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VALTRA
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Operator's Manual

T3 Series

HiTech

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About this manual

This operator's manual is for Valtra T3 Series HiTech tractors. The T3 HiTech models are T133 H, T153 H, T173 H and T193 H.

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

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



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

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

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

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

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

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

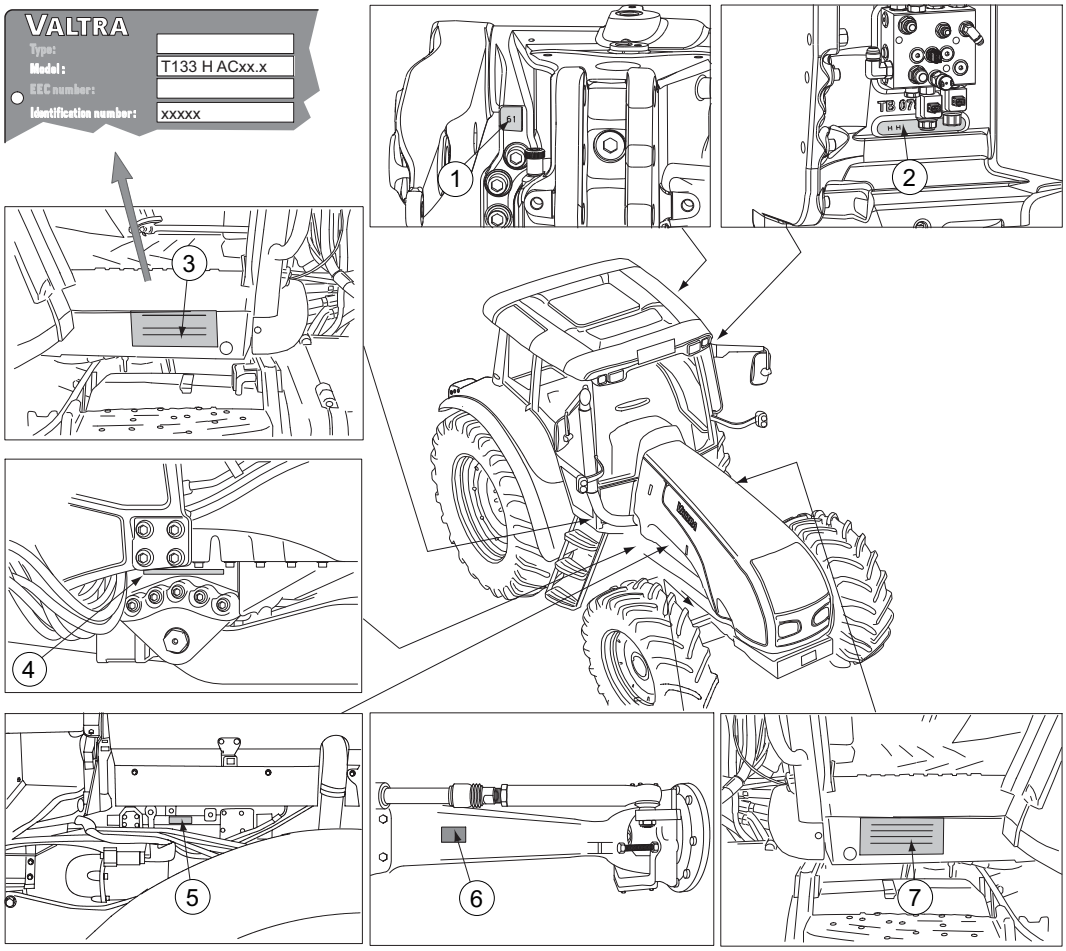
Maintenance, repairs and adjustments which are not described in this manual require special tools and exact technical data. For such work contact your dealer who has specially trained personnel to help you.

Valtra Inc.

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

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1 Safety precautions

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

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

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

1.1 Hazard statements

Five symbols are used in the documentation.

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

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

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

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

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

1.2 Safety rules

1.2.1 Replacing safety and information signs

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

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

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

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1.2.2 Maintaining hardware safety

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

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

- **Cab**

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

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

- **Tractor construction**

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

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

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

- **Cleaning**

  Keep the tractor clean to minimise risk of fire.

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

- **Steps**

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

- **Quick couplings**

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

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

1.2.3 Using tractor safety features

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

- **Steering wheel and safety handles**

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

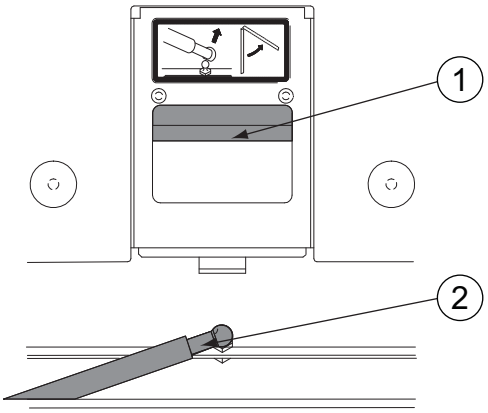
- **Safety belt**

  Always use the safety belt when using the tractor.

- **Emergency exits**

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

- **Roof hatch (extra equipment)**



1. Handle
2. Gas spring

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

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

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1.2.4 Safe operation

1.2.4.1 Following safe operating practices

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

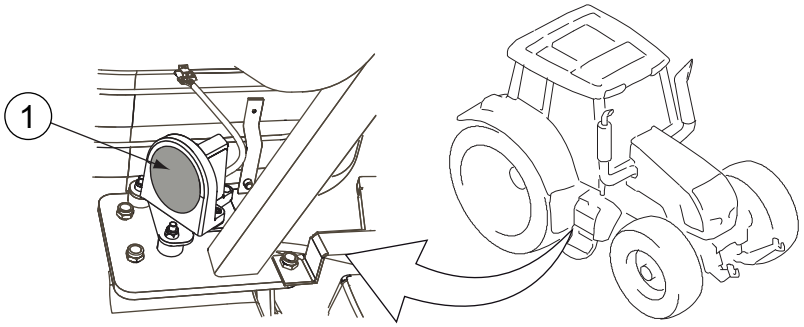
- **Avoid operating the tractor near ditches, embankments and holes.**
- **Stay off slopes too steep for safe operation.**
- **When using chemicals, carefully follow the chemical manufacturer's instructions for use, storage and disposal.**

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

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

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

    Keep an eye on the indicator lights on the instrument panel.
- **Do not go under the tractor.**



1. Radar

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

- **Front loader**

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

  - Ensure that no one is in the working area when you are working with a front loader.
  - Lower the front loader to the down position before leaving the tractor.
  - Observe any special instructions issued by the loader manufacturer.

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

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

- **Differential lock**

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

- **Overturning**

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

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

- **Hydraulic/fuel pressure**

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

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

- **Hot surfaces**

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

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

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

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- 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 EN15695-1:2009. 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 overturning, falling objects and penetrating objects.

1.2.4.2 Getting into and out of the cab

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

- Always use three-point contact with the tractor and face the tractor when getting in and out.
- Use handrails, grab handles and steps when getting in and out.
- Do not use the control levers as a handhold.
- Do not step on pedals when getting in and out.
- Never attempt to get into or out from a moving tractor.
- Never jump off a tractor.

1.2.4.3 Driving on public roads

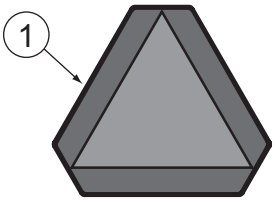
When driving the tractor on public roads, pay special attention to the safety issues.

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

- **When driving the tractor on public roads**

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

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



1. Slow moving vehicle emblem

1.2.4.4 Controlling the driving speed

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

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

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

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

1.2.4.5 Driving downhill

Be careful when driving downhill.

- **Do not drive with the gear lever in neutral or the clutch pedal pressed down.**
- **Do not press the HiShift push button.**
- **Check the brakes often.**
- **Change to a lower gear before driving down a steep incline.**

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

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

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

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1.2.4.6 Operating with implements

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

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

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

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

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

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

WARNING: When disconnecting, the implement may fall downwards.

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

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

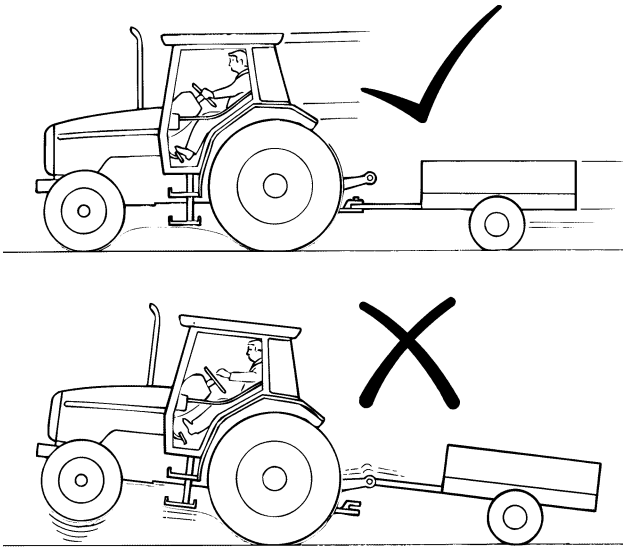
  Three-point hitch and side-mounted implements make a much larger arc when turning than towed equipment. Use only Valtra approved attachments and implements.

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

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

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

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



1.2.4.7 Running with power take-off driven implements or machines

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

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

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

1.2.4.8 Using ballast weights

Use ballast weights according to the instructions when needed.

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

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

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

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1.2.4.9 Towing

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

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

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

WARNING: When using a trailer, always use the trailer brakes if required by law. 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, be sure not to exceed the maximum weight of the rear axle. See the technical specifications in this manual for the maximum permissible axle loading.

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

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

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

1.2.4.10 Ensuring personal safety of other people

Avoid hazards for other people when using the tractor.

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

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

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

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

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

  They could injure themselves or someone else.

1.2.4.11 Fire hazards

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

1.2.4.12 Handling viton seals subjected to high temperatures

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

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

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

  WARNING: Never burn viton seals.

1.2.4.13 After-treatment system

The selective catalytic reduction (SCR) after-treatment system contains vanadiumpentoxide. Vanadiumpentoxide can be hazardous to health.

The SCR after-treatment system is installed in the muffler, and is not hazardous to health under normal use and handling.

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When the SCR after-treatment 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 after-treatment system, machining, and disposal of the after-treatment system.

Safety instructions for work involving the SCR after-treatment system

- Inhalation: If dust is inhaled, the affected person must be immediately taken to breathe plenty of fresh air. If a considerable amount of dust has been inhaled, seek medical help.
- Contact with eyes: Rinse eyes immediately with water. If irritation continues, seek medical help.
- Contact with skin: Wash with soap and water. Take off contaminated clothes.
- Swallowing: If a large amount has been swallowed, drink plenty of water and try to vomit. Seek medical help.

Environmental hazards

Vanadiumpentoxide is toxic to aquatic organisms, and may cause long-term adverse effects in the aquatic environment.

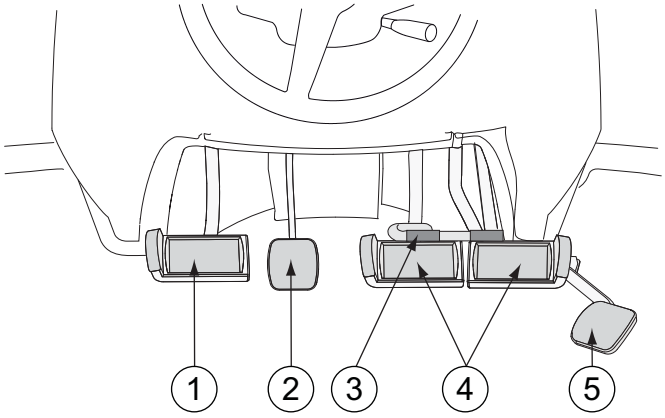
Precautions to protect the environment

All dust and spillage must be gathered in a container for recycling or disposal in accordance with local regulations. They must not be allowed to enter water systems or the general waste management system.

When an SCR after-treatment system is no longer used, it must be disposed of in accordance with applicable EU regulations, national regulations, or local regulations. EU classifies its parts as hazardous to the environment.

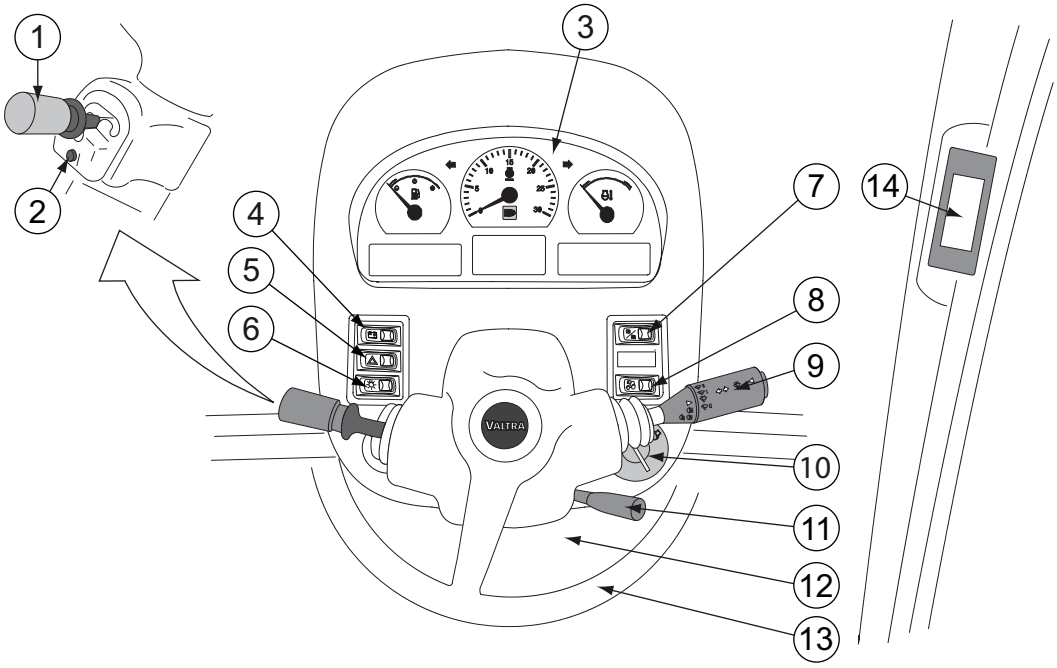
2 Instruments and controls

2.1 Pedals



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

2.2 Dashboard

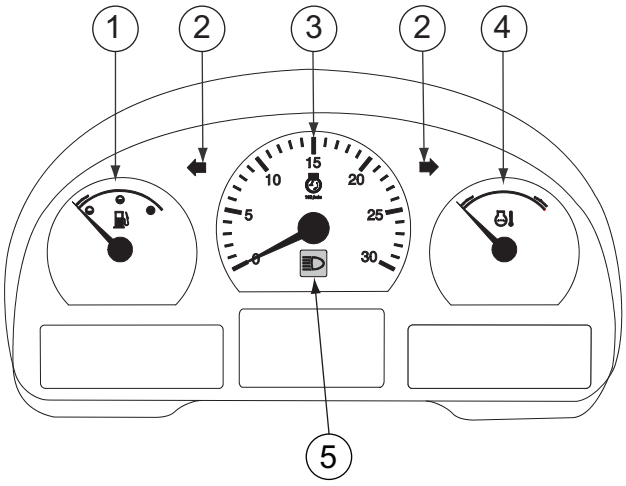


1. Power shuttle lever
2. Powershift preprogramming push button
3. Agroline instrument panel
4. Hazard warning flasher switch
5. Light switch
6. Agroline instrument panel display change-over switch

7. Upper headlights (extra equipment)
8. Multifunctional lever
9. Ignition switch
10. Lever for adjusting steering wheel position
11. Electric centre, lower part of the dashboard
12. Steering wheel
13. A-pillar display

2.2.1 Agroline instrument panel

The operator receives information from the gauges, coolant thermometer, tachometer and indicator lights. All this can be seen on the Agroline instrument panel.



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

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

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

2.2.1.1 Symbols on the Agroline instrument panel display

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

Fixed view symbols

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

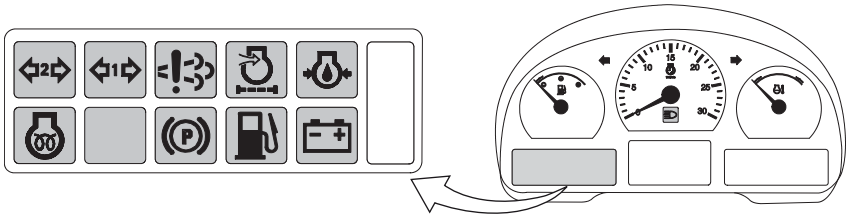
Symbol	Function
⧖	Operating hours (hhhh.h)
km/h / mph	Driving speed (km/h / miles/h)

Selectable view symbols

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

Symbol	Function
	Driving trip (m, km/miles)
R	Rear PTO rotating speed (r/min)
F	Front PTO rotating speed (r/min, extra equipment)
	Clock
	Transmission temperature
AC R	Position of lower links (%, 0-100 Ac)
	Maintenance schedule

2.2.1.2 Indicator lights on the left side of the display

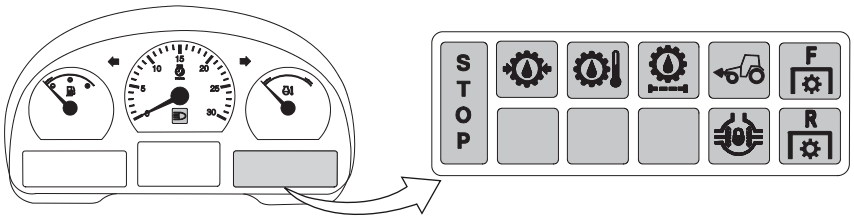


Indicator light	Indication
	Direction indicator light for second trailer (green) If one of the bulbs on the combination has failed, this light is not lit.
	Direction indicator light for first trailer (green) If one of the bulbs on the combination has failed, this light is not lit.
	Engine emission system failure or malfunction indicator light
	Engine air cleaner clogging indicator light
	Engine oil pressure light
	Glow indicator light The light (yellow) is lit when the ignition key is in position and the engine is cold.

Table continued on next page

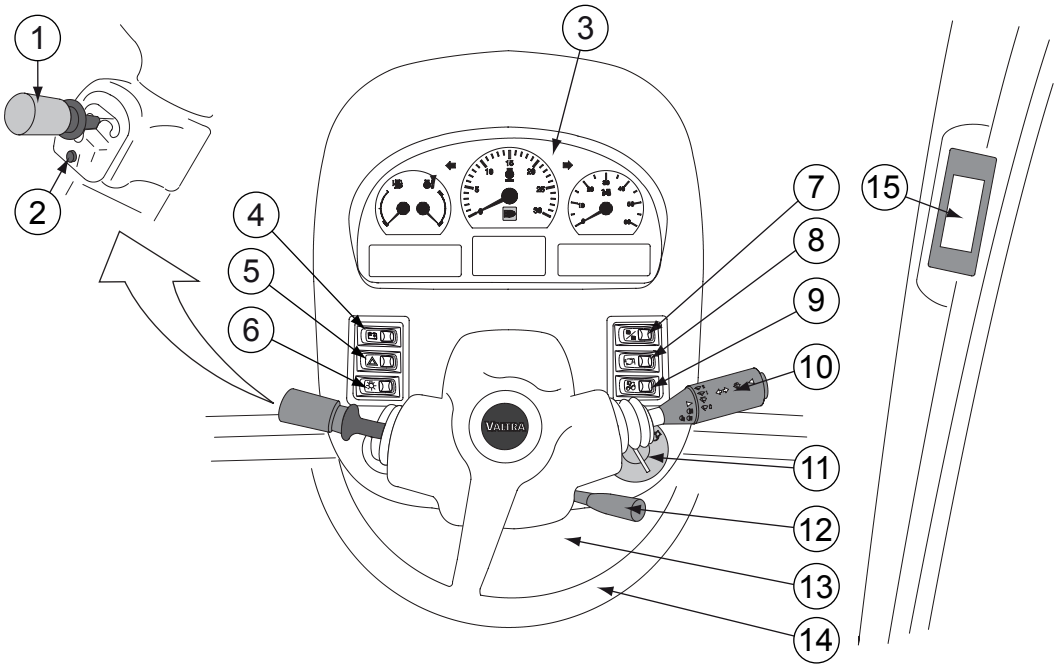
Indicator light	Indication
	Parking brake indicator light The light (red) is lit to indicate that the power shuttle lever is in the parking brake position.
	Low fuel level indicator light The light is lit (yellow) and a buzzer sounds once to indicate that about 50 litres of fuel is left.
	Battery charging indicator light

2.2.1.3 Indicator lights on the right side of the display



Indicator light	Indication
	STOP indicator light (red)
	Gearbox oil pressure light (red)
	Gearbox oil temperature light (red)
	Hydraulic pressure and auxiliary return oil filter clogging indicator light (red)
	Front wheel drive indicator light The light is lit (yellow) to indicate that front wheel drive is engaged.
	Front power take-off (PTO) indicator light The light (yellow) is continuously on and indicates that the front PTO is engaged.
	Differential lock indicator light The light is lit (yellow) to indicate that the differential lock is engaged.
	Rear PTO indicator light The light blinks (yellow) when the rear PTO has been activated and is ready to operate.The light is on continuously when the rear PTO is engaged.

2.3 Dashboard

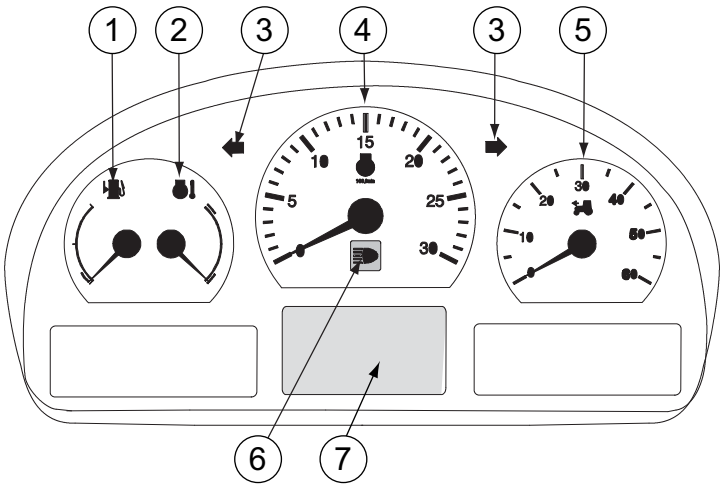


1. Power shuttle lever
2. Powershift preprogramming push button
3. Proline instrument panel
4. Main switch
5. Hazard warning flasher switch
6. Light switch
7. Proline instrument panel display change-over switch
8. Proline instrument panel display setting switch
9. Upper headlights (extra equipment)
10.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

2.3.1 Proline instrument panel

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

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

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

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

2.3.1.1 Symbols on the Proline instrument panel display

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

Fixed view symbols

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

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

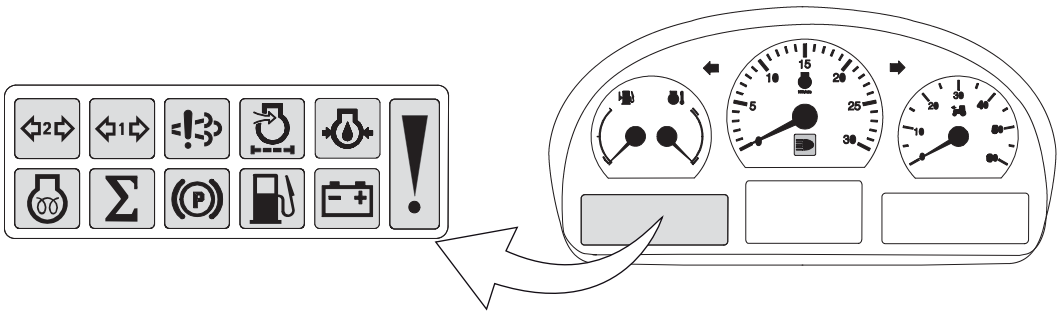
Selectable view symbols

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

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

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

2.3.1.2 Indicator lights on the left side of the display

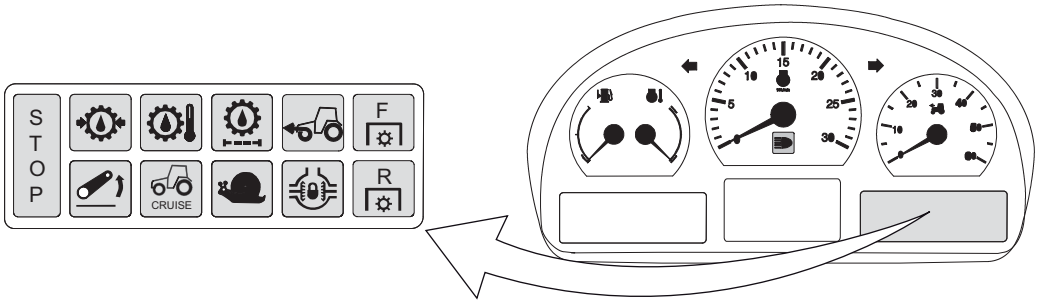


Indicator light	Indication
2	Direction indicator light for second trailer (green). If one of the bulbs on the combination has failed, this light is not lit.
1	Direction indicator light for first trailer (green). If one of the bulbs on the combination has failed, this light is not lit.
	Engine emission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

Table continued on next page

Indicator light	Indication
	Engine oil pressure light
	The exclamation mark is lit together with other indicator lights (yellow).
	Glow indicator light The light (yellow) is lit when the ignition key is in position and the engine is cold.
	Σ indicator light (on model T193 H) The light is lit continuously (yellow) when the tractor is operating in the higher power range and using PTO.
	Parking brake indicator light The light (red) is lit to indicate that the power shuttle lever is in the parking brake position.
	Low fuel level indicator light The light is lit (yellow) and a buzzer sounds once to indicate that about 50 litres of fuel is left.
	Battery charging indicator light

2.3.1.3 Indicator lights on the right side of the display



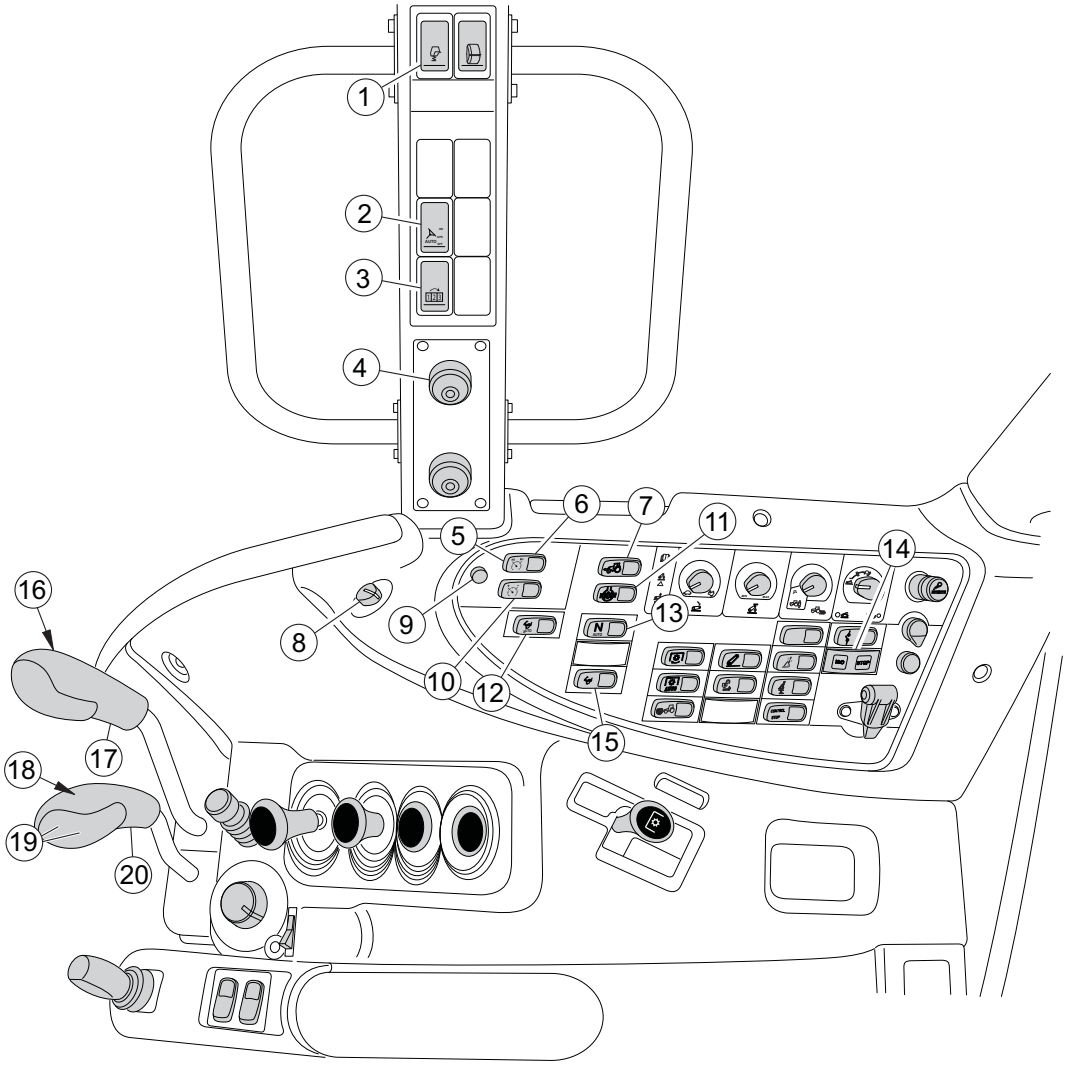
Indicator light	Indication
STOP	STOP indicator light (red)
	Gearbox oil pressure light
	Gearbox oil temperature light
	Pressure oil filter clogging indicator light

Table continued on next page

Indicator light	Indication
	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 (extra equipment) is engaged.
	Rear linkage indicator light The light is on (yellow) to indicate that the lift/stop/lower switch is in lift (transport) position.
	Cruise control indicator light The light is on (yellow) to indicate that cruise control is engaged (constant driving speed/ constant engine speed chosen).
	Creeper speed range indicator light The light flashes (yellow) when the creeper gear is engaging.
	Differential lock indicator light The light is lit (yellow) to indicate that the differential lock is engaged.
	Rear PTO indicator light The light blinks (yellow) when the rear PTO has been activated and is ready to operate. The light is on continuously when the rear PTO is engaged.

2.4 Controls on the right-hand side

2.4.1 Driving controls

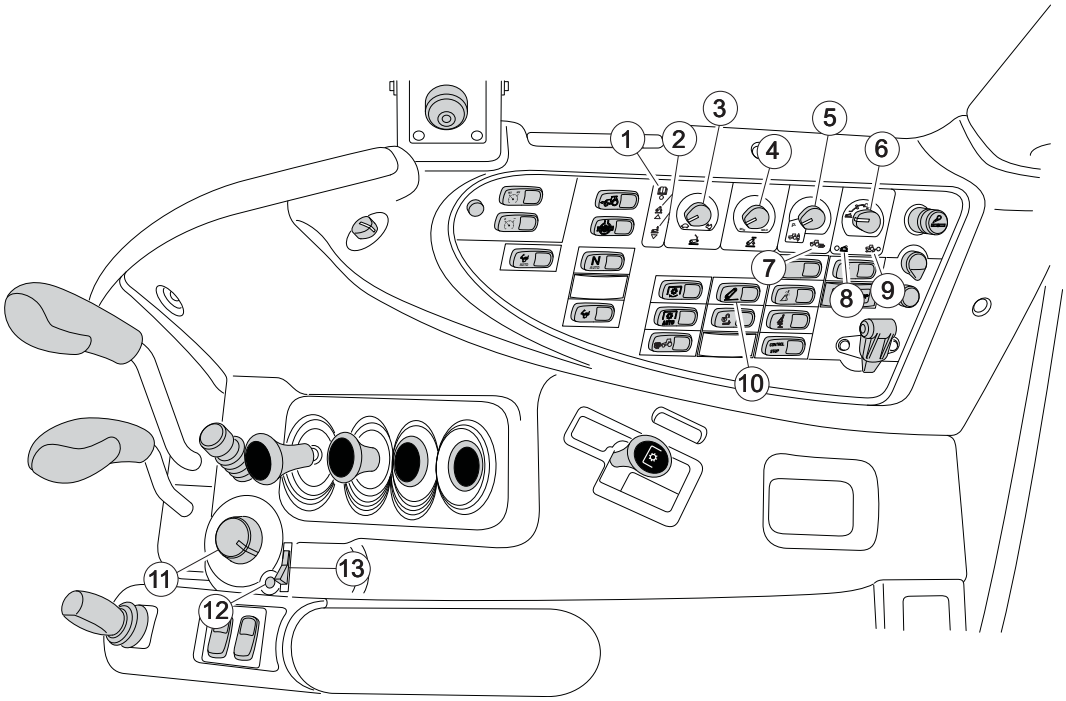


1. AutoComfort cabin suspension system (extra equipment)
2. Activation switch for Auto-Steering (extra equipment)
3. Change switch for A-pillar display views
4. Auto-Steering terminal connector
5. Cruise control (Cruise panel) (extra equipment)
6. Cruise control setting switch; the constant driving speed/engine revs (extra equipment)
7. Switch for four wheel drive (4WD)
8. Hand throttle
9. Cruise control off-switch (extra equipment)
10. Cruise control setting switch (extra equipment)
11. Switch for differential lock
12. Switch for Powershift-automatics
13. Switch for automatic traction control
14. STOP indicator light (red)
15. Powershift rocker switch for reverse drive tractor (extra equipment)
16. Switch for HiShift (extra equipment)
17. Range gear lever
18. Switch for HiShift (extra equipment)
19. Push buttons for Powershift operation
20. Speed gear lever

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2.4.2 Linkage

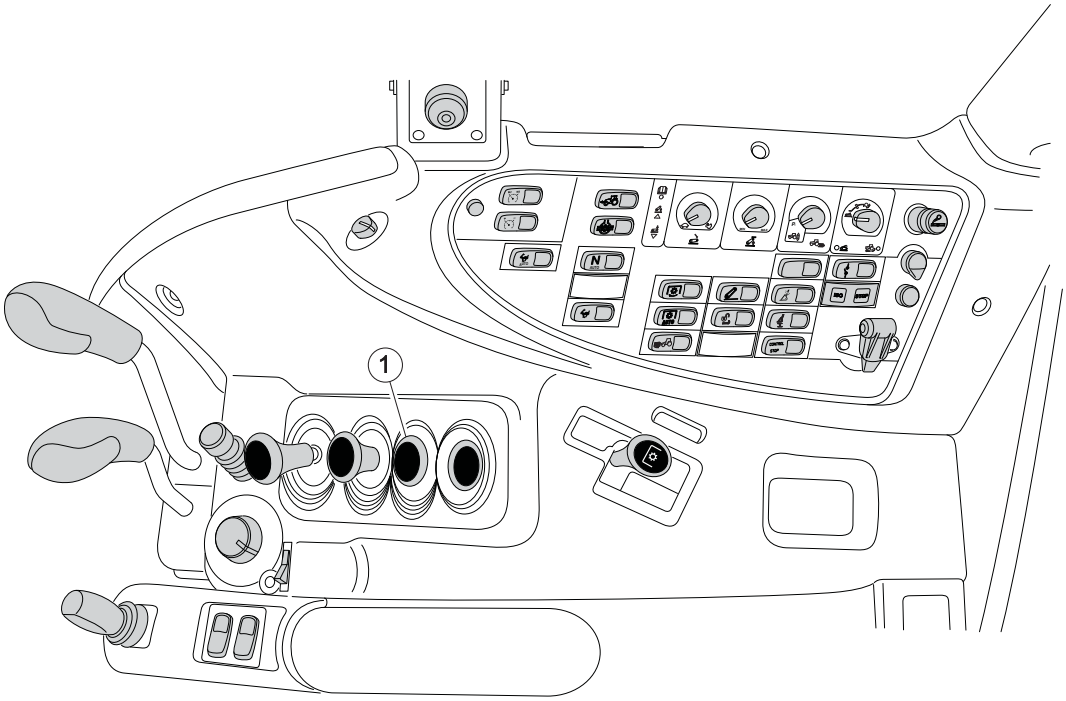
Rear linkage



1. Diagnose light
2. Lift/lower indicator lights
3. Lowering speed selector
4. Transport height selector
5. Draft control selector
6. Drive balance control, including slip control system, on Autocontrol D (ACD) linkage (extra equipment)
7. Draft control indicator light, on Autocontrol D (ACD) linkage (extra equipment)
8. Drive balance control light
9. Slip control light, on Autocontrol D (ACD) linkage (extra equipment)
10. Inner switch for connecting implement (corresponding push buttons located on both mudguards)
11. Position control knob
12. Passing switch for position control knob
13. Lift/stop/lower switch

Front linkage

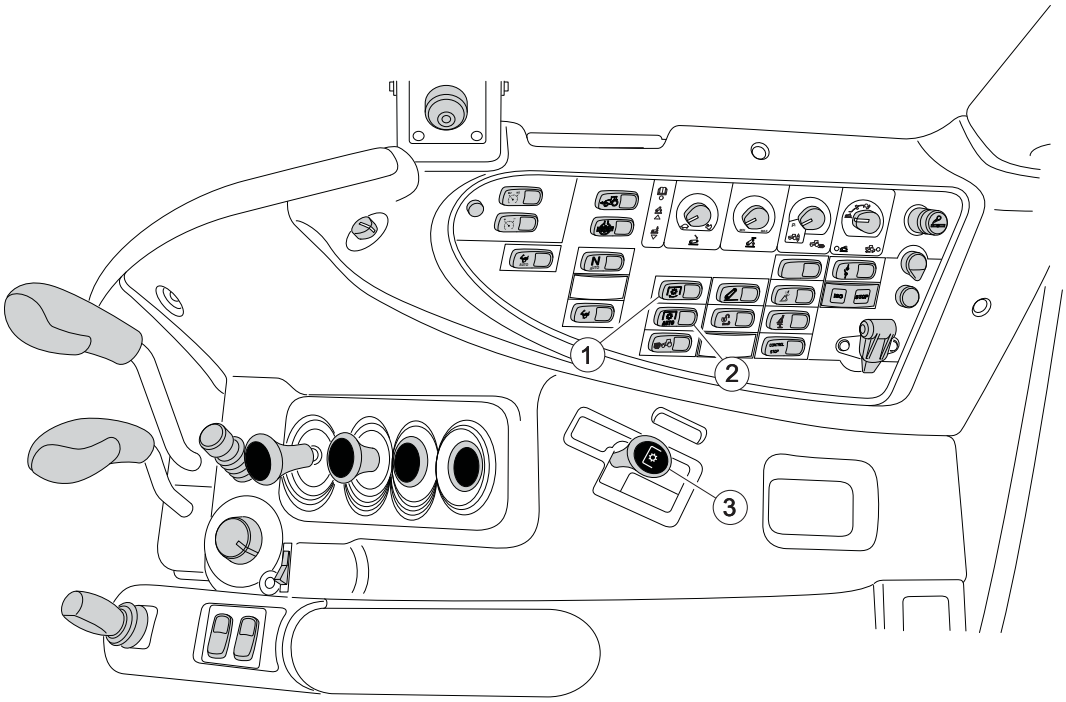
Front linkage is extra equipment.



1. Control lever, auxiliary hydraulics block 3

2.4.3 Power take-off

Rear power take-off

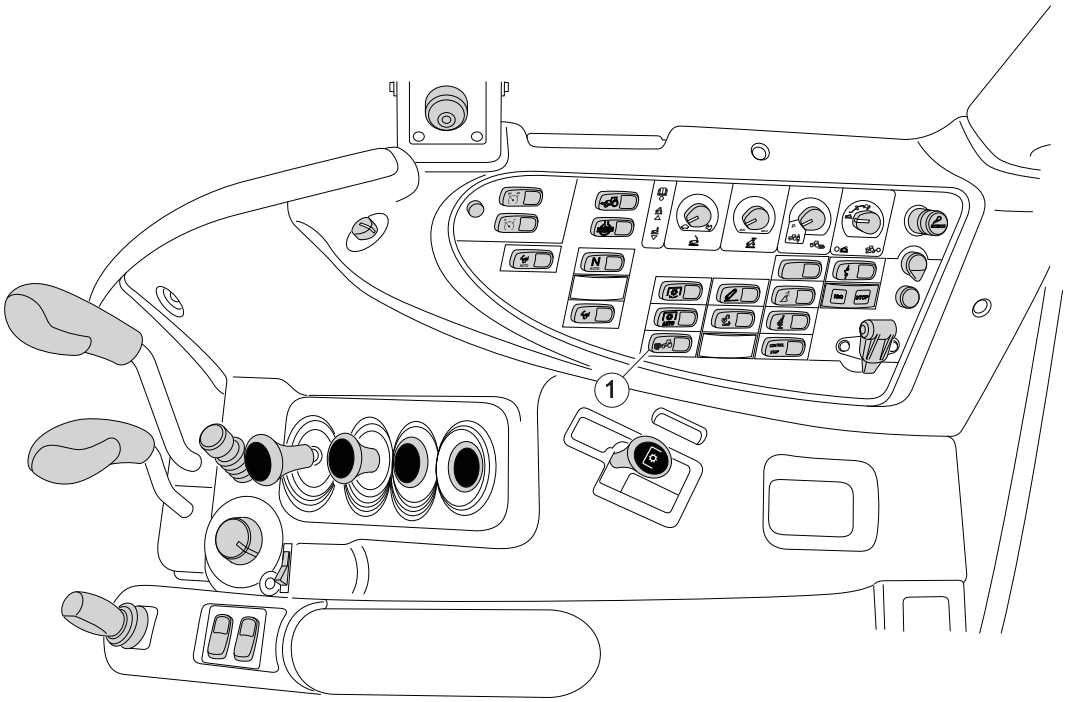


1. Switch for rear power take-off (PTO)
2. Switch for the rear PTO automatic stop
3. Speed control lever for the rear PTO

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Front power take-off

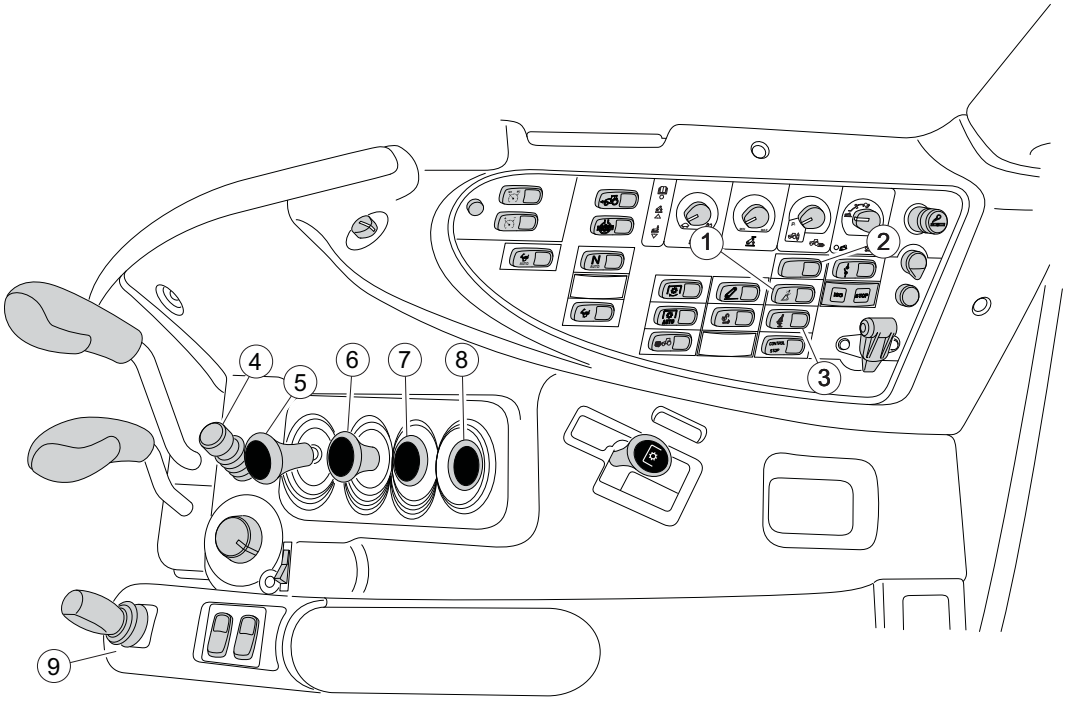
Front power take-off (PTO) is extra equipment.



1. Switch for front PTO

2.4.4 Auxiliary hydraulics

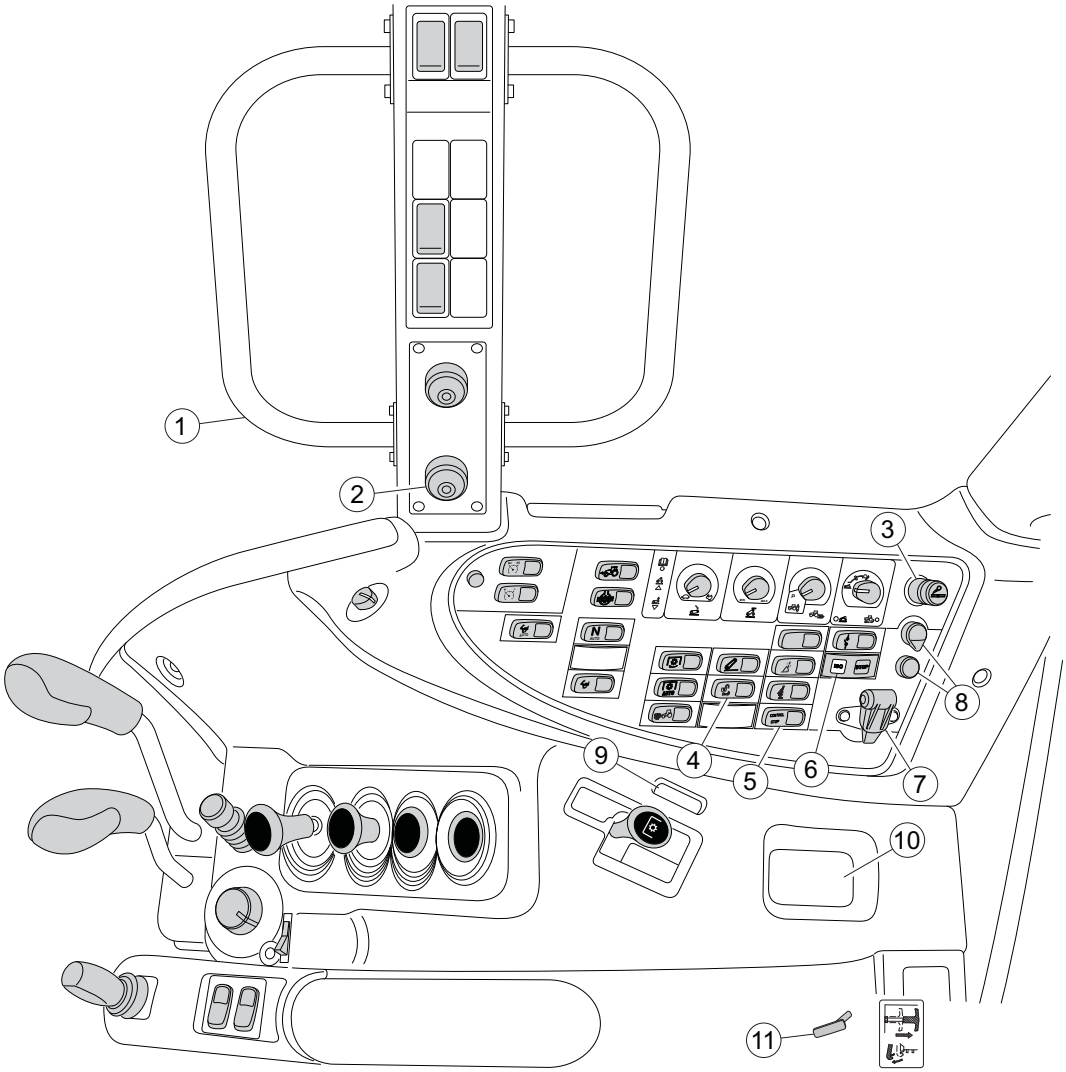
The following instruments and controls are used to control the auxiliary hydraulics.



1. Release switch for equipment locking (extra equipment)
2. Main switch for the hydraulic loader
3. Switch for Softdrive (extra equipment)
4. Flow control valve (extra equipment)
5. Control lever for valve block 1
6. Control lever for valve block 2
7. Control lever for valve block 3 (extra equipment)
8. Control lever for valve block 4 (extra equipment)
9. Extra arm rest, electrically controlled front loader valves (extra equipment)

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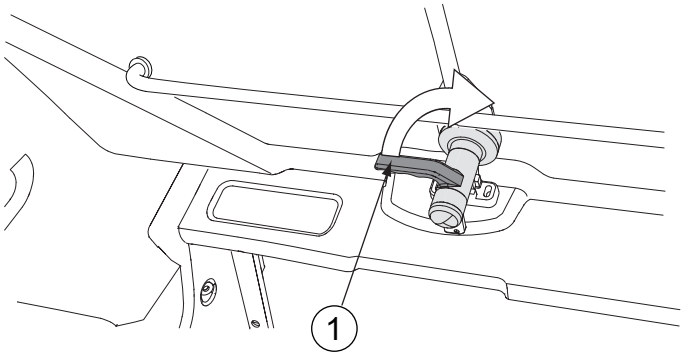
2.4.5 Other controls



1. Mounting brackets (extra equipment)
2. Implement signal connection (extra equipment)
3. Lighter/power outlet
4. Switch for trailer hitch hydraulic unlatching/locking (extra equipment)
5. Control stop switch (extra equipment)
6. Indicator light for implement signal connection (extra equipment)
7. 3-pin power socket
8. 2-pin power sockets (lower socket is extra equipment)
9. Place for implement remote control
10. Storage compartment
11. Trailer hitch release control (extra equipment)

2.5 Controls on the rear side

2.5.1 Rear window opening device

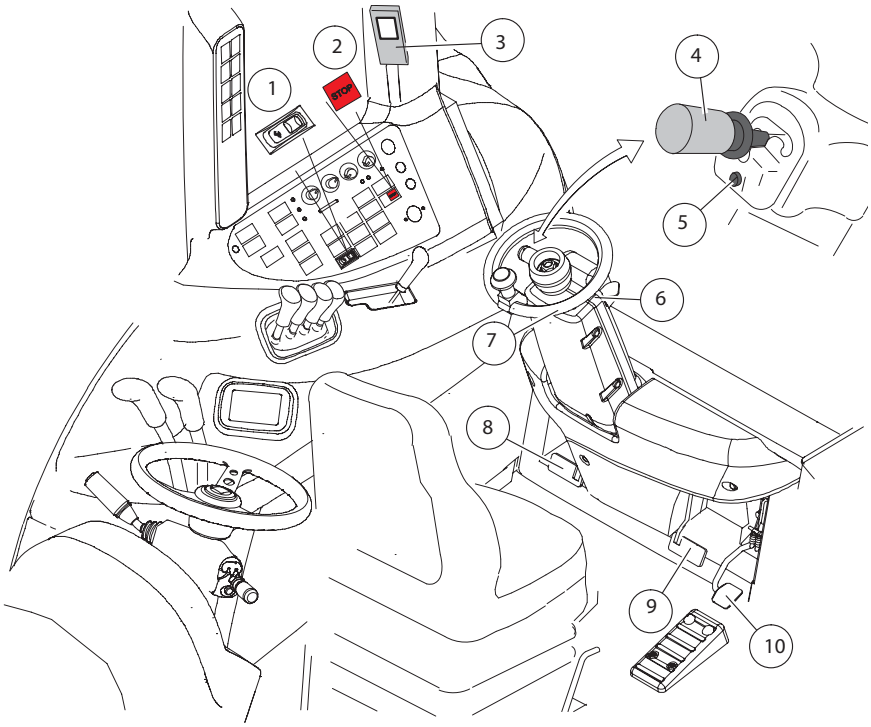


1. Rear window opening device

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2.5.2 Reverse drive system controls

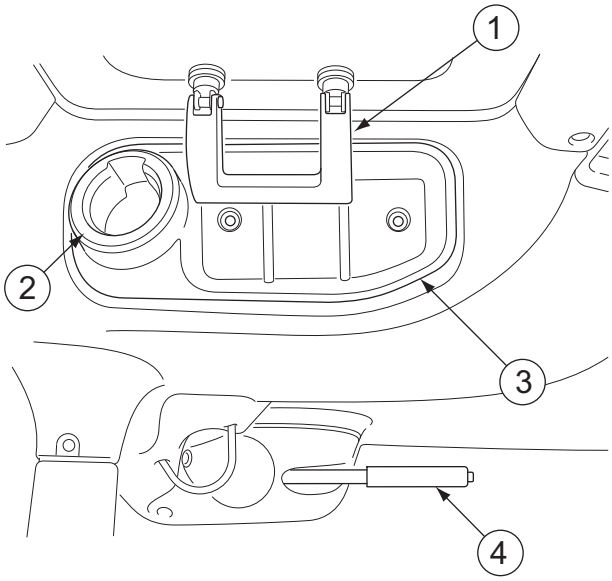
The reverse drive system is extra equipment.



1. Switch for Powershift, (3---steps)
2. STOP indicator light (red)
3. A-pillar display
4. Power shuttle lever
5. Powershift preprogramming push button
6. Lever for adjusting steering wheel inclination
7. Steering wheel
8. Clutch pedal
9. Brake pedal
10. Accelerator pedal

2.6 Controls on the left-hand side

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

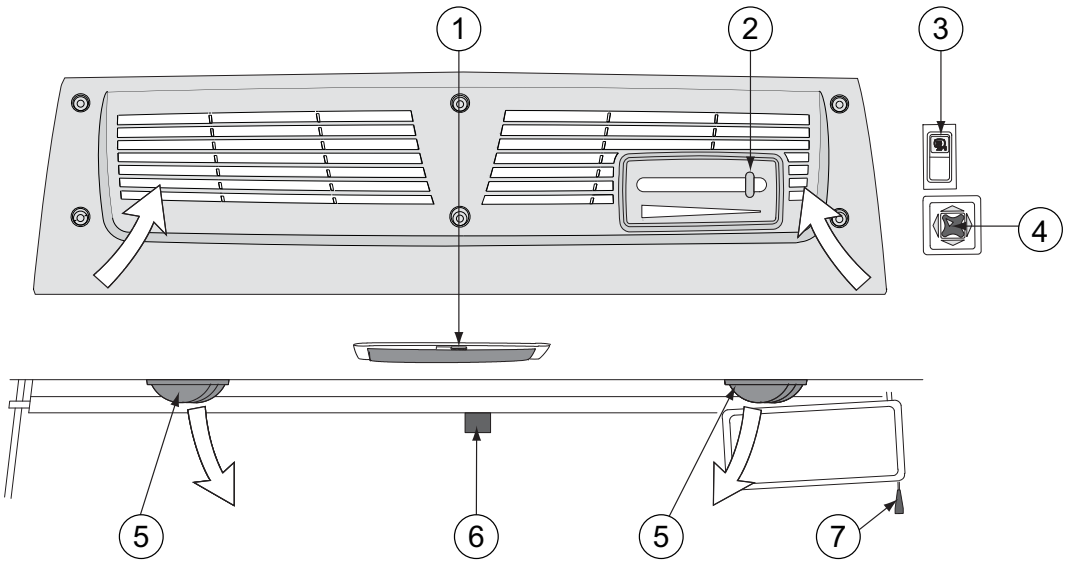


1. Side window opening handle
2. Storage compartment or place for ash tray, extra equipment
3. Storage compartment
4. Emergency brake, extra equipment

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2.7 Controls on the front roof console

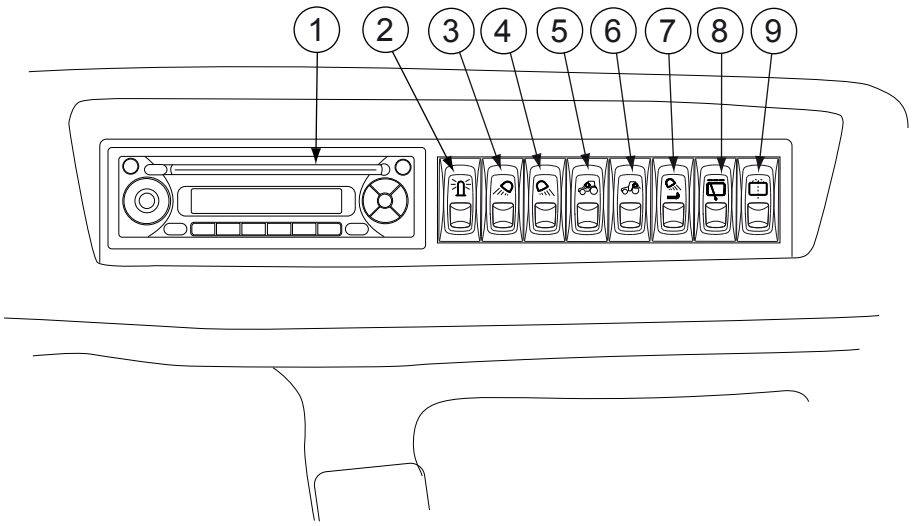
The following controls are positioned in the front roof console.



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

2.8 Controls on the right-hand side roof console

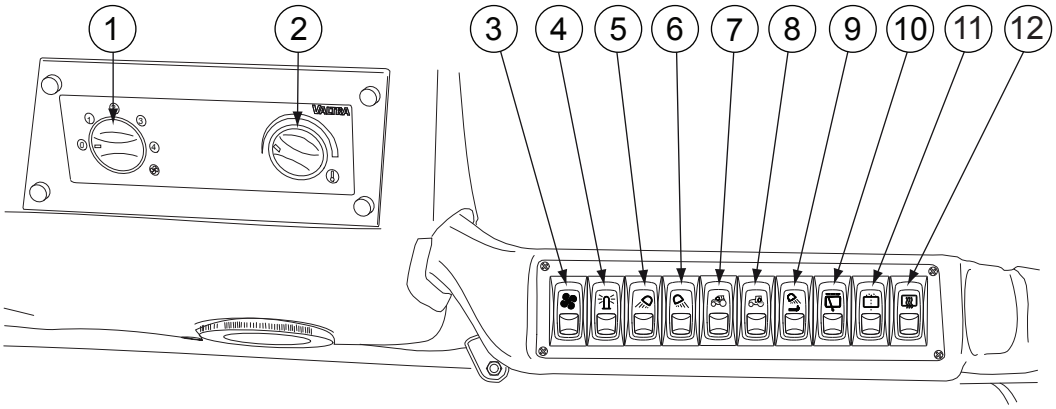
The following figure shows the components on the right-hand side roof console.



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

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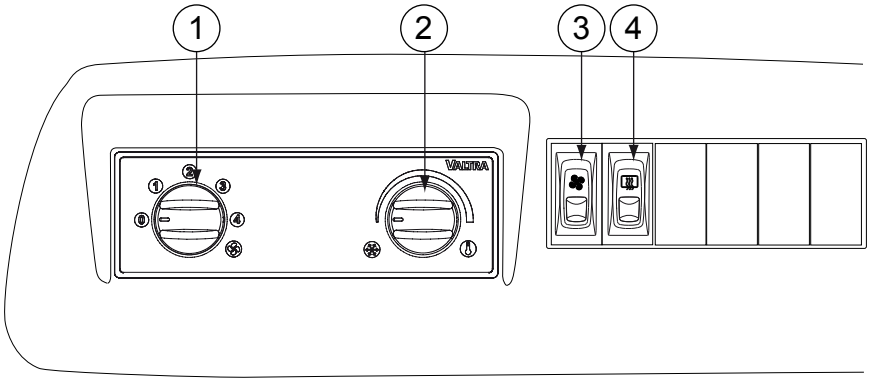
2.9 Controls on the forest equipment right-hand side roof console



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

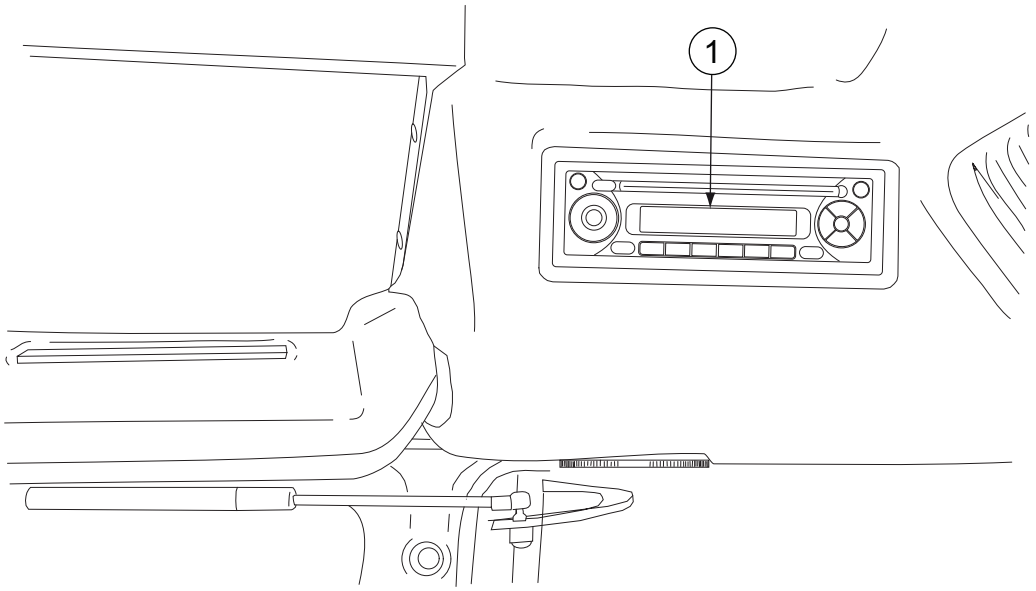
2.10 Controls on the left-hand side roof console

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



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

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

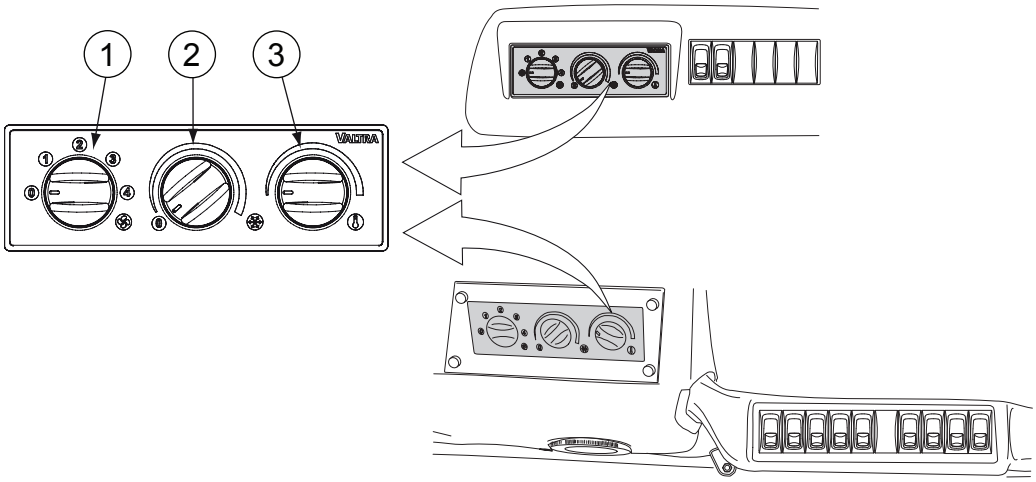


1. Radio (extra equipment)

2.12 Air conditioning controls

2.12.1 Manual air conditioning controls

The manual air conditioning system is extra equipment.

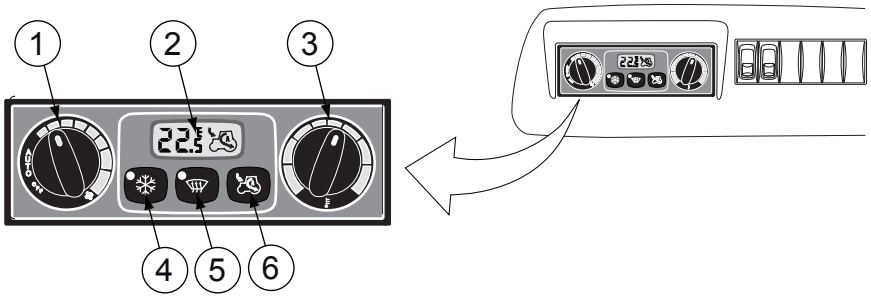


1. Fan control knob
2. Air conditioning control knob
3. Recirculation control knob

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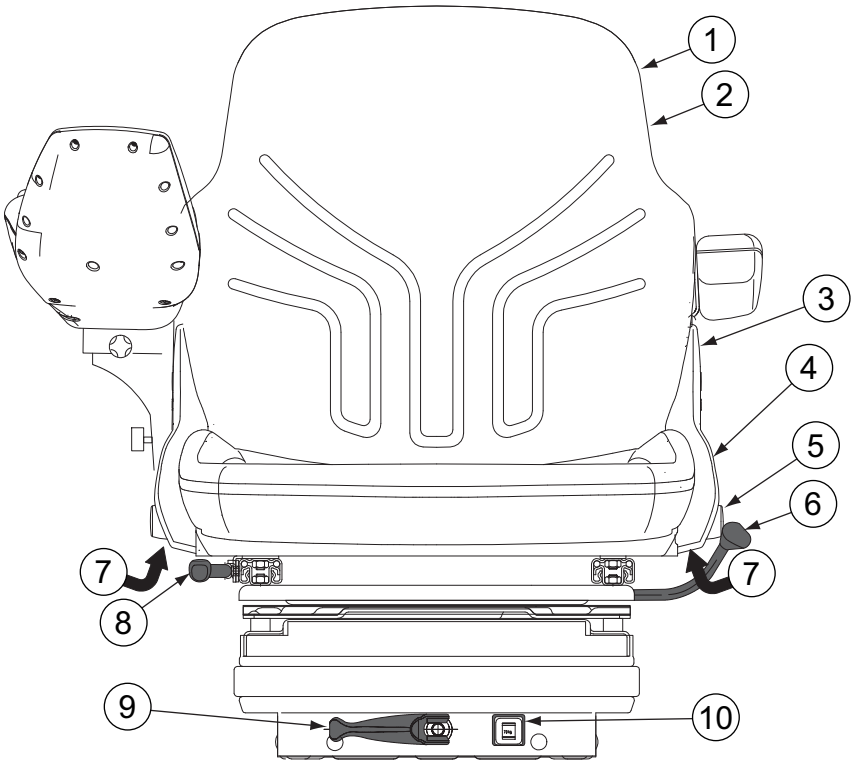
2.12.2 Automatic air conditioning controls

The automatic air conditioning system is extra equipment.



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

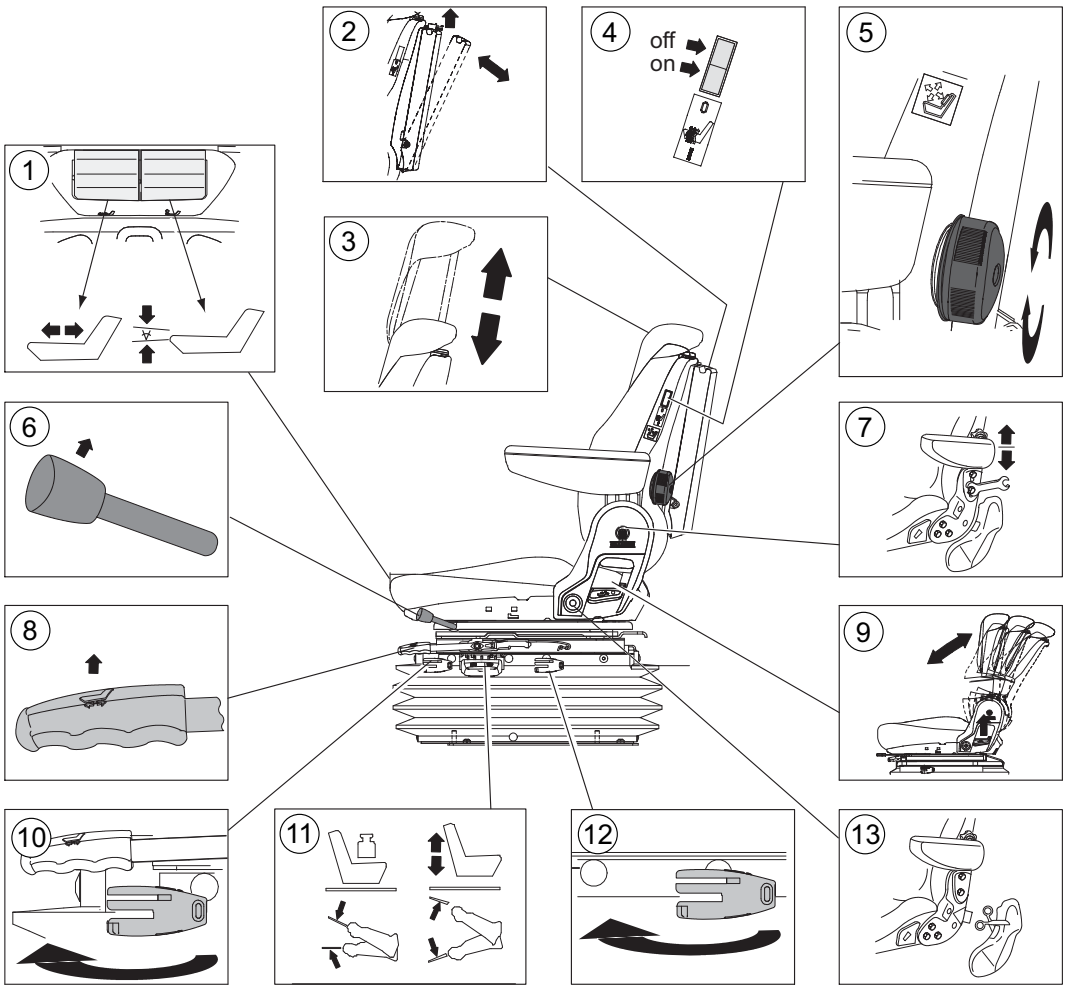
2.13 Driver's seat



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

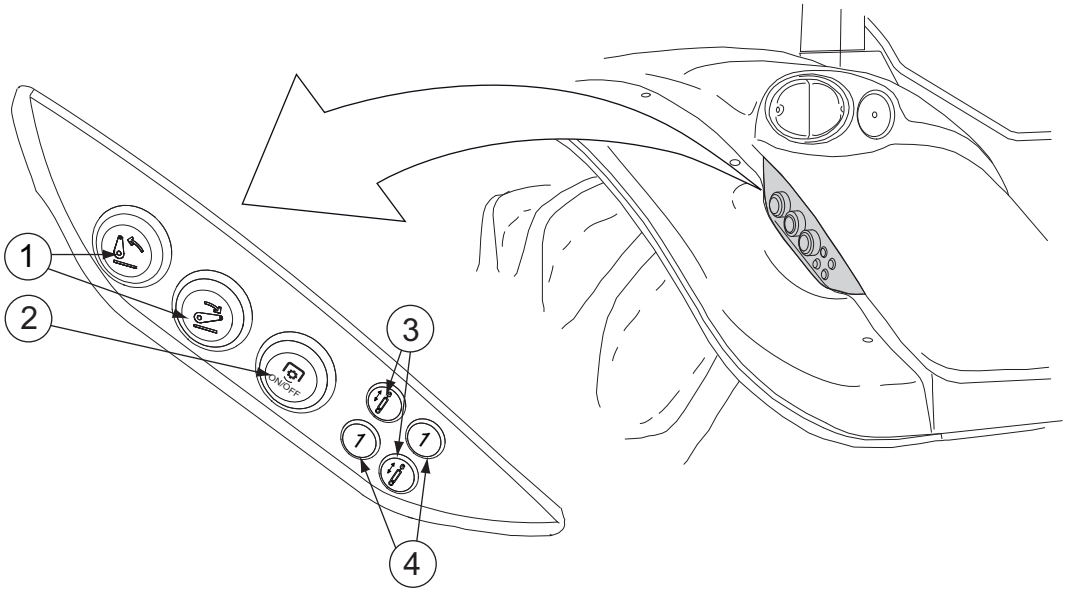
2.14 Air suspended driver's seat

Air suspended driver's seat is extra equipment.



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

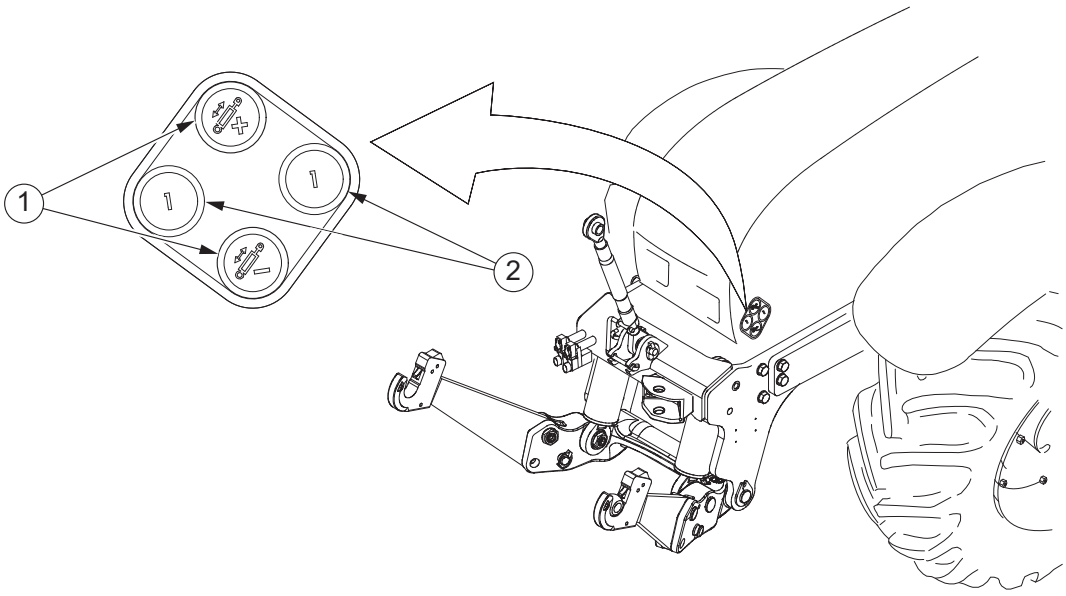
2.15 Controls on the rear mudguard



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

2.16 Controls on the bonnet

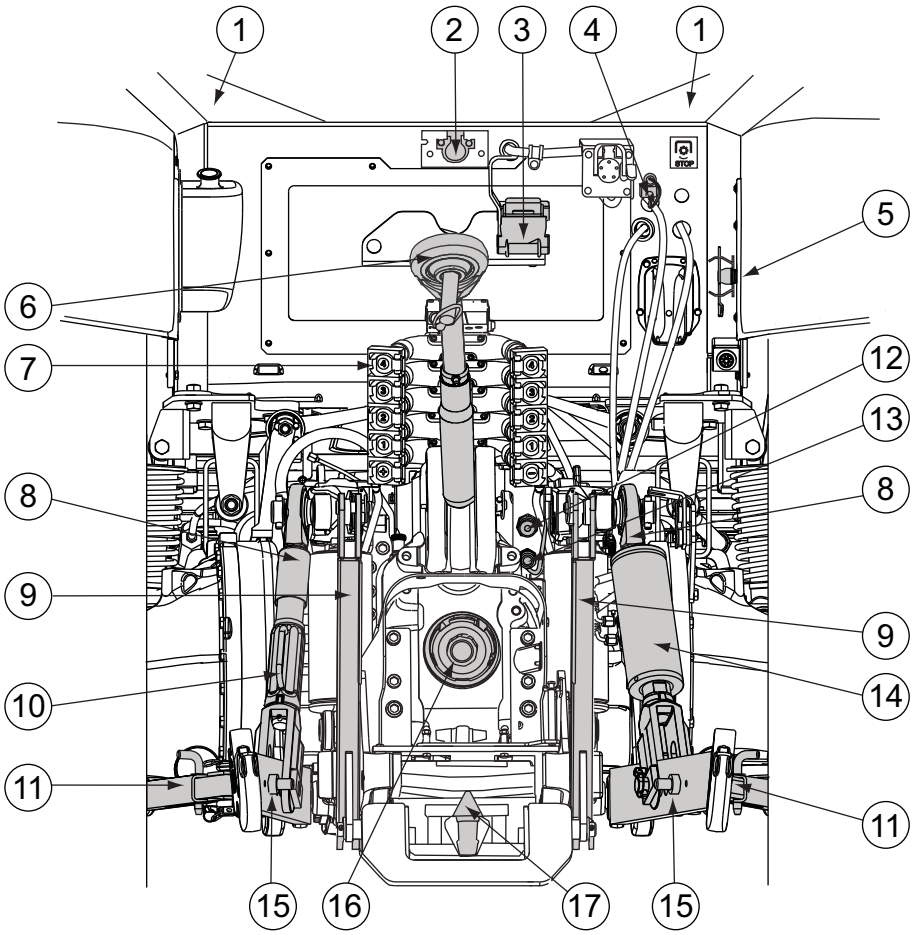
The following controls are positioned on the bonnet.



1. Lift/lower push buttons for the front linkage
2. Front quick couplings push buttons

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2.17 Rear controls and connections outside the cab

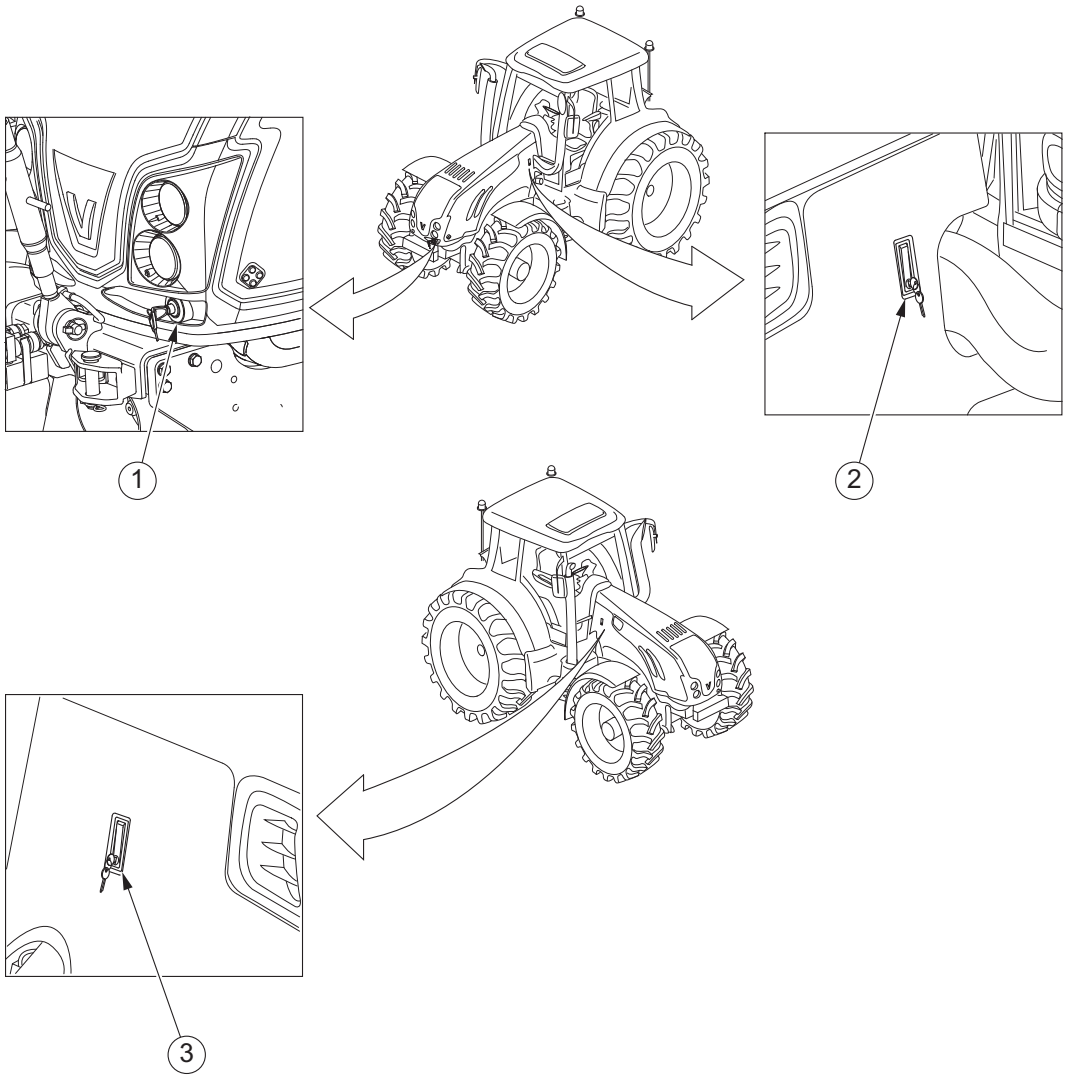


1. Inlet, remote control cables
2. Trailer socket
3. Trailer coupling Duo-Matic (extra equipment)
4. Emergency stop plug for rear power take-off (PTO)
5. Hitch ball storing bracket
6. Top link
7. Quick-action couplings, auxiliary hydraulics
8. Lifting links
9. Pick-up hitch lifting links (extra equipment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

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

2.18 Engine hood locking

Engine hood and the side plates are locked. You can open the hood and the side plates with the separate keys delivered with the tractor.



1. Engine hood lock.
2. Side plate lock on the left side.
3. Side plate lock on the right side.

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3 Operation

3.1 Running the tractor in

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

Before you start driving, make sure that:

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

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

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

When running the tractor in:

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

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

3.2 Preparing for use

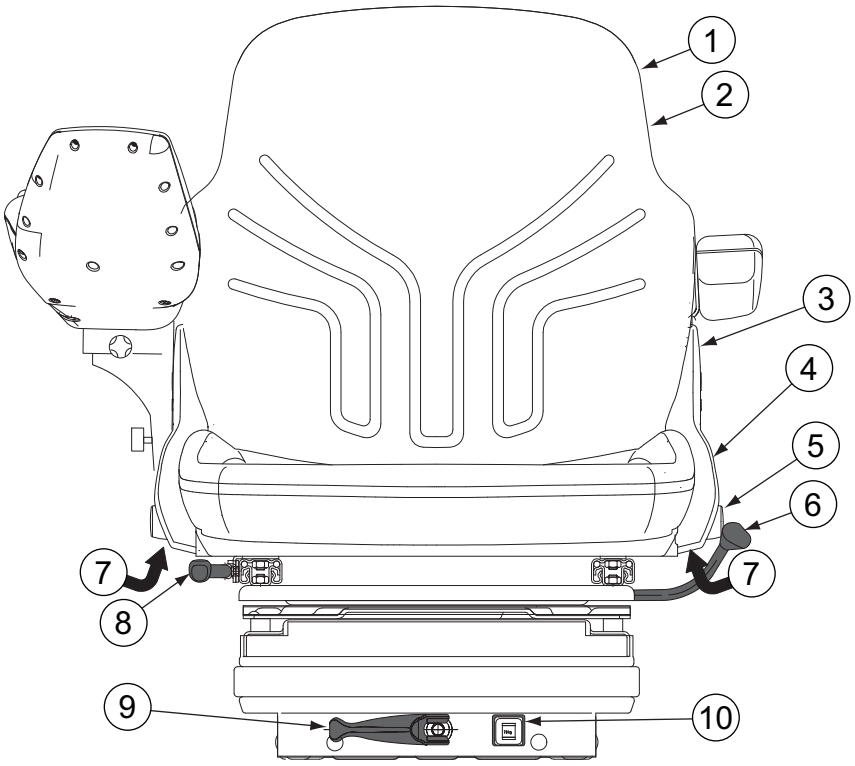
Before you start using the tractor, read this manual thoroughly.

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

3.2.1 Adjusting the driver's seat

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

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



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

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

    The seat has set positions at intervals of 10°, to be used, for example, when ploughing.
- **Adjust the seat forwards or backwards.**
  - **Pull up the forward/backward adjustment lever.**
  - **Move the seat to the desired position.**

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- **Adjust the suspension.**

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

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

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

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

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

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

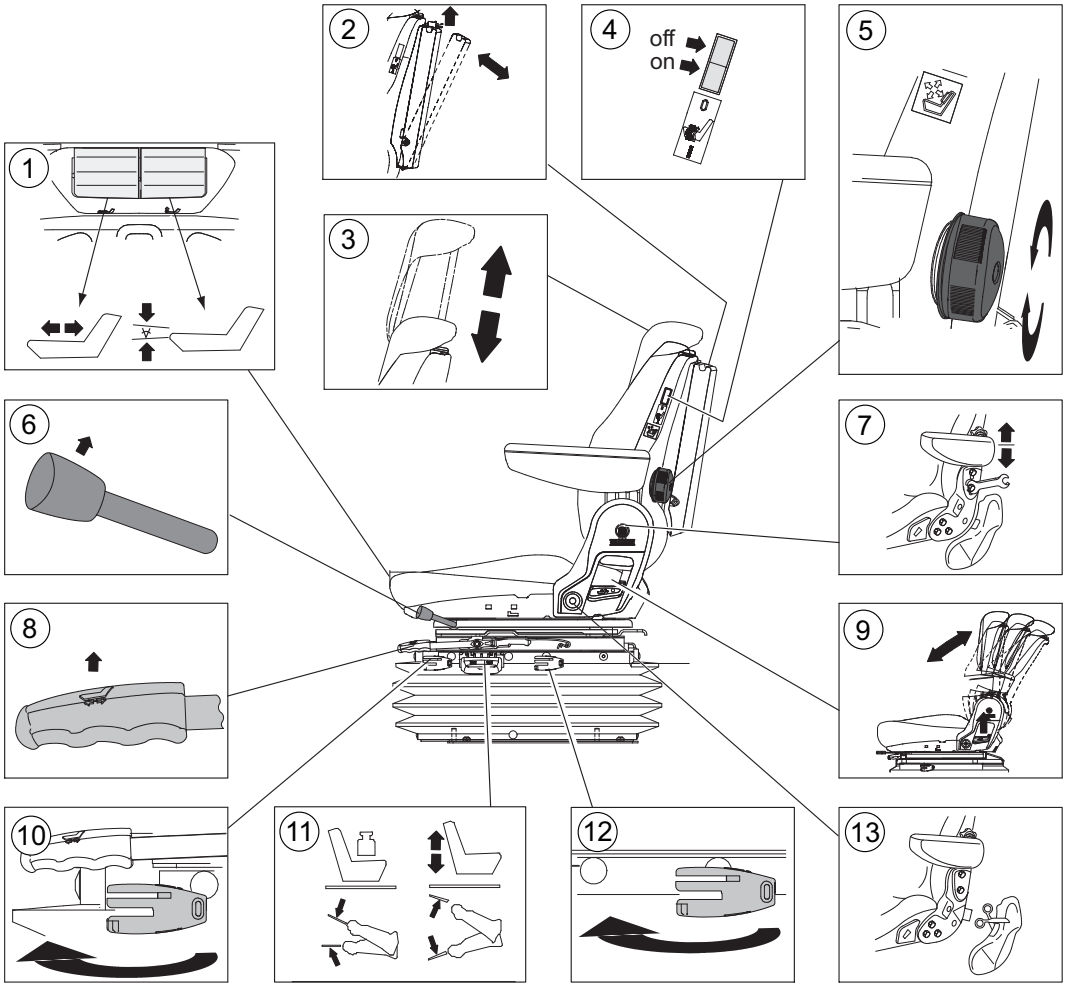
- **Turn the seat heating on or off.**

3.2.2 Adjusting the air-suspended driver's seat

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



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



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

- **Adjust the seat depth and cushion angle.**
  - **To adjust the seat depth, pull up the right handle in the seat front.**
  - **To adjust the seat cushion angle, pull up the left handle in the seat front.**
- **Turn the seat.**
  - **Release the lock by pulling the lock/release lever upwards.**
  - **Turn the seat to the desired position.**

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

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- **Adjust the seat forwards or backwards.**
  - **Pull the forward/backward adjustment lever upwards.**
  - **Move the seat forwards or backwards to the desired position.**

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

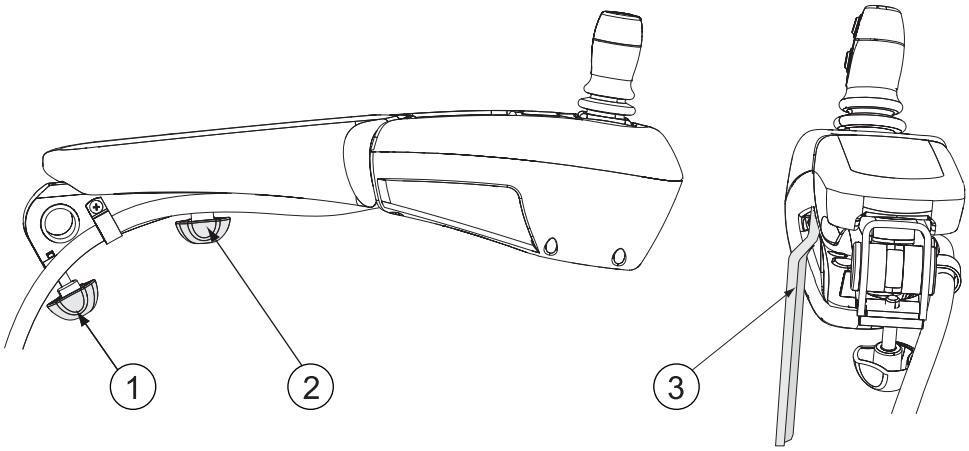
- **Adjust the armrest.**
  - **Remove the cover.**
  - **Change the armrest position in the mounting slot.**

- **Adjust the lumbar support.**

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

- **Turn the seat heating on or off.**
- **Adjust the headrest height by lifting or lowering it.**
- **Remove the headrest by pulling it upwards.**

3.2.3 Adjusting the armrest



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

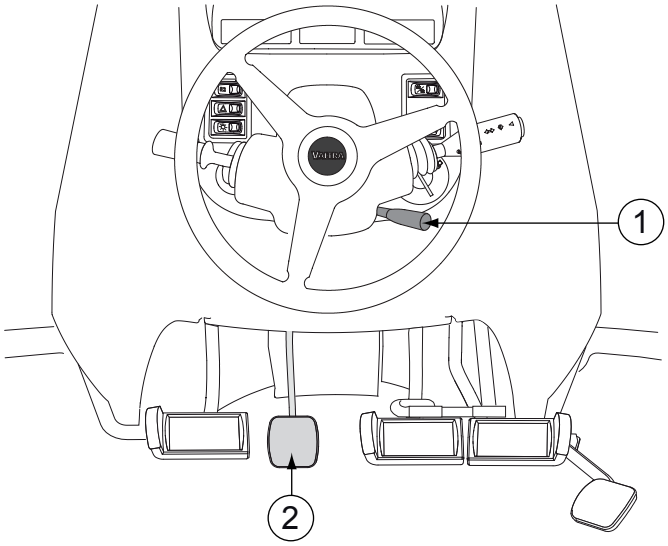
- **Adjust the armrest inclination.**
  - **Turn the declination adjustment screw clockwise to lift up the armrest.**
  - **Turn the declination adjustment screw anti-clockwise to lower the armrest.**
- **Raise the armrest to the upright position by lifting the front edge.**
- **Adjust the length of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

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3.2.4 Adjusting the steering wheel

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

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



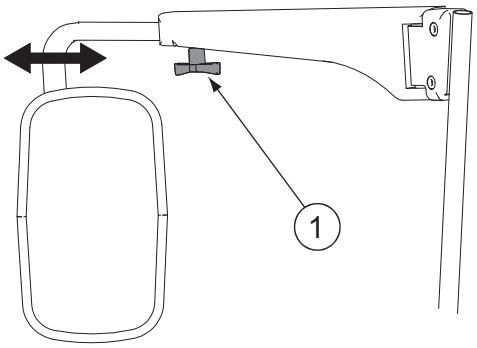
1. Lever for adjusting steering wheel position
2. Locking pedal for steering wheel inclination

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

    You can move the steering wheel to 9 different positions.
  - **Release the pedal after adjusting.**

3.2.5 Adjusting standard mirrors

You can adjust the position of the standard mirrors manually.

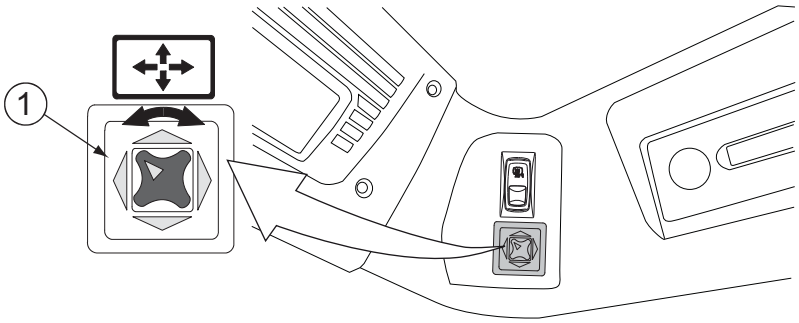


1. Locking device of the mirror support

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

3.2.6 Adjusting optional mirrors

You can adjust the position of the optional mirrors electrically.



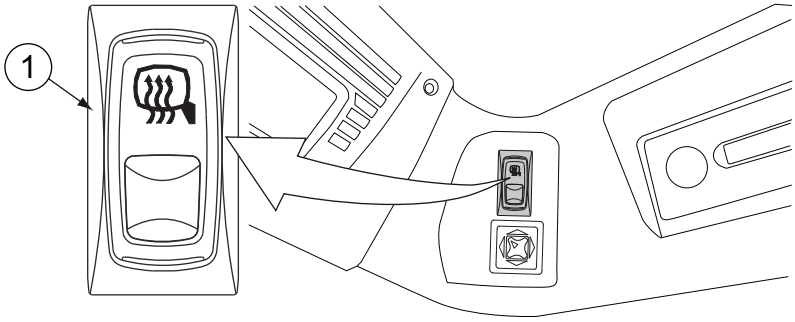
1. Mirror adjustment

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

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3.2.7 Heating mirrors

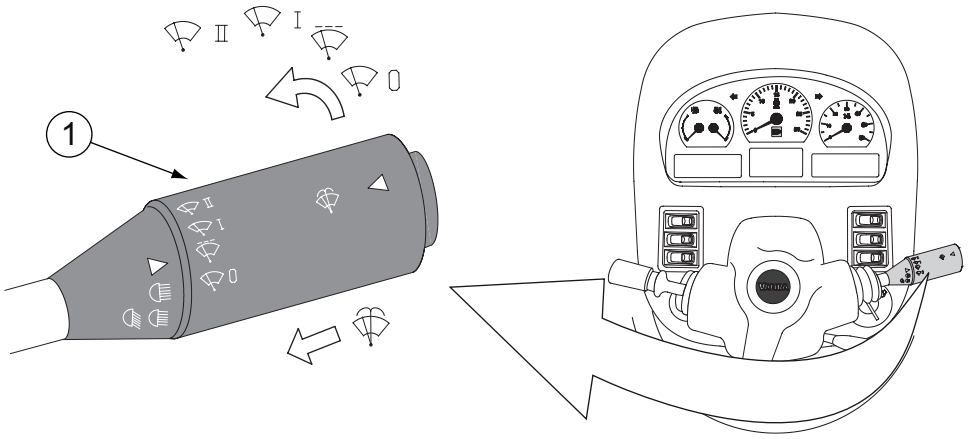
Mirror heating is extra equipment.



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. Multifunctional lever

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

3.2.9 Using the rear window heater

Rear window heater is extra equipment.

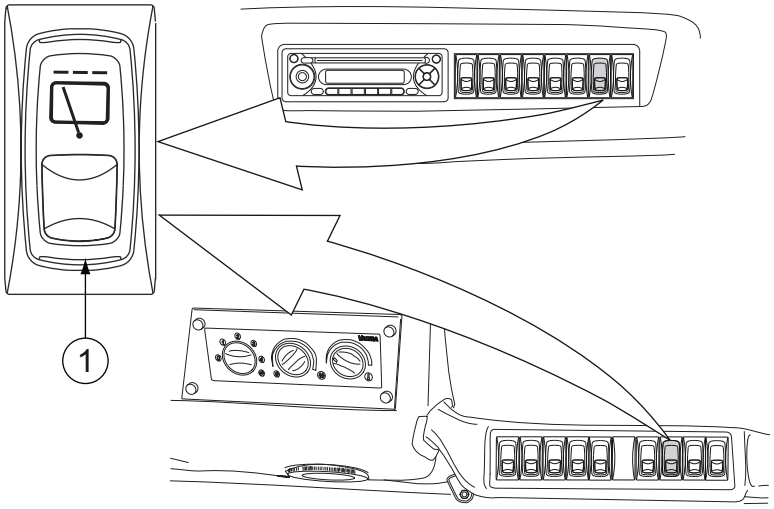
1. **To switch the rear window heater on, press down the symbol side of the switch.**

2. **To switch the rear window heater off, press down the switch opposite to the symbol.**

   If the rear window heater is not manually switched off, it switches off automatically after 10 minutes.

3.2.10 Using the rear window wiper

The rear window wiper is extra equipment.



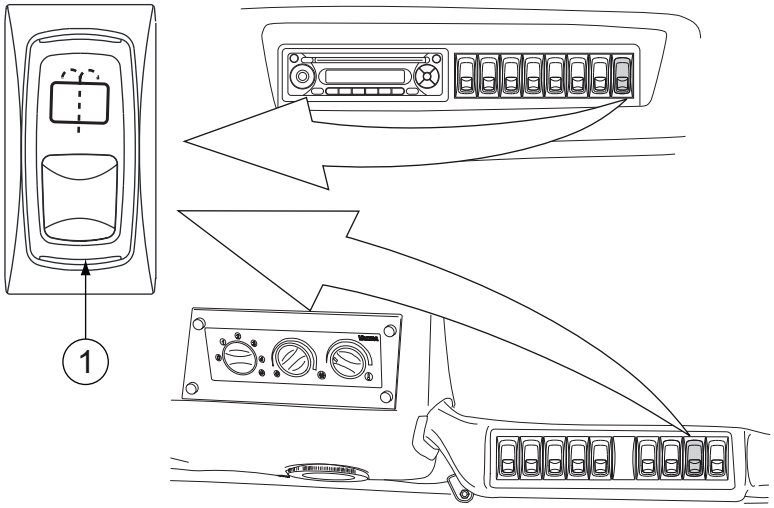
1. Switch for the rear window wiper

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

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3.2.11 Using the rear window washer

The rear window washer is extra equipment.

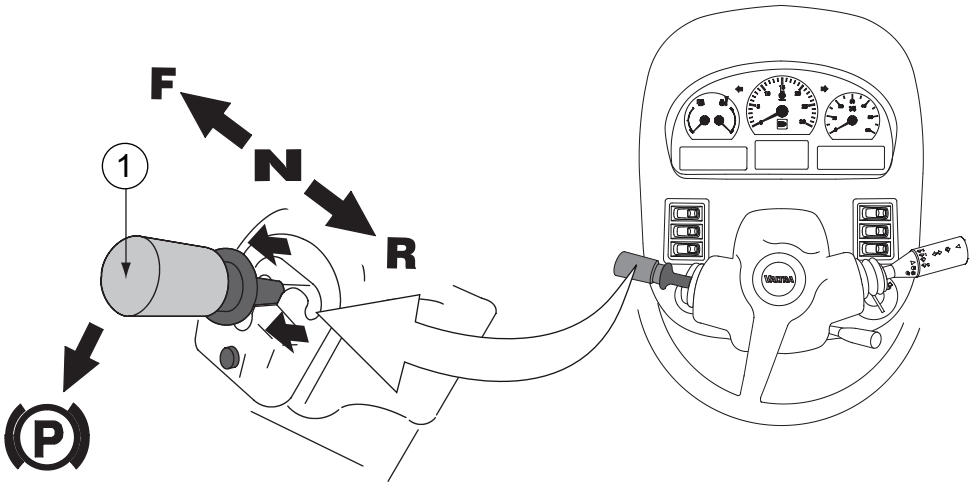


1. Switch for the rear window washer

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

3.2.12 Power shuttle lever

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



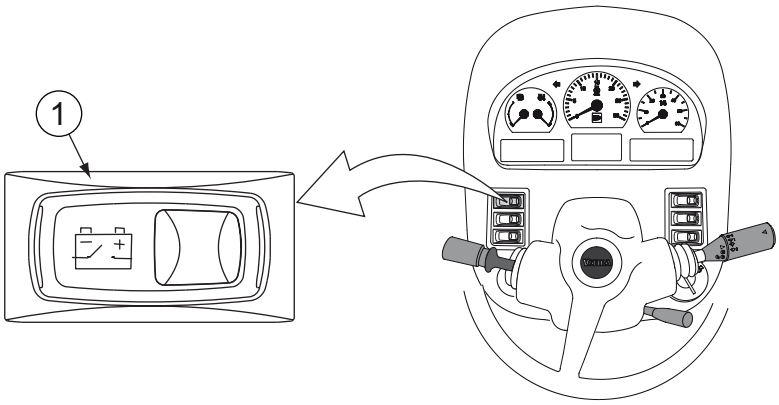
1. Power shuttle lever
   - F (front position) = forward driving direction
   - N (centre position) = neutral
   - R (rear position) = reverse driving direction
   - P = parking brake position

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

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

3.2.13 Using the main switch

IMPORTANT: The main power can be switched off only when the ignition key is in the STOP position.



1. Main switch

The main switch is spring returned on both sides.

- **To switch on the main power, press the symbol side of the main switch.**
- **To switch off the main power, press the side of the main switch opposite to the symbol.**
  When the main power is switched off, power is supplied only to the radio and instrumentation.
- **To switch off the main switch in an emergency, follow the steps below.**
  - **Switch off the main power by turning the ignition key to the STOP position.**
  - **Press the side of the main switch opposite to the symbol and, simultaneously, the symbol side of the instrument panel display change-over switch.**

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.

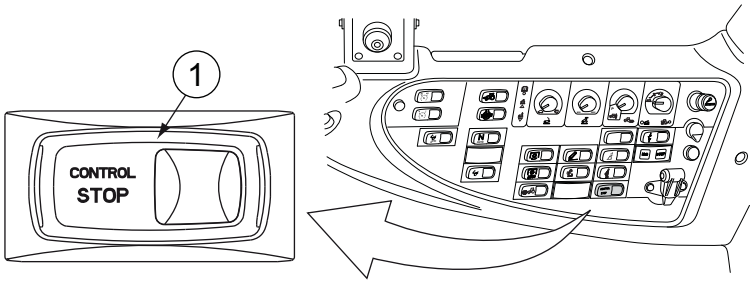
https://truckmanualshub.com/

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

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

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

3.2.15 Using the control stop



1. Control stop switch

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

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

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

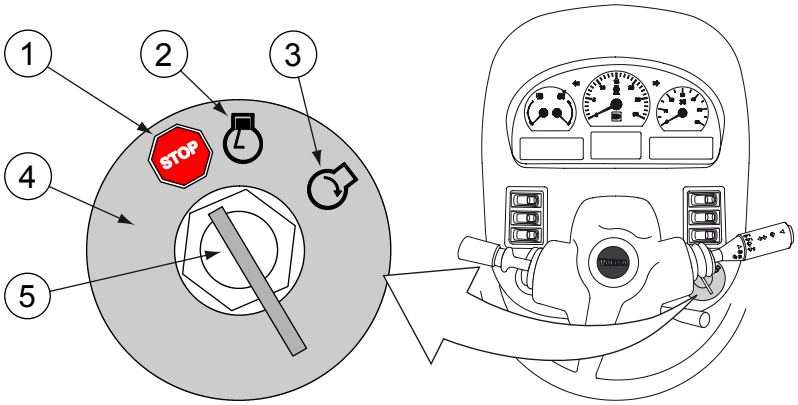
3.2.16 Using the ignition switch

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

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

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

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



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

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

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

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

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

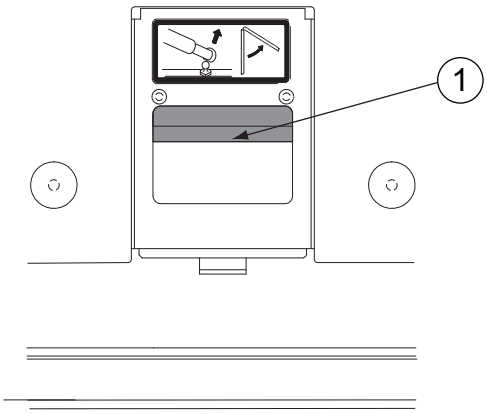
  STOP position 

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

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

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3.2.17 Using the roof hatch



1. Handle

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

3.3 Starting the tractor

3.3.1 Starting under normal conditions

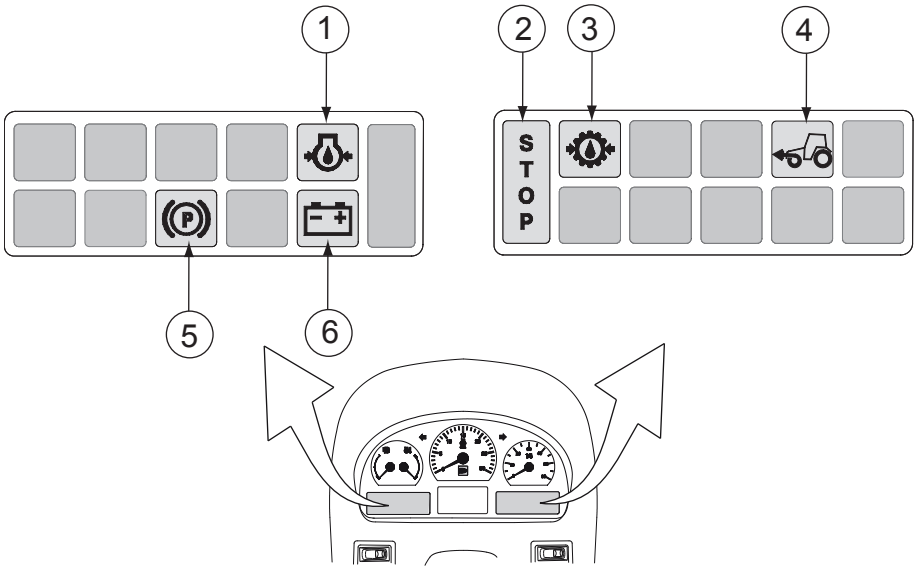
WARNING: Never run the tractor in an enclosed building except with the exhaust vented to the outside.

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

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

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

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



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

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

   When the engine starts, the following indicator lights go out:
   - Engine oil pressure
   - Gearbox oil pressure
   - Stop light
   - Battery charging
9. **Use the accelerator pedal to control the engine speed.**

   IMPORTANT: Never race a cold engine.

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

3.3.2 Starting under cold conditions

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

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

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

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

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

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

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

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

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

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

  Allow the engine to run for a few minutes before starting to drive or engaging the power take-off. When first starting to use hydraulic functions, use the predefined factory setting M2 to set the maximum flow to 50% for the first few minutes.
- **Never race a cold engine.**

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

3.3.3 Starting with an auxiliary battery

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

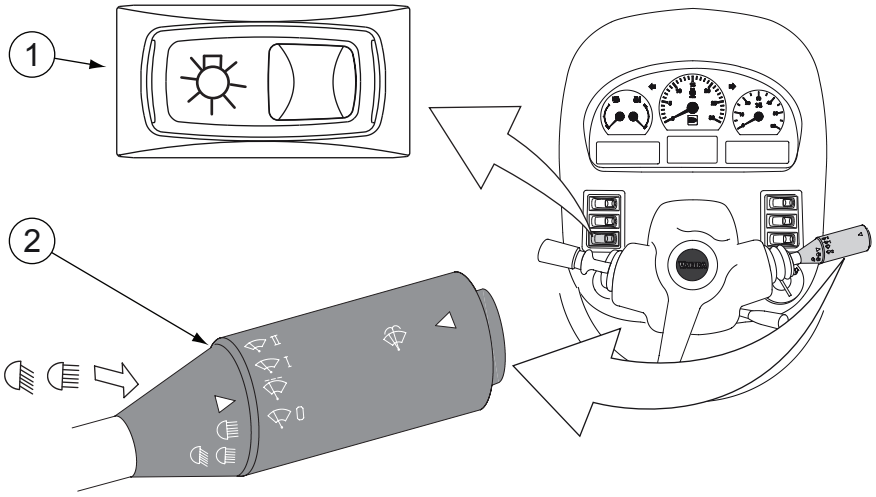
WARNING: A fully charged battery connected directly to a dead battery can cause a current surge capable of causing the batteries to explode.

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

1. **Check that the auxiliary battery has the same voltage as the standard battery.**
2. **Open the battery plugs to avoid risk of explosion.**
3. **Connect the (+) terminal of the auxiliary battery to the (+) terminal on the tractor battery.**
4. **Connect the other jump lead from the (-) terminal of the auxiliary battery to the attaching bolt of the battery ground wire or some other convenient ground (not to the battery terminal).**
5. **Start the engine.**
6. **When the engine has started, disconnect the jump leads in the following order:**
   - **Disconnect the jump lead between the ground and the (-) terminal of the auxiliary battery.**
   - **Remove the jump lead between the (+) terminals.**

3.4 Using lights

3.4.1 Using headlights



1. Light switch
2. Multifunctional lever

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

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

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

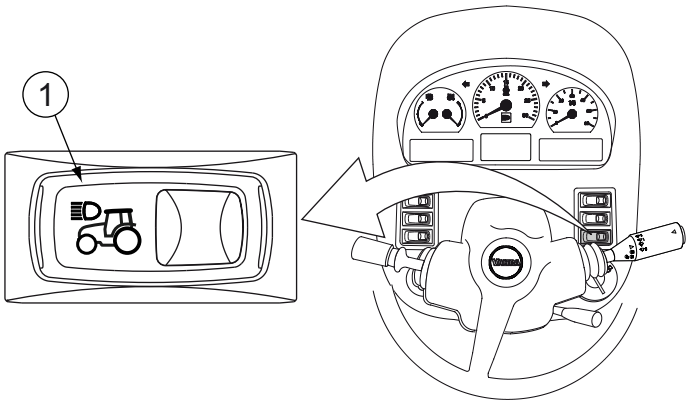
  When the light switch is in this position, the main beams can be switched on by the multifunctional lever.

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

- **To turn on the main beams, pull the multifunctional lever towards yourself.**
- **To use the headlight flasher, move the multifunctional lever towards yourself when the headlights are on.**
- **To switch off the headlights, press down the side of the light switch opposite to the symbol.**

3.4.2 Using upper headlights

The upper headlights are extra equipment.



1. Upper headlight switch

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

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

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

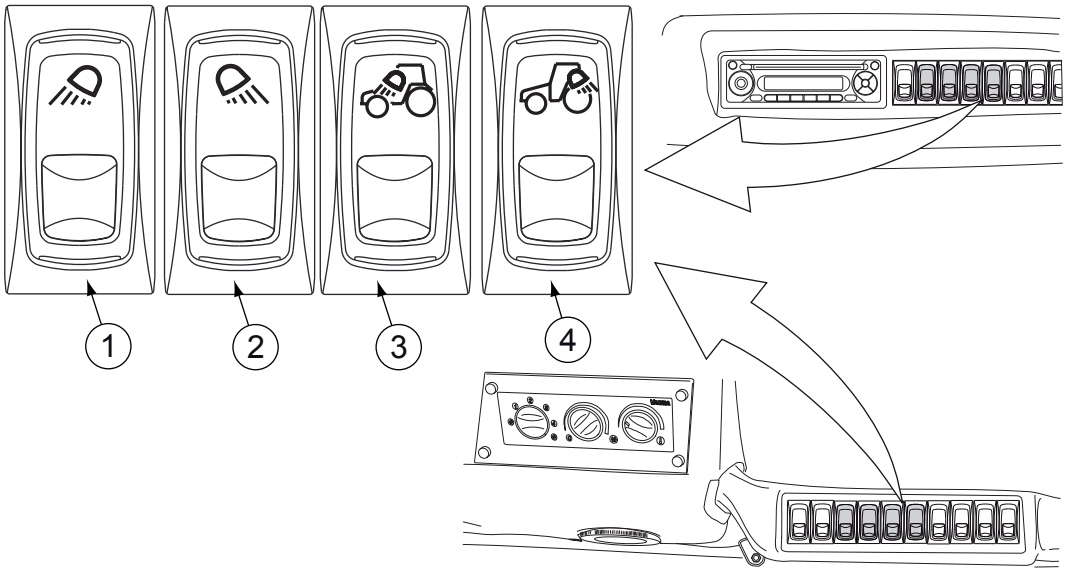
3.4.3 Using working lights

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

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

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

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



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

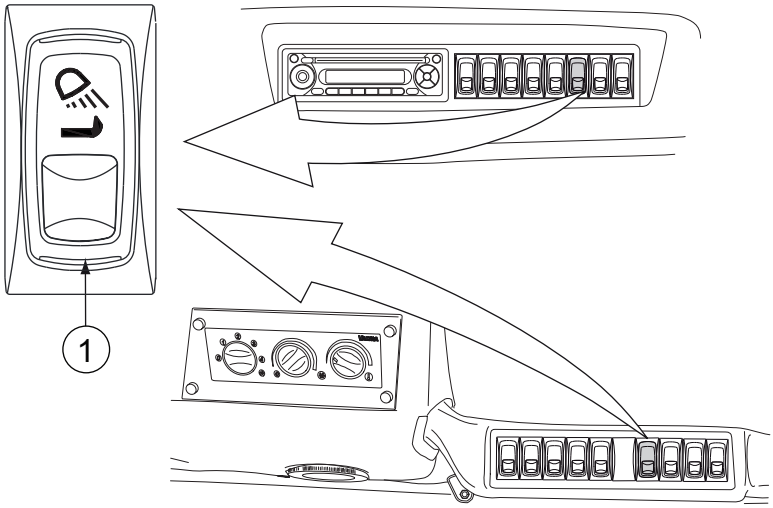
- **To use the lights manually, press down the symbol side of the switch.**
- **To use the rear working lights automatically, press the switch to the centre position.**
  The rear working lights switch on when the reverse drive is engaged. The lights switch off when the reverse drive is disengaged.
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

3.4.4 Using the trailer hitch light

The trailer hitch light is extra equipment.

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

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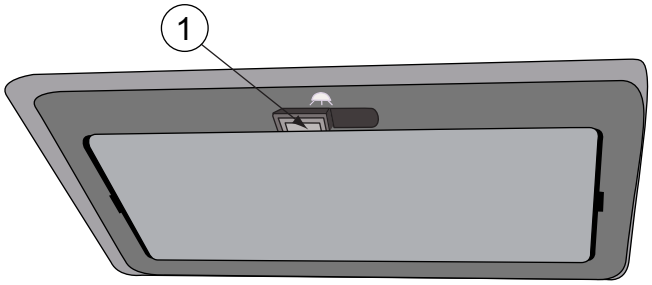


1. Trailer hitch light switch

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

3.4.5 Using the cab light

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



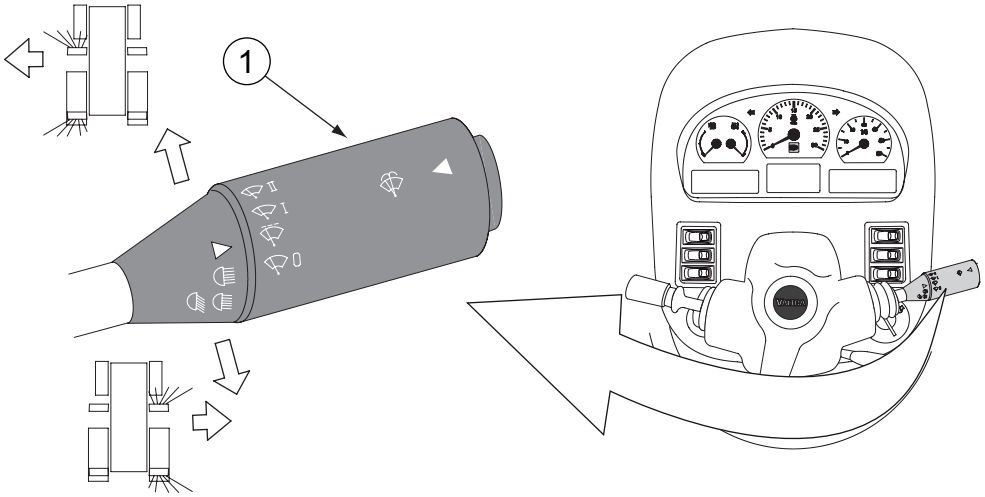
1. Cab light switch

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

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

3.5 Using notification devices

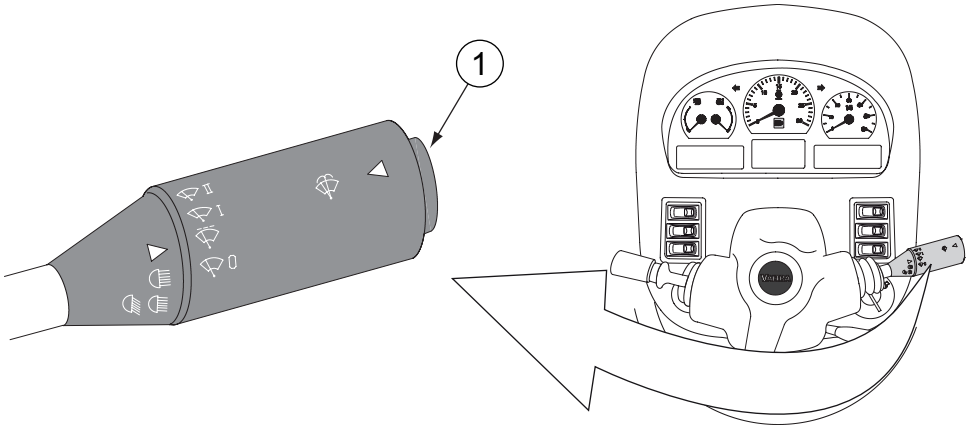
3.5.1 Using the direction indicators



1. Multifunctional lever

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

3.5.2 Using the horn



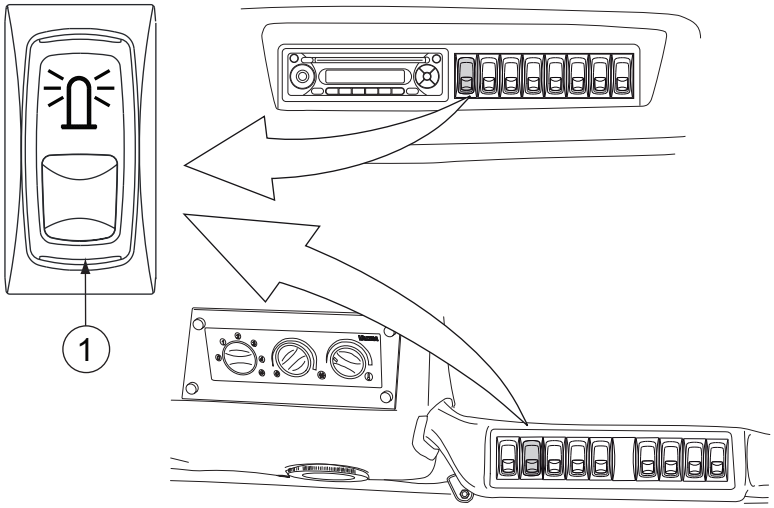
1. Horn button

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

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3.5.3 Using the rotating warning light

Rotating warning light is an extra equipment.

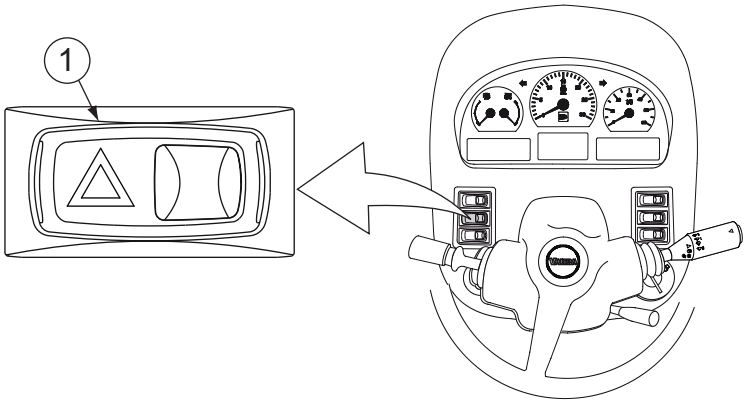


1. Rotating warning light switch

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

3.5.4 Using hazard warning flashers

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



1. Switch for hazard warning flashers

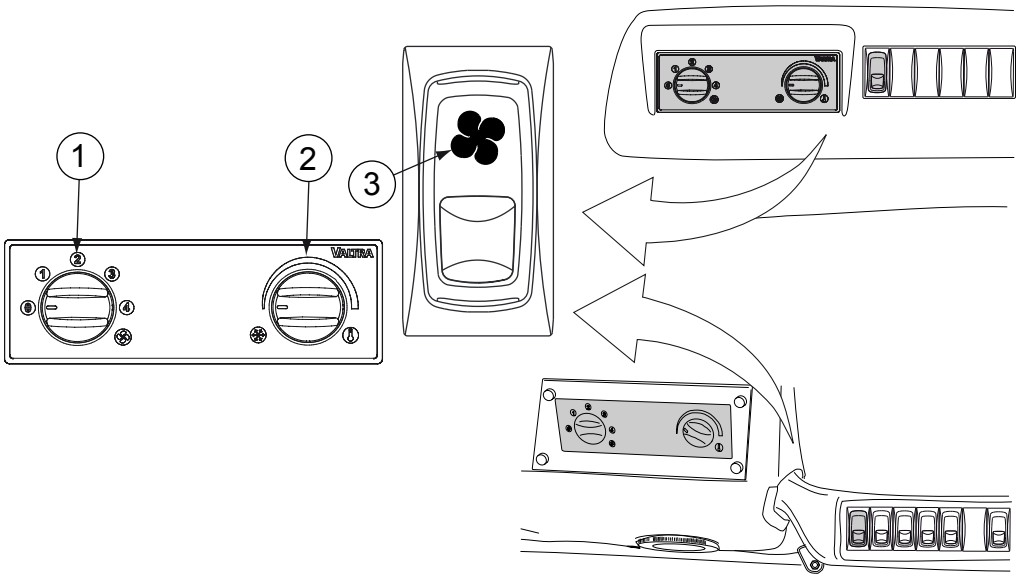
1. **To make all four direction indicators blink, press down the symbol side of the switch.**
2. **To stop the blinking of the direction indicators, press down the side of the switch opposite to the symbol.**

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3.6 Heating and ventilation

3.6.1 Using the heater

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



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

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

  The roof fan has four speeds. It blows air through the ventilation nozzles on the roof console.

- **To increase the temperature, turn the temperature control knob clockwise.**

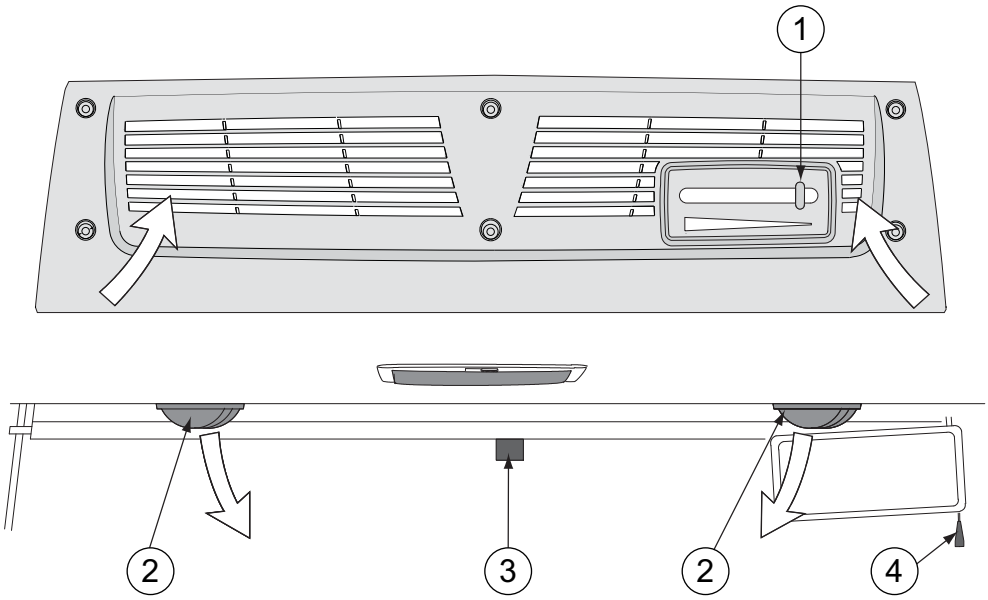
- **To blow air into the lower part of the cab, use the floor fan switch.**

  - To turn on the floor fan, press the switch to the centre position (speed 1).
  - To increase the speed of the floor fan, press down the symbol side of the switch (speed 2).
  - To turn off the floor fan, press down the side of the switch opposite to the symbol.

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3.6.2 Controlling ventilation nozzles and air recirculation

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



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

- **Adjust the air ventilation nozzles.**
  - **To change the air flow direction, turn the ventilation nozzles to the desired direction.**
  - **To clear the window surfaces of ice or condensation, turn the nozzles towards the window.**
- **Adjust the sun visor.**
  - **To lower the sun visor, pull it down.**
  - **To raise the sun visor, pull the raising string.**
- **Adjust the air recirculation.**
  - **To open the recirculation fully, push the recirculation control lever to the left.**

    When you open the recirculation:

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

    When you close the recirculation, the windows demist faster.

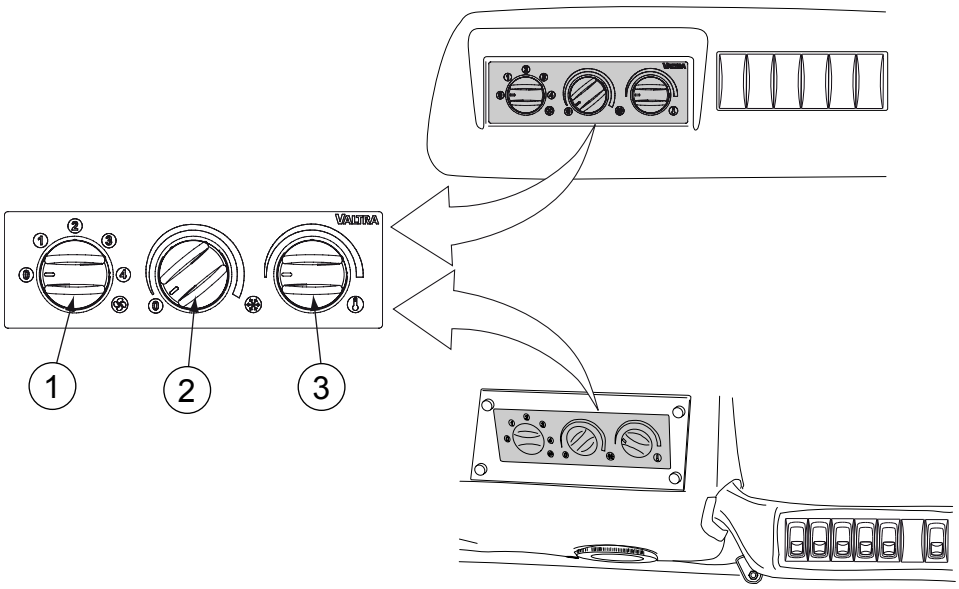
3.6.3 Using the manual air conditioning

The manual air conditioning system is extra equipment.

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

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

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



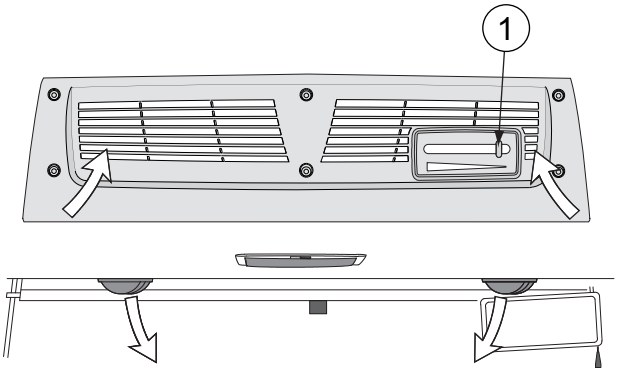
1. Fan control knob
2. Air conditioning control knob
3. Temperature control knob

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

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5. **Reduce the fan speed to obtain a comfortable temperature.**

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



1. Recirculation control lever

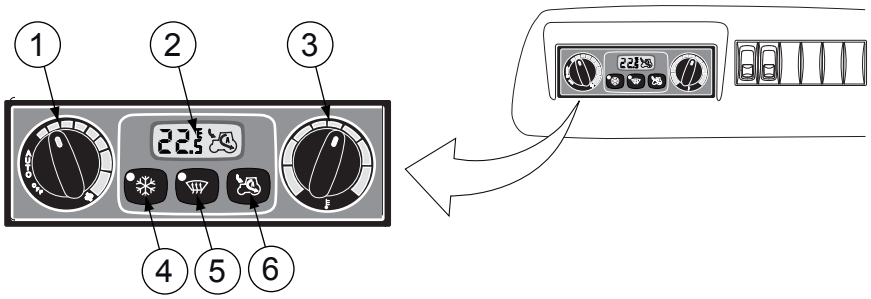
3.6.4 Automatic air conditioning

3.6.4.1 Air conditioning control panel

The automatic air conditioning system is extra equipment.

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

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



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

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

3.6.4.2 Activating air conditioning when the battery has been disconnected

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

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

  The automatic air conditioning starts the calibration.

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

3.6.4.3 Air conditioning control

Different air conditioning control situations are described in the following.

Starting

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

Temporary start mode

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

During the starting mode:

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

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

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

Priority of functions

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

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

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

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

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

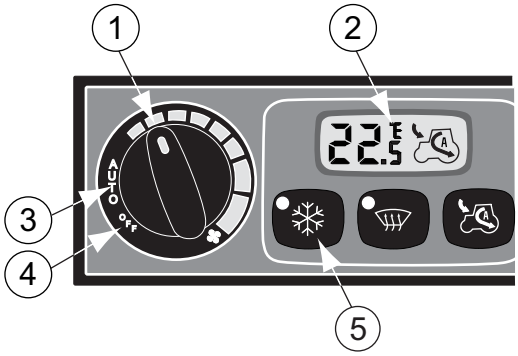
You can activate the air conditioning using the air conditioning system on/off button also in cold weather.

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ECO mode

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

3.6.4.4 Controlling the fan



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

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

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

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

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

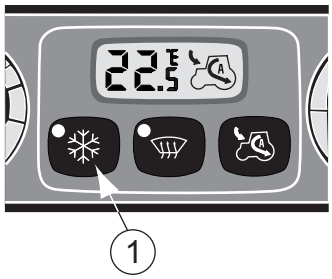
  The fan speed changes gradually.

- **Adjust the fan speed manually.**

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

- **To deactivate the air conditioning system, turn the fan control knob to the OFF position.**
  - The fan turns off.
  - The recirculation of the indoor air is on, as indicated by the symbol on the display.

3.6.4.5 Automatic air conditioning system on/off button



1. Automatic air conditioning system on/off button

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

3.6.4.6 Temperature view

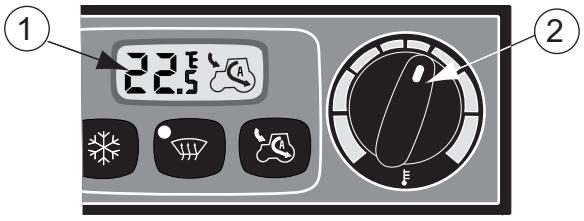
The selected temperature is displayed on the display.

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

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

3.6.4.7 Temperature control

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



1. Display
2. Temperature control knob

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

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Setting mode HI



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

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

Setting mode LO

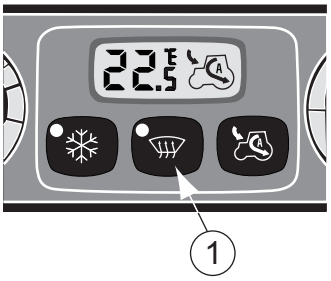


The maximum cooling effect is reached by setting the cab temperature below +18°C. When the LO mode is active:

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

3.6.4.8 Defrosting

You can activate defrosting with the defrosting button.



1. Defrosting button

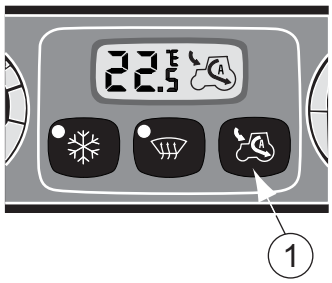
The maximum time of continuous defrosting is three minutes. When the defrosting is active:

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

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

3.6.4.9 Selecting air recirculation

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



1. Recirculation control button

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

   The symbol is displayed.

2. **Press the recirculation control button again to switch to the fresh air intake.**
   The symbol is displayed.

3. **Press the recirculation control button for the third time to switch to the automatic recirculation.**
   The symbol is displayed.

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

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

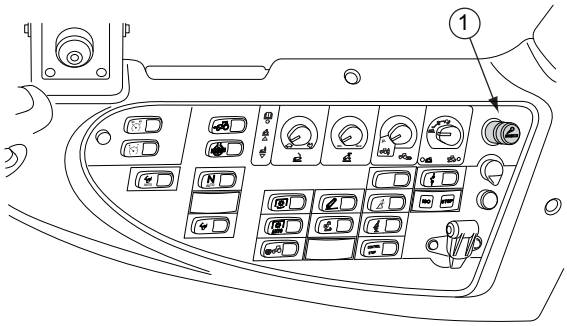
It is recommended to use the fresh air intake with high outdoor temperatures. Fresh air intake is automatically set if the automatic function is selected.

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3.7 Power outlets

3.7.1 Lighter

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

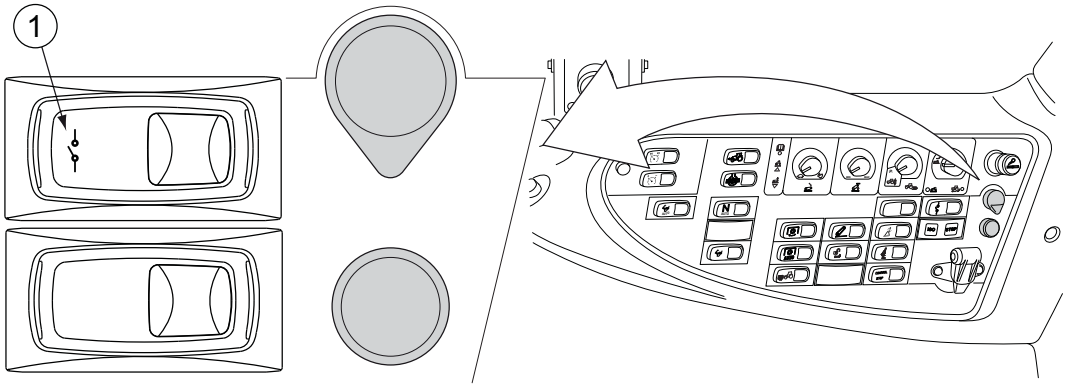


1. Lighter

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

3.7.2 Using the two-pin power socket and power switch

Use the two-pin power socket for electrical equipment.



1. Power switch

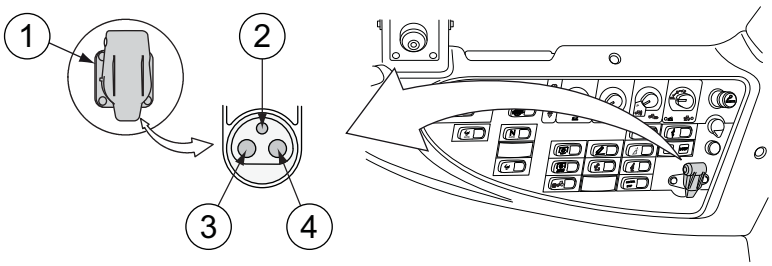
The socket provides an output of 12 V DC; 8 A at a maximum.

The power switch controls the power socket next to it.

- **To activate the power socket, press down the symbol side of the switch (spring returned).**
  The light on the switch is lit.
- **To disconnect the upper power socket, press down the side of the upper switch opposite to the symbol.**
  The light on the switch goes out.

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3.7.3 Three-pin power socket



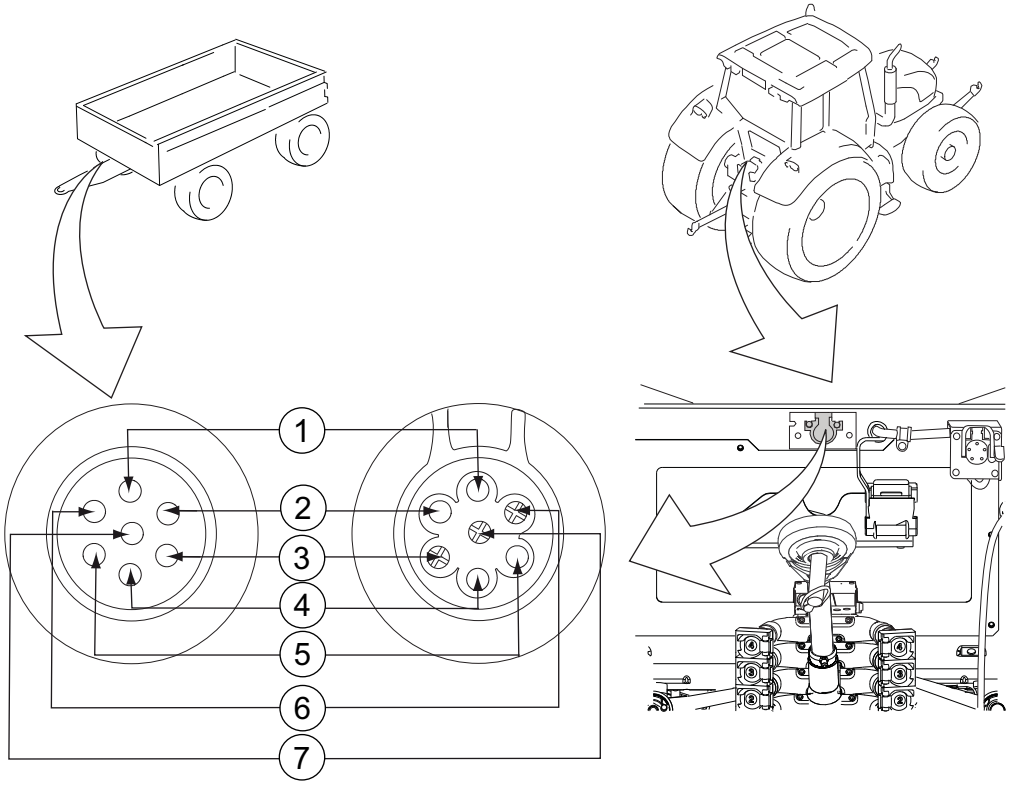
1. Three-pin power socket
2. 5 A
3. 25 A
4. Ground

The direct current is supplied through the power socket for different regulating elements, implements etc. 5 A is available through the ignition switch and 25 A direct from the battery. The current supply of the 25 A pin can be switched off with the main switch.

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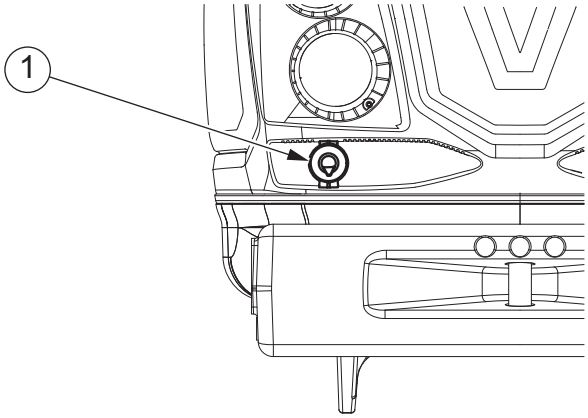
3.7.4 Trailer socket

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



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

3.7.5 Two-pin power socket on the bonnet



1. Two-pin power socket

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The socket provides an output of 12 V DC; 10 A at a maximum. The power socket is activated when the parking lights are on.

3.8 Driving the tractor

3.8.1 Steering

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

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

3.8.2 Power shuttle

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

You can request a driving direction change with the power shuttle lever at any driving speed, but the transmission starts to engage the new driving direction only when the speed is below 10 km/h. If the driving speed is higher, the transmission does not automatically start braking until the speed is low enough.The new direction arrow starts to flash to indicate that the driving direction change has been requested, and is lit constantly when the new direction is engaged. If you return the power shuttle lever to the original direction when the driving speed is still over 10 km/h, the traction engages immediately.

When driving with automatic or semiautomatic driving mode, the tractor does not move unless you press the driving pedal.

The operator detector prevents the shuttle engagement if you are not on the seat. If the direction is selected, the arrow of the selected direction flashes on the display panel. The selected direction does not engage until you sit on the seat and move the power shuttle lever to the parking brake position (P) and then to the desired direction.

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

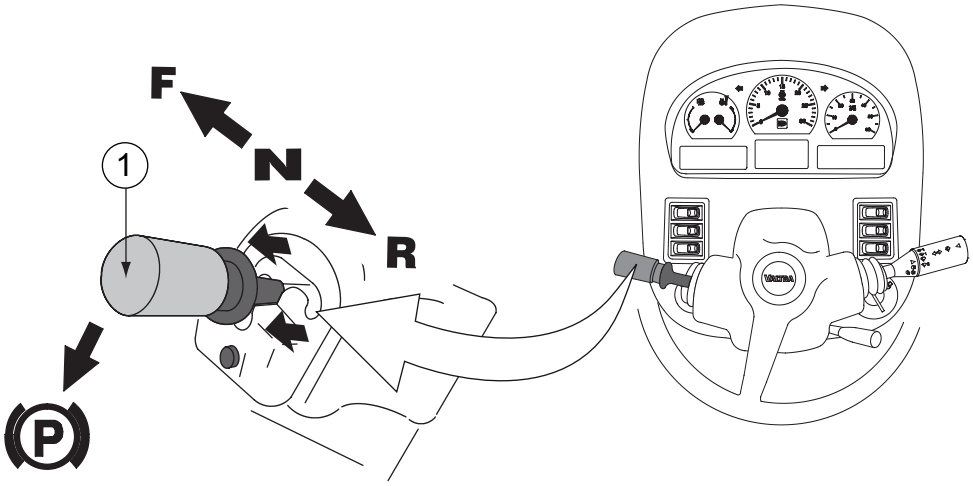
  If you leave the seat for more than two seconds and the clutch pedal is not pressed down more than 10%, the shuttle disengages and the direction arrow flashes. The direction stays selected but the tractor does not move until you sit on the seat and move the power shuttle lever to the parking brake position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

  If you leave the seat, the shuttle stays engaged.

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

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3.8.3 Using the power shuttle lever



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

- **Disengage or engage the parking brake.**
  - To disengage the parking brake, pull out the collar round the power shuttle lever and move the power shuttle lever to the neutral (N) position.
  - To engage the parking brake, pull out the collar round the power shuttle lever and move the power shuttle lever to the parking brake (P) position. 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 when the idling RPM is increased. Stopping the engine may damage the after-treatment system.

- **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.
  When driving with automatic or semiautomatic driving mode, the tractor does not move before you press the driving pedal.

- **Use the standstill function.**
  - To activate the standstill function, lift the power shuttle lever slightly upwards from its current position.
  - To continue driving after standstill, let the power shuttle back down. When driving with automatic or semiautomatic driving mode, the tractor does not move before you press the driving pedal.

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3.8.4 Adjusting the power shuttle engagement speed

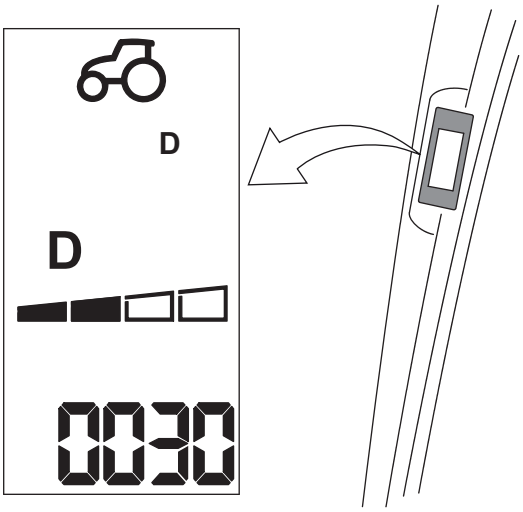
You can adjust the power shuttle engagement speed through the tractor terminal transmission settings.

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

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

1. **Stop the engine and turn the ignition switch off.**
2. **Engage the parking brake.**
3. **Press the pre-programming push button, depress the clutch pedal and turn the ignition on at the same time.**

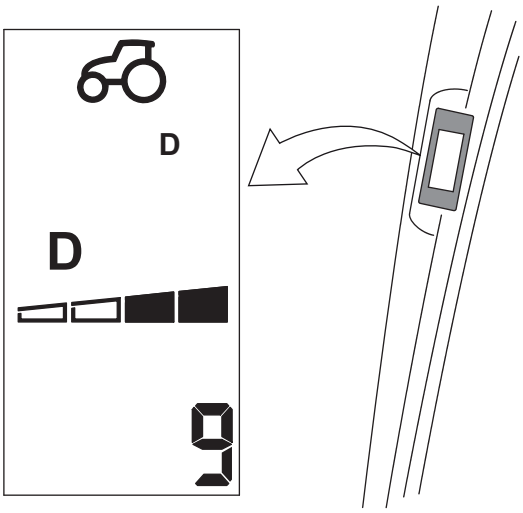
   The setting menu symbols (D) appears on the display. The first two bars are lit to indicate that the parameter number is shown on the bottom row.
4. **Press the Powershift push buttons to select the parameter to be changed.**



The parameter number for power shuttle engagement speed is 0030.

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5. **Press the Powershift pre-programming button.**



The last two bars are lit to indicate that the parameter value is shown on the bottom row.

6. **Press Powershift push buttons to change the parameter value.**
7. **Press the Powershift pre-programming button to save the parameter value.**

   You can discard the changes by pressing the HiShift push button.
8. **Press the HiShift push button exit the setting menu and save all changes.**

   If you want to leave the setting menu and discard all changes made, turn the ignition switch off.

3.8.5 Using the parking brake

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

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

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

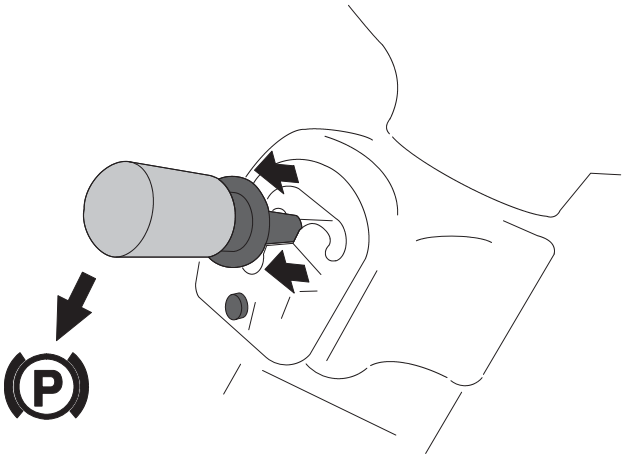
WARNING: Before entering between the tractor and the implement, prevent the tractor from moving by applying the parking brake or blocking the wheels. There is risk of accidents if the tractor or implement should move.

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

WARNING: The parking brake does not engage at driving speeds over 2 km/h. If you move the power shuttle lever to the P position at higher driving speeds, the parking brake indicator light on the instrument panel and the P symbols on the A-pillar display flash and the buzzer alarms intermittently until the speed drops below the limitAlways ensure that the parking brake is actually engaged before leaving the tractor.

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

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



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.

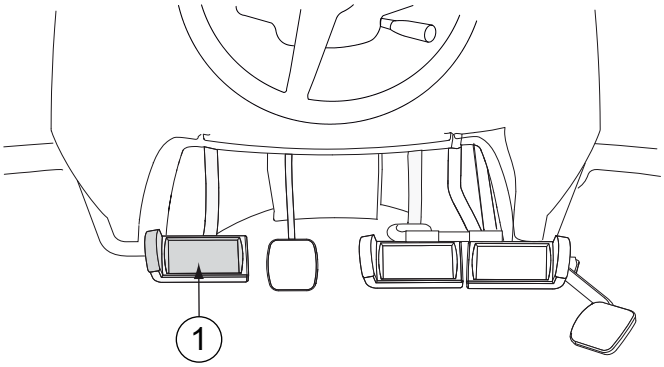
IMPORTANT: Do not stop the engine when the idling RPM is increased. Stopping the engine may damage the after-treatment system.

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

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

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3.8.6 Using the clutch pedal



1. Clutch pedal

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

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

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

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

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

3.8.7 Adjusting the clutch pedal engagement position

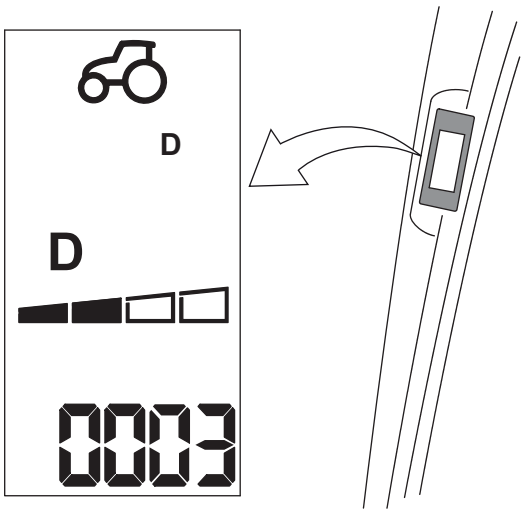
You can adjust the clutch pedal's engagement position and clutch slipping properties according to your preferences through the A-pillar display settings.

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. **Stop the engine and turn the ignition switch off.**
2. **Engage the parking brake.**

3. **Press the pre-programming push button, depress the clutch pedal and turn the ignition on at the same time.**

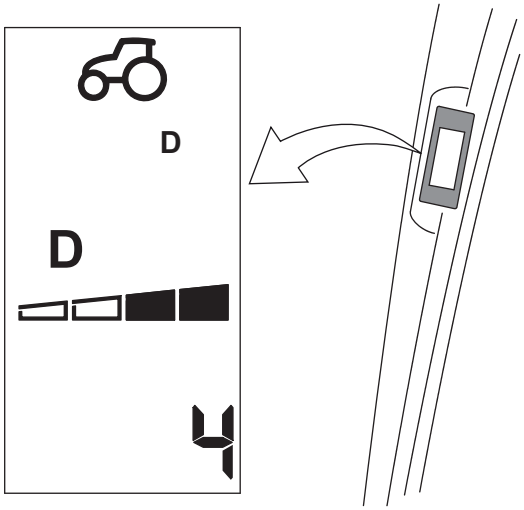


The setting menu symbols (D) appears on the display. The first two bars are lit to indicate that the parameter number is shown on the bottom row.

4. **Press the Powershift push buttons to select the parameter to be changed.**

   The parameter number for clutch pedal engagement position is 0003.

5. **Press the Powershift pre-programming button.**



The last two bars are lit to indicate that the parameter value is shown on the bottom row.

6. **Change the parameter value by pressing Powershift push buttons.**

7. **Press the Powershift pre-programming button to save the value.**

   You can discard the changes by pressing the HiShift push button.

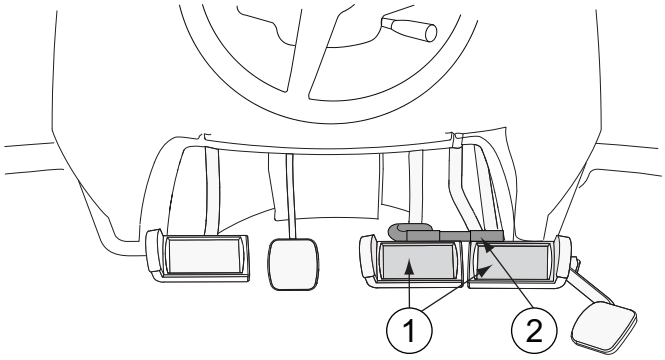
8. **Press the HiShift push button to leave the setting menu and save all changes.**

   If you want to leave the setting menu and discard all changes made, turn the ignition switch off.

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3.8.8 Braking

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



1. Brake pedals
2. Latch for brake pedals

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

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

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

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

  DANGER: The brake action is weaker if the gearbox oil pressure warning light is lit and the STOP indicator light begins to flash. Stop the tractor and correct the fault before continuing.



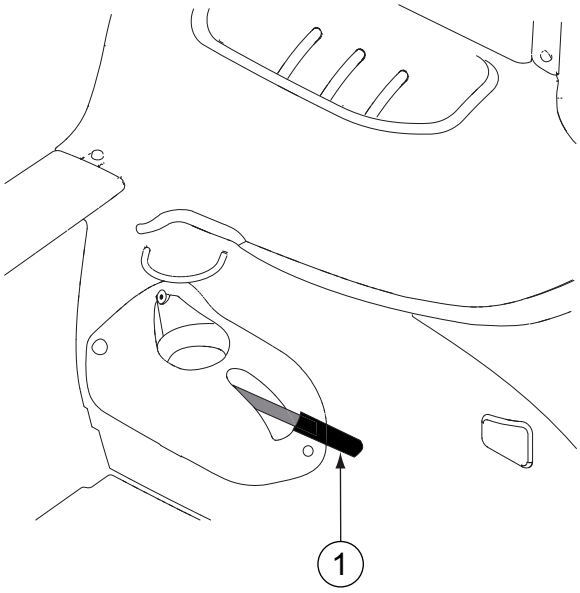
- **To intensify steering by braking when turning on the field, press down the brake pedal on the inner curve side.**

3.8.9 Using the emergency brake

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

The emergency brake is extra equipment.

The emergency brake is applied to the rear wheels.



1. Emergency brake lever

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

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

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

3.8.10 Starting to drive

1. **Start the engine.**
2. **Press down the brake pedals to keep the tractor stationary.**
3. **Select the speed range and Powershift.**

   Select a speed range which:

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

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

4. **Select the speed gear.**
5. **Move the power shuttle lever either to drive forward or reverse.**
6. **Release the brake pedals.**
7. **Adjust the driving speed with the accelerator pedal or the hand throttle.**

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

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

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

3.8.11 Transmission system

The tractor transmission system has four speed gears and three range gears. In addition, the tractors have 3–step quick-shift gear. These together give the tractor 36 forward and 36 reverse gears.

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

40 km/h models

Speed range	Driving speed
LL1	0.4 – 1.0 km/h
LL2	0.6 – 1.4 km/h
LL3	0.8 – 2.0 km/h
LL4	1.5 – 2.9 km/h
M1	2.0 – 4.9 km/h
M2	2.9 – 7.0 km/h
M3	4.0 – 9.8 km/h
M4	5.3 – 13.8 km/h
H1	6.3 – 15.2 km/h
H2	9.0 – 21.7 km/h
H3	12.6 – 30.5 km/h
H4	17.9 – 43 km/h

50 km/h models

Speed range	Driving speed
LL1	0.5 – 1.2 km/h
LL2	0.7 – 1.8 km/h
LL3	1.0 – 2.5 km/h
LL4	1.4 – 3.5 km/h
M1	2.5 – 6.1 km/h
M2	3.6 – 8.7 km/h
M3	5.0 – 12.3 km/h
M4	7.1 – 17.4 km/h
H1	7.9 – 19.1 km/h
H2	11.3 – 27.3 km/h
H3	15.9 – 38.3 km/h
H4	22.4 – 53 km/h

3.8.11.1 Speed matching

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

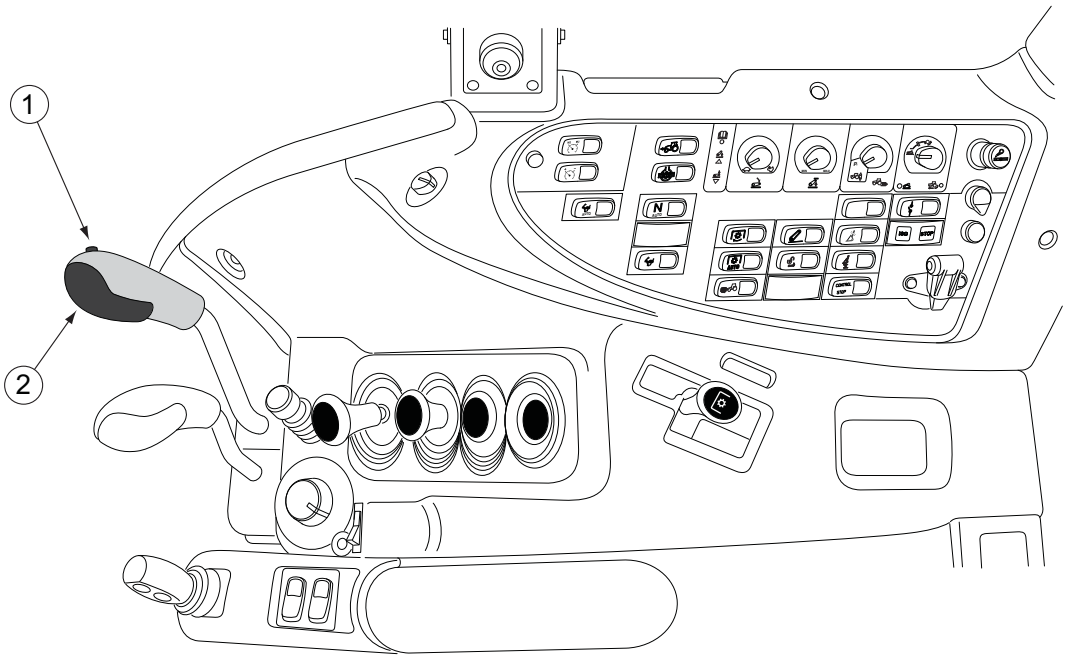
Speed matching is always on when the driving speed is over 0.5 km/h and:

- When changing speed range.

or

- When the shifting automatics is in use and the power shuttle lever is in the centre position (N) or the HiShift push buttons are pressed down or the clutch pedal is pressed down.

3.8.11.2 Selecting the range gear



1. HiShift push button
2. Range gear lever

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

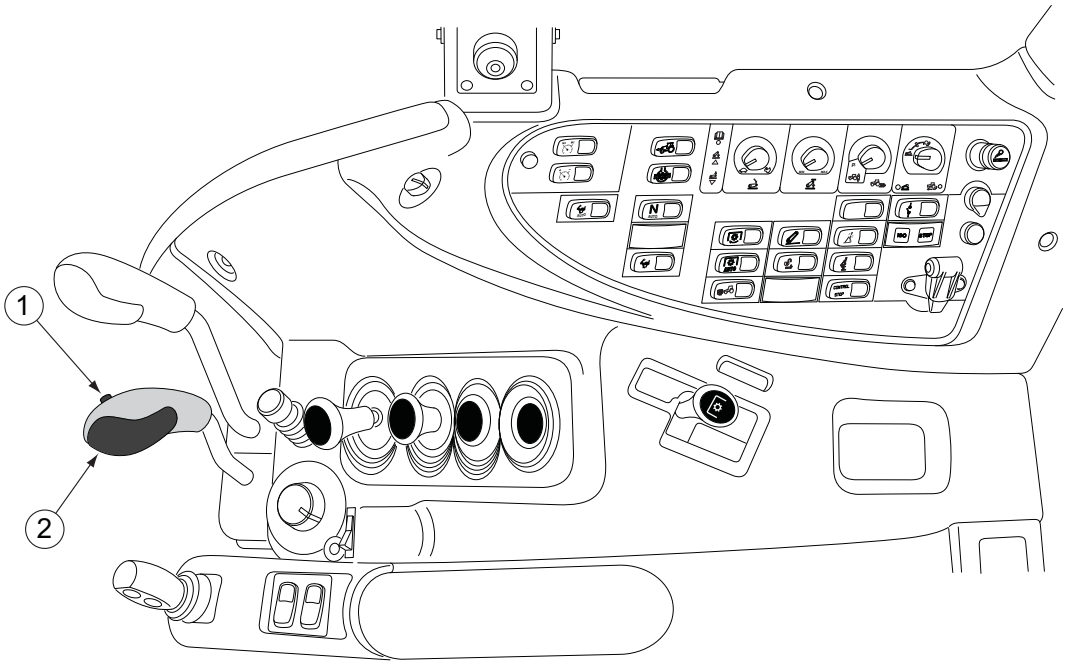
1. **Press down the clutch pedal or the HiShift push button.**
2. **Choose the wanted range gear with the range gear lever.**

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

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3.8.11.3 Selecting the speed gear

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



1. HiShift push button
2. Speed gear lever

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

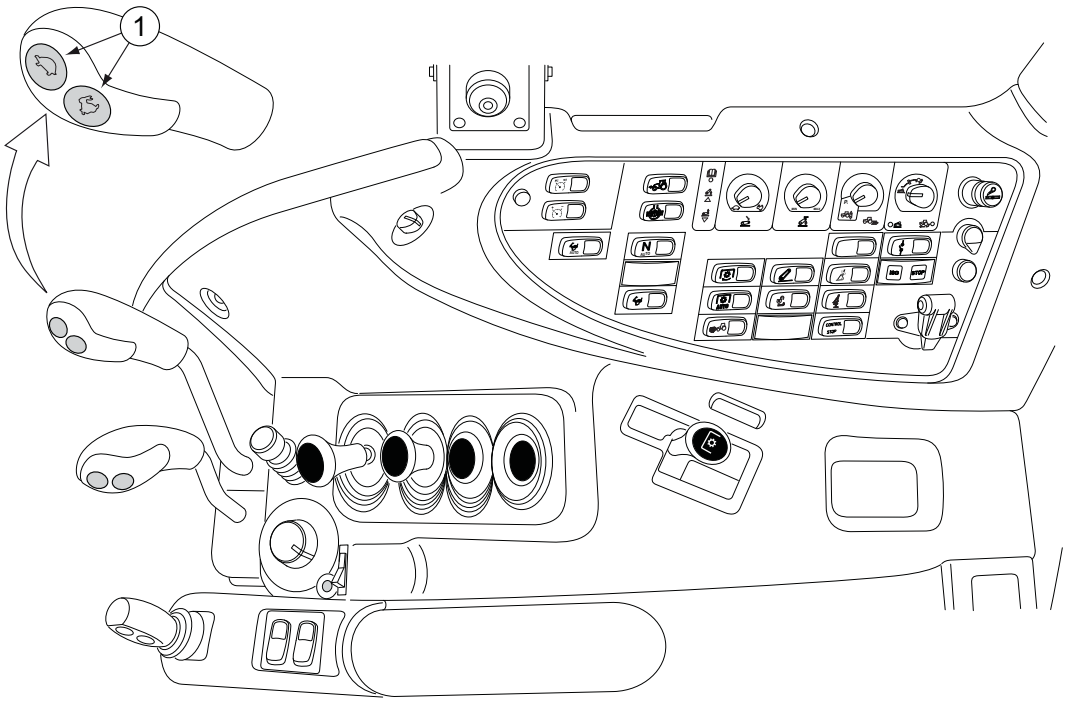
1. **Press down the clutch pedal or the HiShift push button.**
2. **Choose the wanted speed gear with the speed gear lever.**
3. **Release the clutch pedal or the HiShift push button.**

3.8.11.4 Using Powershift

You can change the Powershift gear with push buttons.

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

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



1. Powershift push buttons

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

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

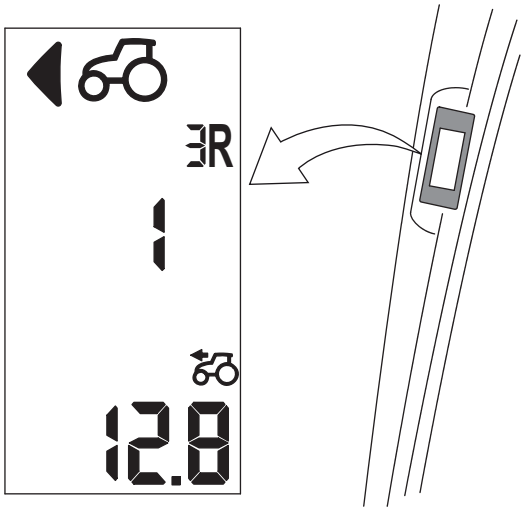
NOTE: If shifting down the Powershift gear would increase the engine speed beyond acceptable limits, the system will prevent the gear change.

3.8.11.5 Preprogramming gear for driving direction changing

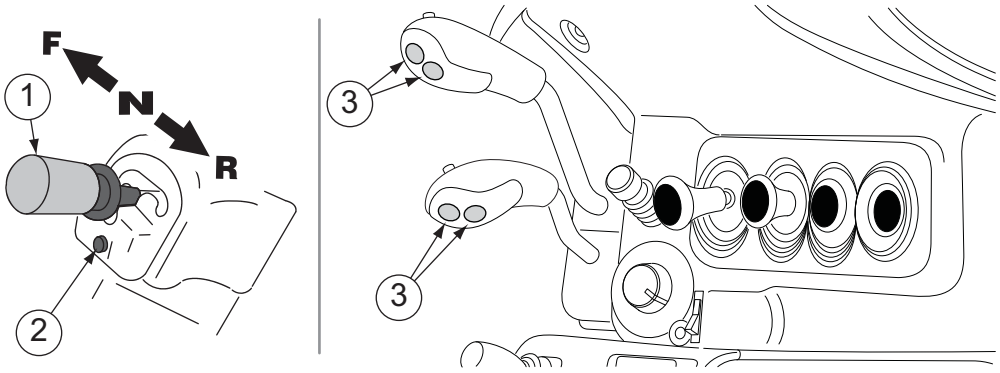
You can preprogram the wanted speed range and Powershift gear to engage automatically when changing driving direction.

For example, when working with the front loader and changing the direction to forward, Powershift 1 can be engaged, and when changing the direction to backwards, Powershift 3 can be engaged.

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If the Powershift function is not preprogrammed, the selected Powershift gear is engaged while changing direction.



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

The engine must be running when you preprogram the Powershift.

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

  Both directions can have different programs.
  - **Start the engine.**
  - **Press down the clutch and brake pedals to ensure safety.**

    You can make the preprogramming also while driving.
  - **Select the driving direction F or R with the power shuttle lever.**
  - **Select the speed range (LL, M, H).**
  - **Select the Powershift gear with the Powershift push button.**
  - **Press the Powershift preprogramming push button for half a second.**

    The A-pillar display shows the preprogrammed driving direction and the Powershift gear.

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

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

- **To cancel the preprogramming:**

  The engine must be running when you cancel the preprogramming.
  - **Start the engine.**
  - **Press down the clutch and brake pedals to ensure safety.**

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

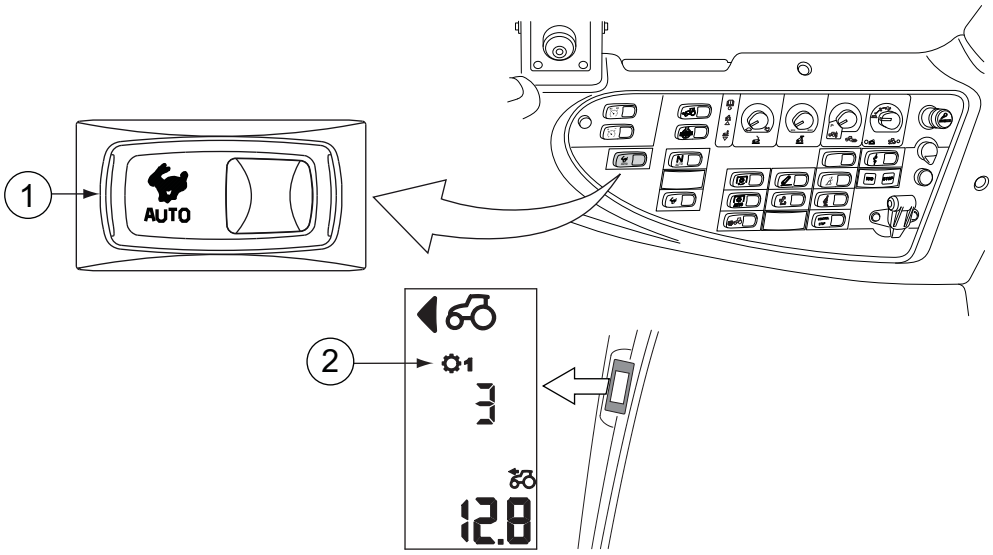
  You can cancel the programming of the other driving direction in the same way.

3.8.11.6 Using the shifting automatics

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

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

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



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

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

- **Press the symbol side of the shifting automatics switch to cycle through the programs.**

  Before you can cycle through the programs, you must first activate the switch by pressing it once.
  The programs change in the following order: manual mode, MODE 1, MODE 2.

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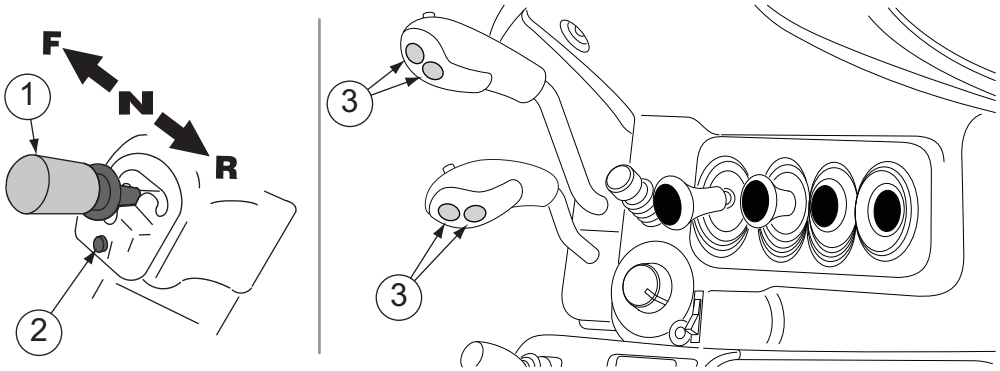
- **Press the side of the shifting automatics switch opposite to the symbol to cycle through the programs.**

  Before you can cycle through the programs, you must first activate the switch by pressing it once.
  The programs change in the following order: MODE 2, MODE 1, manual mode.

3.8.11.7 Programming shifting automatics

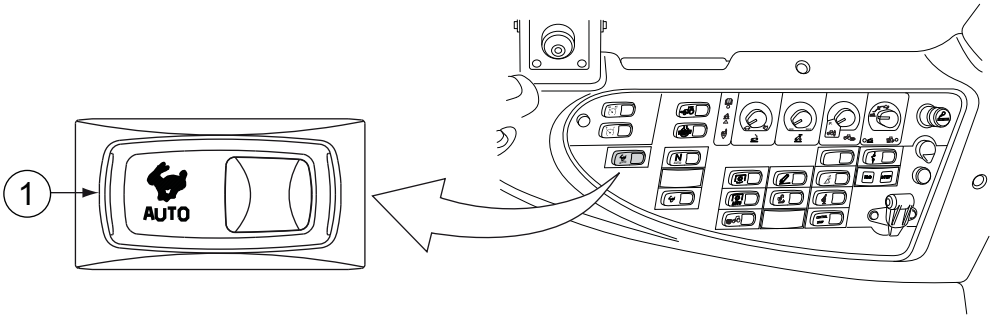
You can program the shifting automatics to change the Powershift gear on specific engine speeds.

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



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

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



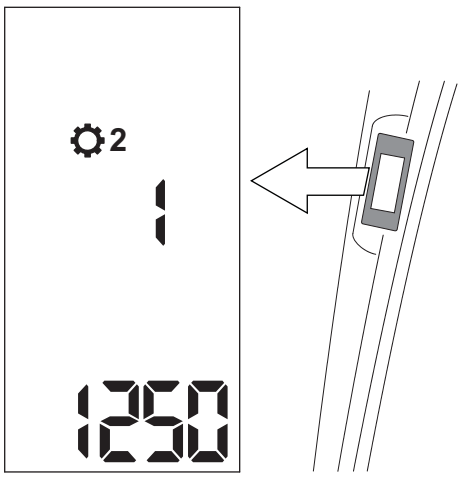
1. Shifting automatics switch

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

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

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

   The current engine speed limit for downwards shifting is shown on the A-pillar display.



1. Current engine speed limit for shifting

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

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

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

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

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

8. **Press the Powershift preprogramming push button.**
   The tractor saves the set engine speeds and reverts to normal operation.

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

3.8.12 Parking the tractor

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

   In cold conditions, lower the links without implements as well.

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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 when the idling RPM is increased. Stopping the engine may damage the after-treatment system.

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

6. **Fill up the fuel tank.**

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

3.8.13 Refueling the tractor

3.8.13.1 Filling the fuel tank

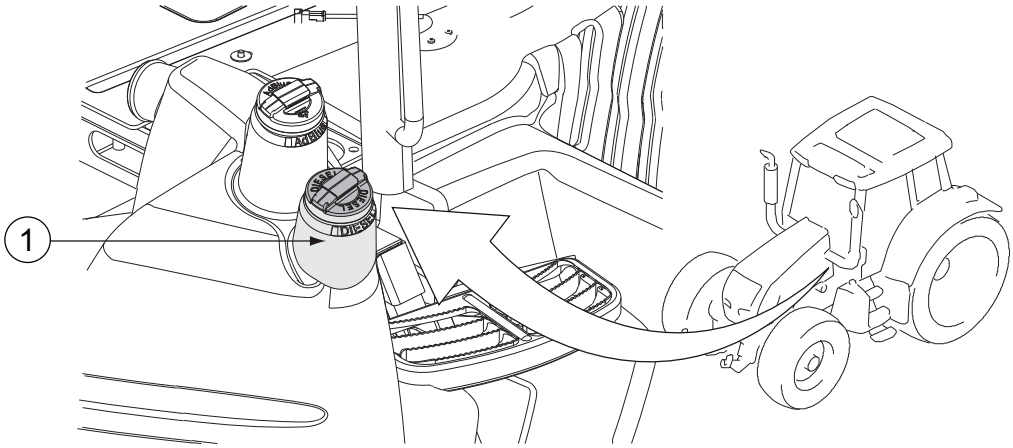
WARNING: Always turn off the power before filling up.

WARNING: Do not smoke while refuelling the tractor.

WARNING: Keep away from naked flames.

WARNING: Wear suitable gloves when filling up.

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



1. 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.

3.8.13.2 Filling the AdBlue/DEF tank

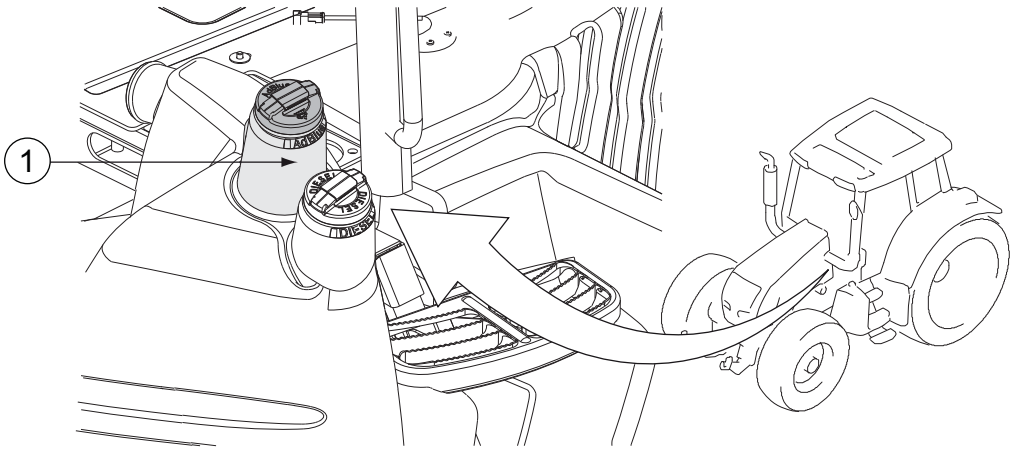
WARNING: Always turn off the power before filling up.

WARNING: Do not smoke while refuelling the tractor.

WARNING: Keep away from naked flames.

WARNING: Wear suitable gloves when filling up.

1. Open the AdBlue/DEF tank cap.



1. AdBlue/DEF tank cap

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

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- 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 another fluid, which does not comply with standard ISO 22241 (DIN 70070), the after-treatment system will be damaged!

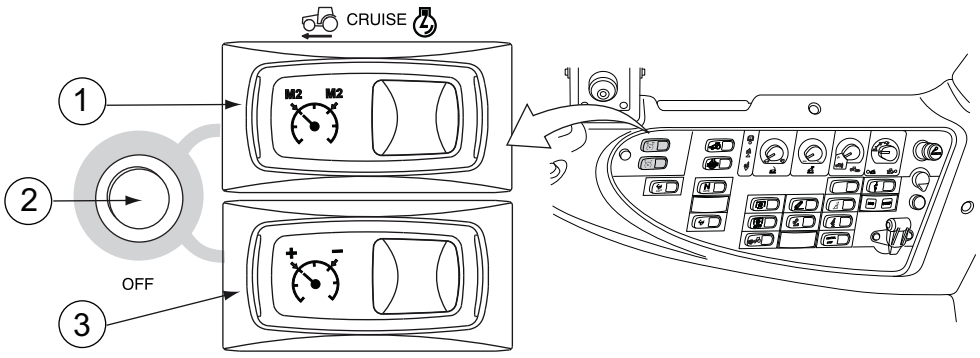
3.8.14 Cruise control

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

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

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

3.8.14.1 Cruise control switches



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

Cruise control off button

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

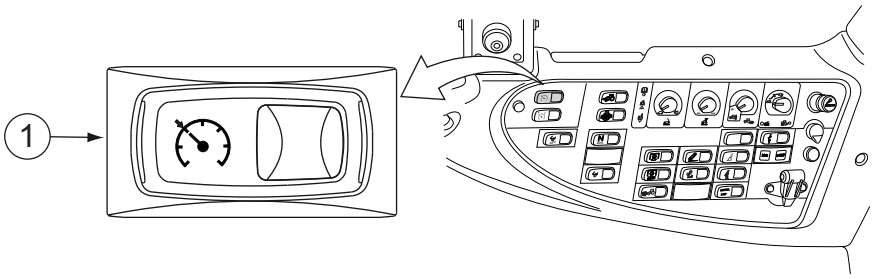
Cruise control setting switch

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

Cruise control increasing/decreasing switch

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

3.8.14.2 Programming the driving speed cruise control



1. Cruise control setting switch

1. **Set the driving speed.**

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

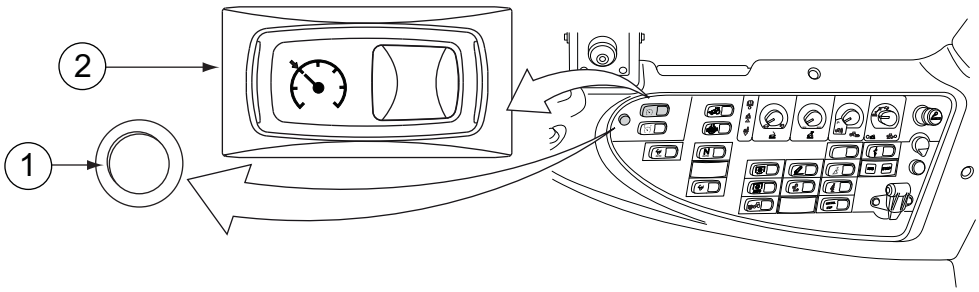
2. **Press the symbol side of the cruise control setting switch for more than 2 seconds.**
   The cruise control indicator light blinks on the instrument panel indicating that the setting value can be stored in the memory.

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

3.8.14.3 Activating and deactivating the driving speed cruise control

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

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

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

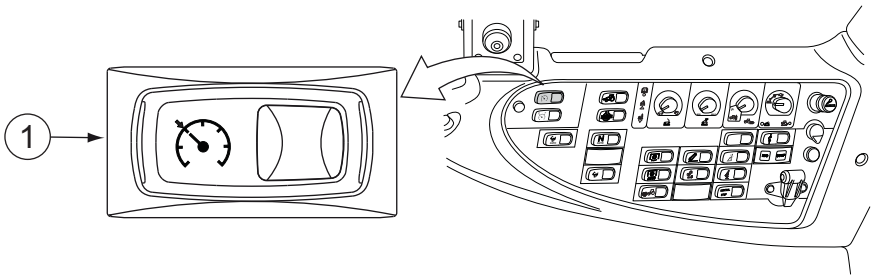
  NOTE: To activate the driving speed cruise control driving speed must be over 1 km/h. If the driving speed reduces under 1 km/h the driving speed cruise control deactivates.

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

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

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

3.8.14.4 Programming the engine speed cruise control



1. Cruise control setting switch

1. **Set the engine speed.**

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

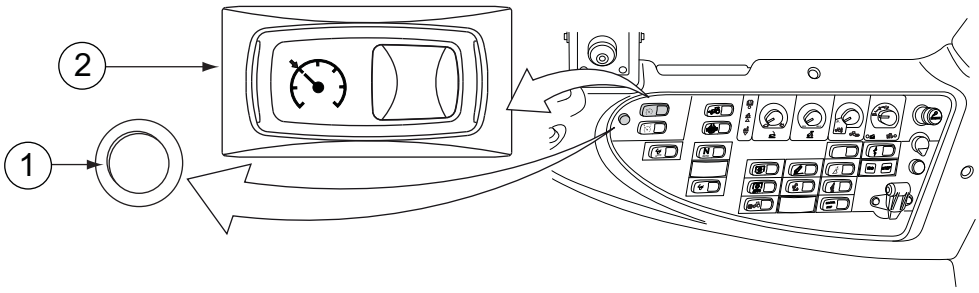
2. **Press the side opposite to the symbol of the cruise control setting switch for more than 2 seconds.**
   The cruise control indicator light blinks on the instrument panel indicating that the setting value can be stored in the memory.

3. **Release the button.**

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

   NOTE: If the driving speed cruise control is active, the engine speed cruise control does not activate.

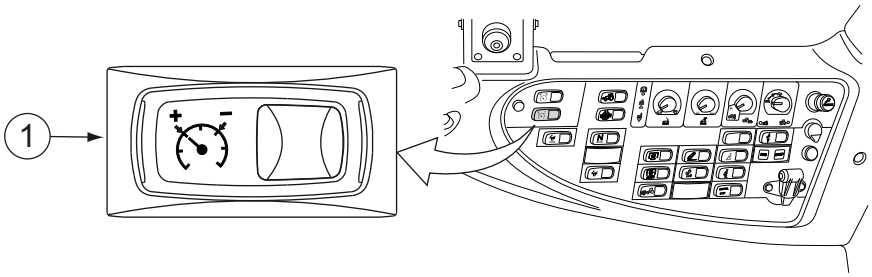
3.8.14.5 Activating and deactivating the engine speed cruise control



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

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

3.8.14.6 Decreasing the cruise control setting



1. Cruise control increasing/decreasing switch

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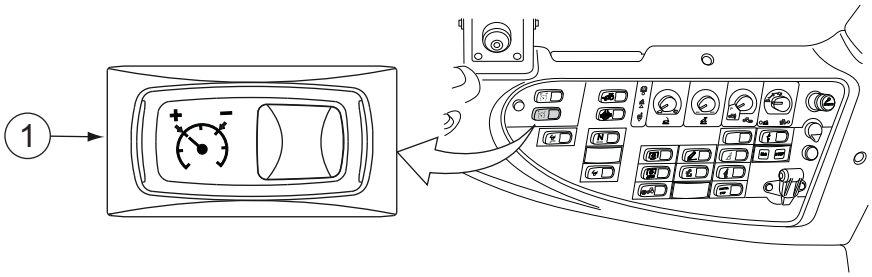
1. **Press the side opposite to the symbol on the cruise control increasing/ decreasing switch to lower the driving speed or the engine speed.**

   The cruise control setting decreases according to the following table.

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

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

3.8.14.7 Increasing the cruise control setting



1. Cruise control increasing/decreasing switch

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

   The cruise control setting increases according to the following table.

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

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

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

3.8.15 Automatic traction control

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

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

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

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

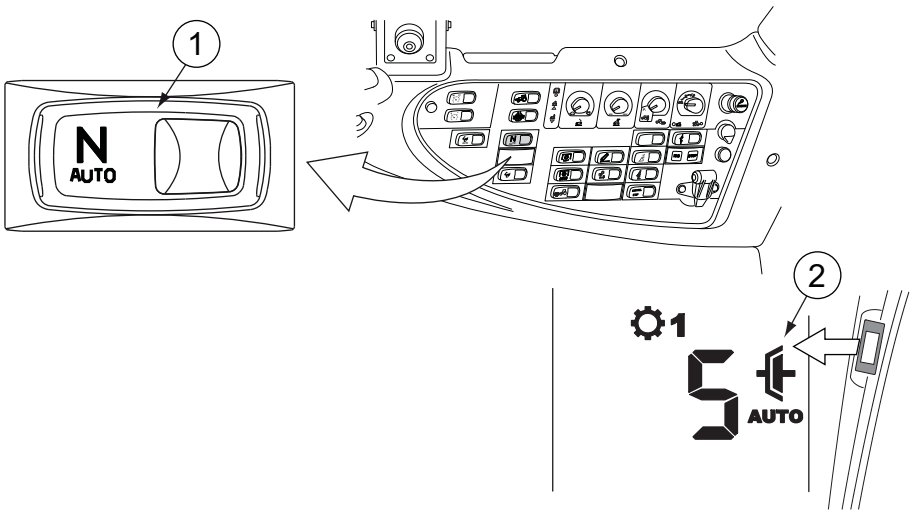
When the automatic traction control is on, the driving direction can be changed. In this case, the arrow of the selected driving direction flashes, but the selected direction is not activated.

3.8.16 Using the automatic traction control

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

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

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

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

   The automatic traction control is engaged in standby mode (but not in function). The automatic traction control symbol flashes on the tractor terminal display and A-pillar display.
3. **Select the driving direction.**

   The selected direction does not engage and the direction arrow remains flashing until the traction is engaged.
4. **Raise the engine speed to over 1020 rpm to engage the traction.**

   When the traction is engaged, the arrow of the selected direction and the automatic traction control symbol stops flashing and is lit continuously.
   If the clutch pedal is pressed down when the traction engagement starts, the traction engages in accordance with the clutch pedal position.
5. **To release the traction, press the brake pedal or lower the engine speed so that it is under 980 rpm.**

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

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

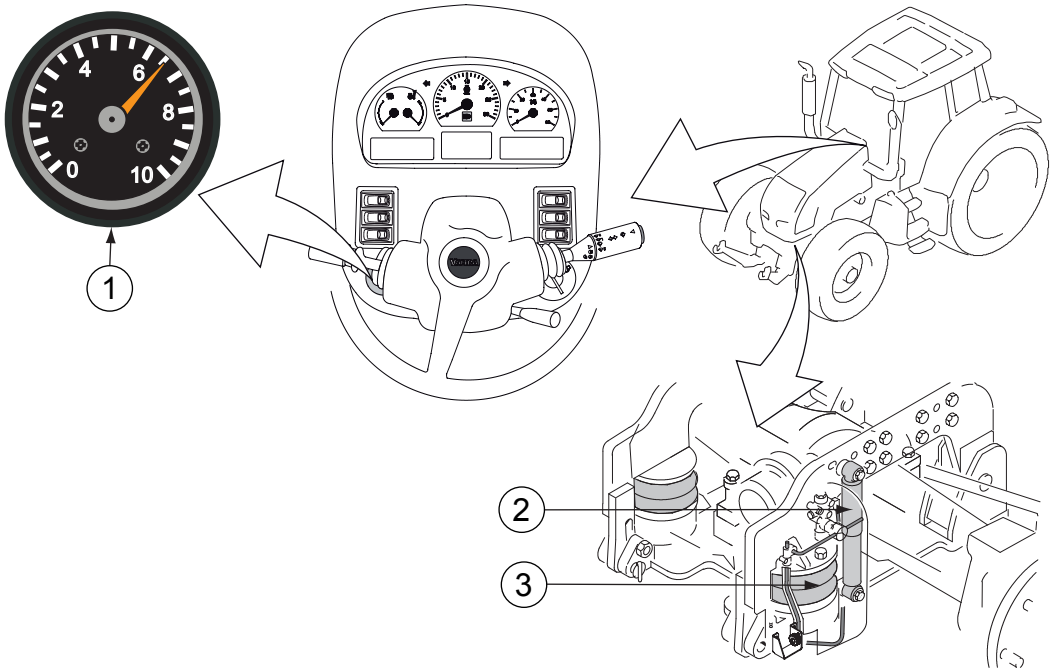
After starting the engine, the automatic traction control must be activated again.

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3.8.17 Front axle air suspension

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

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



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

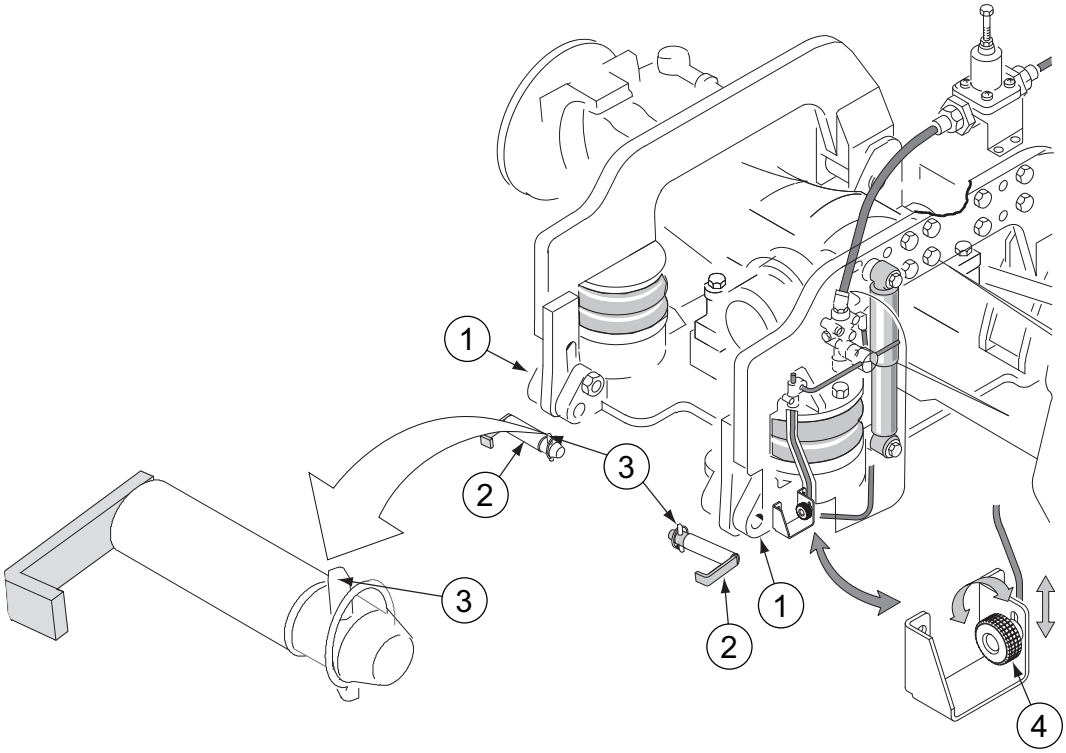
The operator can observe the air pressure in the suspension system on the gauge.

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

3.8.18 Disengaging the front axle air suspension

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

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

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

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

3.8.19 AutoComfort cab suspension

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

The AutoComfort cab suspension system is extra equipment.

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

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

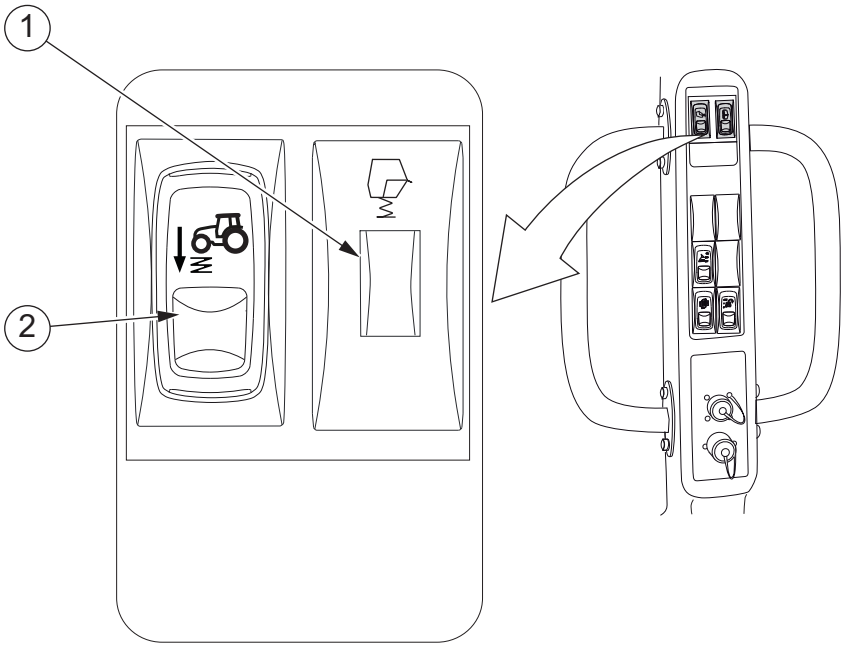
- Unevenness of the driving surface
- Driving speed
- Change of the Powershift gear

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

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

3.8.19.1 Adjusting AutoComfort cab suspension

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



1. AutoComfort potentiometer
2. Front axle suspension deactivation / AutoComfort calibration switch

- **Turn the AutoComfort potentiometer to position A to activate the automatic position.**

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

- **Turn the AutoComfort potentiometer upwards from position A to position 1 to activate the manual position.**

  In the manual position, the damping stiffness of the cabin suspension is adjusted with the potentiometer.
  - To increase the stiffness, turn the AutoComfort potentiometer knob upwards.
  - To decrease the stiffness, turn the AutoComfort potentiometer knob downwards.

The flashing symbol on the AutoComfort calibration switch indicates the service codes. If the light starts flashing, contact an authorised Valtra workshop. The service code is also displayed on the tractor terminal display.

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3.8.19.2 Calibrating AutoComfort cab suspension

Before you start calibrating:

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

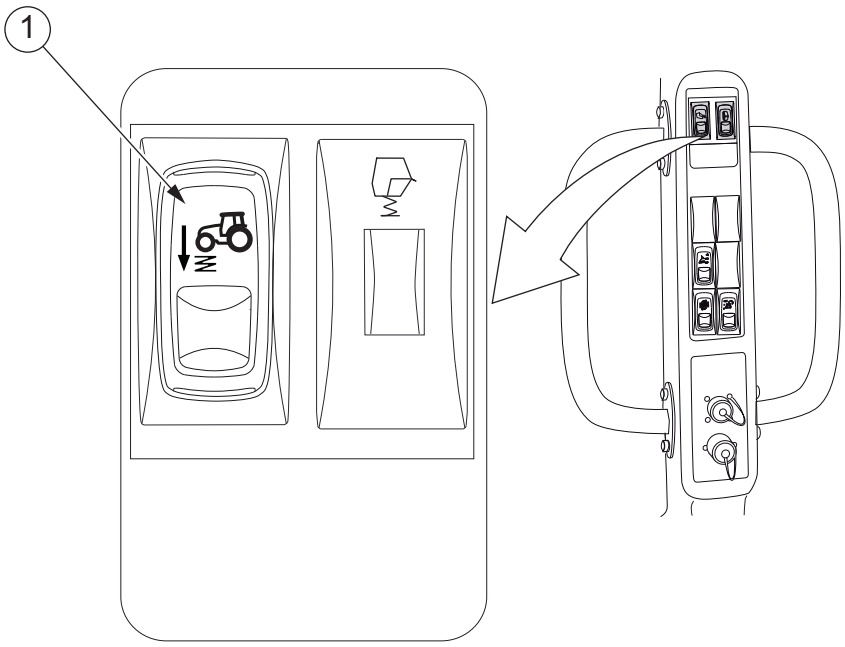
  There must be a stand under the boom or, for example the bucket of the front loader must be turned down. The boom must be in the floating position during the whole calibration.

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

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

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

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



1. Front axle suspension deactivation / AutoComfort calibration switch

1. **Press down the symbol side of the switch for approximately 30 seconds.**

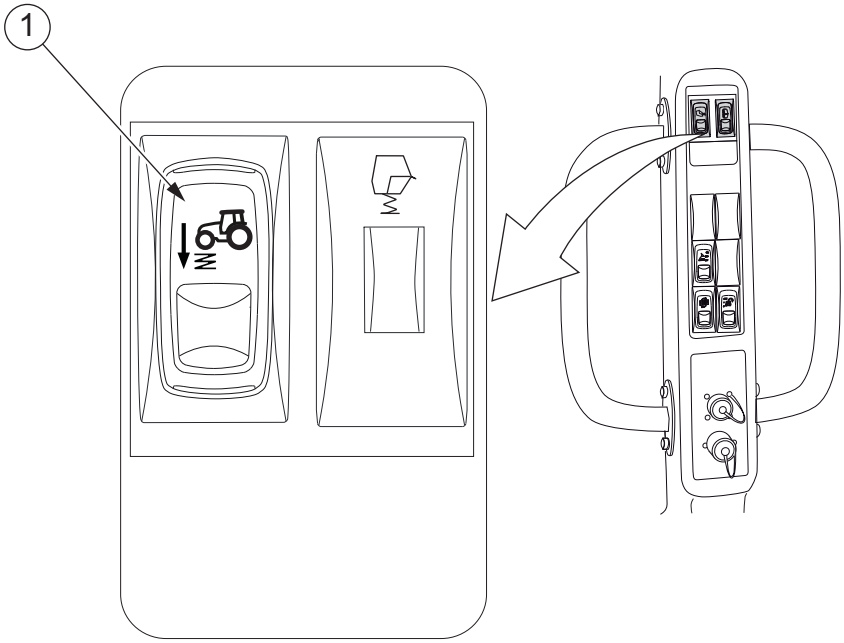
   The indicator light of the switch starts flashing and the calibration starts.

2. **Release the switch.**

   When the calibration is done, the light goes out.

3. **If the flashing does not stop within 2 minutes, start the calibration again.**

3.8.19.3 Deactivating front axle suspension



1. Front axle suspension deactivation / AutoComfort calibration switch

1. **Check that the power shuttle lever is not in the parking brake position.**
2. **Press down the side of the switch opposite to the symbol.**

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3.8.20 Differential lock

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

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

Position	Description
ON	The differential lock is always engaged except when: • One or both brake pedals are pressed (the lock re-engages when one or both pedals are released). • When engaging the parking brake.
AUTO	The differential lock engages when the following conditions are fulfilled: • The speed difference between the right and left rear wheel is sufficient. • The driving speed is over 1.5 km/h and under 15 km/h. • The wheels are in the middle position. The differential lock disengages: • When the wheel slip is less than 6%. The disengaging delay is 5 seconds. • When the driving speed rises to over 15 km/h. • When the wheels are turned more than 20% from the middle position. • When pressing one of the brake pedals or both. • When pressing the lift/stop/lower switch to the lift position.
OFF	The differential lock is continuously disengaged.

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

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

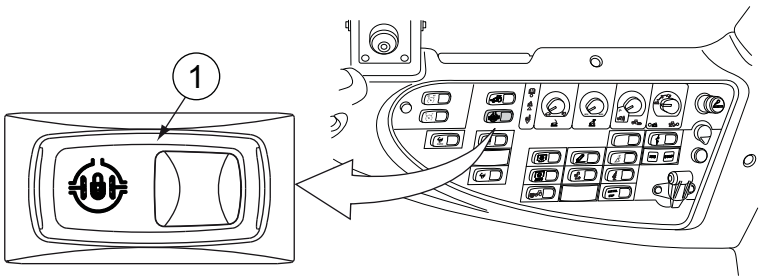
- The speed sensors are not calibrated.
- The turning angle sensor is not calibrated (contact an authorised Valtra workshop).
- There is a fault in the switch (the service code is displayed).
- There is a fault in the speed sensors (the service code is displayed).

3.8.21 Engaging and disengaging the differential lock

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

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

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



1. Differential lock switch

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

3.8.22 Four-wheel drive

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

Position	Description
ON	The 4WD is always engaged.
AUTO	The 4WD engages: • When the speed difference between the front and rear axle is sufficient. The driving speed has to be over 0.3 km/h. • When starting to drive or using the power shuttle. Driving start automatics must be activated. The automatics disengage the 4WD after a defined delay after starting to drive or using the power shuttle. You can define the disengagement delay in the driving start automatics user settings. The 4WD disengages: • When the wheel slip is less than 6%. The disengagement delay is 3 seconds. • When pressing clutch pedal or HiShift push button.
OFF	4WD is disengaged except: • When pressing both brake pedals. • When engaging the parking brake. • When starting to drive or using the power shuttle. Driving start automatics must be activated (activated as default). The automatics disengage the 4WD after a defined delay after starting to drive or using the power shuttle. You can define the disengagement delay in the driving start automatics user settings. • When using the HiShift push button if the driving speed is under 10 km/h. Driving start automatics must be activated (activated as default). The automatics disengage the 4WD after a defined delay after using the HiShift push button. You can define the disengagement delay in the driving start automatics user settings.

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

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

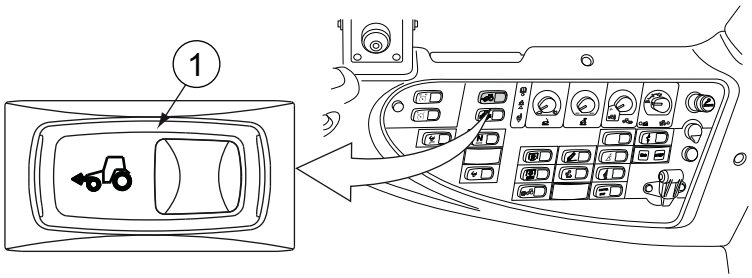
https://truckmanualshub.com/

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

3.8.23 Engaging and disengaging the four-wheel drive

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

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



1. 4WD switch

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

3.8.24 Driving start automatics

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

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

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

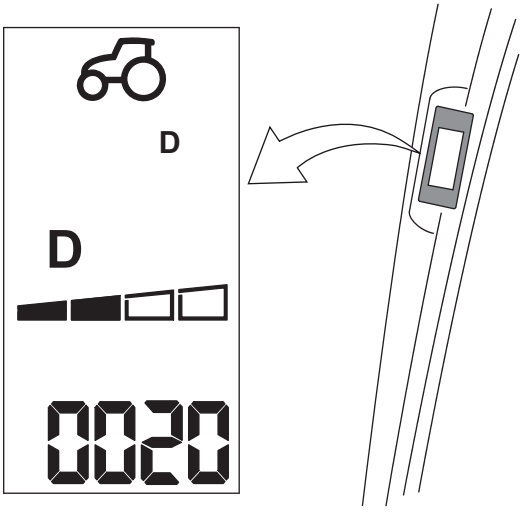
When the speed range is changed the driving start automatics engages the four-wheel drive if the wheel slip is more than 6%. The four-wheel drive disengages when the wheel slip is less than 6%.

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

3.8.25 Setting the driving start automatics

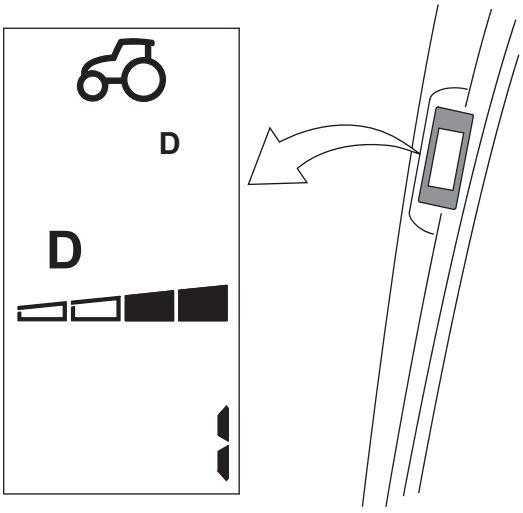
1. **Stop the engine and turn the ignition switch off.**
2. **Engage the parking brake.**
3. **Press the pre-programming push button, depress the clutch pedal and turn the ignition on at the same time.**

   The setting menu symbols (D) appears on the display. The first two bars are lit to indicate that the parameter number is shown on the bottom row.
4. **Press the Powershift push buttons to select the driving start automatics ON/ OFF parameter.**



5. **Press the Powershift pre-programming button.**

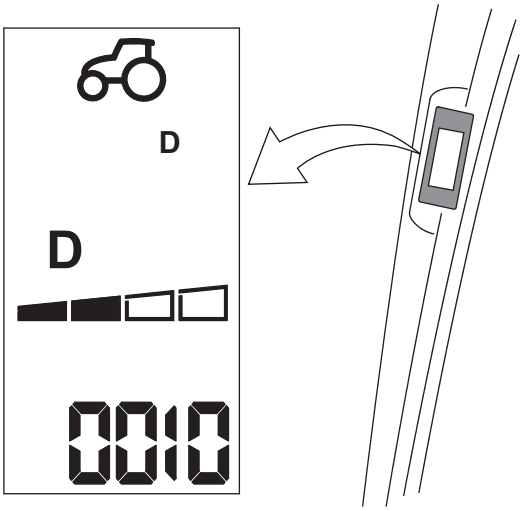
   The last two bars are lit to indicate that the parameter value is shown on the bottom row.
6. **Change the parameter value by pressing Powershift push buttons.**



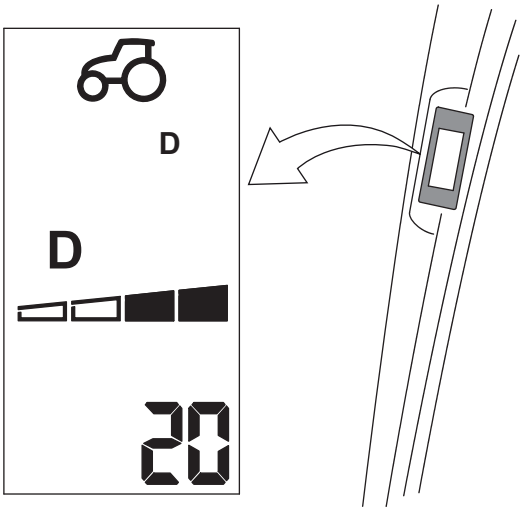
7. **Press the Powershift pre-programming button to save the value.**

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8. Press the Powershift push button to select the driving start automatics engagement time parameter.



9. Change the parameter value by pressing Powershift push buttons.



10. Press the HiShift push button to leave the setting menu and save all changes.

    If you want to leave the setting menu and discard all changes made, turn the ignition switch off.

3.8.26 Reverse drive system

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

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

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

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

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

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

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

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

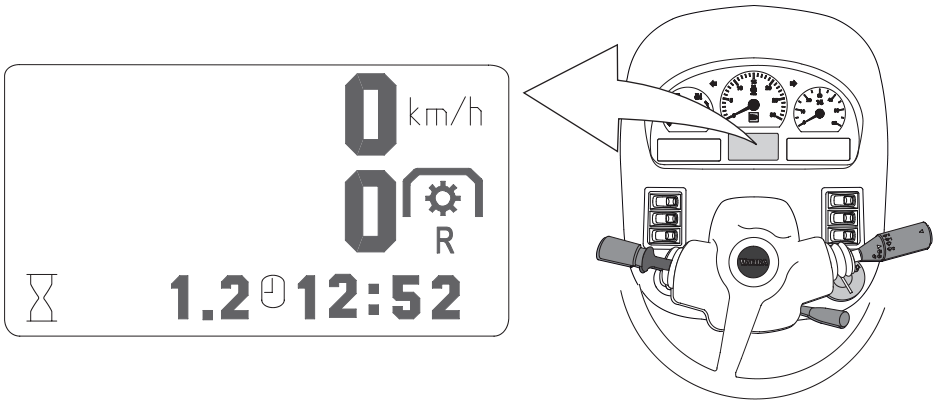
3.8.27 Permitted driving inclinations for driving the tractor on a slope

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

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

3.9 Proline instrument panel display

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



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

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

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3.9.1 Fixed views

Fixed views show the operating hours and the time.

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



1. Operating hours
2. Clock

Operating hours

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

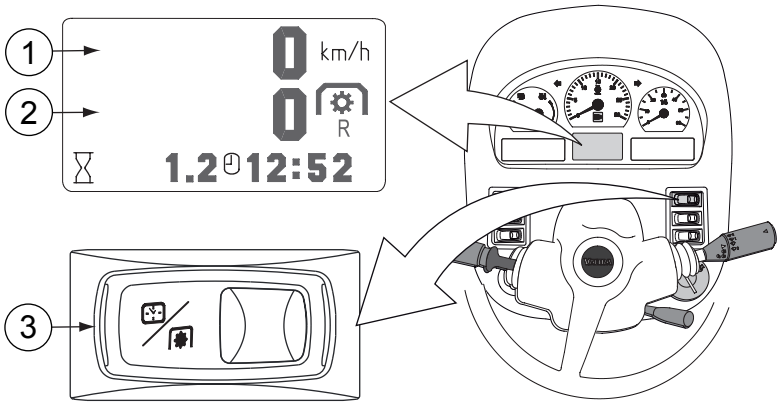
Clock

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

You can change the time if it is not correct.

3.9.2 Selecting a view

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



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

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

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

3.9.3 Top and middle row views

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

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

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

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

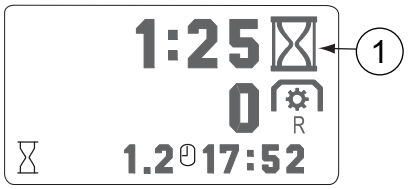
Symbol	Function
	Working time (h:mm)
cruise RPM cruise KMH	Cruise control
km/h/mph	Driving speed (km/h/mph)
	Wheel slip (%, 0-100)
R	Rear power take-off (PTO) speed (rpm)
F	Front power take-off (PTO) speed (rpm)
min⁻¹	Engine speed (rpm)
l/ha	Immediate fuel consumption (ha, acre)
AVG l/ha	Average fuel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

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3.9.3.1 Working time view

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

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



1. Working time

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

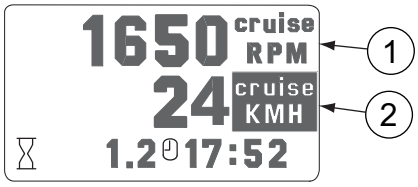
The working time is stored in the memory when the power is turned off.

You can reset the working time counter.

3.9.3.2 Cruise control view

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

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



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

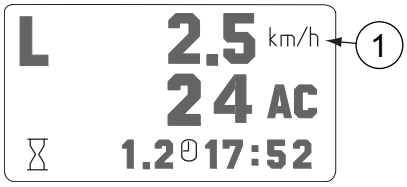
The numerical value in front of the symbol stands for the value of the programmed constant engine speed or driving speed.

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

3.9.3.3 Driving speed view

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

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



1. Driving speed

The driving speed is displayed as follows:

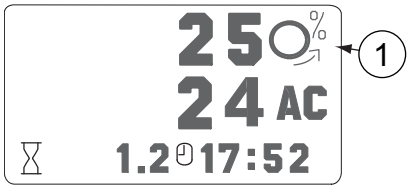
- The letter L shows that the driving speed is under 3 km/h (2 mph).
- Driving speeds of 0–10 km/h (0-10 mph) are shown with an accuracy of one decimal place.
- Driving speeds of 10–15 km/h (10-15 mph) are shown with an accuracy of one decimal place in steps of 0.2 units.
- Driving speeds of over 15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

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

3.9.3.4 Wheel slip view

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

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



1. Wheel slip

The wheel slip display shows the wheel slip percentage.

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

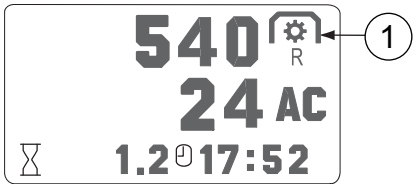
The radar starts to operate at a driving speed of 0.3 km/h (0.2 mph). For driving speeds below 0.3 km/h (0.2 mph), zero is displayed.

3.9.3.5 Rear power take-off speed view

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

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

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1. Rear power take-off speed

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

3.9.3.6 Front power take-off speed view

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

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



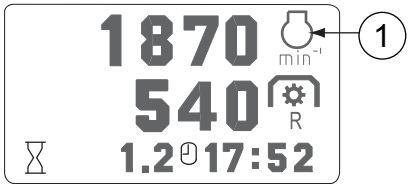
1. Front power take-off speed

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

3.9.3.7 Engine speed view

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

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



1. Engine speed

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

3.9.3.8 Fuel consumption views

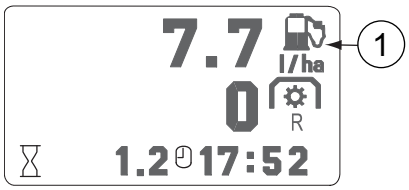
The display shows different kinds of fuel consumption: immediate and average fuel consumption on the area worked, immediate and average fuel consumption in an hour and total fuel consumption.

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

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

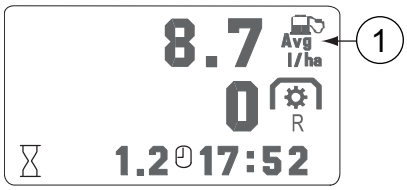
You can select litre, gallon UK or gallon US as the unit of volume.

Immediate fuel consumption on the area worked



1. Immediate fuel consumption on the area worked

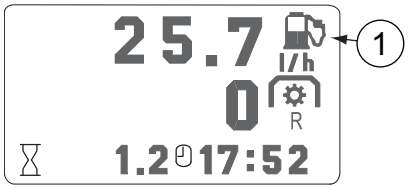
Average fuel consumption on the area worked



1. Average fuel consumption on the area worked

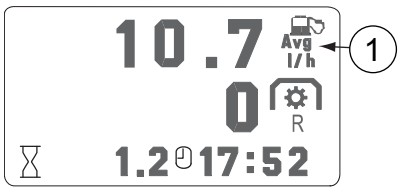
You can reset the fuel consumption information.

Immediate fuel consumption in an hour



1. Immediate fuel consumption in an hour

Average fuel consumption in an hour

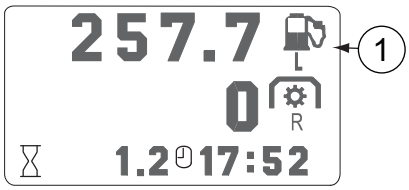


1. Average fuel consumption in an hour

You can reset the fuel consumption information.

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Total fuel consumption



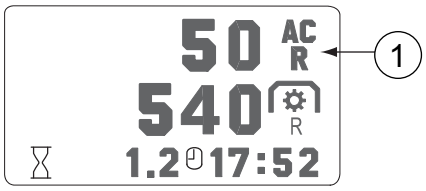
1. Total fuel consumption

You can reset the fuel consumption information.

3.9.3.9 Rear lower links' position view

The view shows the position of the rear lower links.

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



1. Position of the rear lower links

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

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

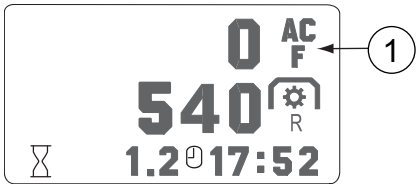
NOTE: The percentage value may not achieve the limit values (0 or 100) even if the linkage is functioning correctly.

3.9.3.10 Front lower links' position view

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

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

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

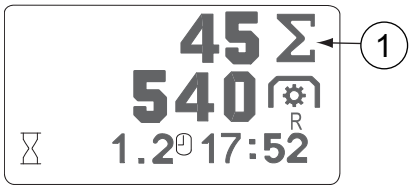


1. Lower links' position of the front linkage

3.9.3.11 Sigma Power view

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

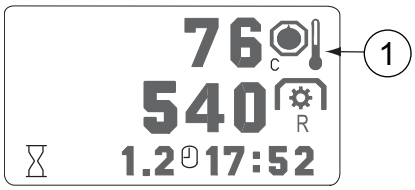
The Sigma Power ∑ is shown on the top or middle row of the display.



1. Sigma Power

3.9.3.12 Gearbox temperature view

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



1. Gearbox temperature

The gearbox temperature is displayed as follows:

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

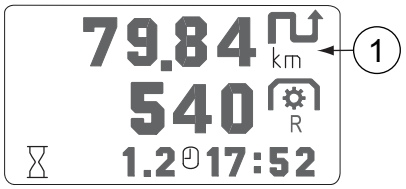
NOTE: If the gearbox temperature is continuously above +90°C (+194°F), clean the radiator and check the oil level.

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3.9.3.13 Travel distance view

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

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



1. Travel distance

The travel distance is displayed as follows:

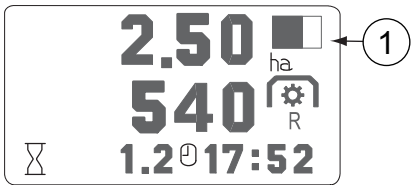
- For distances <1 km (mile), the m (yard) symbol is displayed and the distance is displayed with an accuracy of ±1 m (yard).
- For distances >1 km (mile), but ≤100 km (miles), the display symbol changes to km (miles) and the distance is displayed with an accuracy of ±2 decimals.
- Distances >100 km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

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

3.9.3.14 Surface area view

The view shows the surface area in hectares or acres.

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



1. Surface area

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

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

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

You can also reset the area reading.

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3.9.4 Periodical maintenance view



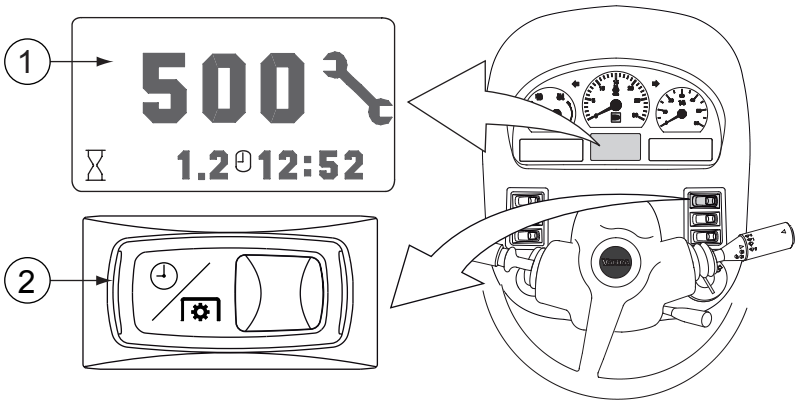
1. Periodical maintenance view

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

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

3.9.4.1 Clearing the periodical maintenance view

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



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

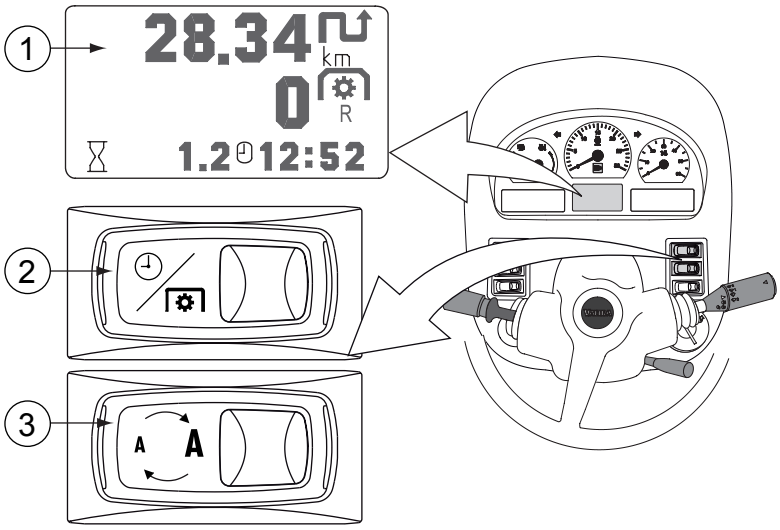
- **Press down the Proline instrument panel display change-over switch side opposite to the symbol.**
- **Simultaneously turn the power on.**

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

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3.9.5 Resetting views

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



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

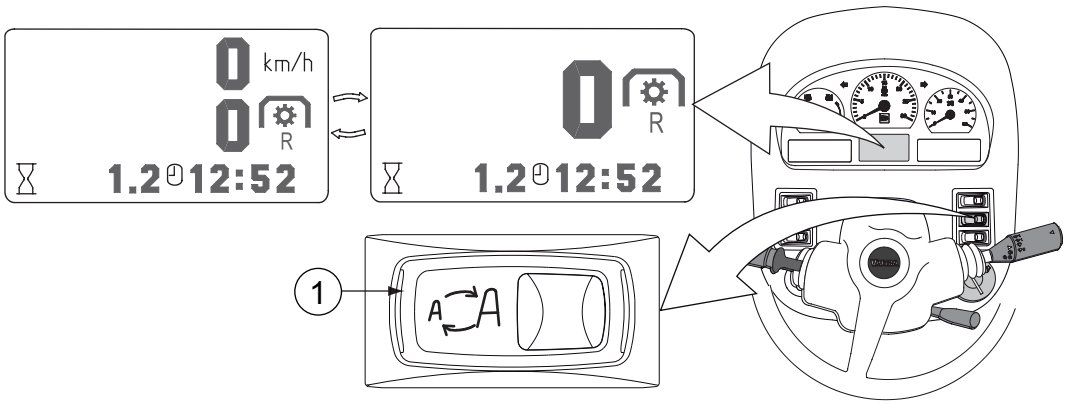
1. **Select the travel distance, fuel consumption, working time or worked area to the Proline instrument panel display.**

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

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

3.9.6 Enlarging the middle row

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



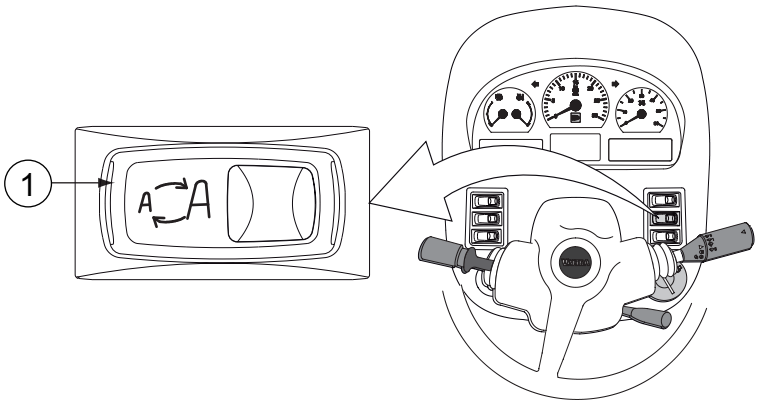
1. Proline instrument panel display setting switch

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

3.9.7 Changing parameters

3.9.7.1 Activating and exiting the setting mode

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



1. Proline instrument panel display setting switch

1. **Activate the setting mode.**

   Press and hold down the symbol side of the display setting switch for more than three seconds.
2. **Display the available parameters.**

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

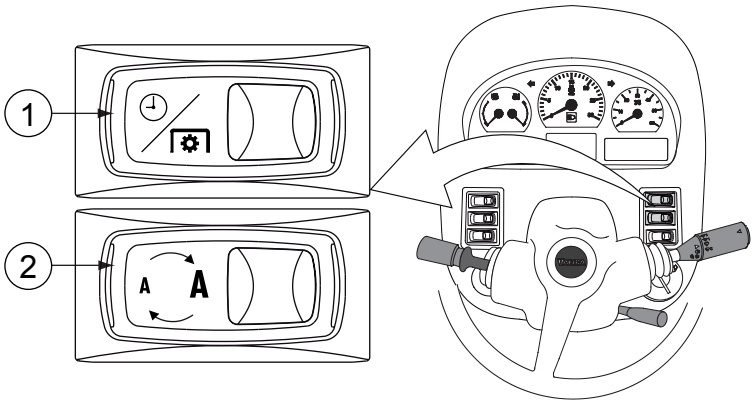
Parameter	Parameter value
Display backlight level	1–7
Implement width	0–6 500
Hour display	Hours
Minute display	Minutes
Clock mode	12–hour or 24–hour
Speed ratio ppm	Not in use
Direction indicator buzzer status	On or off
Temperature unit	Celsius or Fahrenheit
Length unit	Metric or imperial
Volume unit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

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3. **Exit the setting mode.**

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

3.9.7.2 Changing the parameter value

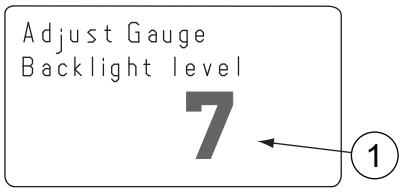


1. Proline instrument panel display change-over switch
2. Proline instrument panel display setting switch

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

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

3.9.7.3 Setting the display backlight level



1. Backlight level

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

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3.9.7.4 Setting the implement width



1. Implement width

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

3.9.7.5 Changing the hour display



1. Hour display

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

3.9.7.6 Changing the minute display



1. Minute display

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

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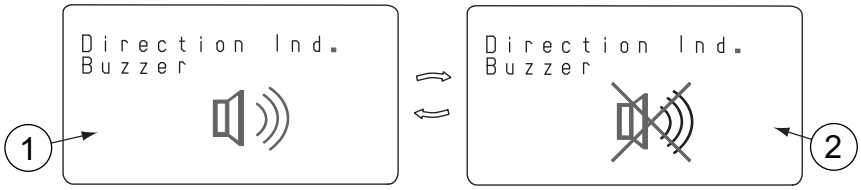
3.9.7.7 Changing the clock mode



1. Clock mode

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

3.9.7.8 Activating the direction indicator buzzer



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

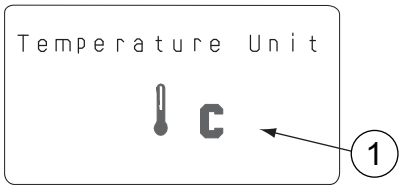
1. **Activate the direction indicator buzzer in the setting mode.**
2. **Change the direction indicator buzzer to either on or off.**

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

3.9.7.9 Changing the temperature unit

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

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



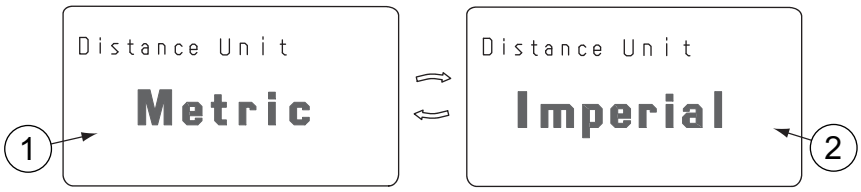
1. Temperature unit

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

3.9.7.10 Changing the length unit

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

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



1. Metric units
2. Imperial units

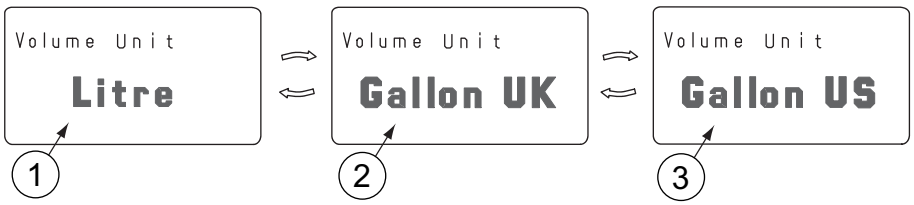
1. **Activate the unit of length in the setting mode.**
2. **Change the unit to either metric or imperial mode.**

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

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

3.9.7.11 Changing the volume unit

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

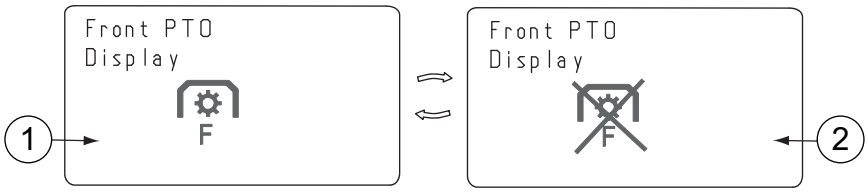


1. Litre
2. Gallon UK
3. Gallon US

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

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

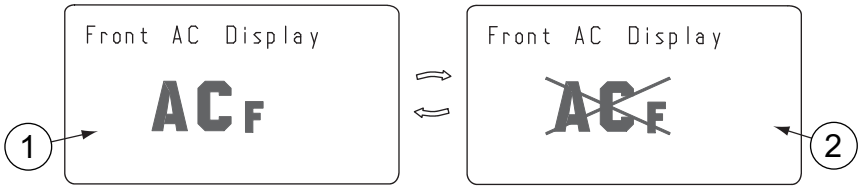


1. Front PTO speed view on
2. Front PTO speed view off

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

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

3.9.7.13 Activating and deactivating the front lower links' position view

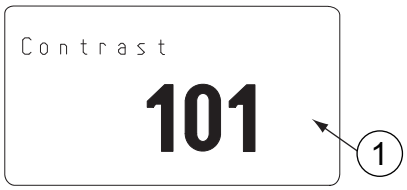


1. Front lower links' position view activated
2. Front lower links' position view deactivated

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

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

3.9.7.14 Adjusting the display contrast



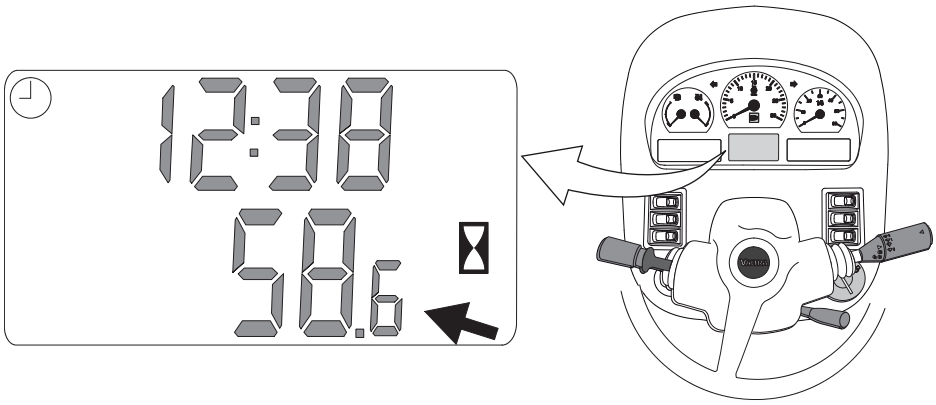
1. Display contrast

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

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

3.10 Agroline instrument panel display

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



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

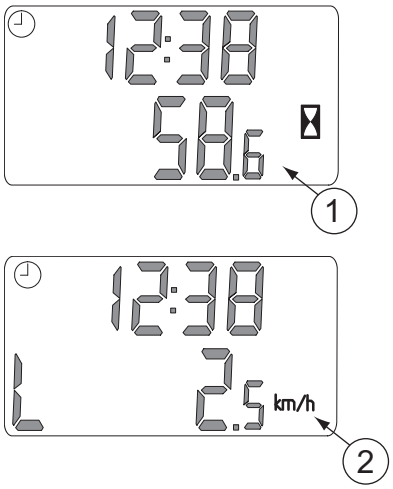
- The bottom row view is fixed.
- The operator can select the top row view.

3.10.1 Fixed views

Fixed views show the operating hours and the driving speed (km/h / mph).

Fixed views have two functions displayed on the bottom row, the operating hours ⧖ and the driving speed in km/h or mph.

When switching the power on, the operating hours are shown first on the bottom line. When the tractor starts to move the bottom line display changes to show the driving speed.



1. Operating hours
2. Driving speed

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Operating hours

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

Driving speed (km/h / mph)

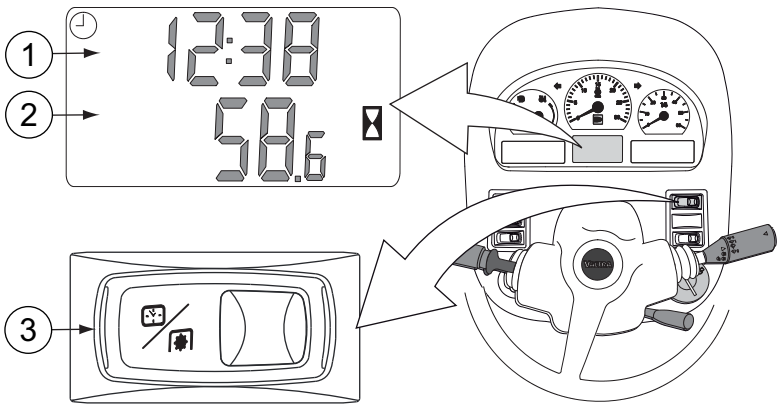
When the driving speed is under 3 km/h, the symbol L is shown in the display. The display shows up to 15 km/h to one decimal place.

The driving speed unit (km/h / mph) can be changed only by an authorised workshop.

.

3.10.2 Selecting a view

You can select different functions to be displayed on the top row.



1. Top row
2. Bottom row
3. Agroline instrument panel display change-over switch

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

3.10.3 Top and bottom row views

The Agroline instrument panel display functions are seen on the top or the bottom row.

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

Symbol	Function
m, km/miles	Travel distance (m/km/miles)
R	Rear power take-off (PTO) speed (rpm)
F	Front power take-off (PTO) speed (rpm)
	Clock

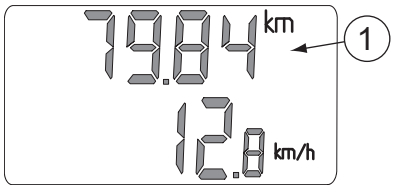
Table continued on next page

Symbol	Function
	Gearbox temperature (C/F)
AC R	Lower link position (%, 0-100)
	Periodical maintenance

3.10.3.1 Travel distance view

The travel distance is displayed in metres, kilometres, yards, or miles.

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



1. Travel distance

The travel distance is displayed as follows:

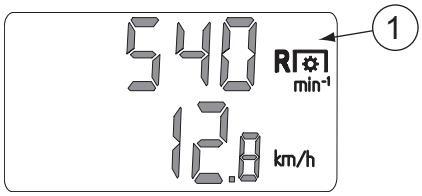
- For distances <1 km (mile), the m (yard) symbol is displayed and the distance is displayed with an accuracy of ±1 m (yard).
- For distances >1 km (mile), but ≤100 km (miles), the display symbol changes to km (miles) and the distance is displayed with an accuracy of ±2 decimals.
- Distances >100 km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

If the driving trip unit (km / miles) needs to be changed, please contact an authorised workshop.

3.10.3.2 Rear power take-off speed view

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

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



1. Rear power take-off speed

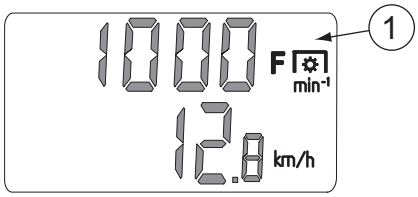
The PTO rotation speed is shown beside the symbol with an accuracy of 10 rpm.

3.10.3.3 Front power take-off speed view

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

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

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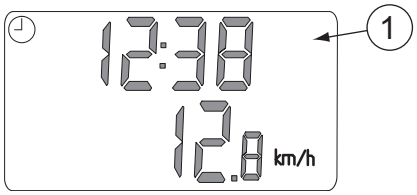


1. Front power take-off speed

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

3.10.3.4 Clock

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

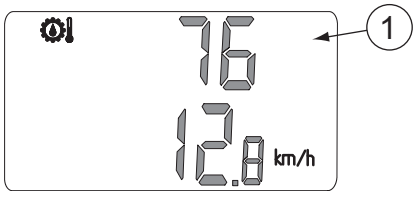


1. Clock

You can change the time if it is not correct.

3.10.3.5 Gearbox temperature view

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



1. Gearbox temperature

The gearbox temperature is displayed as follows:

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

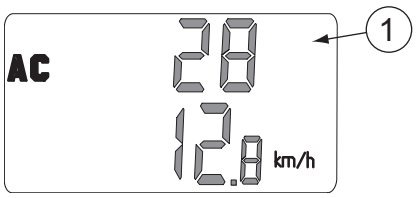
NOTE: If the gearbox temperature is continuously above +90°C (+194°F), clean the radiator and check the oil level.

3.10.3.6 Rear lower links' position view

The view shows the position of the rear lower links.

The position of the rear lower links ACR is shown on the top row of the display.

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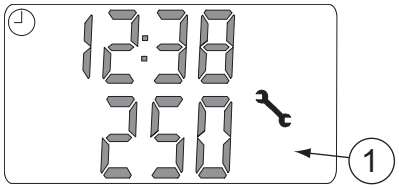
1. Position of the rear lower links

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.

3.10.4 Periodical maintenance view



1. Periodical maintenance view

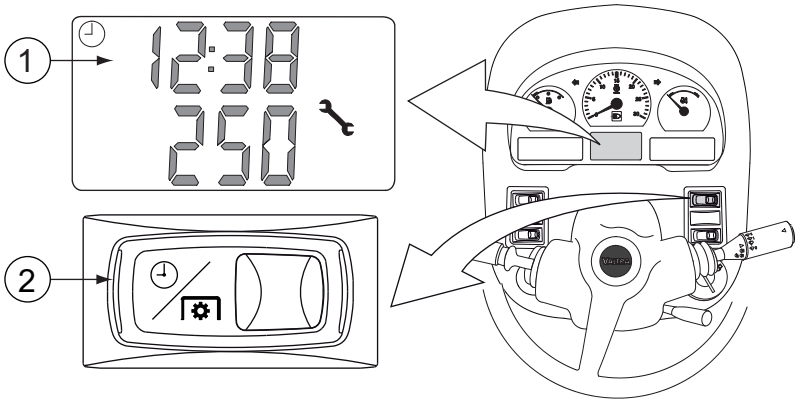
When the tool symbol and periodical maintenance hour number are lit on the display, the appropriate service work has to be carried out by an authorised Valtra workshop.

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

3.10.4.1 Clearing the periodical maintenance view

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

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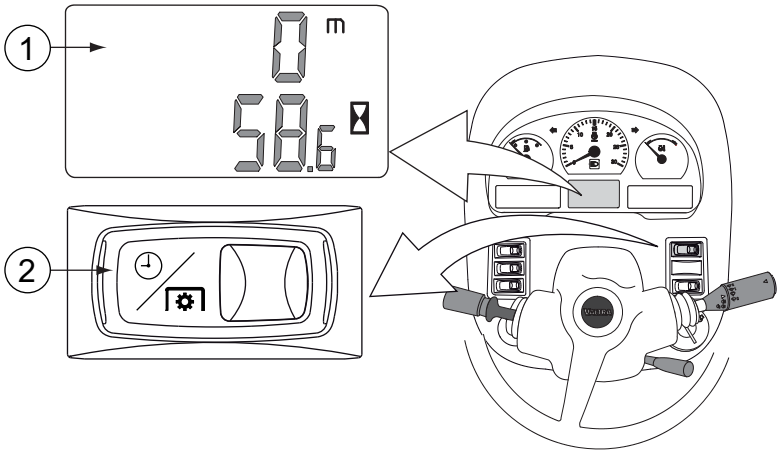
1. Periodical maintenance view
2. Agroline instrument panel display change-over switch

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

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

3.10.5 Resetting views

You can reset the travel trip view.



1. Travel distance
2. Agroline instrument panel display change-over switch

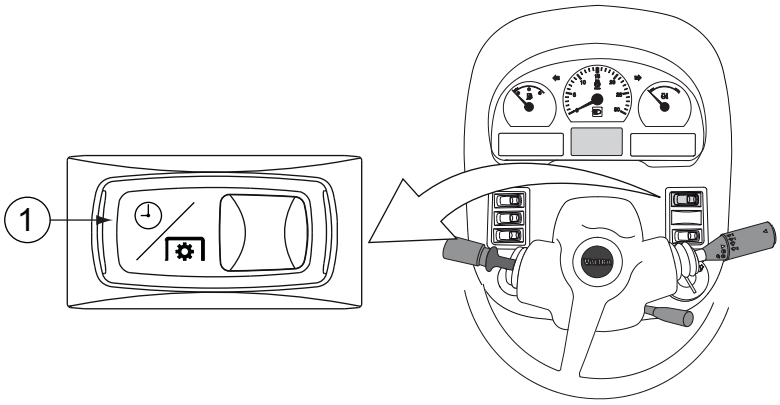
1. **Select the travel trip to the Agroline instrument panel display.**

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

3.10.6 Changing parameters

3.10.6.1 Activating and exiting the setting mode

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



1. Agroline instrument panel display setting switch

1. Activate the setting mode.

With the power switched on and the clock function selected, press and hold down the symbol side of the display setting switch for more than three seconds, until the display is in the setting mode (in 12 or 24 hours display).. You can modify the following parameters:

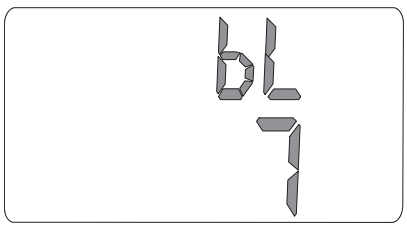
Parameter	Parameter value
Display backlight level	1–7
Hour display	Hours
Minute display	Minutes
Clock mode	12–hour or 24–hour
Tyre parameters	100---400

Go to the other settings by pressing the symbol side of the change over switch.

2. Exit the setting mode.

Press and hold down the symbol side of the display setting switch for more than three seconds. Also, if the setting mode is not altered for over 10 seconds, the display changes into the normal mode.

3.10.6.2 Setting the display backlight level



1. Backlight level

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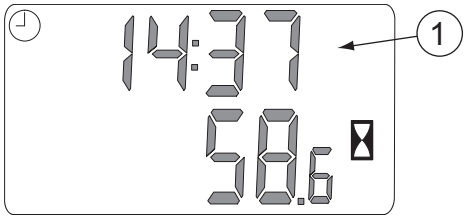
1. **Activate the backlight level in the setting mode.**

   The backlights of the instrument panel will flash few times.

2. **Select the right level.**

   Press the opposite side to the symbol of the change over switch.

3.10.6.3 Resetting time



1. Clock

1. **Activate the clock in the setting mode.**

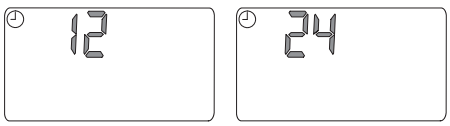
   The minutes start to flash.

2. **Set the minutes.**
   - **Press the side of the display change-over switch opposite to the symbol.**
     The parameter decreases one step at a time.
   - **Press and hold down the side of the display change-over switch opposite to the symbol.**
     The parameter value decreases continuously.

3. **Set the hours.**
   - **Press the symbol side of the display change-over switch.**
   - **Press the side of the display change-over switch opposite to the symbol.**

The setting of the time is complete when the display changes into normal mode after about 10 seconds or by pressing the symbol side of the change over switch for over 3 seconds.

3.10.6.4 Changing the clock mode

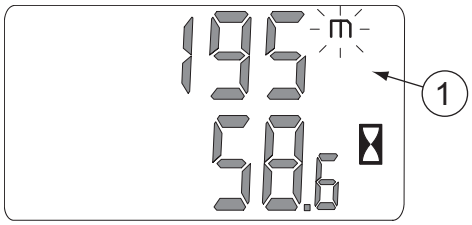


1. **Activate the clock mode in the setting mode.**

2. **Change the display to either 12-hour or 24-hour mode.**

   Set the desired hour display by pressing the opposite side to the symbol of the change over switch.

3.10.6.5 Changing the Agroline tyre parameters for different tyres



1. Tyre parameter code

1. **Activate the tyre parameters in the setting mode.**

   The letter **m** starts to flash.

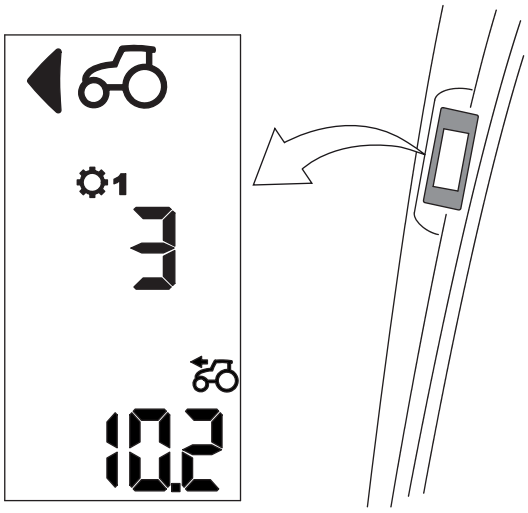
2. **Select the right code number.**

   Press the opposite side to the symbol of the change over switch.By keeping the opposite side to the symbol of the of the change over switch pressed down the numbers change continuously.The code number value can vary between 100–400. When pressing the switch rear edge, the code value changes from a smaller value to greater one.

The setting of the tyre parameter is complete when the display changes into mode after about 10 seconds or by pressing the symbol side of the change over switch for over 3 seconds.

3.11 A-pillar display

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

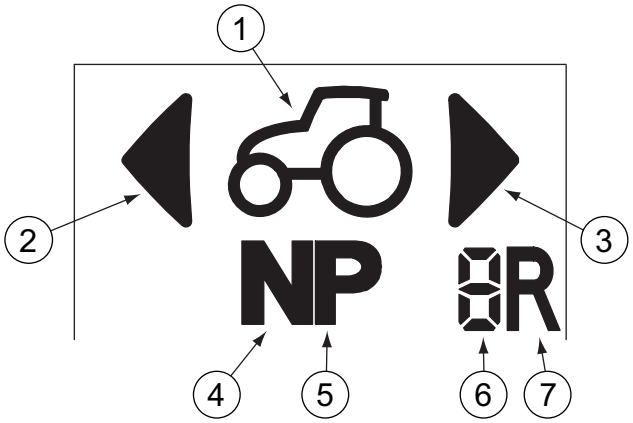


The display has a backlight to facilitate work in the dark.

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

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3.11.1 Power shuttle section



1. Tractor symbol
2. Forward direction arrow
3. Reverse direction arrow
4. Transmission neutral symbol
5. Parking brake symbol
6. Preprogrammed Powershift gear symbol
7. Preprogrammed driving direction symbol

Tractor symbol

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

Forward direction arrow

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

Reverse direction arrow

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

Transmission neutral symbol

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

Parking brake symbol

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

Preprogrammed range gear symbol

The preprogrammed range gear symbol (A, B, C or D) flashes if there is preprogrammed range gears and the power shuttle lever is in P or N position.

When the forward driving direction is selected the preprogrammed range gear symbol for reverse driving direction (A, B, C or D) is shown.

When the reverse driving direction is selected the preprogrammed range gear symbol for forward driving direction (A, B, C or D) is shown.

Preprogrammed Powershift gear symbol

The preprogrammed Powershift gear symbol (1, 2, or 3) flashes if there is preprogrammed Powershift gears and the power shuttle lever is in P or N position.

When the forward driving direction is selected the preprogrammed Powershift gear symbol for reverse driving direction (1, 2, or 3) is shown.

When the reverse driving direction is selected the preprogrammed Powershift gear symbol for forward driving direction (1, 2, or 3) is shown.

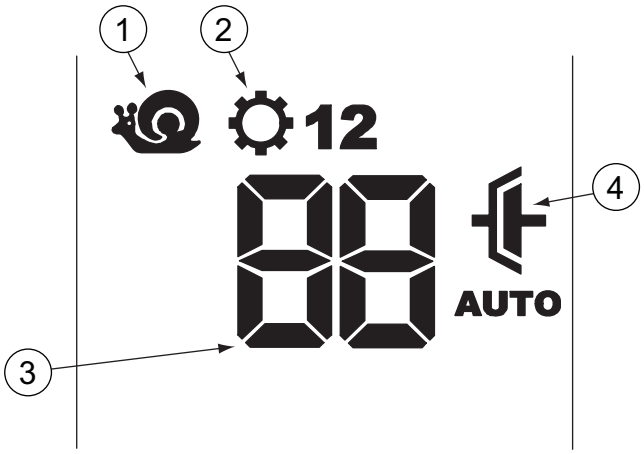
Preprogrammed driving direction symbol

The preprogrammed driving direction symbols (F and R) flashes in turns when there is a preprogrammed driving direction and the power shuttle lever is in P or N position.

When the forward driving direction is selected the preprogrammed driving direction symbol for reverse driving direction (R) is shown.

When the reverse driving direction is selected the preprogrammed driving direction symbol for forward driving direction (F) is shown.

3.11.2 Transmission section



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

Shifting automatics symbol

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

Selected Powershift gear

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

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Automatic traction control symbol

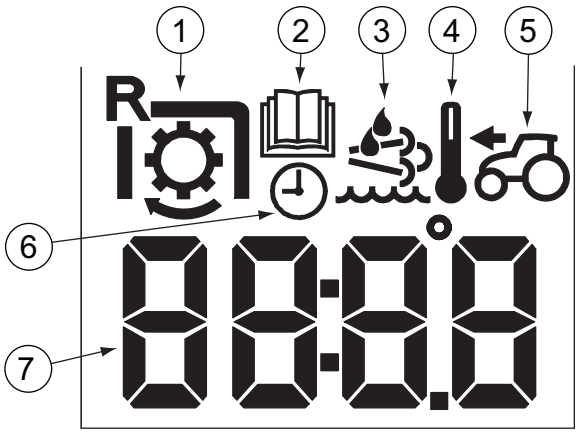
The automatic traction control symbol blinks when automatic traction control is activated. The symbol is displayed continuously when the desired direction has been reselected.

Creeper speed range symbol

The creeper speed range symbol blinks when the creeper speed range is being engaged. The symbol is displayed continuously when the creeper speed range is engaged.

3.11.3 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. Power take-off (PTO) symbol
2. Service code symbol
3. Low AdBlue level symbol
4. Thermometer symbol
5. Driving speed tractor symbol
6. Clock symbol
7. The value of the selected property

- In the basic mode view, the symbol for the rear PTO 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 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.
- In the basic mode view, the thermometer symbol and the current outside temperature are shown when the tractor is stationary. In the fixed view, they are shown continuously. The accuracy of the temperature view is one degree. The outside temperature sensor is placed in the front part of the tractor. The engine temperature can falsely affect the thermometer, especially when the tractor is stationary.

- In the basic mode view, the tractor symbol and the current driving speed are shown if the tractor is moving. In the fixed view, they are shown continuously. The accuracy of the driving speed view is described in the following table.

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

- The clock symbol is shown when the clock mode has been selected. The time is shown on the bottom line.
- When the SCR (Selective Catalytic Reduction) mode has been selected the Low AdBlue level symbol, letter L and the level of the AdBlue/DEF (in percent) is shown continuously.

  This view is shown every time when the power has been turned on if the level of the AdBlue/DEF is between 10-15%. The view can be changed with the view selection switch.

  When the level of the AdBlue/DEF is below 10%, the letter L and the level of the AdBlue/DEF (in percent) is shown continuously. The view can not be changed with the view selection switch.

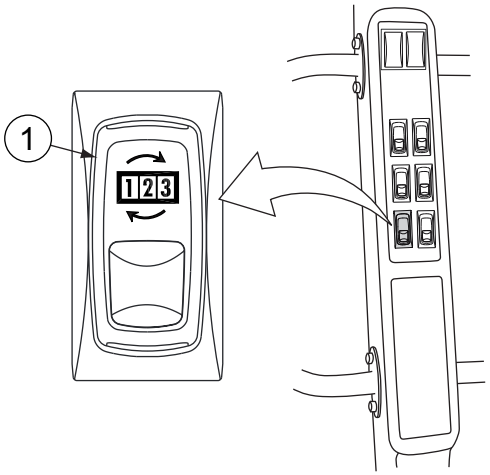
  When the level of the AdBlue/DEF is below 5%, the Low AdBlue level symbol flashes.
- In some situations (for example, after working with a heavy load) when you engage the parking brake, the engine may perform cooling of the after-treatment system by increasing the idling RPM momentarily. The word COOL flashes on the A-pillar display.

  IMPORTANT: Do not stop the engine when the idling RPM is increased. Stopping the engine may damage the after-treatment system.

- The service code symbol blinks if one or more service codes are active. The symbol disappears when the error has been fixed and power turned off.

3.11.4 Changing general information section views

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



1. View selection switch

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

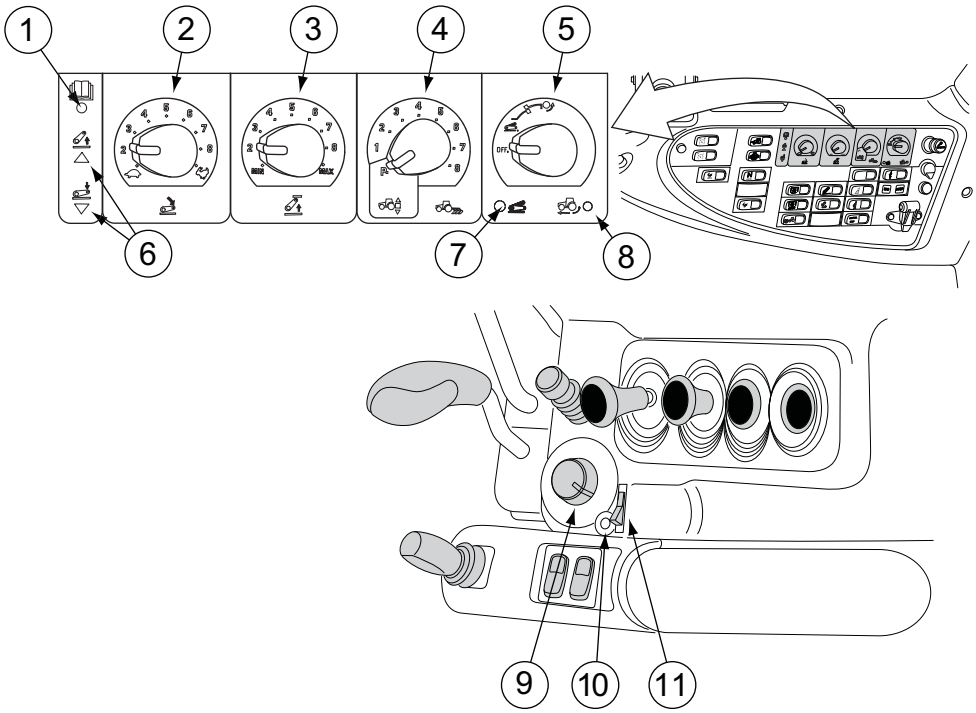
   The views are organised in the following order: basic mode, rear power take-off speed, front power take-off speed (if the tractor is equipped with the front power take-off), outdoor temperature, driving speed, time, AdBlue level.
   - To scroll through the functions in this order, press down the symbol side of the switch.
   - To scroll through the functions in reverse order, press down the side of the switch opposite to the symbol.

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

   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.

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

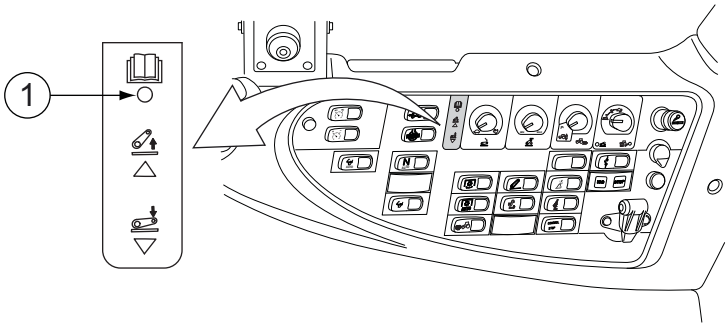
3.12 Rear linkage



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

3.12.1 Diagnose light

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



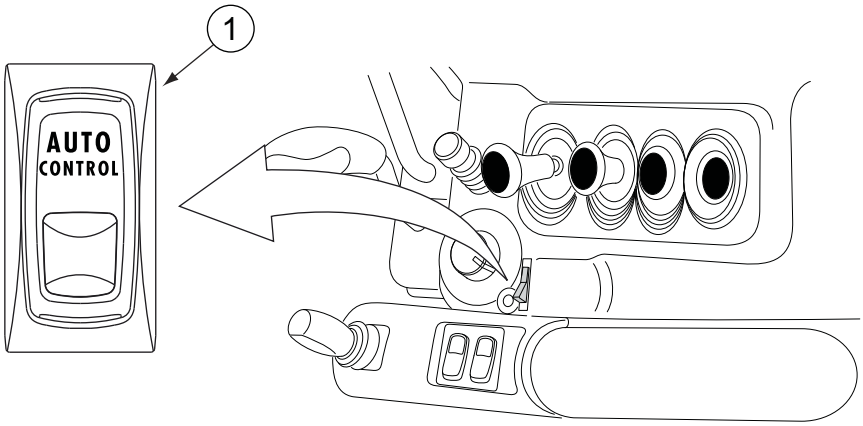
1. Diagnose light

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

3.12.2 Activating the linkage

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

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



1. Lift/stop/lower switch

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

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

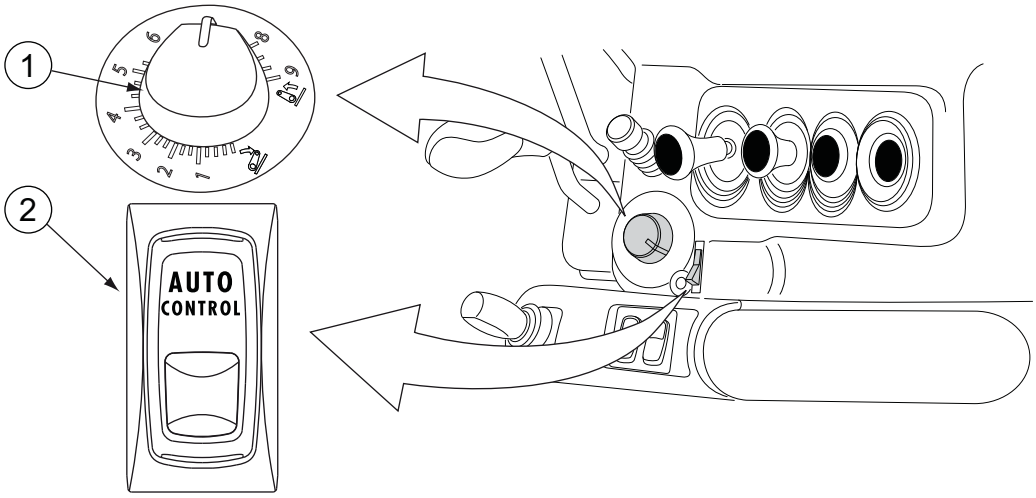
   The diagnose light goes out and the lower links move to the preset position. The first movement is done by reduced speed.

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

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

3.12.3 Using the lift/stop/lower switch

The lift/stop/lower switch has three positions.



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

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

  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.

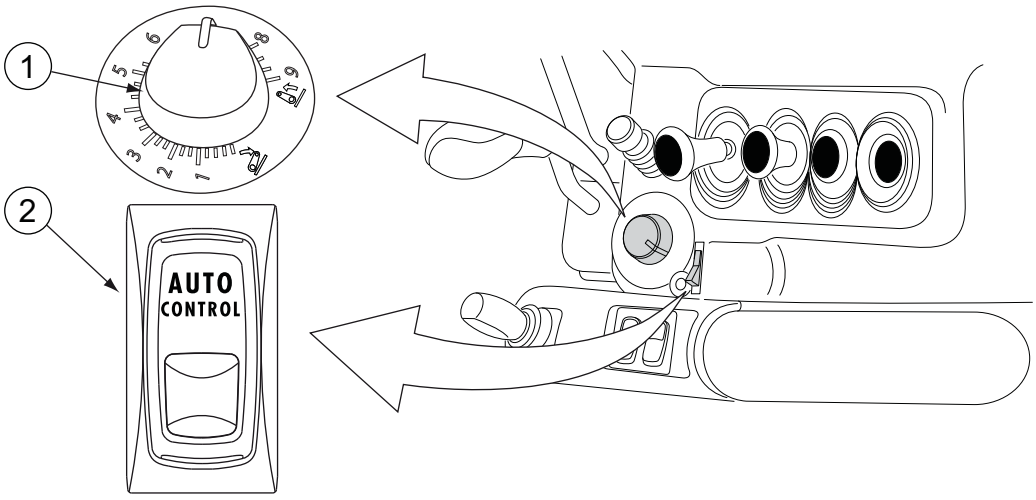
- **To stop the lower links, set the lift/stop/lower switch to the centre position.**

  This is called the stop position.

3.12.4 Using the position control knob

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

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

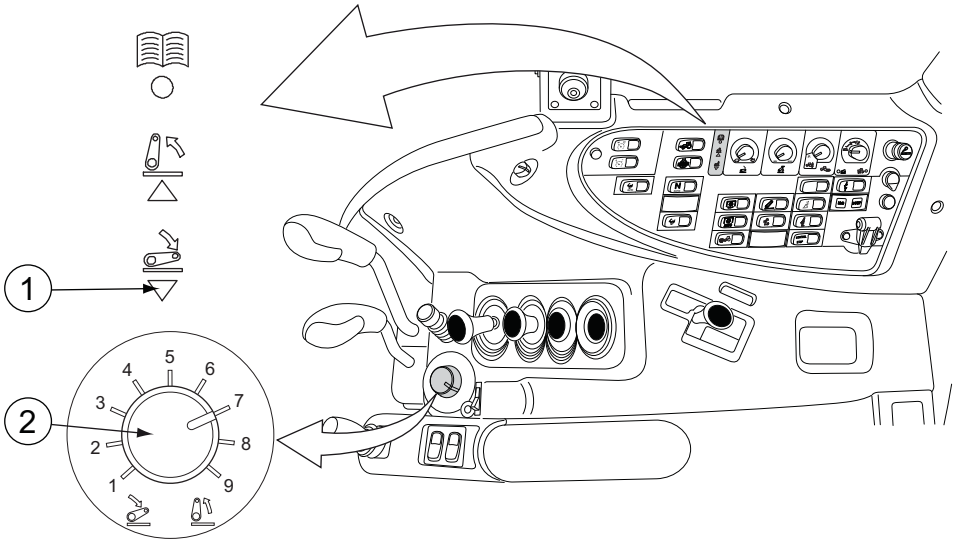


1. Position control knob
2. Lift/stop/lower switch

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

3.12.5 Using the linkage floating position

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



1. Lower indicator light
2. Position control knob

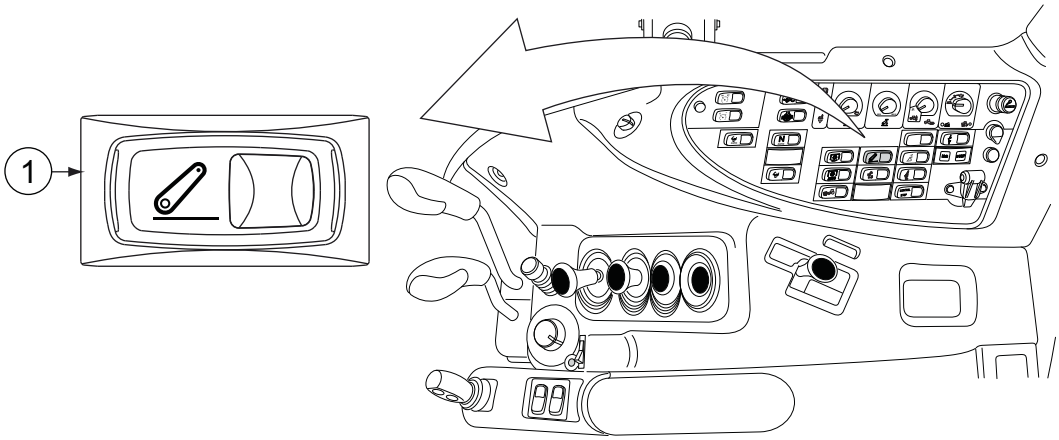
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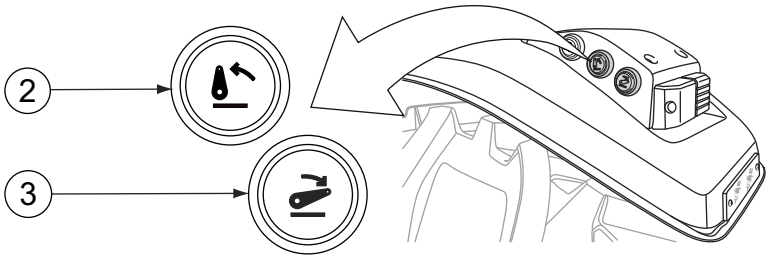
IMPORTANT: Use the floating position when working with implements following the ground surface, otherwise the implement may be damaged.

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

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

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





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

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

  The longer the lift/lower switch or the lift push button is pressed the faster the linkage lifts.
- **To lower the linkage, press the lift/lower switch side opposite to the symbol or the lower push button.**

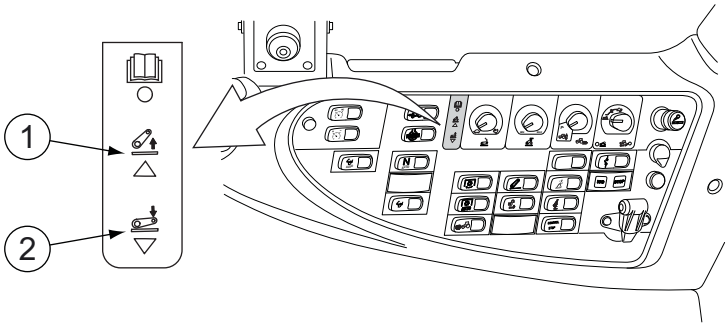
  The longer the lift/lower switch or the lower push button is pressed the faster the linkage lowers.

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

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

3.12.7 Lift/lower indicator lights

The indicator lights indicate when the lower links are moving.



1. Lift indicator light
2. Lower indicator light

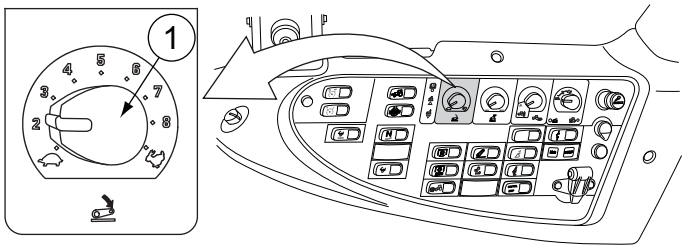
Lit indicator light indicates that the rear linkage is being used.

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

3.12.8 Setting the lowering speed

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

The lowering speed is independent of the load.



1. Lowering speed selector

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

  Nine different levels are available.

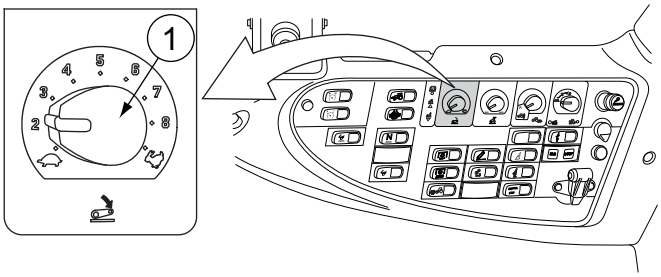
- **To decrease the lowering speed, turn the knob anti-clockwise.**

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3.12.9 Limiting the lifting height

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

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



1. Lifting height selector

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

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

3.12.10 Draft control

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

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

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

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

- 1 = small influence
- 8 = very large influence

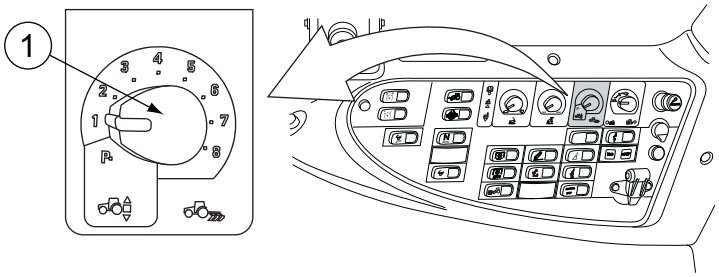
Position 5 is normally used for ploughing. If larger draft control is required, position 6 can be used instead, and the ploughing depth is not significantly affected.

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.

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

3.12.11 Activating and deactivating the draft control



1. Draft control selector

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

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

3.12.12 Passing the position set by the position control knob

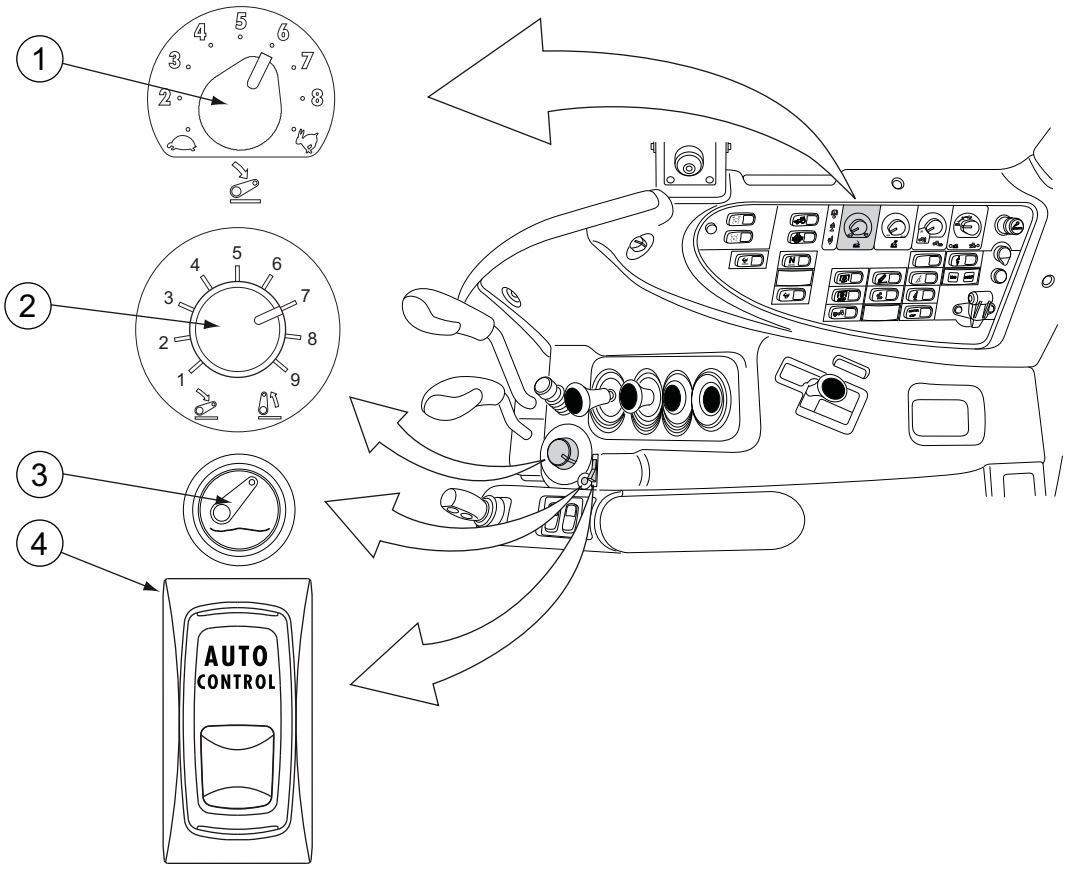
Use the passing switch for the position control knob when you temporarily need the lower links to pass the lower limit set by the control knob. This feature is useful for example when ploughing.

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

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

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

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

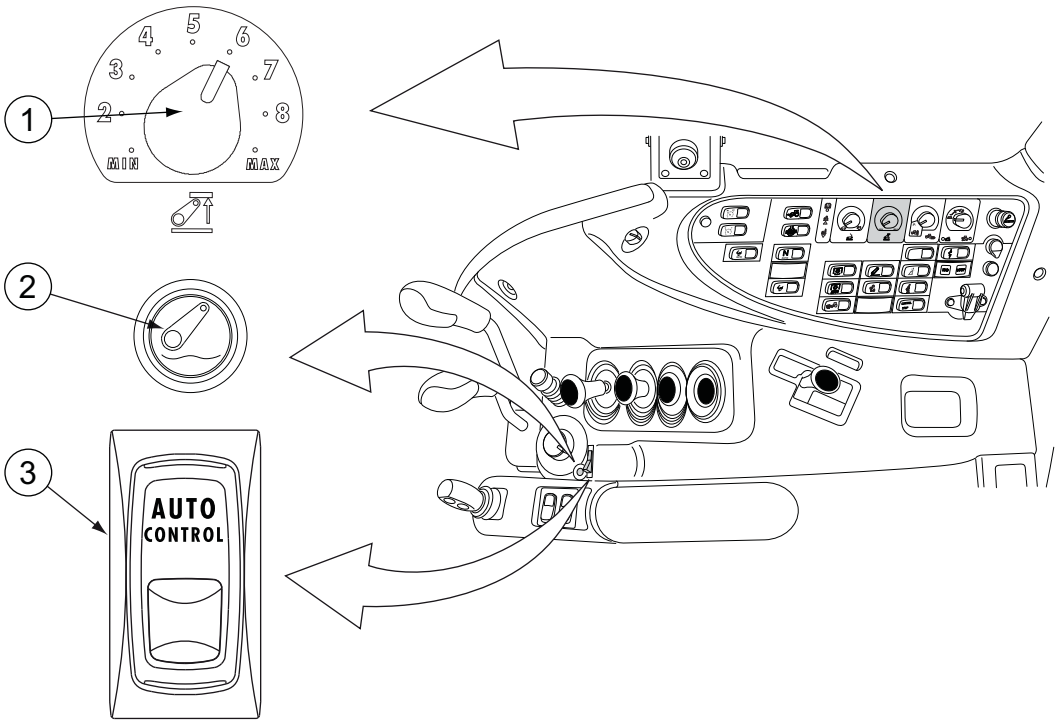
1. **Set the lift/stop/lower switch to the lower (Autocontrol) position.**
2. **Press down the passing switch for position control knob.**
   The lower links pass the limit set by the position control knob.
3. **Release the passing switch for position control knob.**

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

3.12.13 Passing the height set by the lifting height selector

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

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



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

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

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

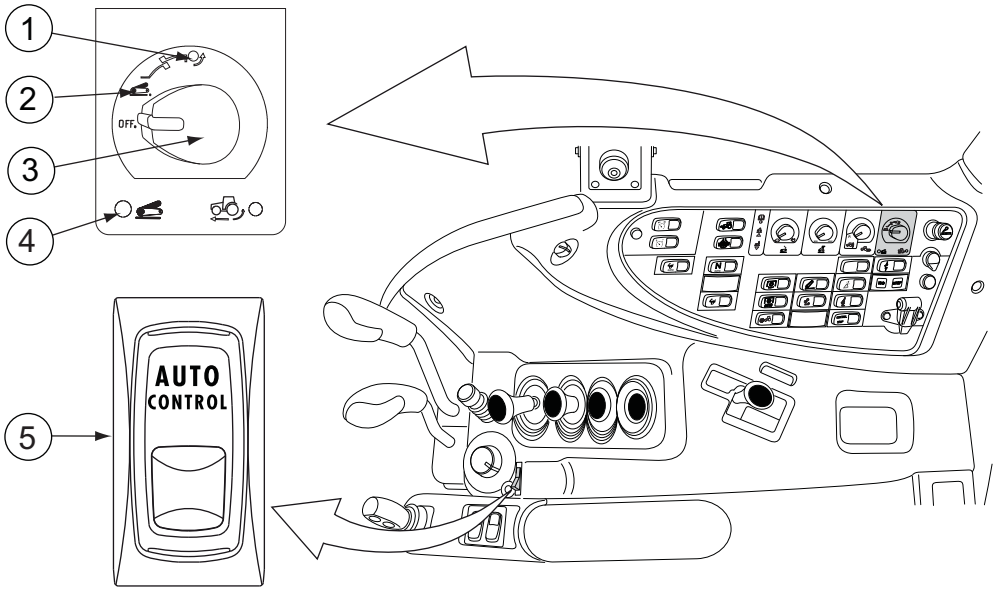
3.12.14 Using the drive balance control

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

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

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

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

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

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

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

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

3.12.15 Slip control

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

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

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

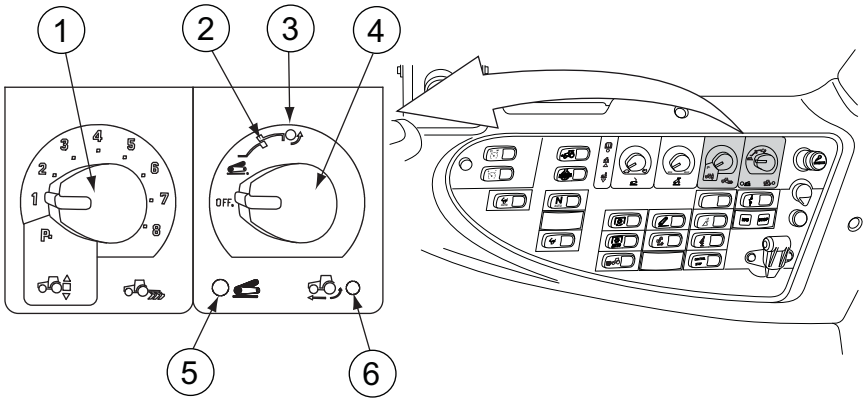
Tractors are equipped with radar under the right side of the cab. When all wheels slip, the real driving speed can only be measured with the radar.

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

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3.12.16 Using the slip control

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



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

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

  Both the drive balance control and slip control are activated.

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

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

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

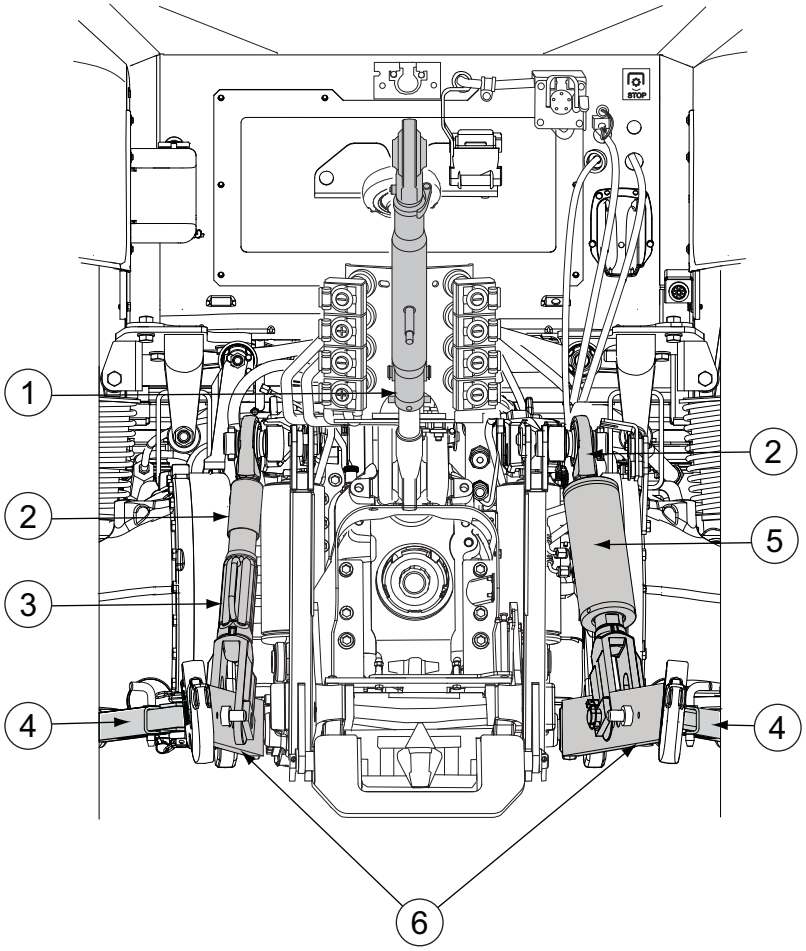
  Only the slip control is activated.

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

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

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3.13 Three-point linkage



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

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

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

WARNING: Ensure that the ball hitch lower link hooks latch correctly.

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

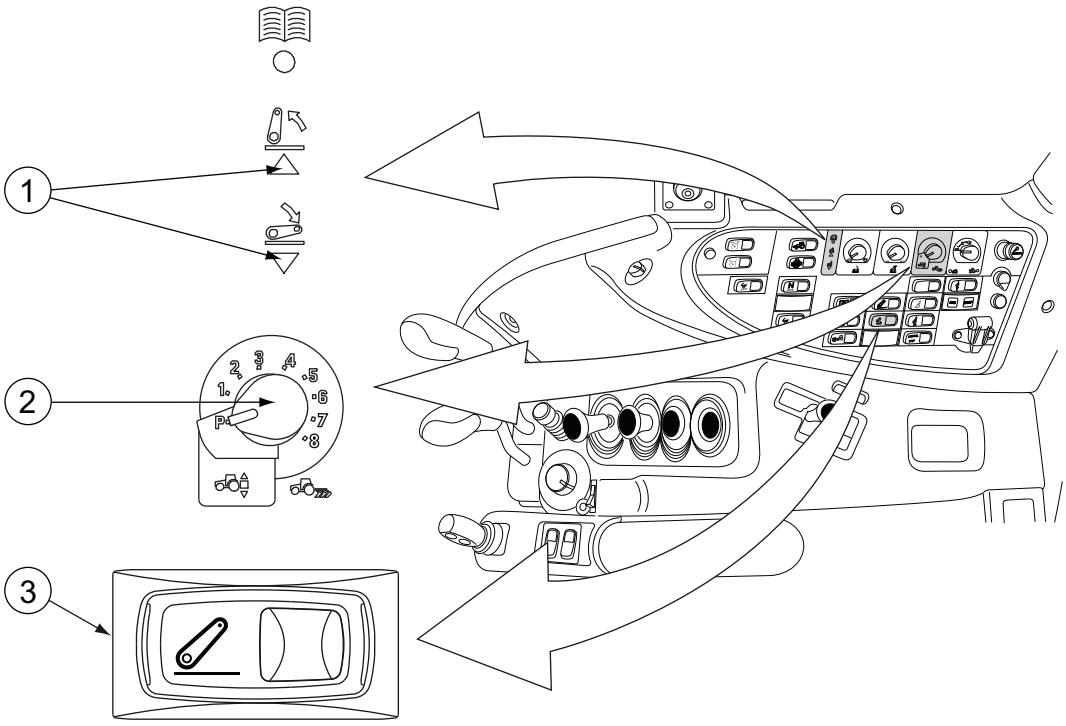
NOTE: Usually it is recommended to use the middle hole.

3.13.1 Attaching implements

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

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

IMPORTANT: When using the hydraulic top link, ensure that it operates normally when you are attaching an implement. Do not use the hydraulic top link in the lowest hole in the mounting bracket as this may damage the top link or the bracket.



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

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

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

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

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

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

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

3. **Connect the implement.**

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

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

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

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

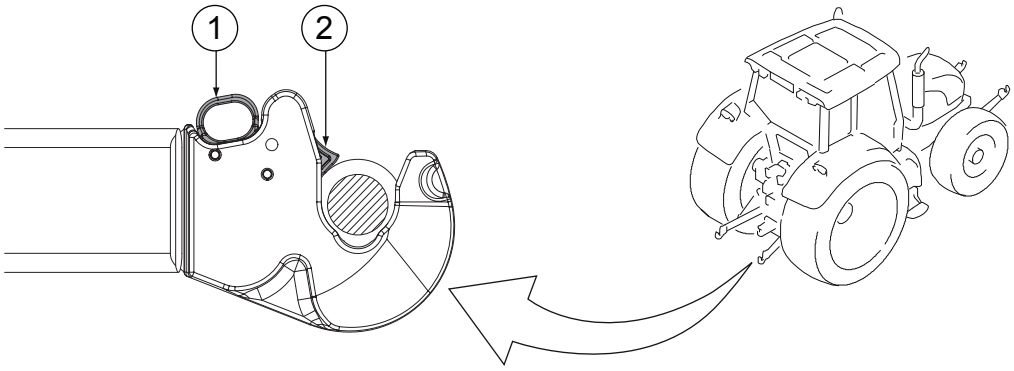
4. **Follow the implement manufacturer's instructions.**

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

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

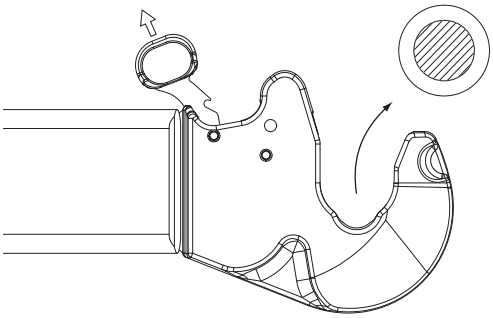
   After using the lift/lower switch, you have to activate the linkage again.

3.13.2 Using quick couplings for lower links

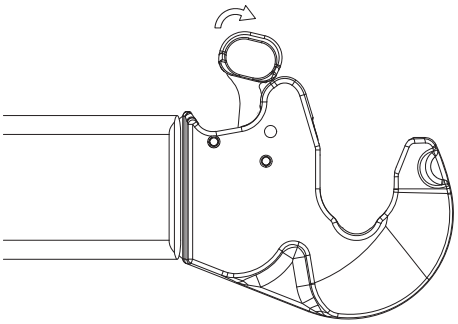


1. Lever
2. Clamp

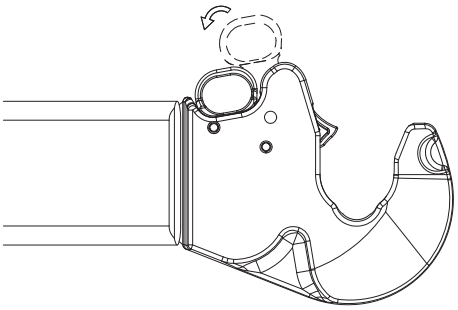
1. **Pull the lever to release the implement.**



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



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



The ball joints lock automatically when attaching the implement.

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

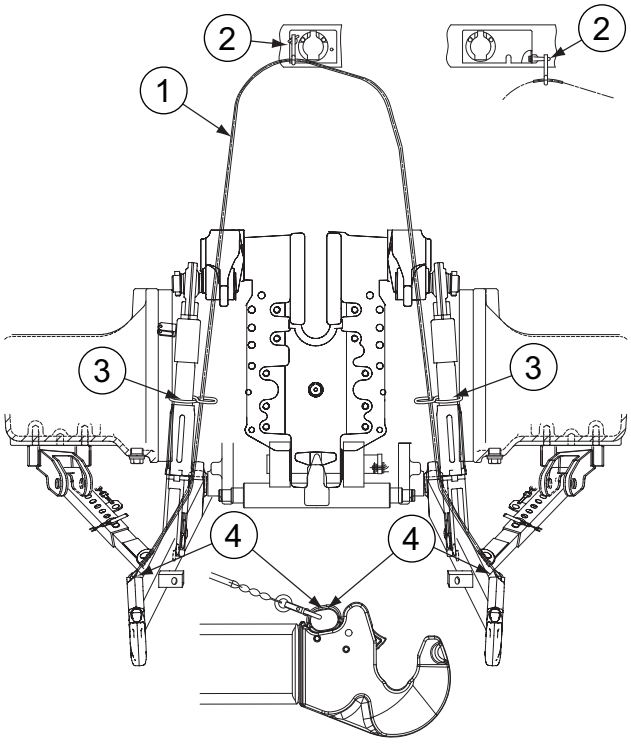
DANGER: Clean the quick couplings and ball joints before attaching an implement. There is risk that the implement is not attached properly.

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

3.13.2.1 Setting the release cable for lower link quick couplings

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

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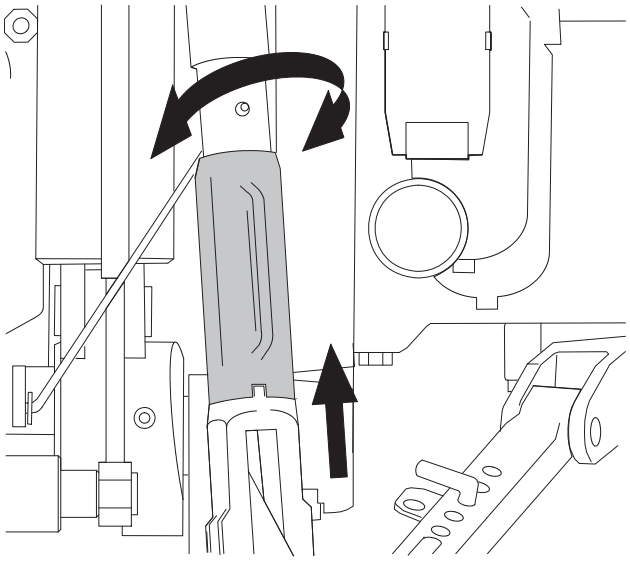
1. Release cable
2. Socket bracket
3. Loop on the lifting link
4. Quick coupling lock

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

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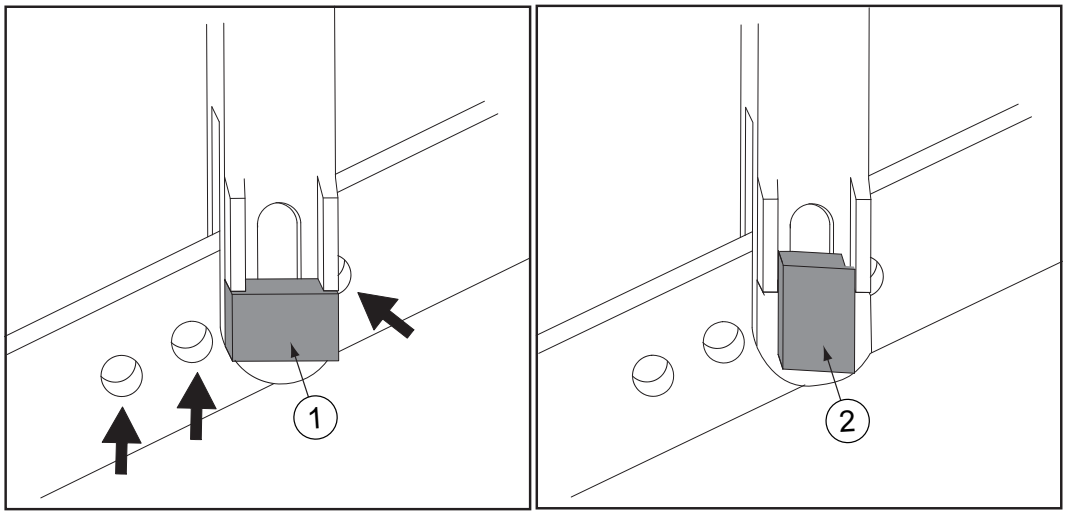
3.13.3 Adjusting lifting links

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



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

3.13.4 Adjusting lower links



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

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

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

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

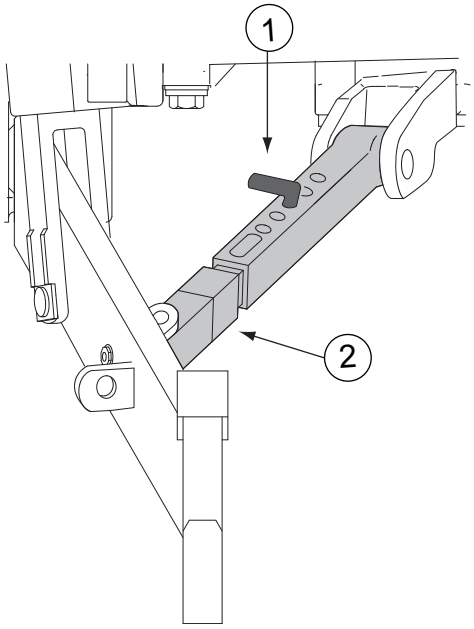
   When the tractor is equipped with heavy duty (HD) three-point linkage (lifting cylinder diameter 110 mm) there are only two holes on the lifting links.

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

3.13.5 Adjusting check links

3.13.5.1 Adjusting the check links' length

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



1. Attaching pin
2. Limiter sleeves

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

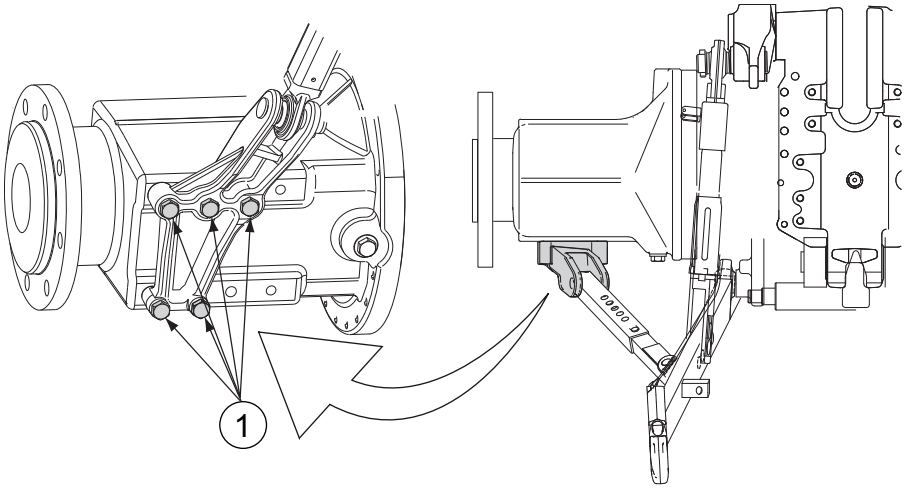
   If the pins are fitted in the long holes, the lower links have a floating position in the lateral direction.

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

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

3.13.5.2 Adjusting the check links' support

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



1. Screw

1. **Unscrew the screws.**
2. **Change the position of the check links' support.**

   The position should be the same on both sides of the tractor.
3. **Tighten all screws.**

3.13.6 Automatic check links

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

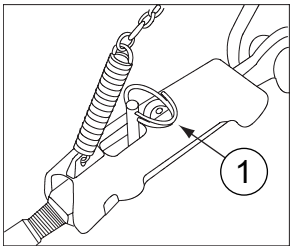
The automatic check links are extra equipment.

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

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

3.13.6.1 Adjusting thread-adjustable check links

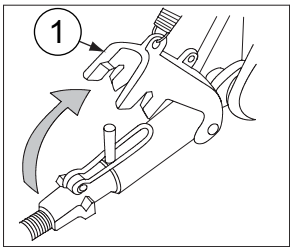
1. **Unfasten the closure pin.**



1. Closure pin

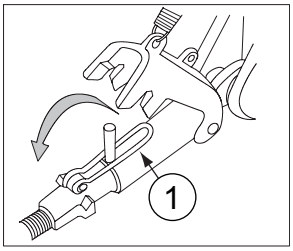
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2. **Turn up the link.**



1. Link

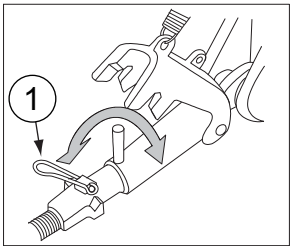
3. **Lift up the turning handle.**



1. Turning handle

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

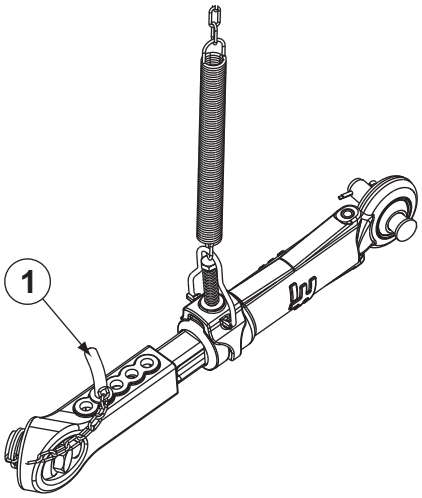
   IMPORTANT: If you shorten the right lifting link, check that the side limiter does not hit the tractor when the lifting link is raised to maximum height.



1. Turning handle

5. **After completing the adjustment, perform the steps in the reverse order.**
6. **Lock the check link adjustment with the closure pin.**

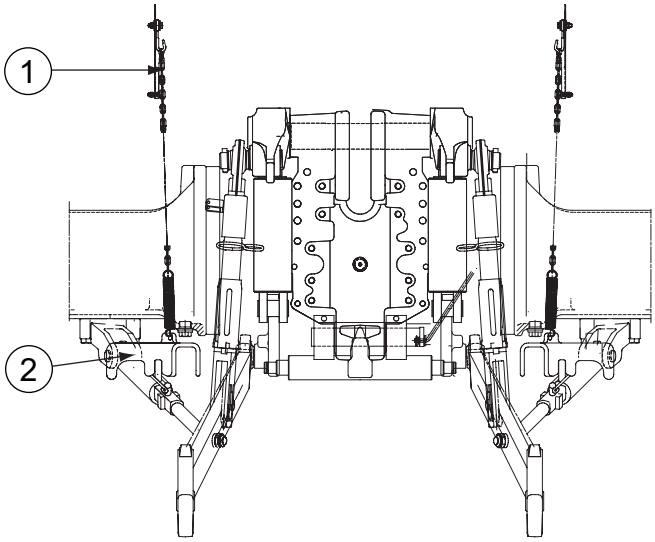
3.13.6.2 Adjusting pin-adjustable check links



1. Locking pin

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

3.13.6.3 Using the floating position of automatic check links



1. Holding chain
2. Link

- **Adjust the length of the link's holding chain.**

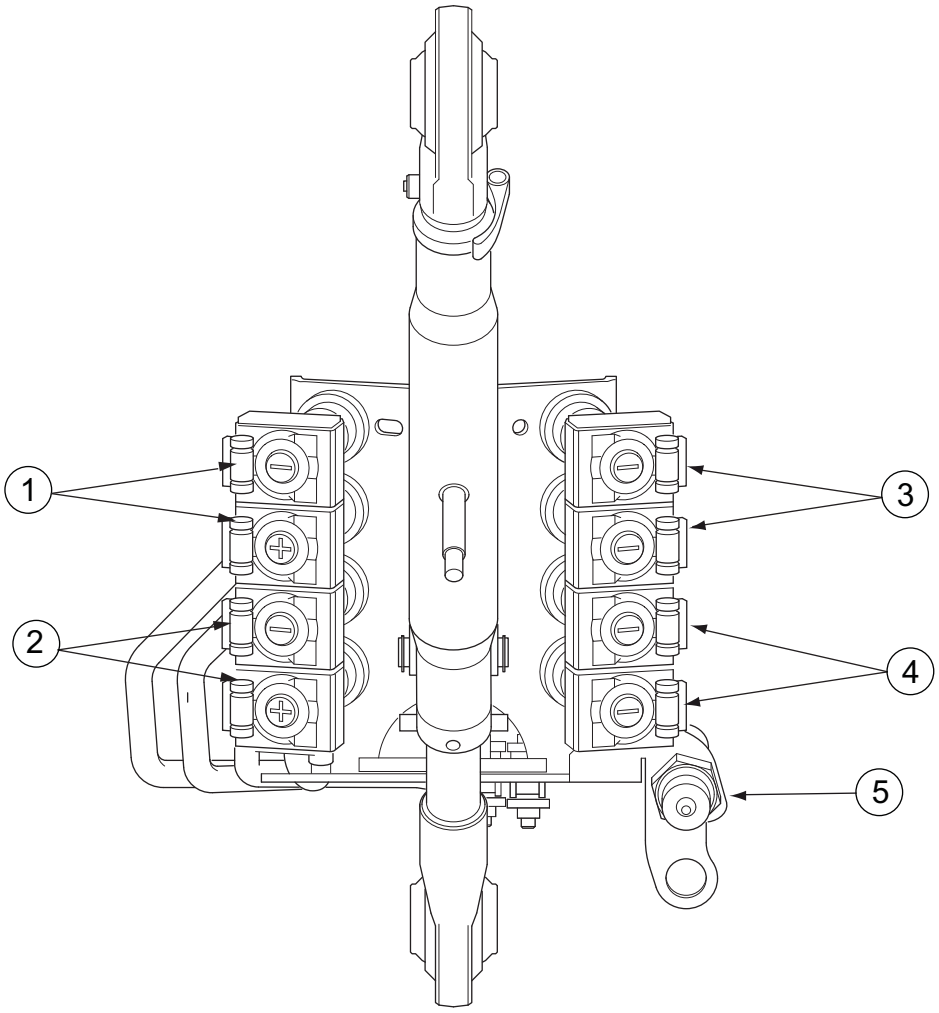
  Adjustment is done by changing the attachment point of the holding chain. This adjustment defines the height of the lower links where the check links lock.

- **Adjust the length of the check links to get the right amount of float.**

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

3.14 Auxiliary hydraulics



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

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

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

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

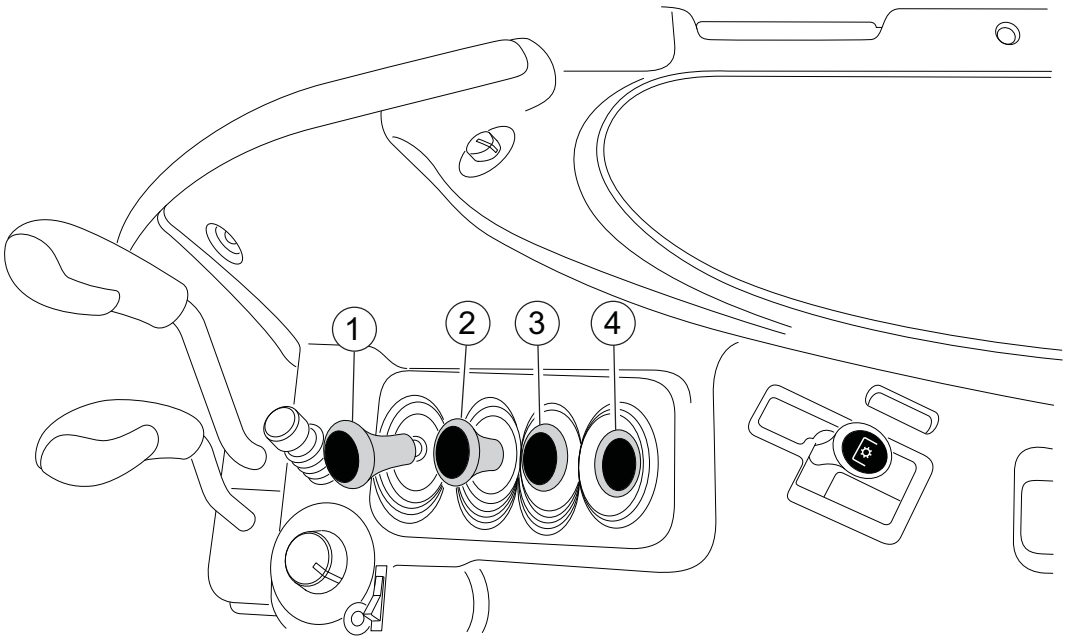
Tractor can be equipped with two extra equipment valves with control lever on the rear side. The following valves are available:

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

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

3.14.1 Controlling the auxiliary hydraulics rear valves

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



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

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

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- **To use the position lock:**

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

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

- **To use the floating position:**

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

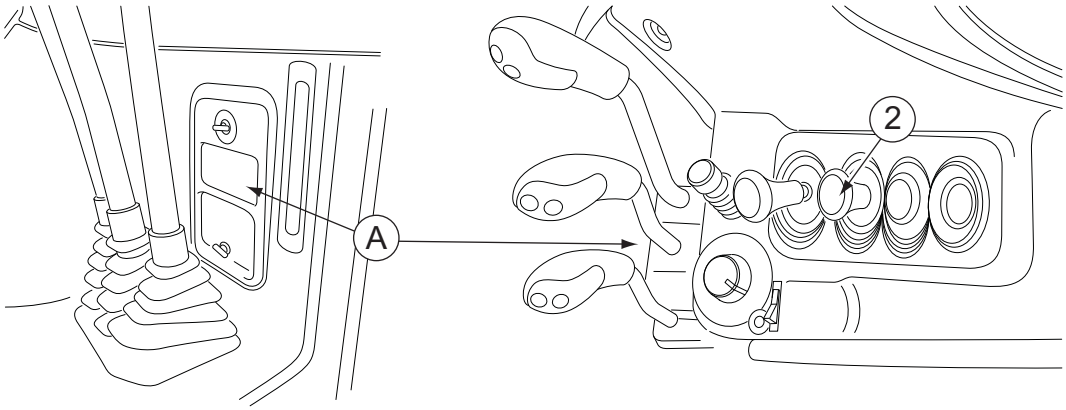
    Push the control lever for the auxiliary hydraulics rear valve 3 or the control lever for the auxiliary hydraulics rear valve 4 past the maximum flow point with increased force to lock it in the extreme position.
  - **Return the control lever for the auxiliary hydraulics rear valve 3 or the control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

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

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

3.14.2 Setting valves for single-action or double-action

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



1. Valve adjustment knob

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

3.14.3 Using quick-action couplings

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

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

5. **Activate the floating positions in the needed valve ports on the minus (-) side.**

   The valves go to floating position, and the pressure exhausts from the quick-action couplings.

6. **Stop the engine.**

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7. **Attach or release the quick-action couplings.**

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

   IMPORTANT: Use only couplings that comply to the standards.

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

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

   NOTE: Make sure that the quick coupling does not leak after disconnecting the hose.

8. **Start the engine.**

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

3.14.4 Connecting an external hydraulic motor to the auxiliary hydraulics

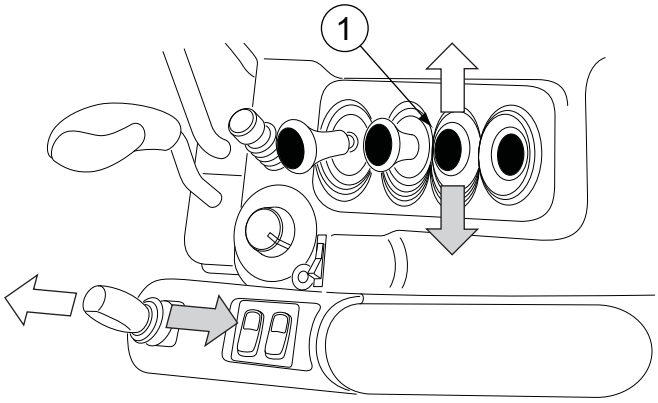
You can attach a hydraulic motor to the tractor auxiliary hydraulics. The motor can be rotated in one or both directions.

- **To rotate the hydraulic motor in only one direction:**
  - **Attach the return coupling to the tractor return coupling without the shock valve.**
- **To rotate the hydraulic motor in both directions (if you are attaching the couplings to both +/- ports):**
  - **Mount the separate shock valves to the hydraulic motor if they are not already standards in the hydraulic motor.**

NOTE: Pay attention to the hydraulics oil temperature, because high temperatures are bad for the lubrication and can damage the hydraulic pump or the hydraulic motor. The recommended working temperature is below 80°C and the maximum limit is 93°C. Stop the engine if the maximum temperature is reached. You can follow the hydraulics oil temperature on the tractor terminal display.

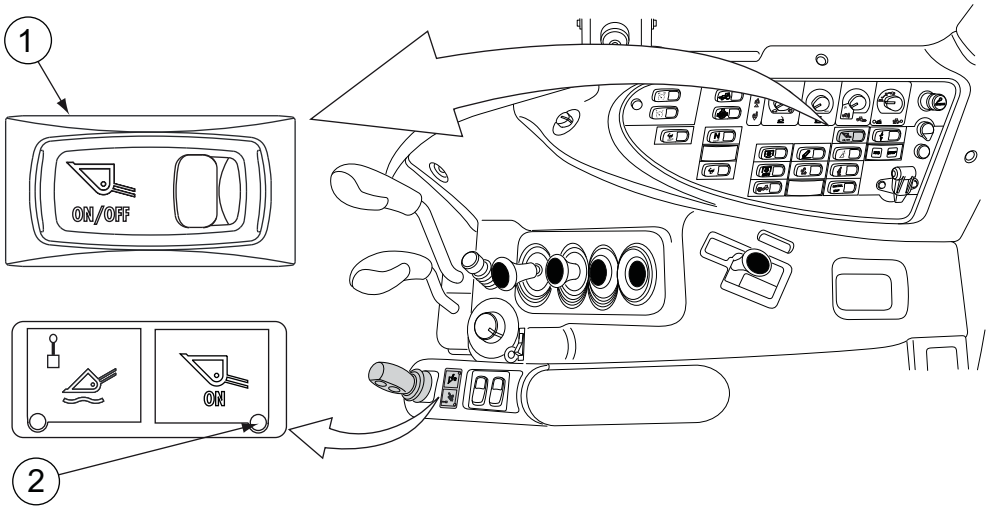
3.15 Using the front linkage

You can control the front linkage by the control lever for auxiliary hydraulics rear valve 3.



1. Control lever for auxiliary hydraulics rear valve 3

If the front linkage is connected to the auxiliary hydraulics front valves, you can control it by the joystick on the armrest.



1. Front loader hydraulics on/off switch
2. Front loader hydraulics indicator light

- **If the front linkage is connected to the auxiliary hydraulics front valves, activate the front valve hydraulics by pressing the symbol side of the front loader hydraulics on/off switch.**
- **To raise the front linkage:**
  - **Pull the control lever for auxiliary hydraulics rear valve 3 rearwards.**

  OR:
  - **Pull the joystick rearwards.**
- **To lower the front linkage:**
  - **Push the control lever for auxiliary hydraulics rear valve 3 forwards.**

  OR:
  - **Push the joystick forwards.**

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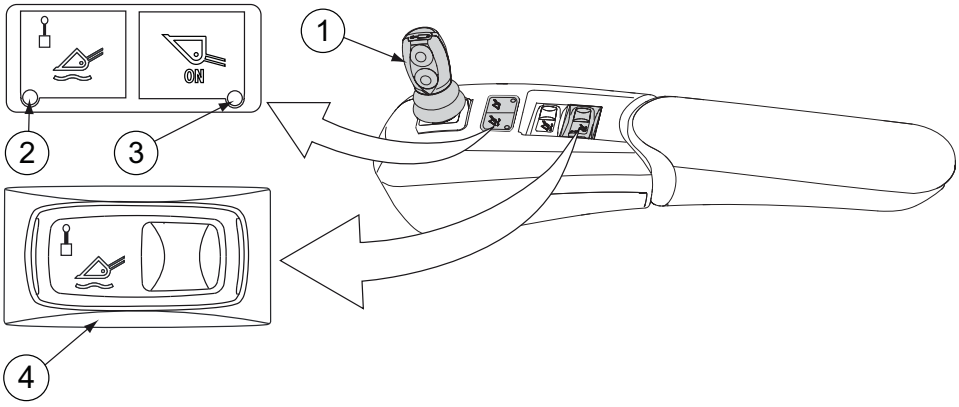
- **If the implement follows the ground, use the floating position to carefully lower down the implement:**

  IMPORTANT: Always use the floating position for implements following the ground contour. Otherwise there is a risk that the implement may get damaged or the traction for the front wheels may be lost.

  - **Set the front linkage to the floating position by briefly pushing (less than one second) the control lever for auxiliary hydraulics rear valve 3 into the forward position.**

  OR:

  - **Activate the auxiliary hydraulics front valve floating position by pressing the symbol side of the floating position activation switch.**



1. Joystick
2. Floating position indicator light
3. Front loader hydraulics indicator light
4. Floating position activation switch

- **Press down the lower push button on the joystick and simultaneously move the joystick forward or rearward.**
  When the floating position is in use the floating position indicator light is lit.

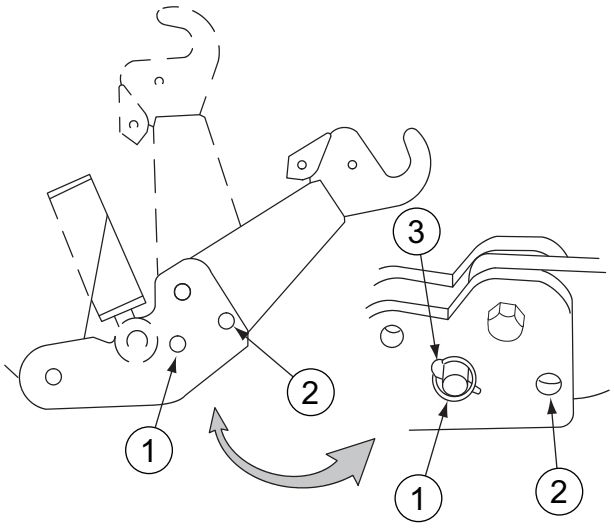
3.15.1 Setting front linkage lifting link positions

You can set the lifting links to different positions by attaching the fastening pins to different holes and by turning the arms up or down.

WARNING: When you drive on public roads and there is no implement on the front linkage, the lifting links have to be folded up.

IMPORTANT: When using the front loader, the front linkage lifting links must be folded to the transport position.

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1. Fastening hole for working position
2. Fastening hole for floating or transport position
3. Locking pin

Lifting link position	Fastening pin location
Working	Fastening pins are in holes 1.
Floating	Fastening pins are in holes 2.
Transport	Lifting links are folded up and fastening pins are in holes 2.

- **Check that the locking pins of the fastening pins are in their positions when the lifting links are mounted.**
- **When driving on public roads, with or without an implement, always lift the front linkage fully up.**
- **When you drive on public roads and there is an implement on the front linkage covering the headlights, the upper headlights (extra equipment) have to be switched on.**

3.16 Using the Valtra front loader

WARNING: Check that all screws are tightened before using the front loader.

WARNING: Always look at the implement. Objects can fall or roll backwards onto the driver when the loader is raised. Only lift loads which can be contained in, and are intended for, the specific implement.

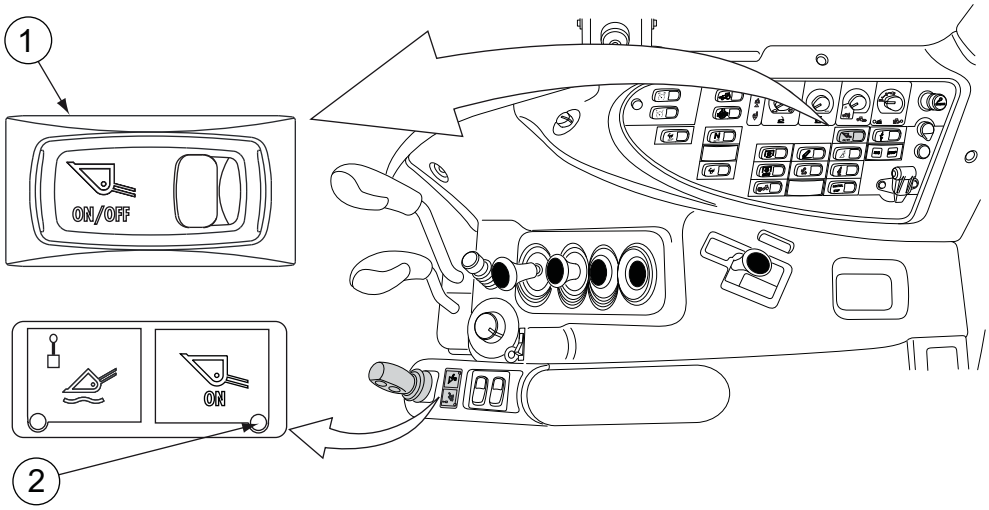
WARNING: The risk of overturn increases as the loader is raised. Be extra careful on slopes when operating the loader. Always carry the loader as low as practical for the conditions.

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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.

The Valtra front loader is extra equipment.



1. Front loader hydraulics on/off switch
2. Front loader hydraulics indicator light

- **Activate the front loader hydraulics by pressing the symbol side of the front loader hydraulics on/off switch.**

  Release the locking device by pushing it towards the middle of the switch. The front loader hydraulics indicator light is lit.

- **To raise the front loader, pull the joystick rearwards.**
- **To lower the front loader, push the joystick forwards.**
- **To control the front loader tilt, move the joystick sideways.**
  - To tilt the loader rearwards, pull the joystick towards yourself.
  - To tilt the loader forwards, push the joystick away from yourself.
- **To control the left quick couplings on the front part of the loader (extra equipment), press the lower contact button.**

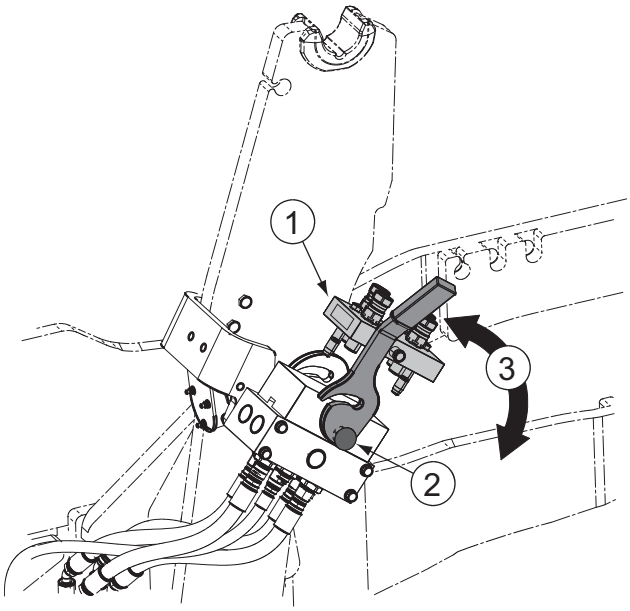
  By pressing the button and simultaneously turning the joystick sideways towards yourself, the pressure is in the red connectors. By turning the joystick away from yourself, the pressure is in the blue connectors.

- **To control the right quick couplings on the front part of the loader (extra equipment), press the upper contact button.**

  By pressing the button and simultaneously turning the joystick sideways towards yourself, the pressure is in the red connectors. By turning the joystick away from yourself, the pressure is in the blue connectors.

3.16.1 Using the Valtra Quick front loader coupling plate

The quick coupling plate is extra equipment.



1. Hose multicoupler
2. Lock button
3. Lever

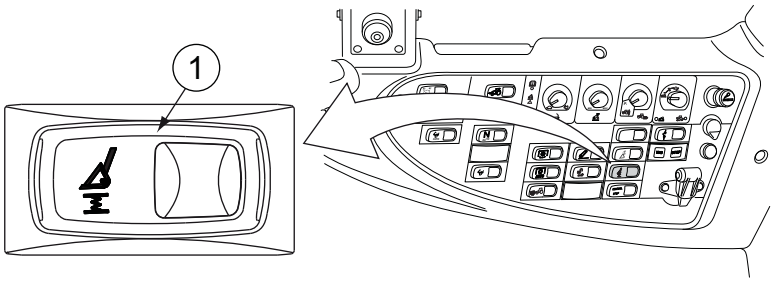
CAUTION: Hold on to the lever firmly as the pressure may cause the coupler to hit your hand.

- **To release the hose multicoupler, press down the lock button and turn the lever to the open position.**
- **To attach the multicoupler, turn the lever to the closed position.**

  The lock button pops up.

3.16.2 Softdrive

The Softdrive function is extra equipment.



1. Switch for Softdrive

With the Softdrive function, you can connect the pressure accumulators to the cylinder circuits of the loader barrier. This means that when you drive, the

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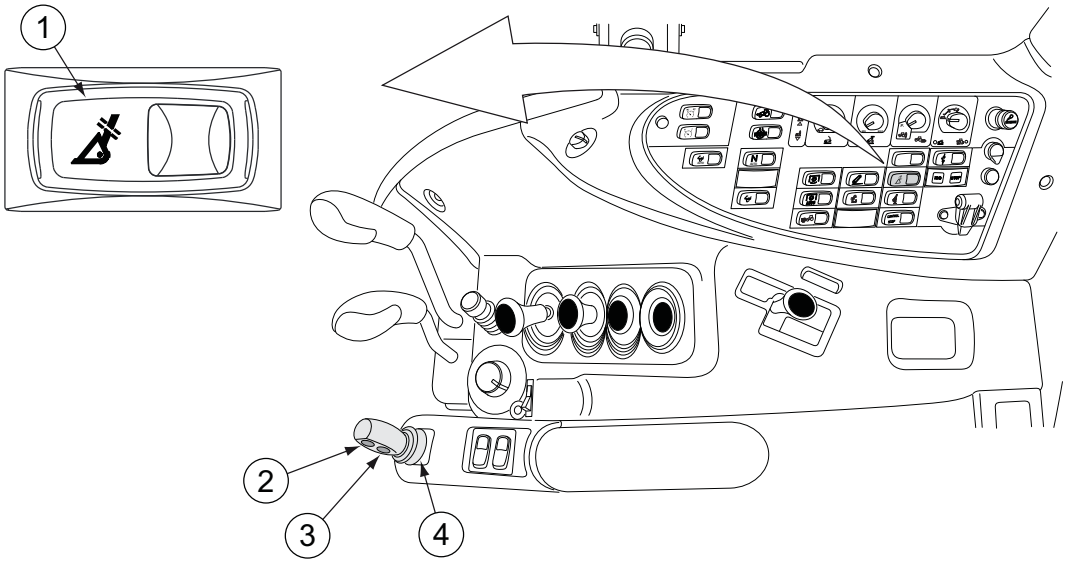
pressure accumulators even out the pressure peaks coming from the load on the loader. This makes driving smoother and the stress on the loader and tractor is reduced.

You can keep Softdrive connected during most working activities. It is recommended that you disconnect Softdrive only if special precision is required.

The switch for Softdrive has two positions:

- When the symbol side is pressed down, the Softdrive function is on.
- When the side opposite to the symbol is pressed down, the Softdrive function is off.

3.16.3 Locking the equipment



1. Equipment locking switch
2. Upper contact button
3. Lower contact button
4. Joystick

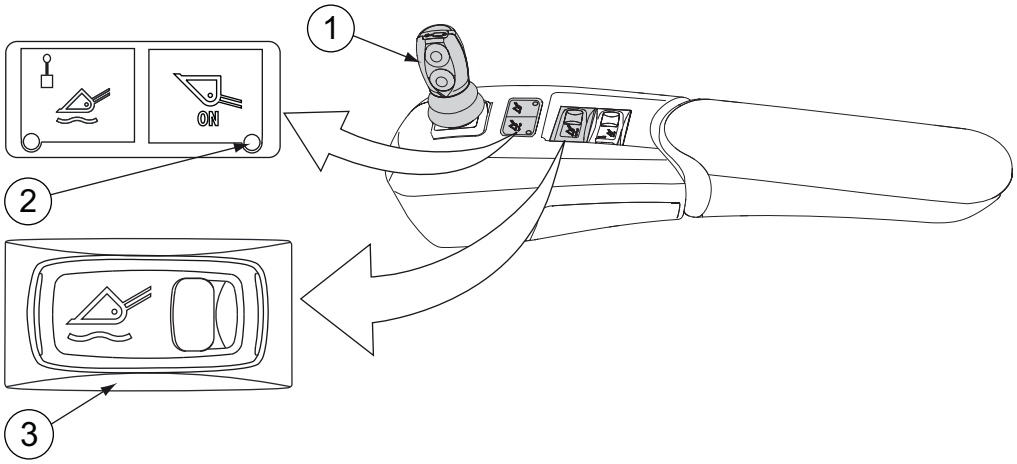
- **To lock the equipment to the loader frame:**
  - **Simultaneously press the symbol side of the equipment locking switch and the upper contact button and move the joystick to the left.**
- **To release the equipment from the loader frame:**
  - **Simultaneously press the symbol side of the equipment locking switch and the upper contact button and move the joystick to the right.**

3.16.4 Using the continuous floating position

Continuous floating position is useful for example when using sweeping implement or area plough. When using continuous floating position the joystick push buttons are for use of the extra valves and equipment locking.

The continuous floating position has to be activated every time the power has been turned on.

WARNING: Keep the floating position deactivated when it is not needed.



1. Joystick
2. Front loader hydraulics indicator light
3. Continuous floating position activation switch

1. **Activate the front loader hydraulics.**

   The front loader hydraulics indicator light is lit.

2. **Activate the continuous floating position.**
   - **Press the symbol side of the continuous floating position activation switch.**

     Release the locking device by pushing it towards the middle of the switch.
   - **Simultaneously move the joystick forward or rearward.**

     The floating position is always on even when the joystick and push buttons on the joystick are used.

     IMPORTANT: Always use the floating position for implements following the ground contour. Otherwise there is a risk that the implement may get damaged or the traction for the front wheels may be lost.

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3. **Deactivate the continuous floating position:**
   - Press the continuous floating position activation switch side opposite to the symbol.
   - Press the front loader hydraulics on/off switch side opposite to the symbol.
   - Turn the ignition key to the stop position.
   - Press the upper push button on the joystick (when the symbol side of the floating position activation switch is pressed down)

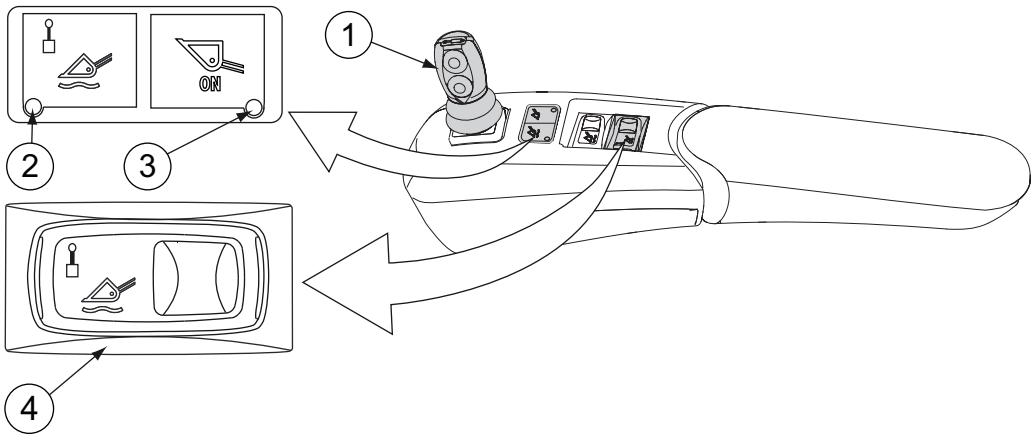
     NOTE: If both the front loader hydraulics on/off switch and the floating position activation switch are symbol side pressed down, the floating position can be controlled ON and OFF with the joystick push buttons.

3.16.5 Using the floating position with joystick buttons

You can use the floating position when working with certain types of implements which have to follow the ground surface. Such implements are, for example, sowing machines and rollers.

The floating position has to be activated every time the power has been turned on.

WARNING: Keep the floating position deactivated when it is not needed.



1. Joystick
2. Floating position indicator light
3. Front loader hydraulics indicator light
4. Floating position activation switch

1. **Activate the auxiliary hydraulics.**

   The front loader hydraulics indicator light is lit.

2. **Activate the floating position by pressing the symbol side of the floating position activation switch.**

   The floating position is activated but not in use.
   When the floating position is activated with the floating position activation switch, the push buttons on the joystick can only be used for controlling the floating position.

3. **Turn on the floating position.**
   - **Press down the lower push button on the joystick.**
   - **Simultaneously move the joystick forward or rearward.**

   When the floating position is in use the floating position indicator light is lit.

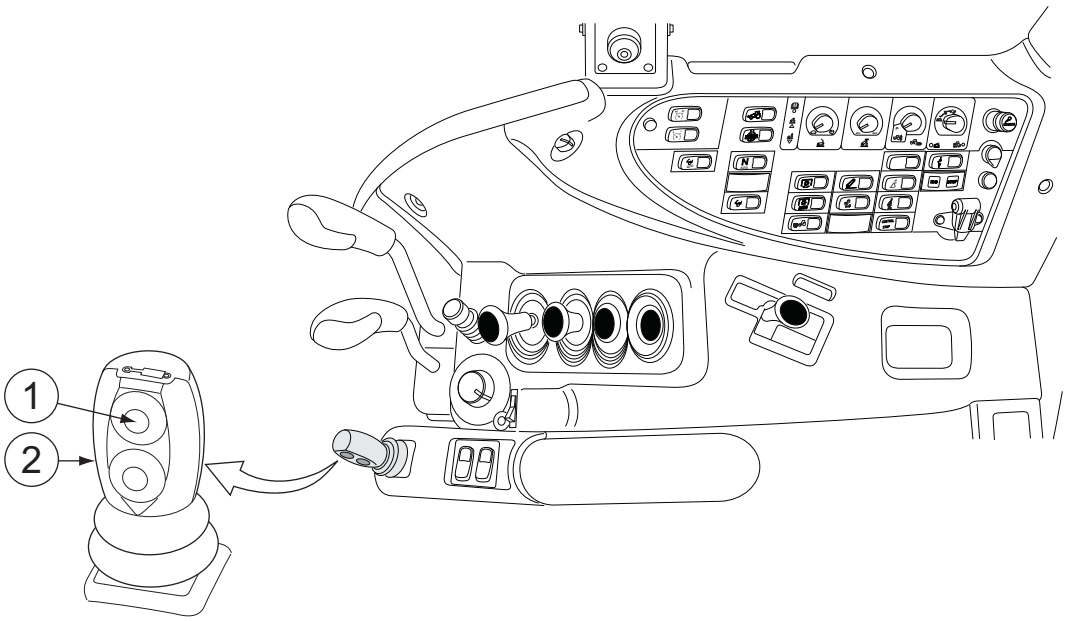
   IMPORTANT: Always use the floating position for implements following the ground contour. Otherwise there is a risk that the implement may get damaged or the traction for the front wheels may be lost.

4. **Turn off the floating position:**
   - Press the upper push button on the joystick.
   - Press the floating position activation switch side opposite to the symbol.
   - Press the front loader hydraulics on/off switch side opposite to the symbol.
   - Turn the ignition key to the stop position.

NOTE: If both the front loader hydraulics on/off switch and the floating position activation switch are symbol side pressed down, the floating position can be controlled ON and OFF with the joystick push buttons.

3.16.6 Controlling the extra cylinder with the change valve

You can open and close for example the press for bales using the change valve.



1. Upper contact button
2. Joystick

- **To close, simultaneously press the upper contact button and move the joystick to the left.**
- **To open, simultaneously press the upper contact button and move the joystick to the right.**

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3.17 Power take-off

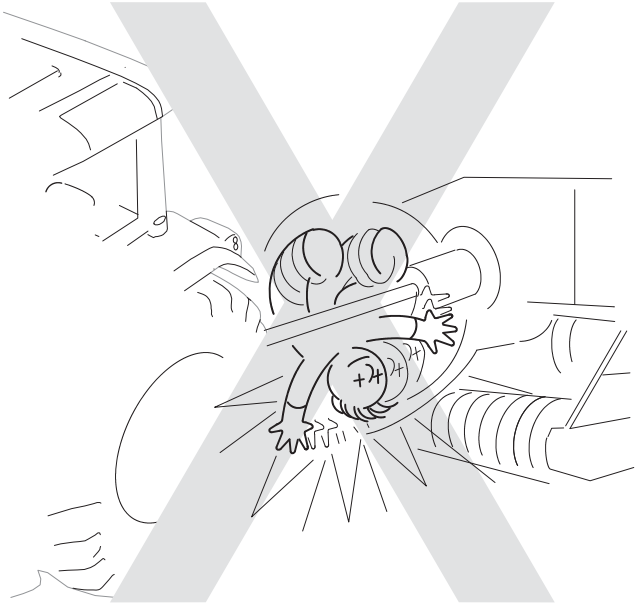
3.17.1 Attaching implements to the power take-off

Before attaching implements to the tractor power take-off (PTO), make sure the implement is designed for the used PTO speed (540 rpm or 1 000 rpm).

CAUTION: Observe all safety precautions in any operation involving implements driven by the power take-off (PTO).

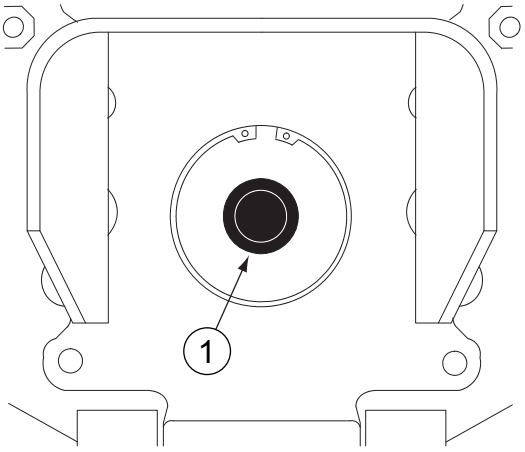
WARNING: Stop the engine and disengage the power take-off (PTO) before attaching any implement to the tractor. Check that the implement's working area is clear before engaging the PTO.

WARNING: When a power take-off (PTO) driven implement is being used, no personnel are allowed near the PTO drive shaft. Service work on the PTO drive shaft should be carried out only with the PTO disengaged, the engine stopped and the ignition key removed from the ignition switch.



WARNING: After the power take-off (PTO) is disengaged, the implement continues to rotate for some time (regardless of braking). Do not approach the implement until it has stopped completely.

WARNING: The cover over the power take-off (PTO) drive shaft end should always be attached when the PTO is not in use.



1. Cover

IMPORTANT: Make sure that the angles of the joint of the joint shaft are not exceeded.

IMPORTANT: Do not exceed the maximum output durability of the PTO pin.

WARNING: If the tractor engine stops for example due to overloading when using the PTO, turn the power off before restarting. This prevents an unintentional engagement of the PTO.

- **Make sure that the length of the PTO drive shaft is correct for the PTO-driven implements to be used.**

  The shaft must be able to work at full deflection vertically and horizontally.
  IMPORTANT: A shaft that is too long can cause damage.

- **Install the PTO drive shaft according to the manufacturer's instructions.**

  DANGER: When fastening the power take-off (PTO) drive shaft between the tractor and the implement, check that its guard is undamaged.Attach the guard to a stationary part of the tractor frame or implement.

- **Attach the PTO-driven implement to the tractor.**

  IMPORTANT: Attach the implement to the tractor before connecting the power take-off (PTO) drive shaft between the tractor and the implement. Otherwise the implement can start to rotate with the PTO drive shaft.

- **Engage the PTO at a low engine speed to protect the PTO.**

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- **In freezing weather, ensure that the transmission oil and hydraulic oil are warm before engaging the PTO.**

  Before engaging the PTO in freezing weather:

  - let the engine run for a few minutes to warm up the transmission oil
  - let the hydraulic oil warm up for a few minutes with the maximum flow of 50%. To adjust the flow, select the factory setting for medium output (50%) with the selector for the predefined factory/user settings.

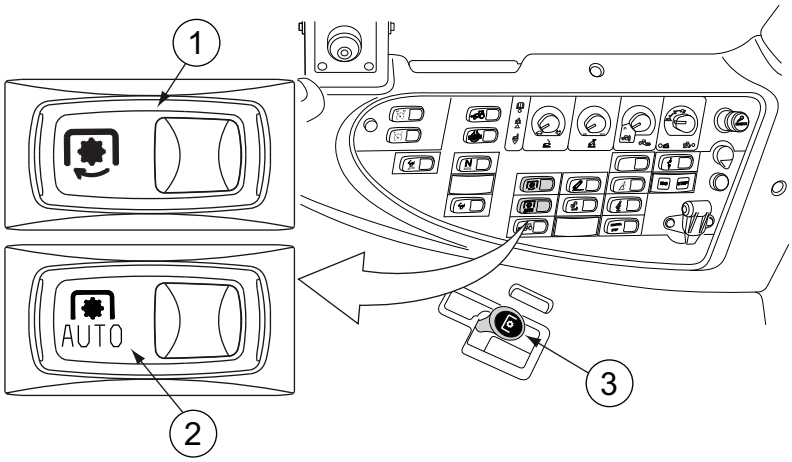
- **When engaging the PTO, wait approximately 5 seconds until the clutch of the PTO shaft is totally engaged before loading it.**

3.17.2 Rear power take-off

You can use power take-off (PTO) to transmit power from the tractor to an implement.

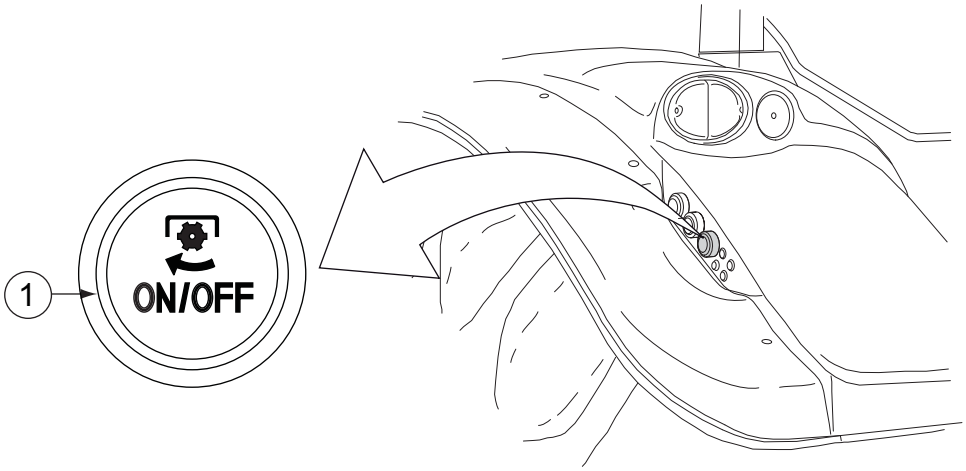
The PTO shaft is a splined driveshaft that is easily connected and disconnected.

The rear power take-off controls are the following:



1. Switch for rear PTO
2. Switch for rear PTO automatic stop (extra equipment)
3. Speed control lever for the rear PTO

The rear PTO on/off push button on the rear mudguard is extra equipment:

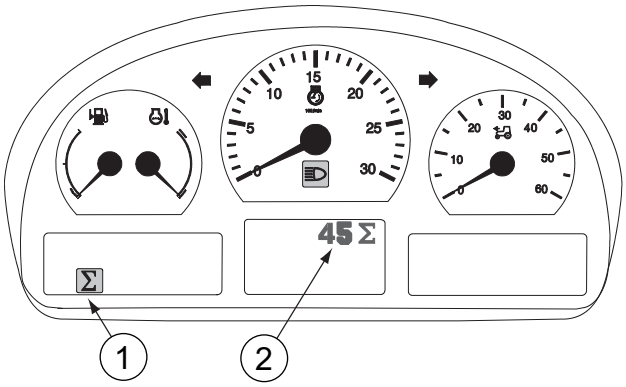


1. Rear PTO on/off push button (extra equipment)

Sigma Power

The Sigma Power control system gives extra power for PTO work. When required for PTO work, the engine will automatically provide up to 30 hp more power.

The Sigma Power activates automatically when the power transferred through the PTO rises high enough. As a sign of this, the Sigma Power symbol is lit on the instrument panel.



1. Sigma Power symbol
2. When the PTO is on, the display shows (on top/centre row) how much of the power is transferred through the PTO as a percentage.

3.17.2.1 Recommended rear power take-off shafts

Both the power take-off (PTO) nominal speeds can be used regardless of the type of shaft installed on the tractor.

Implements for 540 rpm (at engine speed of 1 874 rpm)

Normally a 6-spline shaft (extra equipment) with a diameter of 1⅜" (35 mm) is recommended.

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The ISO norm does not limit the power of a 540 rpm 6-spline PTO shaft with a diameter of 1⅜” (35 mm).

NOTE: For power over 67 hp (50 kW), use a 1 000 rpm output to ensure durability of the PTO shafts.

Implements for 1 000 rpm (at engine speed of 2 000 rpm)

Normally a 21-spline shaft (extra equipment) with a diameter of 35 mm is recommended.

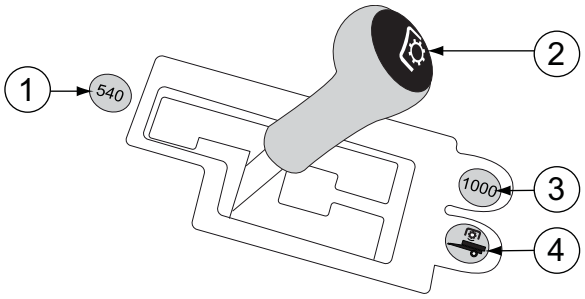
Heavy use

Normally a 20-spline shaft with a diameter of 45 mm is recommended. This shaft is standard equipment. If necessary, a torque limiting clutch with the maximum torque of 1 000 Nm should be used.

3.17.2.2 Activating rear power take-off

Before you can start the rear power take-off, you have to activate one of the rear PTO speed ranges available on your tractor.

IMPORTANT: Do not exceed the maximum PTO speed of the implement defined by the implement manufacturer.



1. Rear PTO speed 540
2. Speed control lever for the rear PTO
3. Rear PTO speed 1000
4. Ground speed PTO

- **Select the PTO speed with the control lever.**

  The tractor has one of the following PTO speed range alternatives:

PTO speed ranges	Lever position	Function
540/1 000	540	PTO 540 activated
	Centre	PTO deactivated
	1000	PTO 1000 activated
1 000/540E	1000	PTO 1000 activated
	Centre	PTO deactivated
	540E	PTO 540E activated
540/540E	540	PTO 540 activated
	Centre	PTO deactivated
	540E	PTO 540E activated

  IMPORTANT: When using the speed 540E, the shaft speed of 540 rpm is achieved with an engine speed of 1 539 rpm. If the engine speed is accelerated, the power take-off (PTO) shaft speed can rise up to 800 rpm.

  IMPORTANT: Do not exceed the maximum PTO speed of the implement defined by the implement manufacturer.

  The indicator light 

 flashes on the instrument panel when the rear PTO has been activated. The light is lit continuously when the rear PTO is engaged.

- **Activate the ground speed PTO (alternative equipment) by moving the lever to the**  **position.**

3.17.2.3 Starting rear power take-off

You can start the power take-off (PTO) after you have activated the PTO by selecting the PTO speed with the speed control lever.

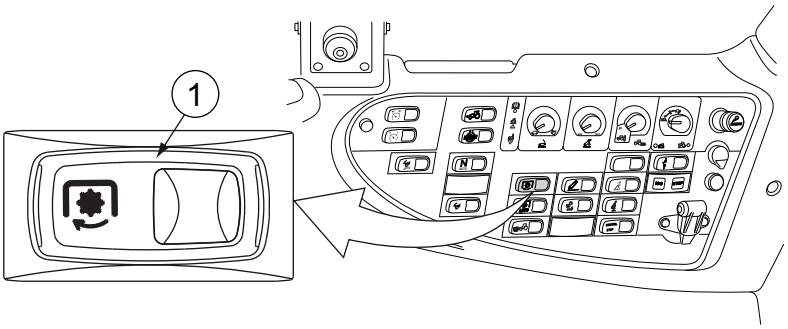
You can start the rear PTO in two ways:

- By using the PTO switch. The PTO switch is spring-returned and has three positions: start/standby/off.
- By using the rear PTO on/off push button (extra equipment) on the rear mudguard.

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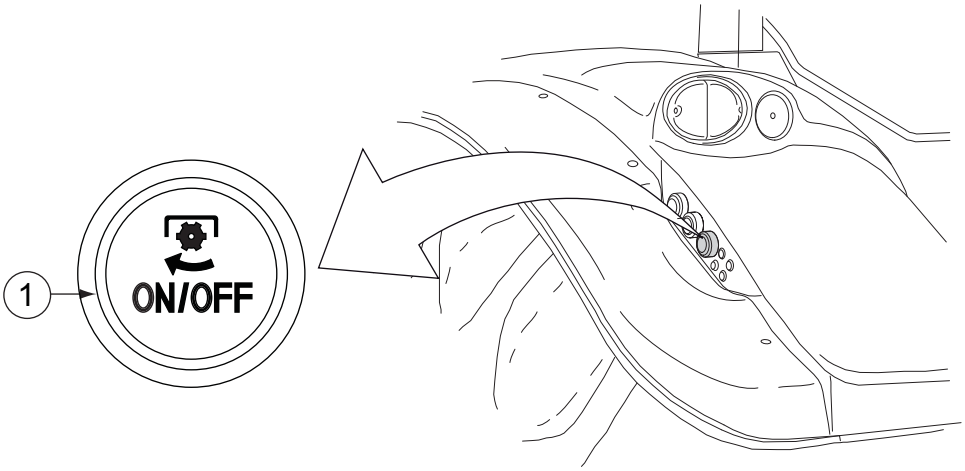
- **To start the rear PTO with the PTO switch:**
  - **Activate the standby mode by setting the rear PTO switch to the standby (centre) position.**
  - **Start the rear PTO by pressing down the symbol side of the PTO switch and releasing it.**

    The indicator light on the instrument panel is lit.



1. Switch for rear PTO

- **To start the rear PTO with the rear PTO on/off push button (extra equipment):**



1. Rear PTO on/off push button

  - **Set the rear PTO switch to the standby position (centre) before leaving the tractor.**
  - **Press the rear PTO on/off push button continuously for at least 3 seconds.**

    The PTO starting begins after 0.5 seconds. If the pressing is interrupted during these 3 seconds, the PTO stops.

3.17.2.4 Stopping rear power take-off temporarily

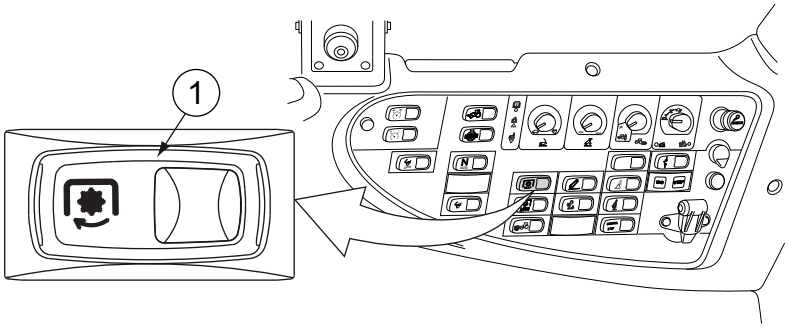
You can stop the rear power take-off (PTO) temporarily in the following ways:

- By using the rear PTO switch.
- By using the rear PTO speed control lever.
- By using the rear PTO on/off push button (extra equipment) on the rear mudguard.

WARNING: When you do not need the power take-off (PTO), keep the PTO switch in off position.

WARNING: Use the power take-off (PTO) speed control lever for the actual disengagement and engagement of the PTO. For example, when leaving the cab, move the lever to the centre position, except when using the PTO on/off push button on the mudguard (extra equipment).

- **Press down the symbol side of the PTO switch and release it.**



1. Switch for rear PTO

- **Push the PTO speed control lever towards the side panel to disengage the PTO.**

  This is useful when you must stop the PTO fast, for example in an emergency.

- **Press the rear PTO on/off push button on the rear mudguard once.**

  After this, the rear PTO on/off push button operates as a start button when pressed for more than 3 seconds.

The indicator light 

on the instrument panel flashes indicating that the PTO speed control lever is engaged. Using the PTO switch, the disengagement is only temporary.

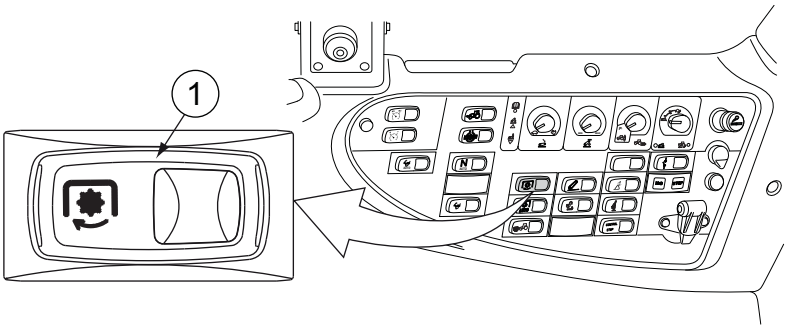
3.17.2.5 Deactivating rear power take-off

WARNING: When you do not need the power take-off (PTO), keep the PTO switch in off position.

WARNING: Use the power take-off (PTO) speed control lever for the actual disengagement and engagement of the PTO. For example, when leaving the cab, move the lever to the centre position, except when using the PTO on/off push button on the mudguard (extra equipment).

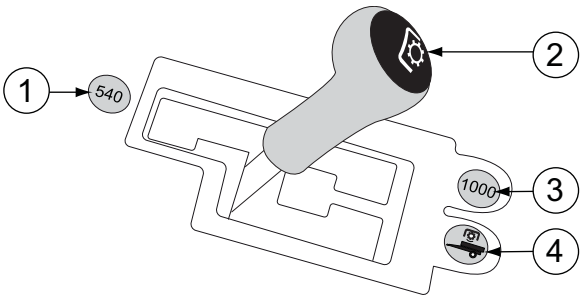
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- **Press down the side of the rear PTO switch opposite to the symbol.**



1. Switch for rear PTO

- **Move the PTO speed control lever to the centre position (PTO deactivated).**



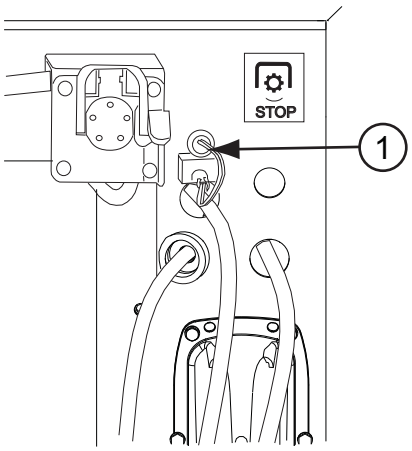
1. Rear PTO speed 540
2. Speed control lever for the rear PTO in centre position (PTO deactivated)
3. Rear PTO speed 1000
4. Ground speed PTO

The rear PTO is deactivated, and the indicator light on the instrument panel goes off.

3.17.2.6 Stopping the rear power take-off in emergency

In case of emergency, you can stop the rear PTO either by the speed control lever for rear power take-off (PTO) or by the PTO emergency stop socket on the rear wall outside the cab.

Before you start operating PTO-driven implements from outside the cab, make sure you have the PTO emergency stop socket within reach. If you cannot reach the PTO emergency stop socket from your operating position, it is recommended that you attach a wire to the socket by which you can pull it out from distance.

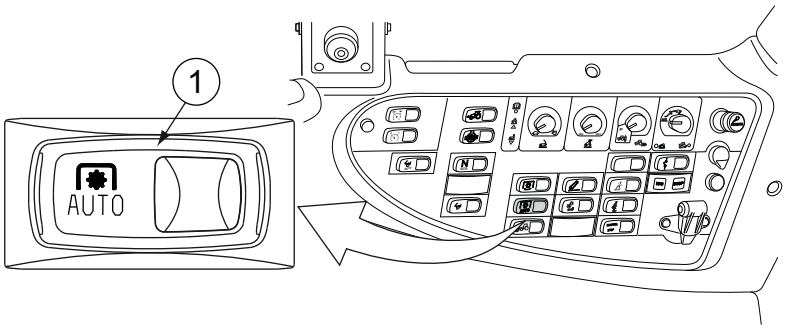


1. PTO emergency stop socket

- To stop the PTO from inside the cab, push the speed control lever for rear power take-off (PTO) towards the side panel to deactivate the PTO.
- To restart the PTO:
  - Activate the PTO speed range by the speed control lever for rear PTO.
  - Start the PTO by the rear PTO switch.
- To stop the PTO from outside the cab, pull out the PTO emergency stop socket.
- To restart the PTO after stopping it from the PTO emergency stop socket:
  - Plug in the PTO emergency stop socket.
  - Stop the tractor and turn off the power.
  - Turn on the power and restart the tractor.
  - Restart the PTO.

3.17.2.7 Using the rear power take-off automatic stop

The rear power take-off (PTO) automatic stop is useful in headland turns, for example, where the implement needs to be raised temporarily and then lowered back again.



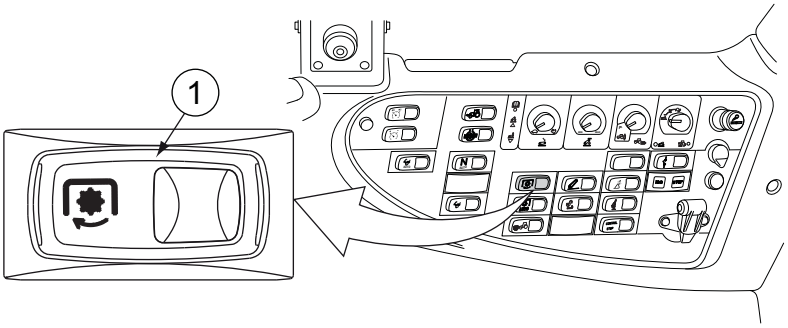
1. Switch for the rear PTO automatic stop

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- **To activate the PTO automatic stop, press the symbol side of the rear PTO automatic stop switch down to the AUTO position.**

  The PTO disengages when the linkage is raised into the transport position and the 3 second delay time has passed. The PTO does not re-engage even though the linkage is lowered.

  NOTE: Start the power take-off (PTO) after an automatic stop.



1. Switch for rear PTO

- **You can restart the PTO by pressing the symbol side of the PTO switch to the start position.**
- **To deactivate the PTO automatic stop, press down the side of the rear PTO automatic stop switch opposite to the symbol.**

3.17.2.8 Proportional ground speed power take-off

The proportional ground speed power take-off (PTO) is alternative equipment.

CAUTION: When using the proportional ground speed power take-off (PTO), the speed of the PTO shaft varies according to the transmission speed of the tractor. When the tractor is reversed, the PTO shaft also rotates in the reverse direction.

The proportional ground speed PTO is primarily used in the low range (M) area. The proportional ground speed PTO is designed for the highest torque values of the low range (M) area. In the high range (H) area, the transmission shaft rotates faster, and therefore, the ground speed PTO must be disconnected. The faster rotating speed may damage the propeller shaft between tractor and implement. The trailer should be equipped with a means of disconnecting the drive from the trailer.

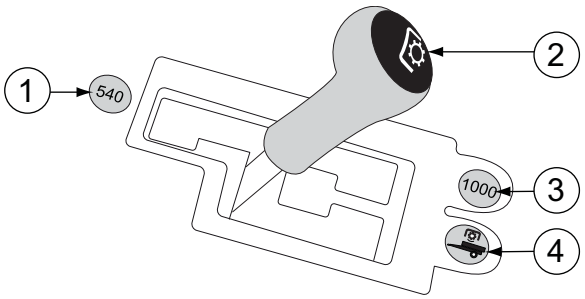
Before using a trailer with a powered axle, make sure that the drive is compatible with the PTO of the tractor. The speed of the trailer should be 0-3% lower than driving speed of the tractor.

For heavy proportional use it is recommended to use the 1¾” (45 mm) shaft.

You can engage the ground speed PTO by moving the control lever to the position.

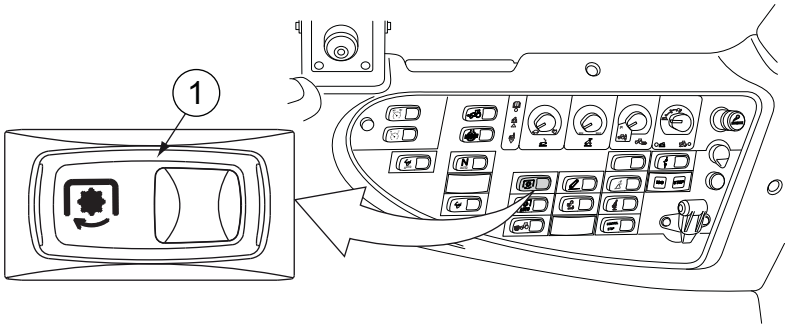
IMPORTANT: Do not engage the ground speed PTO when the tractor is moving.

IMPORTANT: If the power-take off (PTO) is activated and the PTO speed exceeds 1 800 rpm, the buzzer alarm goes off and the warning light (exclamation mark) on the instrument panel is lit. Should this occur, immediately decrease the rpm to prevent damage to the rotating parts of the PTO.



1. Rear PTO speed 540
2. Speed control lever for the rear PTO
3. Rear PTO speed 1000
4. Ground speed PTO

When the ground speed PTO is engaged, the switch for rear PTO does not function, and the warning light on the instrument panel is not lit.



1. Switch for rear PTO

3.17.2.9 Adjusting the rear power take-off engagement

You can adjust the rear power take-off engagement according to your preferences through the A-pillar display settings.

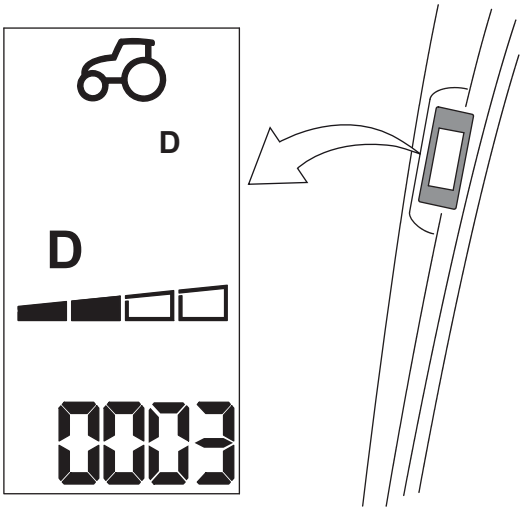
The index determines how quickly the rear power take-off engages. The value range is between 0…5, with each value increasing the engagement speed by 0,2 s.

- 0 = the rear power take-off engages slowly.
- 5 = the power take-off engages quickly.

1. **Stop the engine and turn the ignition switch off.**
2. **Engage the parking brake.**

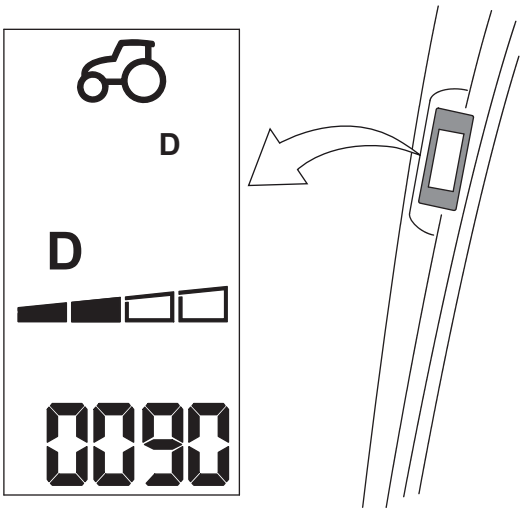
https://truckmanualshub.com/

3. **Press the pre-programming push button, depress the clutch pedal and turn the ignition on at the same time.**



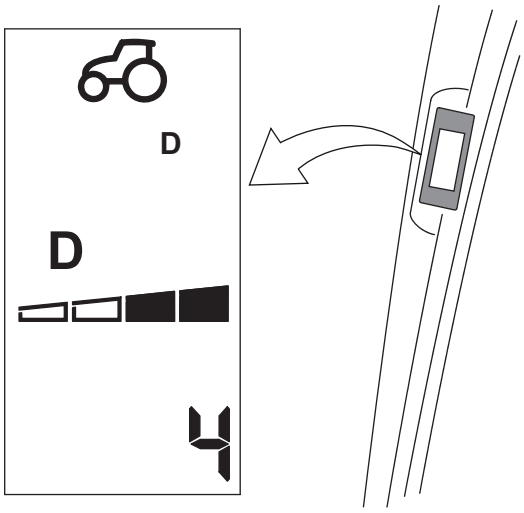
The setting menu symbols (D) appear on the display. The first two bars are lit to indicate that the parameter number is shown on the bottom row.

4. **Press the Powershift push buttons to select the parameter to be changed.**



The parameter number for rear power take-off engagement adjustment is 0090.

5. **Press the Powershift pre-programming button.**



The last two bars are lit to indicate that the parameter value is shown on the bottom row.

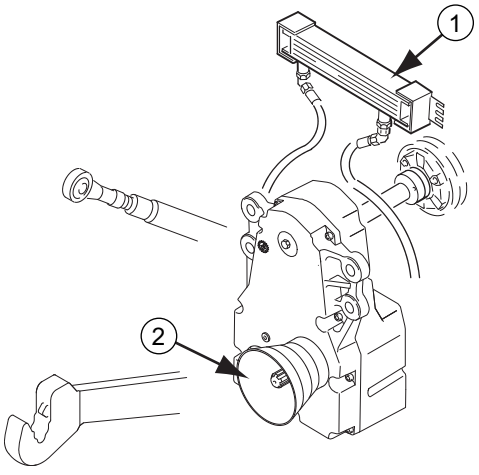
6. **Change the parameter value by pressing Powershift push buttons.**
7. **Press the Powershift pre-programming button to save the value.**

   You can discard the changes by pressing the HiShift push button.
8. **Press the HiShift push button to leave the setting menu and save all changes.**

   If you want to leave the setting menu and discard all changes made, turn the ignition switch off.

3.17.3 Front power take-off

Front power take-off (PTO) is only available with front linkage (extra equipment).

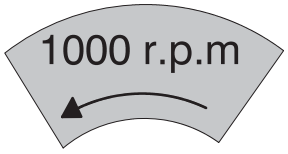


1. Oil cooler
2. Front PTO shaft

The front PTO shaft has a diameter of 35 mm with 6 splines. The front PTO is equipped with a pump inside the housing and an oil cooler to prevent

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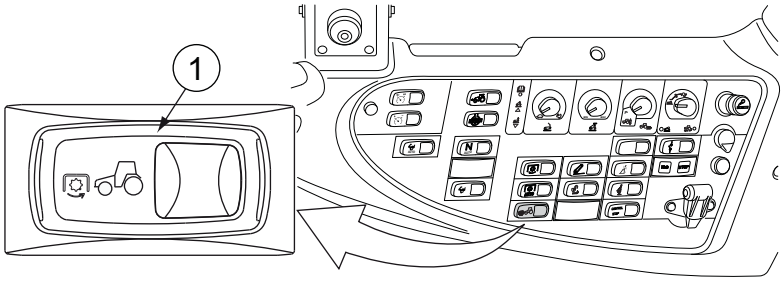
overheating. The cooling system is equipped with a relief valve inside the housing for cold conditions.



IMPORTANT: The front power take-off (PTO) shaft's nominal rotating speed is 1 000 rpm and the rotating direction is to the left viewed from the front. Check that the implement is compatible before attaching.

3.17.3.1 Activating and deactivating front power take-off

The front power take-off (PTO) switch has two positions.



1. Switch for front PTO

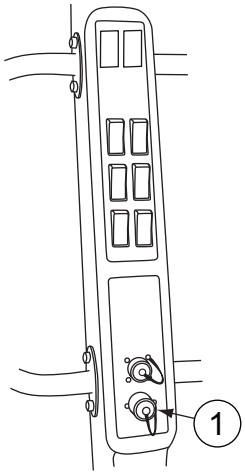
- **Start the front PTO by pressing down the symbol side of the switch for front PTO.**
- **To stop the front PTO temporarily, press down the symbol side of the switch for front PTO.**
- **Deactivate the front PTO by pressing down the side of the switch opposite to the symbol.**

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3.18 Implement signal connection

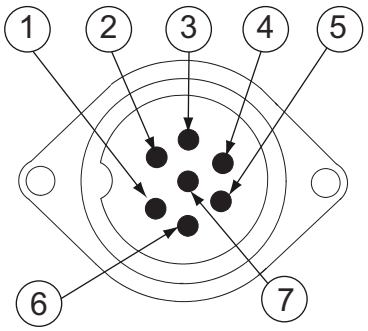
The implement signal connection complies with the ISO 11786 standard.

The implement signal connection is extra equipment. The implement signal connection is situated in the lower part of the right-hand side pillar in the cab.



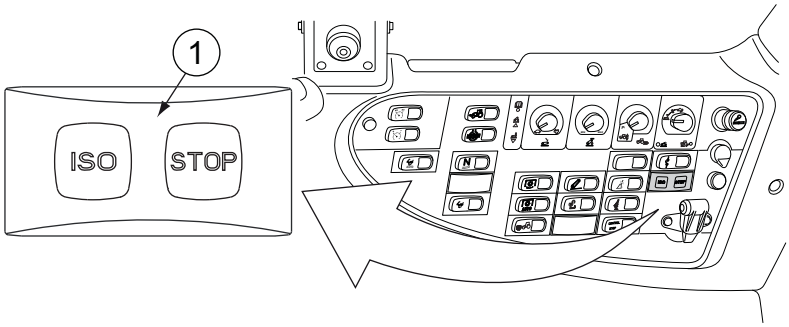
1. Implement signal connection

An implement connected to the connector can use the following tractor information:



1. Speed information of the radar, 130 pulses/m
2. Power supply max. 5 A
3. Rear linkage position (0–10 V)
4. In work (≤1.5 V)/out of work (≥6,3 V)
5. Rear power take-off (PTO) speed, 6 pulses/round
6. Transmission speed (wheel speed), 130 pulses/m
7. Ground

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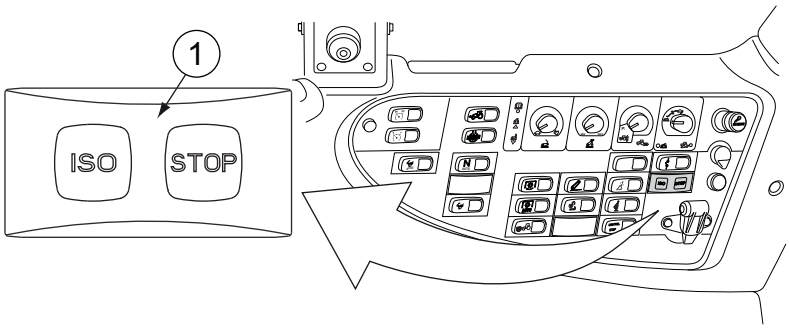


1. Indicator light for the implement signal connection

When the indicator light for the implement signal connection is lit, the implement signal system is in order.

3.18.1 Resetting the implement signal connection

If the implement signal connection (extra equipment) indicator blinks, the system is in error mode and the connection must be reset.



1. Indicator light for implement signal connection

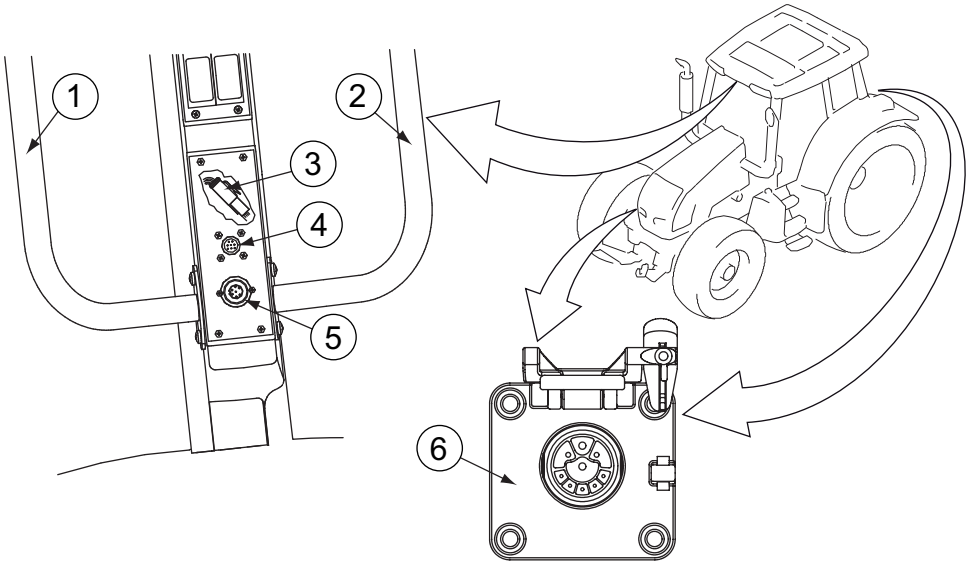
1. **Stop the tractor.**
2. **Turn off the power.**
3. **Turn on the power.**
4. **Start the tractor.**
5. **If the light continues to blink, contact an authorised Valtra workshop.**

3.19 Valtra ISOBUS

The Valtra ISOBUS implement control system (extra equipment) fulfils the requirements of class 1.

The ISOBUS implement control system complies with the ISO 11783 standard.

The ISOBUS implement control system connects the tractor, the implement and the ISOBUS terminal together. The system transfers information from the tractor to the implement and vice versa.



1. Mounting bracket
2. Mounting bracket
3. Bus extension connectors, ISOBUS system
4. ISOBUS terminal connector
5. Implement signal connection
6. ISOBUS implement connector, the front connector is extra equipment.

The Valtra ISOBUS controls the electric power of the system and the data transfer between the tractor and the implement. This data includes:

- Power management
  - Ignition switch state
  - Maintenance of the power request. The implement connected to the ISOBUS system can request the tractor to maintain power for the next two seconds.
- Speed information
  - Transmission speed, tractor speed calibrated from the tyres
  - Speed information of the radar
  - Engine speed
- Linkage information
  - Rear linkage position
  - Rear implement in-work indication
- Power take-off (PTO) information
  - Rear PTO speed
  - Rear PTO engagement
- Lighting information
  - Direction indicators
  - Marker lights (parking lights, side amber driving lights, number plate lights and instrument and switch lights)
  - Brake lights
  - Tractor rear working lights
- Distance and driving direction

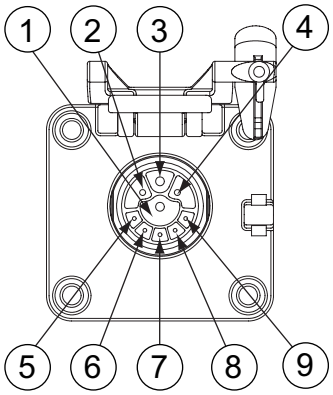
https://truckmanualshub.com/

  - Distance based on information of the radar
  - Distance based on tyre rotation
  - Driving direction based on the power shuttle lever position
- Front linkage and front PTO
  - Front PTO speed
  - Front PTO engagement

3.19.1 ISOBUS implement connector

The ISOBUS implement connector is part of the ISOBUS implement control system (extra equipment). The connector connects an ISOBUS compatible implement to the ISOBUS system.

An extra connector is available with front linkage.

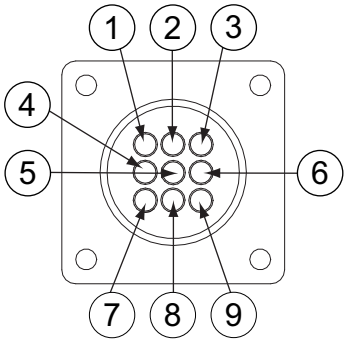


1. Ground (GND)
2. Power supply for electronic control unit max. 15 A (ECU PWR)
3. Power supply max. 30 A (PWR)
4. Electronic control unit ground (ECU GND)
5. Not in use
6. Power supply for terminating bias circuit (TBC PWR)
7. Return path for terminating bias circuit (TBC RTN)
8. CAN H
9. CAN L

3.19.2 ISOBUS terminal connector

The ISOBUS terminal connector is part of the ISOBUS implement control system (extra equipment). The connector is used to connect the terminal to the ISOBUS system.

The connector includes both an ISOBUS data bus and a power supply.



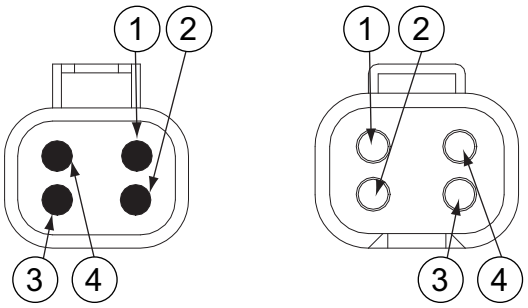
1. Not in use
2. CAN L
3. Not in use
4. CAN H
5. Not in use
6. Power supply for terminating bias circuit (TBC PWR)
7. Power supply for electronic control unit (ECU PWR)
8. Ground for terminating bias circuit (TBC GND)
9. Ground for electronic control unit (ECU GND)

3.19.3 Bus extension connectors

Bus extension connectors are part of the ISOBUS implement control system (extra equipment). Normally the bus extension connectors are connected together. They can also be used to connect additional ISOBUS devices to ISOBUS (for example, ISOBUS GPS).

NOTE: If the bus extension connectors are disconnected, the ISOBUS implement bus is broken and the system does not function properly. When connecting additional ISOBUS devices, check that the bus stays intact (the bus extension connectors are connected).

The connectors are located behind the cover, inside the B-pillar.

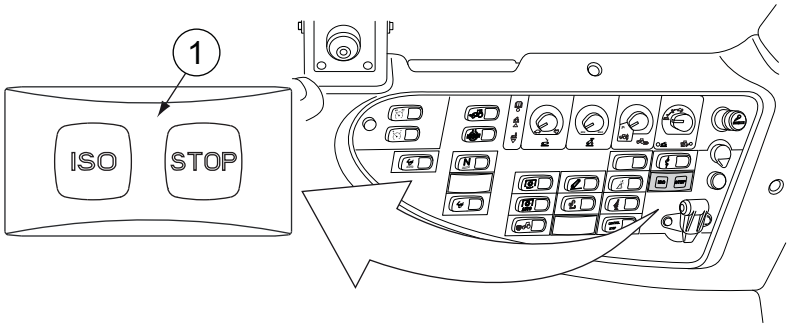


1. Power supply for terminating bias circuit (TBC PWR)
2. CAN H
3. Return path for terminating bias circuit (TBC RTN)
4. CAN L

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3.19.4 Resetting the ISOBUS connection

If the ISOBUS connection (extra equipment) indicator blinks, the system is in error mode and the connection must be reset.



1. Indicator light for ISOBUS connection

1. **Stop the tractor.**
2. **Turn off the power.**
3. **Turn on the power.**
4. **Start the tractor.**
5. **If the light continues to blink, contact an authorised Valtra workshop.**

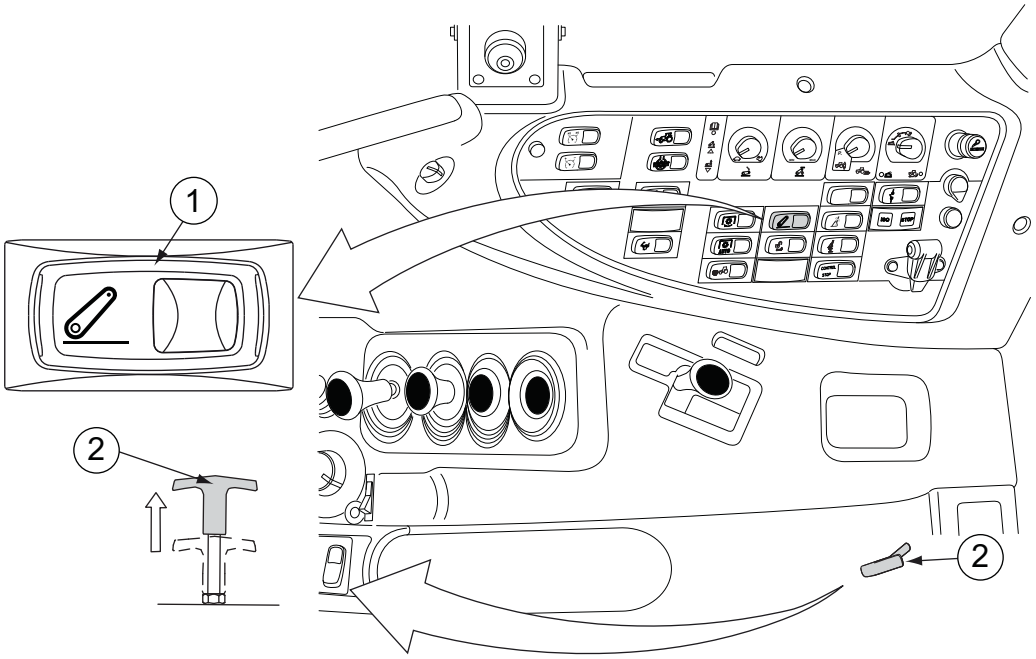
3.20 Towing devices

3.20.1 Pick-up hitch

3.20.1.1 Unlatching the pick-up hitch equipped with mechanical unlatching system

These instructions apply to both the Nordic pick-up hitch (extra equipment) and the Euro pick-up hitch (extra equipment) but not to the hydraulically extended Euro pick-up hitch (extra equipment).

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1. Lift/lower switch
2. Hitch latch lever

1. **Press the symbol side of the lift/lower switch to fully raise the linkage.**
2. **Pull the hitch latch lever to unlatch the hitch.**

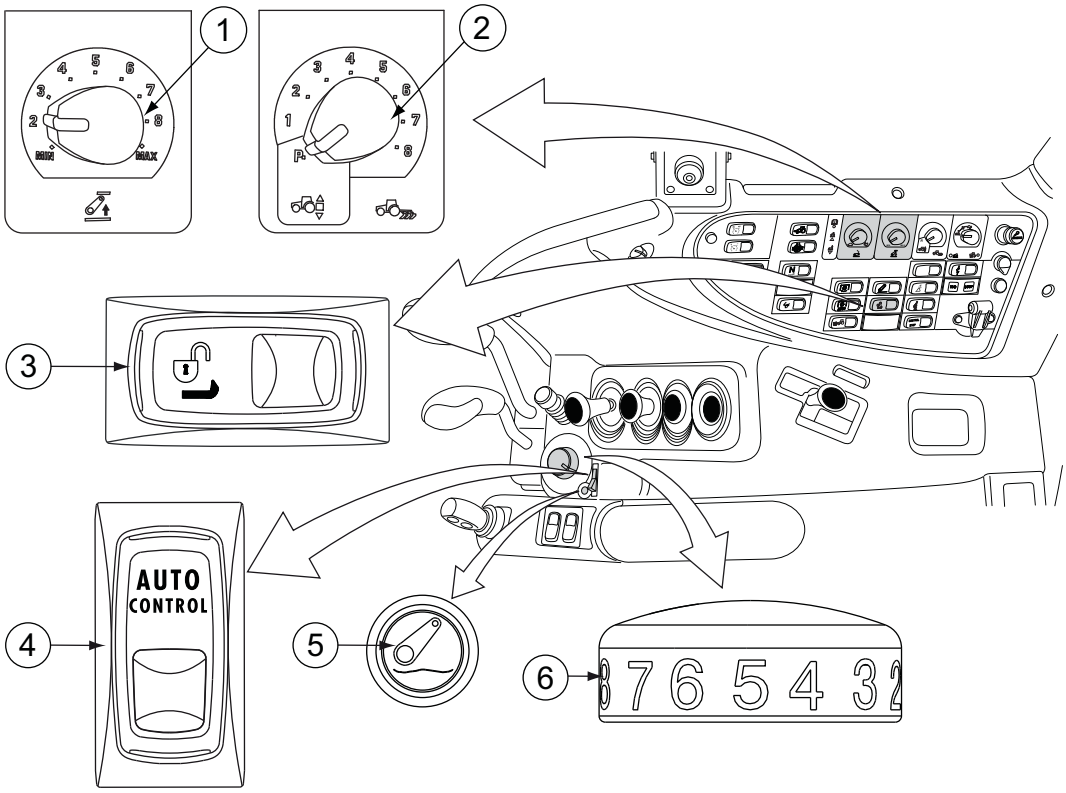
   Keep the lever pulled up.
3. **Press the switch side opposite to the symbol side of the lift/lower switch to lower the linkage.**
4. **Release the hitch latch lever.**

3.20.1.2 Unlatching the pick-up hitch equipped with hydraulic unlatching system

The hydraulic pick-up hitch unlatching system is extra equipment.

These instructions apply to both the Nordic pick-up hitch (extra equipment) and the Euro pick-up hitch (extra equipment) but not to the hydraulically extended Euro pick-up hitch (extra equipment).

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1. Lifting height selector
2. Draft control selector
3. Pick-up hitch latch releasing switch
4. Lift/stop/lower switch
5. Passing switch for the position control knob
6. Position control knob

1. **Set the lifting height selector to max position.**
2. **Set the draft control selector to position P.**
3. **Set the position control knob to position 8.**
4. **Press down the side opposite to the symbol of the lift/stop/lower switch.**
5. **Press down simultaneously the passing switch for the position control knob and the pick-up hitch latch releasing switch.**
   The pick-up hitch latch unlatches.
6. **Press down the symbol side of the lift/stop/lower switch.**

   NOTE: Make sure that the linkage is activated (the diagnose light is not lit).
   Keep the pick-up hitch latch releasing switch pressed down.
   The linkage lowers below the latching point (to the position set by the position control knob).
7. **Release the pick-up hitch latch releasing switch.**
8. **Use the position control knob to lower the linkage as required.**

3.20.1.3 Latching the pick-up hitch

These instructions apply to both the Nordic pick-up hitch (extra equipment) and the Euro pick-up hitch (extra equipment) but not to the hydraulically extended Euro pick-up hitch (extra equipment). The instructions apply also to both the mechanical and the hydraulic (extra equipment) pick-up hitch unlatching systems.

WARNING: When attaching any implements, check that the drawbar eye engages the trailer hook correctly.

WARNING: Do not exceed the maximum tyre loadings when attaching towing devices.Check axle tyre loadings given in technical specifications in this manual.

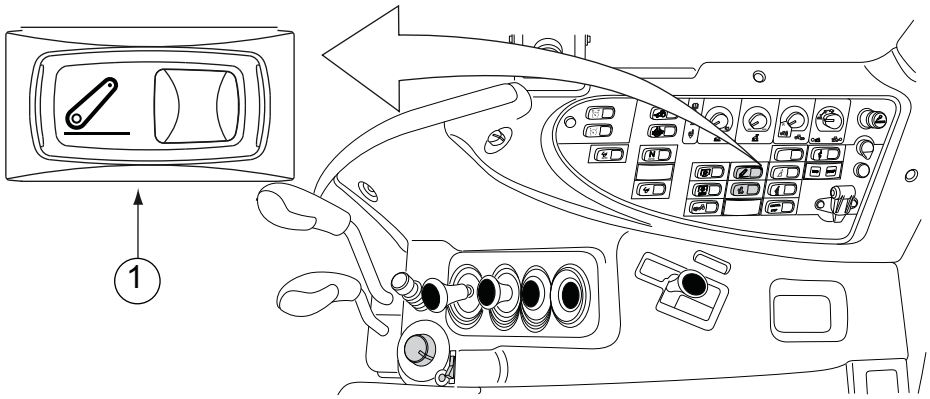
WARNING: Make sure that the maximum permissible towable mass is not exceeded.Check tractor identification plate for permissible towable mass. Follow valid laws and regulations.

WARNING: Attach trailed single-axle vehicles to the pick-up hitch. When driving with the trailer on a horizontal slope, the drawbar eye must be of the rotating type to prevent breakage.

DANGER: Make sure that at least 20% of the total combination weight rests on the front wheels. When needed, use a sufficient number of front ballast weights.

IMPORTANT: Use only drawbar eyes which comply with the regulations and are undamaged. When using other than allowed drawbar eyes, the warranty lapses and the responsibility of the manufacturer is no longer valid.

IMPORTANT: When attaching a trailer or implement, be sure not to exceed the maximum weight of the rear axle. See the technical specifications in this manual for the maximum permissible axle loading.



1. Lift/lower switch

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1. **Reverse the tractor up to the trailer/implement.**
2. **Align the pick-up hitch hook or drawbar pin to the eye of the trailer/implement beam.**
3. **Press the symbol side of the lift/lower switch to raise the linkage fully up until the hitch latches.**

   You can hear a click.
4. **Lower the linkage slightly.**

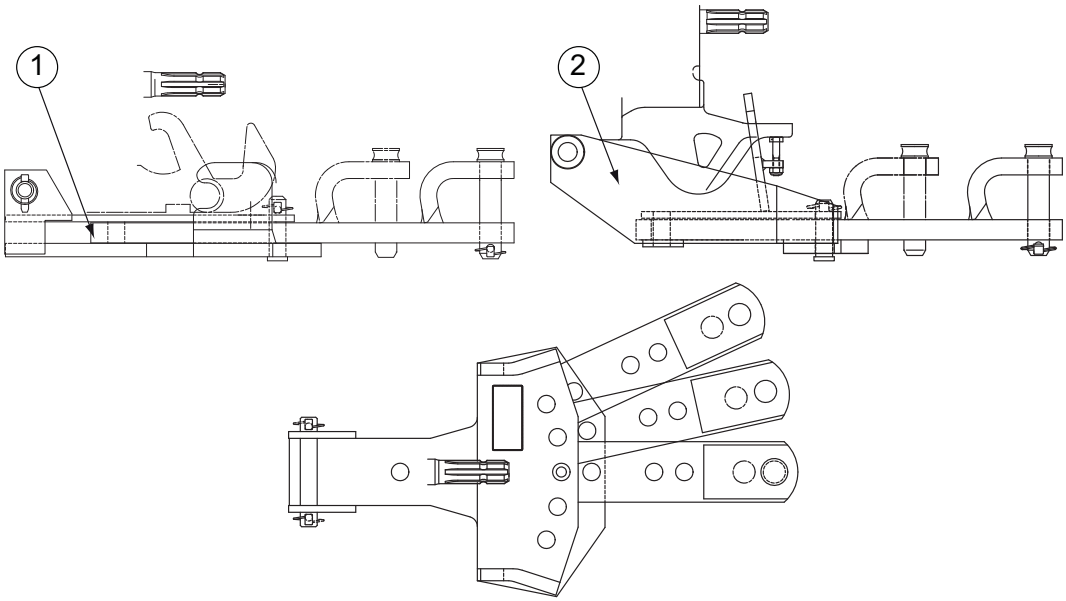
   WARNING: When using a trailer, make sure that the hitch latch is locked.

   Press the side opposite to the symbol of the lift/lower switch to lower the linkage slightly.Ensure that the hitch is supported by the latch and does not lower with the linkage.
5. **Check the linkage position.**

   IMPORTANT: Adjust the linkage so that it does not hit the towed device or power take-off shaft at any circumstance.

3.20.2 Agricultural drawbar devices

An agricultural drawbar is extra equipment. There are two different agricultural drawbar devices available: one model used together with pick-up hitch (mounted below pick-up hitch frame) and another model which is used without the pick-up hitch (mounted directly to transmission).



1. Agricultural drawbar device with pick-up hitch
2. Agricultural drawbar device without pick-up hitch

The agricultural drawbar is used for towing implements where only part of the implement weight is on the drawbar, for example balers. The maximum weight of a drawbar implement is 10 000 kg.

Agricultural towing device:

- Adjustable to four different distances from the power take-off (PTO) shaft.
- In all positions, the drawbar can also be adjusted ±12.5° and ±25° laterally.

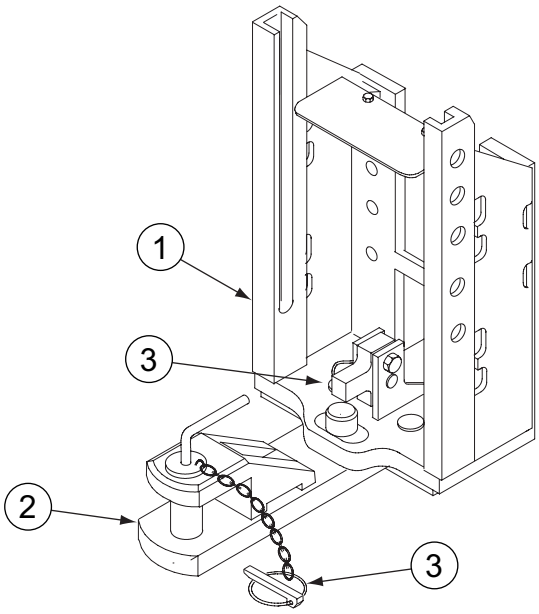
Light agricultural towing device:

- Only available for the trailer hitch.
- Adjustable to two different distances from the PTO shaft.
- In the three outermost positions, the drawbar can also be adjusted ±12.5° and ±25° laterally, and to two different positions.
- The maximum permissible vertical load is 10 kN (drawbar in the forward position) and 7.5 kN (drawbar in the rearmost position).

3.20.3 Towing device frames

The towing device frame options available are: towing device frame (used without pick-up hitch or agricultural drawbar), short towing device frame (used with pick-up hitch or agricultural drawbar) and towing device frame with fixed Piton-Fix pin and with drawbar, and towing device frame with fixed 80 mm ball coupling with drawbar.

WARNING: According to law, the operator has to ensure that all relevant precautions are taken (lockings secured etc.).



1. Towing device frame with a fixed Piton-Fix pin
2. Agricultural drawbar
3. Locking

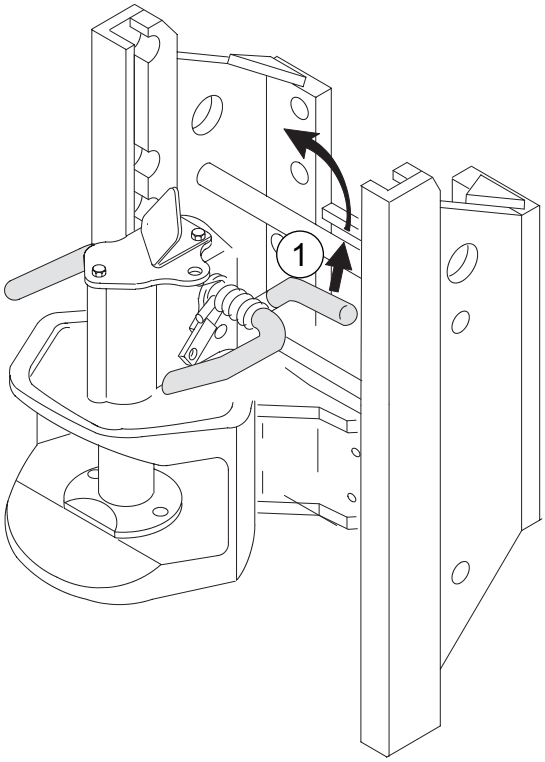
Locking to the trailer must be secured.

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3.20.3.1 Adjusting the jaw height

The height of mechanical and automatic jaws is adjusted in the same way.

WARNING: You cannot change the jaw height if the lever is broken or dirty. The jaw must be locked and secured every time the height is changed.



1. Lever

1. **Pull the lever upwards and turn it to the left.**
2. **Move the jaw into the wanted height.**
3. **Release the lever.**

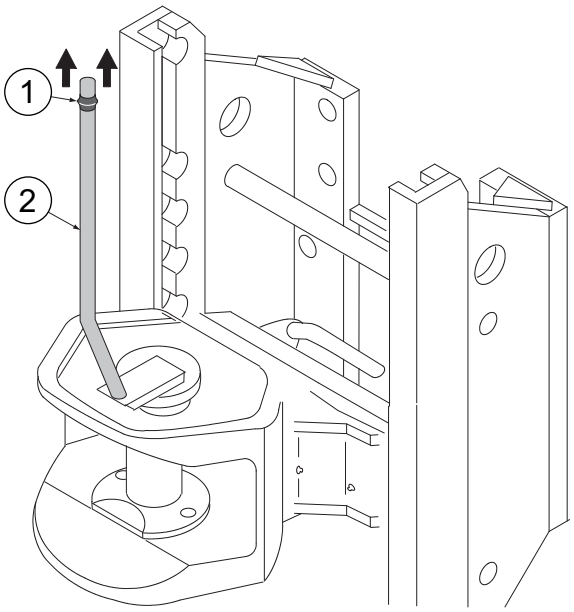
   The locking pins lock the lever into the correct position with the help of the returning springs.

You can also lift the jaw away from the frame by using the same lever.

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3.20.3.2 Attaching to the mechanical jaw

You can attach a trailer to the mechanical jaw using the coupling lever.



1. Ring
2. Coupling lever

- **Pull up the ring at the top of the coupling lever to lift up the towing pin.**

WARNING: After attaching the trailer, check that the pulling pin is completely down and locked.

WARNING: When using jaws where the towing pin is equipped with a locking pin, make sure that the locking pin is locked when attaching the trailer.

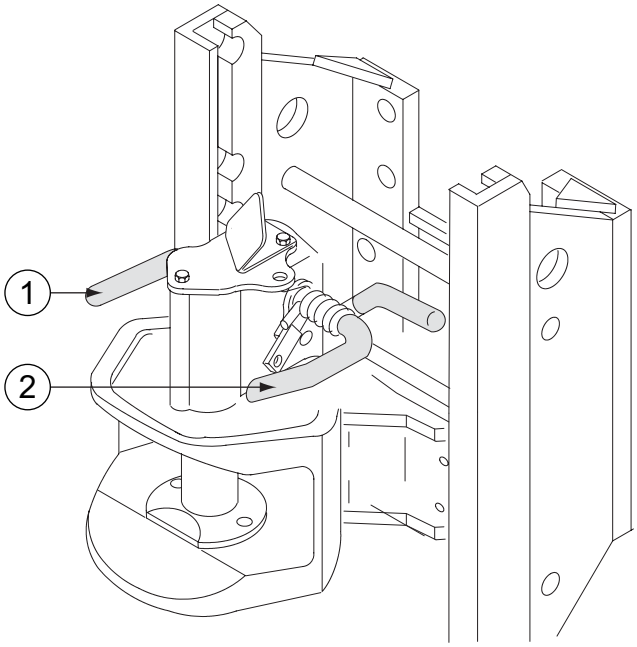
3.20.3.3 Attaching to the automatic jaw

You can attach a trailer to the automatic jaw using the opening and locking levers.

Use a solid drawbar because of the rotating jaw.

IMPORTANT: Use only drawbar eyes which comply with the regulations and are undamaged. When using other than the allowed drawbar eyes, the warranty lapses and the responsibility of the manufacturer is no more valid.

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1. Towing pin locking lever
2. Towing pin opening lever

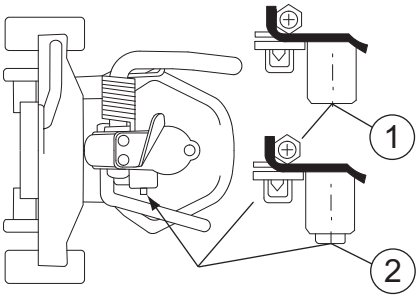
1. Lift the towing pin up.

To lift the pin, turn the opening lever to the upper position.

2. Attach the trailer to the coupling.

When the draw eye reaches the bottom of the draw gap, the towing pin automatically goes down. You can also lower the towing pin by pushing the lowering lever downwards.

3. Check that the towing pin is locked.



1. Towing pin not locked
2. Towing pin locked

WARNING: The drawbar pin is locked in the down position when the security knob is out. When attaching the trailer, the drawbar locking pin must be secured.

3.20.4 Euro pick-up hitch

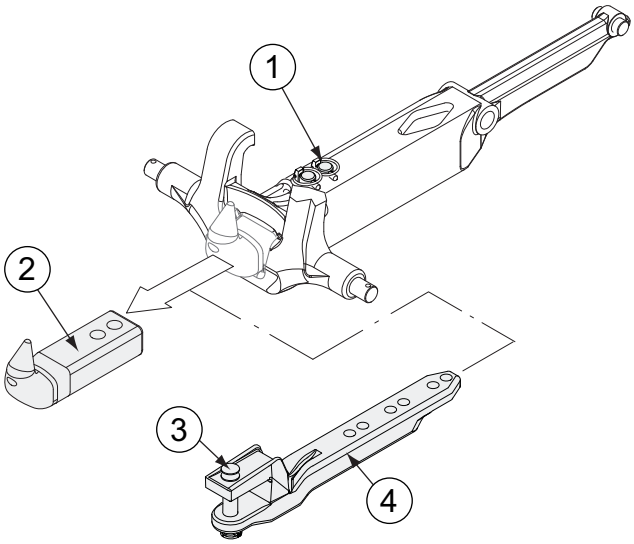
The Euro pick-up hitch can be mounted instead of the standard pick-up hitch.

The Euro pick-up hitch is extra equipment.

WARNING: Do not exceed the maximum tyre loadings when attaching towing devices.Check axle tyre loadings given in technical specifications in this manual.

WARNING: Make sure that the maximum permissible towable mass is not exceeded.Check tractor identification plate for permissible towable mass. Follow valid laws and regulations.

IMPORTANT: When attaching a trailer or implement, be sure not to exceed the maximum weight of the rear axle. See the technical specifications in this manual for the maximum permissible axle loading.



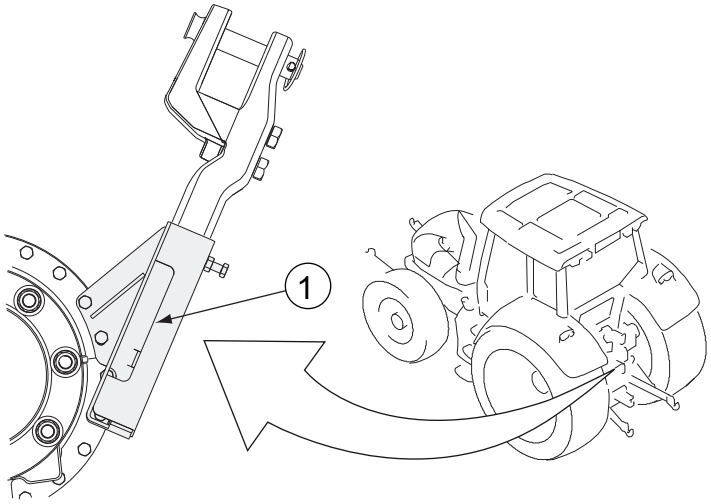
1. Fastening pins
2. Tow hook
3. Implement attachment pin
4. drawbar, extra equipment

The tow hook can be changed to the drawbar (extra equipment) by removing the fastening pins.

IMPORTANT: Always secure the fastening pins with the locking pins on the top side of the pick-up hitch. This prevents the locking pins from getting stuck to any objects such as tree branches on the ground that might open them accidentally.

When the tow hook or drawbar is not in use, it can be fastened to the bracket.

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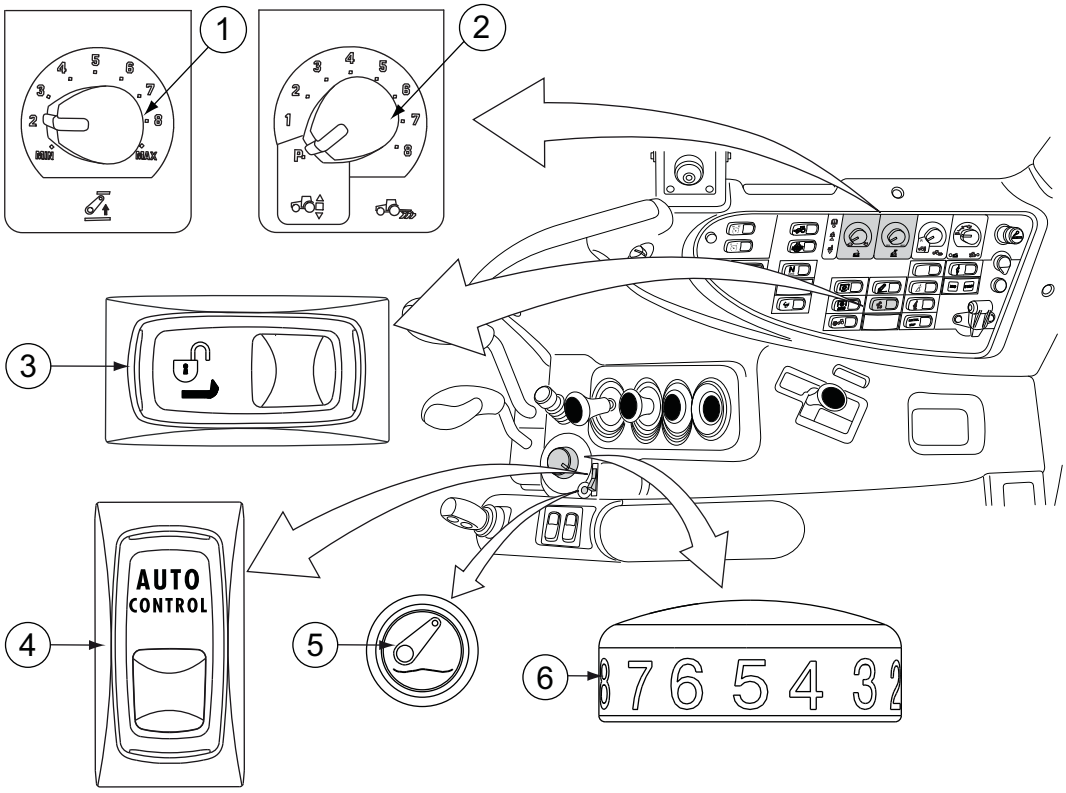
1. Bracket

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3.20.5 Euro pick-up hitch with hydraulic extension

The Euro pick-up hitch with the hydraulic extension is otherwise similar to the Euro pick-up hitch, but you can move it hydraulically in longitudinal direction.

3.20.5.1 Unlatching the hydraulically extended Euro pick-up hitch



1. Lifting height selector
2. Draft control selector
3. Pick-up hitch latch releasing switch
4. Lift/stop/lower switch
5. Passing switch for the position control knob
6. Position control knob

1. **Set the lifting height selector to max position.**
2. **Set the draft control selector to position P.**
3. **Set the position control knob to position 8.**
4. **Press down the side opposite to the symbol of the lift/stop/lower switch.**
5. **Press down simultaneously the passing switch for the position control knob and the pick-up hitch latch releasing switch.**
   The pick-up hitch latch unlatches.

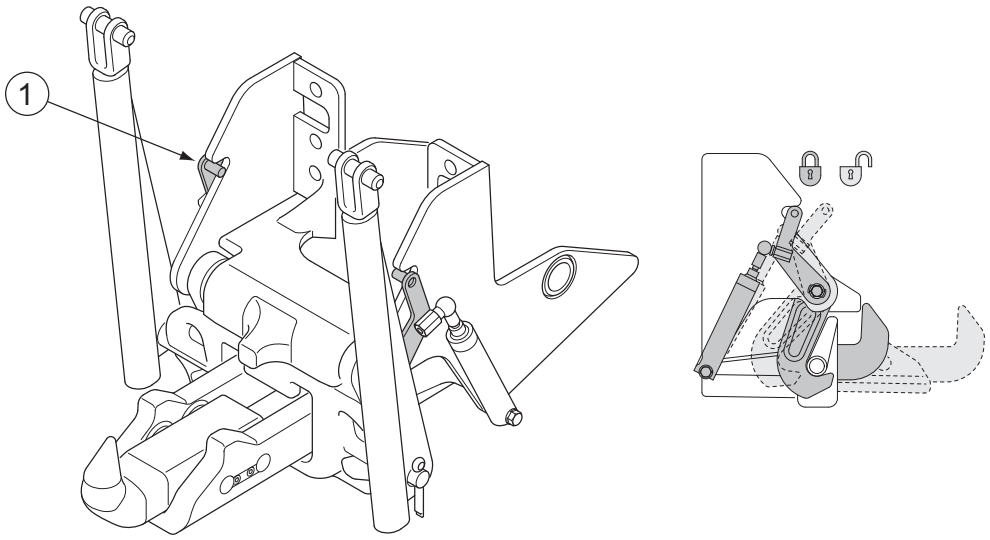
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6. **Keep the pick-up hitch latch releasing switch pressed down, and press down the symbol side of the lift/stop/lower switch.**

   NOTE: Make sure that the linkage is activated (the diagnose light is not lit).

   The linkage lowers below the latching point (to the position set by the position control knob).

   In unlocked position, the locking indicator is not hidden into the grooves of the side plate.



1. Locking indicator

7. **Release the pick-up hitch latch releasing switch.**

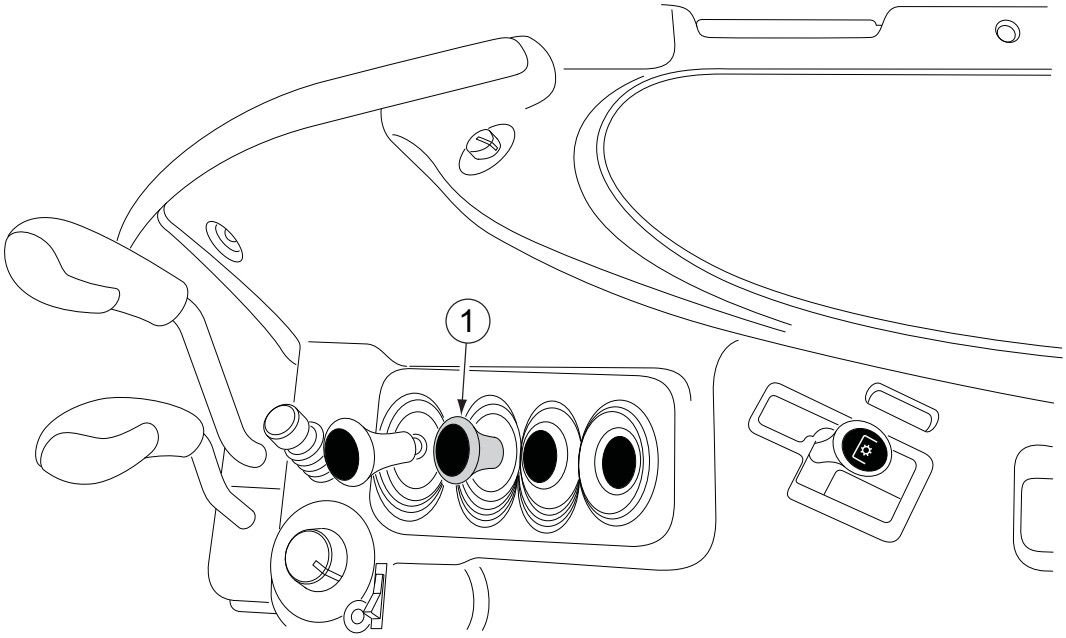
   You can release the pick-up hitch latch releasing switch when the pick-up hitch has been lowered below the latching position.

8. **Use the position control knob to lower the linkage as required.**

3.20.5.2 Extending the Euro 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 tow hook/drawbar to the drawbar eye. The cylinder of the hydraulic extension is usually connected with quick couplings.

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1. Operating lever for auxiliary hydraulic valve 2

- **Extend the towing device.**

  Pull the lever of valve 2.
- **Retract the towing device.**

  Push the lever of valve 2.

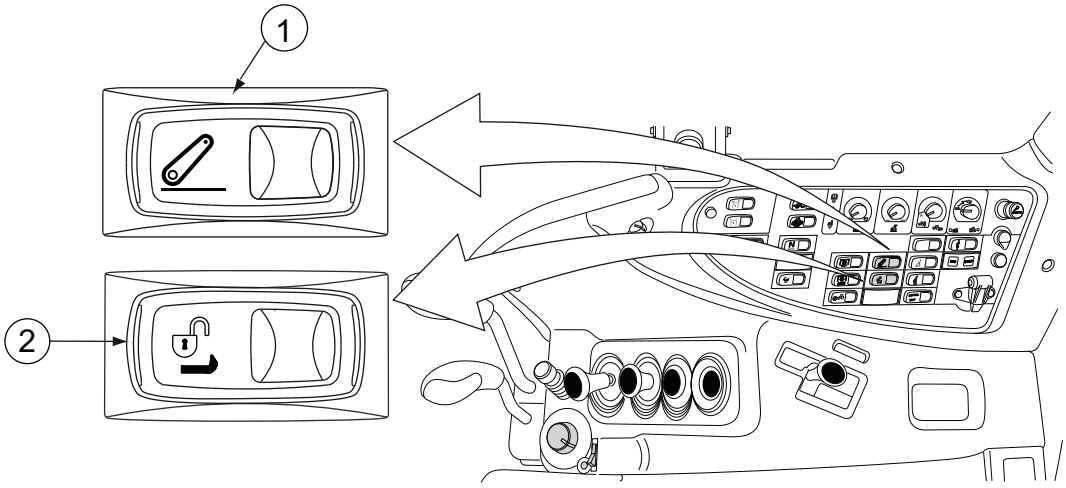
3.20.5.3 Latching the hydraulically extended Euro pick-up hitch

WARNING: When attaching any implements, check that the drawbar eye engages the trailer hook correctly.

WARNING: Attach trailed single-axle vehicles to the pick-up hitch. When driving with the trailer on a horizontal slope, the drawbar eye must be of the rotating type to prevent breakage.

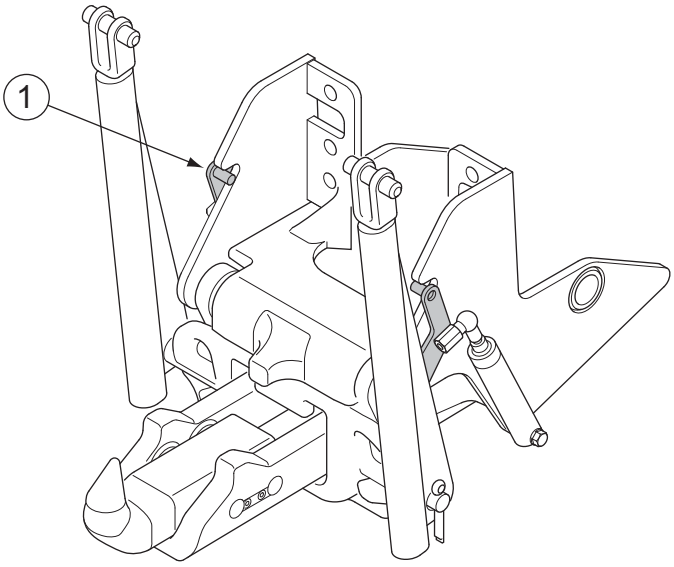
IMPORTANT: Use only drawbar eyes which comply with the regulations and are undamaged. When using other than allowed drawbar eyes, the warranty lapses and the responsibility of the manufacturer is no longer valid.

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1. Lift/lower switch
2. Pick-up hitch latch releasing switch

1. **Reverse the tractor up to the pick-up.**
2. **Align the pick-up hitch hook or drawbar pin to the eye of trailer/implement beam.**
3. **Press the opposite side to the symbol of the lift/lower switch to raise the linkage fully up until the hitch latches.**



1. Locking indicator

In locked position, the locking indicator is hidden into the grooves of the side plates of the pick-up hitch.

You can hear a click when the hitch latches.

4. **Press the symbol side of the lift/lower switch to lower the linkage slightly.**

Ensure that the hitch is supported by the latch and does not lower with the linkage.

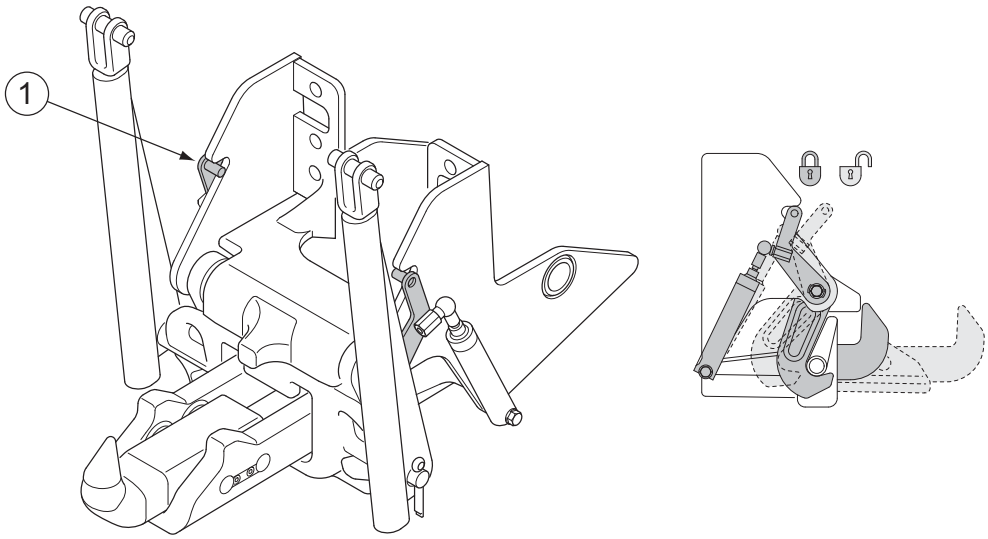
5. **Push the auxiliary hydraulic valve lever for valve 2 to retract the hydraulic extension.**

   The hydraulic extension locks, you can hear a click when the hitch latches in longitudinal direction.

6. **Ensure that the towing device extension is locked.**

   Push and pull the auxiliary hydraulic valve lever for valve 2 several times to ensure that the hydraulic extension is fully locked and does not extend.

7. **Ensure that the towing device is fully locked.**



1. Locking indicator

The towing device is fully locked when the following conditions are fulfilled simultaneously.

- The towing device is in the upmost position and supported by the latch
- The locking indicator is hidden inside the grooves of the side plate of the pick-up hitch.
- The locking position of the pick-up hitch in longitudinal direction has been checked by attempting to move the extension back and forth.

  NOTE: The locking indicator is hidden inside the grooves of the side plate of the pick-up hitch.also when the towing device is down.

8. **Keep the switch for releasing the trailer hitch latch pressed down and lower the towing device by pressing the symbol side of the inner switch**

9. **Check the linkage position.**

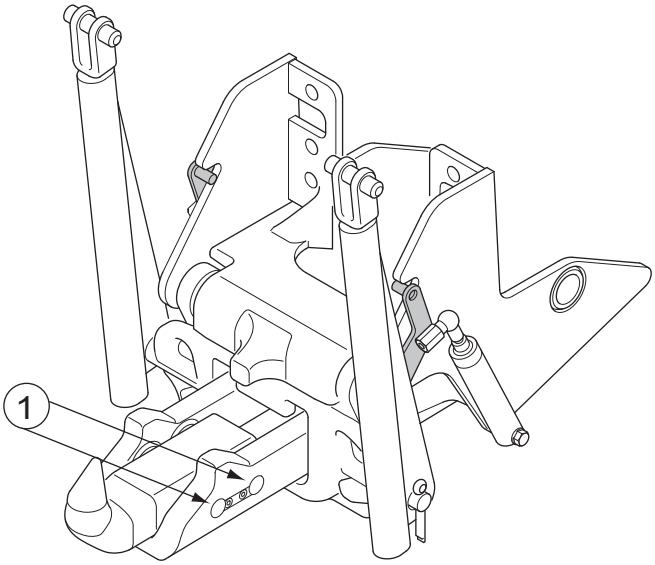
   IMPORTANT: Adjust the linkage so that it does not hit the towed device or power take-off shaft at any circumstance.

3.20.5.4 Changing the pick-up hitch or drawbar

You can change the pick-up hitch or drawbar. When the hook or drawbar is not in use, you can fasten it to the bracket on the rear side.

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1. **Lower down and extend the towing device.**
2. **Raise the towing device to the locking position.**
3. **Unscrew the lock washer screws.**
4. **Remove the lock washer.**
5. **Remove the rearmost locking pin by pushing.**



1. Locking pins

6. **Support the pick-up hitch hook or drawbar with your hand and remove the other locking pin.**

   The foremost locking pin also supports the hydraulic extension. Make sure that the pick-up hitch is horizontally adjusted to prevent the extension from falling.

7. **Attach the pick-up hitch and drawbar in reverse order.**

   The foremost locking pin must also go through the hydraulics cylinder ring that operates the extension.

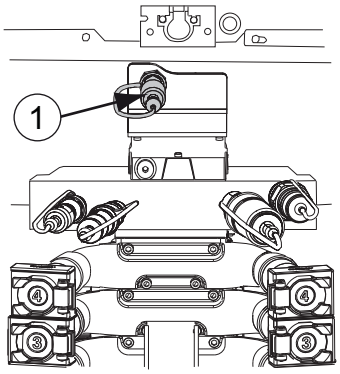
8. **Attach the lock washer.**

   Attach the lock washer to the grooves of the locking pins and lock the fastening screws to 10 NM.

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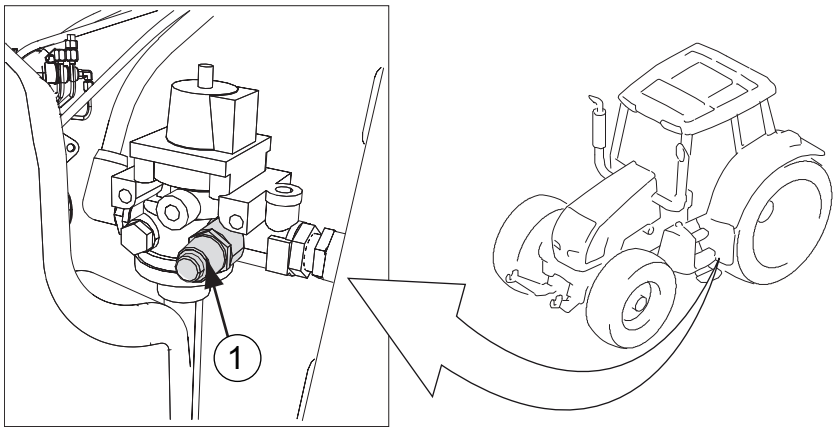
3.21 Air pressure system

You can get pressurised air (8 bar) for external purposes, for example for filling tyres, from the air pressure system (extra equipment).



1. Pressurised air quick coupling

You can also get compressed air from the air pressure coupling by turning it as far as it goes. The air pressure coupling is located on the left side of the tractor beside the pressure container. Through this coupling, you can also fill the system with outside compressed air, for example, when the compressor of the tractor is broken. In this case, the coupling must not be turned as far as it goes.

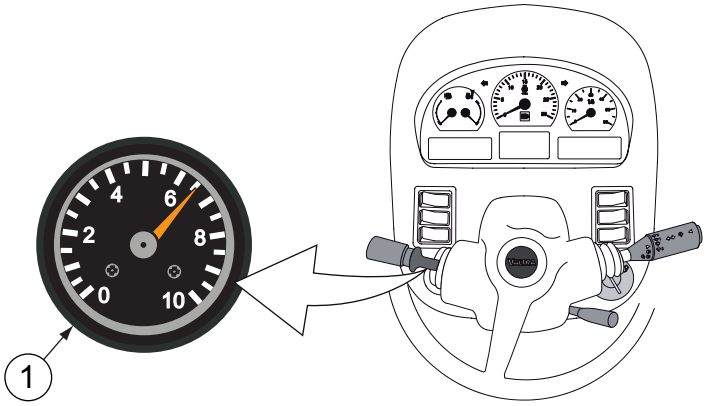


1. Air pressure coupling

IMPORTANT: Do not weld or drill the pressure container.

The pressure regulator is provided with a built-in pressure relief valve, which operates if the pressure rises to 12-14 bar. For example, a broken pressure regulator valve or a frozen or blocked filter can cause this situation.

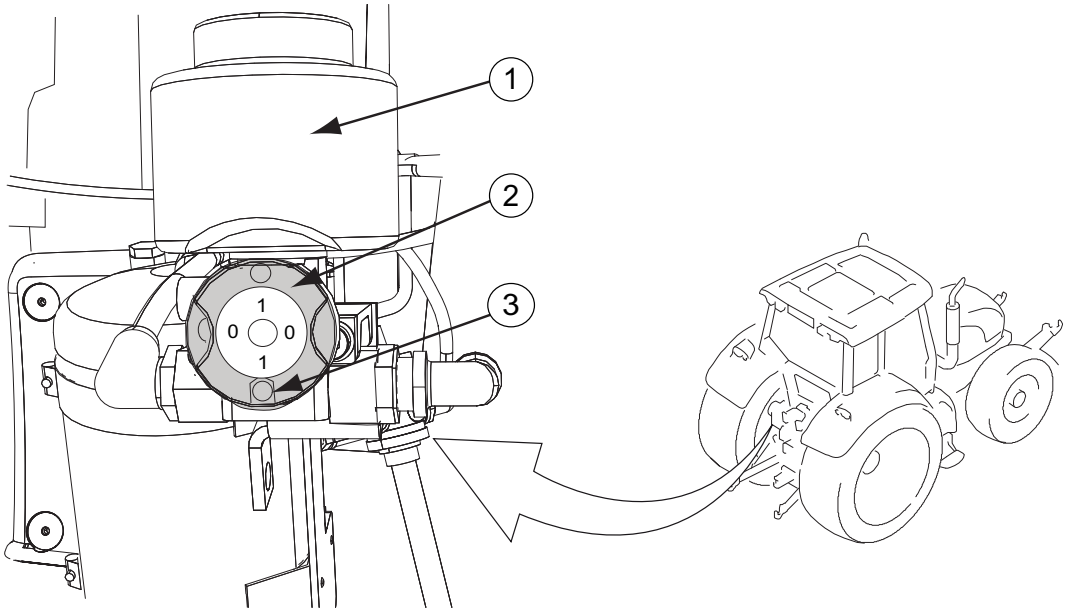
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1. Air pressure system pressure gauge

WARNING: The pressure of the air pressure system must be at its maximum, about 7-8 bar, before driving a tractor with a trailer equipped with air pressure brakes.

When the ambient temperature is below +5°C, the antifreeze container must be filled with antifreeze liquid containing lubricant. The liquid streaming valve has to be in the open position. The container and streaming valve are situated on the top of the left axle housing.



1. Antifreeze container
2. Liquid streaming valve
3. Open position

3.22 Trailer

Several factors affect the compatibility of a trailer.

The type of trailer that can be connected to the tractor depends, among other things, on:

- The braking power of the tractor.
- Whether the trailer has brakes.
- How much of the trailer weight is on the hitch.
- Whether the trailer has one or more axles.

The total trailer weight is the load added to the empty trailer weight.

When loading the hitch, at least 20% of the tractor weight has to be on the front wheels.

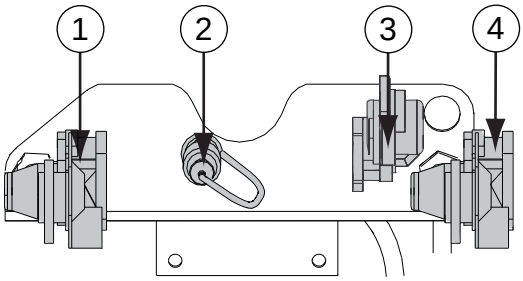
The maximum allowed wheel or hitch loading must not be exceeded.

WARNING: If the pick-up hitch is worn out or otherwise damaged so that the drawbar eye can come off the pick-up hitch, the hook must be replaced.

3.22.1 Trailer air pressure brakes

When towing a trailer, you can increase the braking power with trailer air pressure brakes.

The trailer air pressure brake system (extra equipment) is controlled by the tractor brakes. The trailer brakes operate also when using the parking brake.



1. Brake line coupling with yellow cover
2. Pressurised air quick coupling
3. Brake line coupling with black cover
4. Container line coupling with red cover

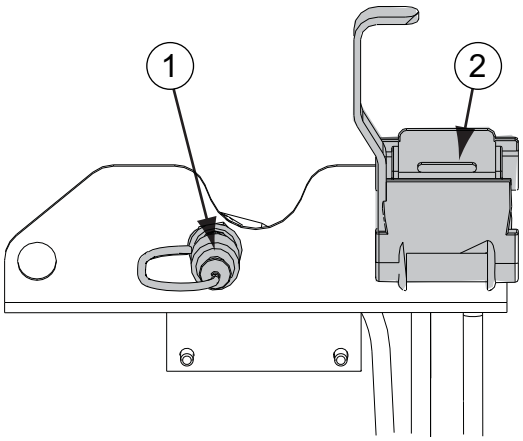
On a two-hose system, the trailer is connected to two couplings:

- Container line with a red cover
- Brake line coupling with a yellow cover

On one-hose systems, the trailer is connected to the brake line coupling with a black cover.

The Duo-Matic system has only one coupling to connect.

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1. Pressurised air quick coupling
2. Trailer coupling Duo-Matic

WARNING: When the tractor is towing a trailer, lock the brake pedals together when driving on the road. When pressing one brake pedal only, the brake action of the trailer is smaller.

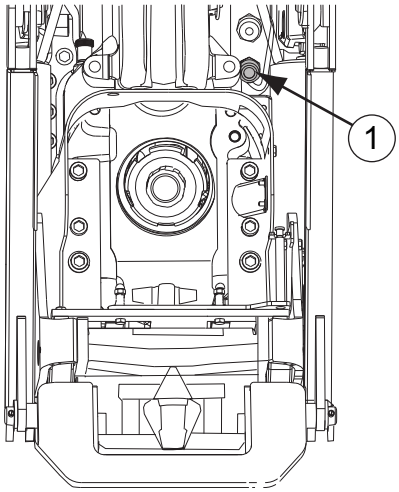
WARNING: The pressure of the air pressure system must be at its maximum, about 7-8 bar, before driving a tractor with a trailer equipped with air pressure brakes.

When the trailer couplings are not in use, they must be covered.

3.22.2 Trailer fluid brake valve

The trailer fluid brake valve (extra equipment) operates with the pressure of the tractor hydraulics, controlled by the tractor brakes.

The trailer brakes are connected to the tractor with a quick-action coupling at the rear part of the tractor.



1. Quick-action coupling for the trailer brakes (ISO 5676)

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WARNING: When the tractor is towing a trailer, the brake pedals must be locked together. The trailer brakes do not operate if only one of the brake pedals is pressed.



WARNING: The trailer brakes do not work when using the parking brake.



WARNING: When the engine is not running, the trailer brakes do not work.

4 Maintenance

The tractor must be maintained regularly. Correct maintenance at the right time is essential to ensure reliable operation of the tractor.

Maintenance costs are small compared to repair costs resulting from lack of maintenance. The most important measures are those you carry out yourself, including lubrication and various checks and adjustments.

4.1 Maintenance schedule

You can choose the maintenance schedule according to the yearly running hours of the tractor.

Periodical maintenance

Periodical maintenance schedule is recommended for all tractors and specially for tractors, which have more than 1000 running hours in a year. The maintenance tasks are carried out according to the periodical maintenance chart. The periodical maintenance from 50 hours onwards can also be ordered from the authorised workshop. In that case the periodical maintenance is carried out by Valtra authorised and trained service personnel.

Yearly maintenance

The yearly maintenance schedule is suitable for tractors which have under 1000 running hours in a year. The schedule should be carried out by an authorised workshop but the operator has to carry out the normal daily and weekly service routines according to the periodical maintenance chart.

4.2 Service inspection

A service inspection is required for all new tractors after 50 running hours.

The service inspection is mandatory in order to retain the guarantee. The service is performed by your local dealer.

NOTE: The tractor is inspected according to the manufacturer's instructions before it is handed over to a customer.

Engine

The inspection of the engine contains the following services:

- Change of engine oil and filter
- Change of fuel system prefilter
- Change of fuel filter

Power transmission

The inspection of the power transmission contains the following services:

- Change of 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

Other points

The inspection contains the following services as well:

- Lubrication according to maintenance chart
- Road test of the tractor

  During the road test all the functions of the controls and instruments are checked. After the road test, the oil leaks, coolant level and fuel system are checked.

4.3 Performing maintenance tasks

Follow these instructions when maintaining.

- Test drive the tractor and test that all instruments and controls are working properly.
- Always stop the engine before starting the work.
- Park the tractor on level ground, especially when doing oil checks.
- Apply the parking brake to ensure that the tractor cannot move.

  NOTE: If the ground is uneven, block the wheels.

- Wash down the tractor so that the service work can be done easily and quicker.

Observe that if the tractor has extra equipment like towing device, air conditioning, air pressure brakes and so on, the periodical maintenance and checks for them must also be carried out.

Follow the instructions concerning general service tasks:

- **Observe the utmost cleanliness in all maintenance work.**

  Thoroughly wipe off filler caps and plugs as well as surrounding parts of the tractor before filling up with fuel or oil.

  CAUTION: Keep the engine surface clean in order to avoid the risk of fire.

- **Check the oil level.**

  Be sure that the motor and oil have cooled down before checking the oil level. The oil must have run down to the bottom of the oil sump before the operation.

- **When changing the oil and filters, check their appearance.**

  Large amounts of dirt (for example heavily clogged filters) can point to a fault which could cause extensive and costly repairs if not corrected in time.

  WARNING: When changing the oil, notice that the oil can be very hot when it drains from the tractor.

  WARNING: Avoid touching the exhaust manifold, turbocharger and other hot parts of the engine.

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- **Use proper gloves and other protection for the noxious chemicals.**

  Fuel, lubricating oil and coolant cause irritation to the skin if they are in contact with it for long periods.

- **Dispose the waste oil, liquid waste, oil filters and batteries properly and handle them carefully.**

NOTE: After completion of service work, reinstall all shields and covers.

4.3.1 Cleaning the tractor

Clean the tractor regularly.

Turn the ignition key to the STOP position before washing.

NOTE: Protect the environment by following the environmental regulations. The washing place must have a separator outlet when using detergents.

It is best to wash the new tractor for the first time a week after the start-up. Avoid rubbing the surface of the tractor too hard during the first months.

NOTE: Do not wax the paint work of the new tractor before the initial washing.

- **Wash the tractor using a pressure washer.**

  Keep the nozzle of the pressure washer at least 30 cm from the sealing points and paint work. The temperature of the washing water must not be higher than 50°C.
  NOTE: Do not use special nozzles, such as turbo nozzles, when washing. Follow the instructions of the pressure washer manufacturer.

- **Do not let the water get into the cab air filter when washing the cab sides.**

  The cab air filter is in the side plate of the roof, usually on the left.

- **Do not wash the inside of the cab with a pressure washer or running water.**

- **Do not point the pressure washer towards electrical equipment, electrical connectors, lead-through points, bearings, seals and locks.**

  Use lower pressure (6,5 MPa / 65 bar) and point the water diagonally to the above points. Do not point the pressure washer towards the radar sensor (minimum distance 1 m and maximum pressure 6,5 MPa / 65 bar).

- **When using a cold grease remover, do not keep the tractor in sunshine.**

  The paint work may get damaged, if the painted surface is hot.

- **Wax the painted surfaces.**

After washing, grease the lubricating points and the joints and lubricate the bearings with oil.

4.3.1.1 Cleaning the engine compartment

Keep the engine surface clean to avoid the risk of fire.

NOTE: Protect the environment by following the environmental regulations. The washing place must have a separator outlet when using detergents.

- **Let the engine cool down for a few minutes before washing.**

  IMPORTANT: To avoid the risk of fire, do not wash the engine when it is hot.

- **Wash the engine carefully using pressure washer.**
  - Use lower pressure, 6.5 MPa / 65 bar.
  - Point the water jet diagonally to the engine.

  NOTE: Do not use special nozzles, such as turbo nozzles, when washing. Follow the instructions of the pressure washer manufacturer.

- **Do not use high pressure to wash the electric and fuel equipment or the radiator.**

  These components can be damaged easily. Wash the delicate engine parts by hand.

- **Let the engine dry up before starting.**

4.3.1.2 Cleaning front axle suspension bellows

To ensure correct function of the front axle air suspension, the dirt in the bellows of the suspension and in the housing have to be occasionally removed.

1. **Detach the protective housings of the suspension bellows, if necessary.**
2. **Wash the bellows with a pressure washer.**
3. **Keep the pressure washer nozzle during washing at a distance of at least 30 cm from the bellows.**

   The temperature of the washing water must not be higher than 50°C.

   NOTE: Do not use special nozzles, such as turbo nozzles, when washing. Follow the instructions of the pressure washer manufacturer.

4. **Install the protective housings back to the suspension.**

4.3.1.3 Cleaning polycarbonate windows

The polycarbonate windows must be cleaned regularly to keep the windows bright as long as possible.

- **Wash the windows by hand or pressure washer.**

  NOTE: Do not use special nozzles, such as turbo nozzles, when washing. Follow the instructions of the pressure washer manufacturer.

  Do not point the pressure washer towards the side seals or lead-through seals. The possible detergent may reach the glass parts which are not coated.

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- **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.**

4.3.2 Greasing lubricating points fitted with grease nipples

1. **Always clean the grease nipples before applying the grease gun.**
2. **Apply grease through the nipples until clean grease oozes out (unless otherwise instructed).**

   NOTE: Preferably carry out lubrication with bearing points and joints unloaded and with the bearings in different positions.

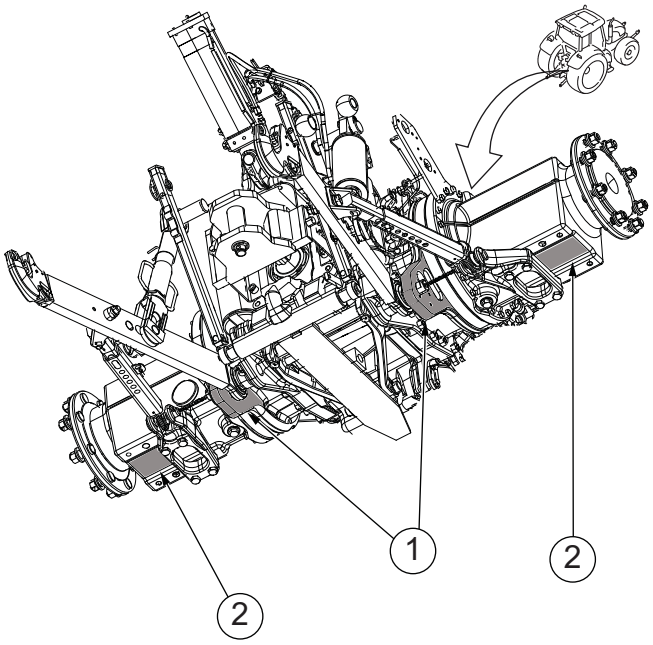
3. **Wipe away superfluous grease which has been pressed out at the lubricating point.**

4.3.3 Supporting the tractor

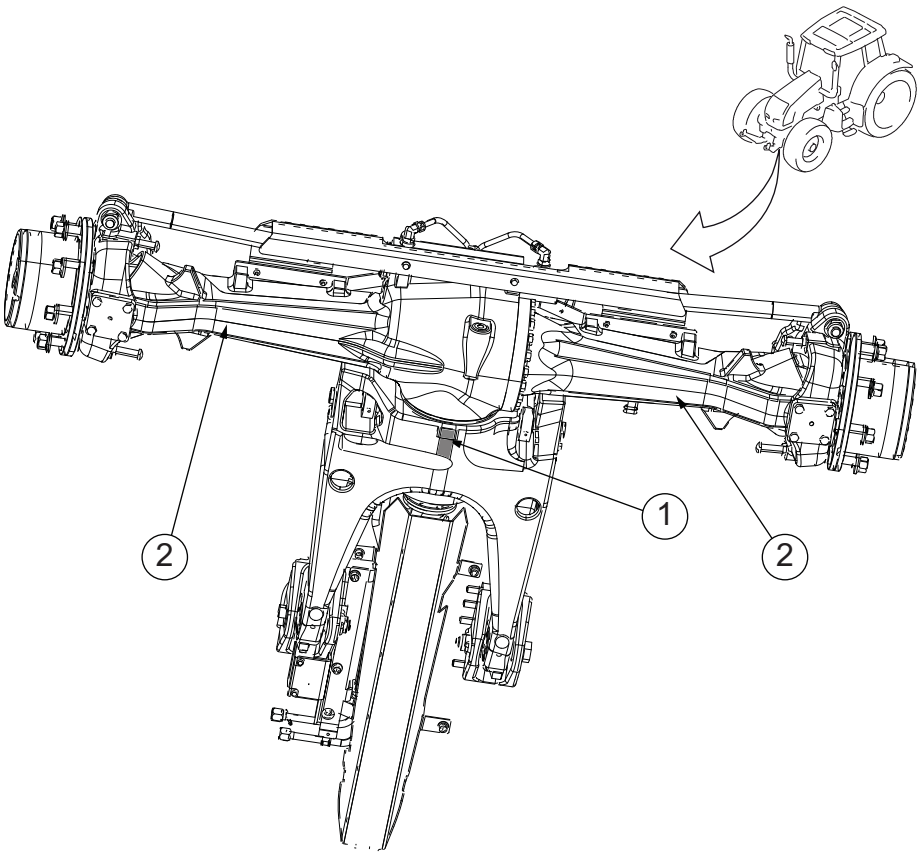
Follow these instructions when supporting the tractor.

- **The tractor must be supported on suitable blocks or stands.**

- **The tractor must be supported from the correct support points on the frame.**



1. Main support point
2. Secondary support point.



1. Main support point
2. Secondary support point.

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4.4 Recommended fuel and lubricants

4.4.1 Fuel

Make sure the correct fuel is used.

The properties of light fuel oil that is only intended for heating do not meet the requirements of modern diesel engines, and cannot be used as fuel.

The high pressure pump of the Common Rail system requires the fuel to have sufficient lubricity, because it does not have separate oil lubrication. Adding oil to diesel fuel is forbidden, because it causes carbon build-ups, and if oil is mixed with even a small amount of water it clogs the filter.

Additionally, various fuel quality requirements imposed by taxation and seasonal changes have to be taken into consideration.

4.4.1.1 Quality requirements for engine fuel

The fuel must conform to the EN 590 standard.

Property	Requirement	Test standard
Specific weight +15°C	0.82-0.84 kg/litre	EN ISO 3675:1998 EN ISO 12185
Viscosity +40°C	2.0-4.5 mm^2/s	EN ISO 3104
Sulphur content	max. 350 mg/kg	EN ISO 14596:1998
Cetane number 4737	min. 51	EN ISO 5165:1998
Water content	max. 200 mg/kg	EN ISO 12937:1996
Lubricity/HFRR	max. 460 µm	ISO 12156-1

IMPORTANT: To mix fuel with any admixing material is not allowed.

4.4.1.2 Storing fuel

Fuel has to be stored in a dry and clean environment.

- **Arrange the conditions of storing and distributing fuel so that no water or impurities can enter the storage tanks.**

  The storage tanks must be installed in a slanted position, so that water and impurities are collected at the opposite end of the pump suction pipe. The pump suction pipe must not reach the bottom of the tank.

- **Drain the water periodically from the tank to prevent problems.**

  CAUTION: Do not refuel the tractor at the same time as the storage tank is being refilled.

- **Fill the tank with winter-quality fuel before the cold season.**

4.4.1.3 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.**

  NOTE: The freezing temperature of the AdBlue/DEF is -11 °C.
- **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 only possible alternative fuel to use is rapeseed methyl ester (RME) biodiesel according to the European norm EN 14214, or the US norm ASTM D6751.

When using biodiesel the engine capacity is almost the same as when using diesel fuel.

IMPORTANT: In common rail fuel injection systems a maximum of 20% dilution of the biodiesel (B20) is allowed.

4.4.2 Grease

Use proper grease for the lubrication points.

NOTE: Always use proper grease. Each lubrication point requires its own type of grease.

NOTE: Avoid repeated skin contact with the grease.

NOTE: Protect nature and take care of empty packages.

4.4.2.1 Universal Grease - NLGI2 universal grease

Use Universal Grease for greasing for example wheel bearings, chassis water pumps, caterpillar rollers.

Universal Grease:

- is a lithium-based universal grease
- is suitable for greasing all heavy machines
- stands a temperature range of -25°C...+130°C

The grease is adhesive, protects against corrosion and resists water and varying temperatures.

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4.4.2.2 Calsium LF - NLGI2 calsium grease LF

Use the Calsium LF grease for greasing points exposed to water. Calsium LF is a long-fibre, high-quality, calcium-based universal grease for vehicle use.

Calsium LF:

- is suitable for greasing all heavy machines
- is a long fibre grease
- is red-coloured
- stands a temperature range of -25°C...+80°C

The Calsium LF grease is intended to be used for chassis, water pumps, pins and especially for greasing points exposed to water. The grease is adhesive, protects against corrosion and resists water and varying temperatures.

4.4.2.3 Grease Moly - NLGI2 moly grease

Use Grease Moly for wheel bearings, chassis water pumps, caterpillar rollers et cetera. Grease Moly is a high-quality, lithium-based universal grease for vehicle use.

Grease Moly:

- is a lithium-based universal grease
- is suitable for greasing all heavy machines
- stands a temperature range of -25°C...+130°C

The grease is adhesive, protects against corrosion and resists water and varying temperatures.

Molybdenum sulphide as an additive (1-3%) improves the greasing in places exposed to shock loads.

4.5 Storing the tractor

4.5.1 Storing the tractor for a period shorter than two months

When storing the tractor for a period shorter than two months, check the following items.

- **The tractor has been regularly maintained.**
- **The tractor is clean and has been washed.**
- **The coolant contains enough anti-corrosion liquid.**
- **The fuel tank is full.**
- **The AdBlue/DEF tank is full.**
- **The battery is disconnected, cleaned and stored in a cool and dry place where the temperature is even.**
- **The air conditioning is operated for a few minutes at least once a month.**

4.5.2 Storing the tractor for a period longer than two months

When storing the tractor for a period longer than two months, perform the following maintenance.

- **Clean, wash and lubricate the tractor.**
- **Make sure that the coolant contains enough anti-corrosion liquid.**
- **Clean the air cleaner.**
- **Lower the hydraulic lift to its lower position.**
- **Service the fuel tank.**
  - **Empty the tank from fuel.**
  - **Clean the tank.**
  - **Fill the fuel tank with fuel.**
  - **Change the prefilter in the fuel system.**
  - **Change the fuel filter and bleed the fuel system of air.**
- **Fill the AdBlue/DEF tank.**
- **Service the engine.**
  - **Change the engine oil and oil filter.**
  - **Run the engine until it is thoroughly warm.**
- **Disconnect the battery.**

  Clean it and store it in a cool and dry place where the temperature is even. Charge the battery every second month.
- **Slacken the fan belt.**
- **Protect exposed parts against corrosion by applying anti-corrosion oil.**
- **Cover the air induction pipe to the air cleaner and the exhaust pipe.**

  Use a plastic bag or similar.
- **Operate the air conditioning for a few minutes at least once a month.**

4.6 Running the tractor in after storage

4.6.1 Running the tractor in after a storing period shorter than two months

After a storing period shorter than two months you must run the tractor in.

- **Check the electrolyte level in the battery and that the battery is fully charged.**
- **Fit the battery into place.**
- **Check the oil level in the engine and transmission.**
- **Check the coolant level in the radiator.**
- **Carry out the general lubrication.**
- **Bleed the fuel system, if required.**

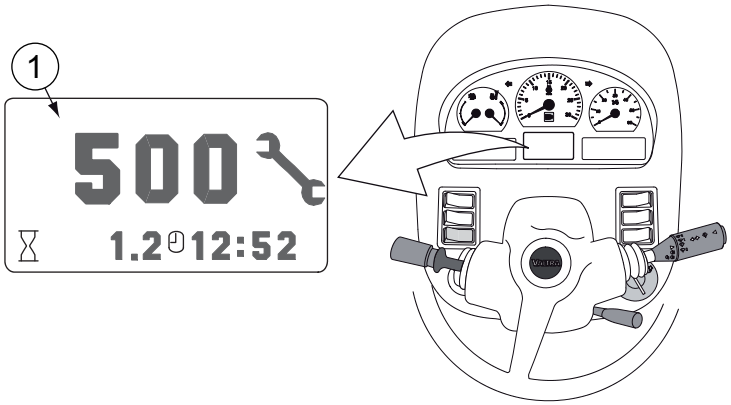
- Check the pressure of the tyres.
- Start the engine without racing it.
- Test-run the tractor.

4.6.2 Running the tractor in after a storing period longer than two months

You must run the tractor in after a storing period longer than two months.

- Check the tyre pressures.
- Remove the protective covers.
- Turn the radiator fan carefully forwards and backwards, so that the sealing ring of the coolant pump works loose (it may be stuck to the shaft).
- Wash off any anti-corrosion oil applied to the exterior of the tractor.
- Tighten the belts.
- Check the oil level in the engine and transmission.
- Check the coolant level in the radiator.
- Check the electrolyte level in the battery.
- 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).
- Start the engine without racing it.
- Test-run the tractor.

4.7 Periodical maintenance



1. Periodical maintenance view

The periodical maintenance view shows when you must perform the tractor service.

NOTE: When the periodical maintenance view is shown on the display, the service work has to be carried out before the view is cleared.

NOTE: Clean the tractor before maintenance.

4.7.1 Periodical maintenance chart

You must follow the service intervals in the periodical maintenance chart.

IMPORTANT: When carrying out service you must follow the service intervals, that is, you must also perform all previously required actions mentioned in the periodical maintenance chart. For example, when doing 2000 hours service you must also do the service required at 1000 hours, 500 hours, weekly and daily.

NOTE: The service intervals shown apply for normal operating conditions but in more severe conditions servicing should be carried out more frequently.

IMPORTANT: When using Biodiesel fuel or working in harsh conditions there might be exceptions in the periodical maintenance.

- The column 10 h shows the tasks that must be carried out daily or every 10 hours.
- The column 50 h shows the tasks that must be carried out weekly or every 50 hours.
- The column 500 h shows the tasks that must be carried out every 500 hours.
- The column 1000 h shows the tasks that must be carried out yearly or every 1000 hours.
- The column 2000 h shows the tasks that must be carried out every other year or every 2000 hours.

Maintenance check point	10 h	50 h	500 h	1000 h	2000 h
Check the engine oil level.	•	•	•	•	•
Check the oil level in the transmission system.	•	•	•	•	•
Check the coolant level.	•	•	•	•	•
Check and clean the radiator fins and engine cover grilles.	•	•	•	•	•
Check for oil and fuel leaks, and hydraulic lines.	•	•	•	•	•
Check the AdBlue tank level	•	•	•	•	•
Grease the three-point linkage.		•	•	•	•
Check and grease the pick-up hitch.		•	•	•	•
Check and grease the front linkage.		•	•	•	•
Check the front power take-off.		•	•	•	•
Grease the brake mechanism.		•	•	•	•
Grease front axle mounting bearings.		•	•	•	•
Grease flexible front mudguards.		•	•	•	•
Table continued on next page					

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Maintenance check point	10 h	50 h	500 h	1000 h	2000 h
Check the belts' tightness.		●	●	●	●
Check the fuel system prefilter and sediment bowl.		●	●	●	●
Check the electrolyte level in the battery.		●	●	●	●
Check the tyre pressure.		●	●	●	●
Check wheel nut tightness.		●	●	●	●
Check the emergency brake		●	●	●	●
Check the windscreen washer fluid		●	●	●	●
Grease door hinges.			●	●	●
Change the engine oil and filter.			● [1)]	●	●
Check the engine breathing system			●	●	●
Clean the cab air filter.			●	●	●
Check the brake pedal free travel.			●	●	●
Check the parking brake.			●	●	●
Change the oil filters of the transmission and hydraulics.			●	●	●
Check the oil level in the front axle differential and hubs.			●	●	●
Change the front power take-off oil and wash the oil filter.			●	●	●
Check the front power take-off rubber couplings.			●	●	●
Grease the rubber surfaces of the trailer quick couplings.			●	●	●
Check the integrity of the air pressure system.			●	●	●
Adjust the engine valves.			● [2)]		
Change the oil in the front axle differential and hubs.				●	●
Change the cab air filter.				●	●
Change the recirculation air filter.				●	●
Change the fuel filter and prefilter.				● [3)]	●
Change the engine air filters.				●	●
Change the selective catalytic reduction system supply module main filter				●	●
Grease the flywheel ring gear.				●	●
Check the front wheel toe-in.				●	●
Check the power shuttle operation.				●	●
Tighten the frame nuts and bolts.				● [4)]	●
Change the oil in the transmission and clean the suction strainer.					●
Change the transmission breather.					●
Change the oil in the brake circuits.					●
Change the oil in the front axle brake system.					●
Clean the cooling system.					●
Change the cap of the coolant expansion tank.					●
Check the cab mounting.					●
Maintain the air conditioning.					●

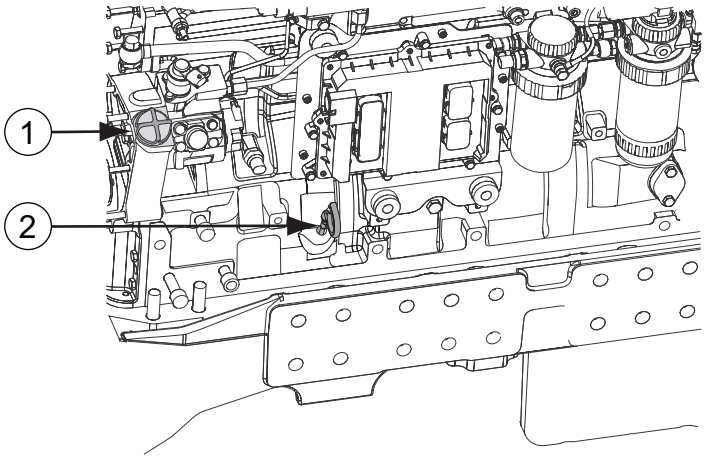
1) In extremely dusty conditions or when using over 5% Biodiesel fuel, change the oil and filters every 250 hours.
2) After the first adjustment, adjust the valves every 1 000 hours.
3) When using over 5% Biodiesel, change the fuel filter and prefilter every 500 hours.
4) If the tractor is fitted with a front loader, tighten the frame nuts and bolts every 500 hours.

4.7.2 Daily maintenance

4.7.2.1 Checking the engine oil level

Check the engine oil level regularly.

The engine oil level must be checked when the oil has cooled off and has had time to run down to the bottom of the oil sump.



1. Oil filler cap
2. Dipstick

1. **Stop the engine and let it stand for a few minutes.**
2. **Pull out the dipstick.**

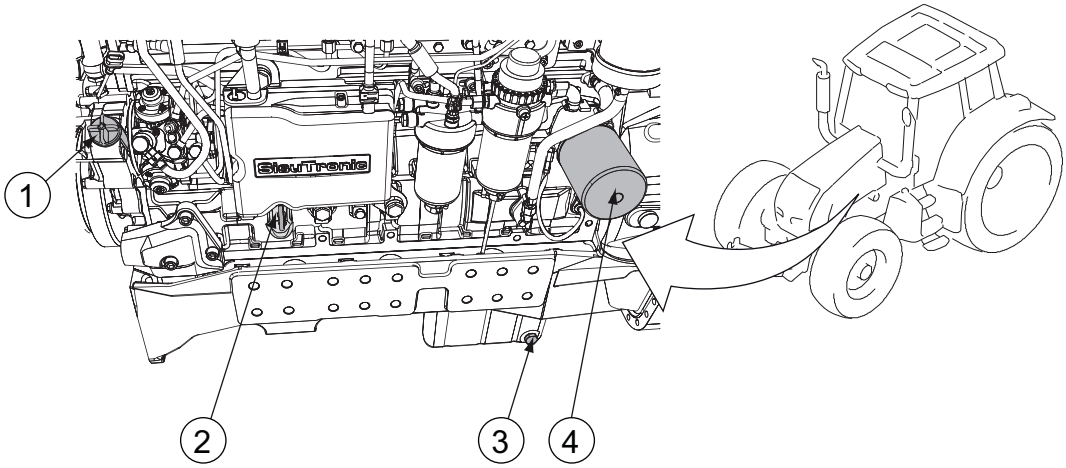
   The oil level must be between the maximum and minimum marks on the dipstick.
3. **Add oil through the oil filler cap, if necessary.**
4. **Inspect the oil sump and engine for leakage.**

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4.7.2.2 Checking the oil level in the transmission system

Check the oil level in the transmission system periodically.

Steering and transmission share the same oil system.



1. Filler hole
2. Dipstick
3. Drain plug
4. Oil filter

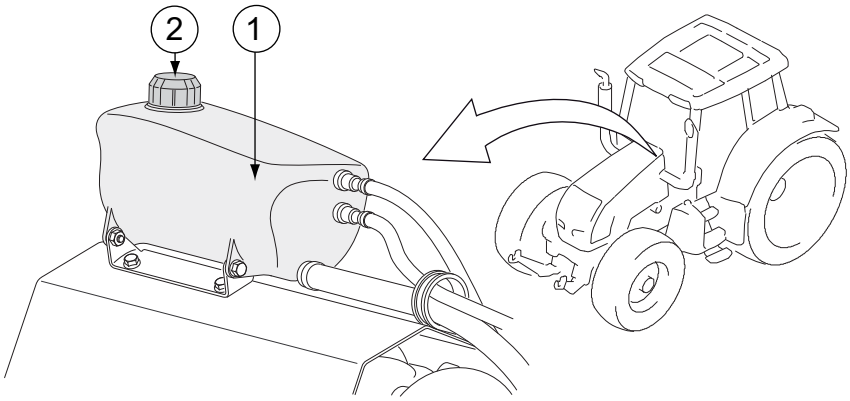
1. **Stop the engine and let it stand for a few minutes.**
2. **Pull out the dipstick.**

   The oil level must be between the minimum and maximum lines on the dipstick.
3. **Add oil if necessary.**

4.7.2.3 Checking the coolant level

Check the coolant level regularly.

NOTE: Drain the cooling system completely every second year and refill it with new coolant.



1. Expansion tank
2. Cold fluid level sign

1. **Stop the engine and let it stand for a few minutes.**

   The checking must be made when the fluid is cold. A hot fluid level is higher than a cold.

2. **Check that the fluid level in the expansion tank is in accordance with the fluid level sign for cold fluid.**

3. **Add more coolant to the tank, if necessary.**

   IMPORTANT: Never use just water as coolant.
   - **Check the freezing point of the coolant.**

     At the beginning of the cold season it is important to measure the freezing point.
   - **If the freezing point is too high, drain off some of the coolant and top up with anti-freeze.**
   - **Run the engine for a while.**

     The anti-freeze must be mixed with the coolant.
   - **Re-check the freezing point of the coolant.**

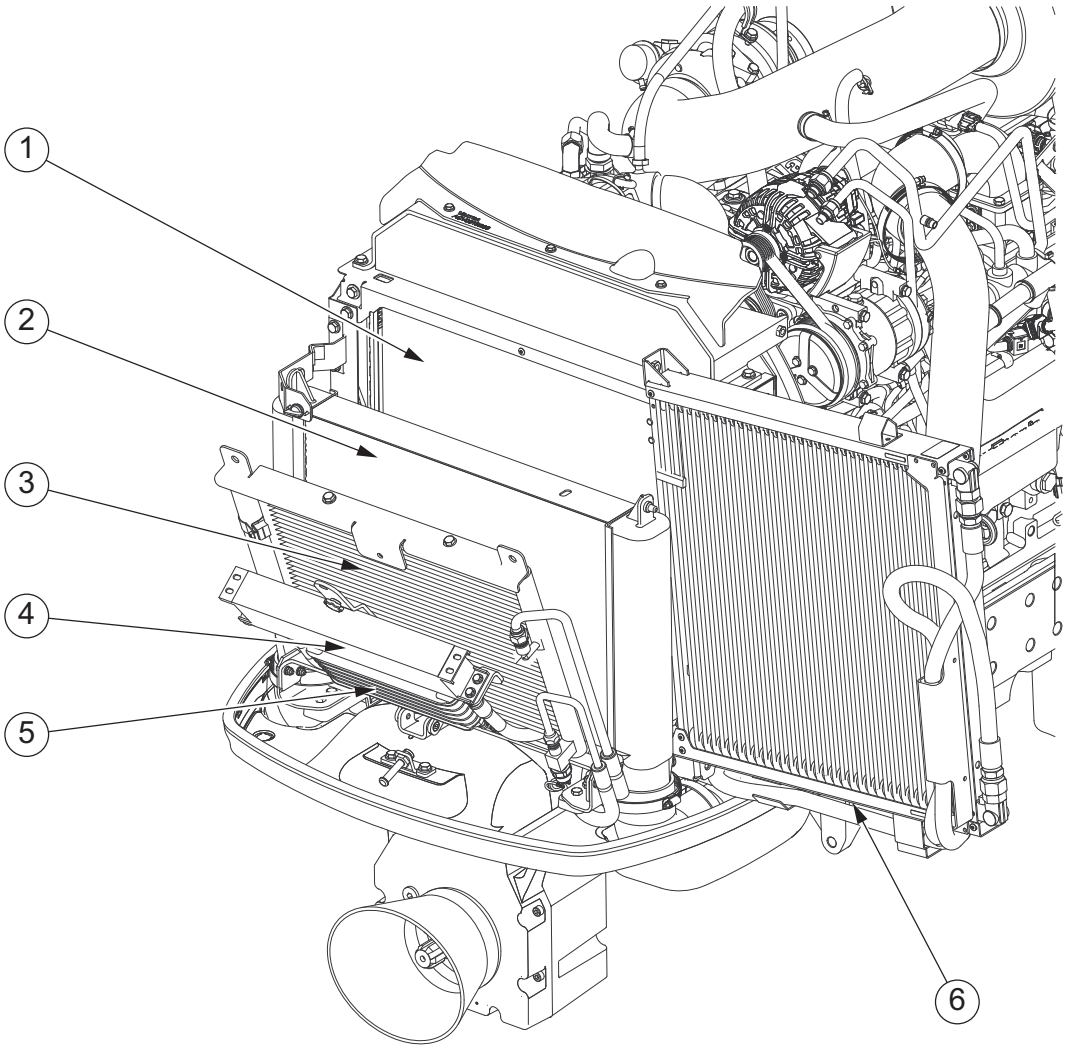
4. **Inspect the expansion tank for leakage.**

   IMPORTANT: There is a drain hole under the water pump that must not be blocked. If coolant drips out of the hole, the pump seal is damaged and must be replaced. In a new engine some leakage is possible until the pump settles in.

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4.7.2.4 Cleaning radiators

Clean all the radiator honeycombs regularly.



1. Engine coolant radiator
2. Engine intake air cooler
3. Air conditioning cooler (extra equipment)
4. Front power take-off (PTO) oil cooler (extra equipment)
5. Fuel cooler
6. Transmission oil cooler, in cleaning position

1. **Open the engine cover.**

   The air conditioning cooler turns forward to make the cleaning easier. Turn the transmission oil cooler sideways by opening the locking device.

2. **Clean the radiators using compressed air or flush them with water.**

   When cleaning, use the air pressure, a water hose (not a pressure washer) or a soft brush. Be careful not to damage the cores.

3. **Direct the spray against the air streaming direction.**

4. **Turn and lock all dislocated radiators back to their original position.**

5. **Close the engine cover.**

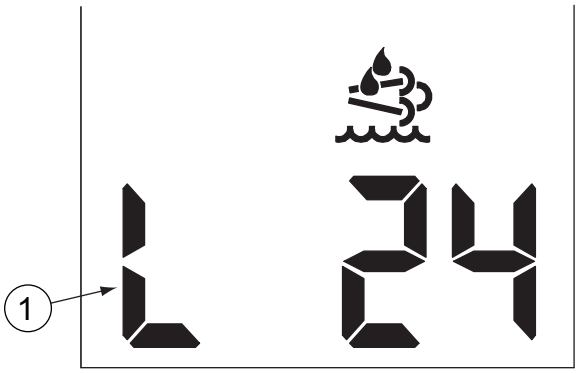
4.7.2.5 Checking the AdBlue/DEF tank level

NOTE: When the AdBlue level decreases to 5% or less, the torque and maximum rotation speed of the engine is slowly decreased.

NOTE: When the AdBlue level decreases to approximately 0%, the torque and maximum rotation speed of the engine is slowly decreased. Finally, after approximately one 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 a too low AdBlue level may even lead to service codes. This may happen especially in high temperature environments.

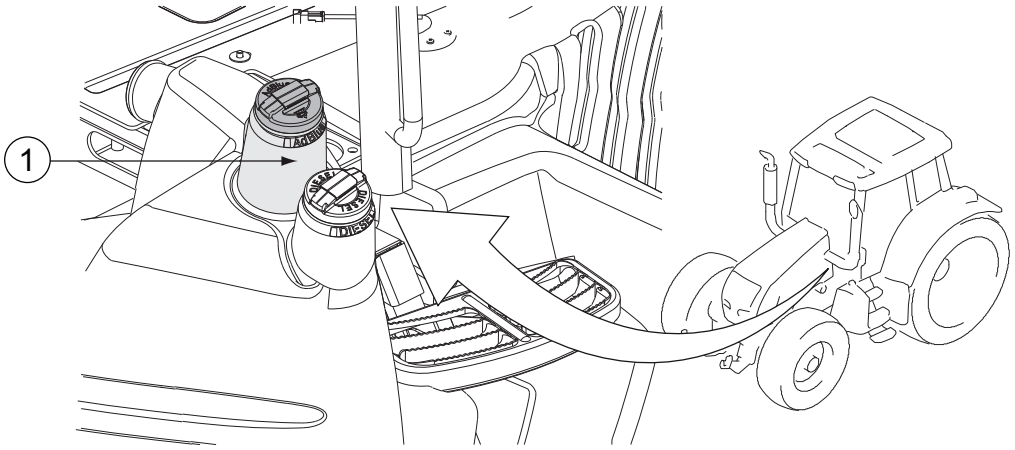
1. **Check the AdBlue/DEF level regularly.**



1. Low AdBlue level indicator

Check the AdBlue tank level regularly. The AdBlue level (in percents) is shown on the A-pillar display.

2. **Fill the tank whenever it is possible, even if the tank is almost full.**



1. AdBlue/DEF tank cap

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4.7.3 Weekly maintenance

4.7.3.1 Greasing the three-point linkage

Grease the three-point linkage regularly.

NOTE: Use Universal Grease for greasing.

1. **Grease the levelling screws.**

   There are two grease nipples.

2. **Grease the top link.**

   There are two grease nipples.

3. **Grease the lifting cylinder lower pins.**

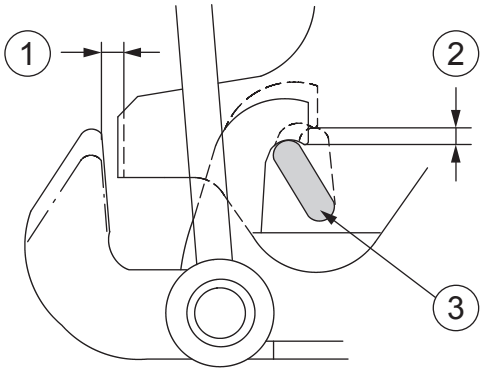
   There are two grease nipples.

4. **Grease the lifting cylinder upper pins.**

   There are two grease nipples.

4.7.3.2 Checking the pick-up hitch

Check the pick-up hitch periodically.



1. Distance between the pick-up hitch and mating surface
2. Pick-up hitch movement
3. Locking latch

- **Make sure that the locking latch moves to both extreme positions.**

  When the locking latch is turned upwards the pick-up hitch must move up 6-8 mm.

- **Check the wear of the pick-up hitch.**

  The distance between the pick-up hitch and mating surface must be under 10 mm.

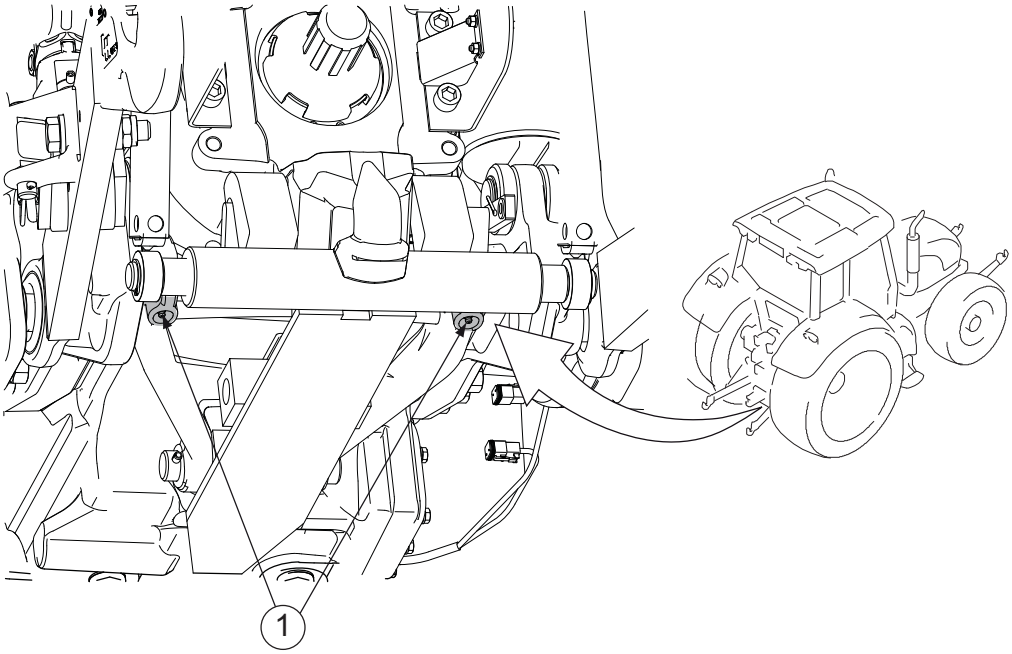
  WARNING: When the pick-up hitch has worn down to 44 mm at the thinnest part, it has to be replaced.

4.7.3.3 Greasing the pick-up hitch

Grease the pick-up hitch periodically.

NOTE: Use Universal Grease for greasing.

- **Apply grease to the grease nipples.**

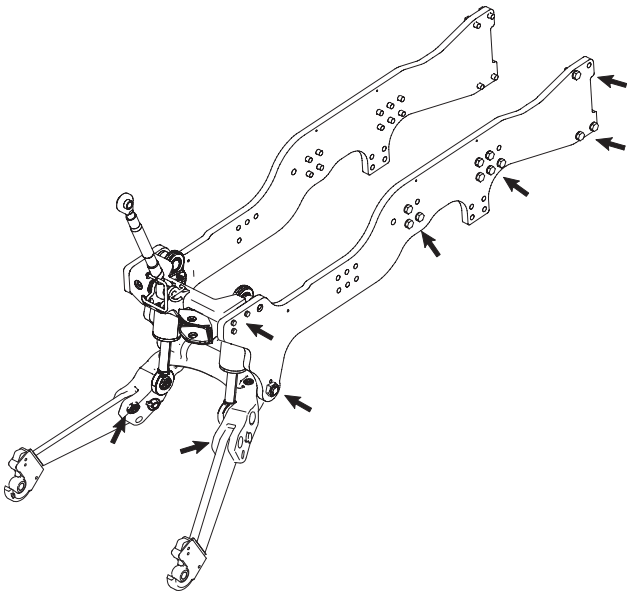


1. Grease nipple

4.7.3.4 Maintaining the front linkage

Check the front linkage periodically.

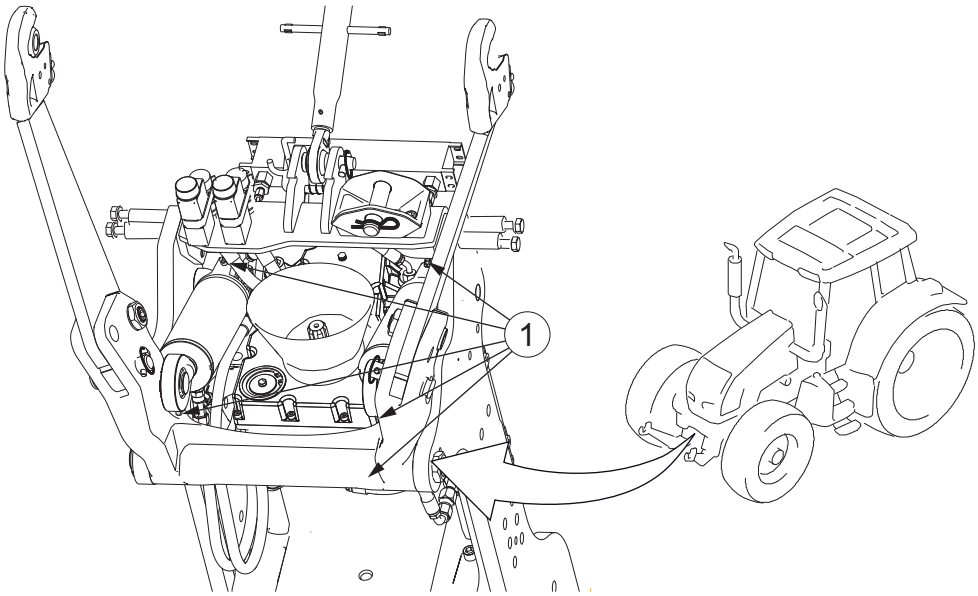
- **Check regularly that all screws and nuts are tight.**



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- **Tighten all screws and nuts of the front linkage after the first 15-25 running hours.**
- **Check that the hydraulic connections have no leaks.**
- **Grease the lifting cylinder pins and the lifting links shaft with Universal Grease every 50 hours.**

  The grease nipple for the lifting links shaft is located on the rear side of the axle.



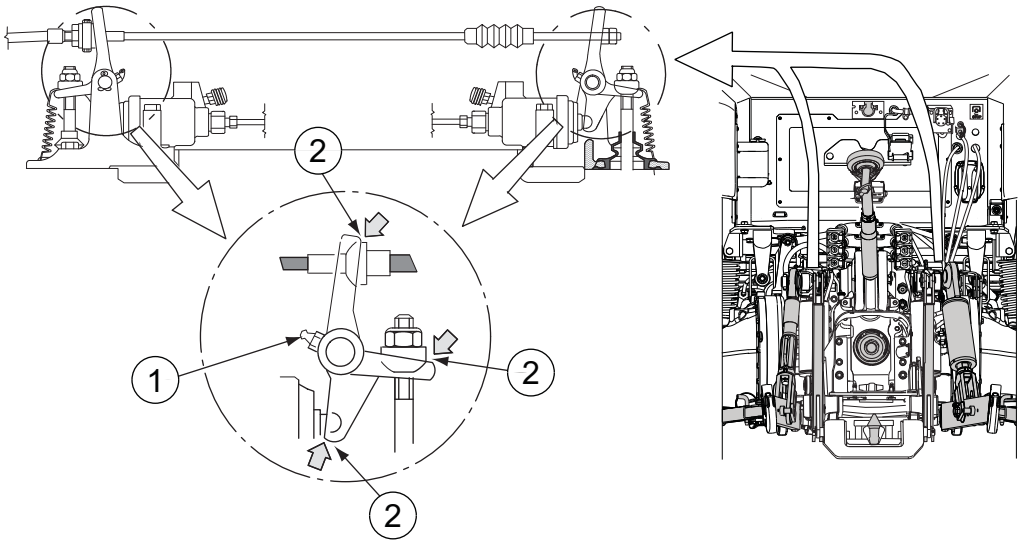
1. Grease nipples

4.7.3.5 Checking the front power take-off

- **Tighten all fixing screws after the first 15-25 running hours.**
- **Check regularly that all fixing screws are tight.**
- **Check that the hydraulic connections have no leaks.**

4.7.3.6 Greasing the brake cam

Use Calsium LF grease when greasing the brake cam.



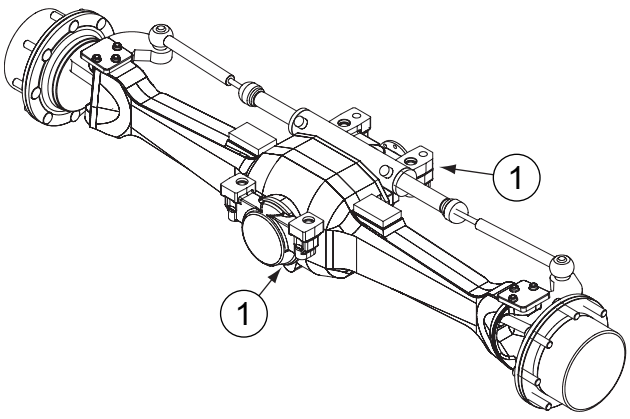
1. Grease nipple
2. Sliding surfaces

1. **Grease the nipples on both sides of the brake cam.**
2. **Grease the sliding surface on the brake mechanism.**

4.7.3.7 Greasing front axle mounting bearings

You must grease the front axle mounting bearings regularly.

Use Universal Grease when greasing.



1. Greasing nipples

1. **Lift the front end of the tractor a little.**

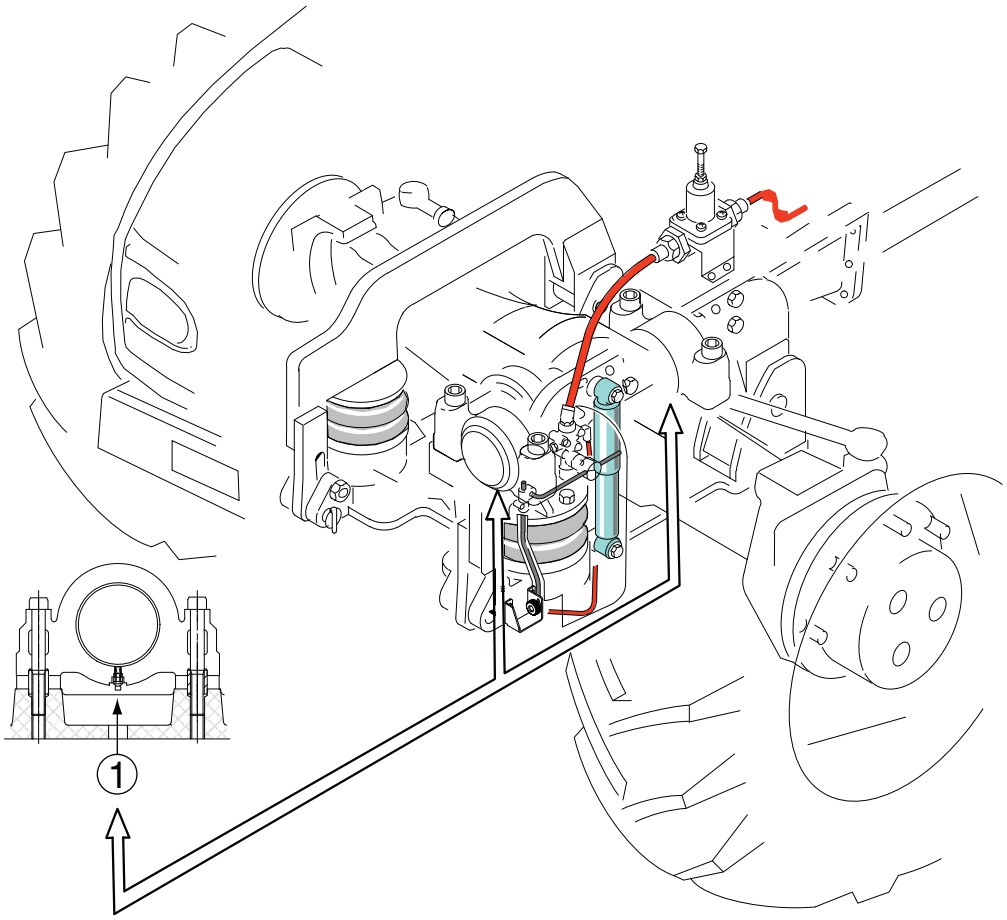
   Do not lift from front axle or front weight bracket
2. **Grease the nipples on both bearings.**

   Tilt the axle to make sure that grease goes equally into the bearings.

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4.7.3.8 Greasing air-suspended front axle mounting bearings

Grease the air-suspended front axle mounting bearings regularly.



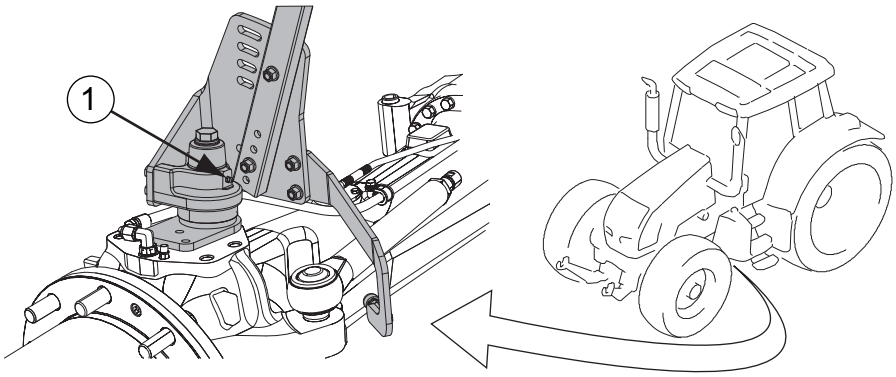
1. Front axle bearing grease nipples

1. **Frequently check that all screws and nuts are tight.**
2. **Grease the nipples of the front axle mounting with Universal Grease .**

   If the front axle is equipped with a transfer set of nipples (extra equipment), the nipples are on the left side of the tractor.

4.7.3.9 Greasing flexible front mudguards

Grease the turning mechanism regularly with Calsium LF grease.



1. Turning mechanism

1. **To aid the maintenance, turn the mudguards from the rear edge by pulling them sidewards.**
2. **Grease the turning mechanism regularly with Calsium LF grease.**

4.7.3.10 Checking belts' tension

Check the belts' tension regularly.

NOTE: Always keep a spare fan belt handy.

1. **Check the overall condition of the belts.**

   A slack, worn and/or oily belt can cause problems with battery charging and the cooling system.

2. **Check the belt tension.**

   The fan/generator belt has an automatic belt tensioner.

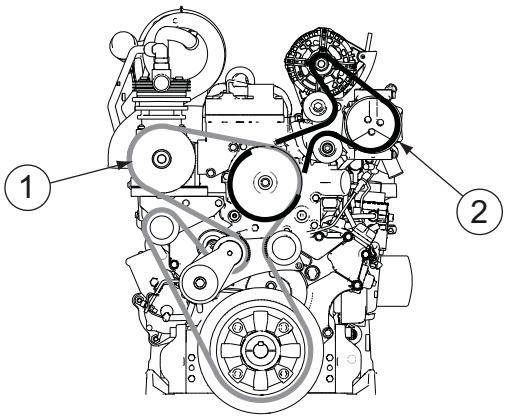
   Turn the belt from its longest free-running part with your fingers. The belt should turn about 90 degrees but not more.

3. **Adjust or change the belt, if needed.**

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4.7.3.11 Changing the fan and air pressure compressor belt

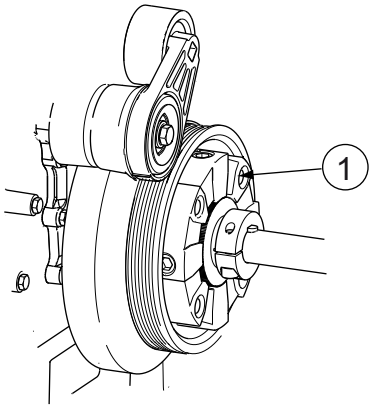
Change the belt if needed.



1. Fan and air pressure compressor belt
2. Alternator and air conditioning compressor (extra equipment) belt

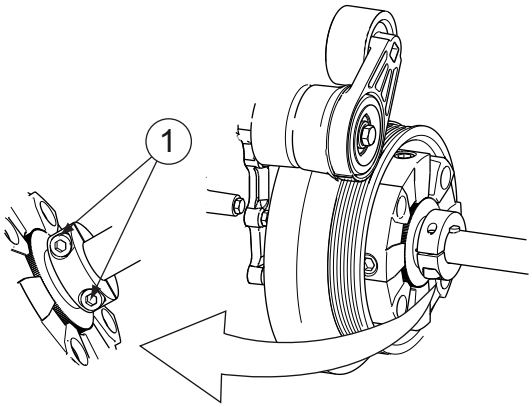
1. Remove the old belt by cutting.

2. Remove the front power take-off (PTO) clutch screws.



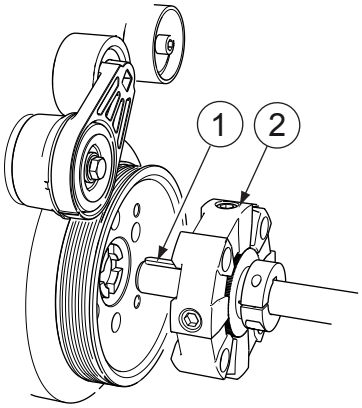
1. Front PTO clutch screw

3. **Loosen the front PTO clutch hub screws.**



1. Front PTO rubber clutch hub screw

4. **Move the front PTO clutch forward a bit.**

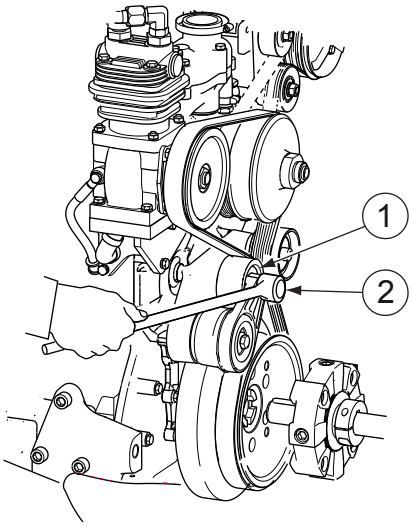


1. Key
2. Front PTO clutch

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5. **Fit the new fan and air pressure compressor belt.**

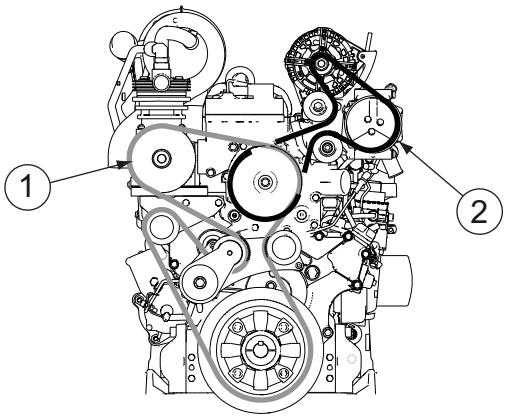
   Loosen the automatic belt tensioner by using a 1/2" wrench.



1. Automatic belt tensioner
2. 1/2" wrench

6. **Push the front PTO clutch back in position.**
7. **Tighten the front PTO clutch hub screws.**
8. **Fit the front PTO clutch screws.**

4.7.3.12 Changing the alternator and air conditioning compressor belt



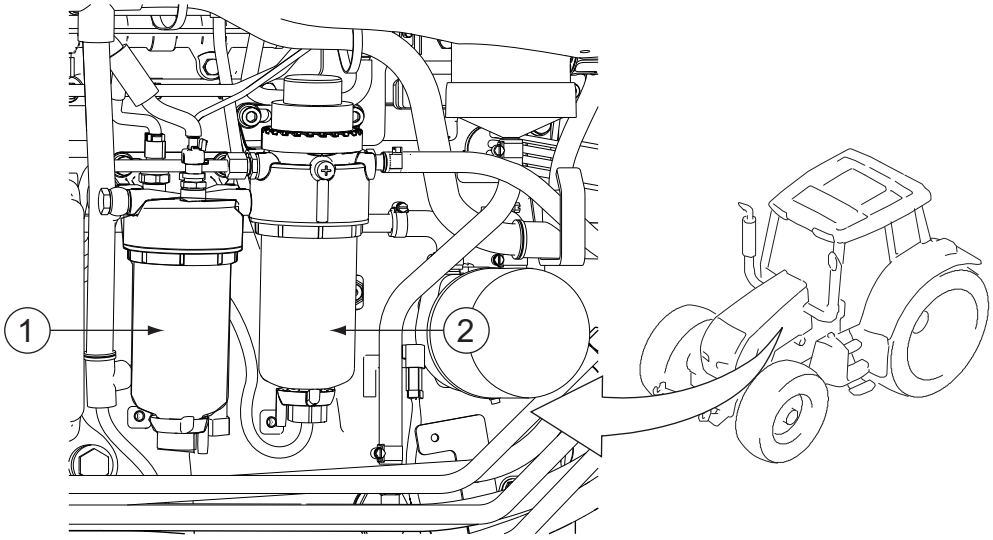
1. Fan and air pressure compressor belt
2. Alternator and air conditioning compressor (extra equipment) belt

Changing the alternator and air conditioning compressor belt requires special tools. Contact an authorised Valtra workshop in case this belt needs to be changed.

4.7.3.13 Checking the fuel system prefilter and sediment bowl

Check the fuel system prefilter and sediment bowl regularly.

IMPORTANT: Water in the injection system destroys the system in a very short time. Always service the water trap and filters according to the specified amount of running hours.



1. Tap at the bottom of the main fuel filter
2. Tap at the bottom of the prefilter

1. **Check the cleanliness of the sediment bowl.**

   If there are impurities or water in the sediment bowl, empty the prefilter.

2. **Open the tap at the bottom of the prefilter to empty it.**

3. **Drain the fuel from the prefilter into a container.**

   If there is water in the prefilter, also empty the main fuel filter by opening the tap below it.

   IMPORTANT: Water in the fluid can damage the pump and the nozzles.

   IMPORTANT: Do not drain fuel on the ground!

4. **Close the tap when the filter is empty.**

   Both the main fuel filter and prefilter are emptied in the same way.

5. **If there was water in the filters, clean the fuel tank.**

6. **Bleed the fuel system, if needed.**

   The fuel system must always be bled when the main fuel filter is emptied.

   NOTE: Drain the water traps more often, if required.

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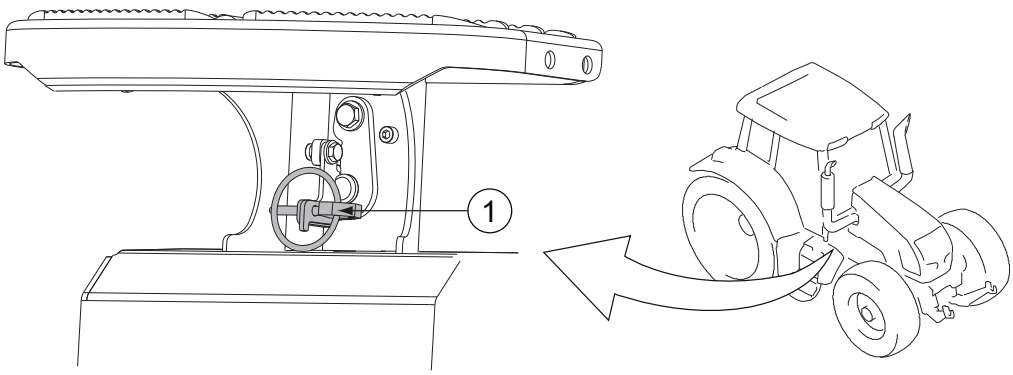
4.7.3.14 Checking the electrolyte level in the battery

Check the electrolyte level in the battery regularly.

WARNING: Be careful with the battery solution.It is corrosive.

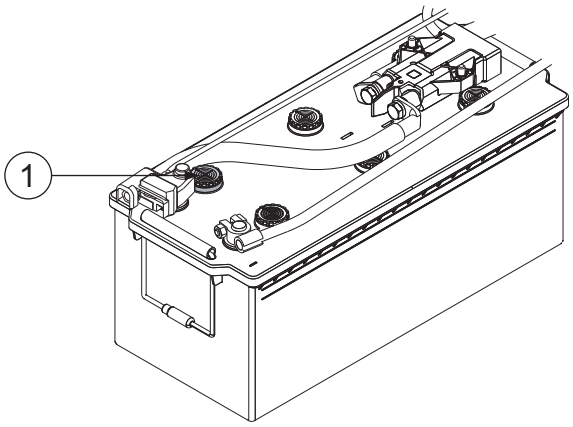
As default the battery is placed under the steps.

1. **Open the lock for the battery casing.**



1. Lock for the battery casing

2. **Turn the battery casing to the open position.**
3. **Pull the battery out.**
4. **Open the plugs.**



1. Plug

5. **Check that the battery electrolyte level is in accordance with the level marked on the battery.**

   If the battery has no mark, check that the electrolyte level is approximately 15 mm above the cell plates in the battery.

6. **Top up with distilled water, if required.**

   IMPORTANT: During the cold season it is important that the engine is allowed to run for a while after topping up with distilled water, otherwise the water may freeze before it has had time to mix with the battery acid.

   WARNING: Under no circumstances should you attempt to replenish the battery acid yourself.

   WARNING: Never use a naked flame to check the level of the electrolyte.

7. **Check the cables and battery terminals and clean them if necessary.**

   NOTE: If the water in the battery evaporates too quickly, it may be a sign that the charging voltage is too high. Keep the battery clean and dry on the outside. Protect the pole studs and the cable terminals with grease.

8. **Push the battery back into place and refit the casing.**

4.7.3.15 Checking the tyre pressure

Check the tyre pressure regularly, especially after changing the tyres.

IMPORTANT: Change tyres and wheels at a professional tyre workshop that is equipped to handle this type of work.

- **Check the pressure of the tyres with a pressure gauge.**
- **Add pressure, if needed.**

  WARNING: Avoid overinflation as excess pressure may cause the tyre to explode.

4.7.3.16 Checking wheel nuts' tightness

Check the wheel nuts' tightness periodically to avoid unnecessary risks.

- **Check the tightness of the wheel nuts.**
- **Check the tightness of the wheel disc/rim bolts.**

4.7.3.17 Checking the emergency brake

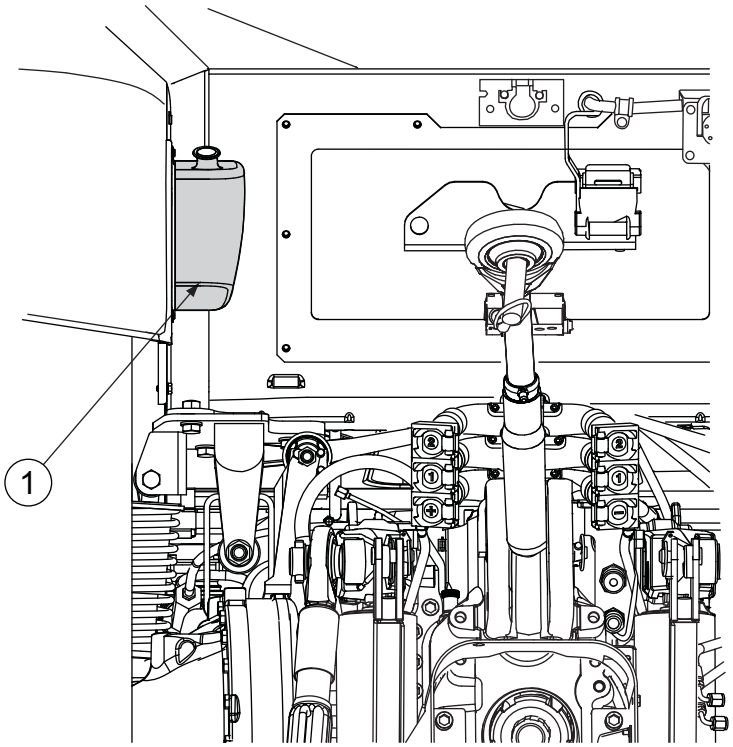
Check the emergency brake (extra equipment) weekly.

1. **Pull the emergency brake to check that it is functioning.**
2. **Adjust the emergency brake, if necessary.**

   Normally there is no need for adjusting, because the emergency brake is adjusted (also parking brake), when the drive brakes are adjusted. The adjustment is done the same way as parking brake adjustment. In this case, the tractor has two cables.

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4.7.3.18 Windscreen washer fluid reservoir



1. Washer fluid reservoir

The washer fluid reservoir for the front and rear window is common.The rear window washer is extra equipment.

NOTE: Check the amount of fluid weekly. When the temperature is under 0° C, use an anti-freeze agent in the fluid.

4.7.4 Maintenance every 500 hours

4.7.4.1 Greasing door hinges

Grease the door hinges periodically.

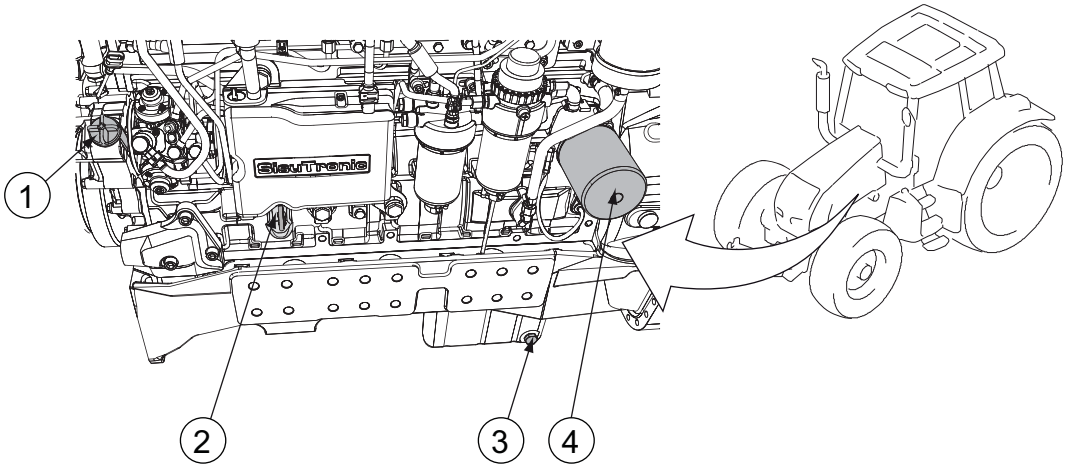
Use Universal Grease for the door hinges.

- **Apply grease in the nipples on the door hinges.**

4.7.4.2 Changing the engine oil and the oil filter

NOTE: In extremely dusty conditions or when using over 5% Biodiesel fuel, the oil and filters must be changed every 250 hours.

NOTE: If the amount of operating hours is low, the oil and filters must be changed at least once a year.



1. Filler hole
2. Dipstick
3. Drain plug
4. Oil filter

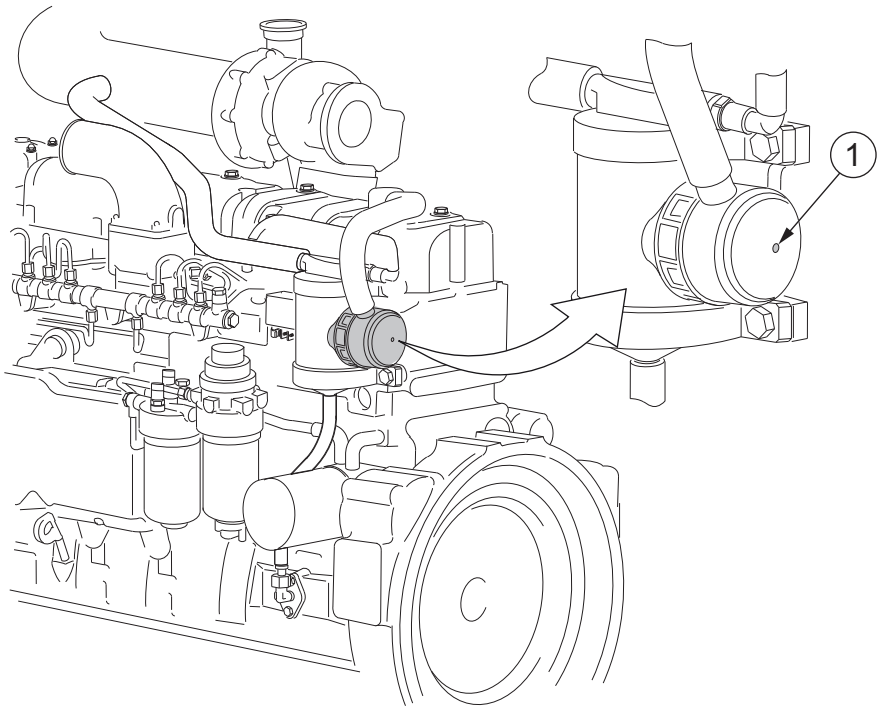
DANGER:

1. **Check that the tractor is standing on level ground.**
2. **Stop the engine and let it stand for a few minutes.**
3. **Remove the drain plug from the engine sump.**
4. **Drain the oil from the engine to a separate container.**
   If the engine is warm, the oil runs better.
5. **Clean, refit and tighten the drain plug.**
6. **Release the oil filter.**
7. **Wipe off any oil which has run out onto the chassis.**
8. **Lubricate the new gasket.**
9. **Attach the new filter.**
   Tighten the new filter by hand (not too tight).
10. **Fill the recommended oil in the filler hole.**
11. **Check the oil level from the dipstick.**
    The oil is filled until the upper mark on the dipstick is reached.
12. **Start the engine.**
13. **Run the engine and check for possible leaks.**
14. **Run the engine for a while and check the oil level.**

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4.7.4.3 Checking the engine breathing system

Check the engine breathing system periodically.



1. Ventilation hole

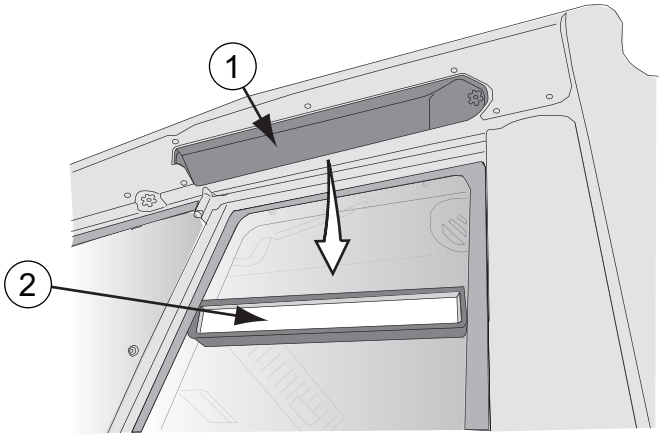
- **Check that the ventilation hole is not blocked.**

4.7.4.4 Cleaning the cab ventilation air filter

Clean the cab ventilation air filter periodically.

WARNING: The air filter element does not remove chemicals from the outside air. Follow the instructions of the pesticide manufacturer.

NOTE: Clean the cab ventilation air filter more often if needed.



1. Air filter housing
2. Ventilation air filter

1. **Remove the air filter housing from the upper left-hand corner of the cab roof.**
   - **Pull down from the handle.**
   - **Turn the handle counterclockwise.**

     The turning direction is instructed on the handle.
2. **Remove the ventilation air filter.**
3. **Check the condition of the ventilation air filter.**

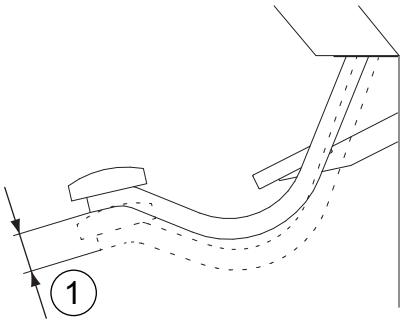
   A damaged ventilation air filter must be changed.
4. **Clean the ventilation air filter.**
   - **Knock the filter element against your palm so that most of the dirt comes off.**
   - **Use a vacuum cleaner to clean the ventilation air filter from the outside in or blow it clean with compressed air from the center outwards.**

   IMPORTANT: Make sure that the air pressure is not too high.

A larger air filter housing with active coal filter or larger air filter is available as extra equipment.

4.7.4.5 Checking the brake pedal free travel

Check the brake pedal free travel periodically.



1. Free travel of the pedal

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1. **Check the free travel of the brake pedal.**

   On model T133 H, the free travel must be 70-80 mm when the pedals are latched together.

   On models T153 H - T193 H (boosted system), the free travel must be 35-45 mm when the pedals are latched together.

   NOTE: The free travel may be larger if the tractor is equipped with trailer air pressure brakes or trailer fluid brake valve.

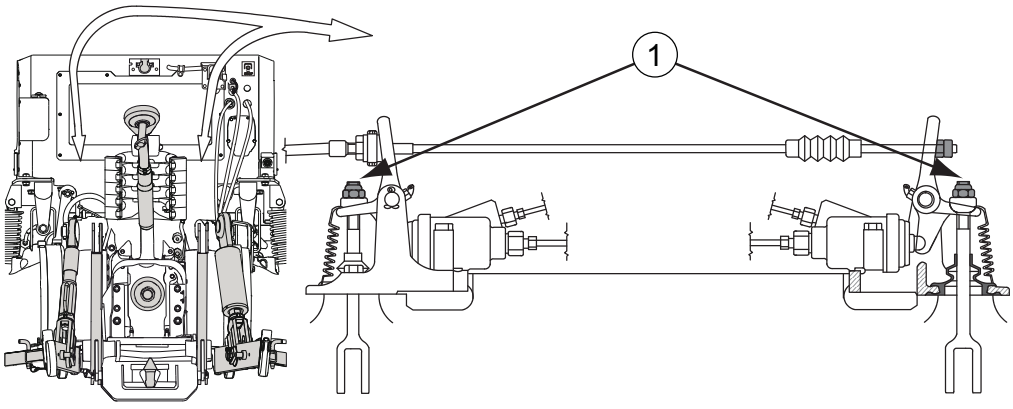
2. **Adjust the free travel if necessary.**

4.7.4.6 Adjusting brake pedals' travel

Adjust the travel of brake pedals when needed.

These instructions apply to the models T133 H - T193 H.

1. **Make sure that the tractor cannot move by itself.**
   - **Raise the rear wheels off the ground.**
   - **Start the tractor.**
   - **Engage the range gear to neutral.**
   - **Move the power shuttle lever to centre position (N).**
2. **Tighten the brake adjusting nuts.**
   - Adjust the nuts with the torque wrench to 20 Nm.
   - Adjust the nuts without the torque wrench until the wheels cannot be turned by hand.



1. Adjusting nut

3. **Slacken the nuts.**
   - If you are tightening the adjusting nuts with a torque wrench, slacken them 2.3 turns.
   - If you are tightening the adjusting nuts without a torque wrench, slacken them 1.5 turns.
4. **Check that the wheels can rotate freely.**
5. **Check the function of both brake pedals individually by driving.**

   Check that the brake action is the same on both wheels while driving with both pedals latched together.

6. **Check that the pedal free travel is the same on both wheels.**

   The pedal free travel must be ca. 35-45 mm.

7. **Check the free travel on the rear brake pedal.**

   The reverse drive control system is extra equipment.
   The pedal free travel must be ca. 60-70 mm.

4.7.4.7 Checking the parking brake

Check the parking brake periodically.

1. **Engage the parking brake.**
2. **Check that the brake is functioning.**
3. **Release the parking brake.**
4. **Check that the brakes were released.**
5. **Adjust the parking brake if necessary.**

4.7.4.8 Adjusting the parking brake

The parking brake is adjusted in the factory and readjustment is not necessary unless parts of the brake mechanism have been changed. The parking brake is affected when the driving brakes are adjusted.

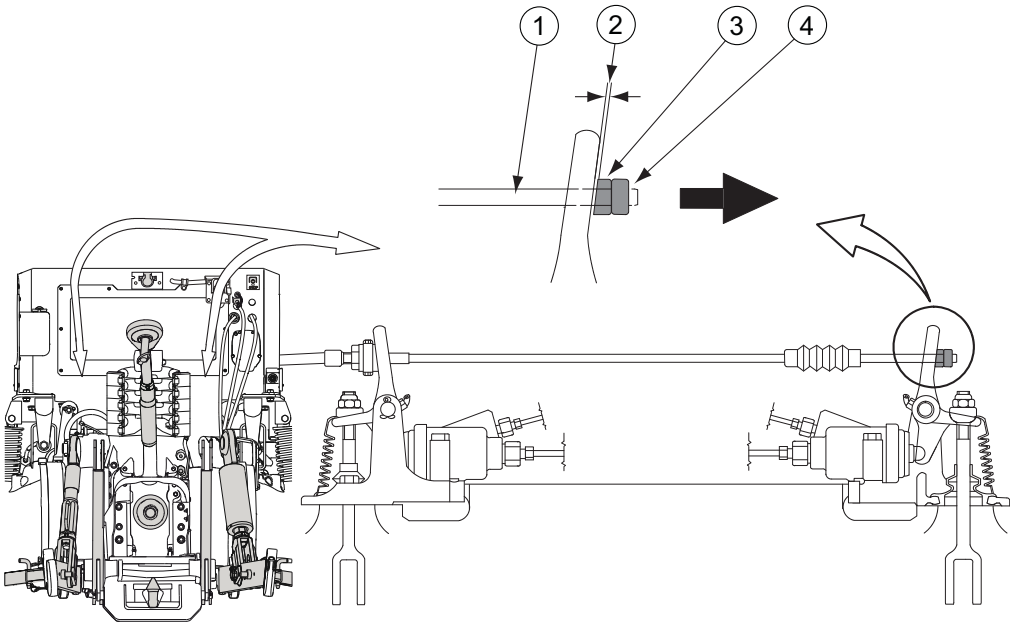
The parking brake is controlled with a spring return pressure cylinder and it is connected to the drive brake mechanism by a cable.

IMPORTANT: Always adjust the driving brakes before adjusting the parking brake.

1. **Start the tractor.**
2. **Fit blocks in front of the front wheels to prevent the tractor from moving.**
3. **Move the power shuttle lever to neutral (centre position).**

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4. **Pull the cable clearance to the end of the cable.**



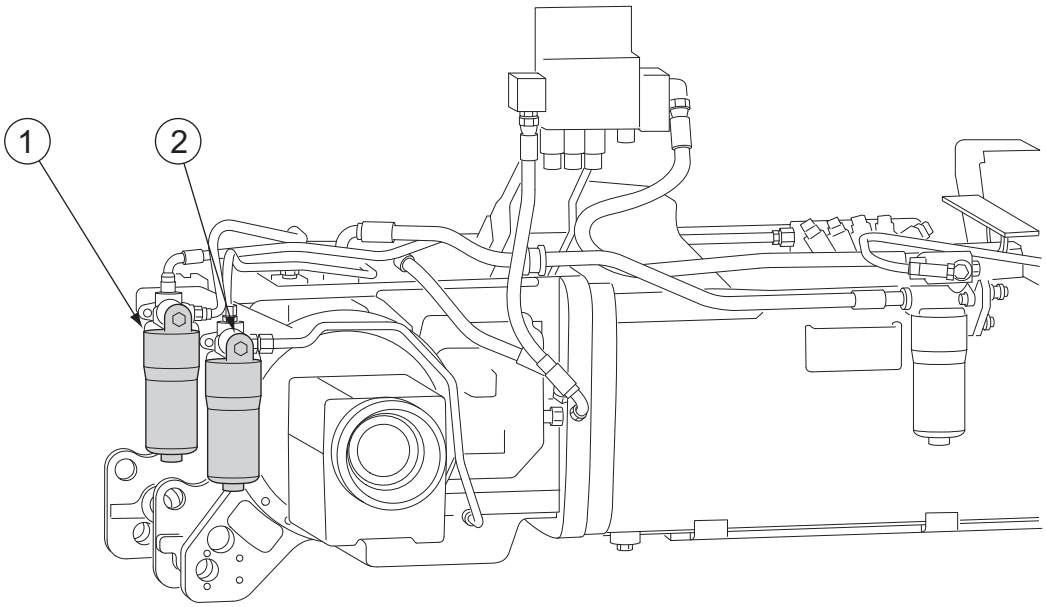
1. Cable
2. Clearance
3. Adjusting nut
4. Locking nut

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 workshop.

4.7.4.9 Changing transmission oil filters

Change the transmission oil filters regularly.



1. Low pressure filter of the transmission system
2. Transmission lubrication filter

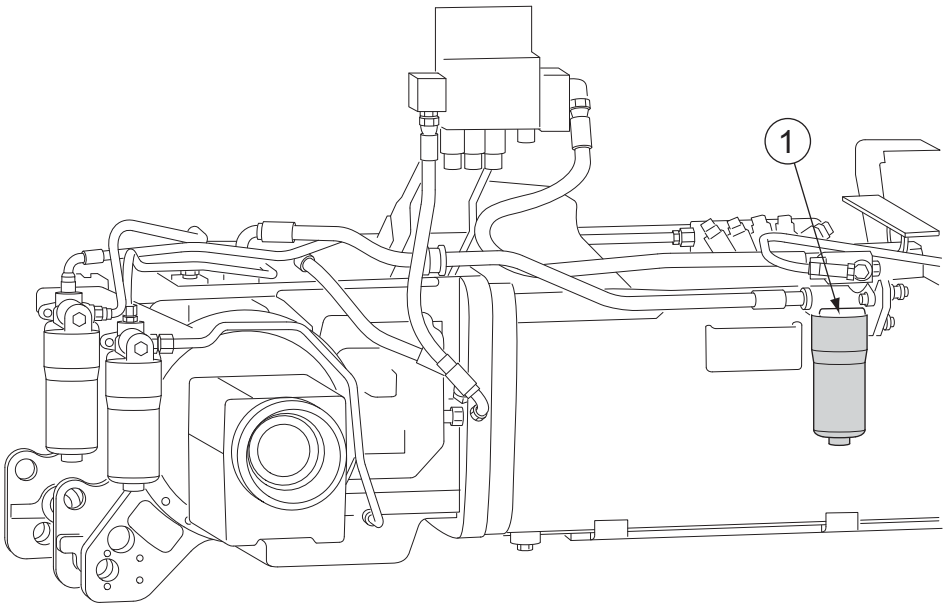
1. **Fit a suitable container under the filter.**
2. **Clean the filter housing and the surrounding area.**
3. **Remove the filter housing and the filter element.**
4. **Wash the filter housing in clean diesel fuel.**
5. **Lubricate the seal of the new filter element.**
6. **Fit the new filter into place.**
7. **Refit the filter housing.**

   Tighten the filter housing with a suitable wrench to a torque of 200 Nm.

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4.7.4.10 Changing hydraulic system oil filters

Change the hydraulic system oil filters periodically.



1. Pressure filter of the hydraulic system

Oil filters are located on the right side of the tractor under the cab. The return oil filter is labelled with the text HYD on the mounting piece on top of it.

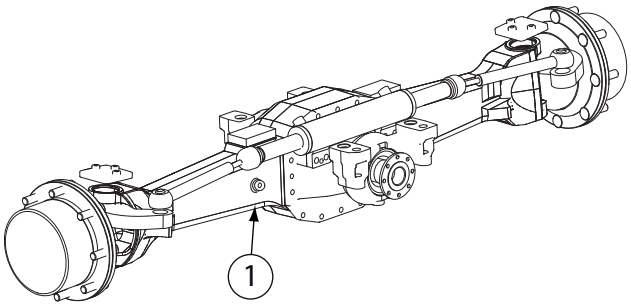
1. **Fit a suitable container under the filter.**
2. **Clean the filter housing and the surrounding area.**
3. **Remove the filter housing and the filter element.**
4. **Wash the filter housing in clean diesel fuel.**
5. **Lubricate the seal of the new filter element.**
6. **Fit the new element into place.**
7. **Refit the filter housing.**

   Tighten the filter housing with a suitable wrench to a torque of 200 Nm.

4.7.4.11 Checking the oil level in the front axle differential

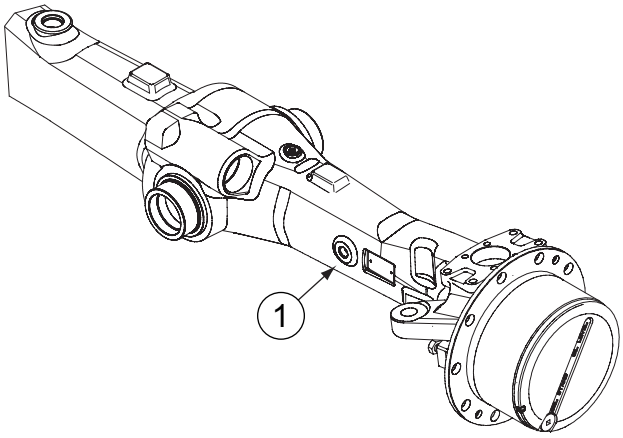
Check the oil level in the front axle differential periodically.

Agricultural front axle:



1. Inspection hole

Industrial front axle:



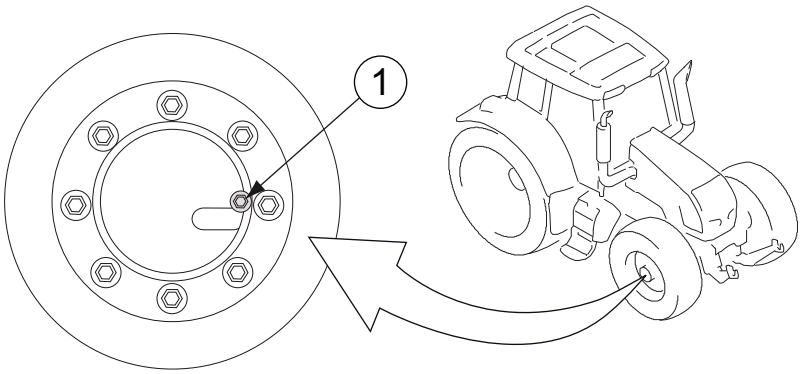
1. Inspection hole

1. **Check that the oil is in level with the inspection hole.**
2. **Add more oil if necessary.**

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4.7.4.12 Checking the oil level in front axle hubs

Check the oil level in the front axle hubs periodically.

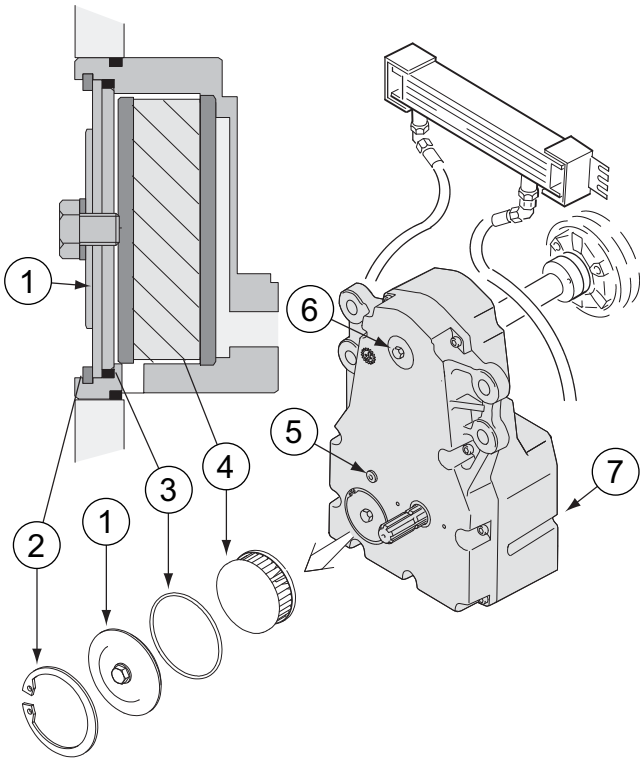


1. Oil surface indicator line

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.**

4.7.4.13 Changing front PTO housing oil and washing oil filter

Change the oil of the front power take-off (PTO) housing and wash the oil filter regularly.



1. End plate
2. Lock ring
3. O-ring
4. Filter
5. Oil level hole
6. Breather
7. Plug

1. **Drain the oil by opening the plug at the rear of the housing.**
2. **Release the filter by loosening the lock ring and the end plate.**
3. **Clean the strainer with diesel.**
4. **Dry the strainer with compressed air.**
5. **Attach the filter and the parts in the contrary order.**

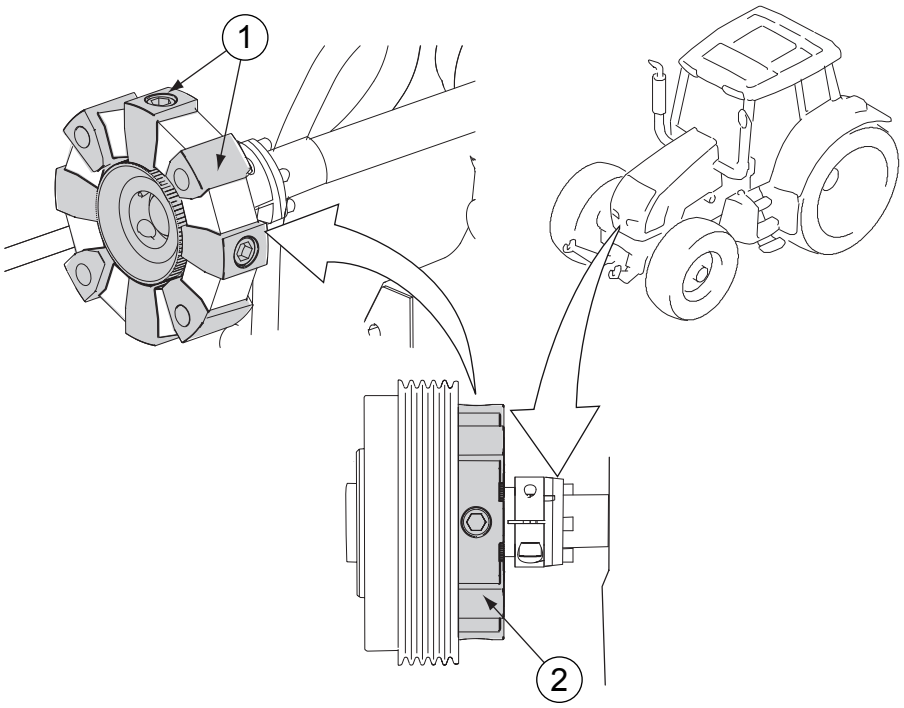
   Check that the O-ring fits the groove of the end plate.
6. **Fill up the housing with oil to the level of the hole.**

   The breather can be loosened for bleeding. Check that the breather is not blocked. When filling, the tractor has to stand on even ground.
7. **Use the front PTO a moment and check oil.**

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4.7.4.14 Checking front PTO rubber couplings

Check the front power take-off (PTO) rubber couplings regularly.



1. Rubber clutch pieces
2. Rubber coupling

- **Check the rubber coupling for tears.**
- **Change the rubber coupling when needed.**

  It is recommended to let an authorised workshop change the coupling. If you change the coupling yourself, when mounting the rubber clutch, make sure that the pieces are straight.

4.7.4.15 Checking and greasing the trailer air-pressure brake system

Check and grease the trailer air-pressure brake system regularly.

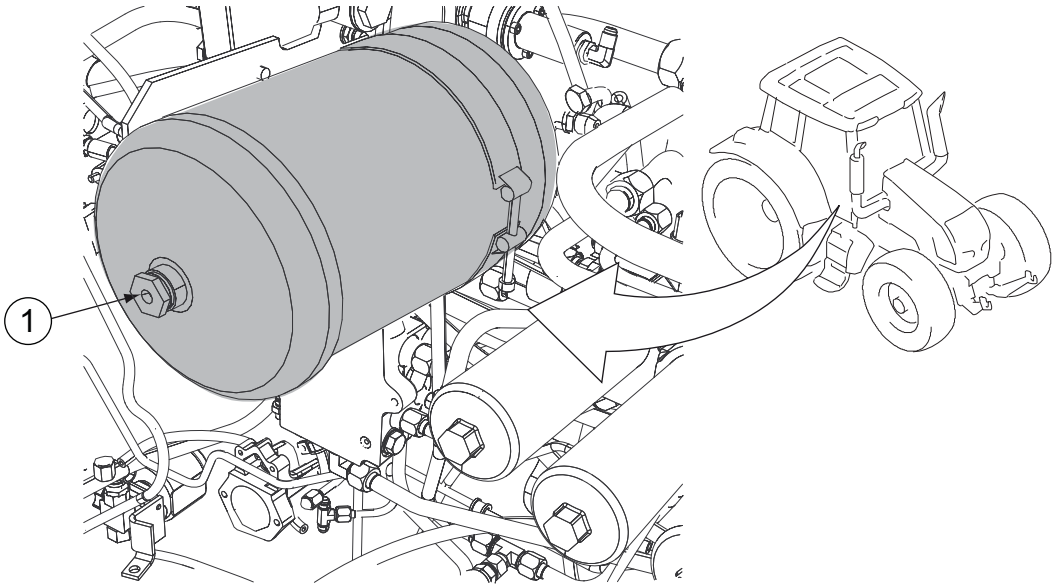
1. **Grease the rubber surfaces of the trailer quick couplings with Calsium LF grease.**
2. **Check the integrity of the system.**

   The system has to be air tight so that after stopping the engine, the pressure does not decrease more than 0.15 bar during 10 minutes (2%). When needed, repair the leaks.

4.7.4.16 Checking the air pressure system's automatic water draining

If the tractor is equipped with an air pressure system, there are pressure containers on both sides of the tractor under the cab. The containers have

automatic valves for water draining. The valve functions must be checked frequently.



1. Automatic water draining valve

1. **Push a blunt stick through the draining valve hole.**

   IMPORTANT: The stick must not be sharp, because it can damage the valve. If the air that comes out is free of water, the automatic is operating.

2. **If there is water with the air, push the stick through the valve hole until there is no pressure on the container.**
3. **Open the valve and clean the seal inside it.**
4. **Mount the valve back.**
5. **Check the valve on the other side.**
6. **If the valves do not operate properly after cleaning, replace them with new ones.**

4.7.4.17 Adjusting engine valves

Contact an authorised Valtra workshop for the engine valve adjustment.

NOTE: The engine valves must be adjusted after 500 operating hours. After the first adjustment, adjust the valves every 1 000 hours.

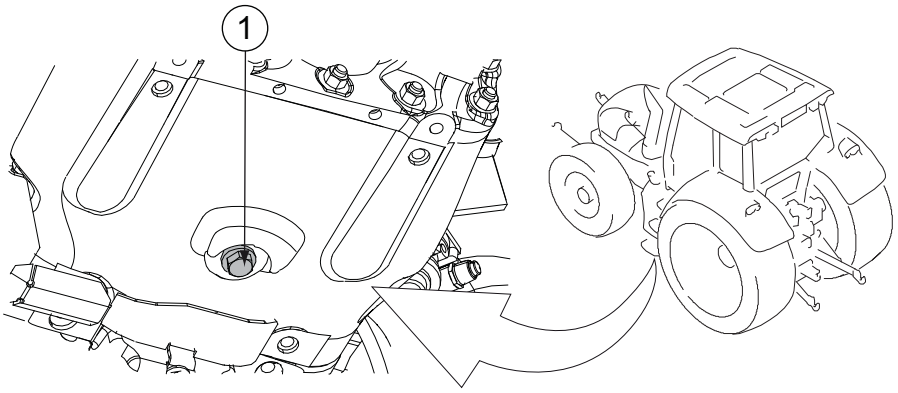
4.7.5 Maintenance every 1000 hours or yearly

4.7.5.1 Changing oil in the 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.

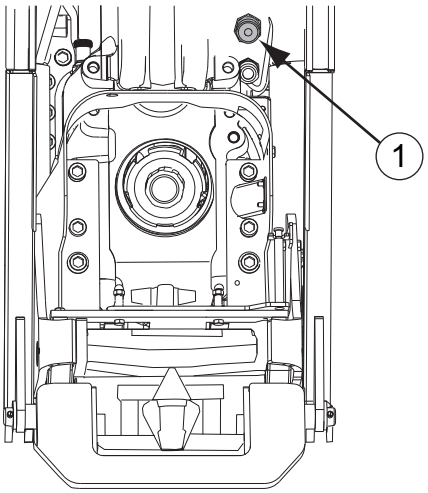
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1. Run the tractor, and raise and lower the hydraulic lift (or e.g. the front loader) until the oil is a little warm.
2. Lower the hydraulic lift (also the front lift).
3. Remove the drain plug under the housing.



1. Hydraulic oil drain plug

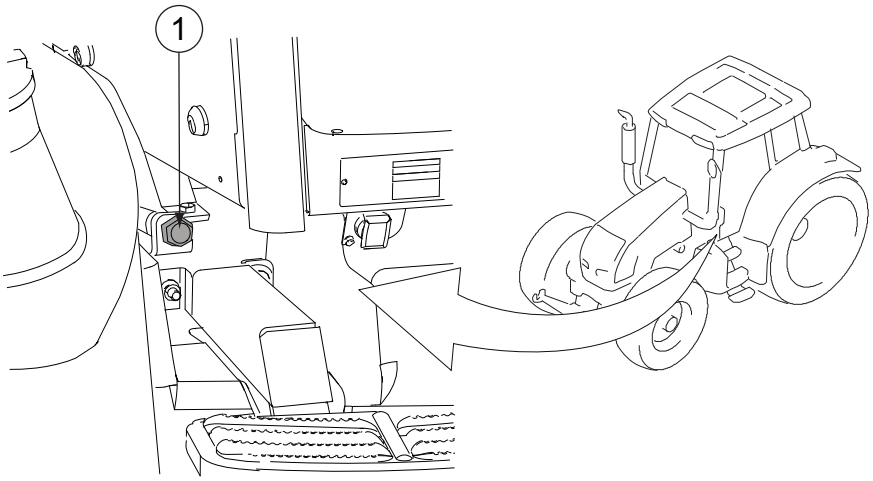
4. Drain the oil into a suitable container.
5. Clean and refit the plug.
6. Refill by pump through the hydraulic return coupling.



1. Hydraulic return coupling

The oil must go through the return filter so that no impurities enter the system.

7. **Pull out the dipstick to check the oil level.**



1. Hydraulic oil dipstick

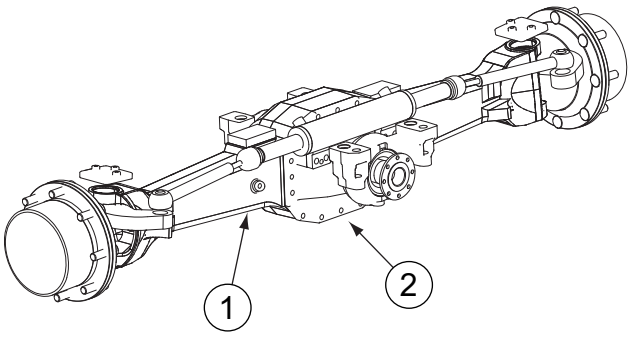
The dipstick is located in the front gearbox housing on the left. Make sure that after refilling, the oil level is between the minimum and maximum marks.

8. **Start the engine and check the oil level.**

4.7.5.2 Changing oil in the front axle differential

Change the oil in the front axle differential periodically.

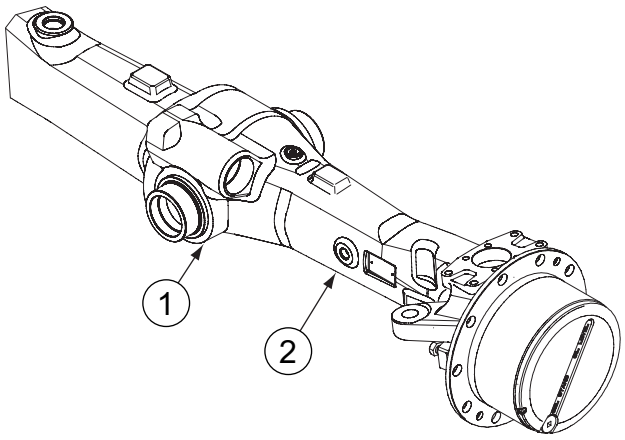
Agricultural front axle:



1. Inspection hole
2. Drain plug

Industrial front axle:

https://truckmanualshub.com/

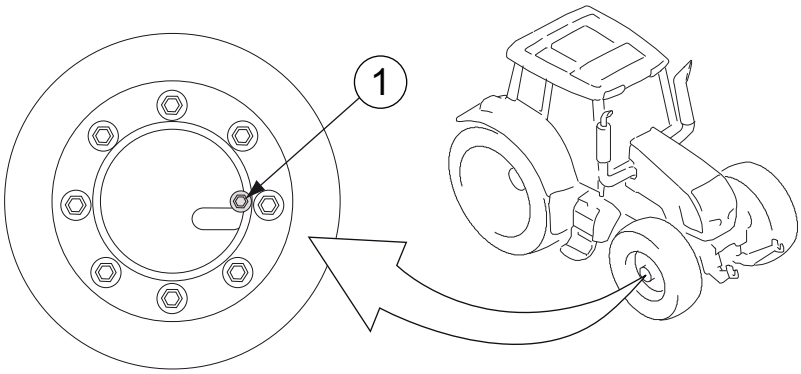


1. Drain plug
2. Inspection hole

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.

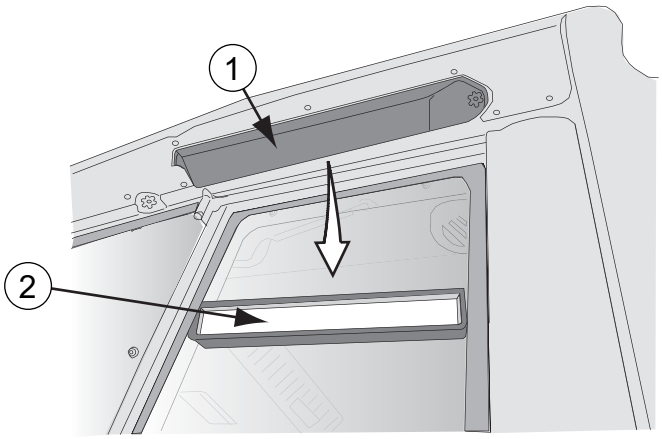


1. Inspection hole

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.**

4.7.5.4 Changing the cab ventilation air filter

Change the cab ventilation air filter periodically.



1. Air filter housing
2. Ventilation air filter

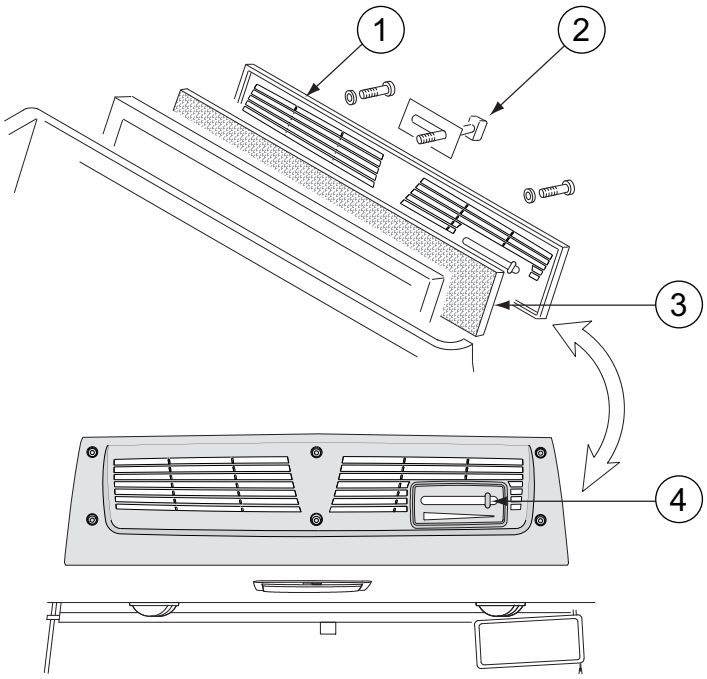
1. **Remove the air filter housing from the upper left-hand corner of the cab roof.**
2. **Remove the ventilation air filter.**
3. **Replace the ventilation air filter with a new one.**

   Change ventilation air filter more often if necessary.
4. **Attach the air filter housing back to its place.**

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4.7.5.5 Changing the recirculation filter

Change the recirculation filter periodically.



1. Grille
2. Recirculation control knob (not with automatic air conditioning)
3. Filter element

1. **Remove the recirculation control knob (not with automatic air conditioning).**
2. **Remove the grille.**
3. **Extract the filter element.**
4. **Change the filter.**

   NOTE: It may be necessary to change the filter more frequently.

4.7.5.6 Changing the fuel filter

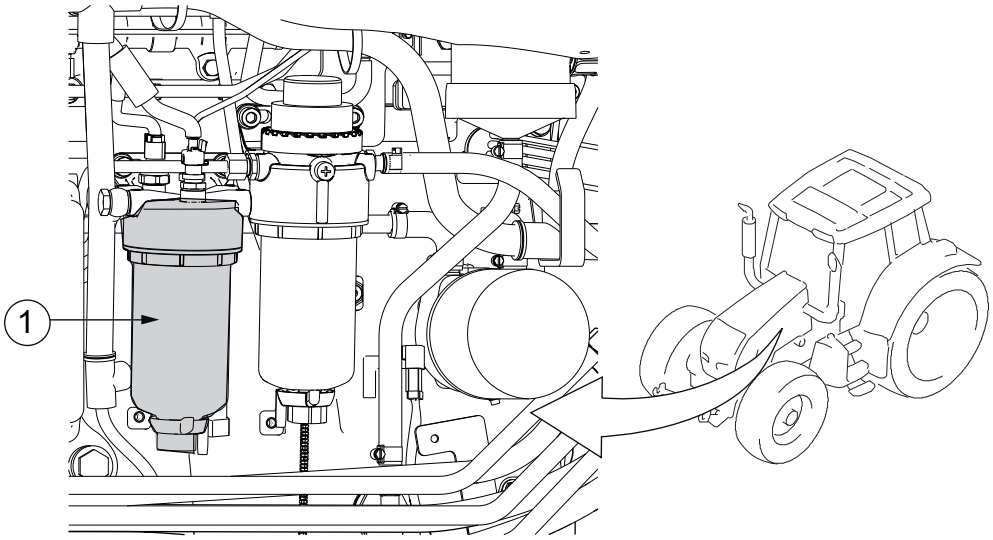
Change the fuel filter periodically.

Always use original Valtra fuel filters.

IMPORTANT: Using other fuel filters than the original ones, even for a short period of time, may cause lower performance and expensive damages.

IMPORTANT: When using over 5 % Biodiesel, change the fuel filter every 500 hours.

1. **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.

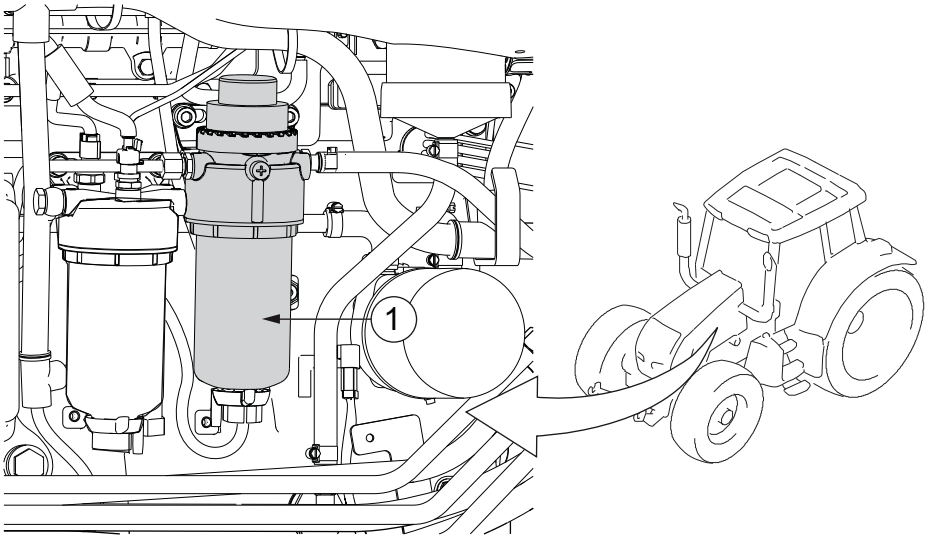
4.7.5.7 Changing the fuel prefilter

Change the fuel prefilter periodically.

Always use original Valtra fuel filters.

IMPORTANT: Using other fuel filters than the original ones, even for a short period of time, may cause lower performance and expensive damages.

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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 on 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.**

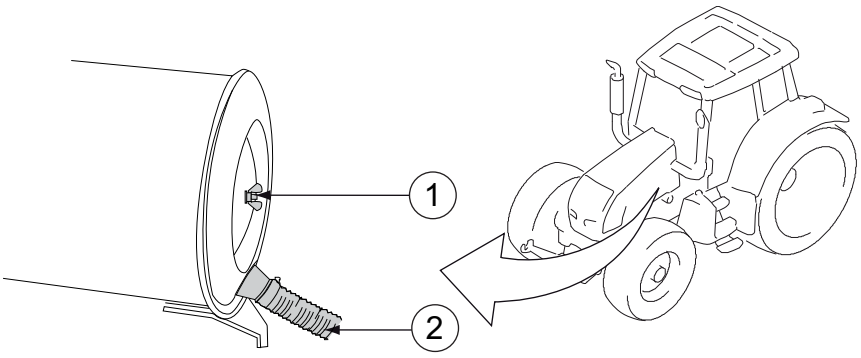
Bleed the fuel system.

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4.7.5.8 Changing engine air filters

Change the main air filter and the safety filter periodically.

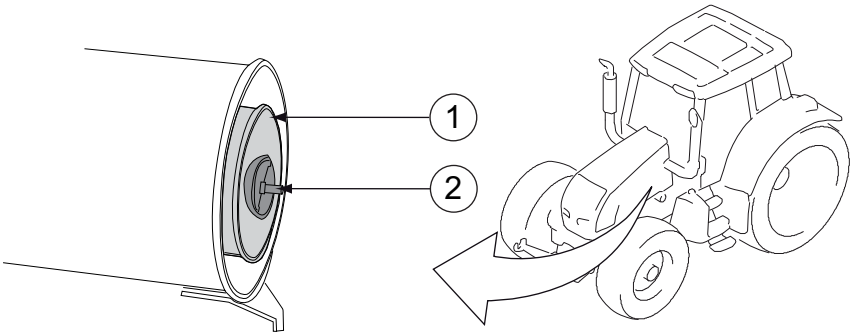
1. **Open the cover of the air filter housing.**



1. Cover tightening nut
2. Ejector pipe

The cover of the air filter housing is locked with one nut in the centre.

2. **Take out the main filter.**

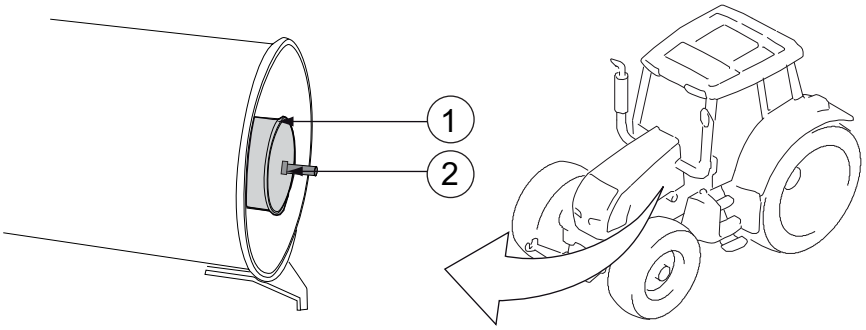


1. Main filter
2. Main filter tightening nut

The main filter is locked with one nut in the centre.

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3. **Remove the safety filter.**



1. Safety filter
2. Safety filter tightening nut

The safety filter is locked with one nut in the centre.

IMPORTANT: Take the utmost care when removing the safety filter so that no dirt enters the induction pipe.

NOTE: Do not clean the safety filter. Always change the safety filter according to the maintenance schedule.

4. **Fit a new safety filter.**
   - **Check that the seals are in good condition.**
   - **Check that the sealing surfaces are clean.**
   - **Fit the safety filter in place.**

     Make sure that the filter is correctly positioned in the housing.
   - **Tighten the nut to hold the filter in place.**

   IMPORTANT: Never run the tractor without the safety filter.

5. **Fit a new main filter.**
   - **Fit the main filter.**

     Make sure that the filter is correctly positioned in the housing.
   - **Tighten the nut to hold the filter in place.**

     Tighten until the filter comes into contact with the end of the filter housing.

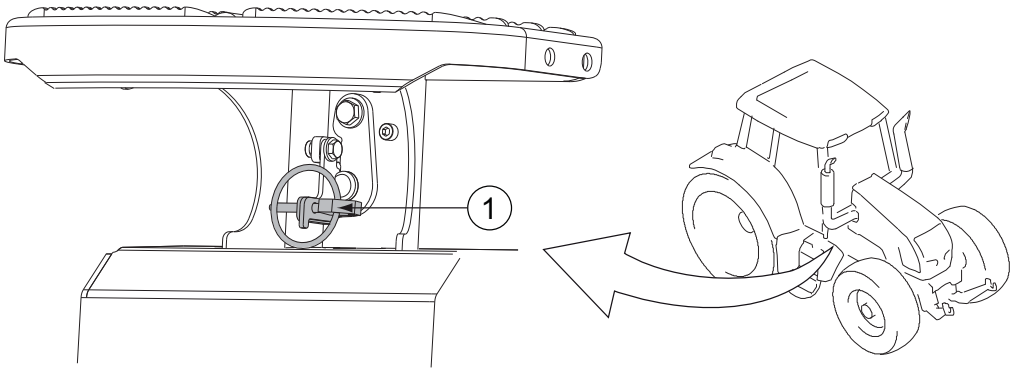
6. **Close the cover of the air filter housing.**

   The cover of the housing must be mounted so that the ejector pipe is in the lower position.

   NOTE: Do not over tighten the nut on the air filter housing. Tighten approximately 1-1.5 turns after the flange seal has come into contact with the surface of the housing.

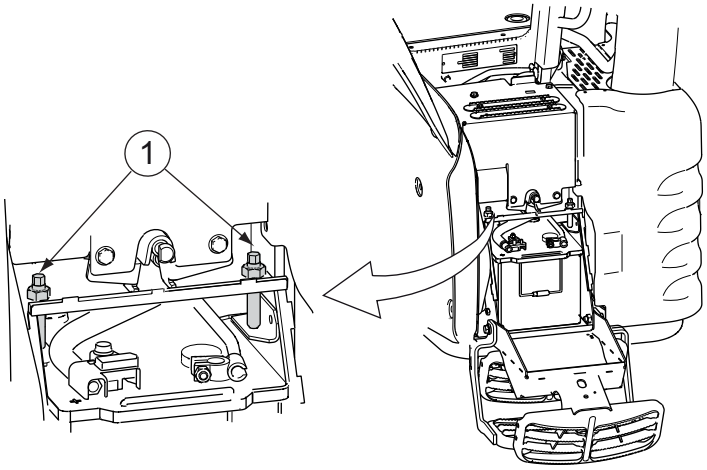
4.7.5.9 Changing the selective catalytic reduction system supply module main filter

1. **Remove the locking pin.**



1. Locking pin

2. **Turn the steps down.**
3. **Unscrew the battery holders.**



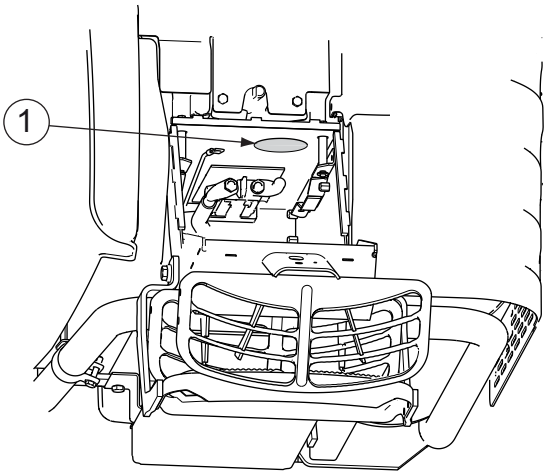
1. Battery holder

4. **Disconnect the battery leads.**

   Disconnect the negative lead first.
5. **Remove the battery.**

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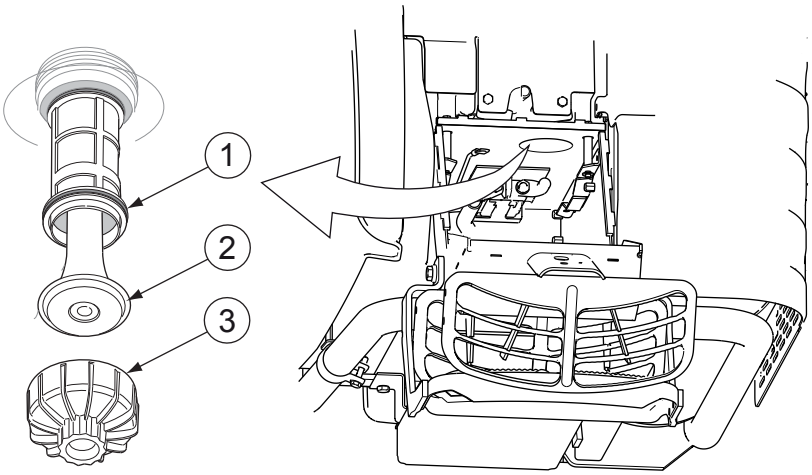
6. **Remove the rubber cover.**



1. Rubber cover

7. **Clean the filter cover and its surroundings.**
8. **Remove the filter cover.**

   Use 27 mm wrench.
9. **Pull out the filter parts.**



1. Filter
2. Equalizing element
3. Filter cover

10. **Fit the new filter elements.**
11. **Fit the filter cover.**

    The tightening torque is 20-25 Nm.
12. **Connect the battery leads.**

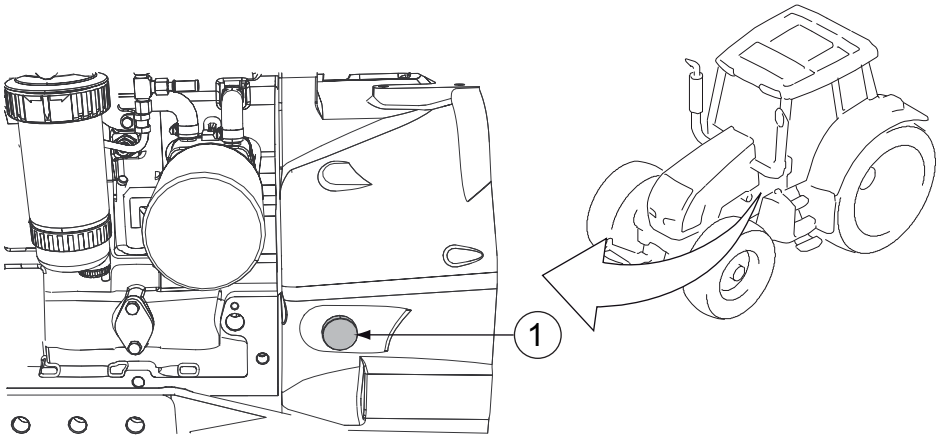
    Connect the positive lead first.
13. **Tighten the battery holders.**
14. **Turn up the steps.**

15. **Fit the locking pin.**

CAUTION: Always fit the locking pin.

4.7.5.10 Greasing the flywheel ring gear

Grease the flywheel ring gear periodically.



1. Shield plug of the grease hole

1. **Remove the shield plug of the grease hole on the clutch housing.**

   The grease hole is located on the left-hand side of the clutch housing.

2. **Apply a little grease to a few points on the ring gear with a grease gun.**

   The grease spreads around the gear when the gear is used.
   NOTE: Use Grease Moly.

4.7.5.11 Checking the front wheel toe-in

Check the front wheel toe-in periodically.

1. **Make a vertical mark on both front tyres in the middle of the tread in level with the hubs.**
2. **Measure the distance between the marks.**
3. **Roll the tractor forwards so that the marks again come in level with the hubs, this time at the rear edge.**
4. **Measure the distance between the marks again.**

   The measurement must be 0-2 mm larger at the rear edge.

5. **Adjust the toe-in if necessary.**

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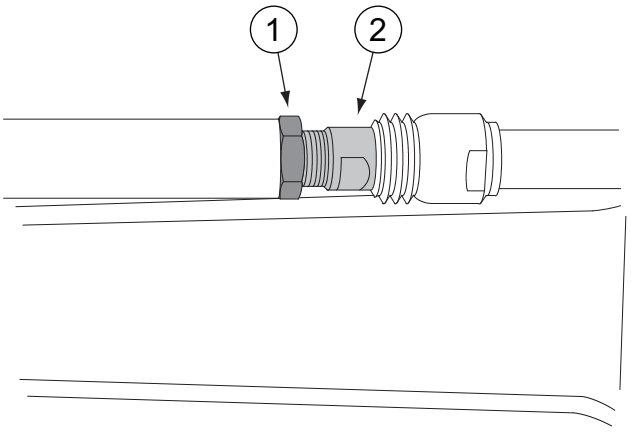
4.7.5.12 Adjusting toe-in of front wheels

Adjust the toe-in of the front wheels if needed.

Before you adjust the toe-in, check that there is no free play in the ball joints of the steering arms and tie rod.

NOTE: In order not to limit the steering movement, both tie rods must be adjusted.

1. **Centre the wheels.**
2. **Loosen the tie rod locking nut.**



1. Locking nut
2. Adjustment screw

3. **Turn the adjustment screw in the right direction.**
4. **Measure both tie rods.**

   IMPORTANT: Both tie rods must be of the same length after the adjustment.
5. **Tighten the locking nut when the correct distance has been achieved.**
6. **Check the toe-in.**

4.7.5.13 Changing the hydraulics breather

Change the hydraulics breather periodically.

IMPORTANT: If the tractor is used continuously in dusty conditions, the breather must be changed more frequently.



1. Hydraulics breather

1. **Unscrew the old breather.**
2. **Lubricate the seal on the new breather.**
3. **Tighten the breather by hand.**

4.7.5.14 Checking the power shuttle operation

Contact an authorised Valtra workshop for checking of the power shuttle operation.

NOTE: Checking of the power shuttle operation must be done after 1 000 operating hours.

4.7.5.15 Tightening frame nuts and bolts

Tighten the frame nuts and bolts periodically.

4.7.6 Maintenance every 2000 hours or every other year

4.7.6.1 Changing oil in the transmission system

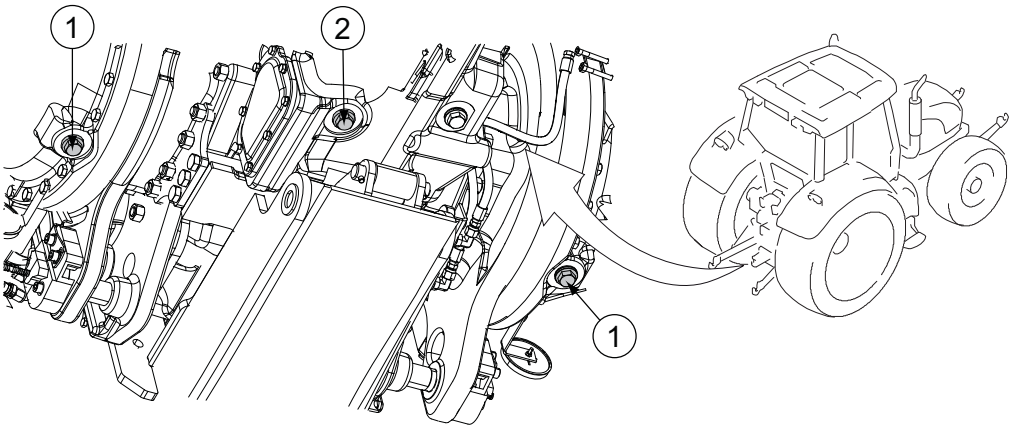
Change the oil in the transmission system periodically.

1. **Run the tractor until the oil in the transmission system is warm.**

   This speeds up the oil drainage and most of the impurities come out with the oil.

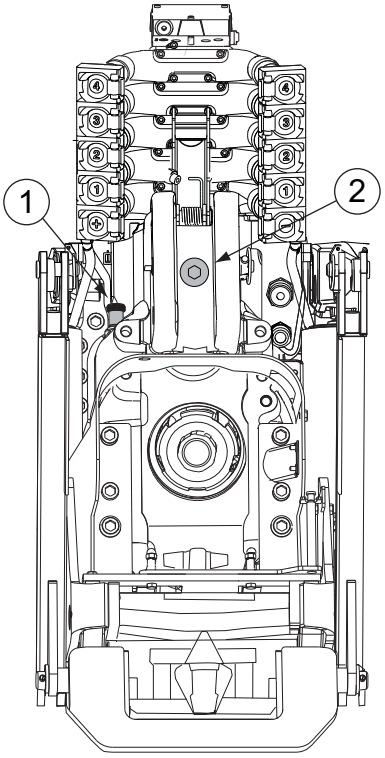
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2. Remove the drain plugs under the gearbox and final drives.



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. Remove the top link to reach the filling plug located behind it.
8. Fill the oil through the filler cap.

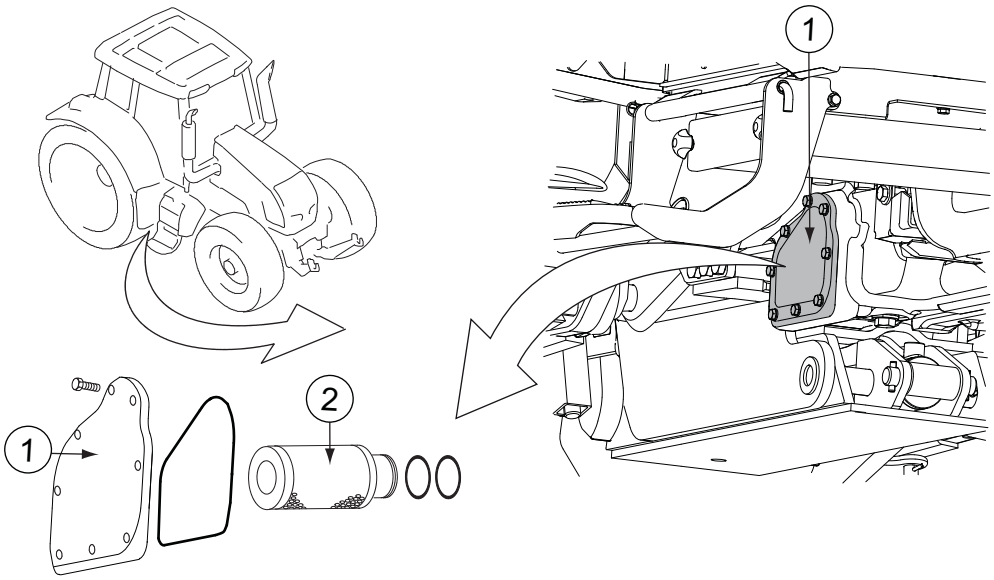


1. Transmission oil dipstick
2. Transmission oil filling plug

9. **Check that the oil level is between the marks.**
10. **Start the engine and check the oil level.**

4.7.6.2 Cleaning the suction strainer

Drain the oil from the transmission.



1. Suction strainer cover
2. Suction strainer

1. **Remove the suction strainer cover.**
2. **Wipe off any oil which has run out on the chassis.**
3. **Clean the suction strainer in diesel fuel.**
   Replace the suction strainer if it is damaged.
4. **Dry the suction strainer with compressed air.**
5. **Refit the suction strainer, gaskets and cover.**

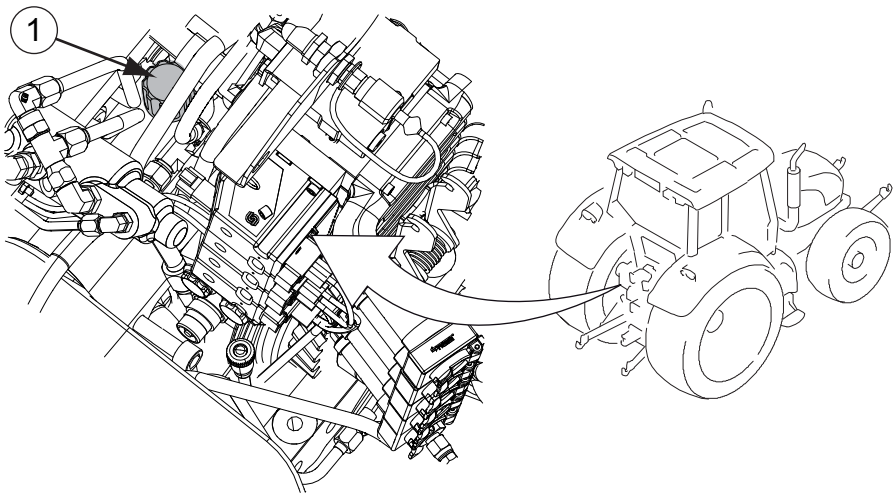
Fill the transmission with oil.

4.7.6.3 Changing the transmission breather

Change the transmission breather periodically.

IMPORTANT: If the tractor is used continuously in dusty conditions, the breather must be changed more frequently.

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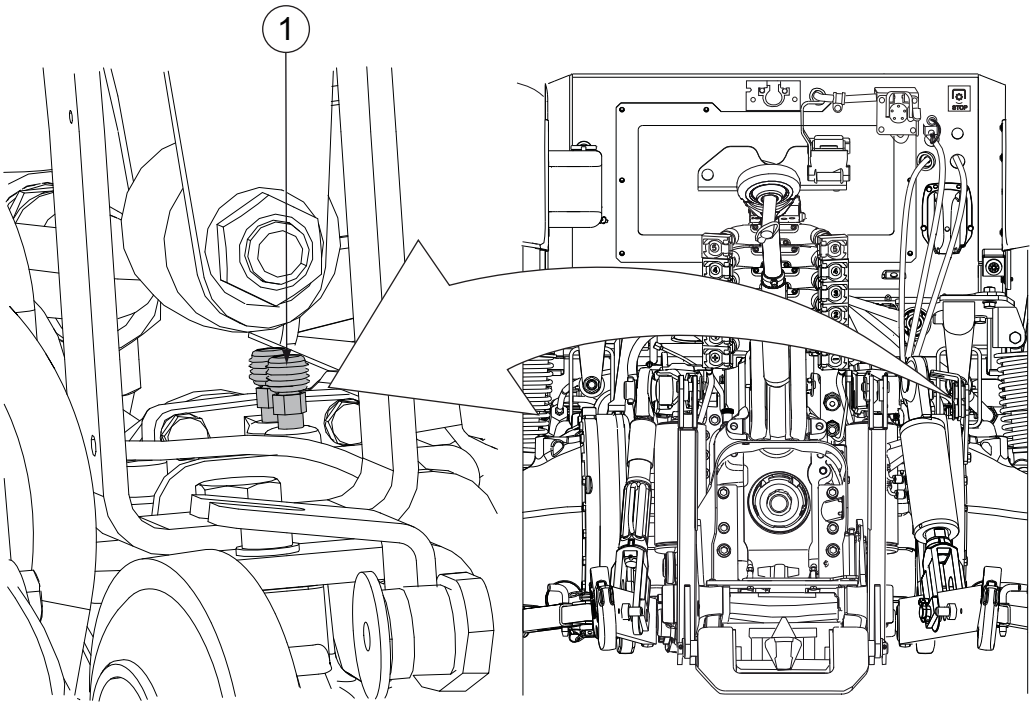
1. Breather

1. **Unscrew the old breather.**
2. **Lubricate the seal on the new breather.**
3. **Tighten the breather by hand.**

4.7.6.4 Changing oil in brake system

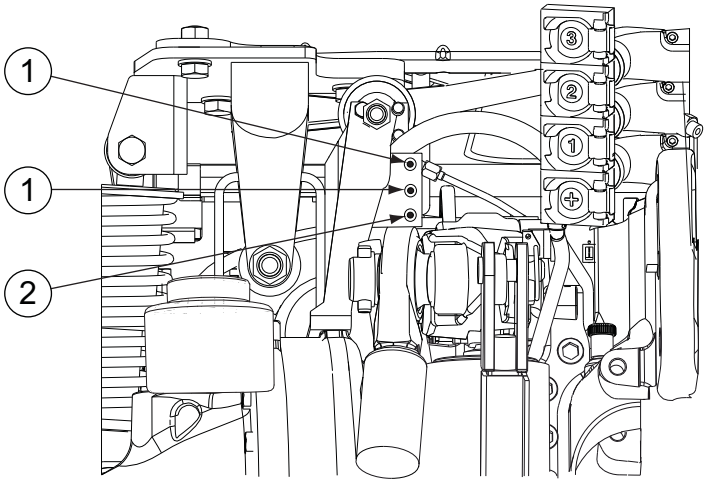
The brake system uses the same oil as the transmission system. The oil in the brake circuits is not changed when changing the transmission oil. Therefore, the brake circuit oil has to be changed by bleeding after every transmission oil change. Also when repairing, the system has to be filled and bled in the same way.

4.7.6.5 Bleeding the brake system



1. Bleeding nipples of the trailer air pressure brakes

Both brake pedal circuits of the trailer air pressure brakes (extra equipment), right and left, have their own bleeding nipple. The control valve is situated on the right side under the cab on the air pressure reservoir.



1. Bleeding nipples of the tractor brake working cylinder
2. Bleeding nipple of the tractor fluid brake valve of the trailer

Both brake pedal circuits of the tractor brake working cylinder, right and left, have their own bleeding nipple. The nipples are placed on the bleed plate on top of the left axle housing.

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The nipple of the tractor fluid brake valve of the trailer (extra equipment) is also placed on the bleed plate on top of the left axle housing.

1. **Start the tractor and let it run for ca. three minutes.**

   This ensures that the oil from the pump is completely free from air.

2. **Lock the brake pedals together.**

3. **Open the bleeding nipples.**

   It is recommended to use hoses from the bleeding nipples to a suitable container.
   NOTE: Do not let the oil run on the ground.

4. **Pump the pedals until there are no air bubbles in the oil.**

5. **Close the bleeding nipples.**

6. **Check that the pedal free travel is the same on both wheels.**

   Check the free travel while driving with the pedals latched together.
   On models T133 H-T193 H the pedal free travel must be ca. 35-45 mm.

7. **Check the free travel on the rear brake pedal.**

   The reverse drive control system is extra equipment.
   The pedal free travel must be ca. 60-70 mm.

4.7.6.6 Changing oil in the front axle brake system

Front axle brakes use the same power transmission oil as the rear brakes. Change the front brake oil every other year while changing the rear brake system oil.

1. **Start the tractor and let it run for about three minutes.**

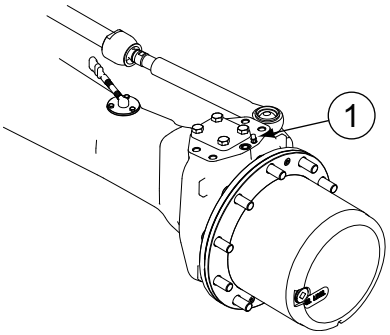
   This ensures that the oil from the pump is completely free from air.

2. **Make sure that the bleeding valves for the rear brakes and hydraulic trailer brakes are closed.**

3. **Lock the brake pedals together.**

4. **Open the bleeding nipples.**

   There is one bleeding nipple on both sides.



   1. Bleeding nipple

5. **Put a hose from both bleeding nipples to containers.**
6. **Pump the brake pedals until there are no air bubbles in the oil.**

   The oil has been changed when about 0.2 litres has come out from each side.

It is not necessary to adjust the front brakes.

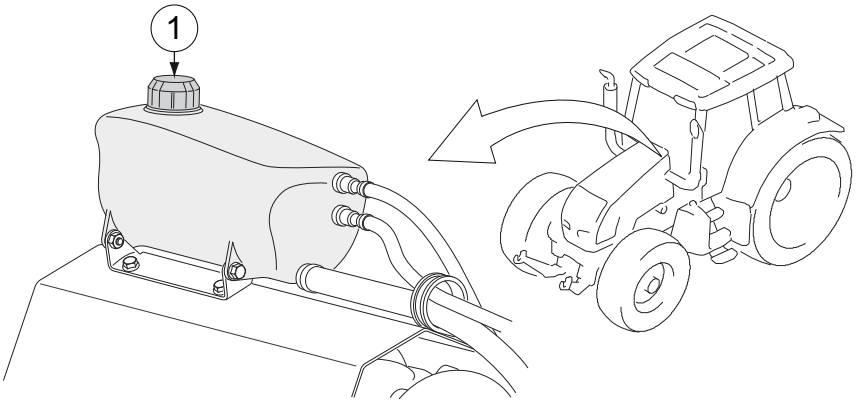
4.7.6.7 Cleaning the cooling system

Clean the cooling system periodically.

If problems occur with the cooling system, it can be a sign that the whole system needs to be thoroughly cleaned.

1. **Stop the engine.**
2. **Open the cap of the expansion tank.**

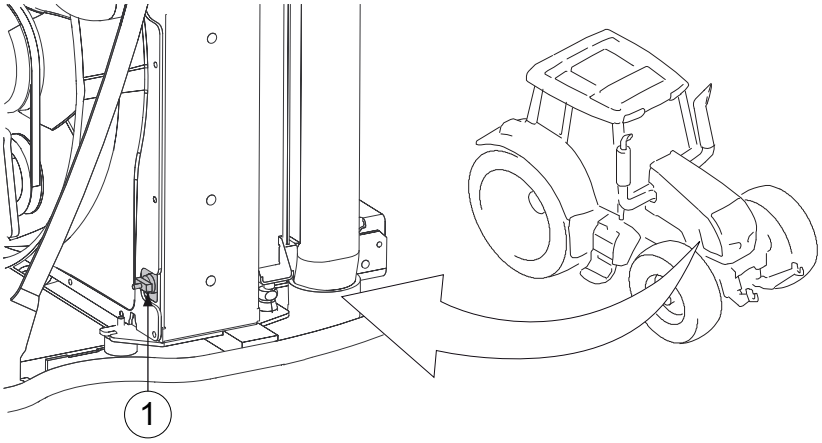
CAUTION: Open the expansion tank cap carefully. When running the tractor the expansion tank has an overpressure of 1.0 bar.



   1. Cap of the expansion tank

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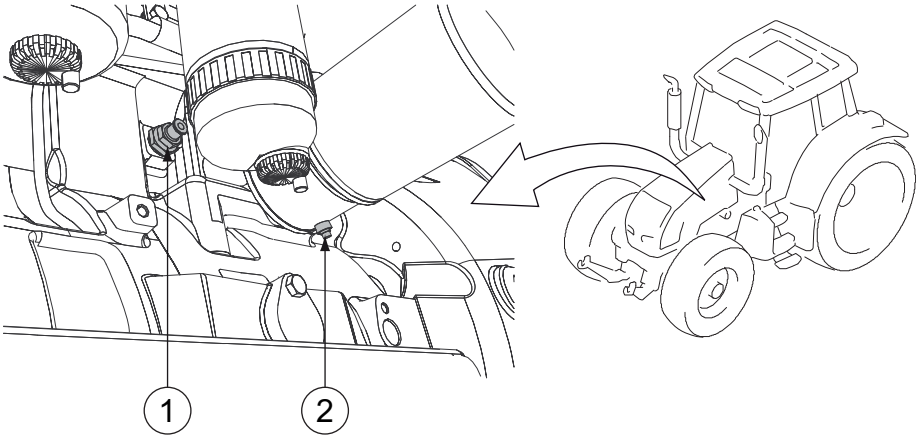
3. **Connect a hose from the radiator draining cock to a clean container and open the plug.**



1. Radiator draining cock

4. **Open the drain cock on the cylinder block and open the drain plug on the oil cooler.**

IMPORTANT: Do not drain coolant on the ground!

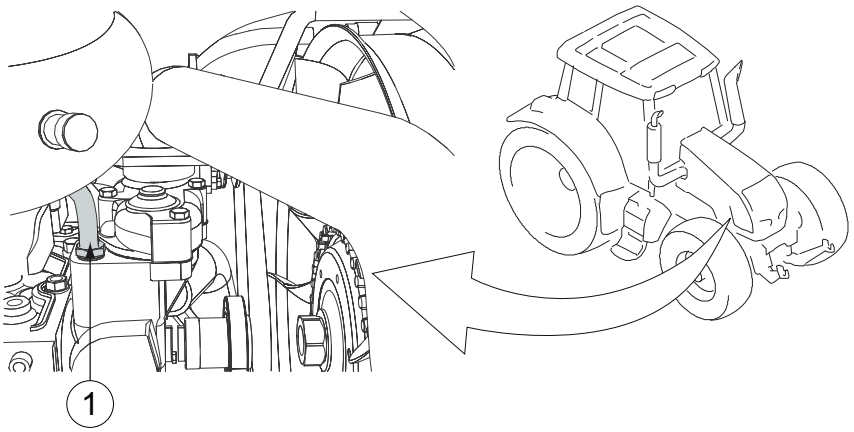


1. Drain cock on the cylinder block
2. Drain plug on the oil cooler
   The cooler is located between the engine block and oil filter.

5. **Turn the heater control in the cab clockwise.**
6. **Drain the water pump by cranking the engine a few revisions with the drain plugs removed.**
7. **Clean the cooling system with a special cleaning agent available from your dealer.**

   Follow the manufacturer's instructions.
8. **Close the radiator drain cock.**
9. **Close the drain cock of the cylinder group.**

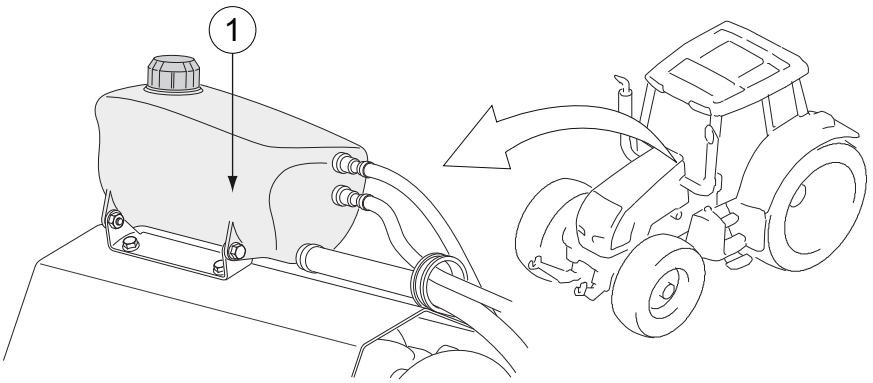
10. Close the drain plug of the oil cooler.
11. Loosen the hose placed between the thermostat housing and expansion tank.



1. Hose

12. Check that the restrictor hole (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.



1. Fluid level mark

NOTE: Always use a recommended coolant.
IMPORTANT: Never fill up with cold fluid while the engine is warm.
IMPORTANT: Do not use plain water as coolant.

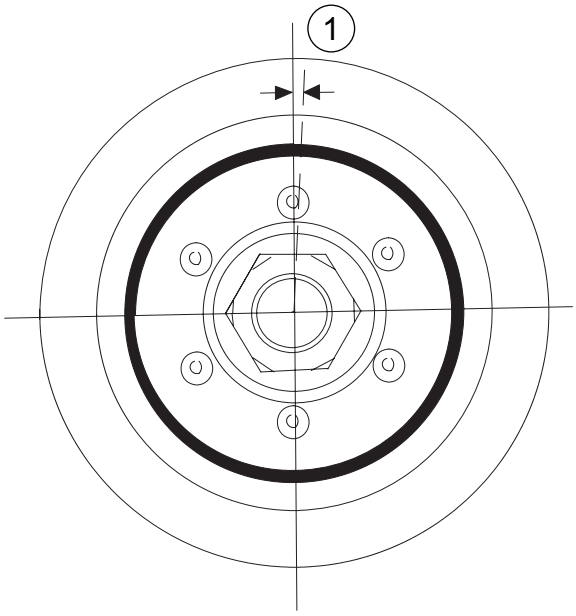
After changing the fluid, run the engine for a while and check the level of the fluid.

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4.7.6.8 Checking the engine vibration damper

Contact an authorised Valtra workshop for checking of the engine vibration damper.

The outer circumference of the vibration damper (belt pulley) can twist in relation to the hub. For this reason, alignment marks have been added to the damper front face, which indicate the possible twisting.



1. Alignment marks

NOTE: Changing of the engine vibration damper must be carried out at an authorised Valtra workshop.

IMPORTANT: The vibration damper is recommended to be changed after every 4000 operating hours.

4.7.6.9 Maintaining the air conditioning

Maintain the air conditioning regularly.

IMPORTANT: If the air conditioning system has not been used for a while, free the compressor before starting the engine by rotating the pulley nut with a wrench.

CAUTION: Do not attempt to remove any part of the air conditioning system.

NOTE: Make sure that the compressor starts. At low temperatures, the thermostat prevents the compressor from starting.

- **Do not attempt to repair the air conditioning system.**

  Contact an authorised Valtra workshop if problems occur.

- **Clean the condenser at regular intervals to remove dust, insects and other particles.**
- **Check that there are no leaks in the condenser, evaporator, hoses and couplings.**
- **Check the cleanliness of the outlet pipe of the condensation pipe.**
- **Avoid contact with the refrigerant.**

  WARNING:
  If a refrigerant ends up in your eyes, contact a doctor immediately. Do not weld near the air conditioning system as poisonous gas may be released. The maximum permissible environmental temperature for the refrigerant pipes is 80°C.

- **If the air conditioning is not functioning properly, contact an authorised Valtra workshop for checking of the system.**

4.8 Checks and adjustments

4.8.1 Changing tyres

WARNING: When welding the discs, the tyre must be removed from the rim/disc. There is a danger of explosion.

When selecting tyres, always contact your dealer to ensure the correct transmission ratio for four-wheel drive (4WD).

1. **Get the tyres changed.**

   IMPORTANT: Change tyres and wheels at a professional tyre workshop that is equipped to handle this type of work.

2. **Check the tyre pressures.**
3. **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.**

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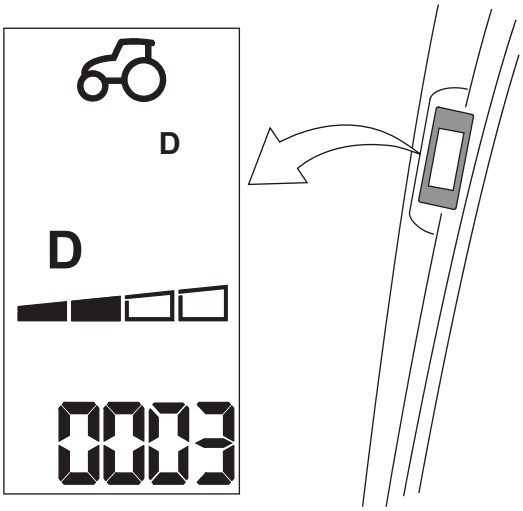
4.8.1.1 Setting the tyre parameter

You can adjust the tyre parameter according to your preferences through the A-pillar display settings.

The index determines the instrument calibration of the tyres. The value range is between 700…1000.

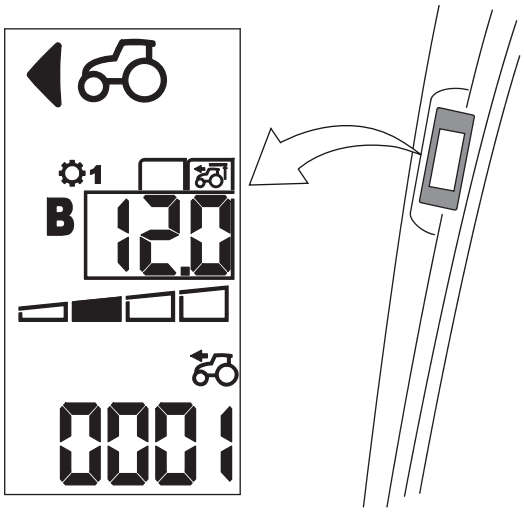
NOTE: If tyres of different dimensions are fitted to the tractor after delivery, the tyre parameter must be reset. For Agroline, the instrument calibration must be done also when changing the tyres.

1. **Stop the engine and turn the ignition switch off.**
2. **Engage the parking brake.**
3. **Press the pre-programming push button, depress the clutch pedal and turn the ignition on at the same time.**



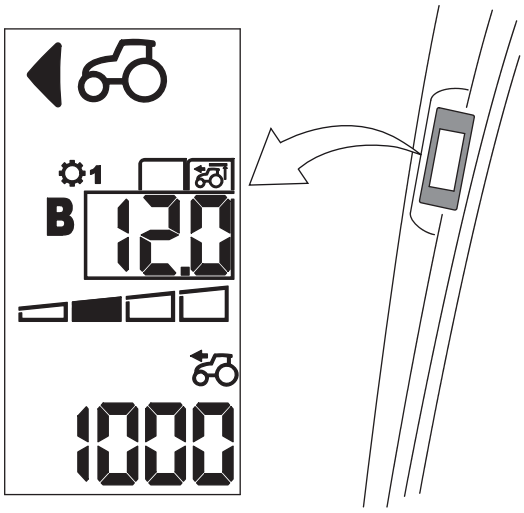
The setting menu symbols (D) appear on the display. The first two bars are lit to indicate that the parameter number is shown on the bottom row.

4. **Press the Powershift push buttons to select the parameter to be changed.**



The parameter number for the tyre parameter is 0001.

5. **Press the Powershift pre-programming button.**



The last two bars are lit to indicate that the parameter value is shown on the bottom row.

6. **Change the parameter value by pressing Powershift push buttons.**
7. **Press the Powershift pre-programming button to save the value.**

   You can discard the changes by pressing the HiShift push button.
8. **Press the HiShift push button to leave the setting menu and save all changes.**

   If you want to leave the setting menu and discard all changes made, turn the ignition switch off.

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4.8.1.2 Tyre parameters

The following table defines the tyre parameters for the Proline instrument panel display.

Tyre	Parameter value
520/70R38	831
520/85R38	880
20.8R38	872
540/65R38	798
580/70R38	873
600/65R38	831
650/60R38	818
650/65R38	870
480/80R42	882
520/85R42	942
20.8R42	920
650/65R42	914
620/70R42	925
270/95R48	832
540/80R38 IND	880
650/65R42 IND	914
600/65-34 FOR	782
18.4-38/14 FOR	820
20.8-38/14 FOR	855
600/65R38 FOR	831
650/65R38 FOR	874
650/75–38 FOR	920

The following tables define the tyre parameters for the Agroline instrument panel display.

Tyre	Parameter value for T133 H, with 40 km/h	Parameter value for T133 H, with 50 km/h
13.6-38/8 N	216	197
13.6R38 GY	215	197
13.6R-38/8M	216	197
14.9R-38/8 M	209	191
14.9R-38/8 N	209	191
16.9-34/14 IND	214	196
16.9-34/8 N	214	196
16.9R34 GY	212	194
16.9R-34/8 M	214	196
16.9R-34/8 N	214	196
16.9R-38/8 GY	201	184
16.9R-38/8 M	201	184
16.9R-38/8 N	201	184

Table continued on next page

Tyre	Parameter value for T133 H, with 40 km/h	Parameter value for T133 H, with 50 km/h
18.4-34/14 FOR	207	190
18.4-34/14 IND	207	190
18.4-34/8 N	207	190
18.4-34/ IND	207	190
18.4-38/14 FOR	195	178
18.4-38/14 IND	195	178
18.4-38/ FI	195	178
18.4R-34/8 GY	207	190
18.4R-34/8 M	207	190
18.4R-34/8 N	207	190
18.4R38 TA	191	175
18.4R-38/14 M	195	178
18.4R-38/8 GY	195	178
18.4R-38/ M	195	178
20.8R38 GY	183	167
20.8R38 IND	184	168
20.8R38 TA	182	167
20.8R-38/8 M	187	171
20.8R-38/ M	187	171
20.8R42	173	159
230/95R48 TA	196	180
270/95R48 TA	192	175
340/85R38 CON	214	196
420/85R38 CON	197	180
460/85R38 CON	190	174
480/70R-38	198	181
480/80R42 M	181	166
520/70R34 CON	203	186
520/70R34 GY	203	186
520/70R34 TA	204	187
520/70R38 CON	193	177
520/70R38 GY	191	174
520/85R38 CON	181	166
520/70R-34	203	186
520/70R-38	191	174
520/85R42	169	155
540/65R38 GY	200	183
540/65R-38/ M	202	185
540/80R38 NO	181	166
580/70R38 GY	182	167
580/70R38 TA	183	168
580/70R-38	182	167
600/65R34 NO	203	186
Table continued on next page		

Tyre	Parameter value for T133 H, with 40 km/h	Parameter value for T133 H, with 50 km/h
600/65R34 TA	204	187
600/65R38 CON	193	177
600/65R38 GY	190	174
600/65R38 IND	191	175
600/65-34 FOR	204	187
600/65R-34/ M	208	190
600/65R-38/ M	192	176
620/70R42 KleberSuper9L	172	158
620/75R-30/ M	199	182
650/60R38 M (XEOBIB)	195	178
650/65R38 NO	184	168
650/65R38 CON	185	169
650/65R38 FOR	183	167
650/65R38 GY	182	167
650/65R38 M	184	168
650/65R42	175	160
650/75R38	173	159
680/75R32 M	183	168

Tyre	Parameter value for T173 H-193 H, with 40 km/h	Parameter value for T153 H, and for T173 H-T193 H with 50 km/h
13.6-38/8 N	217	196
13.6R38 GY	216	196
13.6R-38/8M	217	196
14.9R-38/8 M	210	190
14.9R-38/8 N	210	190
16.9-34/14 IND	215	195
16.9-34/8 N	215	195
16.9R34 GY	214	194
16.9R-34/8 M	215	195
16.9R-34/8 N	215	195
16.9R-38/8 GY	202	183
16.9R-38/8 M	202	183
16.9R-38/8 N	202	183
18.4-34/14 FOR	208	189
18.4-34/14 IND	208	189
18.4-34/8 N	208	189
18.4-34/ IND	208	189
18.4-38/14 FOR	196	177
18.4-38/14 IND	196	177
18.4-38/ FI	196	177
18.4R-34/8 GY	208	189
18.4R-34/8 M	208	189
18.4R-34/8 N	208	189

Table continued on next page

Tyre	Parameter value for T173 H-193 H, with 40 km/h	Parameter value for T153 H, and for T173 H-T193 H with 50 km/h
18.4R38 TA	192	174
18.4R-38/14 M	196	177
18.4R-38/8 GY	196	177
18.4R-38/ M	196	177
20.8R38 GY	184	167
20.8R38 IND	185	168
20.8R38 TA	183	167
20.8R-38/8 M	188	170
20.8R-38/ M	188	170
20.8R42	174	158
230/95R48 TA	201	182
270/95R48 TA	195	177
340/85R38 CON	216	196
420/85R38 CON	200	181
460/85R38 CON	191	173
480/70R-38	199	181
480/80R42 M	182	165
520/70R34 CON	204	185
520/70R34 GY	204	185
520/70R34 TA	205	186
520/70R38 CON	194	176
520/70R38 GY	192	174
520/85R38 CON	182	165
520/70R-34	205	185
520/70R-38	192	174
520/85R42	170	154
540/65R38 GY	201	182
540/65R-38/ M	203	184
580/70R38 GY	183	166
580/70R38 TA	183	166
580/70R-38	183	166
600/65R34 NO	204	185
600/65R34 TA	205	186
600/65R38 CON	195	176
600/65R38 GY	191	174
600/65R38 IND	192	174
600/65-34 FOR	205	186
600/65R-34/ M	209	189
600/65R-38/ M	193	175
620/75R-30/ M	200	182
650/65R38 NO	185	167
650/65R38 CON	186	169

Table continued on next page

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Tyre	Parameter value for T173 H-193 H, with 40 km/h	Parameter value for T153 H, and for T173 H-T193 H with 50 km/h
650/65R38 FOR	184	166
650/65R38 GY	183	166
650/65R38 M	185	168
650/65R42	175	159
650/75R38	174	158
680/75R32 M	184	167

4.8.2 Track widths

The track width is measured between the middle of the tyres. If needed, adjust the track widths.

IMPORTANT: The maximum allowed width of the tractor is 2550 mm (if larger width is not nationally allowed).

The distance between the mudguards is 1090 mm at the rear.

In many work applications, it is advisable to adjust the track widths so that the track made by the front tyres is covered by the track made by the rear tyres.

When using narrow track widths for the rear axle, check that the lower links do not touch the tyres. When required, lock the side regulators.

IMPORTANT: According to EU directives the smallest allowed distance between the tyre and the cab is 40 mm.

4.8.2.1 Agricultural front axle track widths

The agricultural front axle track widths (in mm) are listed in the following table.

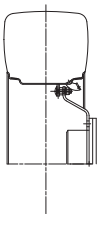
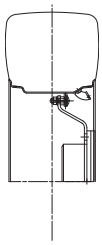
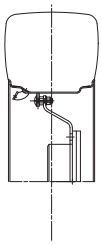
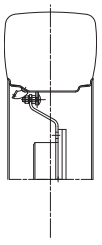
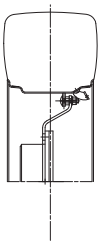
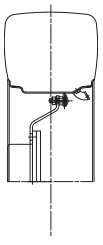
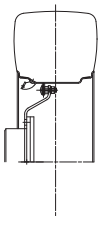
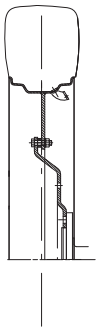
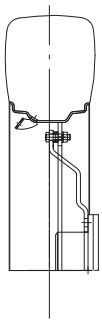
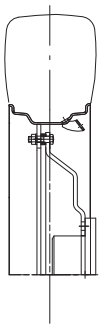
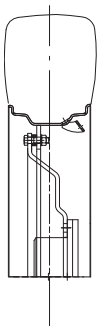
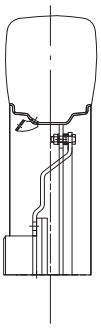
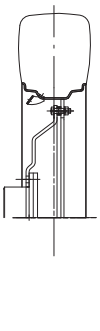
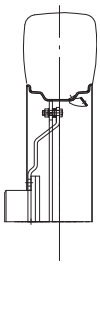
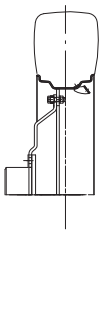
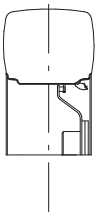
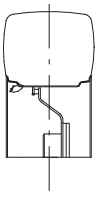
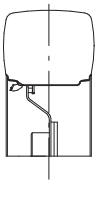
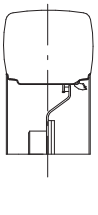
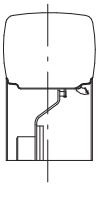
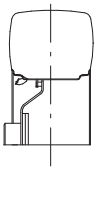
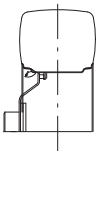
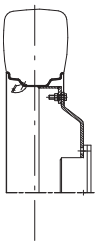
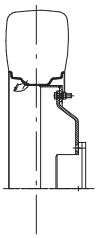
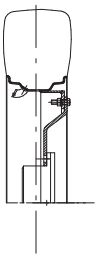
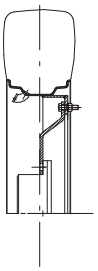
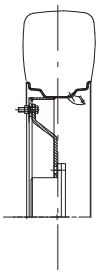
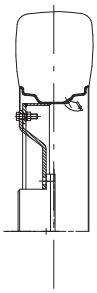
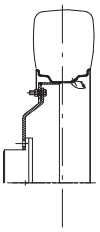
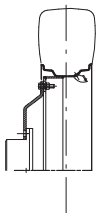
								
380/85R28, 14.9R28	2 135	2 045	1 930	1 840	1 735	1 645	1 530	
16.9R28, 420/70R28, 420/85R28, 440/65R28, 480/65R28, 480/70R28		2 045	1 930	1 840	1 735	1 645	1 530	

Table continued on next page

520/60R28, 540/65R28			1 930	1 835	1 735	1 640	1 530	
								
230/95R36	2 102	2 002	1 980	1 880	1 702	1 602	1 580	1 504

4.8.2.2 Industrial front axle track widths

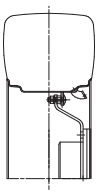
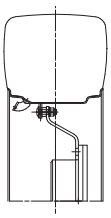
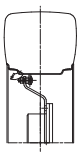
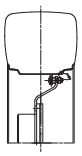
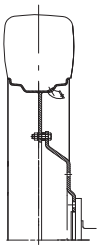
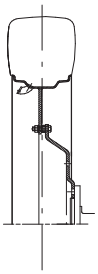
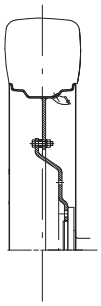
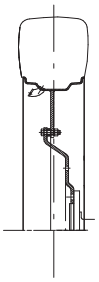
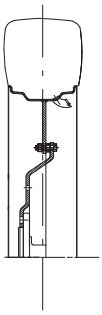
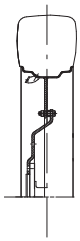
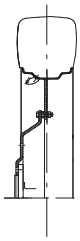
The industrial front axle track widths (in mm) are listed in the following table.

								
420/70R28	2 130	2 026	1 928	1 830	1 732	1 626	1 530	
16.9R28, 420/85R28 480/65R28, 480/70R28		2 026	1 928	1 830	1 732	1 626	1 530	
520/60R28, 480/70R30		2 030	1 935	1 830	1 732	1 626	1 530	
540/65R28, 600/65R28			1 935	1 835	1 740	1 630	1 535	
								
230/95R36	2 255	2 210	1 940	1 900	1 855	1 810	1 545	1 500

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4.8.2.3 Rear axle track widths

The rear axle track widths (in mm) are listed in the following table.

								
18.4R38, 460/85R38				2 012	1 910	1 808	1 714	1 612
20.8R38, 520/70R38, 520/85R38, 480/80R42				2 012	1 910	1 808	1 714	
540/65R38					1 910	1 808	1 714	
580/70R38, 600/65R38, 650/60R38					1 910	1 808		
620/70R42					1 910	1 811		
650/60R38, 650/65R42, 710/70R38						1 811		
								
270/95R48	2 022	2 000	1 922	1 900	1 622	1 600	1 522	1 500

4.8.3 Using chains

Chains can be used on the front wheels only when they are also used on the rear wheels.

IMPORTANT: With larger tyres and a suspended cab (extra equipment), the space between the mudguard and the tyre may become too small (under 25 mm). If the space is not large enough when you need to use the chains, adjust the mudguards.

- **Make sure that the chains are correctly tightened to avoid damaging the mudguards.**

4.8.4 Using twin-mounted wheels

Twin-mounted wheels can be used for decreasing the surface pressure, but not for obtaining better side support.

1. **Multiply the loading by 1.76 of the permissible load on one wheel.**

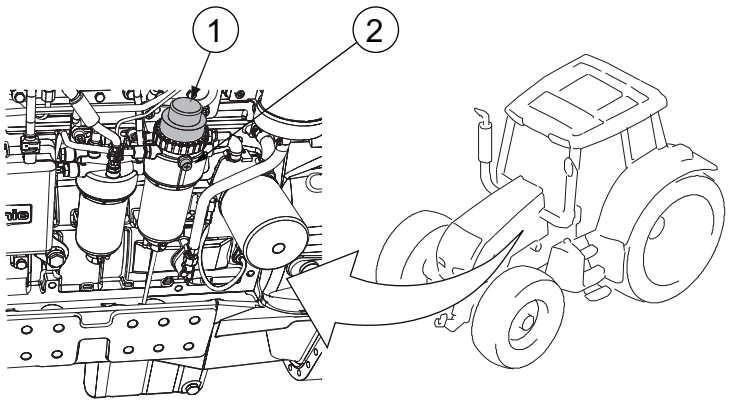
   IMPORTANT: Do not exceed the maximum permitted axle loading even if the tyres allow a heavier load.

2. **If dual/extension wheels are used, check that the tyre size does not exceed the permissible tyre values.**
3. **Adjust the track width of the inner wheels to the minimum value.**
4. **Adjust the turning angle, if necessary.**

4.8.5 Engine

4.8.5.1 Bleeding the fuel system

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: The fuel system connectors are not allowed to be opened when the engine is running and not for 30 seconds after switching off the engine. The pressure in the engines can be over 1 000 bar. If the jet of the high pressure fuel comes in contact with your skin, the fuel penetrates the skin and causes serious injuries. Contact your doctor immediately.

WARNING: Only an authorised person is allowed to repair the fuel system.

1. **Open the bleeding plug.**
2. **Put a transparent hose in the plug hole and lead it into a suitable container.**

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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 eventual 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: Disconnect the negative battery lead before removing the alternator.

IMPORTANT: Never open the charging circuit while the engine is running.

IMPORTANT: Disconnect the negative lead of the battery first and connect it last.

IMPORTANT: Remove the battery caps during charging to prevent the build up of explosive gases in the battery.

IMPORTANT: Always connect the battery with the correct polarity.

IMPORTANT: Do not connect any additional electrical equipment, as this may damage components of the existing electrical system.

IMPORTANT: All electronic equipment is sensitive to electrostatic discharge (ESD). Take all necessary measures to minimize or eliminate the risk of equipment being damaged by ESD.

4.8.6.2 Checking the battery

Check and clean the battery on a regular basis.



DANGER: Avoid sparks or naked flames near the battery. The battery gives off an explosive hydrogen gas! The battery electrolyte is corrosive.

- **Check that the fan belts are correctly tightened.**
- **Keep the battery clean.**

  Wash it with lukewarm water after removal from the tractor.
  IMPORTANT: Always disconnect the negative lead before washing.

- **Clean the pole studs, the cable terminals and the battery retainer thoroughly.**

  Wash off oxidised spots with water. Wipe the outside of the battery when it is clean, and coat the pole studs and the cable terminals with petroleum jelly.

- **Refit the battery.**

  IMPORTANT: Always connect the positive lead first.

4.8.6.3 Alternator

The tractor has a negative-grounded alternator which can easily be damaged if incorrect connections are made in the electrical system.

Connection of the battery with wrong polarity can burn out the alternator or rectifier. The electrical charging circuit must not be broken when the engine is running.

4.8.6.4 Protecting the electrical system before welding

Before repairing the tractor by arc welding, protect the electrical system from damaging.

1. **Disconnect the battery leads.**

   Disconnect the negative lead first.

2. **Disconnect the alternator wiring.**

   IMPORTANT: Never run the engine with the alternator disconnected.

3. **Remove the engine control unit cover.**

4. **Disconnect the engine control unit connectors.**

   Open the connector locking device to disconnect the connectors.
   When reconnecting, turn the locking device back to the locking position.

4.8.6.5 Fuses and relays

The electric centre is positioned under the dashboard. The relays related to the specific fuses are located in the fuse boxes. Other relays are placed outside the electric centre.

The electric centre must always be kept clean. If a fuse blows, the fault must be traced and remedied.

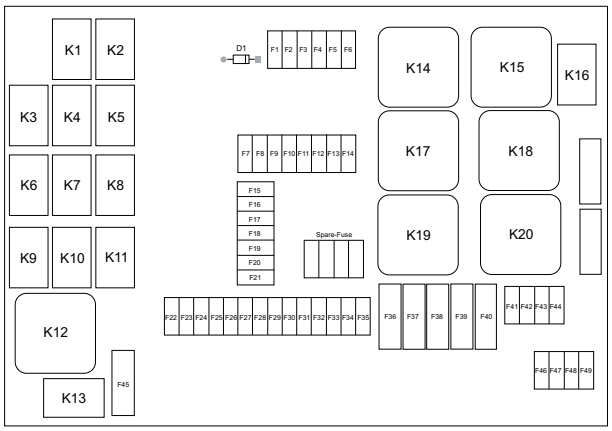
IMPORTANT: Fuses must not be replaced with new ones of higher rating as this may damage the electrical equipment.

Power for extra equipment can also be taken from the spare fuses or unused extra equipment fuses. A current source can be connected from the main current pole of the starter motor (the current is then switched off with the main switch) through the new fuse.

4.8.6.6 Fuses and relays in the electric centre

The fuses and relays in the electric centre in the lower part of the dashboard are listed in the following tables.

The fuse diagram is placed inside the fuse box. There is space for spare fuses. The electric centre in the lower part of the dashboard contains 49 fuses and the nominal current rating of these fuses is 5-30 A. The relays K22 and K23 are located near the electric centre.



Fuse	Nominal current	Description
F1	10A	Brake lights
F2	10A	Ignition switch
F3	15A	Hazard
F4	10A	Beacon, cab light
F5	10A	Seat, diagnostics, Auto-Guide
F6	10A	2-pole current sockets
F7	15A	High beam
F8	15A	Low beam
F9	15A	Trailer socket
F10	10A	Lighter, SVC wiper
F11	10A	Trailer hitch (light), Isoadapter
F12	10A	Direction indicators
F13	10A	Windscreen wiper and washer, horn
F14	10A	Floor fan
F15	10A	Reserve
F16	10A	Reserve
F17	10A	Air condition compressor
F18	10A	Reserve
F19	10A	Reserve
F20	10A	Fuel pump
F21	15A	Reserve
F22	15A	Low beam (hood)
F23	10A	Main switch
F24	10A	Memory

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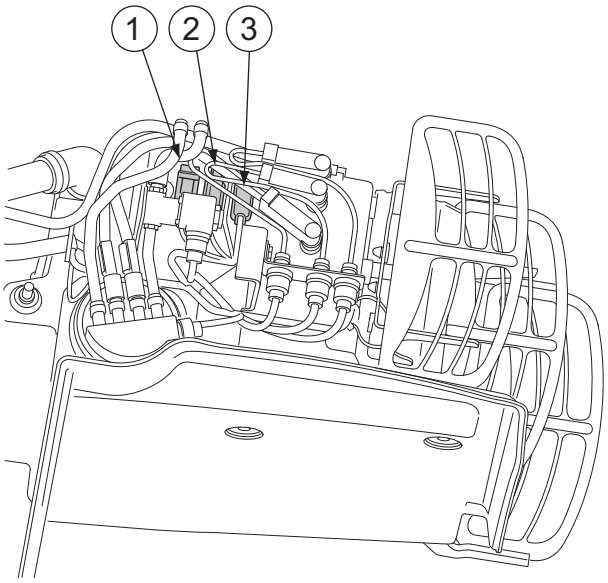
Fuse	Nominal current	Description
F25	10A	TC1 (VP3), F/N/R/P-lever
F26	10A	Transmission sensors
F27	5A	3-pole current socket, VMT
F28	5A	Cruise switches
F29	10A	Reserve
F30	5A	Instrumentation
F31	10A	Transmission sensors
F32	10A	Parking ensure
F33	10A	Twin-Trac, front PTO, front and cabin suspension
F34	15A	Radio, electrical mirrors, handsfree, rear wiper/washer
F35	15A	Seat, rear steering prevent
F36	25A	Fan
F37	30A	Reserve
F38	25A	Light switch
F39	25A	3-pole current socket
F40	25A	TC1 (VP1+VP2+VP3)
F41	15A	Rear working lights, left
F42	15A	Rear working lights, right
F43	15A	Waist working lights, front
F44	15A	Waist working lights, front
F45	30A	Waist working lights, rear/roof
F46	10A	Parking lights, left
F47	10A	Parking lights, right
F48	10A	Parking lights, illum., 2–pole current socket on the bonnet
F49	15A	Front working lights

Relay	Description
K1	Brake lights
K2	Parking ensure
K3	Air condition
K4	Reserve
K5	Reserve
K6	Fuel pump, CR/VE engine
K7	Reserve
K8	Reserve
K9	Low beam, hood
K10	Main switch
K11	Reserve
K12	Waist working lights, rear
K13	Hand brake input
K14	Auxiliary relay, +15
K15	Parking lights
K16	Front working lights
Table continued on next page	

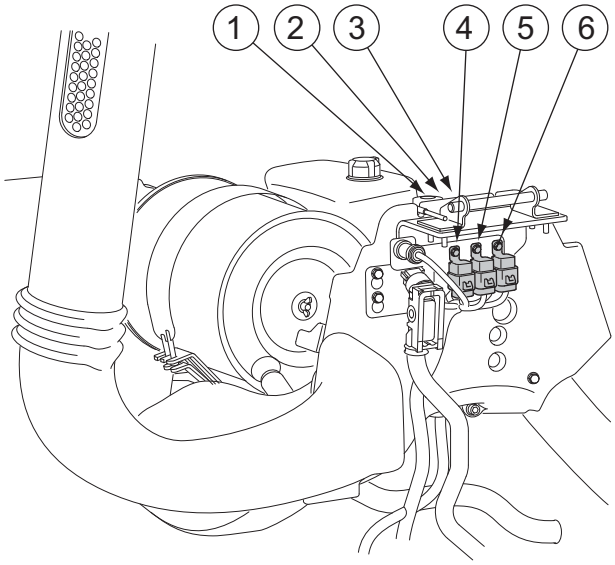
Relay	Description
K17	Auxiliary relay, +15
K18	Waist working lights, front
K19	Auxiliary relay, +15
K20	Rear working lights
K21	Direction indicator
K22	Intermittent control relay, front

4.8.6.7 Fuses and relays for the urea component

The fuse diagram is placed inside the fuse box. There is space for spare fuses.

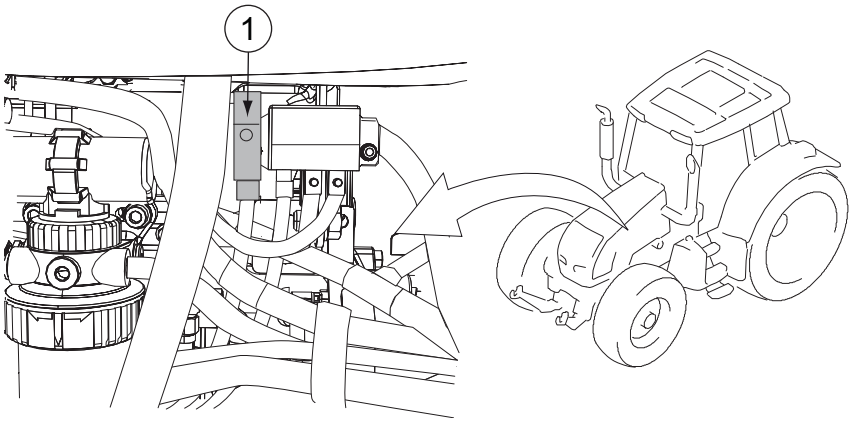


Fuse	Nominal current	Description
F1M	30 A	DEF system heaters
F2M	30 A	EEM supply
F3M	2 A	EEM wake up



Relay	Description
K1M	DEF heater CTRL (DNOX supply module)
K2M	DEF heater CTRL (pressure line)
K3M	DEF heater CTRL (return line)
K4M	DEF heater CTRL (suction line)
K5M	DEF & DNOX heating main relay
K6M	EEM supply

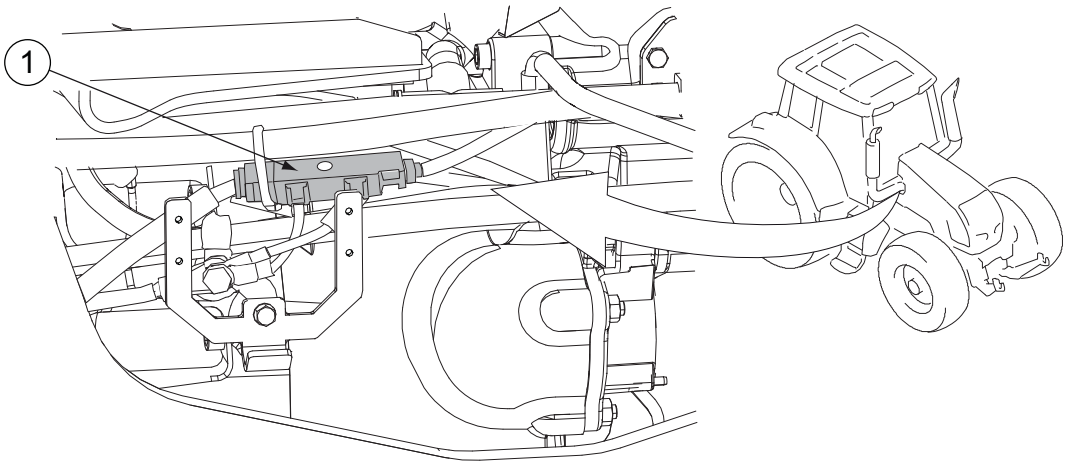
4.8.6.8 Engine induction air preheater fuse



1. Fuse case

Fuse	Nominal current	Description
F53	250 A	Electric preheating of engine induction air

4.8.6.9 Cab power supply fuse



1. Fuse case

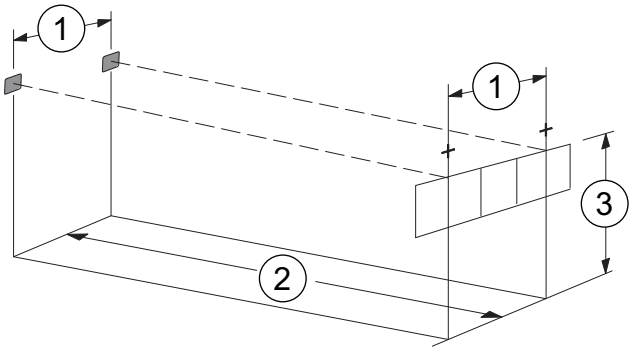
Fuse	Nominal current	Description
F52	125 A	Cab power supply

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4.8.6.10 Adjusting headlights

It is important that the headlights are correctly adjusted when running on public roads.

Before you adjust the headlights, make sure that the tractor load is normal and tyre pressure is correct.



1. Distance between headlight centres
2. 5 m (tractor distance from the wall)
3. Height of headlights above ground minus 50 mm

Headlight adjustment can be carried out quickly and accurately by using an optical headlight adjusting unit. If no optical instrument is available, the adjustment can be done as follows:

1. **Turn on the dipped lights.**
2. **Measure that the cut-off edge of the light pattern comes at height of headlights above ground minus 50 mm when the tractor is 5 m from the wall.**
3. **Turn the full beam lights on.**
4. **Measure that the distance between headlight centres matches the distance measured on the wall.**
5. **Adjust the lights using the headlight adjusting screws.**

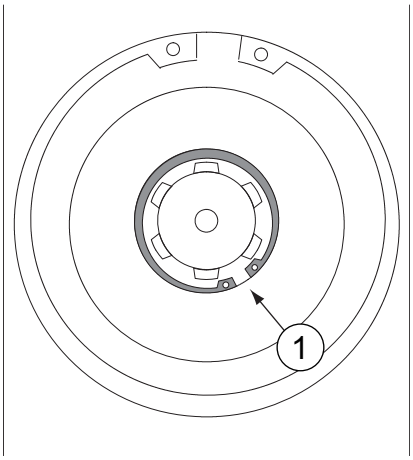
If the tractor has raised full/dipped beam headlights (on the top part of the cab), the lights have to be adjusted so that the light pattern shines on the mark where the ground is even and the distance is 30 m.

4.8.7 Power transmission system

4.8.7.1 Changing the rear power take-off shaft

Change the rear power take-off (PTO) shaft when needed.

IMPORTANT: Never run the tractor without the power take-off (PTO) shaft.



1. Inner circlip

1. **Remove the inner circlip and the space ring.**
2. **Pull out the shaft.**
3. **Fit the new shaft.**
4. **Check that the shaft seal is undamaged.**
5. **Attach the space ring and the circlip.**
6. **Change the circlip if damaged.**

   IMPORTANT: Check that the circlip is correctly positioned.

4.8.7.2 Checking the transmission ratio of a power take-off driven trailer

Check the transmission ratio of a power take-off (PTO) driven trailer.

Before you check the transmission ratio, make sure that the tractor with the trailer is on a flat, hard-surfaced area or road.

1. **Check that the tyres have the correct pressure.**
2. **Remove the PTO transmission shaft.**
3. **Fasten wire or tape indicators on the PTO shaft of the tractor and on the trailer drive shaft.**

   The indicators must be aligned.

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4. **Drive the tractor together with the trailer slowly forwards.**

   Ask two people to count simultaneously how many revolutions the tractor and the trailer shaft each make. Stop counting when the tractor shaft has made 100 revolutions.

5. **Compare the figures for the tractor and trailer shafts.**

   - If the number of the trailer drive shaft revolutions is higher than 100, the trailer is slower than the tractor.

     The trailer should be 0-3% slower, that is, the trailer shaft should have revolved 100-103 times. If the number is greater than this, the trailer's braking effect is too great.
   - If the number of the trailer drive shaft revolutions is lower than 100, the trailer is faster than the tractor.

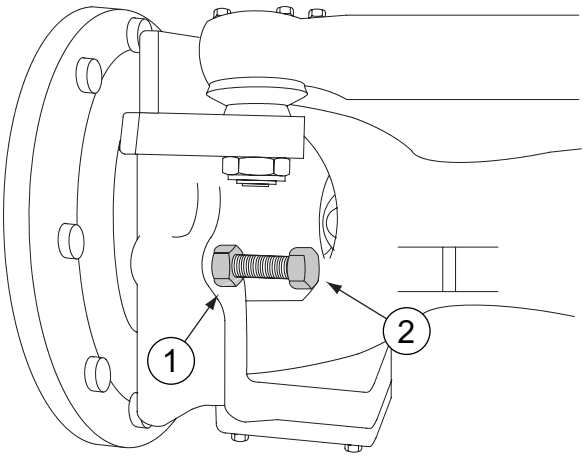
     In this case, the trailer tends to push, which can endanger the steering of the tractor.

4.8.8 Steering system

4.8.8.1 Adjusting the steering angle

IMPORTANT: When altering the track width or when fitting a front loader, always make sure that the front wheels have free movement to full lock in both directions and that the front axle and the wheels can turn fully. If necessary, adjust the steering lock stop screws on the powered front axle.

1. **Slacken the locking nut.**



1. Locking nut
2. Adjusting screw

2. **Adjust the adjusting screw.**

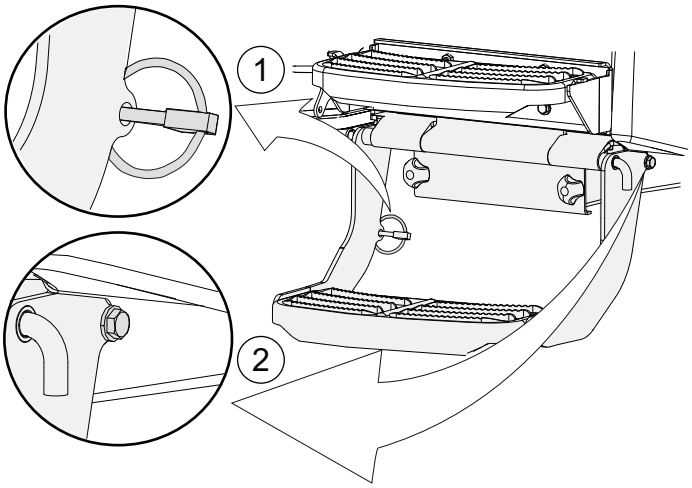
   IMPORTANT: Adjust the adjusting screws on both sides to the same length so that the turning angle is the same on both sides.

3. **Tighten the locking nut.**

4.8.9 Cab and shields

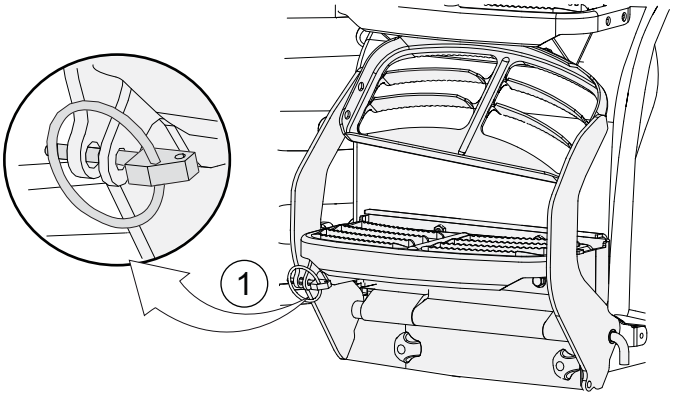
4.8.9.1 Adjusting the steps for driving off-road

1. **On the right side, remove the pin and the locking screw.**



1. Pin
2. Locking screw

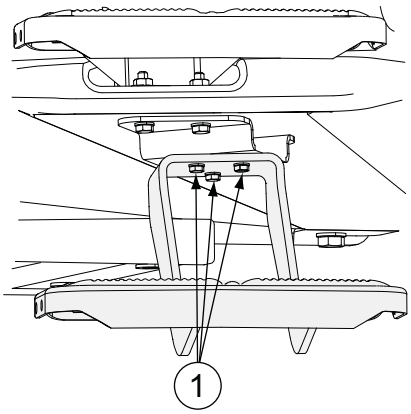
2. **Turn the right side step fully up and lock it in this position with the pin.**



1. Pin

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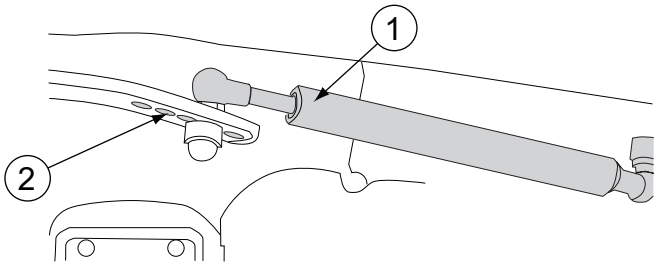
3. **On the left side, remove the lowest step completely by unscrewing three screws.**



1. Screws

4.8.9.2 Limiting the door opening

Limit the door opening when on twin wheels.



1. Gas spring
2. Fastening holes

- **Check that the door does not come in contact with the wheels when mounting twin wheels.**
- **Change the gas spring to another hole if needed.**

4.8.9.3 Checking and adjusting front mudguards

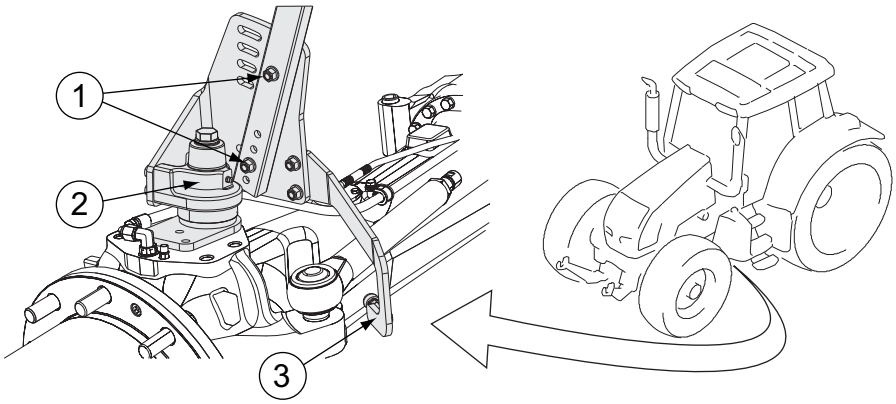
Check and adjust the front mudguards if needed.

- **After transportation, check and adjust the front mudguards for maximum turning angle.**
- **If necessary, move them to the right width so that the mudguards do not touch the tractor chassis.**

  The minimum distance of the mudguards frame from the tyres is 40 mm sideways and 60 mm vertically.

4.8.9.4 Adjusting flexible front mudguards

Adjust the flexible front mudguards, if needed.



1. Fixing screws
2. Turning mechanism
3. Stoppers

The front mudguards are adjusted correctly at the factory. With the fixing screws the pretension (15°) is adjusted for the mudguards to prevent vibration when driving straight. The fixing screws also limit the travel of the mudguard outside and inside.

On some tractor models the flexible front mudguards with turning limitation are fitted as standards with a factory-mounted front loader. It is also possible to fit them afterwards to other models. When turning the wheels, the mudguards turn less than the wheels and must be flexible in case they come into contact with something.

- **Check the maximum oscillation and turning angles so that the front mudguards do not come in contact with, for example, the side panel when you fit tyres.**

  When this adjustment is not needed the screw is in the maximum position.
  IMPORTANT: Check that the end of the fixing screw does not touch the guard of the tyre valve when turning the tyres to the maximum position.

- **Adjust the fixing screw if the tyre touches the mudguard.**
- **If necessary, limit the turning of the mudguards by adjusting the stoppers.**
- **To adjust the height of the mudguards, change the fixing screws or the shafts to the other holes.**

  In addition, the mudguards can be inclined forward and backward in their fixing holes.

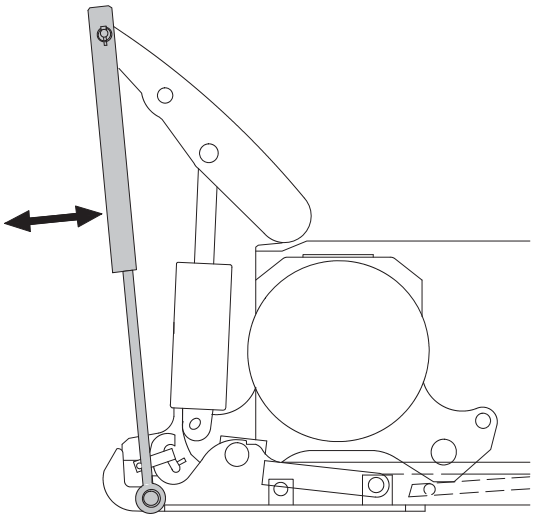
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4.8.10 Hydraulic system

4.8.10.1 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.**
2. **Check the adjustment by moving the lifting links manually.**

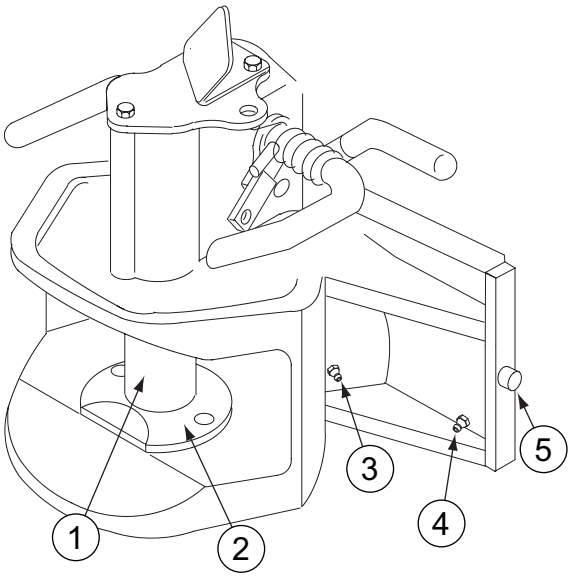
   The adjustment is correct when the links move loosely. When the linkage is lowered, the towing hook is locked positively by the pawl.
3. **Make sure that the spring returns the pawl completely.**
4. **If necessary, adjust the length of the links by removing the cotter at the upper end of the links and turning them until the correct length is obtained.**
5. **Check that both lifting links are of the same length after the adjustment.**

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.

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4.8.10.2 Maintaining the automatic jaw of the wagon towing device

Maintain the automatic jaw of the wagon towing device regularly.



1. Main pin
2. Control unit of the puller pin
3. Nipple 1
4. Nipple 2
5. Locking pin (2 pcs)

- **Regularly clean the main pin, control unit of the puller pin and locking pins.**

  Do not use pressure wash when cleaning the main pin.

- **Grease nipple 1 regularly with Calsium LF grease.**
  - **Turn the jaw from left to right at least 90º after greasing.**

    This ensures that the grease spreads evenly to the desired surfaces.

  IMPORTANT: If the jaw is rusty, for example due to the fertiliser, do not use a rust-loosening agent for removing the rust but take it to an authorised Valtra workshop.

- **Grease nipple 2 with Calsium LF grease if necessary or at least every 1000 hours.**

5 Faults and remedial actions

5.1 Handling error situations

Indicator lights and service codes guide you in error situations.

- **Take notice of the indicator lights on the instrument panel and act accordingly.**

The STOP indicator light starts flashing.	• 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 A-pillar display to indicate an active service code in the system. **NOTE**: If the book symbol starts flashing, contact an authorised Valtra workshop, even if the error does not prevent driving the tractor.	• Check if the service code is included in the service code table. • Follow the instructions on what operations are allowed and what operations are to be avoided while the service code is displayed. • If the service code is not listed in the table, contact an authorised workshop immediately.
The limiting function of the maximum engine speed is on (for example, 1 500 rpm or 1 800 rpm). Some service codes limit the maximum engine speed, torque and power of the engine. This prevents serious damage to the engine.	Avoid long-term and heavy use of the engine until the error is fixed.

NOTE: The tractor has a function which delays the activation of the parking brake when the engine is stopped. The function activates if:

- The engine speed stays below 400 rpm for longer than one second, but the engine remains running.

and

- The driving speed exceeds 5 km/h.

In this case, the tractor does not move and no service codes are shown on the display. To continue driving, you have to stop and restart the engine.

5.2 Errors indicated by the indicator lights

Indicator light	Indication
	Direction indicator light for second trailer. If one of the bulbs on the combination has failed, this light is not lit.
	Direction indicator light for first trailer. If one of the bulbs on the combination has failed, this light is not lit.
	Engine emission system failure or malfunction indicator light. The light flashes when the AdBlue/DEF tank is empty.
	Engine air cleaner clogging indicator light. The light is lit when the engine is running and a buzzer sounds once to indicate that the engine air filter is clogged and needs to be serviced.
	Engine oil pressure light The light is lit when the engine is running, a buzzer sounds continuously and the STOP indicator light flashes to indicate that the oil pressure is too low.

Table continued on next page

Indicator light	Indication
	Σ-indicator light (on model T193 H) The light is lit continuously (yellow) when the tractor is operating in the higher power range and using PTO.
	Parking brake indicator light If the light is lit and the STOP light is flashing, the parking brake cable is broken or incorrectly adjusted.
	Battery charging indicator light The light is lit and a buzzer sounds once when battery charging is not ongoing. **IMPORTANT**: A charging failure must be fixed immediately. When the voltage is reduced, the electric valves may reduce the oil pressure for the multi-disc clutches and cause clutch slippage which may damage the clutch discs.
	STOP indicator light **IMPORTANT**: If the STOP light starts flashing, stop the tractor and engine immediately. You can continue driving only in an emergency, for example to move the tractor to the roadside. The STOP light flashes to indicate a serious fault, for example: •  Engine oil pressure is too low •  Gearbox oil pressure is too low •  Gearbox oil temperature is too high •  Parking brake cable is broken or incorrectly adjusted • Engine temperature is too high (gauge).
	Gearbox oil pressure light The light is lit and the STOP indicator light flashes to indicate that the gearbox oil pressure is too low.
	Gearbox oil temperature light The light is lit and the STOP indicator light flashes to indicate that the gearbox oil temperature is too high. The gearbox oil temperature can be shown on the Proline or Agroline instrument panel display.
	Pressure oil filter clogging indicator light The light is lit and a buzzer sounds once when the engine is running and the oil temperature is over 20 °C. This indicates that the pressure filter(s) of the hydraulic or transmission system requires service. **NOTE**: The light may come on if the tractor is started when it is very cold.

5.2.1 Cleaning the main engine air filter

You can clean the main engine air filter with compressed air.

IMPORTANT: The main engine air filter element must not be cleaned more than five times. After that it must be replaced.

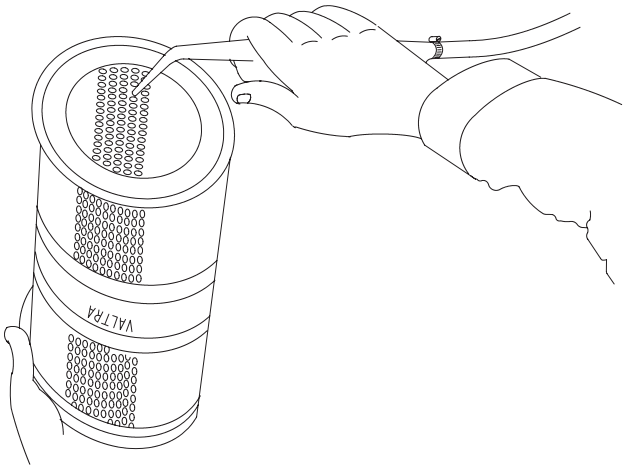
NOTE: Change the main engine air filter if you discover any holes or other defects.

IMPORTANT: Do not open the cover of the air cleaner housing unnecessarily. During maintenance, check that the cover of the housing, pipes and unions are in good condition.

IMPORTANT: The safety filter behind the main engine air filter must not be cleaned but must always be changed according to the maintenance schedule. The purpose of the safety filter is to prevent damage to the engine if the main engine air filter fails.

1. **Stop the engine.**
2. **Take out the main engine air filter from the air filter housing.**
3. **Direct the air flow from the rear side of the main engine air filter forward in the air direction.**

   Use clean and dry compressed air with a maximum pressure of 500 kPa.
   IMPORTANT: Do not hold the nozzle closer than 3-5 cm from the main engine air filter.



4. **Direct the air flow from the front side of the main engine air filter and after that from the rear side.**
5. **Check the inside of the air cleaner housing and the inlet pipe.**

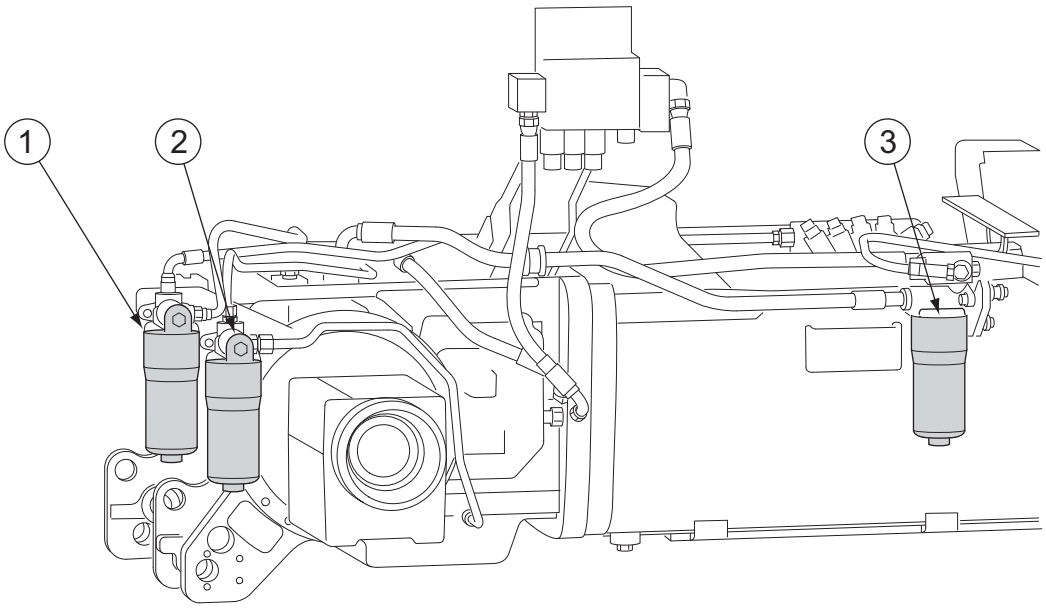
   Dirt on these parts indicates that the filter element is defective or has not been fitted properly.
6. **Check the main engine air filter and its sealing surfaces using a flashlight.**
7. **Fit the main engine air filter back in the air filter housing.**

5.2.2 Identifying a blocked transmission or hydraulic system filter

When the pressure oil filter clogging indicator light  is lit the filter of the transmission or hydraulic system is blocked.

If the indicator light is lit when the oil has been warmed, one of the pressure filters (not the low pressure filter of the transmission system) is blocked. If the indicator light is lit when using auxiliary hydraulics, it is probably only the hydraulic return filter which is blocked.

NOTE: All filters are identical.



1. Low pressure filter of the transmission system
2. Transmission lubrication filter
3. Pressure filter of the hydraulic system

Oil filters are located on the right side of the tractor under the cab. The return oil filter is labelled with the text HYD on the mounting piece on top of it. The lubrication filter is indicated with the text LUB on the mounting piece on top of it. The low pressure filter is indicated with the text TRANS on the mounting piece on top of it.

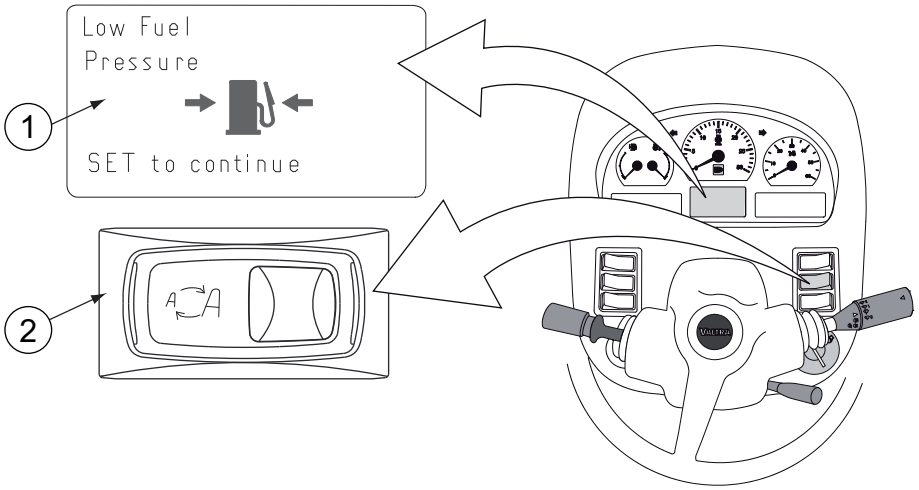
1. **Release the pressure sensor wires of the auxiliary hydraulics return oil filter.**
2. **Run the engine.**
3. **Check if the pressure oil filter clogging indicator light is lit.**

   If the indicator light does not come on, the fault is in the return oil filter.
4. **Change the return oil filter if the blocking is caused by this filter.**
5. **Release the pressure sensor wires of the pressure filter of the hydraulic system if the indicator light still comes on.**
6. **Run the engine.**
7. **If the indicator light does not come on, the fault is in the pressure filter of the hydraulic system.**
8. **Change the pressure filter of the hydraulic system if the blocking is caused by this filter.**
9. **Change the transmission lubrication filter and the low pressure filter of the transmission system if the indicator light still comes on.**

   IMPORTANT: If the blocking is in one of the transmission filters and it occurs considerably ahead of scheduled replacement of the filters, it may be an indication of partial damage to the transmission system. In this case, further investigations need to be made to avoid additional damage to the transmission system.

5.3 Warning symbols on the Proline instrument panel display

5.3.1 Low fuel pressure warning



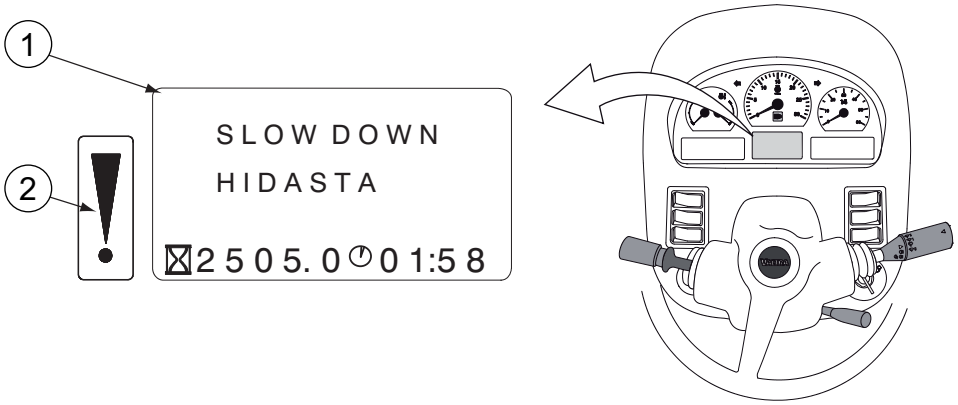
1. Instrument panel display
2. Proline instrument panel display setting switch

This message gives information about the pressure drop of the fuel before the running faults appear.

To clear the display, press the side of the Proline instrument panel display setting switch opposite to the symbol.

5.3.2 Transmission speed warning

The transmission speed warning is shown on the instrument panel display when the transmission speed is too high or the engine speed is over 2 700 rpm.



1. Instrument panel display
2. Exclamation mark

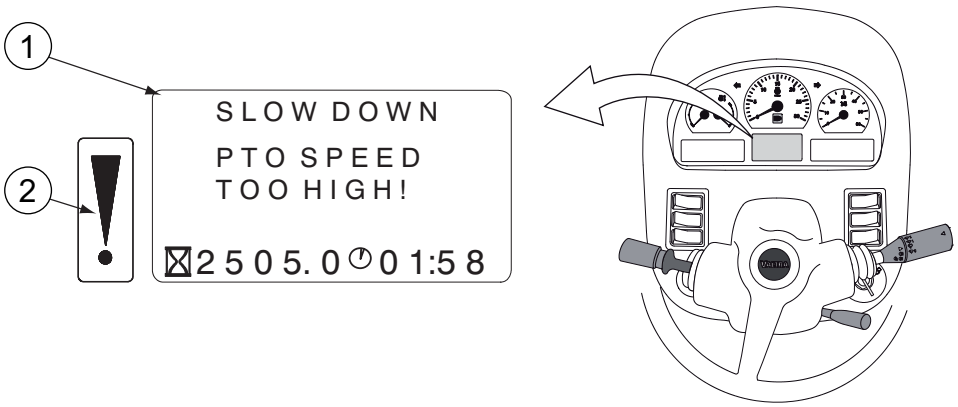
When the transmission speed warning is shown on the display, the following also occur:

- The buzzer sounds continuously.
- The exclamation mark is lit.

When the transmission speed or the engine speed has fallen low enough, the buzzer and exclamation mark go out and the display returns to the previously selected state.

5.3.3 Power take-off speed warning

The power take-off (PTO) speed warning is shown on the instrument panel display when the ground speed PTO is engaged and the PTO speed rises above 1800 rpm.



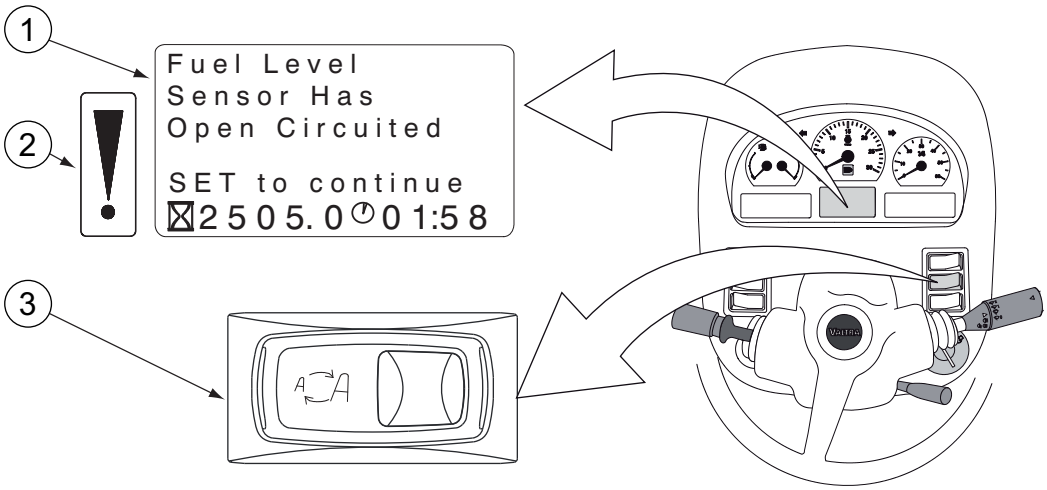
1. Instrument panel display
2. Exclamation mark

When the PTO speed warning is shown on the display, the following also occur:

- The buzzer sounds once.
- The exclamation mark is lit.

When the PTO speed has fallen low enough, the buzzer and exclamation mark go out and the display returns to the previously selected state.

5.3.4 Fuel level sensor open circuit warning

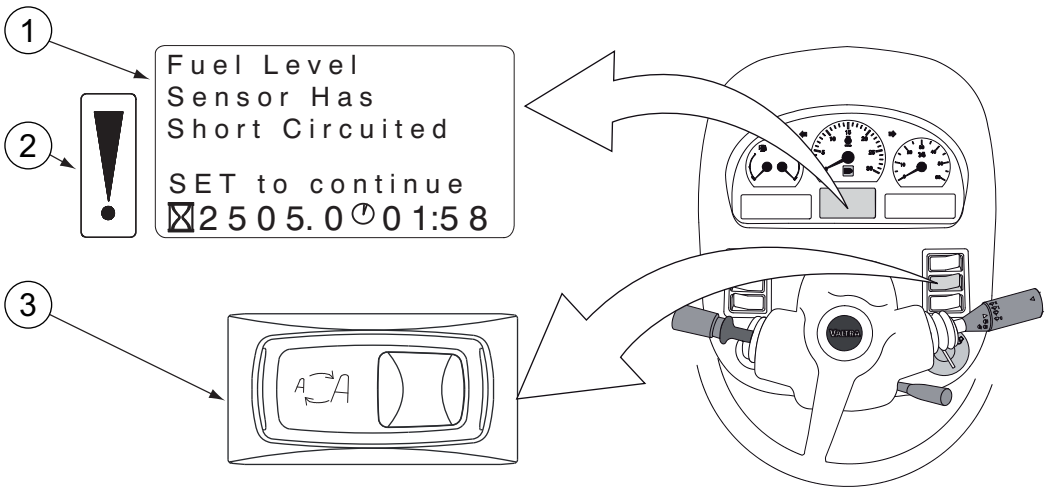


1. Instrument panel display
2. Exclamation mark
3. Proline instrument panel display setting switch

When the fuel level sensor open circuit warning appears on the instrument panel display, the exclamation mark is lit also. If the warning appears on the display, contact an authorised Valtra workshop.

To clear the display, press the side of the Proline instrument panel display setting switch opposite to the symbol.

5.3.5 Fuel level sensor short circuit warning



1. Instrument panel display
2. Exclamation mark
3. Proline instrument panel display setting switch

When the fuel level sensor short circuit warning appears on the instrument panel display, the exclamation mark is lit also. If the warning appears on the display, contact an authorised Valtra workshop.

To clear the display, press the side of the Proline instrument panel display setting switch opposite to the symbol.

5.4 Viewing service codes

You can read active service codes on the instrument panel display.

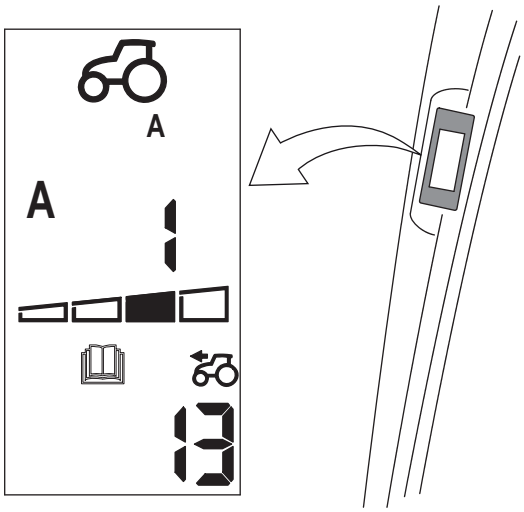
If there is an active service code, the book symbol is flashing on the A-pillar display.

1. **Engage the parking brake.**
2. **Push the pre-programming button.**

   The service code view appears on the display.

3. **The service codes start to scroll on the display in four parts.**

   For example, the code 000091-13-035 is displayed in the following order.



   - 0000
   - 0091
   - 0013
   - 0035

   The service code order number shows which code is currently scrolling on the display. The service code part indicator shows which part of the code is displayed on the service code value field.

4. **Exit the service code list.**

   To exit the service code view, push the pre-programming push button, the Powershift button or the HiShift button.

5.5 Service codes

Service codes indicate different errors in the tractor components or functions.

IMPORTANT: The table explains what the service codes mean and what measures you should take in these situations.

NOTE: If two or more service codes marked with a star (*) are displayed simultaneously, driving is prevented for safety reasons until the error situations have been repaired.

Service codes	Error meaning/measures
000003 — 14— 000	Error in the fuel system. Engine output and speed will be reduced. • Check that there is an adequate amount of fuel in the tank. • Check that the fuel filter is not clogged or frozen. • Check that there is no external leak in the fuel system. The engine must be stopped. **IMPORTANT**: Do not approach the engine when it is running or immediately after stopping. The extremely high pressure of the fuel system can cause a safety risk to the operator even if there is a very small leak in the system.
000029 — 03 — 000 000029 — 04 — 000	There is an error in the hand throttle function. The engine only runs at idling speed. Driving with throttle pedal is possible.
000091 — 03 — 000 000091 — 04 — 000	There are faults in the function of the front control accelerator pedal. The engine runs only at low idling speed. 1. Lift up the accelerator pedal and turn the ignition switch to the off position for a moment. 2. Start the engine again (do not touch the accelerator pedal). 3. Try driving by lifting the engine revolutions with the cruise control. If there is no cruise control, use the hand throttle or the accelerator pedal so that you do not push the pedal totally to the bottom.
000094 — 03 — 000 000094 — 04 — 000	There is an error in the engine fuel system function. The engine power output is limited and the maximum running speed is 1500 rpm. The error must be identified as soon as possible.
000094 — 16 — 000	Fuel pressure in the filter is too high. Check the fuel filters as they may be clogged. The engine can be run temporarily to move the tractor to a safe area to avoid fuel system damage.
000094 — 18 — 000 000094 — 31 — 000	The fuel pressure (after the filters) is too low. Check that there is fuel in the fuel tank. If this does not help, the feed pump of the fuel system may be faulty or the fuel filters may be blocked or frozen. The engine can be run temporarily to move the tractor to a safe area to avoid injection pump damage.
000097 — 31 — 000	There is too much water in the water trap of the fuel system. Drain the water from the water separator in the lower part of the filter. If water has to be drained from the filters frequently, find out the reason for the high water content in the fuel.
000100 — 01 — 000	The oil pressure of the engine is too low, or there is no pressure at all. The engine stops after 30 seconds. • Check the oil level. • Do not try to start the engine.
000100 — 03 — 000 000100 — 04 — 000 000100 — 31 — 000	There is an error in the engine oil pressure sensor. The engine output is limited. The engine oil pressure may be low. To avoid serious engine damage, avoid using the engine. The engine can be run only temporarily to move the tractor to a safe area.
000100 — 16 — 000	The engine oil pressure is too high or there is an error in the oli pressure sensor. You can continue driving temporarily, but clear the fault as soon as possible.
000100 — 18 — 000	The engine oil pressure is too low. • Check the oil level. • Do not try to start the engine.
000102 — 03 — 000 000102 — 04 — 000	There is an error in the engine boost pressure sensor. The engine output is limited. You can continue driving temporarily, but clear the fault as soon as possible.
000102 — 16 — 000	The engine boost pressure is too high. The engine output is limited and the maximum running speed is 1500 rpm. You can continue driving temporarily, but clear the fault as soon as possible.
Table continued on next page	

Service codes	Error meaning/measures
000102 — 18 — 000	The engine boost pressure is too low. The engine runs but the malfunction has to be examined as soon as possible to avoid engine damage. • Check that the air filter is clean (see the warning light for blocked filter on the instrument panel).
000102 — 31 — 000	Engine intake manifold pressure is too low during starting. The engine will not start or it runs poorly. • Check the engine intake air supply: air filter cleanness, intake manifold blockages, and kinked hoses. • You can continue driving temporarily, but clear the fault as soon as possible.
000105 — 03 — 000 000105 — 04 — 000	The temperature sensor for the engine injection air is faulty. The engine works but its output and exhaust gas emissions change. You can continue driving temporarily, but clear the fault as soon as possible.
000105 — 16 — 000	The engine injection air temperature is too high or there is an error in the air temperature sensor. • Check that all tractor radiator grilles are clean. You can continue driving temporarily, but clear the reason for heating as soon as possible.
000109 — 03 — 000 000109 — 04 — 000	The engine cooling system pressure measurement is faulty. You can continue driving temporarily if the engine temperature is not too high, but clear the reason for the fault as soon as possible.
000110 — 00 — 000	The coolant temperature is very high. The engine stops after 30 seconds. • Check the coolant level and that the radiator is clean. • Check the fan belt and its tightness. • Check that the fan is running with relatively high speed. • Let the engine cool off a moment and start the engine. • Let the engine run without load until the temperature reduces. You can continue driving temporarily, but clear the reason for heating as soon as possible.
000110 — 03 — 000 000110 — 04 — 000	There is an error in the coolant temperature sensor. The engine output is limited. • Clear the fault as soon as possible You can continue driving temporarily, but the engine overheating may cause engine damage.
000110 — 16 — 000	The coolant temperature is too high or there is an error in the sensor. The engine output is limited. • Check the coolant level and that the radiator is clean. • Check the fan belt and its tightness. • Check that the fan is running with relatively high speed. • Let the engine cool off a moment and start the engine. • Let the engine run without load until the temperature reduces. You can continue driving temporarily, but clear the reason for heating as soon as possible.
000157 — 00 — 000	There is an error in the fuel system. The engine stops. • Switch power off for a moment and restart the engine. If the same Service code is still active or the engine stops, do not continue driving. The engine can be run temporarily to move the tractor to a safe area to avoid fuel system damage.
Table continued on next page	

Service codes	Error meaning/measures
000157 — 15 — 000 000157 — 16 — 000 000157 — 17 — 000 000157 — 18 — 000 000157 — 31 — 000	There is an error in the fuel system. The engine output and speed is limited. • Switch power off for a moment and restart the engine. Check if the same Service code is still active. • Check that there is an adequate amount of fuel in the tank. • Check that the fuel filter is not blocked or frozen. • Check that there is no external leak in the fuel system. The engine must be stopped. IMPORTANT: Do not approach the engine when it is running or immediately after stopping. The extremely high pressure of the fuel system can cause a safety risk to the operator even if there is a very small leak in the system.
000168 — 00 — 000	The supply voltage in the engine electrical system is too high (over 17 V). • Check the charging generator voltage and battery condition. Too high a voltage can damage the electrical system.
000168 — 01 — 000	The operating voltage coming to the engine control unit is too low, which may prevent the engine from running. • Check the battery and charging generator condition even if the engine works.
000174 — 00 — 000	Fuel temperature is too high (over 85ºC). The engine output will be limited. • Check the fuel level and temperature in the tank. The return flow can heat up the fuel in the tank if the tank is nearly empty and ambient temperature is high. • Fill the fuel tank. You can continue driving temporarily, but clear the reason for heating as soon as possible.
000626 — 03 — 000 000626 — 05 — 000 000626 — 06 — 000	Engine intake air heater is not functioning properly. The engine may not start. Even if the engine starts, clear the reason for heating problem as soon as possible.
000651 — 05 — 000 000651 — 06 — 000 000651 — 14 — 000 000652 — 05 — 000 000652 — 06 — 000 000652 — 14 — 000 000653 — 05 — 000 000653 — 06 — 000 000653 — 14 — 000 000654 — 05 — 000 000654 — 06 — 000 000654 — 14 — 000 000655 — 05 — 000 000655 — 06 — 000 000655 — 14 — 000 000656 — 05 — 000 000656 — 06 — 000 000656 — 14 — 000	There is an error in the fuel system. The engine output and speed is limited. The engine can be running poorly. • Clear the fault as soon as possible. You cannot continue working, but you can continue driving temporarily.
000677 — 03 — 000 000677 — 05 — 000 000677 — 06 — 000	Engine starter relay is not functioning properly. The engine may not start. Even if the engine starts, clear the reason for heating problem as soon as possible.

Table continued on next page

Service codes	Error meaning/measures
000974 — 03 — 000 000974 — 04 — 000	There is an error in the throttle pedal for the reverse drive controls. The engine only runs at low idling speed. 1. Lift up the throttle pedal and turn the ignition key to the off position for a moment. 2. Start the engine again (do not touch the rear throttle pedal). 3. Try driving by increasing the engine speed with cruise control or hand throttle. Driving with forward drive controls is usually possible.
000977 — 03 — 000 000977 — 05 — 000 000977 — 06 — 000	There is an error in the engine cooling fan. The fan may be running continuously at full speed or it may be running too slowly. Clear the reason for fan problem as soon as possible.
001136 — 00 — 000	Temperature of the EC unit is too high. Engine stops after approximately 30 seconds. • Check that the radiator grilles are clean to ensure sufficient fan air supply. • Allow the engine to cool down for a moment. Restart the engine.
001321 — 03 — 000 001321 — 06 — 000	Engine starter relay is not functioning properly. The engine may not start. Even if the engine starts, clear the reason for relay problem as soon as possible.
001639 — 18 — 000 001639 — 19 — 000	There is an error in the engine cooling fan. The fan may be running continuously at full speed or it may be running too slowly. Clear the reason for fan problem as soon as possible.
001761 — 01 — 000	AdBlue/DEF tank is empty. Engine torque and speed will be radically reduced to avoid excessive engine exhaust emissions. Fill the tank with AdBlue additive immediately to restore the engine output and ensure that the tractor exhaust emissions are within regulations. The engine can be run only temporarily to move the tractor to a safe area.
001761 — 03 — 000 001761 — 04 — 000	Error in the AdBlue/DEF tank level sensor. Engine output will be reduced after a while. If the tank is empty or nearly empty, fill it with AdBlue additive as soon as possible, preferably immediately.
001761 — 18 — 000	AdBlue/DEF tank is nearly empty (only a few % left). Engine torque and speed will be reduced after a while. • Fill the tank with AdBlue additive immediately to maintain high engine output. If the tank is completely empty, engine torque and speed will be further reduced (see code 001761-01-000). • Try to fill the AdBlue tank always when refuelling or at the latest, when the indicator light in the instrument panel or the A pillar display shows that AdBlue level is low.
003031 — 03 — 000 003031 — 04 — 000 003031 — 14 — 000	There is an error in the exhaust SCR after-treatment system. Engine output will be reduced after a while. Clear the reason for problem and stop driving the tractor as soon as possible.
003031 — 16 — 000	AdBlue/DEF tank temperature is too high or there is an error in the temperature sensor. Clear the reason for problem as soon as possible. Overheated AdBlue additive must be drained from the tank and the tank must be filled with new AdBlue additive.
003361 — 03 — 000 003361 — 04 — 000 003361 — 05 — 000 003361 — 06 — 000 003361 — 14 — 000	There is an error in the exhaust SCR after-treatment system. Engine output will be reduced after a while. Clear the reason for problem and stop driving the tractor as soon as possible.
003361 — 11 — 000	The AdBlue/DEF tank is empty or there is an error in the exhaust SCR after-treatment system. Engine output will be reduced after a while. If the tank is empty or nearly empty, fill it with AdBlue additive. Clear the reason for problem as soon as possible.

Table continued on next page

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Service codes	Error meaning/measures
003363 — 03 — 000 003363 — 04 — 000 003363 — 05 — 000 003363 — 31 — 000	There is an error in the exhaust SCR after-treatment system. Clear the reason for problem as soon as possible to avoid greater damage and blockages in the system.
004090 — 16 — 000 004090 — 18 — 000	AdBlue/DEF tank contains an incorrect type of additive or there is an error in the exhaust SCR after-treatment system. Engine output will be reduced after a while. Check that the AdBlue/DEF tank is filled with correct additive. Clear the reason for problem as soon as possible.
004332 — 00 — 000 004332 — 11 — 000 004332 — 14 — 000 004332 — 16 — 000 004332 — 18 — 000	There is an error in the exhaust SCR after-treatment system. Engine output will be reduced after a while. Clear the reason for problem and stop driving the tractor as soon as possible.
004332 — 31 — 000	There is an error in the exhaust SCR after-treatment system. Clear the reason for problem as soon as possible to avoid greater damage and blockages in the system.
004334 — 03 — 000 004334 — 04 — 000	There is an error in the exhaust SCR after-treatment system. Engine output will be reduced after a while. Clear the reason for problem and stop driving the tractor as soon as possible.
004340 — 03 — 000 004340 — 04 — 000 004340 — 05 — 000 004340 — 31 — 000 004342 — 03 — 000 004342 — 04 — 000 004342 — 05 — 000 004342 — 31 — 000	There is an error in the exhaust SCR after-treatment system. Clear the reason for problem as soon as possible to avoid greater damage and blockages in the system.
004344 — 02 — 000 004344 — 08 — 000	There is an error in the exhaust SCR after-treatment system. Engine output will be reduced after a while. Clear the reason for problem and stop driving the tractor as soon as possible.
004344 — 03 — 000 004344 — 04 — 000 004344 — 12 — 000 004344 — 31 — 000 004346 — 03 — 000 004346 — 04 — 000 004346 — 05 — 000 004346 — 31 — 000 004354 — 03 — 000 004355 — 03 — 000 004355 — 04 — 000 004356 — 03 — 000 004356 — 04 — 000 004356 — 05 — 000 004357 — 03 — 000 004357 — 04 — 000	There is an error in the exhaust SCR after-treatment system. Clear the reason for problem as soon as possible to avoid greater damage and blockages in the system.
Table continued on next page	

Service codes	Error meaning/measures
004360 — 02 — 000 004360 — 03 — 000 004360 — 04 — 000 004363 — 02 — 000 004363 — 03 — 000 004363 — 04 — 000 004374 — 08 — 000 004374 — 14 — 000 004374 — 31 — 000 004375 — 03 — 000 004375 — 04 — 000 004375 — 05 — 000 004375 — 31 — 000 004376 — 03 — 000 004376 — 04 — 000 004376 — 05 — 000 004376 — 31 — 000 004792 — 14 — 000	There is an error in the exhaust SCR after-treatment system. Engine output will be reduced after a while. Clear the reason for problem and stop driving the tractor as soon as possible.
520200 — 16 — 000	The operating voltage in the engine electrical system is too high (over 17 V). The engine may be running poorly or not at all. Check the charging generator voltage.
520200 — 18 — 000	The operating voltage in the engine electrical system is too low (below 8.7 V). The engine may be running poorly or not at all. Check the charging generator voltage and battery condition.
520208 — 31 — 000	There is an error in the fuel system. The engine output and speed are limited. • Switch power off for a moment and restart the engine. Check if the same Service code is still active. Clear the reason for problem as soon as possible.
520233 — 31 — 000 520234 — 31 — 000 520235 — 31 — 000 520236 — 31 — 000 520240 — 31 — 000 520241 — 31 — 000 520242 — 31 — 000 520243 — 31 — 000 520244 — 31 — 000 520245 — 31 — 000 520246 — 31 — 000	There is an error in the engine electrical system. The engine output and speed are limited. • Switch power off for a moment and restart the engine. Check if the same Service code is still active. Clear the reason for problem as soon as possible.
520229 — 13 — 000	There is an error in the engine electrical system. The engine output and speed are limited. • Switch power off for a moment and restart the engine. Check if the same Service code is still active. Clear the reason for problem as soon as possible.
520247 — 31 — 000	There is an error in the engine electrical system. • Switch power off for a moment and restart the engine. Check if the same Service code is still active.
521000 — 02 — 000 521000 — 08 — 000	There is an error in the exhaust SCR after-treatment system. The engine output can be reduced after a while. Clear the reason for problem as soon as possible.

Table continued on next page

Service codes	Error meaning/measures
521001 — 03 — 000 521001 — 04 — 000 521001 — 31 — 000	There is an error in the exhaust SCR after-treatment system. Clear the reason for problem as soon as possible to avoid greater damage and blockages in the system.
521002 — 03 — 000 521002 — 04 — 000 521002 — 05 — 000 521002 — 31 — 000	There is an error in the exhaust SCR after-treatment system. The engine output can be reduced after a while. Clear the reason for problem and stop driving the tractor as soon as possible.
521003 — 03 — 000 521003 — 04 — 000	There is an error in the exhaust SCR after-treatment system. Clear the reason for problem as soon as possible to avoid greater damage and blockages in the system.
521004 — 02 — 000 521004 — 11 — 000 521004 — 12 — 000 521004 — 14 — 000 521005 — 02— 000 521005 — 11 — 000 521005 — 12 — 000 521005 — 14 — 000	There is an error in the exhaust SCR after-treatment system. The engine output can be reduced after a while. Clear the reason for problem and stop driving the tractor as soon as possible.
521006 — 12 — 000	AdBlue/DEF tank contains an incorrect type of additive or there is an error in the exhaust SCR after-treatment system.The engine output can be reduced after a while. Check that the AdBlue/DEF tank is filled with correct additive. Clear the reason for problem and stop driving the tractor as soon as possible.
521007 — 10 — 000 521007 — 14 — 000 521007 — 31 — 000	There is an error in the exhaust SCR after-treatment system. The engine output can be reduced after a while. Clear the reason for problem and stop driving the tractor as soon as possible.
521008 — 00— 000 521008 — 01 — 000	AdBlue/DEF tank is empty or there is an error in the exhaust SCR after-treatment system.The engine output can be reduced after a while. If the tank is empty or nearly empty, fill it with AdBlue additive. Clear the reason for problem and stop driving the tractor as soon as possible.

5.6 Steering system malfunctions

CAUTION: If a malfunction occurs in the steering system, stop the tractor and correct the malfunction before restarting.

If the oil supply from the hydraulic pump fails for any reason, the tractor can still be steered with the steering wheel. In this case the steering valve acts as a pump and provides oil pressure for the steering cylinder. The steering is heavy to use and it operates slowly.

5.7 Towing the tractor

5.7.1 Towing the tractor when the engine is running

1. **Set the range gear lever to the neutral position.**
2. **Set the speed gear lever to the position 4.**
3. **Set the power shuttle lever to neutral (N) position.**
4. **Tow the tractor**

   The maximum allowed towing speed is 10 km/h.

5.7.2 Towing the tractor when the engine is not running

IMPORTANT: Avoid towing when the engine is not running, because the gearbox lubrication does not function.

1. **Set the range gear lever to the neutral position.**
2. **Set the speed gear lever to the position 4.**
3. **Release the parking brake.**

   Use suitable tools, for example a 17 mm wrench, for releasing the parking brake.
4. **Tow the tractor.**

   The maximum towing speed is 10 km/h.

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6 Technical specifications

6.1 Dimensions

Dimensions	T133 H	T153 H	T173 H	T193 H
With front tyres	16.9R28	460/85R30	460/85R30	460/85R30
With rear tyres	20.8R38	20.8R42	20.8R42	20.8R42
Length (mm)	5 148	5 148	5 148	5 148
Width (mm)	2 338	2 338	2 338	2 338
Height to the roof (mm)	2 996	3 046	3 046	3 046
Height to the exhaust pipe (mm)	2 900	2 900	3 003	3 003
Wheel base (mm)	2 748	2 748	2 748	2 748
Front axle ground clearance/ with front axle suspension (mm)	545/505	595/555	595/555	595/555
Rear axle ground clearance (mm)	550	600	600	600
From the midpoint of the rear axle to the cab roof (inches)	2 121	2 121	2 121	2 121

6.2 Weights

	T133 H	T153 H	T173 H	T193 H
With tyres	16.9R28, 20.8R38	460/85R30, 20.8R42	460/85R30, 20.8R42	460/85R30, 20.8R42
Total weight with full fuel tank and without ballast weights (kg)	5 710 [1)]	6 050 [1)]	6100	6 100
Front axle weight (kg)	2 570 (45%)	2 722 (45%)	2 806 (45%)	2 806 (45%)
Rear axle weight (kg)	3 140 (55%)	3 328 (55%)	3 355 (55%)	3 355 (55%)

1) With industrial front axle 140 kg heavier

Total weight with the front axle suspension is 350 kg more.

6.3 Maximum permissible axle loading

The data is valid for tractors driving at maximum speed with standard track widths and regardless of tyre limitations.

	Maximum driving speed (km/h)	Maximum axle loading (kg) T133 H	Maximum axle loading (kg) T153 H — T193 H
Front axle 4WD	40	4 000	
	8	5 500	
Industrial front axle 4WD	40	5 000	5 500
	8	6 200	6 200
Rear	40	8 000	9 000
Total weight	40	9 000	11 000

6.4 Tyres

Rear	Front	
460/85R38	380/85R28	x
		x 1)
18.4R38	14.9R28	x
		x 1)
520/70R38	420/70R28	x
520/85R38	420/85R28	x
		x 1) 2)
520/85R42	460/85R30	x
20.8R38	16.9R28	x
		x 1) 2)
540 / 65R38	440 / 65R28	x
		x
580/70R38	480/70R28	x 2)
600/65R38	480/65R28	x 2) 3)
650/60R38	520/60R28	x 4)
650/65R38	540/65R28	x
		x 1) 2) 3)
480/80R42	16.9R28	x
520 / 85R42	460/85R30	x 2)
620/70R42	480/70R30	x
650/65R42	540/65R30	x
		x 1) 2) 3)
710/70R38	600/65R28	x 4)
650/65R42	600/65R28	x 2) 3)
480/80R38 IND	400/80R28 IND	x 1)
540/80R38 IND	440/80R28 IND	x 1)
650/65R38 IND	540/65R28 IND	x 1) 2)
650/65R42 IND	540/65R30 IND	x 1)
18.4-38/14 FOR	14.9-28/14 FOR	x 1)
20.8-38/14 FOR	16.9-28/14 FOR	x 1)
600/65R38 FOR	500/65R28 FOR	x 1)
650/65R38 FOR	540/65R28 FOR	x 1)
650/75-38 FOR	540/70-30 FOR	x 1)

1) Fixed disc
2) Rear adjustable wheeldiscs
3) Only 40 km/h models
4) Not with Autocomfort

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6.4.1 Wheel nuts tightening torque

Wheel nuts	Tightening torque (Nm)
Front	450
Rear	450
Rim - wheel disc (front and rear)	210

6.4.2 Wheel stud dimensions

	Agricultural front axle	Industrial front axle	Rear axle
Stud dimension	M20x1.5	M20x1.5	M20x1.5
Number of studs per side	8	10	8

6.4.3 Front axle tyre loadings and pressures

NOTE: The permissible wheel load can reduce the maximum permissible axle load.

NOTE: The maximum permissible front axle load is 5 500 kg.

Tyre	Maximum load/axle - Two wheels/axle (kg)	Pressure (bar)
14.9R28	3 600	1.6
380/85R28	4 120	1.6
420/70R28	4 120	1.6
420/85R28	4 860	1.6
16.9R28	4 480	1.6
440/65R28	3 900	1.6
480/65R28	4 480	1.6
480/70R28	5 000	1.6
520/60R28	3 630	0.8
540/65R28	5 300	1.6
600/60R28	4 660	0.8
600/65R28	6 150	1.6
460/85R30	5 800	1.6
480/70R30	5 150	1.6
540/65R30	5 450	1.6
600/60R30	4 800	0.8
230/95R36	3 600	3.6
400/80R28 IND	6 900	3.2
440/80R28 IND	8 000	3.2
540/65R30 IND	9 250	3.2
500/60-26.5 FOR	6 580 [1)]	3.2
14.9-28/14 FOR	5 000	3.0
16.9-28/14 FOR	5 800	2.7
540/65R28 FOR	6 500	2.4
540/70–30 FOR	7100	2.4

1) 30 km/h

IMPORTANT: On 50 km/h models driving at a maximum speed, the tyre loading is smaller. For more information, refer to the tyre manufacturer's catalogue.

6.4.4 Rear axle tyre loadings and pressures

NOTE: The permissible wheel load can reduce the maximum permissible axle load.

NOTE: The maximum permissible rear axle load is 9 000 kg. Some tyre types restrict the maximum axle load.

Tyre	Maximum loading/axle - Two wheels/axle (kg)	Pressure (bar)
460/85R38	6 500	1.6
18.4R38	6 000	1.6
520/70R38	6 700	1.6
520/85R38	7 750	1.6
20.8R38	7 300	1.6
540/65R38	6 150	1.6
580/70R38	7 750	1.6
600/65R38	7 300	1.6
650/60R38	6 070	0.8
650/65R38	8 250	1.6
710/70R38	10 600	1.6
710/60R38	6 820	0.8
480/80R42	6 900	1.6
520/85R42	8 250	1.6
650/65R42	8 500	1.6
620/70R42	9 000	1.6
710/60R42	7 260	0.8
270/95R48	5 300	3.6
480/80R38 IND	10 600	3.2
540/80R38 IND	12 600	3.2
650/65R42 IND	14 200	3.2
18.4-38/14 FOR	7 750	2.6
20.8-38/14 FOR	8 750	2.3
650/65R38 FOR	10 000	2.4
650/75–38 FOR	11 200	2.4

IMPORTANT: On 50 km/h models driving at a maximum speed, the tyre loading is smaller. For more information, refer to the tyre manufacturer's catalogue.

6.5 Spacing for wheel discs

Front, agricultural front axle (mm)	1 800
Front, industrial front axle (mm)	1 900
Rear (mm)	1 750

6.6 Track widths

6.6.1 Rear track widths

Tyres, adjustable discs	Track widths (mm)
18.4R38, 460/85R38, 520/70R38, 520/85R38, 20.8R38, 480/80R42	1 714, 1 808 [1)], 1 910, 2 012
540/65R38, 580/70R38, 600/65R38, 650/65R38	1 808 [1)], 1 910
650/60R38, 620/70R42, 650/65R42, 710/60R38, 710/70R38, 710/60R42	1 811
270/95R48	1500 [1)], 1 522, 1 600, 1 622, 1 900, 1 922, 2 000, 2 022

1) Standard track width

Tyres, fixed discs	Track widths (mm)
520/85R38, 540/80R38 IND, 20.8R38, 20.8-38 FOR	1 676, 1 850 [1)]
600/65R38 FOR, 650/65R38, 650/65R38 FOR, 650/65R42, 650/75–38 FOR	1 850
18.4R38, 18.4-38 FOR, 480/80R38 IND	1 650, 1 876 [1)]

1) Standard track width

6.6.2 Front track widths

Tyres	Agricultural axle, track widths (mm)
Adjustable discs	
14.9R28, 380/85R28	1530, 1645, 1735, 1840 [1)], 1930, 2045, 2135
420/70R28, 420/85R28, 16.9R28, 440/65R28, 480/65R28, 480/70R28	1530, 1645, 1735, 1840 [1)], 1930, 2045
520/60R28	1530, 1640, 1735, 1835 [1)], 1930
540/65R28	1530, 1645, 1735, 1840 [1)], 1930
230/95R36	1504 [1)], 1580, 1602, 1702, 1880, 1980, 2002, 2102
Fixed discs	
14.9R28, 380/85R28, 420/85R28, 540/65R28, 16.9R28, 16.9-28 FOR, 400/80R28 IND, 440/80R28 IND, 14.9-28 FOR, 500/65R28 FOR, 600/60R28	1745, 1840 [1)]

1) Standard track width

Tyres	Industrial axle, track widths (mm)
Adjustable discs	
14.9R28, 380/85R28, 420/70R28	1 530, 1 626, 1 732, 1 830 [1], 1 928, 2 026, 2 130
16.9R28, 420/85R28, 480/65R28, 480/70R28	1 530, 1 626, 1 732, 1 830, 1 928 [1], 2 026
540/65R28	1 530, 1 626, 1 732, 1 830, 1 928 [1]
480/70R30, 520/60R28	1 535, 1 630, 1 740, 1 835, 1 935 [1], 2 030
540/65R30, 600/65R28, 600/60R30	1 535, 1 630, 1 740, 1 835, 1 935 [1]
230/95R36	1 500 [1], 1 544, 1 812, 1 856, 1 898, 1 942, 2 210, 2 254
Fixed discs	
400/80R28 IND, 420/85R28, 14.9R28, 14.9-28 FOR, 540/65R30, 540/65R30 IND, 540/70–30 FOR, 600/60R28	1 875 [1], 1 900
16.9R28, 380/85R28, 540/65R28, 540/65R28 FOR, 440/80R28 IND, 16.9-28 FOR, 500/65R28 FOR	1 865 [1], 1 890

1) Standard track width

6.7 Engine

Model	T133 H	T153 H	T173 H	T193 H
Designation	66 AWI		74 AWI	
Type	Four-stroke diesel engine with common rail direct injection			
Turbocharged and intercooling	Yes			
Number of cylinders	6			
Transport boost [1]	Yes	Yes	Yes	Yes
Sigma Power [2]	No	No	No	Yes
Max. output, kW/(hp)/rpm (ISO 14396)				
Normal	104/(141)/2 000	114/(155)/2 000	132/(180)/2 000	140/(190)/2 000
Boost	116/(158)/2 000	125/(170)/2 000	140/(190)/2 000	155/(210)/2 000
Max. torque, Nm/rpm (ISO 14396)				
Normal	580/1 500	640/1 500	660/1 500	680/1 500
Boost	630/1 500	680/1 500	730/1 500	800/1 500
Max. no load speed, rpm	2360			
Low idling speed, rpm				
Normal	850			
Parking brake is on	650			

1) Higher transport boost power area when the main gear is H2 or higherThe driving speed depends on the tyres used. For example with tyres 480/80R42, the transport boost is available for speeds over 17 km/h.

2) Sigma Power area, the largest output/torque area, when the power transferred through the power take-off is large enough. The Sigma Power indicator light  is lit on the instrument panel.

6.7.1 Engine lubrication system

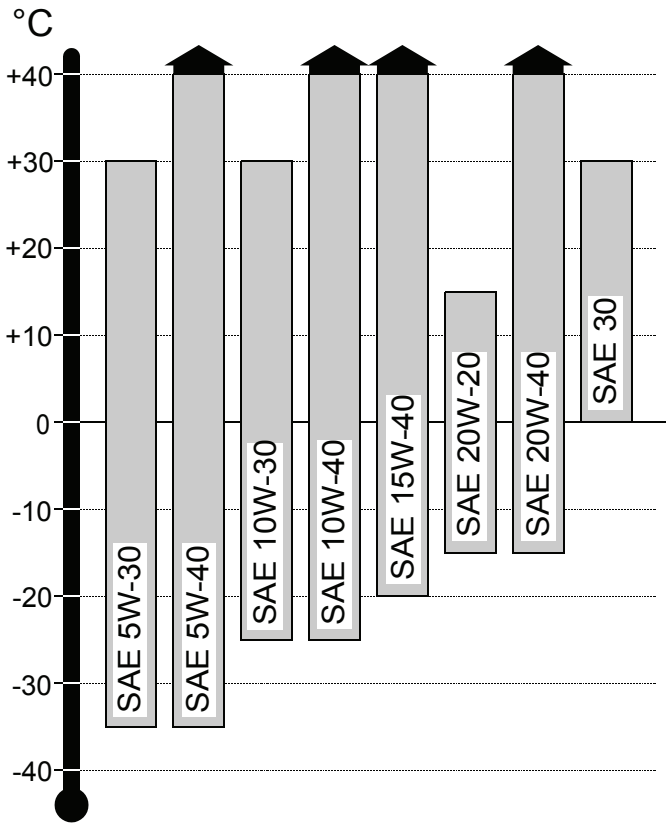
Oil pump	
Type	Gear pump, strainer on the suction side and replaceable filter on the pressure side
Oil pressure at idling speed (min)	100 kPa (1 bar)
Oil pressure at normal working speed	250-400 kPa (2.5-4 bar)

Oil filter	
Type	Disposable type filter element

Oil type	
Valtra grade	Valtra Engine CR-4
SAE grade	10W-40: -25°C...+40°C
API grade	CJ-4
ACEA grade	E9

Oil volume	
When changing with filter	19 litres

Viscosity grade should be selected depending on the temperature outside.



6.7.2 Fuel system

Fuel	
Type	Diesel fuel which conforms to EN 590:2009 norm
Feed pump	Mechanic pump
Tank	275 litres

Injection system	
Common rail injection	High pressure pump with electric injection control

6.7.3 Selective catalytic reduction system

System type	Bosch DENOXTRONIC 2.2
Fluid type	DIN70070/ISO22241 certified AdBlue/DEF
Tank capacity	23.5 litres

6.7.4 Air cleaner

Air cleaner	Two-stage, dry element, with blockage indicator
Pre-cleaner system	Ejector

6.7.5 Cooling system

Pump	Centrifugal
Radiator	Pressurised with expansion tank regulated by pressure cap
Thermostat	2 thermostats: 79°C and 83°C
Fan	The belt-driven fan is controlled by the engine's control module for precise fan speed modulation.
Coolant	Water and antifreeze agent (standard ASTM D 3306 or BS 6580:1992)
Coolant volume	30 litres

6.8 Electrical system

Ground	Negative
Voltage	12 V
Battery	174 Ah
Alternator	150 A
Starter motor	4.2 kW
Electric resistor (engine induction air)	2.1 kW

Fuses	
Electric centre, lower part of the dashboard	49 fuses The nominal current rating of the fuses is 5–30 A.
Electric preheating of engine induction air	250 A
Cab power supply	125 A

Bulbs	
Low beam headlights	55 W-H11
High beam headlights	55 W-H11
Front position (side) lamps	10 W
Rear/brake lights	5/21 W
Direction indicators	21 W
Working lights	55 W-H3
Cab lights	LED

Power sockets	
Two-pin power socket	ISO 4165
Three-pin power socket	ISO/TR 12369
Trailer socket	ISO 1724

6.9 Power transmission

6.9.1 Power shuttle

Type	Planetary-type gear drives 2 wet multi-disc clutches
Wet multi-disc clutches	1 for forward driving 1 for reverse driving Clutches operate also as a driving clutch for current driving direction.

6.9.2 Clutch

Multi-disc clutch operation	Controlled by oil pressure Activated by pressing the HiShift push button or the clutch pedal
Disc numbers, forward/reverse driving	9 pcs/9 pcs
Friction area, forward/reverse driving	1 742 cm^2/1 742 cm^2

6.9.3 Gearbox

	40 km/h models	50 km/h models
Gear type	Helical gears	
Synchronisation	Fully synchronised except creeper gear	
Speed ranges	• LL • M • H	• LL • M • H
Powershift	3-step	
Forward gears	36	
Reverse gears	36	

Oil type	
Valtra grade	Valtra Transmission XT60 (classification: Valtra G2-08)
	Valtra Transmission XT60+ (classification: Valtra G2–B10)
API grade	GL-4

Oil volume	
When changing with filter	65 litres

6.9.4 Rear axle differential lock

Type	Electro-hydraulic multi-disc
Control	Electro-hydraulic

6.9.5 Rear power take-off

6.9.5.1 Rear power take-off alternatives

Power take-off (PTO) alternatives	T133 H	T153 H	T173 H	T193 H
540 + 1000	x	x	x	
540 + 1 000 + PGS PTO [1)]	x	x	x	
1 000 EHD	x	x	x	x
1 000 EHD + PGS PTO	x	x	x	x
540 + 540 E	x	x	x	
540 + 540 E + PGS PTO	x	x	x	
1 000 + 540 E	x	x	x	x
1 000 + 540 E + PGS PTO	x	x	x	x

1) Proportional ground speed PTO

6.9.5.2 Rear power take-off ratios

Rear power take-off (PTO) ratios	540 rpm at engine speed 1 874 rpm
	1 000 rpm at engine speed 2 000 rpm
	540 E = 540 rpm at engine speed 1 539 rpm

6.9.5.3 Rear power take-off shafts

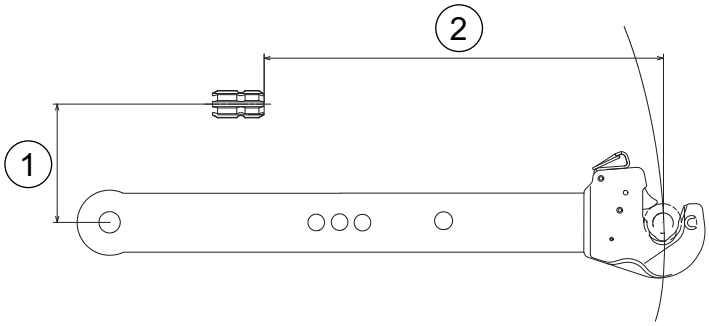
As standard tractor is equipped with one power take-off shaft. Additional shafts are extra equipment.

Splines	Standard	Shaft diameter (mm)
6 splines	ISO 500	35
21 splines	ISO 500	35
20 splines [1)]	ISO 500	45
6 splines	ASAE (Valtra 1203)	45
8 splines	GOST 3480-58	38

1) Standard

6.9.5.4 Lower link end distance from rear power take-off shaft

The length of the lower links (mm)	Power take-off (PTO) shaft (T measure, mm)				
	6 splines	21 splines	8 splines	20 splines	1¾ 6 splines
940	740	740	755	722	742



1. 224 mm
2. T measure

6.9.5.5 Proportional ground speed

Model	Power take-off (PTO) axle rpm/1 rear wheel rpm
T133 H, 40 km/h	40.81
T153 H-T193 H, 40 km/h	41.03
T153 H-T193 H, 50 km/h	40.79

6.9.6 Front power take-off

Oil type	Oil volume (litres)
Shell Donax TX	2

6.9.6.1 Front power take-off ratios

Front power take-off (PTO) ratio	1 000 rpm at engine speed 1 920 rpm

6.9.6.2 Front power take-off shafts

Splines	Standard	Shaft diameter (mm)
6	ISO 500	35

6.10 Brake system

Operation	• Hydraulically controlled multi-disc type brakes with wet discs • Boosted with low pressure hydraulic • Two brake cylinders • No separate brake fluid • Pressure accumulator to ensure the pressure • Oil spray cooling of the friction disc elements when necessary.	• Hydraulically controlled multi-disc type brakes with wet discs • Boosted with low pressure hydraulic • Two brake cylinders • No separate brake fluid • Pressure accumulator to ensure the pressure • Oil spray cooling of the friction disc elements when necessary.
Number of brake friction discs	5 pcs/side	5 pcs/side
Friction disc diameter	224 mm	242.5 mm
Brake friction area	3690 cm^2/org.	4 272 cm^2/org.
Brake pedal free travel	45–55 mm	35-45 mm

Parking brake	
Operation	• Electro-hydraulically controlled with power shuttle lever • Driving brakes engaging with spring, disengaging with hydraulic pressure • When the engine is not running, the parking brake is automatically applied

Hydraulic brake valve for trailer brakes (extra equipment)	
Operation	• Trailer brake connection to the tractor with quick-action coupling

Air pressure brakes for trailer (extra equipment)	
Operation	• Operated with air pressure system, controlled by the braking pressure • Trailer brake connection to the tractor with quick-action coupling

6.11 Steering system

Type	• Hydrostatic • Oil supply from the transmission hydraulic pump via the priority valve • Adjustable, telescopic steering column • Central frame, one double action steering cylinder
Maximum working pressure	18.5 MPa (185 bar)
Shock valve opening pressure	25 MPa (250 bar)
Steering valve revolution volume (agricultural front axle)	125 cm^3
Steering valve revolution volume (industrial front axle)	160 cm^3
Steering pump capacity	81 l/min at engine speed 2 200 rpm
Steering speed	Over 2 rounds/sec. at idling speed
Steering wheel rotation	4.5 turns

6.11.1 Front axle

Axle type	Hi-lock, industrial axle
Control	Electro-hydraulically controlled multi-disc clutch
Differential lock	Electro-hydraulically controlled multi-disc differential brake, simultaneously controlled with rear axle differential lock
Steering arc, adjustable	max 55°
Axle turning	8°
Caster	0°
King pin inclination (KPI)	5°
Camber	1°
Toe-in (mm)	0-2
Flange distance (mm)	1 900

Ratio	HI-lock, 4WD axle 733 [1]	Hi-lock, industrial axle 740 [1]	Hi-lock, industrial axle 745
Differential	2.923	2.923	2.923
Planetary gears	6.000	6.000	6.000
Total	17.538	17.538	17.538
Front axle/rear axle, 40 km/h	1.323	1.323	1.323 [1]1.33
Front axle/rear axle, 50 km/h	1.329	1.329	1.329 [1]1.323

[1] On model T133 H

Oil type			
	Valtra grade	SAE grade	API grade
Differential	Valtra Axle LS	80W-90	GL-5
Hub reduction gears	Valtra Axle or Valtra Axle LS		
Hub reduction gears, front axle with brakes	Valtra Axle LS		

Oil volume when changing with filter		
Axle type	Differential (liters)	Hub reduction gears (liters)
Industrial front axle	7.4	2 x 2

6.11.2 Turning circle radius

Minimum turning circle radius (m)	5.6 16.9R28 tyres with standard track width Front axle with or without air suspension

6.11.3 Front air suspension

Extra equipment	Available for all front axle types
Front axle weight of tractor with air suspension	350 kg heavier than corresponding model without air suspension
Permissible axle loading	The same as for front axles without suspension
Air suspension bellow	8”
Pressure extreme values	2-14 bar
Suspension travel by front axle	51 mm
Front tyres turning angles	The same as without front suspension
Axle turning angles	The same as without front suspension
Automatic level control	Independent of front axle load
Hydraulic shock absorber	2 pcs

6.12 Cab and shields

6.12.1 Cab filter capacity

Standard filter (dop test, 300 m^3)	> Ø 0.2 µm 45% > Ø 1 µm 45% > Ø 5 µm 95% > Ø 8 µm 100%
Active coal filter, cab (dop test, 300 m^3) 1)	> Ø 0.2µm 10% > Ø 1 µm 20% > Ø 5 µm 90% > Ø 8 µm 100%

1) **WARNING: Use personal protective equipment recommended by the pesticide manufacturer.**

6.12.2 Windscreen washer

Windscreen washer reservoir	
Fluid type	Washer fluid
Capacity	5 litres

6.12.3 Air conditioning system

Refrigerant type	Amount
R134a	850 g, 20°C

6.12.4 Noise level

	Minimum (dB)	Maximum (dB)
Windows shut	66.5	73.0

6.12.5 Exposure to vibration

The level of exposure to vibration and shock is dependent on several issues, such as work tasks, tyre types, work conditions, and implements. Always plan your work so that the exposure is minimized. On extreme conditions, keep warm and dry, and try to take short breaks.

6.13 Hydraulic system

6.13.1 Low pressure circuit

Pump capacity (at engine speed 2 200 rpm)	30 litres/min
Maximum pressure	1.8 MPa (18 bar)
Oil supply for the following functions:	• Powershift • Powered front axle, disengaging • Power take-off (PTO) • Differential lock • Transmission and PTO lubrication • Power shuttle • Parking brake • Brake system

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6.13.2 Working hydraulic circuit

Pump	Variable-displacement pump that supplies oil when needed.
Pump capacity	• 73 l/min at engine speed 2 200 rpm • Alternative equipment pump: 90 l/min at engine speed 2 200 rpm
Maximum pressure at 1 500 rpm	19.6 MPa (196 bar)
Shock valve opening pressure of pump	23 MPa (230 bar)
Shock valve opening pressure of working hydraulic circuit	20 MPa (200 bar)
Supplies oil for following functions	• Steering • Hydraulic lift • Auxiliary hydraulics • Trailer brake valve (extra equipment

Oil type	
Valtra grade: Valtra Hydraulic 46	DIN-grade: DIN 51524-3 HVLP
Valtra grade: Valtra Transmission XT60/XT60+	• Classification: Valtra G2-08/G2–B10 • API-grade: GL-4
Bio-oil [1)]	Standard ISO 15380, class HEES

1) Bio-oil can not be mixed with mineral oil.

Oil volume	
Available volume of oil for auxiliary hydraulics (maximum longitudinal inclinations 10 degrees)	min. 30 litres and max.40 litres

6.13.2.1 Valves for auxiliary hydraulics

Rear, standard	Two valves with separate control levers, adjustable to one- or two-action. Valve 1 has 3 positions, (out---hold---in), spring return to centre position, out-position can be locked mechanically. Valve 2 has 4 positions, (out---hold---in---floating), spring return to centre position, floating is the locked position.
Rear, extra equipment	• two valves • oil flow control valve • a trailer brake valve
Front, extra equipment	• two electrically controlled adjustable valves for using the front loader or front linkage • pair of quick-action couplings

6.13.2.2 Counter pressure when using the return connection for auxiliary hydraulics

Flow, temperature	**Return connection counter pressure (1/2 inch connection)**	**Return connection counter pressure (1 inch connection)**
50 l/min, 50°C	4 bar	3 bar
50 l/min, 10°C	9 bar	5 bar

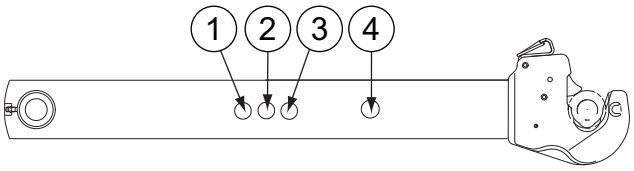
6.13.3 Rear linkage

Maximum lifting force	Lifting cylinder ø	Lower link type	The length of the lower links
81 kN	100 mm	Category 3, quick coupling grabs	940 mm

Function	Linkage version ACD
With electro-hydraulic lower link draft sensing	x
Draft control mixing (position control/draft control mixing)	x
Lowering speed, independent of load	x
Transport height	x
Drive balance control	x
Slip control	x

6.13.3.1 Maximum lifting force on the whole lifting area

Lifting cylinder diameter 100 mm

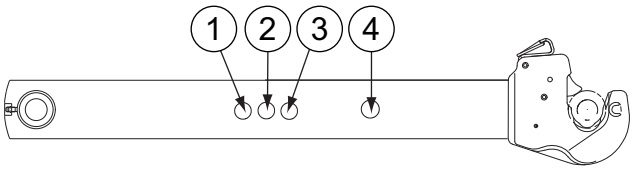


Lifting link's fastening point	Lifting force (kN)
1	66
2	70
3	75
4	81

6.13.3.2 Lifting range at the end of the lower links

The length of the lower links is 940 mm.

Lifting cylinder diameter 100 mm



Lifting link's fastening point	Lifting range, mm
1	850
2	790
3	735
4	690

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6.13.4 Front linkage

Lifting force	35 kN
Number of lifting cylinders	2
Diameter of the lifting cylinders	90 mm
Lifting range at the end of the lifting links	750 mm
Quick coupling hooks	Category 3/2

6.13.5 Towing devices

6.13.5.1 Pick-up hitch

Maximum permissible vertical loading	30 kN [1)]
Pick-up hitch height from the ground (lowest position and tyres 18.4R34)	90 mm
Maximum permissible towable mass	16 000 kg

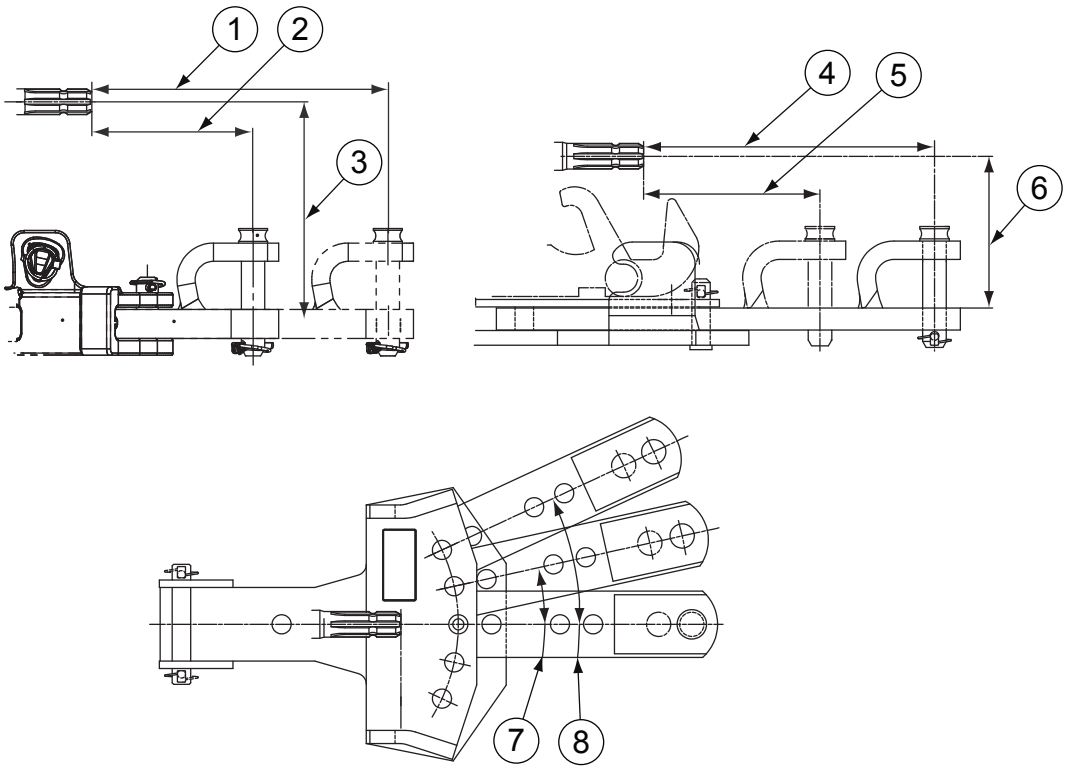
1) The maximum axle loading must not be exceeded

6.13.5.2 Agricultural towing device

There are two models of the drawbar:

- with pick-up hitch
- fixed without pick-up hitch.

The horizontal distances of the pulling point from the power take-off (PTO) shaft and the corresponding maximum vertical loadings are pointed out in the following figure:



1. 330 mm, 18 kN / 375 mm, 15 kN
2. 190 mm, 30 kN / 230 mm, 30 kN
3. 246 mm
4. 349 mm, 18 kN / 394 mm, 18 kN
5. 209 mm, 30 kN / 249 mm, 30 kN
6. 309 mm
7. Lateral turning radius ±12.5 °
8. Lateral turning radius ±25 °

Maximum permissible towable mass: 10 000 kg

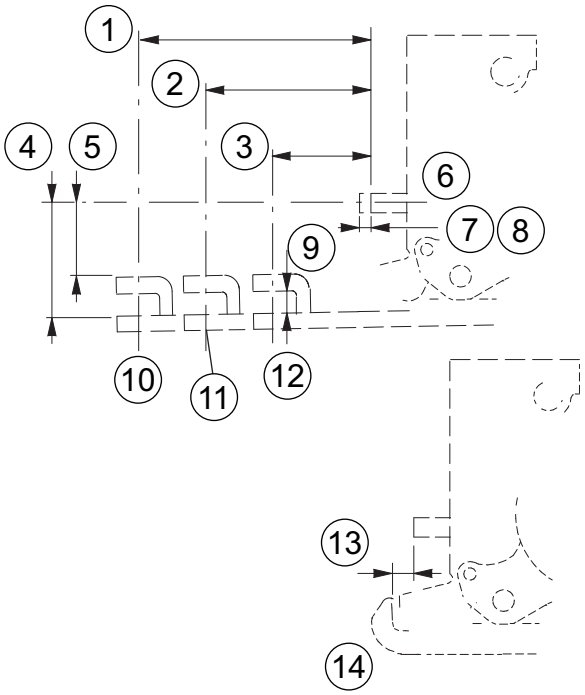
6.13.5.3 Towing device frames

Max. permissible total weight for the tractor with all jaws	12 000 kg
Max. permissible vertical loading for a trailer hitch with all jaws	2 000 kg
Wagon towing device frame with a fixed hitch (Piton Fix), max. permissible vertical loading	3 000 kg
Towing device frame with K80 ball hitch, max. permissible vertical loading	3 000 kg
Towing device frame drawbar, max. permissible vertical loading	1 800 kg
Automatic jaw, main pin diameter	31 or 38 mm
Mechanical jaw, main pin diameter	31.5 mm
Drawbar standard	DIN 74054 or DIN 11026

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6.13.5.4 Euro trailer hitch

The horizontal distances of the pulling point from the power take-off (PTO) shaft and the maximum vertical loadings:

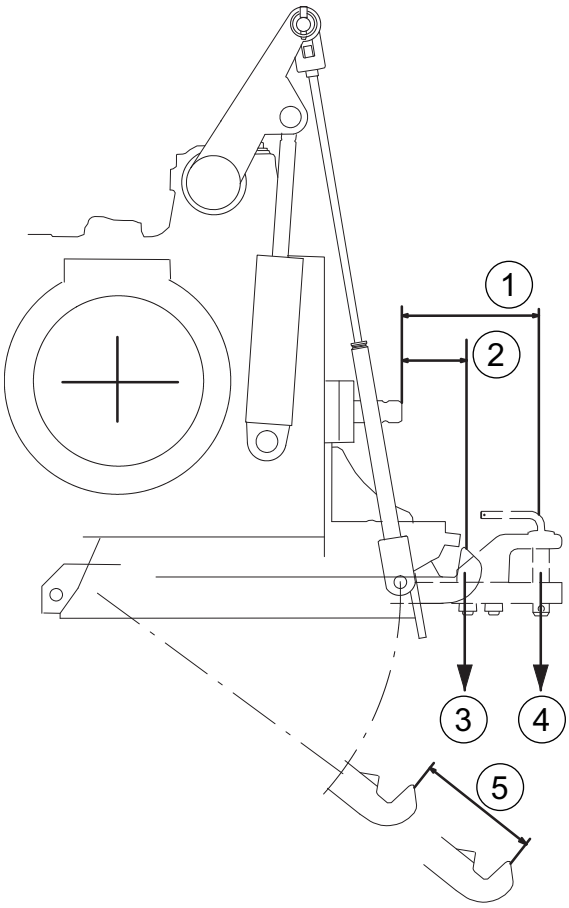


1. 481 mm
2. 351 mm
3. 226 mm
4. 285 mm
5. 189 mm
6. Z (number of splines on PTO shaft) = 20
7. 2 mm
8. Z = 6
9. 65 mm
10. 16 kN
11. 23 kN
12. 30 kN
13. 40 mm
14. 30 kN

6.13.5.5 Euro trailer hitch with hydraulic extension

Raising/lowering and extension	Electro-hydraulic
Locking of the towing device latch	Electro-hydraulic
Hitch or drawbar	Replaceable
Maximum weight of the tractor	12 500 kg
Trailer hitch/jaw	Lowered down to the ground when extended

The towing point distances from the take-off axle and the maximum vertical loads in the horizontal direction are shown in the following figure.



1. 335 mm
2. 200 mm
3. 30 kN
4. 10 kN
5. 250 mm

6.13.5.6 Drawbar eye

Drawbar eye standard	ISO 5692-1 or ISO 20019

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Valtra Inc.
FI-44200 Suolahti, Finland
Tel. +358 20 45501
www.valtra.com

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Ref no 39 867 21 1 (09/2012)
Printed in Finland by Kopijyvä
English

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