	2470	2470
Rear axle mass (kg)	4030	4030	4030

1) Forest tires add 340 kg to the total mass

6.3 Maximum permissible axle loading

The data is valid for tractors with standard track widths and regardless of tyre limitations.

DANGER: In offroad conditions, the allowed driving speed with maximum front axle loading is 10 km/h. If the driving speed is faster than this in offroad conditions, the allowed front axle loading is smaller.

	N134	N154	N174
Maximum front axle loading at maximum driving speed (kg)	5000	5000	5000
Maximum front axle loading at working conditions: offroad and with driving speed 10 km/h (kg)	7500	7500	7500
Maximum rear axle loading (kg)	8000	8000	8000
Total weight (kg)	11000	11000	11000

NOTE: The permissible wheel load can reduce the maximum permissible axle load.

IMPORTANT: On 50 km/h models and when driving at the maximum speed, the tyre loading is smaller. For information on tyre pressure, see the tyre manufacturer's catalogue.

6.4 Technically permissible towable masses

Unbraked towable mass (kg)	12000
Independently braked towable mass (kg)	12000
Inertia-braked towable mass (kg)	12000
Towable mass when fitted with hydraulic or pneumatic braking (kg)	30000

NOTE: The permissible towing device load can reduce the technically permissible towable mass.

6.5 Tyres

The tyre markings are explained in the following table, tyre 520/85R38 as an example. See tyre manufacturer's documentation for more details.

520	Tyre section width (inches or millimetres)
85	Aspect ratio
R	Construction (R: radial; -: diagonal; B: bias belted)
38	Nominal rim diameter (inches)
168	Load capacity index per tyre (168 = 5 150 kg)
A8	Speed symbol (A8 = 40 km/h)
1.6	Reference pressure (bar)
TL	Tubeless (TL) or tube type (TT)

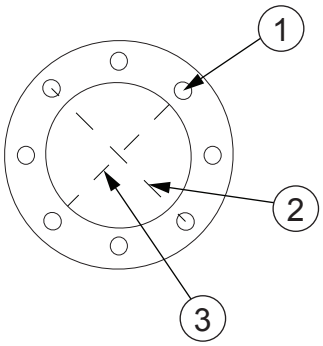
6.5.1 Wheel nut tightening torques

Wheel nut	Tightening torque (Nm)
Front	450
Rear	450
Rim - wheel disc (front and rear)	210

6.5.2 Wheel stud dimensions

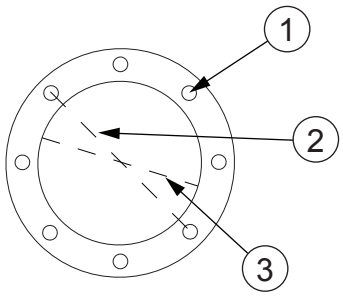
	Front axle	Rear axle
Stud dimension	M20x1.5	M20x1.5
Stud length (mm)	44	65
Number of studs per side	8	8

Rear disc



1. Rear disc stud hole diameter 24 mm
2. Rear tread clearance 275 mm
3. Rear disc center hole diameter 221 mm

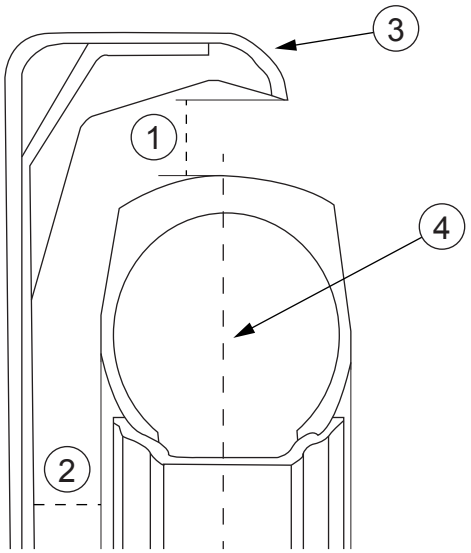
Front disc



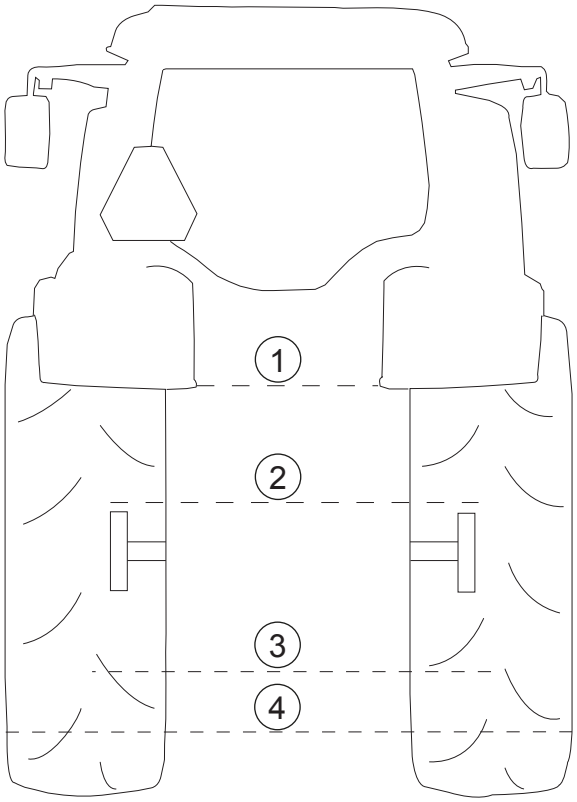
1. Front disc stud hole diameter 23 mm
2. Front tread clearance 275 mm
3. Front disc center hole diameter 220.6 mm

6.6 Flange distance for axles

Front (mm)	1 800
Rear (mm)	1 752
Max rear tyre diameter (mm)	1 885
Min rear rim diameter (inches)	38
Max front tyre diameter (mm)	1 454
Min front rim diameter (inches)	28
Distance between rear mudguards (mm)	960



1. Distance between the top of the tyre and the mudguard, 60 mm
2. Distance between the side of the tyre and the mudguard, 40 mm
3. Mudguard
4. Narrowest track



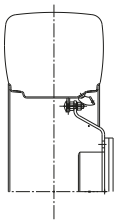
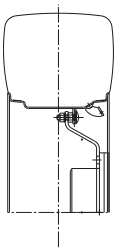
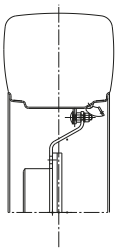
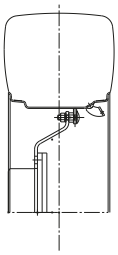
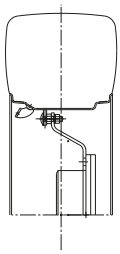
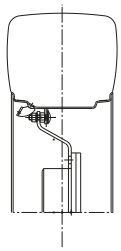
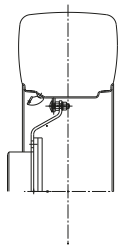
1. Rear mudguard distance, 960 mm
2. Hub flange distance 1752 mm
3. Distance between tyre centres with different track width adjustments
4. Distance between tyres' outer sidewalls

6.7 Track widths

6.7.1 Rear axle track widths

Adjustable discs

The rear axle track widths (in mm) are listed in the following tables.

							
18.4R38, 20.8R38, 460/85R38, 520/70R38	2114 [1]	2012	1714	1612 [2]	1910	1808	–
520/85R38	2122 [1]	2012	1722	1612 [2]	1918	1808	–
540/65R38, 580/70R38, 600/65/R38	2114 [1]	2012 [1]	1714	–	1910	1808	–
650/65R38	2113 [1]	2014 [1]	–	–	1910 [1]	1811	–
650/60R38	2114 [1]	2012 [1]	–	–	1910 [1]	1808	–
540/65R34, 600/65R34 [3]	2107 [1]	2014 [1]	1707	–	1904	1811	–
520/70R34 [3]	2108 [1]	2010	1708	1610 [2]	1908	1810	–
420/85R34 [3]	2108	2010	1708	1610 [2]	1908	1810	1508 [2]

1) Vehicle overall width over 2 550 mm
2) Not allowed with AutoComfort
3) Not allowed with the large fuel tank

Fixed discs

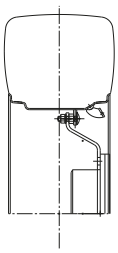
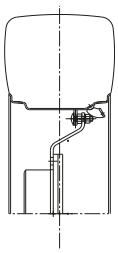
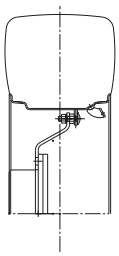
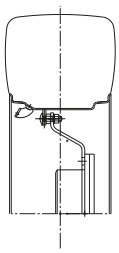
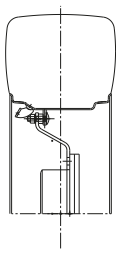
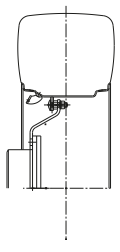
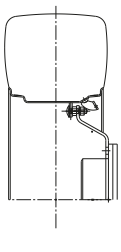
		Track width	Valve
18.4R38, 460/85R38	Standard	1876	Inside
	Wheel turned around	1650	Outside
20.8R38, 520/85R38, 540/80R38, 600/65R38	Standard	1850	Inside
	Wheel turned around	1676	Outside
16.9-34/14, 18.4-34/14, 480/80R34 [1]	Standard	1884	Inside
	Wheel turned around	1654 [2]	Outside
650/65R38, 650/65R38 Forest Rider	Standard	1850	Outside
710/60R38	Standard	1830	Outside

1) Not allowed with the large fuel tank
2) Not allowed with AutoComfort

6.7.2 Front axle track widths

The front axle track widths (in mm) are listed in the following tables.

Adjustable discs

							
440/65R28, 16.9R28, 420/70R28, 420/85R28, 480/70R28, 480/65R28	2045	1735	1645	1930	1840	–	2135 [1]
14.9R28, 380/85R28	2045	1735	1645	1930	1840	–	2135
520/60R28, 540/65R28	2045 [1]	1735	1645	1930	1840	–	2135 [1]
13.6R24, 420/70R24, 440/65R24, 480/65R24	1963	1854	1763	1814	1723	–	2054

[1] Vehicle overall width over 2 550 mm

Fixed discs

		Track width	Valve
14.9R28, 16.9R28, 380/85R28, 420/85R28, 540/65R28, 440/80R28, 500/65R28	Standard	1840	Inside
	Wheel turned around	1746	Outside
600/60R28	Standard	1916	Inside
	Wheel turned around	1666	Outside
600/60R28 (Forest Rider)	Standard	1876	Inside
	Wheel turned around	1703	Outside
13.6-24/10, 14.9-24/14, 400/80R24	Standard	1840	Inside
	Wheel turned around	1782	Outside

6.8 Engine

Model	N134	N154	N154E	N174
Designation	49 AWF			
Type	Four-stroke diesel engine with common rail direct injection			
Turbocharged and intercooling	Yes			
Number of cylinders	4			
Transport boost [1]	Yes			
Table continued on next page				

Model	N134	N154	N154E	N174
Sigma Power [2]	Additional equipment			Standard equipment
Max. output, kW/(hp)/rpm (ISO 14396)				
Normal	99/(135)/1900	114/(155)/1900	114/(155)/1750	121/(165)/1900
Boost	107/(145)/1900	121/(165)/1900	121/(165)/1750	129/(175)/1900
Max. torque, Nm/rpm (ISO 14396)				
Normal	570/1500	610/1500	660/1250	680/1500
Boost	620/1500	660/1500	700/1250	730/1500
Max. no load speed, rpm	2260			
Low idling speed, rpm				
Normal	850			
Parking brake is on	700			

1) Transport boost activates in ranges C and D when the driving speed is approximately 25% of the max speed.
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.

6.8.1 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)	150 kPa (1.5 bar)
Oil pressure at normal working speed	250-500 kPa (2.5-5 bar)

Oil filter	
Type	Disposable type filter element

Oil type	
Valtra grade	Valtra Engine FS / Valtra Engine CR-4
SAE grade	• 10W-40: -25°C...+40°C • 15W-40: -20°C...+40°C
API grade	CJ-4
ACEA grade	E9

Oil volume	
When changing with filter	15

Viscosity grade should be selected depending on the temperature outside.

6.8.2 Fuel system

Fuel	
Type	Diesel fuel which conforms to EN 590:2009 norm
Feed pump	Mechanical pump
Standard tank	235 liters
Large tank (optional equipment)	315 liters
Forest tank	160 liters

Injection system	
Common rail injection	High-pressure pump with electronic injection control

6.8.3 Selective catalytic reduction system

System type	Bosch DENOXTRONIC 2.2+
Fluid type	DIN70070/ISO22241-certified AdBlue/DEF
Standard tank capacity	45 liters
Forest tank capacity	25 liters

6.8.4 Air cleaner

Air cleaner	Two-stage, dry element, with blockage indicator
Pre-cleaner system	Ejector

6.8.5 Cooling system

Pump	Centrifugal
Radiator	Pressurised with expansion tank regulated by pressure cap
Thermostat	One thermostat at 83°C
Fan	The belt-driven fan is controlled by the engine's control module for precise fan speed modulation
Coolant	Engine coolant mixed with water. ASTM D6210 Type I-FF, ASTM D3306. In first fill, OAT-coolant (Organic Acid Technology) used, not recommended to mix with old type of coolants.
Coolant, Valtra grade	Valtra Coolant
Coolant volume	18 liters

6.9 Electrical system

Ground	Negative
Voltage	12 V
Battery	174 Ah
Alternator	150 A
Starter motor	4.3 kW
Suction air preheater (engine induction air)	2.1 kW

Fuses	
Cab electric centre	36 fuses The nominal current rating of the fuses is 5–25 A.
Roof electric centre	25 fuses The nominal current rating of the fuses is 10–30 A.
Main fuse centre	4 fuses The nominal current rating of the fuses is 25–250 A.
Engine electric centre	12 fuses The nominal current rating of the fuses is 3–25A.
Electric preheating of engine induction air	250 A
Cab power supply	125 A

Bulbs	
Headlights	55 W-H7
Front position (side) lamps	10 W
Rear/brake lights	LED
Direction indicators	21 W front / LED rear
Working lights	65 W-H9 / LED
Cab lights	LED

Current sockets	
Two-pin current socket	ISO 4165
Three-pin current socket	ISO/TR 12369
Trailer socket	ISO 1724

6.10 Power transmission

6.10.1 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.

6.10.2 Clutch

Multi-disc clutch operation	Controlled by oil pressure Activated by pressing the speed range selection +/- buttons 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

6.10.3 Gearbox

Transmission type	Continuously variable transmission		
Gear type	Helical gears		
Synchronization	Fully synchronized		
Speed ranges [1]	40 km/h models	EcoSpeed 40 km/h models	50 km/h models
	• A = 0 - 7.0 km/h • B = 0 - 12.9 km/h • C = 0 - 22.7 km/h • D = 0 - 40 km/h	• A = 0 - 8.7 km/h • B = 0 - 16.0 km/h • C = 0 - 28.2 km/h • D = 0 - 40 km/h	• A = 0 - 8.7 km/h • B = 0 - 16.0 km/h • C = 0 - 28.2 km/h • D = 0 - 50 km/h

1) The maximum driving speed for each speed range with SRI 875 mm tyres.

Oil type	
Valtra grade	Valtra Transmission (classification: Valtra G2-08)
	Valtra Transmission XT60+ (classification: Valtra G2-B10)
API grade	GL-4

Oil volume	
When changing with filter	63 liters
Transmission oil level gauge minimum	54 liters
Transmission oil level gauge maximum	63 liters

6.10.4 Rear axle differential lock

Type	Electro-hydraulic multi-disc
Control	Electro-hydraulic

6.10.5 Rear power take-off

6.10.5.1 Rear power take-off alternatives

Power take-off (PTO) alternatives	N104	N114	N124	N134	N154	N174
540/1000	x	x	x	x	x	x
540/540E/ 1000	x	x	x	x	x	x
540E/ 1000/1000E	x	x	x	x	x	x
540E/1000 +GSPTO [1)]	x	x	x	x	x	x
540E/1000E +GSPTO [1)]	x	x	x	x	x	x

1) Ground speed PTO

6.10.5.2 Rear power take-off ratios

Rear power take-off (PTO) ratios	540 rpm at engine speed 1 890 rpm
	1 000 rpm at engine speed 1 897 rpm
	540 E = 540 rpm at engine speed 1 522 rpm
	1000 E = 1000 rpm at engine speed 1 677 rpm

6.10.5.3 Rear power take-off shafts

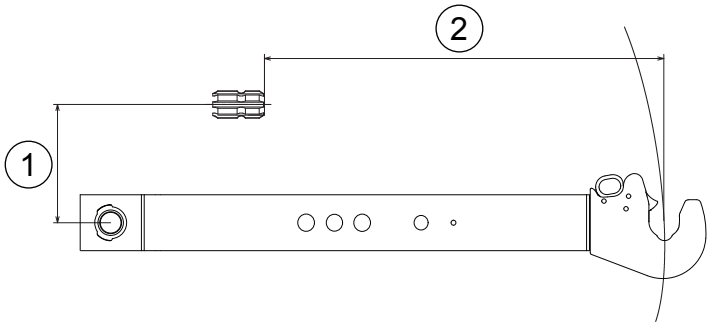
As a standard, the tractor is equipped with one power take-off shaft. Additional shafts are extra equipment.

Splines	Standard	Shaft diameter (mm)
6 splines [1)]	ISO 500, type 1	35
21 splines	ISO 500, type 2	35
20 splines	ISO 500, type 3	45
6 splines	No standard	45

1) Standard

6.10.5.4 Lower link end distance from rear power take-off shaft

The length of the lower links (mm)	Width of implement attachment (T measure, mm)	
	Cat. 2	Cat. 3
960	706	693



1. 229 mm
2. T measure

6.10.5.5 Proportional ground speed power take-off

Model	Power take-off (PTO) axle revolutions per one rear wheel revolution
40 km/h	40.81
50 km/h	40.96

6.10.6 Front power take-off

Oil type	Oil volume (litres)
Shell Spirax S4 ATF HDX	2.8

Maximum input torque (Nm)	759
Nominal input torque (Nm)	692

Maximum input torque with pivoting front linkage (extra equipment) (Nm)	732
Nominal input torque with pivoting front linkage (extra equipment) (Nm)	549

6.10.6.1 Front power take-off ratio

Front power take-off (PTO) ratio	1 000 rpm at engine speed 2 000 rpm

6.10.6.2 Front power take-off shafts

Splines	Standard	Shaft diameter (mm)
6	ISO 500	35

6.11 Brake system

Operation	• Hydraulically controlled multi-disc type brakes with wet discs • Boosted with low-pressure hydraulics • 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	6 pcs/side
Friction disc diameter	223.75 mm
Brake friction area	4 398 cm^2/organic
Brake pedal free travel	35-45 mm

Parking brake	
Operation	• Electrohydraulically controlled with power shuttle lever • Driving brakes engaging with spring, disengaging with hydraulic pressure

Hydraulic trailer brake valve (extra equipment)	
Operation	• Operated with the hydraulic pump for transmission and steering, controlled by the braking pressure • Trailer brake connection to the tractor with quick coupling

Trailer air pressure brakes (extra equipment)	
Operation	• Operated with air pressure system, controlled by the braking pressure • Trailer brake connection to the tractor with quick coupling

6.12 Steering system

Type	• Hydrostatic • Oil supply from the transmission hydraulic pump via the priority valve • Adjustable, telescopic steering column • Central frame, one double-action steering cylinder
Maximum working pressure	18.5 MPa (185 bar)
Shock valve opening pressure	25 MPa (250 bar)
Steering valve revolution volume (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	5.0 turns

6.12.1 Front axle

Axle type	Hi-lock (Dana 730/503)	Hi-lock (Dana 730/574)	Hi-lock (740/557, 740/558 and 740/559)
Control	Electrohydraulically controlled multi-disc clutch		
Differential lock	Differential lock, automatic differential brake	Electrohydraulically controlled multi-disc differential brake, simultaneously controlled with rear axle differential lock	
Steering arc, adjustable	max 55°	max 55°	max 52°
Axle turning	±10°	±10°	±10°
Caster	0	0	5°
King pin inclination (KPI)	5.5°	5.5°	8°
Camber	1°	1°	1°
Toe-in (mm)	0–2	0–2	0–2
Flange distance (mm)	1 800	1 800	1 800

Ratio	Hi-lock (Dana 730/503)	Hi-lock (Dana 730/574)	Hi-lock (Dana 740/557, 740/558 and 740/559)
Total	17.538	17.538	17.538
Front axle/rear axle, 40 km/h	i=1.329	i=1.323	i=1.323
Front axle/rear axle, 50 km/h	-	i=1.329	i=1.329

Oil type			
	Valtra grade	SAE grade	API grade
Differential	Valtra Axle LS	80W-90	GL-5 LS
Hub reduction gears	Valtra Axle or Valtra Axle LS		GL-5 or GL5 LS

Oil volume when changing with filter		
Axle type	Differential (litres)	Hub reduction gears (litres)
Dana 730/503	8	2 x 0.9
Dana 730/574	8	2 x 0.9
Dana 740/557	7.5	2 x 0.8
Dana 740/558	7.5	2 x 0.8
Dana 740/559	7.5	2 x 0.8

6.12.2 Turning circle

Minimum turning circle (m)	9

6.12.3 Front axle suspension

Extra equipment	Available for all tractor models. Front axle type changes if tractor is equipped with suspension.
Front axle weight of tractor with hydraulic suspension	• N104-N134: 170 kg heavier than corresponding model without hydraulic suspension • N154-N174: 150 kg heavier than corresponding model without hydraulic suspension
Permissible axle loading	With suspension 5000 kg for all models
Extreme pressure values	Maximum hydraulic system pressure 205 bar
Suspension travel of front axle	±50 mm

Table continued on next page

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

6.13 Cab and shields

6.13.1 Cab filter capacity

Standard filter (dop test, 300 m^3)	> Ø 0.2 µm 78% > Ø 1 µm 92% > Ø 5 µm 100% > Ø 8 µm 100%
Activated carbon filter, cab (dop test, 300 m^3) [1)]	> Ø 0.2µm 54% > Ø 1 µm 70% > Ø 5 µm 100% > Ø 8 µm 100%

1) **WARNING: Use personal protective equipment recommended by the pesticide manufacturer.**

6.13.2 Windscreen washer

Windscreen washer reservoir	
Fluid type	Washer fluid
Capacity	15 liters

6.13.3 Air conditioning system

Refrigerant type	**Amount**
R134a	1.4 kg, 20°C

6.13.4 Noise level

The noise at the operator's ear, measured according to Directive 2009/76/EC, is under the maximum permissible value laid down in the Directive.

The noise of the tractor in motion, measured according to Annex VI to Directive 2009/63/EC, is under the maximum permissible value laid down in the Directive.

6.13.5 Exposure to vibration

The level of exposure to vibration and shock is dependent on several issues, such as work tasks, tyre types, work conditions and implements. Always plan your work so that the exposure is minimised. In extreme conditions, keep warm and dry and try to take short breaks.

The vibration measurements are based on Directive 78/764/EEC.

Seat	Vibration (m/s^2)	
	Light operator (59±1 kg)	Heavy operator (98±5 kg)
Air-suspended	1.16	1.03
Air-suspended +	1.01	0.90
Valtra Evolution	1.02	0.93

6.14 Hydraulic system

6.14.1 Low-pressure circuit

Pump capacity (at engine speed 2 200 rpm)	65 litres/min
Maximum pressure	2.4 MPa (24 bar)
Oil supply for the following functions:	• Transmission hydraulic circuit, control • Four-wheel drive, disengaging • Transmission and PTO lubrication • Power take-off (PTO) • Ground speed power take-off (GSPTO) (optional) • Differential lock • Power shuttle • Brake system • Parking brake • Speed ranges' changing • Continuously Variable Transmission (CVT) unit

6.14.2 Steering hydraulic circuit

Pump capacity	81 l/min at engine speed 2 200 rpm
Oil supply for the following functions:	• Steering • Transmission lubrication • Brake cooling • Trailer brake valve (optional)

6.14.3 Working hydraulic circuit

Pump	Variable-displacement pump that supplies oil when needed.
Pump capacity	• Standard pump: 115 l/min at engine speed 2 200 rpm • Optional pump: 160 l/min at engine speed 2 200 rpm • Optional pump: 200 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	23.5 MPa (235 bar)
Supplies oil for following functions	• Rear linkage • Auxiliary hydraulics • Front suspension • Front linkage (optional) • Front loader (optional)

Oil type	
Valtra grade: Valtra Hydraulic 46	DIN-grade: DIN 51524-3 HVLP
Valtra grade: Valtra Transmission / Valtra Transmission XT60+	• Classification: Valtra G2-08/G2–B10 • API-grade: GL-4
Bio-oil [1)]	Standard ISO 15380, class HEES

1) Bio-oil cannot be mixed with mineral oil.

Oil volume	
When changing with filters	62 litres
Available oil volume for auxiliary hydraulics (with 10-degree longitudinal inclinations)	47 litres
Hydraulic oil level gauge minimum	54 liters
Hydraulic oil level gauge maximum	61 liters

6.14.3.1 Valves for auxiliary hydraulics

Rear, standard	• Two double-acting valves with adjustable electric control • One on/off valve that controls the hydraulic top link
Rear, optional	• Three double-acting valves with adjustable electric control • Four double-acting valves with adjustable electric control • Five double-acting valves with adjustable electric control • Four double-acting valves with adjustable electric control and Power Beyond coupling • One on/off valve plugged or with a solid connection for the hydraulic lift link or for the Hydraulic pick-up hitch • Front linkage shut-off valve
Front, optional	• Two double-acting valves with adjustable electric control. Additionally one of the following options can be fitted as optional: • Front loader • Front loader readiness • Front linkage and front quick couplings • Three double-acting valves with adjustable electric control. Additionally one of the following options can be fitted as optional: • Front loader • Front loader readiness • Front linkage and front quick couplings • Pivoting front linkage and front quick coupling • Three double-acting valves with adjustable electric control and two 6/2 valves. Additionally one of the following options can be fitted as optional: • Front loader • Front loader readiness • Front linkage and front quick couplings • Front loader, pivoting front linkage and front quick couplings • Front loader readiness, front linkage and front quick couplings • Four valves with pivoting front linkage. Additionally one of the following options can be fitted as optional: • Front loader • Front loader readiness • Front linkage and front quick couplings • Front loader, front linkage and pivoting front quick couplings • Front loader readiness, front linkage and front quick couplings

On/Off valve (standard)	
Type	Directional control valve
Maximum capacity	20 l/min
Control	With the rocker switch

On/Off valve (optional)	
Type	Directional control valve
Maximum capacity	10 l/min
Control	With the rocker switch

Double-acting valve	
Type	Directional control valve including Zero leak
Nominal flow capacity	90 l/min
Control	Electrically adjusted CAN-bus valves • With joystick • Rear valves 1 and 2 • Front valves 1F and 2F • With control levers • Rear valves 3, 4 and 5 • Front valve 3F • Front valve 3F and 4F

Quick couplings	
Standard	ISO7241-1 Series A

6.14.3.2 Counter pressure when using the return connection for auxiliary hydraulics

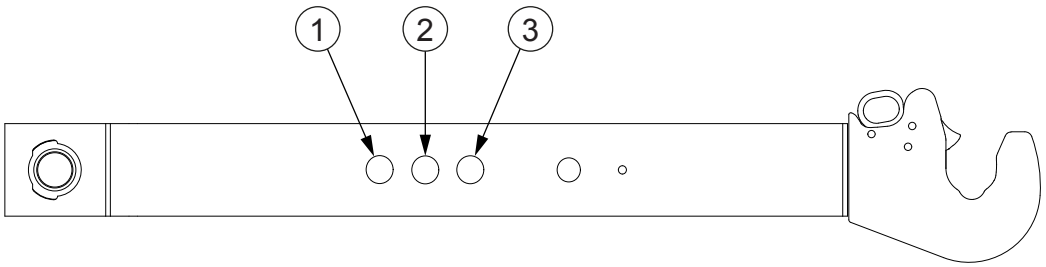
Flow l/min, temperature	Return connection counter pressure (1 inch)
50 l/min, 60°C	2.5 bar

6.14.4 Rear linkage

Maximum lifting force	Lifting cylinder ø	Lower link type	The length of the lower links
78 kN	100 mm	Category 3, quick coupling grabs	960 mm

Function	Linkage version ACD
With electrohydraulic 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

6.14.4.1 Lifting forces and lifting ranges



1. Lifting rod's first fastening point
2. Lifting rod's second fastening point (factory setting)
3. Lifting rod's third fastening point

Lifting force and range with Ø100 mm cylinder	First fastening point	Second fastening point	Third fastening point
Lifting range (mm)	862	783	721
Max lifting force (kN) [1]	68.5	74	78
In whole range (kN) [1]	62	69	76

1) Calculated with rear tire radius R=875, for example tires 520/85R38

6.14.5 Front linkage

Lifting force	47 kN
Number of lifting cylinders	2
Diameter of the lifting cylinders	90 mm
Lifting range at the end of the lifting links	840 mm
Quick coupling hooks	Category 3/2

6.14.6 Towing devices

6.14.6.1 Pick-up hitch

NOTE: The loadings are applicable to all tires.

Maximum permissible vertical loading	3000 kg [1]
Pick-up hitch height from the ground (lowest position and tyre radius R=925 mm)	216mm
D-value [2]	81.8 kN
Drawbar eye standard	ISO 5692-1 or ISO 20019

1) The maximum axle loading must not be exceeded
2) Mathematically established horizontal force

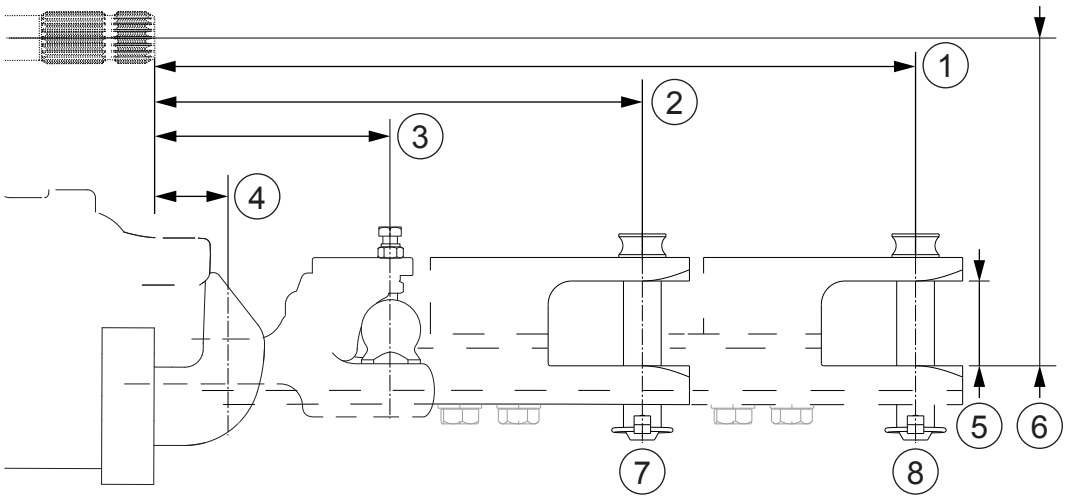
6.14.6.2 Euro pick-up hitch

NOTE: The loadings are applicable to all tires.

Hitch or drawbar	Replaceable
Maximum permissible vertical loading for the tow hook and K80 ball hitch	3000 kg [1]
Pick-up hitch height from the ground (lowest position and tyre radius R=925 mm)	208 mm
D-value [2]	• Hook: 87.7 kN • K80 ball: 84.8 kN • Drawbar: 62.3 kN
Drawbar pin diameter	32 mm
Drawbar eye standard for towing hook	ISO 5692-1 or ISO 20019
Drawbar eye standard for drawbar	ISO 5692-1, ISO 5692-2, ISO 8755, ISO 1102
Drawbar eye standard for 80 mm ball hitch	ISO 24347

1) Maximum loading is applicable to all tires
2) Mathematically established horizontal force

The horizontal distances of the pulling point from the power take-off (PTO) shaft and the maximum vertical loadings:



1. 400 mm
2. 250 mm
3. 172 mm
4. 62 mm
5. 72 mm
6. 280 mm
7. S=2000 kg
8. S=1200 kg

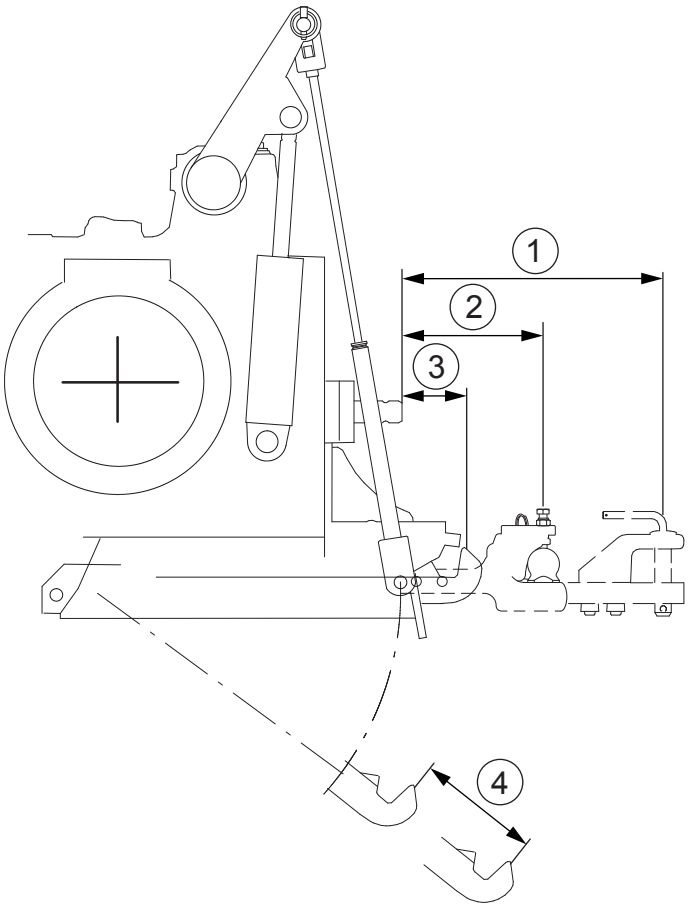
6.14.6.3 Hydraulic pick-up hitch

NOTE: The loadings are applicable to all tires.

Raising/lowering and extension	Electrohydraulic
Locking of the towing device latch	Mechanical; mechanical release
Hitch or drawbar	Replaceable
Maximum permissible vertical loading for the tow hook and K80 ball hitch	3000 kg [1)]
D-value [2)]	• Hook: 87.7 kN • K80 ball: 87.7 kN • Drawbar: 62.3 kN
Drawbar pin diameter	32 mm
Drawbar eye standard for tow hook	ISO 5692-1 or ISO 20019
Drawbar eye standard for drawbar	ISO 5692-1, ISO 5692-2, ISO 8755, ISO 1102
Drawbar eye standard for 80 mm ball hitch	ISO 24347

1) The maximum axle loading must not be exceeded
2) Mathematically established horizontal force

The towing point distances from the power take-off shaft and the maximum vertical loadings in the horizontal direction are shown in the following figure.



1. 370 mm = 1530 kg / 426 mm = 1070 kg
2. 213 mm
3. 129 mm
4. 280 mm

6.14.6.4 Agricultural towing device

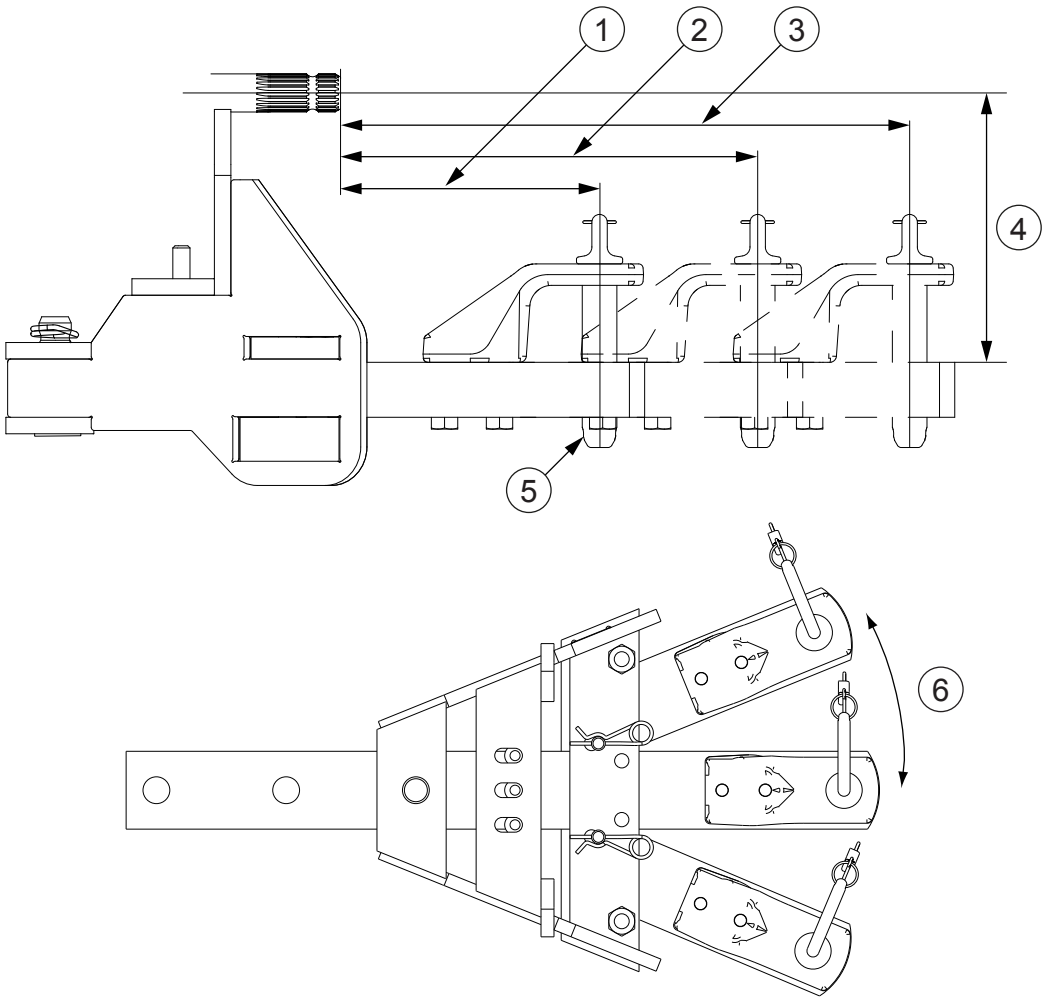
NOTE: The loadings are applicable to all tires.

D-value [1)]	78.5 kN
Drawbar eye standard	ISO 5692-1, ISO 5692-2, ISO 8755, ISO1102

1) Mathematically established horizontal force

The agricultural towing device is fixed without pick-up hitch

The horizontal distances of the pulling point from the power take-off (PTO) shaft and the corresponding maximum vertical loadings are pointed out in the following figure:



1. 250 mm, 2000 kg
2. 400 mm, 1200 kg
3. 550 mm, 500 kg
4. 245 mm
5. Drawbar pin Ø31.5 mm
6. 21° to both sides

6.14.6.5 Towing device frames

NOTE: The loadings are applicable to all tires.

D-value / Max permissible vertical loading for a trailer hitch with all jaws	89.3 kN / 2000 kg
D-value / Towing device frame with piton-fix pin, max permissible vertical loading	89.3 kN / 3000 kg
D-value / Towing device frame with K80 ball hitch, max permissible vertical loading	89.3 kN / 4000 kg
D-value / Towing device frame drawbar, max permissible vertical loading	78.5 kN / 1200 kg (400 mm), 500 kg (550 mm)
Automatic jaw, main pin diameter	31.5 mm (ISO 6489-2, B) / 38 mm (ISO 6489-2, C)
Table continued on next page	

Mechanical jaw, main pin diameter	31.5 mm (ISO 6489-2, A)
Drawbar eye standard for jaws	DIN 74054 or DIN 11026, ISO 5692-2, ISO 8755
Mechanical non-swivel jaw, main pin diameter	28 mm (ISO 6489-5, X) / 50 mm (ISO 6489-5, Z)
Drawbar eye standard for non-swivel jaw	ISO 5692-3, X (Ø28 mm) / ISO 5692-3, Z (Ø50 mm)
Drawbar, main pin diameter	31.5 mm
Drawbar eye standard for drawbar	ISO 5692-1, ISO 5692-2, ISO 8755, ISO 1102

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