Operating instructions

Front loader ProfiLine ISOBUSConnected

Type FS IB+, FZ IB+
Models 39-23 to 48-42
Status: 07/2024

3804470 B58FZI 0000000285 EN 001

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The original instructions were written in the German language.

Instructions in other languages were translated from German.

Contents

1 About these operating instructions

1.1 Documentation overview

There are various instructions and technical documentation for the front loader, mounting kit and accessories. Most documents are available in multiple languages.

If a set of instructions is missing or required in a different language:

- ➢ Order the instructions through a dealer.
- ➢ Download instructions free of charge from the Internet at www.stoll-germany.com.

Installation instructions for the front loader mounting kit

The installation of the mounting kit as well as the hydraulic and electric equipment may only be performed by an authorised specialised workshop.

The installation instructions describe how to install the front loader mounting kit and the hydraulic and electrical equipment up to the initial start-up of the front loader. They are intended for the specialist workshop.

The installation instructions have been specially compiled for this tractor model. They do not contain any information that is already included in the operating instructions.

The installation instructions contain information on spare parts for the tractor-specific mounting parts and equipment.

Operating instructions of the front loader

These operating instructions describe the safe use of the front loader from the initial operation to its disposal. They are intended for the operator and the user of the front loader.

The operating instructions are compiled specifically for the front loader series, they can therefore only take tractor-specific equipment into account to a limited extent.

Spare parts list

The spare parts list of the front loader lists all the information required for ordering spare parts, the front loader series and their options. Special adaptations for the tractor are not taken into account.

In addition, spare parts lists are available for front loader implements.

Operating instructions for front loader implements

The operating instructions describe the implements available for the specified front loader series.

Other documents

In addition to the above instruction manuals, there may be installation and operating instructions as well as other Technical Information that deal with special additional equipment and extensions, which are not included in the other documentation.

When you pass on the front loader or the tractor with a front loader attached, please also hand over all the relevant documents. The next owner needs the information.

1.2 Use and purpose of the operating instructions

The present operating instructions contain important information on the safe operation and for faultless, proper and economical operation of front loaders from Wilhelm STOLL Maschinenfabrik GmbH. It is intended for the operator and user of the front loader and should help to prevent risks, damage and downtimes as well as ensure and increase the service life of the front loader.

Before start-up of the front loader, the operating instructions must be read and understood.

For better readability, Wilhelm STOLL Maschinenfabrik GmbH will be called "STOLL" in the following.

The operating instructions are compiled specifically for the front loader series, they can therefore only take tractor-specific equipment into account to a limited extent.

Directions refer to the forward direction of travel, unless otherwise specified.

1.3 Rating plate

The front loader is identified with a rating plate that is located on the inside of the left bar at the front.

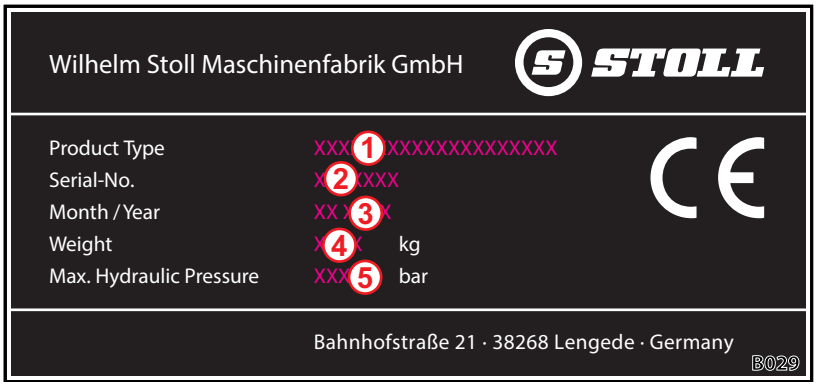


Fig. 1 Rating plate on the front loader

Legend

1 Type of front loader (e.g. lifting arm ProfiLine FZ 36-24, Solid 38-20)

2 Serial number

3 Year of manufacture

4 Weight

5 Permissible hydraulic pressure

1.4 Validity of the operating instructions

The operating instructions are valid only for the STOLL ProfiLine ISOBUSConnected front loader, called "front loader" in the following or "FS IB+" or "FZ IB+" as the special versions. The front loader type can be found on the rating plate.

For better readability, the "FS IB+" and "FZ IB+" versions can also be called "FS" or "FZ" in the following.

The operating instructions covers all of the components and functions of the model.

1.5 Storage of the documents

The operating instructions are a part of the machine. The entire documentation, consisting of these operating instructions as well as all other additional instructions supplied, must always be kept accessible, safe and dry on or in the vehicle. When lending or selling the front loader, the entire documentation must also be handed over.

1.6 Other applicable documents

In conjunction with these operating instructions, the following additional documents also apply:

- Operating instructions of the tractor
- Operating instructions for the respective implements
- Installation instructions for the respective mounting kit and front loader additional equipment

When handling the front loader and for all service work, please also observe:

- The recognised technical regulations for safe and professional work,
- The legal regulations for accident prevention,
- The legal regulations for health and environmental protection,
- The national regulations that apply in the country of the operator / user of the front loader,
- The specifications that are relevant for the status of the technology,
- The road traffic regulations.

1.7 Design tools

The operating instructions contain the following different symbols and markings in the text:

Warning symbol that is used for warning notices and is graduated based on the danger (see *2 Safety*)

Additional information and tips

- List points

➔ Requirement for a sequence of actions

🛠 Required tools

(1) Numbered action step

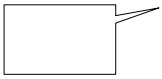
✓ Result of an action or sequence of actions

➢ Unnumbered action step

Moreover, stylised drawings are used. For better understanding, some of the figures are exemplary, simplified or with dismounted parts for better representation and explanation.

➢ Please observe the following:

- Dismounting is not always absolutely required for the respective description.
- No different equipment variations are shown in the figures, unless otherwise specified.
- The associated descriptive text always applies to the figures.
- The following representation rules and elements apply:

Representation	Meaning
	Elements represented in yellow highlight the components for the respective operating situation.
	Item numbers designate assemblies or components. In each figure, there is always an explanatory legend for the item numbers.
	Magnifying glasses serve to focus on individual parts and details.
	Arrows indicate a direction of movement or action to be performed.

1.8 Nomenclature of the footer

The footer consists of the following parameters:

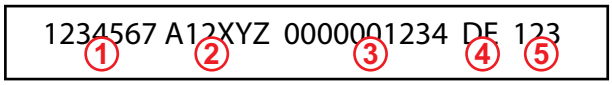


Fig. 2 Nomenclature of the footer

Legend

1 Document number (order number)
2 Type of instructions
3 Internal system number
4 Language identifier
5 Version

2 Safety

2.1 Explanation of safety and warning notices

The basic safety information comprises instructions that always apply for safe operation or to maintain the safe condition of the front loader and the front loader implements.

The action-related warning notices warn against residual dangers and are placed in front of dangerous action sequences.

2.2 Representation and layout of warning notices

Warning notices are action-related and are designed according to the following principle:

⚠ DANGER

Type and source of danger!

Explanation of the type and source of danger.

- Measures to prevent the danger.

2.3 Danger grading of warning notices

Warning notices are graded according to their level of danger and are represented as follows with the corresponding signal words and warning symbols:

⚠ DANGER

Immediate lethal danger or serious injuries.

⚠ WARNING

Possible lethal danger or serious injuries.

⚠ CAUTION

Possible slight injuries.

NOTICE

Damage to the implement or the surroundings.

2.4 EC Conformity

STOLL front loaders comply with Machine Directive 2006/42/EC.

2.5 Proper use

The front loader is a mounted implement for agricultural and forestry tractors and is designed and intended exclusively for:

- Mounting on tractors with the front loader mounting kit approved by STOLL (see *3.4 Mounting kit on the tractor*) and the associated hydraulic and electric equipment approved by STOLL,

STOLL does not assume any liability for damage resulting from use of other equipment and combinations that are not approved!

Before initial operation of the front loader, ensure that the front loader can be used on your tractor.

If you have any questions, please contact STOLL Customer Service at the following e-mail address: service@stoll-germany.com.

- Use with work implements specified by STOLL, which are suitable for the respective loading work (see *6.5 Picking up and putting down the implement* and operating instructions for the implement).
- Use and operation within the defined limits (see *11 Technical specifications*).
- Control from the driver's seat.

The front loader may only be operated when it is in perfect condition. If faults impair safety, these must be promptly repaired by an authorised specialist workshop.

The front loader must not be used in work processes and with implements that require the presence of people close to the load when the front loader is in the raised position!

The front loader and its implements must not be operated simultaneously with other hydraulic equipment on the tractor.

Proper use also includes reading and observing the operating instructions, the associated additional instructions, the other applicable documents as well as the safety information. To ensure operational safety, prescribed maintenance work as well as intervals and conditions for care and service must also be observed. Any use other or beyond those described in the manual is considered as improper use.

Foreseeable misuse

Avoid the following:

- Exceeding of the permissible axle load and the permissible total weight of the tractor
- Use outside of the conditions and prerequisites that are specified in the technical manuals and documents
- Transport of persons
- Transport of loads that are not intended for use with front loaders
- Transport of loads in road traffic
- Transport of unsecured loads (e.g. stone pallets)

2.6 Operational limits

➢ The following operating conditions and requirements on the operational environment must be observed:

- If applicable, temperature range for proper operation of the tractor (see operating instructions of the tractor)
- Sufficient load capacity of the tires and the front axle of the tractor

2.7 Basic safety information

The basic safety information comprises all safety measures grouped by theme and is applicable at all times. In addition, the information is presented as warning notices at the corresponding positions in these operating instructions.

Basic dangers

Mortal danger exists when persons are lifted or carried with the front loader. The front loader is not equipped with the necessary safety equipment to be used as a work cage.

- ➢ It is forbidden to lift or transport people with the front loader.

Mechanical dangers

There is a risk of crushing and impact of the upper and lower limbs due to projecting or protruding frame parts and moving components of the machine.

- ➢ Personnel must be instructed in the proper use of the machine and in the location and types of danger.
- ➢ Instruct persons to exit the danger and movement areas of the machine.
- ➢ Wear suitable protective gear, if necessary, when performing service tasks.

There is a lethal risk of crushing and injury due to accidental movements of the tractor, the front loader, and the implements.

- ➢ Instruct persons to exit the danger and action area of the machine.
- ➢ Do not allow other people to assist in any way (e.g. holding of pasture fence posts if they are to be pressed into the ground with the front loader) and instruct people to exit the working area of the machine.
- ➢ Assistance from a second person for loading activities should only be allowed when the front loader is lowered.
- ➢ For loading work as well as when mounting and dismounting the front loader, ensure that the tractor is standing on level and solid ground.
- ➢ Only operate the front loader from the driver's seat of the tractor.
  Operating elements outside of the tractor must not affect the front loader! In particular, the operating elements of the front linkage must not affect the front loader!
- ➢ The front loader must only be operated by one person.

There is a lethal risk of injury due to exceeding of the maximum permissible load or with improper use of the front loader resulting in breaking of the front loader or its components.

- ➢ Observe the load limits specified in the technical data.
- ➢ When transporting loads or levelling, do not drive faster than 10 km/h.
- ➢ When clearing, do not drive faster than 6 km/h.
- ➢ Work only with mounted and locked implement.
- ➢ Observe the load capacity of the tyres and the front axle of the tractor.

Hydraulic dangers

There is a risk of injury due to escaping hydraulic fluids under high pressure.

- Observe the safety stickers on the machine.
- Check the hydraulic couplings and lines for leaks before uncoupling.
- On tractors without a closed driver's cab, mount tubes with splash guards.

There is a risk of crushing when machine parts move uncontrollably due to entrapped air in the hydraulic system.

- Before performing any work on the hydraulic system, depressurize the system.
- Clean the hydraulic couplings and lines before coupling.
- Change the hydraulic fluid regularly according to the service schedule.

Electrical dangers

There is lethal danger due to power surges when touching live machine parts, e.g. due to short circuits in the on-board network of the tractor.

- Installation and service tasks on the electrical system should only be performed by an electrician.
- Observe the operating instructions of the tractor.

There is lethal danger due to collision of the raised front loader with high-voltage lines.

- Do not raise the front loader higher than 4 m when driving on roads.
- Keep a safe distance away from electrical lines.
- If you do not know the rated voltage, stay at least 4 m away from electrical lines.

Danger due to emissions

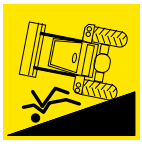
With long-lasting normal operation of the machine, hearing damage can be caused by the noise level of the tractor and the hydraulic system.

- Always wear personal hearing protection.
- Observe special regulations for road operation and for operating machines in open spaces.

Dangers during packaging and transport

There is a risk of injury due to crushing, impacts or pinching if the front loader tips over or falls from the lifting gear.

- ➢ During all preparatory work, always ensure a secure stand of the machine.
- ➢ Assisting persons must be instructed to exit the immediate danger area under the front loader.



There is a risk of accidents during transport of the front loader if it is not correctly loaded and secured.

- ➢ The front loader must be correctly secured and transported.

Dangers during assembly for initial operation

There is a risk of injury when lifting and handling heavy machine parts as well as bulky components of the front loader.

- ➢ Heavy and bulky machine parts may only be lifted with the assistance of a second person.
- ➢ Avoid back injuries by lifting correctly.

Dangers when mounting and dismounting the front loader

There is a risk of injury when the front loader tips over during mounting or dismounting or when the parked front loader tips over due to a lack of stability.

- ➢ Ensure the stability of the front loader and the tractor.
- ➢ Observe the instructions and sequence in these operating instructions for proper mounting and dismounting of the front loader.
- ➢ Check the proper locking of the front loader.

There is a risk of crushing of limbs when operating the parking supports to park the front loader, especially on uneven ground.

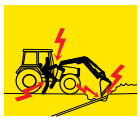
- ➢ Observe the instructions and sequence in these operating instructions for proper operation of the parking supports.

Dangers when picking up and putting down implements

There is a risk of serious injury and lethal danger due to implements falling down or uncontrolled lowering of the front loader when unsuitable implements are used or if the used implements are overloaded.

- Check that the implements are suitable before use.
- Check that the implement is locked correctly by repeatedly putting the implement down on the ground.
- Perform a visual check on the locking device.
- Only perform the hydraulic locking of the implement up to a height of 1.5 m.
- Check the proper functioning of the implements one time without load before beginning work.

Dangers during excavation work



There is lethal danger and a risk of explosion during excavation work due to collision with cables buried in the ground.

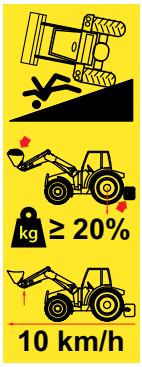
- Before performing excavation work, ensure that there are no electric cables in the ground.
- Before performing excavation work, ensure that there are no gas lines in the ground.

Dangers during loading work

There is a risk of serious injury and mortal danger when loading and transporting loads, if the front loader is operated from one side, the load is raised too far over the driver's seat or if unsuitable implements are used.

- If not equipped, check for retrofitting a cab and/or a FOPS (falling objects protection structure) / ROPS (roll-over protection structure) within the framework of work safety regulations.
- If there is no cab or safety equipment, never lift loads over the driver's seat.
- Only use suitable implements, which prevent e.g. rolling back and falling on the driver's seat.

Dangers when operating the front loader



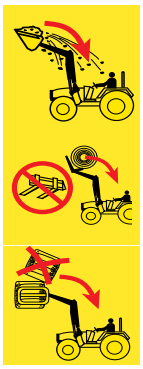
There is a risk of serious injury or lethal danger due to tipping of the tractor when working on slopes, when going around bends, when the load on the rear axle is too low, and when driving into the bulk to be lifted at a skewed angle.
The risk increases when the front loaders are raised up high because of the higher centre of gravity.

- Drive carefully when working on slopes. Never travel with a raised load across a slope.
- Ensure that the ground is level enough.
- When driving in curves, reduce the speed and lower the load.
- Never start driving abruptly with the front loader raised high and fully loaded.
- Observe and comply with the maximum load of the tractor.
- Always use sufficient counterweights at the rear of the tractor.
- In case of instability or tipping, lower the front loader and remain in the driver's cab.
- Drive towards the load in a straight line and do not steer while driving into the load.
- Use the safety belts.
- Connect the brake pedals.
- Switch off the front axle suspension.
- On tractors with adjustable track width: set the maximum possible track width.

When driving on roads, there is a risk of serious injury and lethal danger for the operator as well as for other road users if the tractor and the front loader are not correctly prepared and operated for road traffic.

- Only drive on roads without a load.
- Before driving on roads, switch off the hydraulic system and lock it.
- Raise the front loader.

Dangers due to falling loads



There is mortal danger due to raised loads falling down on the driver's seat. There is a particularly high risk when lifting pallets or bales above the driver's cab and when working on slopes. Even the standard protection systems (roll-over protection structure ROPS, falling objects protective structures FOPS) do not provide fully adequate protection.

- When working on slopes, reduce the implement filling and lower the load.
- Check the inclination of the implement. Do not scoop too far with the implement.
- Use implements that are designed such that they prevent loads from falling onto the driver's seat.
- Only use the appropriate implements when loading piece goods (e.g. bale grabber for bales or pallet fork for pallets).
- Lift pallets or bales one at a time. Never stack several loads on top of each other, since the top load could fall down on the driver's seat.
- Compensate for the increased angle on front loaders without parallel motion when lifting by “dumping” with the implement.
- Do not operate the front loader without parallel motion while driving in reverse.
- On tractors without a cab or 4-post roll-over protection structure, do not lift large load items, in particular bales, any higher than the pivot point of the lifting arm.
- Watch the load as you are lifting. Do not lift the load when reversing.

Dangers during maintenance

Maintenance work carried out incorrectly (care and cleaning, service, repairs) impair the safety of the front loader.

- Check the front loader regularly for defects.
- Check mounting parts (brackets) regularly for damage (cracks).
- Care and cleaning work must be carried out correctly.
- Only have repair work performed by authorised qualified personnel.

2.8 Danger zones

On and around the front loader, there are the following areas with increased risk to safety of the operator or safety of other persons:

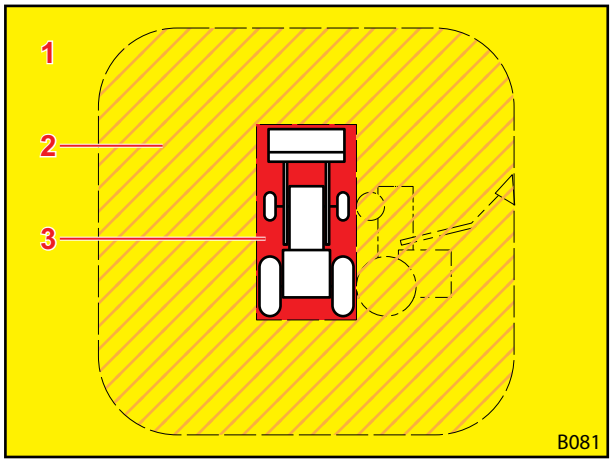


Fig. 3 Top view (from above)

Legend

1 Work area (yellow)

2 Outer danger zones (hatched in orange)

3 Inner danger zones (red)

Danger zone	Description	Danger
Work area	Overall possible movement area of the tractor incl. the front loader during loading work.	• Standing in the working area represents a risk.
Outer danger zone	Overall field of action of the tractor and front loader as well as the area in which the tractor or front loader could tip over in case of accident: • On the sides (left and right): height of the tractor with the front loader raised as far as it goes (incl. implement) • Front and rear: half the height of the tractor with the front loader raised as far as it goes (incl. implement)	• When the tractor tips over or when loads fall down, people can be seriously injured.
Inner danger zone	Area on and around the tractor and front loader, especially between the wheels of the tractor, directly in front of and behind the tractor as well as on and under the front loader.	• Persons can be pinched in between the wheels of the tractor. • Persons can be overseen by the tractor driver and run over. • Moving machine parts can move uncontrollably and thereby crush and injure people.

➢ Observe the danger zones and instruct unauthorised persons out of these areas.

2.9 Safety equipment

Depending on the equipment, the front loader has the following protective and safety equipment:

Protective/safety equipment	Function
Safety stickers	Safety stickers warns against hazards at danger points (see *2.10 Safety stickers*).

2.10 Safety stickers

Safety stickers warn of hazards at danger points and are an important part of the safety equipment of the front loader.

- ➢ Clean safety stickers if they are soiled.
- ➢ Replace damaged or illegible safety stickers (see *10.1 Spare parts*).
- ➢ If necessary, equip new spare parts with the corresponding safety stickers.

Position of the safety stickers on the front loader

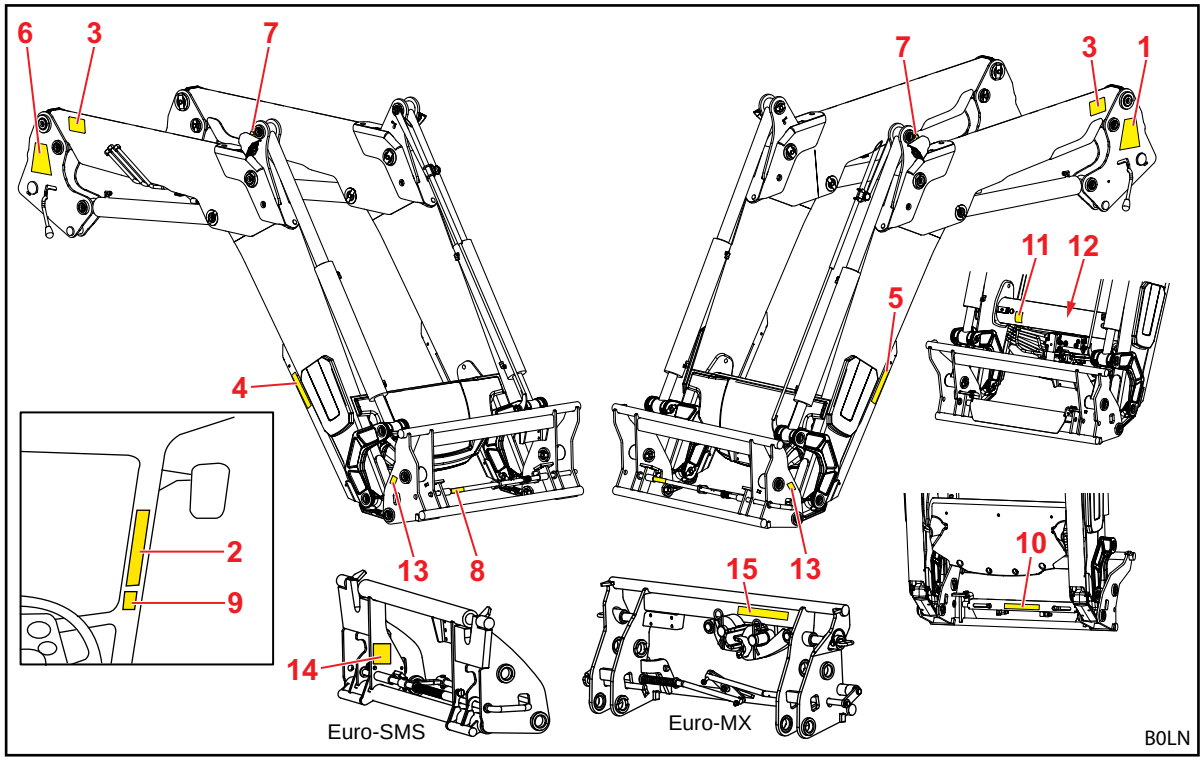


Fig. 4 FZ IB+ front loader (exemplary figure)

Legend

1 Safety instructions on the left pillar
2 Safety instructions in the tractor driver's cab
3 Safety instructions on the left and right lifting arm
4 Safety instructions on the right parking support
5 Safety instructions on the left parking support
6 Mounting and dismounting instructions for the front loader on the right pillar
7 Information for crane transport above, below or next to the hole for the hook (on the deviation triangle on FZ IB+ front loaders, on the frame on FS IB+ front loaders)
8 Sticker for safe manual implement locking, on the locking plug
9 Safety instructions for hydraulic implement locking, in the driver's cab (optional)
10 Safety instructions for hydraulic implement locking, on the cover plate (optional)
11 Safety instructions for pressure oil under the casing on the cross tube (optional)
12 Safety instruction for pressure accumulator on the accumulator on the cross tube (optional)
13 Safety instructions for working zone of the front loader lifting arm on the left and right of the change frame
14 Information for operation of the supports
15 Information for operation of the adapter

Description of the safety stickers

The numbering corresponds to the positions on the front loader (see *Position of the safety stickers on the front loader*).

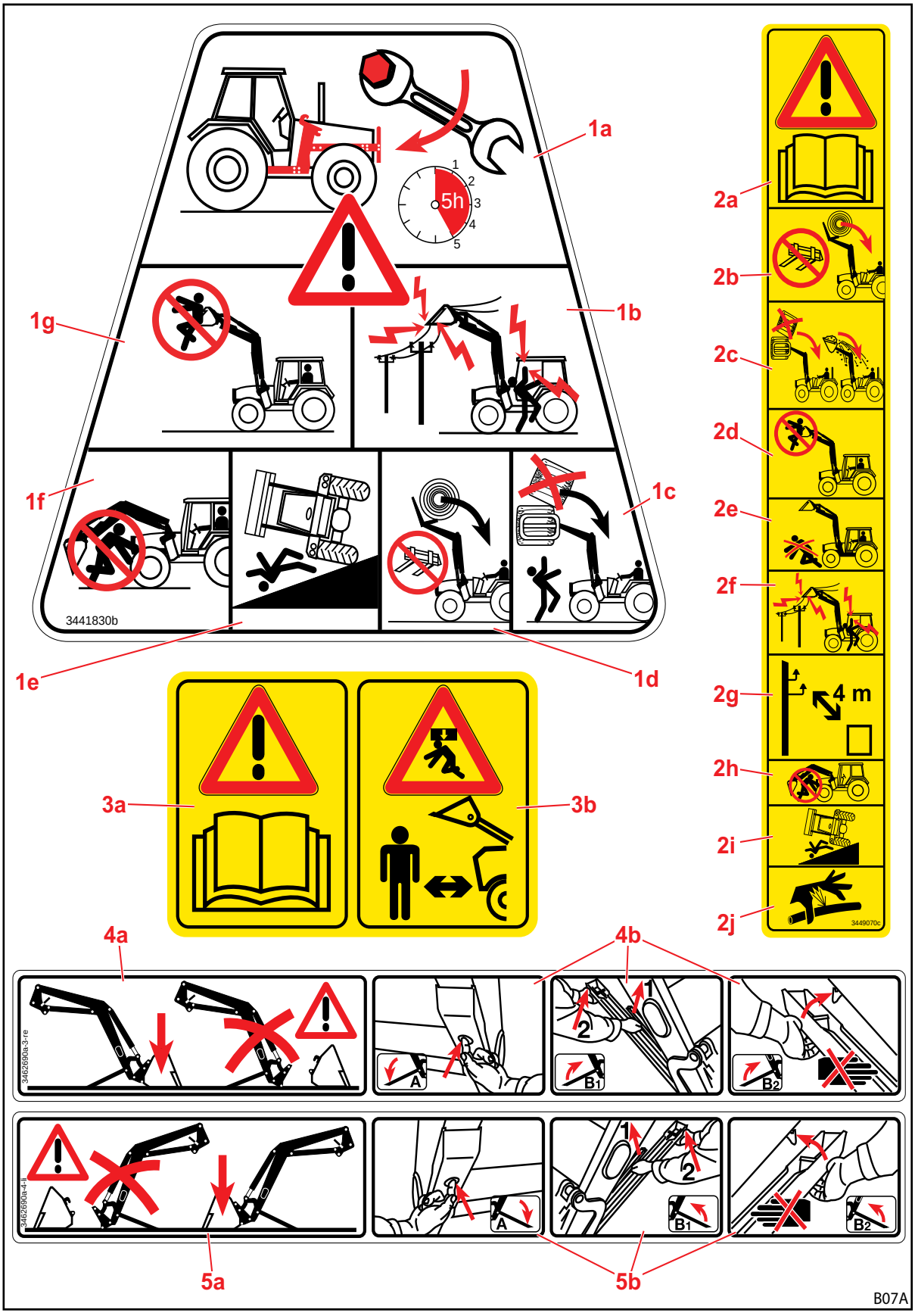


Fig. 5 Safety stickers position 1-5

Position	Description
1a	Re-tighten all the fixing screws on the mounting kit after the first 5 hours of operation.
1b	Keep a safe distance away from electrical lines.
1c	Do not stack several loads on top of each other.
1d	Only use suitable implement to prevent the load from falling down.
1e	Increased risk of tilting when the front loader is raised.
1f	Do not stand under the raised front loader.
1g	Do not lift or transport persons with the front loader.
2a	Observe the operating instructions.
2b	Only use suitable implement to prevent the load from falling down.
2c	Do not stack several loads on top of each other. Pay attention to the inclination of the implement.
2d	Do not lift or transport persons with the front loader.
2e	Do not stand in the working area of the front loader.
2f	Keep a safe distance away from electrical lines.
2g	Keep a distance of at least 4 m from electrical high-voltage lines.
2h	Do not stand under the raised front loader.
2i	Increased risk of tilting when the front loader is raised.
2j	Be careful of hydraulic oil under high pressure.
3a	Observe the operating instructions.
3b	Do not stand in the working area of the front loader. Possible danger due to loads falling down.
4a	Only park the front loader with attached implement with a minimum weight of 70 kg.
4b	Procedure for unfolding the parking supports.
5a	Only park the front loader with attached implement with a minimum weight of 70 kg.
5b	Procedure for unfolding the parking supports.

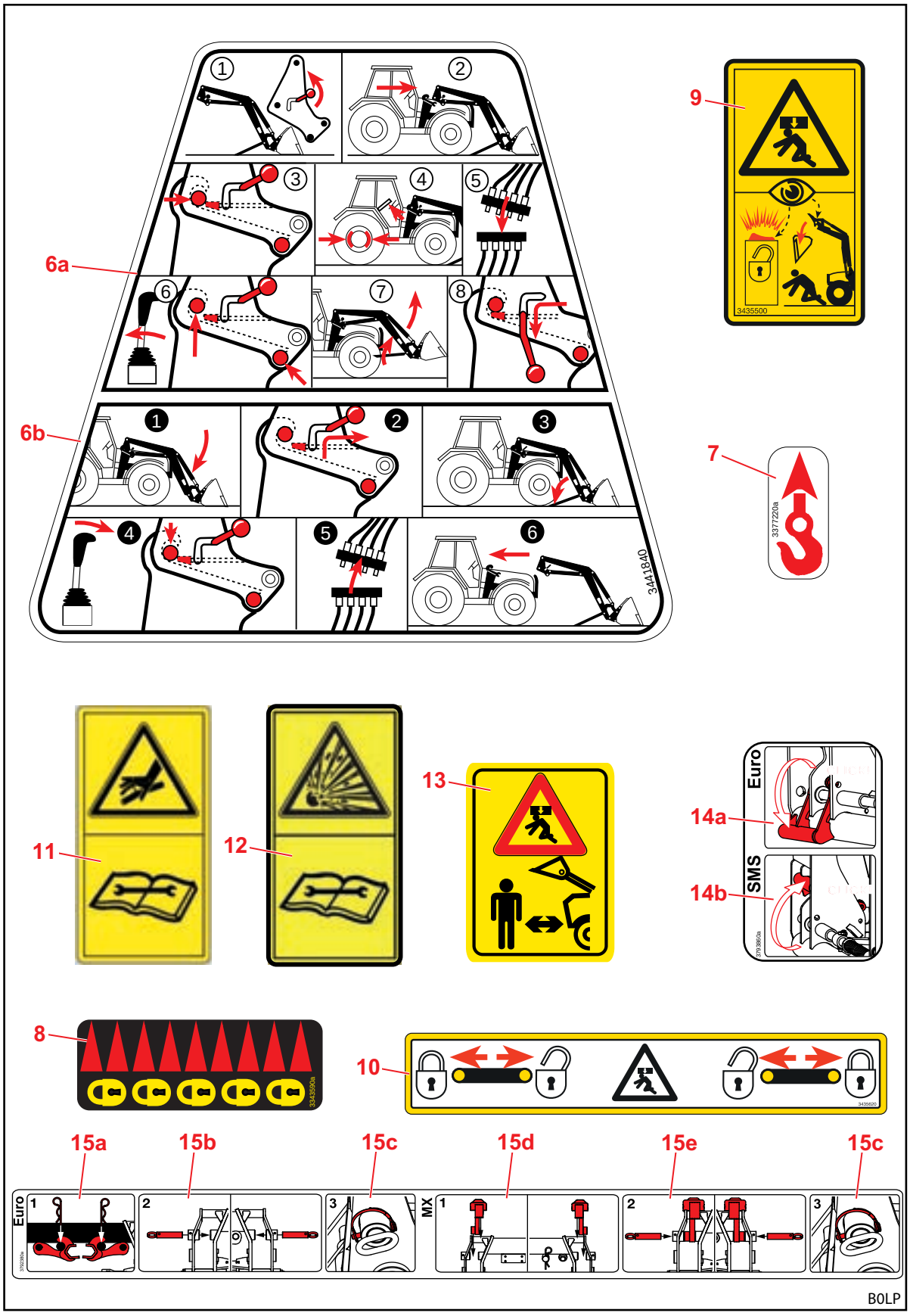


Fig. 6 Safety stickers position 6-15

Position	Description
6a	Instructions for mounting of the front loader.
6b	Instructions for dismounting of the front loader.
7	Mounting points for crane transport of the front loader.
8	Identification of the locked position of the mechanical implement locking mechanism. (On Euro-SMS and Euro-MX Combi change frames, this sticker is also used for the hydraulic implement locking mechanism.)
9	Be careful with using the hydraulic implement locking mechanism when persons are standing around the front loader.
10	Pin position for the hydraulic implement locking mechanism.
11	The hydraulic system is under oil pressure. Parts can only be removed or repaired after the pressure has been relieved according to the instructions in the installation instructions or in the tractor operating instructions.
12	The pressure accumulator is under pressure from the gas and oil. Parts should only be removed and repaired according to the instructions in the installation instructions.
13	Do not stand in the working area of the front loader. Possible danger due to loads falling down.
14a	To use Euro implements, the supports of the change frame must be swivelled down and locked.
14b	To use SMS implements, the supports of the change frame must be swivelled up and locked.
15a	Slide the adapter onto the bracket and secure with a cotter pin.
15b	Insert the locking pin.
15c	Secure the locking pin with the tube linch pin.
15d	Put the adapter on the upper cross bar.
15e	Secure the adapter with a locking pin.

2.11 Personnel requirements

In the operating instructions, a distinction is made between the following persons:

- Operators
- Qualified personnel
- Specialised tradesmen

All person groups must provide proof that they have read and understood the operating instructions. The table lists the other respective qualifications and responsibilities.

Personnel	Qualification/responsibility
Operator/employer	● is responsible for the proper operation of the front loader and monitors its use ● intensively instructs qualified personnel on how to handle the front loader ● ensure regular inspection and service of the front loader in a specialised workshop
Qualified personnel	● are responsible for the proper operation of the front loader ● are physically able to control the front loader and the tractor ● ensure regular service of the front loader ● know the relevant road traffic regulations ● are in possession of the prescribed driving license ● are familiar with driving tractors safely
Specialised tradesmen	● perform maintenance work (service and repairs) ● have a recognised training certificate or specialised knowledge that is required to observe the existing specifications, regulations, and directives

Work on electrical components of the machine may only be performed by an qualified electrician according to the electro-technical regulations.
Welding work may only be performed at an authorised workshop.

2.12 Behaviour in case of emergency

➢ Initiate the following measures to avoid further damage in cases of emergency:

(1) Secure the accident site correctly.

(2) Provide first aid (if necessary).

(3) Call rescue workers, describe the situation briefly and concisely. Wait for feedback.

(4) Inform the employer or operator.

2.12.1 Behaviour if the tractor tips or falls over

➢ If the tractor tips or falls over with the front loader, observe the following instructions:

(1) Lower the load.

(2) Stay in the driver's cab until professional help arrives.

2.12.2 Behaviour in case of flashovers from electrical power lines

In the vicinity of electrical power lines, flashovers can happen quickly that cause high electrical voltage on the outside of the tractor. This results in large voltage differences on the ground around the machine.

In the case of a flashover:

➢ Do not exit the driver's cab.

➢ Do not touch any metal parts.

➢ There must be no connection to the earth.

➢ Warn any persons standing around against coming closer.

➢ Have the power switched off.

➢ Wait for professional rescue workers.

If it is still necessary to exit the driver's cab, e.g. due to the threat of fire:

➢ Jump away from the tractor and be sure not to touch it.

➢ Take small steps to move away from the tractor.

3 Structure

3.1 Structure of FS IB+ front loaders

FS IB+ front loaders are composed of the following main components:

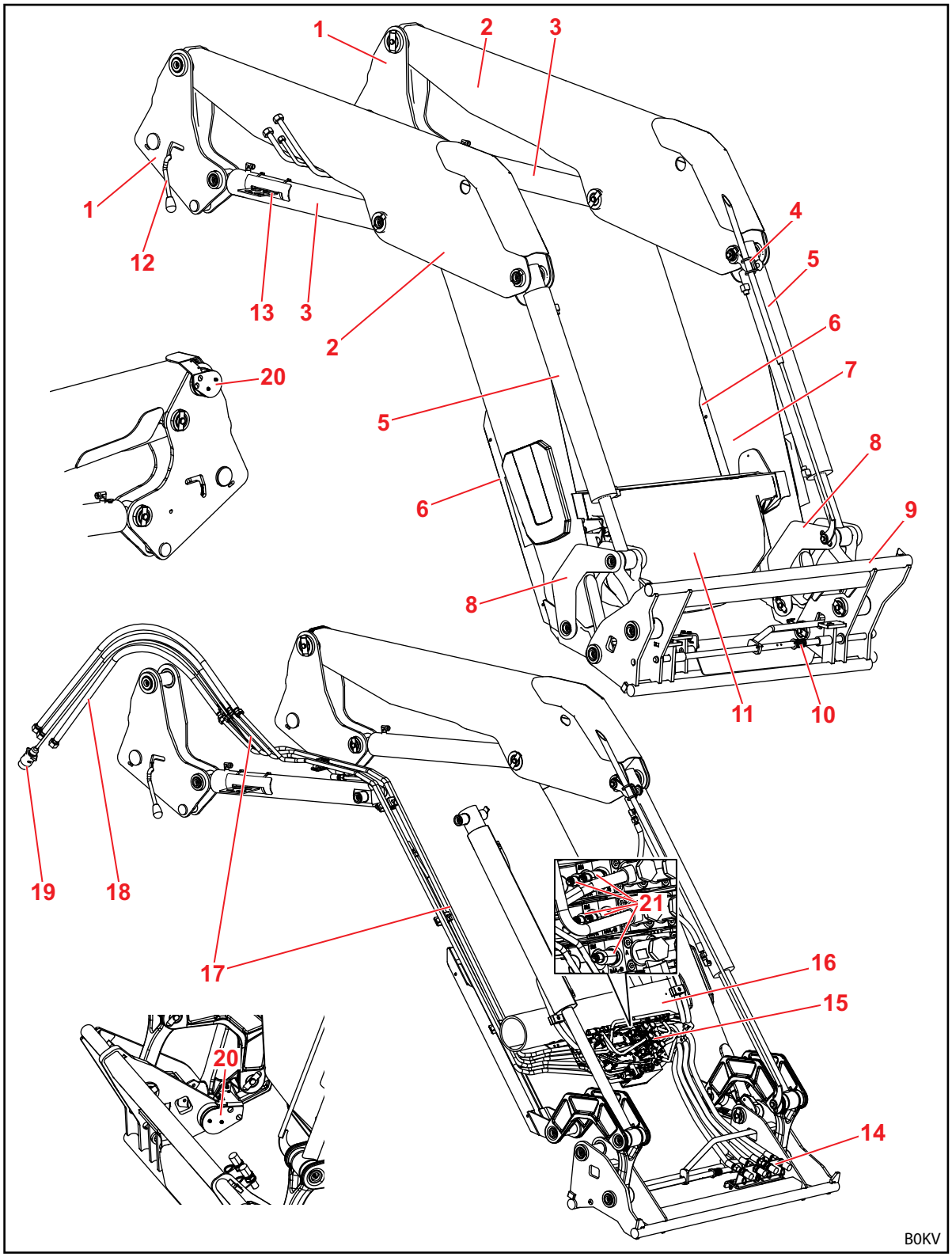


Fig. 7 FS IB+ front loader

Legend

1 Pillars (drive-in system)
2 Lifting arm (base frame)
3 Lifting cylinder: hydraulic cylinder for lifting and lowering
4 Upper support for the implement position indicator (optional)
5 Implement cylinders: hydraulic cylinders for dumping and scooping (differential cylinders)
6 Parking supports
7 Rating plate
8 Lever mechanism dumping/scooping
9 Euro change frame (implement support)
10 Implement locking mechanism
11 Cap for hydraulic and electrical distribution and additional equipment
12 Front loader locking mechanism
13 Coupling holder
14 Hydraulic couplings for 3rd and 4th control circuit or REAL^3 (optional)
15 Hydraulic and electrical distribution valves for additional equipment
16 Cross tube
17 Hydraulic tubes
18 Hydraulic hoses to the tractor (interface on the mounting part)
19 Connection cable
20 Turning angle sensors
21 Pressure sensors

Sizes, see *11.1 Dimensions and weights*.

3.2 Structure of FZ IB+ front loaders

FZ IB+ front loaders are additionally equipped with mechanical parallel motion and are composed of the following main components:

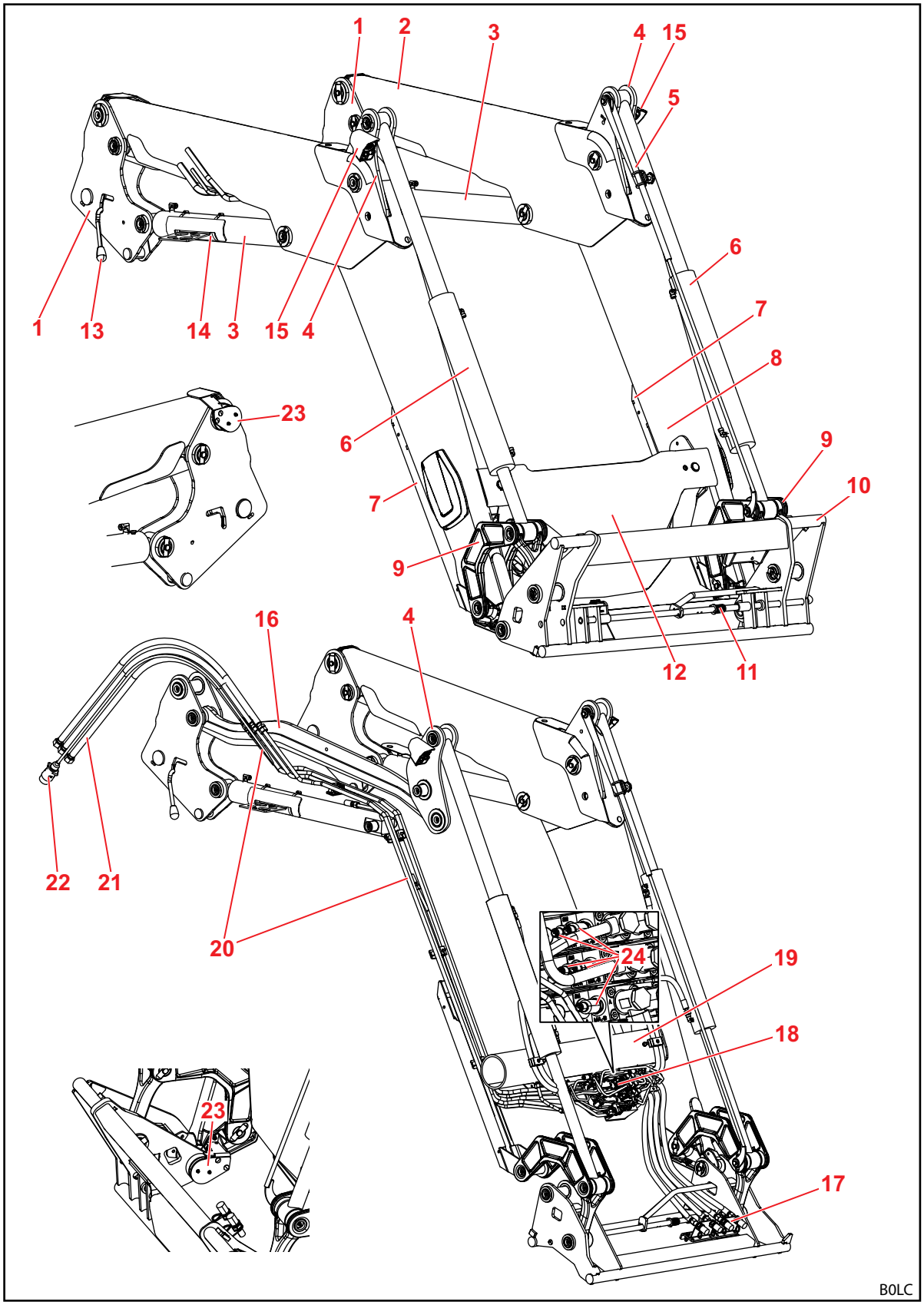


Fig. 8 FZ IB+ front loader

Legend

1 Pillars (drive-in system)
2 Lifting arm (base frame)
3 Lifting cylinder: hydraulic cylinder for lifting and lowering
4 Deviation triangle of the parallel motion
5 Indicator for implement position (optional)
6 Implement cylinder: hydraulic cylinder for dumping and scooping (synchronised cylinder)
7 Parking supports
8 Type plate
9 Lever mechanism dumping/scooping
10 Euro change frame (implement support)
11 Implement locking mechanism
12 Cap for hydraulic and electrical distribution and additional equipment
13 Front loader locking mechanism
14 Coupling holder
15 Headlights (optional)
16 Control rod of the parallel motion
17 Hydraulic couplings for 3rd and 4th control circuit or REAL^3 (optional)
18 Hydraulic and electrical distribution valves for additional equipment
19 Cross tube
20 Hydraulic tubes
21 Hydraulic hoses to the tractor (interface on the mounting part)
22 Connection cable
23 Turning angle sensors
24 Pressure sensors

Sizes, see *11.1 Dimensions and weights*.

3.3 Equipment variations

The table shows the different equipment variations for FS IB+ and FZ IB+ front loaders:

Equipment		Front loader	
		FS IB+	FZ IB+
Basic equipment			
Parallel motion (mechanical)		–	●
Change frame			
Euro		●	●
Euro-SMS Combi-frame		○	○
Euro-Alö Type 3 Combi frame		○	○
Euro-MX combi-frame		○	○
Implement locking mechanism			
mechanical		●	●
hydraulic		○	○
Hydraulic and electrical couplings			
3 plug-in couplings		●	●
13-pin electrical plug connection		●	●
Hydro-Fix multiple hydraulic coupling		○	○
Additional functions			
Comfort Drive (electrical operation)		○	○
3rd control circuit(1)	Standard option: – Control by pressing a button and moving the operating lever	○	○
	Extended option (REAL3(1)): – Control by pressing a button or rocker switch on the operating lever – Continuous mode (ISOBUS)	○	○
4th control circuit(1)		○	○
Camera system		○	○
Headlights		–	○
Wear runners		○	○(2)
Mechanical indicator for implement position		○	○
ISOBUS functions			
Parallel motion (electronic)		●	–
Pressure regulation		●	●
Load-independent lowering speed		●	●
Return to position		●	●
Adjustable response behaviour		●	●
Electric flow sharing		●	●
End position damping		●	●
Bucket shake		●	●
Working window		●	●
Vibration damping		●	●
Weighing		●	●
Teach In		●	●
Continuous mode for 3rd control circuit		○	○

● = Series, ○ = Optional, – = Not available

(1) Alternatively with screw couplings, plug-in couplings or multiple couplings

(2) Standard equipment on FZ IB+ 46-26 to FZ + 48-42

3.4 Mounting kit on the tractor

The front loader is attached to the tractor using the mounting kit for tractors. The mounting kit consists of the following components:

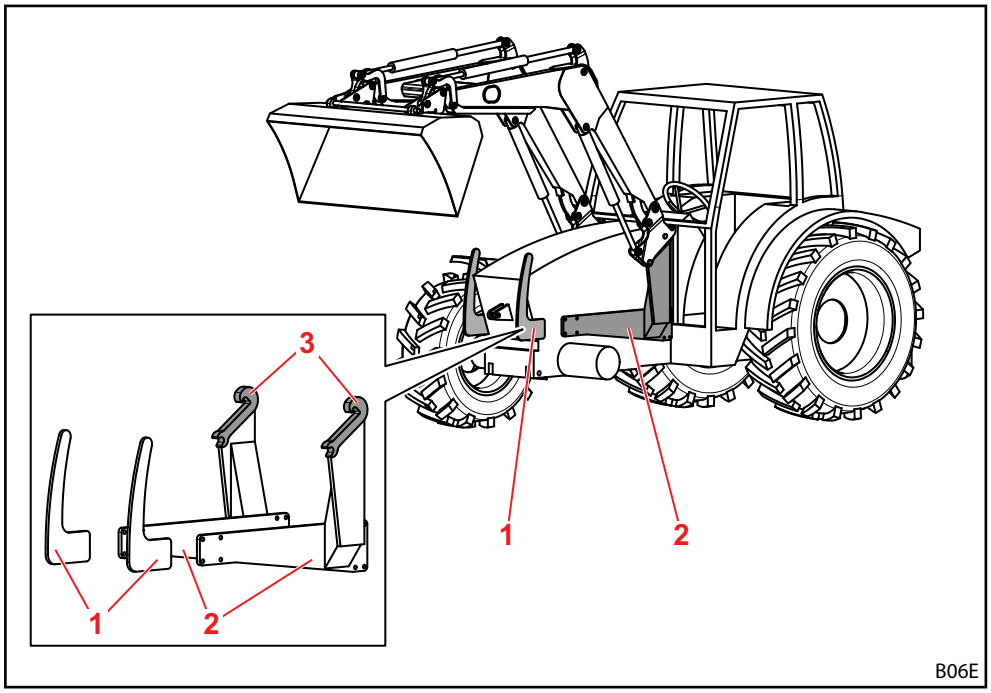


Fig. 9 Mounting kit for tractors

Legend

1 Front guard left and right

2 Mounting parts left and right

3 Mountings/catch hooks

The components remain permanently mounted on the tractor. They can look different depending on the tractor model.

➢ Observe the installation instructions for the mounting kit.

➢ Observe the regulations for the registration of the changed empty weight in the vehicle documents for the tractor.

The front loader can only be mounted on the tractor if the associated mounting kit is already installed. Only an authorized specialist workshop is allowed to install the mounting kit on the tractor.

3.5 Change frames

The change frame is a fixed component of the front loader. The different types are designed and adapted for the mounting of standardised implements of this type.

As a matter of principle, the following change frames are available for the front loaders described in this operating manual:

- Euro change frame
- Euro-SMS Combi change frame
- Euro-Alö3 Combi change frame
- Euro-MX Combi change frame

The basic equipment of the change frames includes a mechanical implement locking mechanism, however, a hydraulic implement locking mechanism can be installed as an option for Euro change frames and Euro-SMS Combi change frames (see *4.1 Implement locking mechanism*).

The change frames will be presented without implements in the following.

3.5.1 Euro change frame

These change frames are installed on FS and FZ front loaders (all sizes).

They are intended for mounting implements complying with the Euro standard.

The implement cylinder serves to swivel the change frame around its pivot point.

On the support, the couplings for a 3rd and 4th control circuit can be installed as an option (see *4.7.1 Additional control circuits*).

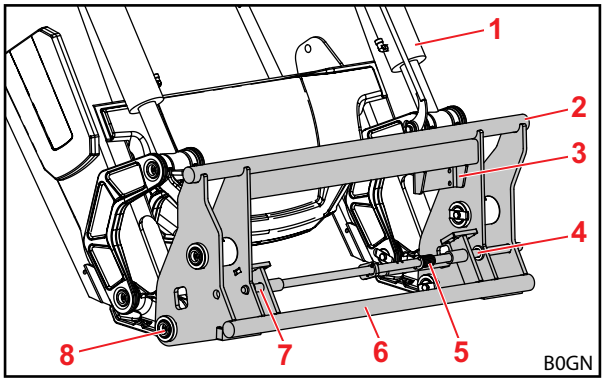


Fig. 10 Euro change frame

Legend

1 Implement cylinder
2 Upper cross bar
3 Support with hydraulic couplings for the 3rd/ 4th control circuit
4 Mounting on the left
5 Spring
6 Lower cross bar
7 Mounting on the right
8 Pivot point

3.5.2 Euro-SMS Combi change frame

These change frames are installed on FS and FZ front loaders (all sizes).

They are intended for mounting implements complying with the Euro standard as well as the SMS standard.

Euro implements are hinged onto the outer pins. SMS implements are hinged onto the cross bar. To use Euro implements, the supports must be folded down. To use SMS implements, the supports must be folded up.

On the support, the couplings for a 3rd and 4th control circuit can be installed as an option (see *4.7.1 Additional control circuits*).

The function is the same as for Euro change frames.

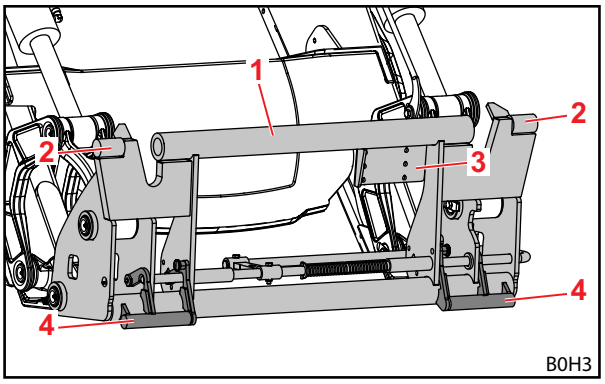


Fig. 11 Euro-SMS Combi change frame (prepared for Euro implements)

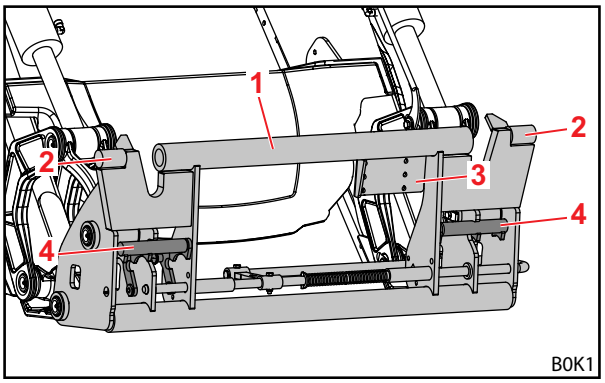


Fig. 12 Euro-SMS Combi change frame (prepared for SMS implements)

Legend

1 Cross bar
2 Outer pin
3 Support with hydraulic couplings for the 3rd/4th control circuit
4 Support

3.5.3 Euro-Alö3 Combi change frame

These change frames are installed on FS and FZ front loaders (all sizes).

They are intended for mounting implements complying with the Euro standard as well as the Alö3 standard.

Euro implements are hinged onto the outer pins. Alö3 implements are hinged onto the inner pin.

On the support, the couplings for a 3rd and 4th control circuit can be installed as an option (see *4.7.1 Additional control circuits*).

The function is the same as for Euro change frames.

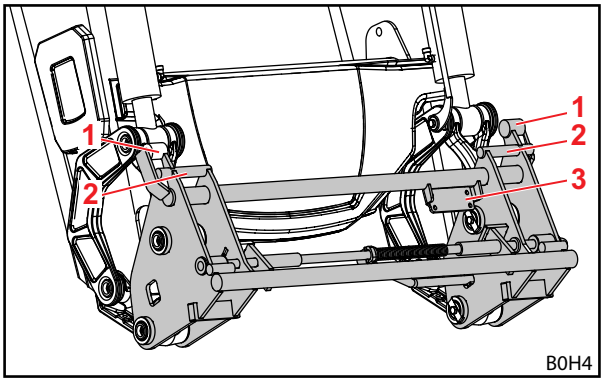


Fig. 13 Euro-Alö Combi change frame [3]

Legend

1 Outer pin
2 Inner pin
3 Support with hydraulic couplings for the 3rd/4th control circuit

3.5.4 Euro-MX Combi change frame

These change frames are installed on FS and FZ front loaders (all sizes).

They are intended for mounting implements complying with the Euro standard as well as the MX standard.

Euro implements are hinged onto the upper cross bar. MX implements are hinged onto the adapter. For the use of MX implements, the adapters must be mounted on the outside of the change frame and secured with locking pins and tube linch pins. For the use of Euro implements, the adapters must be inserted on the bracket on the change frame and secured with cotter pins.

On the support, the couplings for a 3rd and 4th control circuit can be installed as an option (see *4.7.1 Additional control circuits*).

The function is the same as for Euro change frames.

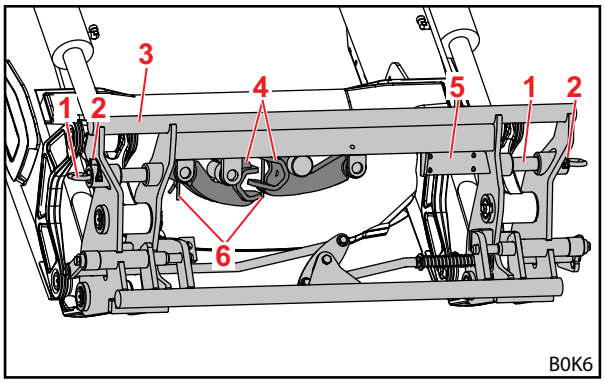


Fig. 14 Euro-MX Combi change frame (prepared for Euro implements)

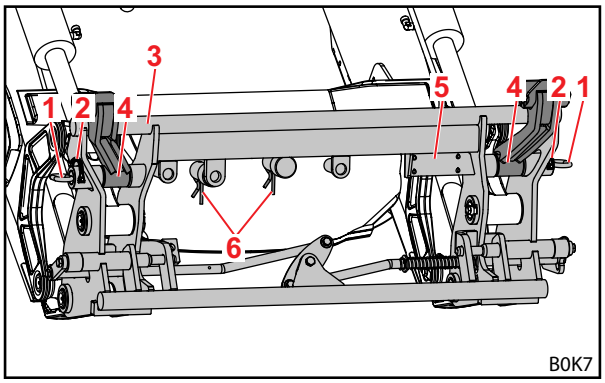


Fig. 15 Euro-MX Combi change frame (prepared for MX implements)

Legend

1 Locking pin
2 Tube linch pin
3 Upper cross bar
4 Adapter
5 Support with hydraulic couplings for the 3rd/4th control circuit
6 Spring cotter pin

3.6 Wear runners

The wear runners are located on the right and left on the front mountings of the lifting arm. The wear runners protect the front mountings, the change frame and the implement from excessive wear.

The wear runners are included in the standard equipment for FZ 46-26 to FZ 48-42 front loaders. For all other front loaders, it is optional equipment.

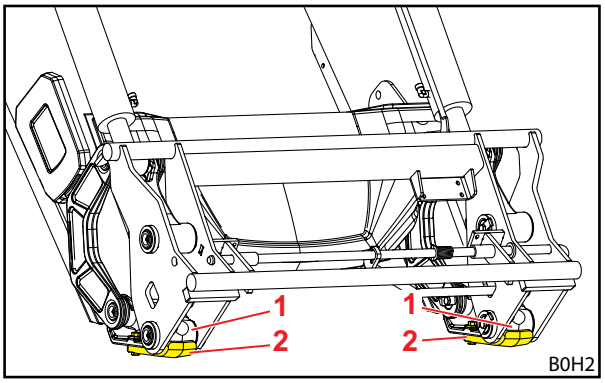


Fig. 16 Wear runners

Legend

1 Front mounting
2 Wear runner

3.7 Hydraulic lines

⚠ CAUTION

There is a risk of injury due to escaping hydraulic fluids!

If the hydraulic lines are not depressurized before the coupling procedures, oil can spray out and injure the skin or other body parts (e.g. eyes).

- Always depressurize the hydraulic system before any coupling procedures.
- Clean the couplings on a regular basis.

The tractor and front loader are connected by 3 hydraulic lines, which can be found on the right side of the front loader.

Hydraulic line	Colour of the protective cap	Description
P	red	Pressure line
P1	green	Load sensing line
T	blue	Tank connection line

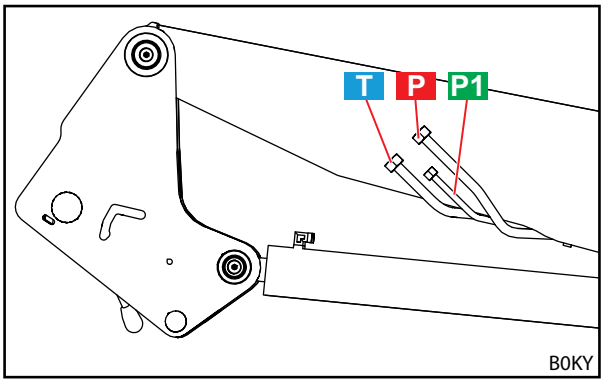


Fig. 17 Hydraulic lines

3.8 Hydraulic couplings

3.8.1 Plug-in couplings

The plugs of the plug-in couplings are located on the hydraulic lines of the front loader.

The couplings can be found on the right-side mounting part for the tractor. They are connected either to the hydraulic valve with hose lines or directly to the tractor's supply lines.

Plugs and couplings are equipped with coloured caps to facilitate assignment.

Promptly replace damaged or missing labels (e.g. caps).

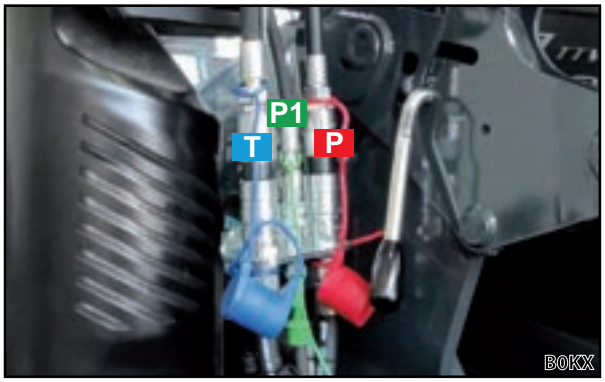


Fig. 18 Connected plug-in couplings

3.8.2 Multiple coupling Hydro-Fix

As an option, the front loader can be equipped with the Hydro-Fix coupling. This multiple coupling enables simultaneous connection of all hydraulic lines with the couplings.

The upper part is located on the hydraulic lines of the front loader. The lower part is located on the right-side mounting part for the tractor.

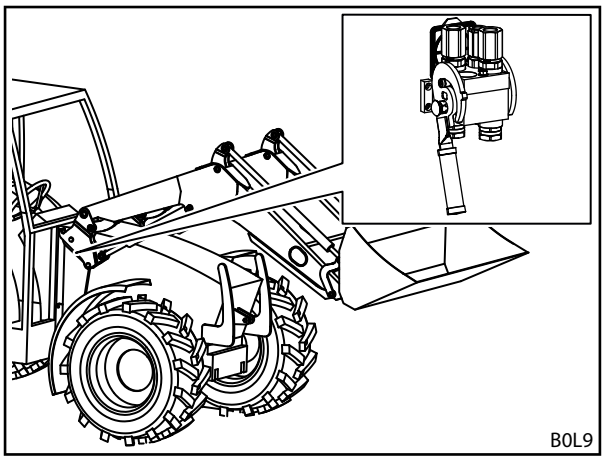


Fig. 19 Hydro-Fix: Position on the front loader

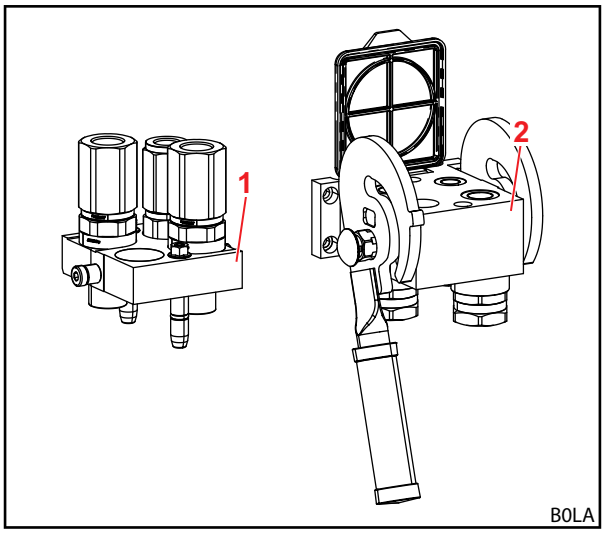


Fig. 20 Structure of the Hydro-Fix

Legend

1 Hydro-Fix upper part
2 Hydro-Fix lower part

3.8.3 Multiple coupling Implement-Fix

As an option, the front loader can be equipped with the Implement-Fix coupling. This enables simultaneous connection of all hydraulic lines of the implement with the couplings of the change frame.

The upper part of the Implement-Fix is on the hydraulic lines of the implement. The lower part of the Implement-Fix is on the change frame of the front loader.

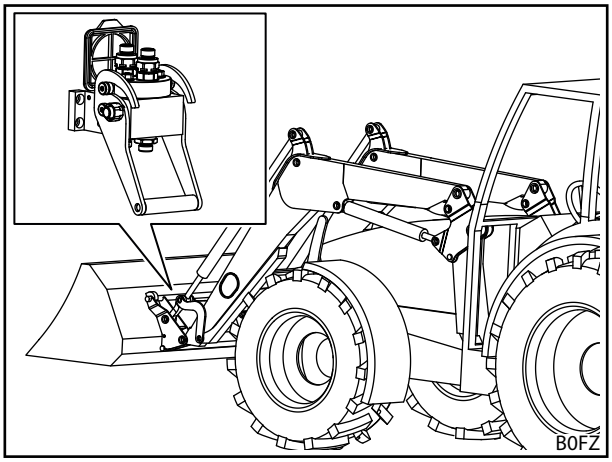


Fig. 21 Implement-Fix: position on the front loader

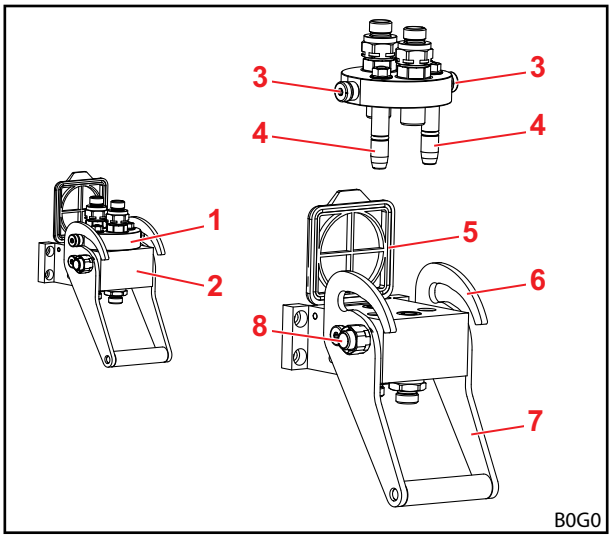


Fig. 22 Structure of the Implement-Fix

Legend

1 Implement-Fix upper part
2 Implement-Fix lower part
3 Pin
4 Guide pins
5 Cover
6 Guide
7 Lever
8 Lock button

4 Functions

4.1 Implement locking mechanism

4.1.1 Mechanical implement locking mechanism

Euro and Combi change frames

⚠ WARNING

Risk of injury due to implements falling down!

The implement may fall down if the implement locking mechanism is open or not locked correctly. This can cause serious injury to persons standing in the surrounding area.

- Only actuate the implement locking mechanism when the implement is lowered close to the ground or over a secure rack.
- Always check that the implement is correctly locked.

⚠ CAUTION

Risk of crushing due to spring tension!

There is spring tension on the handle of the implement locking mechanism, which closes the locking mechanism when the handle is lifted. Improper use can lead to injury to hands and fingers.

- Always operate the handle with one hand and grab it in the middle.

The mechanical implement locking mechanism on Euro and Combi change frames is actuated manually.

The implement is hinged with its hooks on the top cross bar on the change frame.

Below, the implement rests on the bottom cross bar. Both eyelets of the implement project into the mountings of the change frame.

The locking mechanism is held open by the stop. When lifting the handle, the locking mechanism is closed by the spring, as the front loader pin is pushed through the eyelets of the implement.

When scooping, the handle is lifted by a guide piece on the lifting arm, and the locking mechanism closes automatically.

Do not raise the front load higher than 1.5 m until proper locking of the implement locking mechanism has been checked!

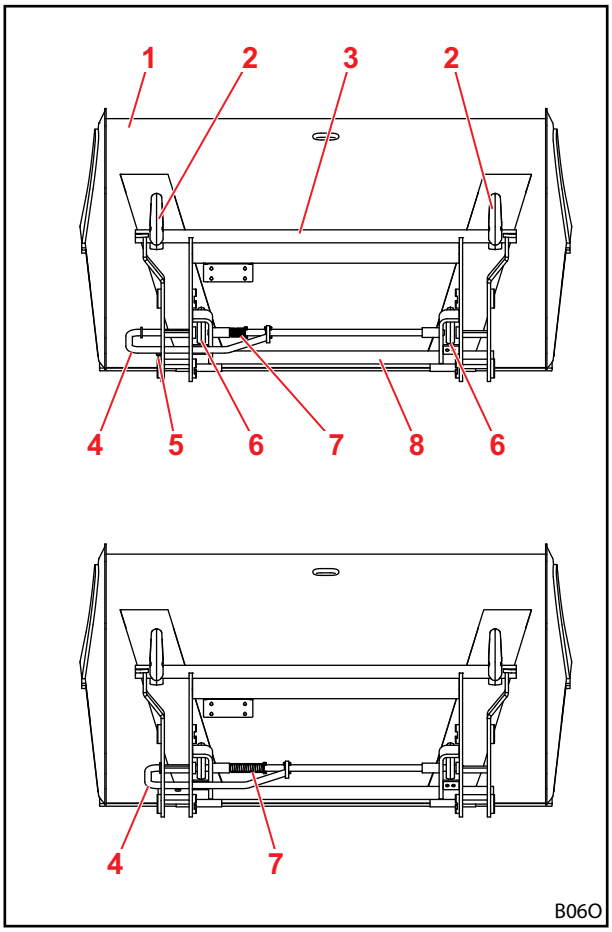


Fig. 23 Open (top) and closed (bottom) locking mechanism

Legend

1 Implement
2 Hook
3 Upper cross bar
4 Handle
5 Stop
6 Eyelet
7 Spring
8 Lower cross bar

4.1.2 Hydraulic implement locking mechanism – Hydro-Lock

⚠ WARNING

Risk of injury due to implements falling down!

If not installed or operated correctly, the implement can fall down. This can cause serious injury to persons standing in the surrounding area.

- The hydraulic implement locking mechanism must only be installed by a specialist workshop.
- Lower the implement close to the ground or over a secure rack before using the implement locking function.

The front loader can optionally be equipped with a hydraulic implement locking mechanism. It attaches the implement to the change frame via 2 pins activated by a hydraulic cylinder.

4.2 Basic functions

⚠ DANGER

Lethal danger due to loads falling down from front loaders without parallel motion!

On front loaders without parallel motion, the implement tilts to the rear when lifting. As a result, the load can fall on the driver and cause lethal injuries.

- Watch the load as you are lifting. Do not lift the load when reversing.
- Compensate for the increased angle on front loaders without parallel motion when lifting by “dumping” with the implement.

⚠ WARNING

Risk of injury and material damage caused by falling loads or lowering front loader!

With dumping implements that are long or protrude far to the front, the centre of gravity can shift and cause the pressure relief valve of the front loader to open by itself. As a result, the front loader dumps or lowers uncontrollably and can lead to serious injuries and damage.

- Observe the maximum load of the front loader (see *11 Technical specifications*).
- Always use sufficient counterweights at the rear of the tractor (see *5.3.2 Ballasting*).
- During loading work, instruct persons to exit the working area (see *2.8 Danger zones*).

The front loader has 4 basic functions that are required to move the lifting arms and the implement.

Lifting

The 2 lifting cylinders are extended and thus raise the lifting arm and the implement.

Without parallel motion, the angle between the lifting arm and the implement remains constant so that the implement changes its orientation.

With parallel motion, the angle between the lifting arm and the implement changes so that the implement maintains its original orientation.

To move the implement, see *4.6 Mechanical parallel motion (FZ IB+)*.

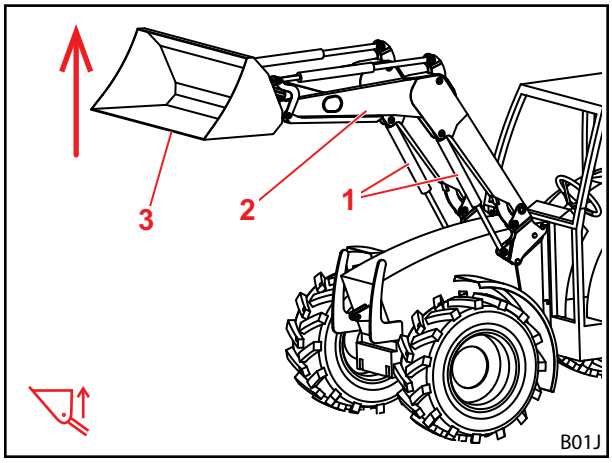


Fig. 24 Lifting function

Legend

1 Lifting cylinders on the left and right
2 Lifting arm
3 Implement

Lowering

The 2 lifting cylinders are retracted and thus lower the lifting arm and the implement.

Without parallel motion, the angle between the lifting arm and the implement remains constant so that the implement changes its orientation.

With parallel motion, the angle between the lifting arm and the implement changes so that the implement maintains its original orientation.

> To move the implement, see *4.6 Mechanical parallel motion (FZ IB+)*.

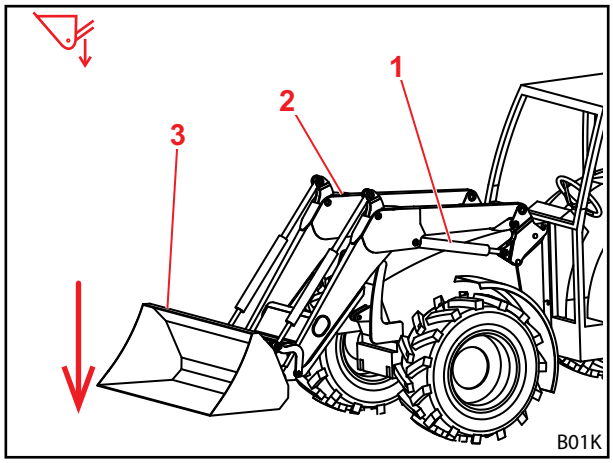


Fig. 25 Lowering function

Legend

1 Lifting cylinder, left
2 Lifting arm
3 Implement

Scooping

The 2 implement cylinders are retracted and thus swivel the implement upwards. The implement scoops.

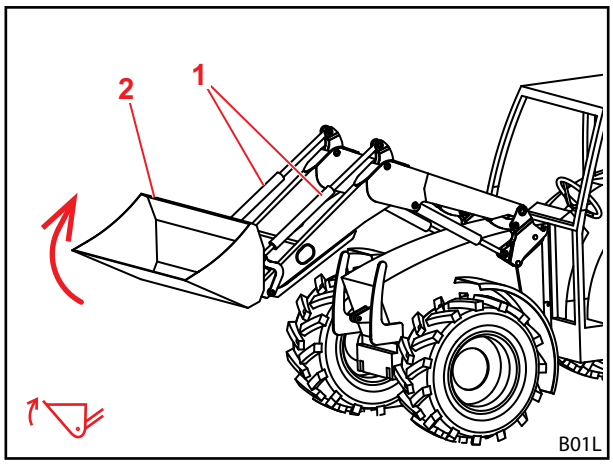


Fig. 26 Scooping function

Legend

1 Implement cylinders on the left and right
2 Implement

Dumping

The 2 implement cylinders are extended and thus swivel the implement downwards. The load is dumped out.

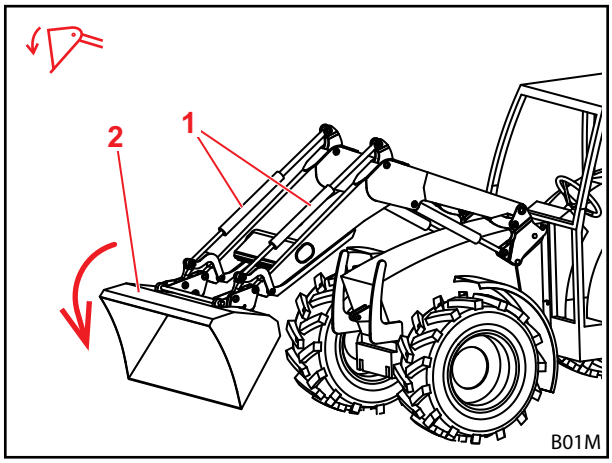


Fig. 27 Dumping function

Legend

1 Implement cylinders on the left and right
2 Implement

4.3 ISOBUS functions

4.3.1 Electronic parallel motion (FS IB+)

With electronic parallel motion, the sensors ensure constant alignment/tilting of the implement in conjunction with the main valve.

The function is particularly suitable for transporting bulk material and stacking bales.

The function can be activated and deactivated.

➢ Refer to the separate software instructions for information on using the function.

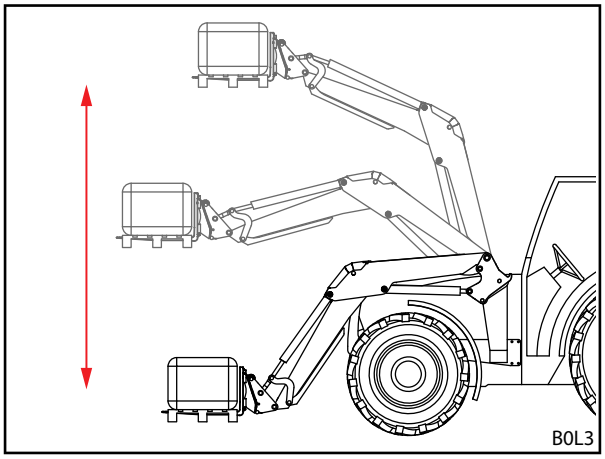


Fig. 28 Electronic parallel motion

4.3.2 Pressure regulation

Pressure regulation:

The function enables individual limitation of the clamping force of the implement, e.g. when working with wrapped bale handlers. Thanks to a pressure sensor, the controls regulate the pressure in the 3rd control circuit to a predefined value via the main valve.

Pressure control:

The function prevents overloading of the hydraulic drive for oil motors, by regulating the main valve with a pressure sensor when a predefined value is exceeded.

The function can be activated and deactivated.

The factory setting for the pressure regulation is 100 bar for bale grabbers and 185 bar for other gripping implements.

➢ Refer to the separate software instructions for information on using the function.

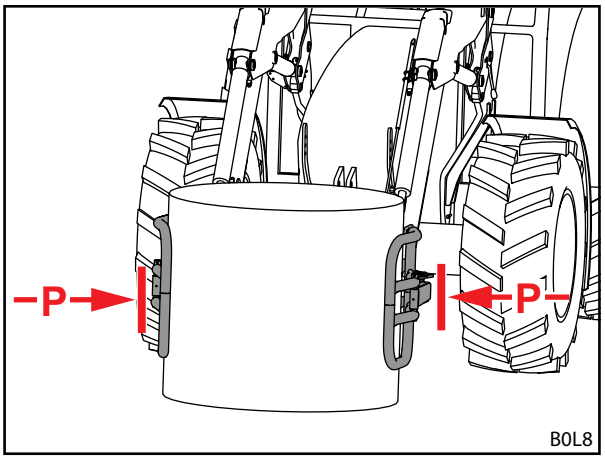


Fig. 29 Pressure regulation

4.3.3 Load-independent lowering speed

The function enables a stable lowering speed, regardless of the load. The speed itself is determined by moving the joystick.

The lowering speed is reduced by throttling on the control piston of the main valve. The control piston is automatically adjusted depending on the weight so that the speed remains stable.

The function is particularly useful when working with heavy loads.

The function can be activated and deactivated.

➢ Refer to the separate software instructions for information on using the function.

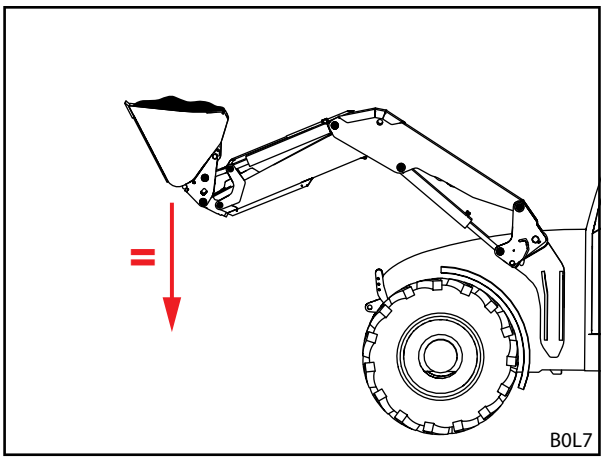


Fig. 30 Load-independent lowering speed

4.3.4 Return to position

⚠ WARNING

Possible risk of injury due to uncontrolled lowering!

Execution of the *Return to position* function in the linked mode can cause the implement to collide with the ground when the lifting height is too low (less than half the lifting height). This can cause accidents and people can be severely injured.

- Make sure that the front loader is sufficiently lifted (at least half the lifting height), before the *Return to position* function is executed in the linked mode.

This function enables saving of an upper and lower position both for the lifting arm and the implement. With a combination of pressing a button and moving the joystick, the saved positions can be set. In the independent mode, the lifting arm and implement can be set separately. In the linked mode, the lifting arm and the implement are set simultaneously. This mainly facilitates loading work that involve repetitive movement.

The function is controlled with 2 turning angle sensors on the main pivot points of the lifting arm and change frame.

➢ Refer to the separate software instructions for information on using the function.

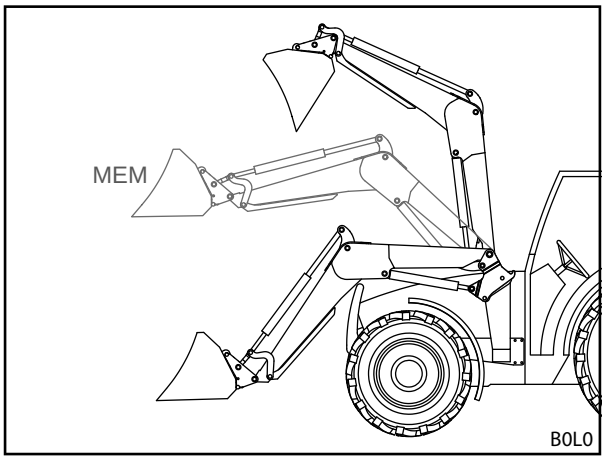


Fig. 31 Return to position

4.3.5 Adjustable response behaviour

The function makes it possible to define the response behaviour of the joystick. The response behaviour defines the time from the joystick movement to the full movement of the control piston.

A low set time means a rapid reaction when starting and stopping front loader movement as a function of the joystick movement. A high set time means a delayed reaction when starting and stopping front loader movement as a function of the joystick movement.

The factory setting for the response behaviour is 0 ms and can be adjusted by the user.

The function increases operating comfort and protects the components.

➢ Refer to the separate software instructions for information on using the function.

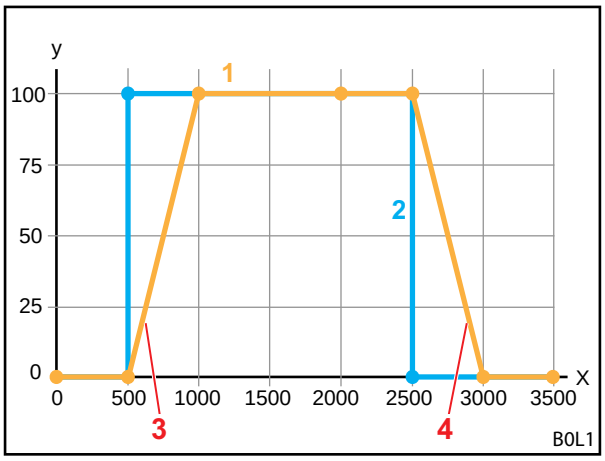


Fig. 32 Adjustable response behaviour

Legend

1 Front loader movement
2 Joystick movement
3 Start
4 Stop
X Time (ms)
Y Control

4.3.6 Electric flow sharing

The function enables simultaneous actuation of the lifting arm and implement or implement and 3rd control circuit as a function of the joystick movement.

Due to movement of the control piston of the main valve, the oil flow is divided independently of the pressure so that double functions are possible.

The function increases operating comfort and the working speed.

The function can be activated and deactivated.

➢ Refer to the separate software instructions for information on using the function.

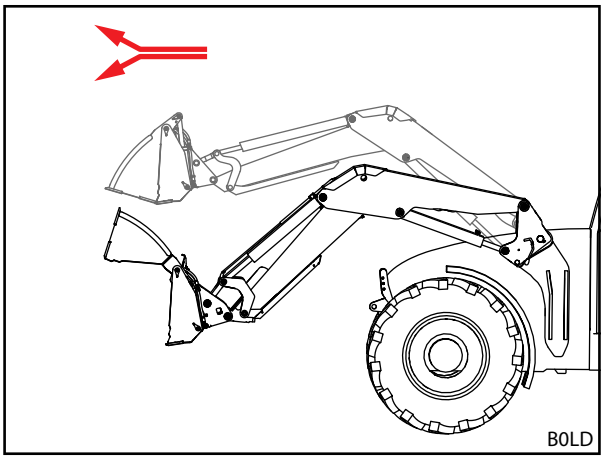


Fig. 33 Electric flow sharing

4.3.7 End position damping

The function makes it possible to avoid hard impacts in the end position of the hydraulic cylinder.

This function protects the components and increases operating comfort.

The function can be activated and deactivated. The function is activated ex-factory.

➢ Refer to the separate software instructions for information on using the function.

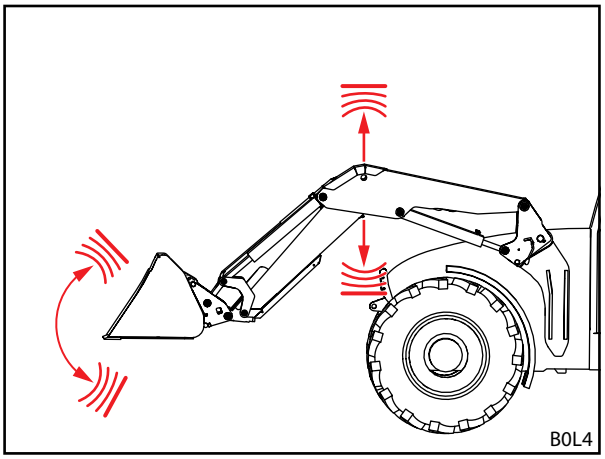


Fig. 34 End position damping

4.3.8 Bucket shake

The function enables shaking of the implement. In doing so, the implement moves horizontally or in a previously defined position, and is then moved rapidly back and forth so that any sticking material falls out.

The amplitude is determined by moving the joystick. By moving the joystick, the shaking intensity can be adapted to the properties of the load. Stronger movement means higher intensity, softer movement means lower intensity.

The function can be used with any implement.

The function can be activated and deactivated.

➢ Refer to the separate software instructions for information on using the function.

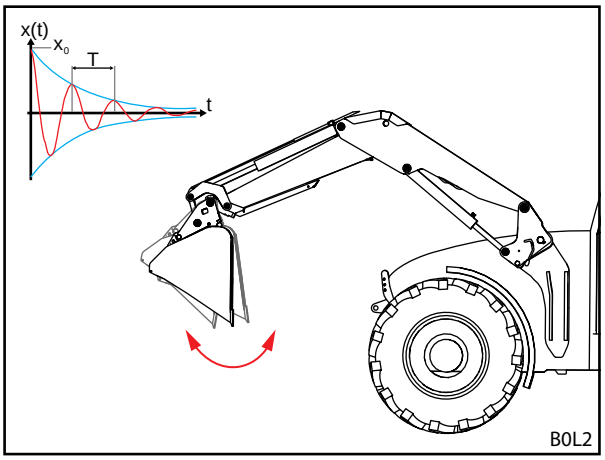


Fig. 35 Bucket shake

4.3.9 Working window

The functions enables limiting of the permitted range of movement of the front loader with an electronic upper and lower end stop. When the function is activated, the front loader then only moves within the defined working window.

Thanks to turning angle sensors, an upper position, a lower position or both can be defined.

The function can be overridden.

This function helps to prevent collisions and improve manoeuvrability.

The function can be activated and deactivated. The function is deactivated ex-factory.

➢ Refer to the separate software instructions for information on using the function.

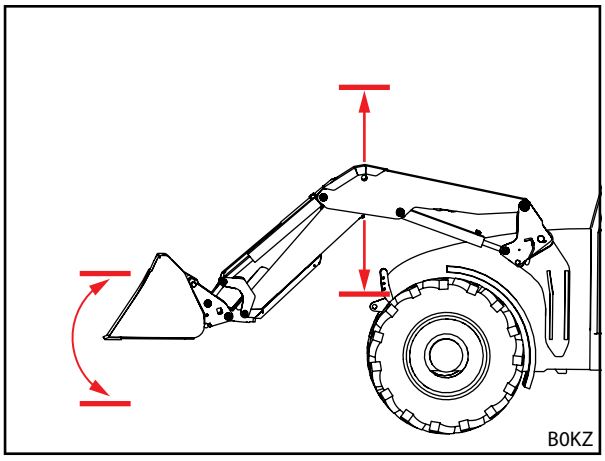


Fig. 36 Working windows

4.3.10 Vibration damping

The function enables smoother and more comfortable driving with a mounted front loader during transport and when driving on roads by damping impacts that arise on uneven roads.

Thanks to a pressure sensor, the control piston of the main valve is opened when the pressure gets too high and drains oil, so that impacts are damped accordingly.

The function can be activated and deactivated. The function is deactivated ex-factory.

➢ Refer to the separate software instructions for information on using the function.

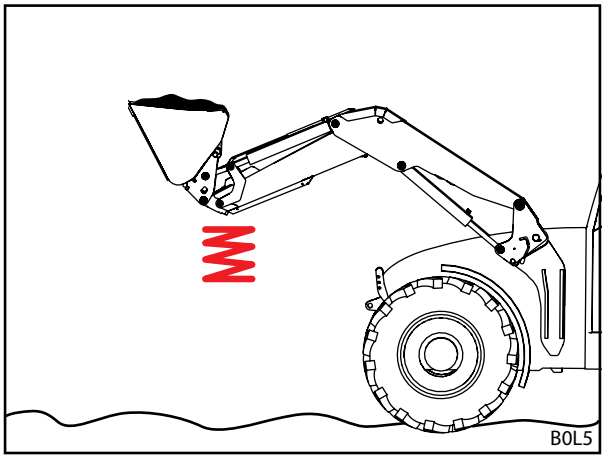


Fig. 37 Vibration damping

4.3.11 Weighing

Thanks to turning angle and pressure sensors, the function enables weighing of the load held in the implement.

Depending on the weight, the accuracy can reach ± 2.5 % (of the maximum weight that can be lifted by the front loader).

The weighing results can be automatically added for multiple weighing procedures.

The front loader must be in the measuring range and stopped before the weighing procedure can be performed.

➢ Refer to the separate software instructions for information on using the function.

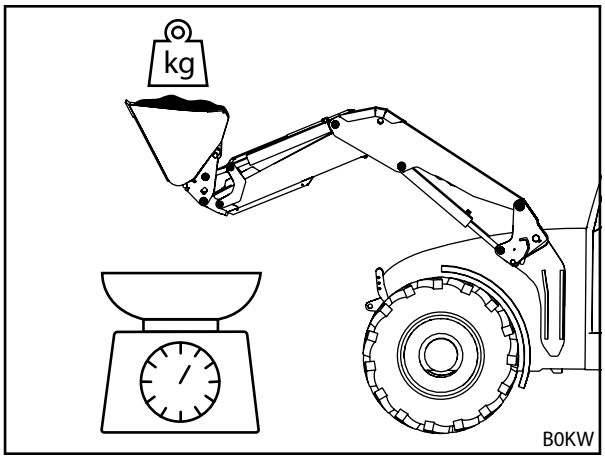


Fig. 38 Weighing

4.3.12 Teach In

The function enables programming of motion sequences.

Thanks to turning angle sensors, activating the function enables storage of a complete motion cycle by running through the cycle, and it can then be executed by pressing a button.

This function accelerates repetitive tasks and increases operating comfort.

➢ Refer to the separate software instructions for information on using the function.

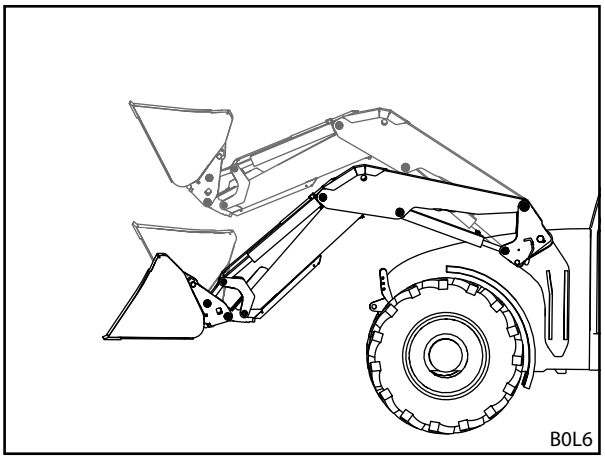


Fig. 39 Teach In

4.3.13 Continuous mode (optional)

The function enables continuous execution of the 3rd control circuit. The function thus enables operation of e.g. sweepers.

The function can be activated and deactivated.

The function is only available in conjunction with REAL^3.

➢ Refer to the separate software instructions for information on using the function.

4.4 Float position

⚠ WARNING

Possible risk of injury due to unexpected movement!

If the front loader is not completely lowered, a vacuum may form in the hydraulic cylinders during the float position. This causes uncontrolled lowering of the front loader at a later time. This can cause persons to be injured or crushed.

- Only use the float position when the front loader is completely lowered.
- Do not use the float position with implements that require the presence of other persons!
- Only use the float position if nobody is in the danger zone.
- Do not scoop while in float position.

⚠ WARNING

Possible risk of injury due to accidental movement of the front loader!

Accidental activation of the float position can cause unexpected and uncontrolled movements of the front loader. This can cause persons to be injured or crushed.

- The float position must distinguished from the lowering position by a clearly perceptible resistance or other barrier. If this is not the case, contact the specialist workshop to have the float position deactivated. The front loader may only be used again when the float position has been deactivated.

The float position is used to improve ground adaptation, since the implement can then follow the ground contours and "floats" on it.

4.4.1 Lifting arm float position

For the float position of the lifting arms, the hydraulic cylinders are depressurized, i.e., they are open towards the tank. The front loader lies on the ground through the pressure of its own weight.

Activation of the float position differs between operating levers that lock and those that don't:

> The specialist workshop will indicate which case is applicable during initial operation.

The float position for the lifting arm is activated in the ISOBUS software ex-factory.

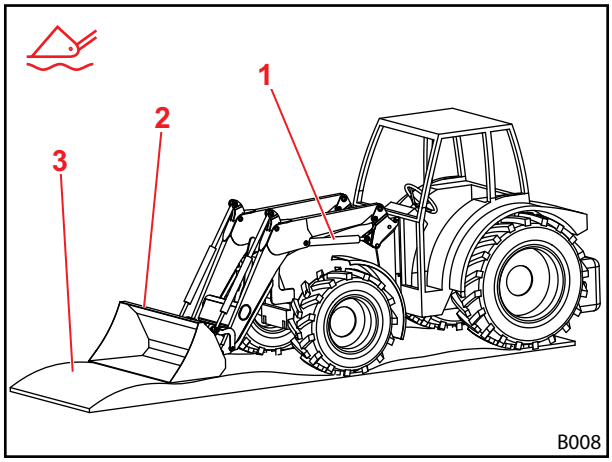


Fig. 40 Front loader in float position

Legend

1 Hydraulic cylinder
2 Implement
3 Ground

Procedure for locking operating lever

Activating the lifting arm float position:

(1) Fully lower the front loader.

(2) Move the operating lever all the way to the front until it engages (see *6.1 Operating elements*).

✓ The float position is activated.

Procedure for non-locking operating levers

Activating the lifting arm float position:

(1) Fully lower the front loader.

(2) Press the *Lifting arm float position* button (see separate software instructions).

(3) Move the operating lever all the way to the front (see *6.1 Operating elements*).

✓ The float position is activated.

4.4.2 Implement float position

The float position for the implement is activated in the ISOBUS software ex-factory.

Activating the implement float position:

(1) Lower the front loader close to the ground.

(2) Press the *Implement float position* button (see separate software instructions).

(3) Move the operating lever to the right (see *6.1 Operating elements*).

✓ The float position is activated.

4.5 Indicator for implement position (optional)

The indicator for the implement position is located on the left implement cylinder. It allows the horizontal position of the implement to be read from the driver's seat.

The rod is attached on the lower bearing pin and runs through the tube, which is attached to the upper bearing pin with the support. When dumping or scooping, the rod moves in the tube. When the implement is in horizontal position, the rod and the tube are flush.

Setting the indicator:

(1) Position the implement horizontally.

(2) Lower the front loader to the ground.

(3) Switch off the tractor.

- ➢ Apply the parking brake.
- ➢ Stop the engine.

(4) Loosen the clamping screw.

(5) Push the tube into the support until the top end of the tube is flush with the rod.

(6) Tighten the clamping screw.

✓ The indicator is set.

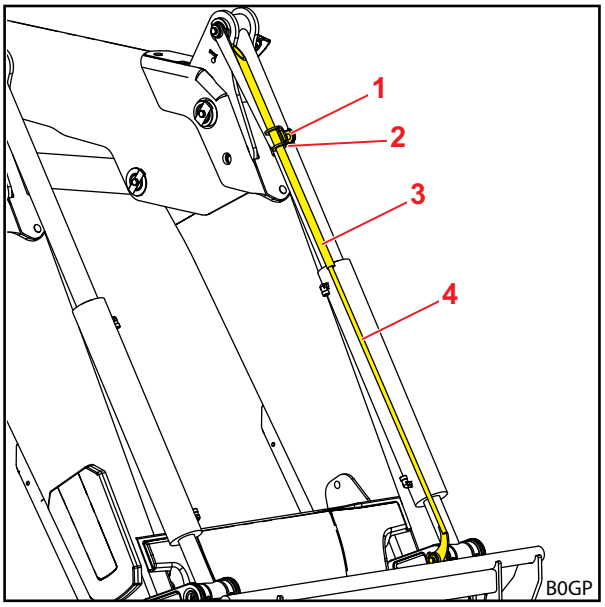


Fig. 41 Indicator for implement position

Legend

1 Clamping screw
2 Bracket
3 Tube
4 Rod

4.6 Mechanical parallel motion (FZ IB+)

With the mechanical parallel motion, the guide linkage ensures constant orientation/inclination of the implement.

The function is particularly suitable for loading pallets and stacking bales.

The function can only be executed when the implement is horizontal or in scooping position.

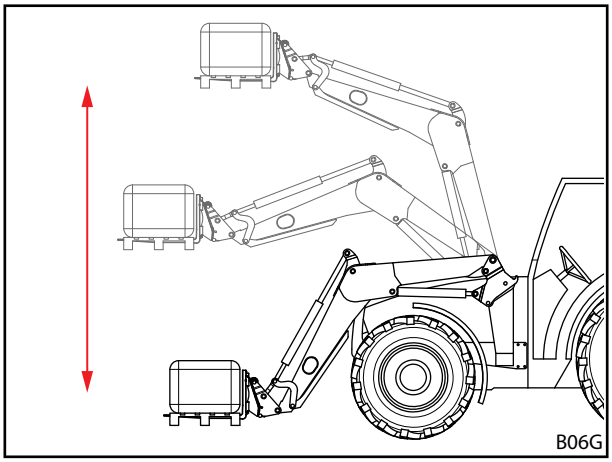


Fig. 42 Mechanical parallel motion

4.7 Additional functions

4.7.1 Additional control circuits

⚠ WARNING

Risk of injury due to unexpected movement of the front loader or implement!

If there is an electrical malfunction, operating elements can be temporarily or permanently out of function. As a result, it is possible that an unintended function is triggered instead of the selected implement functions (see *3rd control circuit* and *4th control circuit*). The triggering of unwanted functions can lead to unexpected movement of the front loader or implement and cause serious injuries.

- Before use, check all of the front loader functions without a load.
- In case of malfunction, stop working with the front loader immediately and contact the specialist workshop.

For hydraulic functions of the implement, additional control circuits must be installed. The corresponding hydraulic couplings are located on the change frame and are available as plug-in, screw-in or multiple couplings.

3rd control circuit

With a changeover valve for the 3rd control circuit, hydraulic implement functions are enabled, e.g. the actuation of a top loading grip.

➢ To operate the 3rd control circuit, see *6.1.4 ISOBUS software*.

➢ For operation of the hydraulic couplings, see *6.3 Operating the hydraulic couplings*.

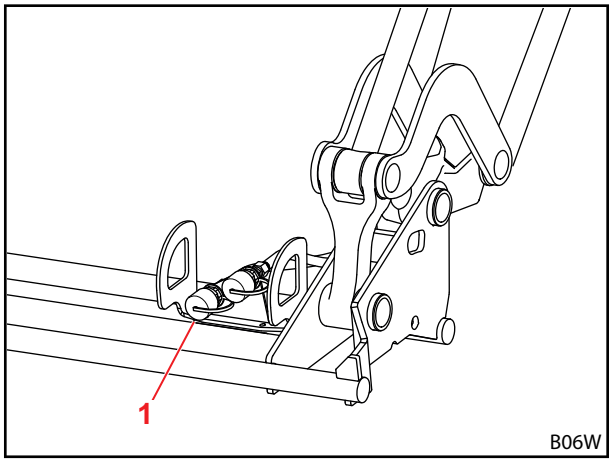


Fig. 43 Additional 3rd control circuit

Legend

1 Screw or plug-in coupling for the 3rd control circuit

4th control circuit

With a changeover valve for the 4th control circuit, additional hydraulic implement functions are enabled.

➢ To operate the 4th control circuit, see *6.1.4 ISOBUS software*.

➢ For operation of the hydraulic couplings, see *6.3 Operating the hydraulic couplings*.

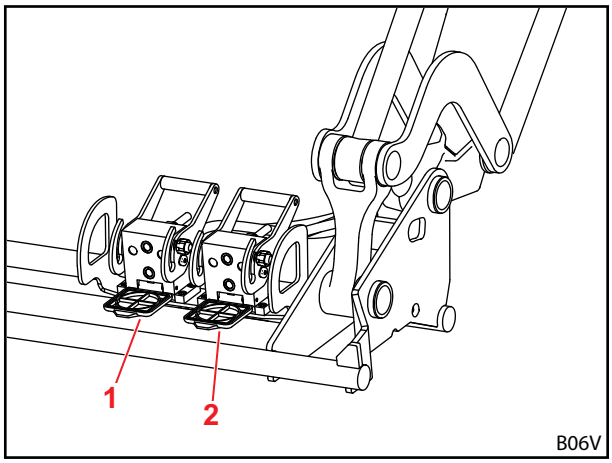


Fig. 44 Additional 4th control circuit

Legend

1 Multiple coupling for 4th control circuit

2 Multiple coupling for 3rd control circuit

REAL^3

With a REAL^3 control circuit, hydraulic implement functions are enabled, e.g. the actuation of a top-loading grip, as well as additional hydraulic implement functions. In doing so, the functions can be carried out simultaneously, since the REAL^3 circuit is supplied directly from the tractor hydraulic pump.

- ➢ For instructions on the operation of REAL^3, see *6.1.4 ISOBUS software*.
- ➢ For operation of the hydraulic couplings, see *6.3 Operating the hydraulic couplings*.

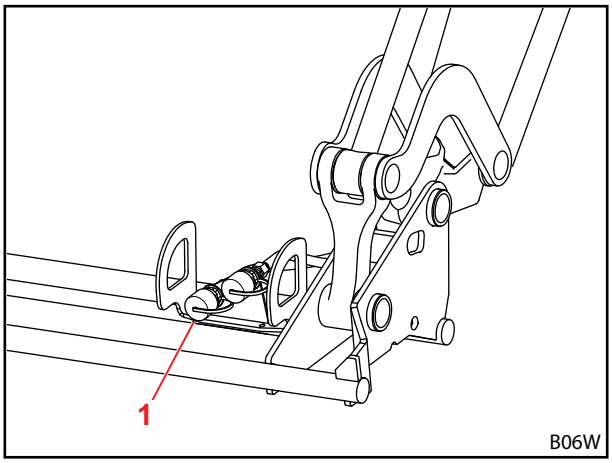


Fig. 45 REAL^3

Legend

1 Screw or plug-in coupling for REAL^3

Mark the hydraulic couplings on the front loader and implements appropriately to avoid confusion.

Promptly replace damaged or lost labels (e.g. coloured caps).

4.7.2 Comfort Drive

⚠ WARNING

Possible risk of crushing!

The front loader is lowered when the Comfort Drive is switched on.

- ▸ Before switching on the Comfort Drive, lower the front loader completely to the ground.

NOTICE

Possible material damage due to overloading!

The Comfort Drive can be overloaded when working with heavy loads (e.g. excavation) and with the pallet fork, resulting in damage.

- ▸ Switch the Comfort Drive off for heavy load work and when working with the pallet fork.

The Comfort Drive function enables smoother and more comfortable driving with a mounted front loader during transport and when driving on roads. There is a piston accumulator for this purpose in the cross tube, which absorbs impact loads caused by driving on uneven ground.

To achieve optimal function of the Comfort Drive, lower the front loader again a little bit after lifting.

Electrically operated Comfort Drive

⚠ WARNING

Possible risk of crushing!

Comfort Drive is also activated by switching on the ignition or connecting the electrical supply. The front loader can lower slightly in the process and cause personal injury.

- Completely lower the front loader before switching on the ignition or connecting the electrical supply of the front loader.

⚠ WARNING

Risk of injury and accident due to the front loader lowering!

Accidental actuation of the Comfort Drive switch while driving can cause the front loader to lower, and if the lifting height is too low (less than 1 m) the front loader can touch down on the ground. This can cause accidents and people can be severely injured.

- Make sure that the front loader is raised high enough while driving (at least 1 m).

The electrically actuated Comfort Drive is activated and deactivated via the ISOBUS software (see separate software instructions).

4.7.3 Camera system

NOTICE

Material damage due to loss of suction force!

Due to a natural loss of vacuum, the suction holder can lose suction force and fall off. This can damage the camera system.

- Detach the suction holder at regular intervals and fix it in place again.

NOTICE

Material damage due to adhesion!

If the suction holder is in contact with the window for too long, it can firmly adhere to the window and damaged it.

- Detach the suction holder at regular intervals and fix it in place again.

The camera system consists of a monitor, a camera and the corresponding cable sets.

It enables more precise work with the front loader and the mounted implements.

➢ Observe the supplied documentation for the camera system.

4.7.4 Headlights (FZ IB+, optional)

⚠ CAUTION

Risk of burns by hot headlights!

The headlights can get very hot during operation. This can cause burns to the skin when they are touched.

- Let the headlights cool down for approx. 10 minutes before you touch them.

The headlights are located on the outside of the deviation triangle of the parallel motion on each side. The headlights enable optimal illumination of the implement and the load. This mainly facilitates loading procedures.

The headlights are not approved for operation in road traffic.

➢ See *6.1.5 Switch/changeover switch* for operation of the headlights.

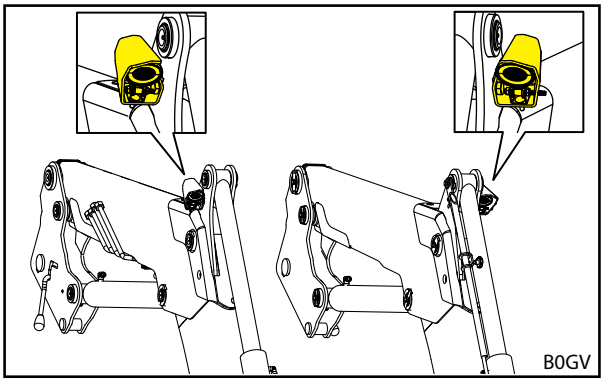


Fig. 46 Headlight

Adjust the headlight horizontally:

(1) Slightly loosen the knurled nut on the underside of the headlight.

(2) Turn the headlight on the holder into the desired position.

(3) Retighten the knurled nut.

✓ The headlight is adjusted horizontally.

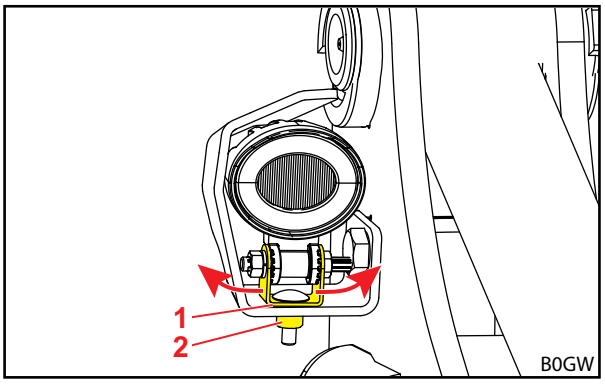


Fig. 47 Adjusting the headlights horizontally

Legend

1 Holder

2 Knurled nut

Adjust the headlight vertically:

🛠 Open-ended spanner 10 mm WAF

(1) Slightly loosen the nut on the inside of the headlight with an open-ended spanner.

(2) Turn the headlight into the desired position.

(3) Retighten the nut with the open-ended spanner.

✓ The headlight is adjusted vertically.

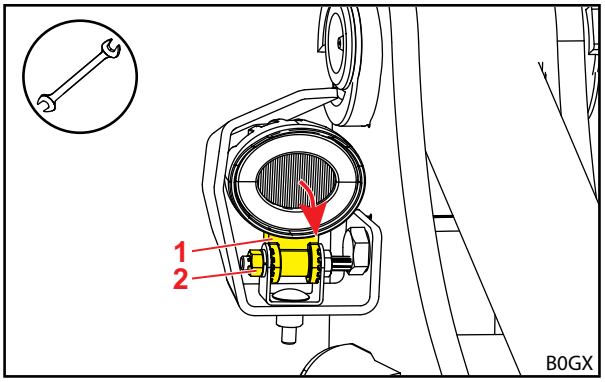


Fig. 48 Adjusting the headlights vertically

Legend

1 Headlight

2 Nut

5 Start-up

5.1 Initial operation

The initial operation is performed at a specialist workshop. This also includes mounting of the front loader as well as a functional check.

- Obtain instruction from the specialised workshop and ask questions if necessary.
- Read the operating instructions before initial use.
- After the first 5 hours of operation, have a specialised workshop re-tighten all of the mounting screws.
- Check all of the front loader functions without a load.
- Check proper functioning of the front loader under all operating states.

5.2 Check before each start-up

- Before each start-up, check all of the points on the checklist.
- Fix any observed defects in a safe position and location.
- Only use the front loader if proper and safe operation is ensured.

	Checks	See also	Completed
Before mounting the front loader			
	Are the safety labels on the tractor and on the front loader complete and in order?	Section *2.10 Safety stickers*	
	Are the brake pedals connected?	Section *5.3.1 Preparations on the tractor*	
	Hydraulic oil: Is there enough oil?	Operating instructions of the tractor	
	Is the front axle turned off?		
	Is the shut-off valve of the front power lift closed?		
	Is the pressure of the tires sufficient for operating the front loader?		
	Is the correct counterweight mounted on the rear?	Section *5.3.2 Ballasting*	
	Are the fixing screws of the mounting parts tightened?	Section *5.1 Initial operation*	
	Are the mountings (bearings and sliding surfaces) on the mounting parts clean, free from paint, and greased?	Section *8.1.2 Lubrication points*	
	Are the front loader locking mechanisms lubricated?	Section *8.1.2 Lubrication points*	
During mounting			
	Are the hydraulic lines connected correctly?	Section *6.3 Operating the hydraulic couplings*	
	Is the electric cable of the front loader connected?		
	Are the front loader locking mechanisms positioned correctly?	Section *5.6.1 Adjusting the front loader locking mechanism for FS IB+ and FZ IB+ 39-20 to 43-34*, Section *5.6.2 Adjusting the "double locking mechanism" front loader locking mechanism for the FS IB+ and FZ IB+ 41-25 to 48-42*	

	Checks	See also	Completed
After mounting			
	Are the parking supports folded away and secured?	Section *6.2 Operating the parking supports*	
	Is the front loader locking mechanism locked properly?	Section *8.2.3 Service instructions for front loader locking mechanism*	
	Is the locking mechanism for the implement locked properly?	Section *4.1 Implement locking mechanism*	
	Mudguards adjusted for front loader operation?		
	Functional test carried out? (Basic functions and additional functions)	Section *6.1 Operating elements*	

5.3 Preparations

5.3.1 Preparations on the tractor

NOTICE

Material damage due to divided brakes on the tractor!

When the front loader is mounted, one-sided braking can lead to serious damage.

- Couple the brake pedal in the tractor before using the front loader.

The divided brake pedal serve to support the steering of the tractor and can brake the respective wheels on each side. Therefore, for example, small turning radii can be achieved when driving on roads. When the front loader is mounted, it is recommended to couple the brake pedals before start-up.

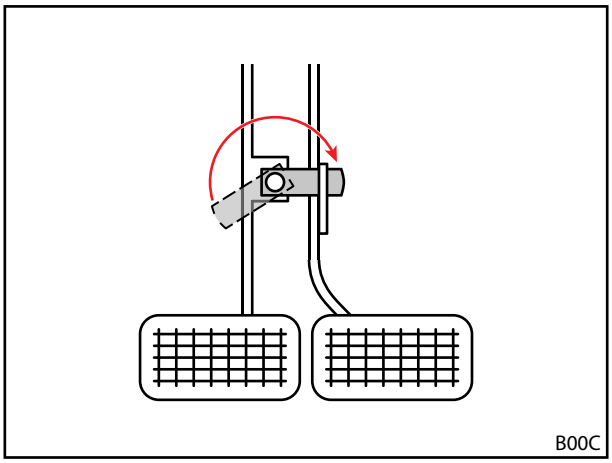


Fig. 49 Coupling the brake pedals

5.3.2 Ballasting

⚠ WARNING

Serious injury due to the machine falling over!

When working with the front loader without rear counterweights, the tractor can tip over and cause injury to the driver and persons in the surroundings. Moreover, there is the risk of overloading the front axle of the tractor.

- For front loader work, always use sufficient counterweight at the rear of the tractor.

The proper ballasting of the tractor is very important to achieve sufficient stability. This stability is influenced by the centre of gravity of the loaded tractor / front loader combination, the geometrical conditions, the weight, the arrangement of the implement and the load in the implement, the track width and wheel base of the tractor, acceleration and braking processes as well as the road conditions, to name a few. A significant measure to increase the stability is the addition of counterweights or rear weights, which is strongly recommended for all front loader work. If operation with a rear weight is not possible, the stability can be increased with appropriate ballasting on the rear wheels (wheel weights) or with liquid in the tyres.

To determine the require weight for ballasting, the following conditions apply:

When the front loader is fully loaded with the implement in the most forward position, the rear axle must carry min. 20 % of the total weight (sum of the weight of the tractor, the front loader, the implement, the load and the counterweight) (see *Fig. 50*). This ensures stability and braking efficacy.

When the front loader is raised without an implement, the front axle must carry min. 20 % of the total weight (see *Fig. 51*). This ensures the steering capacity while driving.

➢ Observe the operating instructions of the tractor as well as the permissible axle loads for the front and rear axles.

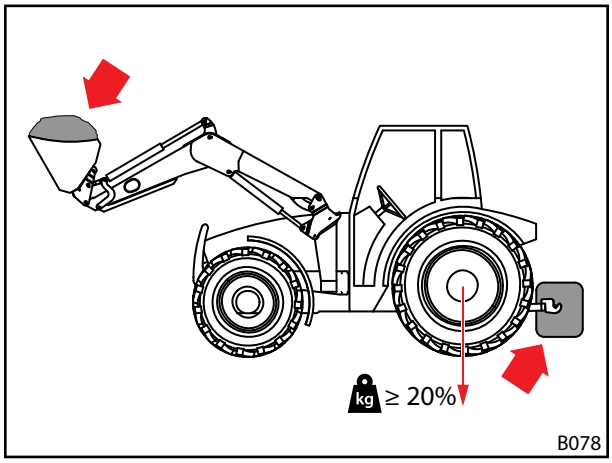


Fig. 50 Load for front loader work

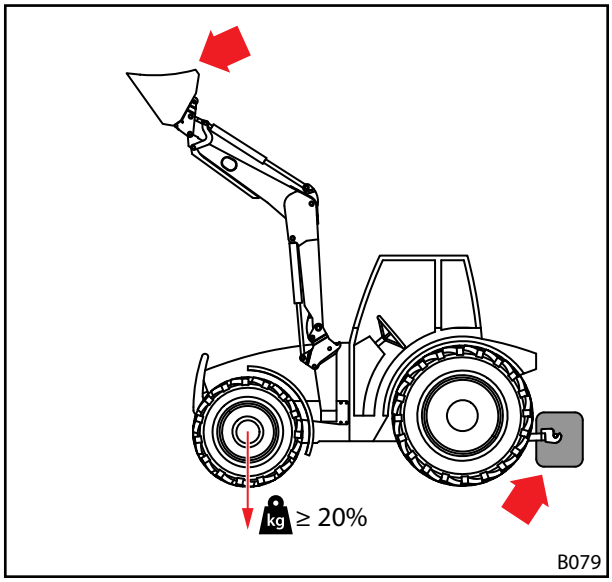


Fig. 51 Load for driving on roads

The formula to precisely determine the rear weight is specified in DIN EN 12525:2000-A2:

$$M \geq \frac{l_2 \cdot (P + N - 5 \cdot G) + 5 \cdot N \cdot b}{5 \cdot l_1 + 4 \cdot l_2}$$

P Weight of the tractor in kg
(incl. front loader and change frame without counterweight)

M Weight of the counterweight in kg

N Weight of the implement in kg
(incl. the maximum permissible load of the implement)

Remark: The maximum permissible load is the maximum load that can be safely lifted by the hydraulic system. This can be limited by the shape or the density of the load. If several different implements are used, the most unfavourable case should be taken for the calculation.

G Rear axle load in kg
(incl. front loader and change frame with the maximum ranges without counterweight)

b The distance between the centre of gravity of the load in the implement and the centre of the front axle with the maximum range in mm

l_1 Distance between the centre of gravity of the counterweight and the centre of the rear axle in mm

l_2 Wheel base of the tractor in mm

Observe the respective current version of DIN EN 12525.

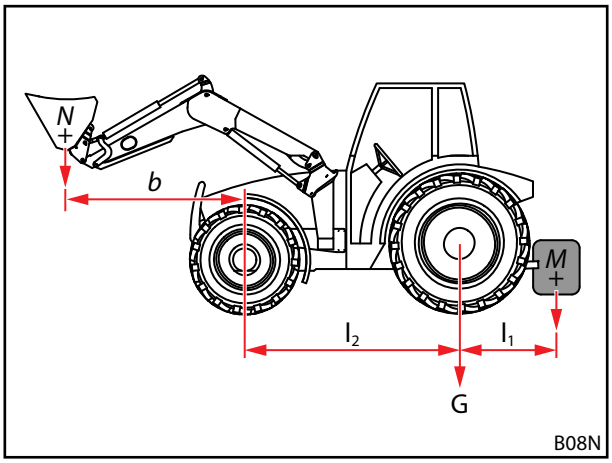


Fig. 52 Calculation of the static stability

5.4 Mounting the front loader

⚠ WARNING

Risk of injury due to uncontrolled movements!

Uncontrolled movements of the front loader can cause injury to persons assisting in the surrounding area.

- Only mount the front loader if no other persons are standing the the danger area (see *2.8 Danger zones*).
- Before exiting the driver's cab, switch off the tractor and depressurize the hydraulic system.

⚠ WARNING

Risk of injury and accident when the front loader is not locked correctly!

If the front loader locking mechanism is not adjusted correctly, the front loader can slip out of the mountings and cause accidents or personal injury.

- Make sure that the front loader locking mechanism is adjusted correctly.

⚠ WARNING

Risk of injury and accident due to premature actuation of the implement cylinder!

If the implement cylinder is actuated before the front loader locking mechanism is properly adjusted, the front loader can slip out of the mountings and cause accidents or personal injury.

- Do not actuate the implement cylinder before the front loader locking mechanism is correctly adjusted.

Mount the front loader:

(1) Open the front loader locking mechanism.
   ➢ Push both locking levers up.

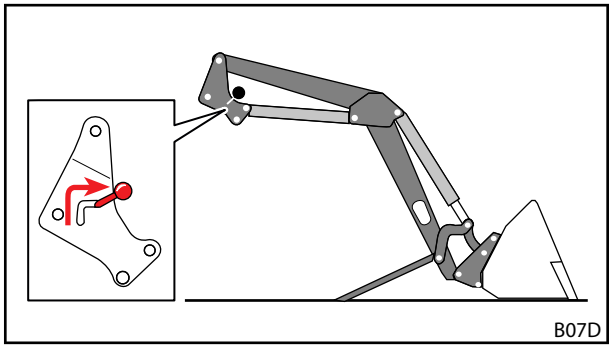


Fig. 53 Opening the front loader locking mechanism

(2) Slowly drive the tractor centrally in the lifting arm.
   ➢ Make sure that the top front loader pins touch the slide rails and the catch hooks on both sides.

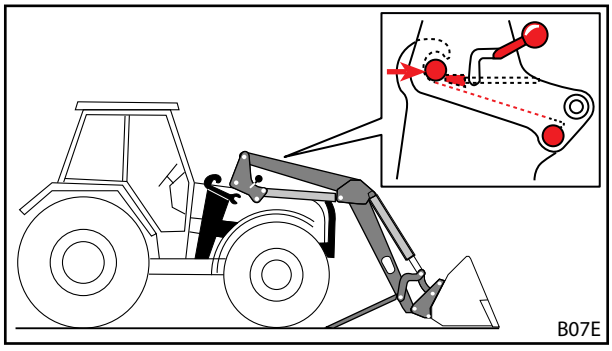


Fig. 54 Driving the tractor into the lifting arm

If it is not possible to fully drive the tractor up to the lifting arm, the front loader must be aligned for mounting (see *5.5 Aligning the front loader for mounting*).

(3) Switch off the tractor.
- ➢ Apply the parking brake.
- ➢ Stop the engine.

(4) Connect the hydraulic lines of the front loader (see *6.3 Operating the hydraulic couplings*).

(5) Connect the electric cables.

(6) Start the tractor.

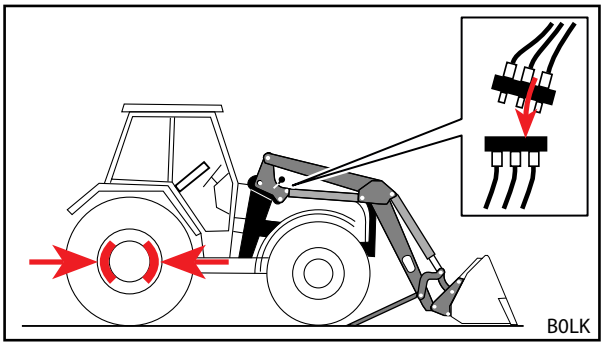


Fig. 55 Switching off the tractor and connecting the hydraulic lines

(7) Use the *lifting* function until the front loader pins are resting in the catch hooks.

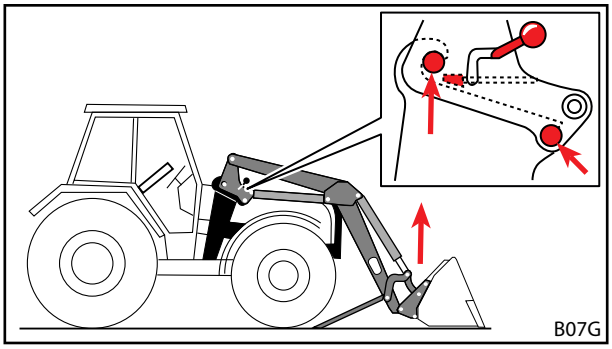


Fig. 56 Use the lifting function until the front loader pins are resting in the catch hooks

(8) Close the front loader locking mechanism.
- ➢ Use the *lifting* function until the front loader is just above the ground.
- ➢ Apply the parking brake.
- ➢ Stop the engine.
- ➢ Shift both locking levers downwards.
- ➢ Check the front loader locking mechanism and adjust if necessary (see *5.6 Adjusting the front loader locking mechanism*).

(9) Fold in the parking supports.
- ➢ Fold in both parking supports (see *6.2 Operating the parking supports*).

✓ The front loader is mounted and ready for operation.

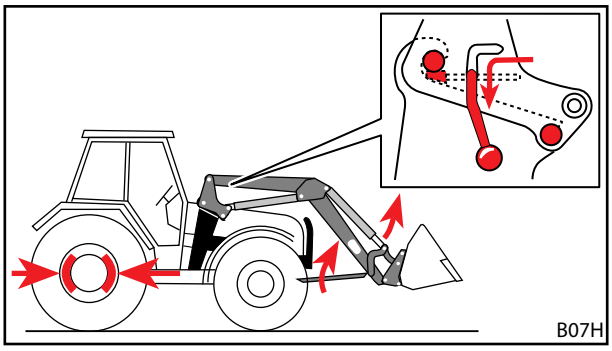


Fig. 57 Folding in the parking supports and closing the front loader locking mechanism

5.5 Aligning the front loader for mounting

⚠ WARNING

Risk of injury and accident when the front loader is not locked correctly!

When the front loader locking mechanism is not adjusted correctly, the front loader can slip out of the mounting and cause accidents or personal injury.

- Make sure that the front loader locking mechanism is adjusted correctly.

NOTICE

Material damage due to abrupt operation!

When aligning the front loader, abrupt movements can cause damage to the front loader and the mountings.

- Before mounting the front loader, check that the operating lever moves smoothly.
- Make sure that the tractor and front loader are operated gently.

If the front loader is being mounted for the first time or if it was previously used with a different tractor, the front loader pillars can be too high or too low for mounting. In this case, the front loader has to be aligned for mounting.

Align and mount the front loader:

(1) Release the front loader locking mechanism.
   - ➢ Push both locking levers up.

(2) Slowly drive the tractor centrally in the lifting arm.
   - ➢ Drive the tractor forwards until the mountings are as close as possible to the front loader pillars.

(3) Switch off the tractor.
   - ➢ Apply the parking brake.
   - ➢ Stop the engine.

(4) Connect the hydraulic lines.

(5) Connect the electric cables.

(6) Start the tractor.

(7) Align the front loader pillars.
   - ➢ Use the *lifting*, *lowering*, *dumping* and *scooping* functions until the front loader pillars are at the right height.

(8) Drive the tractor forward until the top front loader pins touch the slide rail and the catch hook on both sides.

✓ The front loader is aligned for mounting on the tractor.

(9) Use the *lifting* function until the front loader pins are resting in the catch hooks.

(10) Close the front loader locking mechanism.
   - ➢ Use the *lifting* function until the front loader is just above the ground.
   - ➢ Apply the parking brake.
   - ➢ Stop the engine.
   - ➢ Shift both locking levers downwards.
   - ➢ Check the front loader locking mechanism and adjust if necessary (see *5.6 Adjusting the front loader locking mechanism*).

(11) Fold in the parking supports.
   - ➢ Fold in both parking supports (see *6.2 Operating the parking supports*).

✓ The front loader is mounted and ready for operation.

5.6 Adjusting the front loader locking mechanism

⚠ CAUTION

Possible injuries and material damage caused by incorrectly adjusted front loader locking mechanism!

Improper adjustment of the front loader locking mechanism can cause movement of the front loader in the mountings and damage them. This can cause the front loader to fall down and injure persons in the surrounding or cause material damage.

- Always check the front loader locking mechanism when mounting and dismounting.
- Check the front loader locking mechanism regularly and readjust if necessary.
- On new front loaders, re-tighten the locking mechanism after the first hours of operation in order to compensate for any loosening caused by smoothing of the surfaces.

5.6.1 Adjusting the front loader locking mechanism for FS IB+ and FZ IB+ 39-20 to 43-34

➢ Before adjusting the front loader locking mechanism, check the installation position of the clamping wedge.

The slanted side of the clamping wedge must point downward towards the front loader mounting.

➢ If the clamping wedge is not correctly installed, contact a specialist workshop and have it corrected.

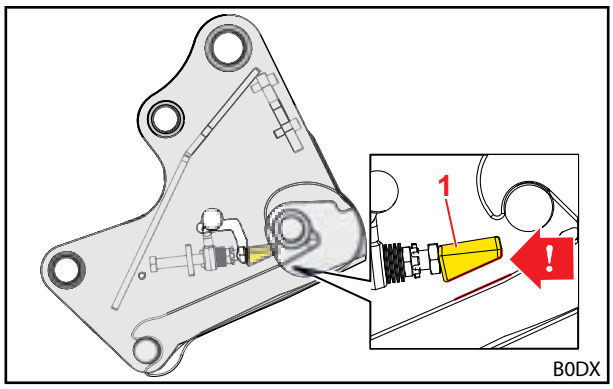


Fig. 58 Correct installation position of the clamping wedge

Legend

1 Clamping wedge

Adjusting the front loader locking mechanism:

🛠 Open-ended spanner 24 mm WAF

🛠 Ratchet ½" with extension, joint and socket wrench (nut) 24 mm

(1) Completely open the front loader locking mechanism.

➢ Push the locking lever up.

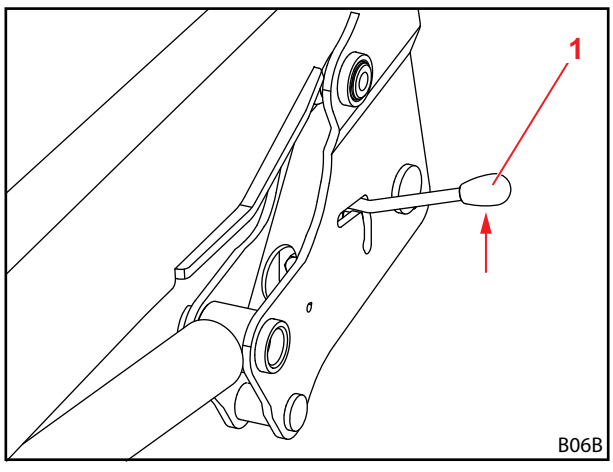


Fig. 59 Opening the front loader locking mechanism

Legend

1 Locking lever

(2) Guide the open-ended spanner through the guide slot of the locking lever.

(3) Guide the socket wrench through the grommet to the screw.

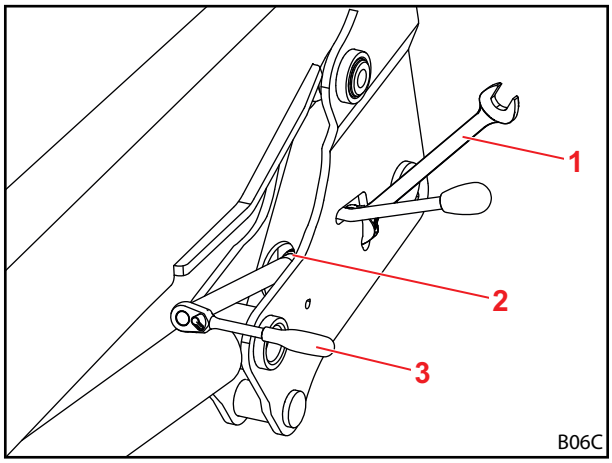


Fig. 60 Attaching the implement

Legend

1 Open-ended spanner
2 Guide slot
3 Socket wrench

(4) Loosen the locknut with the open-ended spanner.

(5) Adjust the clamping wedge with the screw.

> Using the socket wrench, adjust the screw such that the tensioning of the locking lever begins in Position a and the locking lever can be moved all the way down with clearly perceptible manual force. In Position b (locking mechanism closed), the locking lever must be tensioned and should have no play.

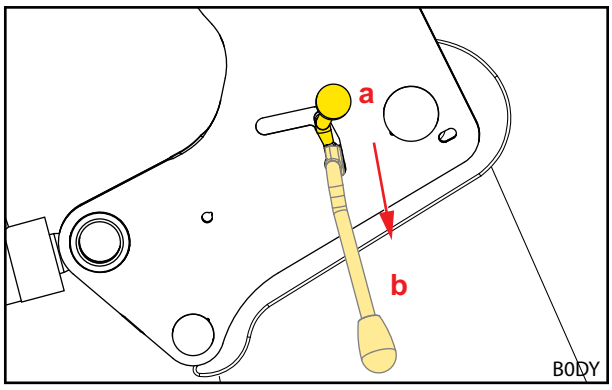


Fig. 61 Tensioning of the locking lever

(6) Tighten the locknut with the open-ended spanner.

(7) Remove the open-ended spanner and the socket wrench.

(8) Check the front loader locking mechanism.

- ➢ Close and open the front loader locking mechanism.
- ➢ Use the required manual force.
- ➢ If necessary, readjust the front loader locking mechanism.

✓ The front loader locking mechanism is adjusted.

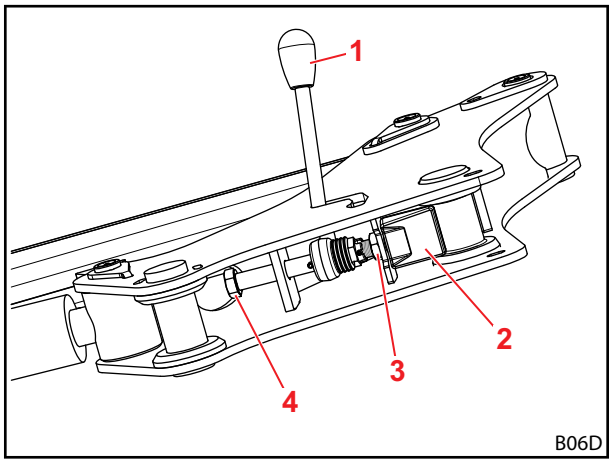


Fig. 62 View of the front loader locking mechanism from below

Legend

1 Locking lever
2 Clamping wedge
3 Lock nut
4 Screw

5.6.2 Adjusting the "double locking mechanism" front loader locking mechanism for the FS IB+ and FZ IB+ 41-25 to 48-42

For FS and FZ 41-25 to 43-34 front loaders, the double locking mechanism is installed as an option.

Adjusting the front loader locking mechanism:

- Open-ended spanner 30 mm WAF
- Ratchet ½" with extension, joint and socket wrench (nut) 30 mm

(1) Open the front loader locking mechanism.

➢ Push the locking lever up.

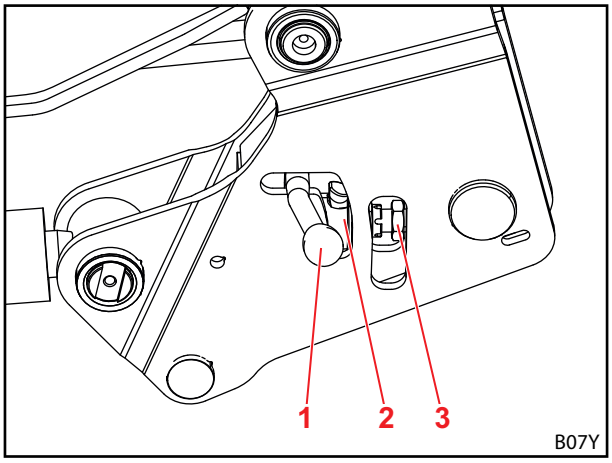


Fig. 63 Opening the front loader locking mechanism

Legend

1 Locking lever
2 Turning lock
3 Locknut

(2) Loosen the locknut with the open-ended spanner.

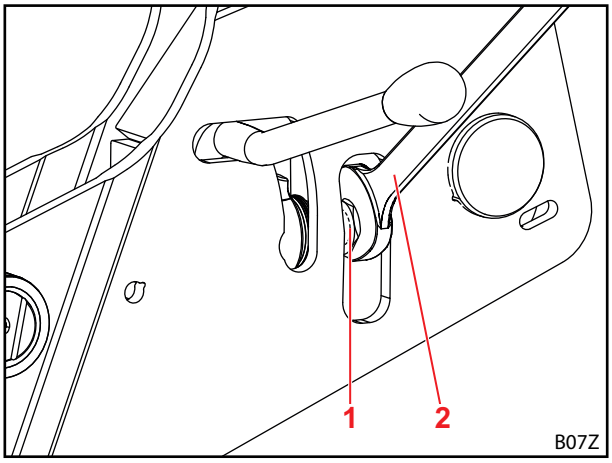


Fig. 64 Attaching the implement

Legend

1 Locknut
2 Open-ended spanner

(3) Close the front loader locking mechanism.
   ➢ Push the locking lever down.

(4) Guide the socket wrench through the grommet to the screw.

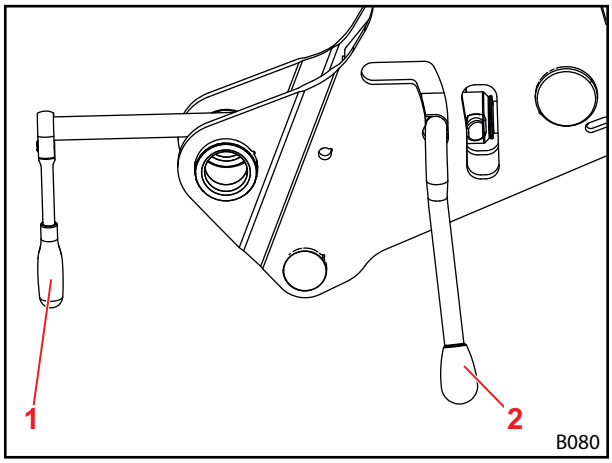


Fig. 65 Guiding the socket wrench through to the screw

Legend

1 Socket wrench
2 Locking lever

(5) Unscrew the screw.
   ➢ Observe the disc spring.

(6) When the disc spring is at maximum tension (no more gap to the turning lock), turn it back by ¼ turn to relieve the tension.

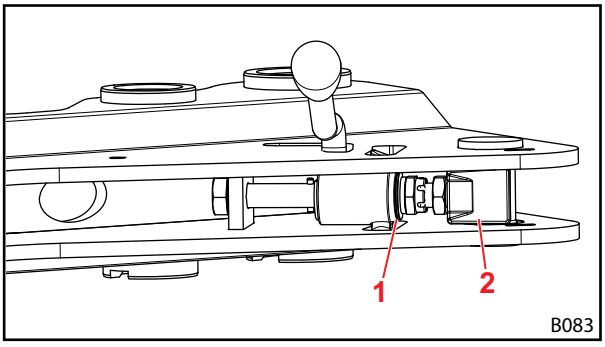


Fig. 66 View of the front loader locking mechanism from below

Legend

1 Turning lock
2 Screw

(7) Open the front loader locking mechanism.

(8) Tighten the locknut with the open-ended spanner.

(9) Close the front loader locking mechanism.

✓ The front loader locking mechanism is adjusted.

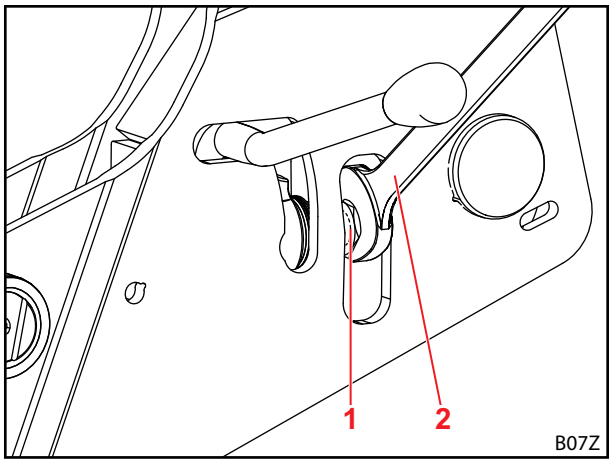


Fig. 67 Tighten the locknut

Legend

1 Locknut
2 Open-ended spanner

6 Operation

6.1 Operating elements

6.1.1 Basic controls with levers

⚠ WARNING

Possible risk of injury due to uncontrolled movement of the front loader!

If the control unit was not actuated for a longer period of time, there may be e.g. temperature differences between the hydraulic fluid and the control unit. This can cause the control valves to jam and the front loader moves uncontrollably. This may result in serious accidents.

- At ambient temperatures lower than 10 °C and when the front loader is not used for longer than 15 minutes, always first actuate the *scooping* and *dumping* functions at a standstill to warm up the control unit.
- Only use the *lifting* and *lowering* functions after the warm-up phase.

⚠ WARNING

Possible risk of injury due to accidental movement of the front loader!

Accidental activation of the float position can cause unexpected and uncontrolled movements of the front loader. This can cause persons to be injured or crushed.

- The float position must distinguished from the lowering position by a clearly perceptible resistance or other barrier. If this is not the case, contact the specialist workshop to have the float position deactivated. The front loader may only be used again when the float position has been deactivated.

⚠ WARNING

Possible risk of injury due to the implement tipping over!

On FS front loaders, the float position for the implement may not be activated for the *scooping* and *dumping* functions. This could cause the implement to tip over unintentionally to the rear. This may result in serious accidents.

- The activation of the float position must be ruled out through the assembly on FS front loaders. If this is not the case, work with the front loader must be stopped immediately and the specialist workshop must be contacted, to have the float position deactivated for the *scooping* and *dumping* functions. The front loader may only be used again when the float position has been deactivated for the *scooping* and *dumping* functions.

⚠ WARNING

Possible risk of injury due to unexpected movement!

On FZ IB+ front loaders, lowering in float position and lowering with a single-acting hydraulic control unit causes the front loader to also be lifted when scooping the implement against the stop. When dumping afterwards, the front loader accidentally moves down. This can cause persons to be injured or crushed.

- Only use double-acting hydraulic control units to operate the front loader.
- Only use operating levers approved by STOLL to operate the front loader.
- Do not lower while in float position.

Depending on the equipment of the tractor, different operating levers can be installed for the front loader.

Fig. 68 shows the assignment of the operating lever when viewed from above.

The symbols marked in red are also found on the operating lever in the tractor. If they are missing, you must affix such symbols according to DIN EN 12525 to clearly mark each function.

Setting	Assignment
0	Zero setting
A	Dumping
B	Scooping
C	Lifting
D	Lowering
S	Float position

The float position is the only position of the lever in which it may latch in.

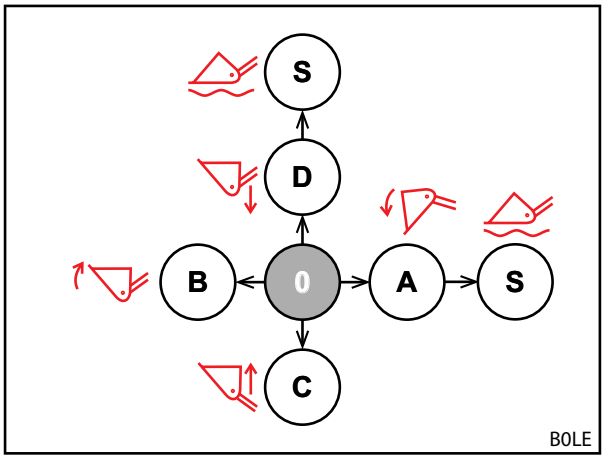


Fig. 68 Assignment of the operating lever

6.1.2 Tractor's own operating lever

⚠ WARNING

Risk of injury due to unexpected movement of the front loader!

The front loader can move unexpectedly as a result of unintentional actuation of the operating lever or by programmed sequences. This can cause injury to persons in the surrounding area.

- Lock the operating lever in the zero setting when the front loader is not in use.
- If it is not possible to lock the operating lever, switch off the system in the ISOBUS software (see separate software instructions).
- Immobilise the lock-in position of the hydraulic control units.
- Before using the front loader, immobilise or disconnect other implements on the tractor.
- Immobilise or disconnect the front loader before using other implements.
- Never use programmed sequences for the front loader.

⚠ WARNING

Risk of accident due to wrong assignment of the hose lines!

If the front loader is connected directly to the auxiliary control units of the tractor with hose lines, swapping of the hose lines can result in incorrect assignment of the functions on the operating lever. This can result in unexpected movements and accidents.

- Always mark the couplings on the hose lines and connection points.
- Promptly replace damaged or missing labels.
- Connect the hose lines so that the float position takes place in the actuation direction of the *lowering* function.
- After connecting, check all of the functions of the front loader while at a standstill.

The operating lever can look different depending on the tractor model. However, the control of basic functions remains the same (see *6.1.1 Basic controls with levers*).

The assignment function to the buttons is arranged as follows ex-factory:

"Bale cutter/splitter" implement group

Button	Front loader	Function	Remark	
T1	FS IB+, FZ IB+	Activate *3rd control circuit*		
T2	FS IB+, FZ IB+	Activate *Implement zero position*		
T3	FS IB+, FZ IB+	Activate *Weighing*	+ move the operating lever	
T4	FS IB+, FZ IB+	Activate *Bucket shake*	+ move the operating lever	
T5	FS IB+, FZ IB+	Activate *Return to position*	+ move the operating lever	
T6	-	-		

"Bale gripper" implement group

Button	Front loader	Function	Remark	
T1	FS IB+, FZ IB+	Activate *3rd control circuit*	-	
T2	FS IB+, FZ IB+	Activate *Implement zero position*	-	
T3	FS IB+, FZ IB+	Activate *Weighing*	+ move the operating lever	
T4	FS IB+, FZ IB+	Activate *Return to position*	+ move the operating lever	
T5	-	-	-	
T6	-	-	-	

"Pallet forks" implement group

Button	Front loader	Function	Remark	
T1	FS IB+, FZ IB+	Activate *Implement zero position*	-	The tipping angle of the implement is reduced by 15° in the software.
T2	FS IB+, FZ IB+	Activate *Weighing*	+ move the operating lever	
T3	FS IB+, FZ IB+	Activate *Return to position*	+ move the operating lever	
T4	-	-	-	
T5	-	-	-	
T6	-	-	-	

"Log forks" implement group

Button	Front loader	Function	Remark	
T1	FS IB+, FZ IB+	Activate *Implement zero position*	-	
T2	FS IB+	Deactivate *Parallel motion*	-	
T3	FS IB+, FZ IB+	Activate *3rd control circuit*	-	
T4	-	-	-	
T5	-	-	-	
T6	-	-	-	

"Bucket with grab" implement group

Button	Front loader	Function	Remark	
T1	FS IB+, FZ IB+	Activate *3rd control circuit*	-	
T2	FS IB+, FZ IB+	Activate *Implement zero position*	-	
T3	FS IB+, FZ IB+	Activate *Weighing*	+ move the operating lever	
T4	FS IB+, FZ IB+	Activate *Bucket shake*	+ move the operating lever	
T5	FS IB+, FZ IB+	Activate *Return to position*	+ move the operating lever	
T6	-	-	-	

"Buckets" implement group

Button	Front loader	Function	Remark	
T1	FS IB+, FZ IB+	Deactivate quick emptying	-	
T2	FS IB+, FZ IB+	Activate *Bucket shake*	+ move the operating lever	
T3	FS IB+, FZ IB+	Activate *Implement zero position*	-	
T4	FS IB+, FZ IB+	Activate *Return to position*	+ move the operating lever	
T5	FS IB+	Deactivate *Parallel motion*	-	
T6	-	-	-	

"Manure forks" implement group

Button	Front loader	Function	Remark	
T1	FS IB+, FZ IB+	Deactivate quick emptying	-	
T2	FS IB+, FZ IB+	Activate *Bucket shake*	+ move the operating lever	
T3	FS IB+, FZ IB+	Activate *Implement zero position*	-	
T4	FS IB+, FZ IB+	Deactivate *Parallel motion*	-	
T5	-	-	-	
T6	-	-	-	

"Load lifter" implement group

Button	Front loader	Function	Remark	
T1	FS IB+, FZ IB+	Activate *Weighing*	+ move the operating lever	
T2	FS IB+, FZ IB+	Activate *Implement zero position*	-	
T3	-	-	-	
T4	-	-	-	
T5	-	-	-	
T6	-	-	-	

The button assignment can be individually adjusted in the software. The current button assignment is shown on the display when starting the ISOBUS.

Lock the operating lever in the zero position when driving on roads to prevent accidental actuation of the front loader!

Depressurizing the front loader

➢ Stop the engine.

Depressurizing the implement

➢ Stop the engine.

➢ With the implement function actuated, move the operating lever in the lateral end positions.

With mechanical implement locking mechanism and REAL^3, the implement is depressurized by actuating the *Open REAL3 control circuit* button in the ISOBUS software.

With hydraulic implement locking mechanism, the implement is automatically depressurized by actuating the *Open implement locking mechanism* button in the ISOBUS software.

6.1.3 STOLL joystick

⚠ WARNING

Risk of injury due to unexpected movement of the front loader!

If the operating lever is actuated unintentionally, the front loader can move unexpectedly. This can cause injury to persons in the surrounding area.

- Switch the operating lever to standby mode when the front loader is not in use.
- Before using the front loader, immobilise or disconnect other implements on the tractor.
- Immobilise or disconnect the front loader before using other implements.

The STOLL joystick is used when the tractor's own joystick cannot be used to operate the front loader or a separate joystick is required. The STOLL joystick is equipped with integrated buttons.

The control of the operating lever is the same as the basic controls in section *6.1.1 Basic controls with levers* except for the float position.

Assignment of the functions to the buttons ex-factory corresponds to the assignment in *6.1.2 Tractor's own operating lever*. The assignment of which buttons on the joystick are T1 to T6 is defined on the tractor side.

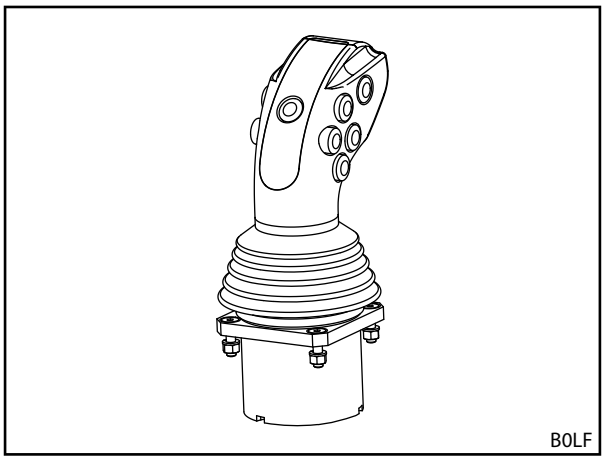


Fig. 69 STOLL joystick

The assignment of the buttons as well as the assignment of which buttons should be T1 to T6 is defined during installation by the specialist workshop and can be individually adapted as required later on.

Depressurizing the front loader

➢ Stop the engine.

Depressurizing the implement

➢ Stop the engine.

➢ With the implement function actuated, move the operating lever in the lateral end positions.

With mechanical implement locking mechanism and REAL^3 , the implement is depressurized by actuating the *Open REAL3 control circuit* button in the ISOBUS software.

With hydraulic implement locking mechanism, the implement is automatically depressurized by actuating the *Open implement locking mechanism* button in the ISOBUS software.

6.1.4 ISOBUS software

➢ Refer to the separate software instructions for information on operation of the ISOBUS software.

6.1.5 Switch/changeover switch

Headlights

The switch is used to turn the headlights (see *4.7.4 Headlights (FZ IB+, optional)*) on or off.

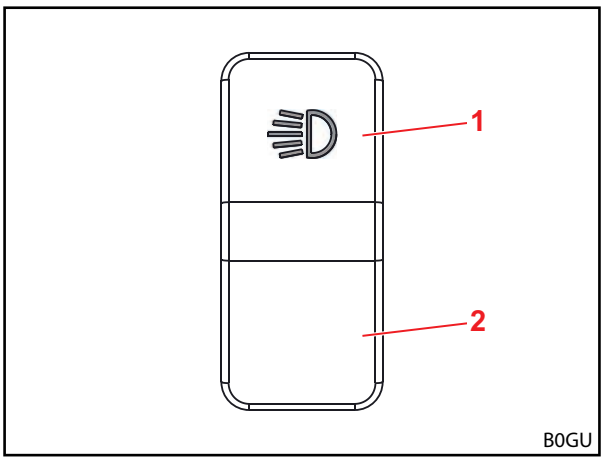


Fig. 70 Switch for headlights

Legend

1 Switch position for headlights on
2 Switch position for headlights off

6.2 Operating the parking supports

⚠ CAUTION

Risk of crushing by swivelling components!

When folding the parking supports, limbs can be crushed.

- When folding the parking supports, do not reach between them and the lifting arm bar.

The parking supports serve to safely put down the front loader. Locking struts allow adaptations to be made for putting down the front loader with different implements as well as on different surfaces.

Unfolding the parking support:

(1) Press on the latch to unhook.

(2) Fold the parking support down to the ground.

(3) Check if the locking strut engaged in the latching section.

✓ The parking support is unfolded.

Folding in the parking support:

(1) Raise and hold the locking strut against the spring tension.

(2) Carefully raise the parking support until the tip of the locking strut is no longer in the latching section.

(3) Release the locking strut.

(4) Fold the parking support with some momentum all way up, so that the latch hooks on.

✓ The parking support is folded up.

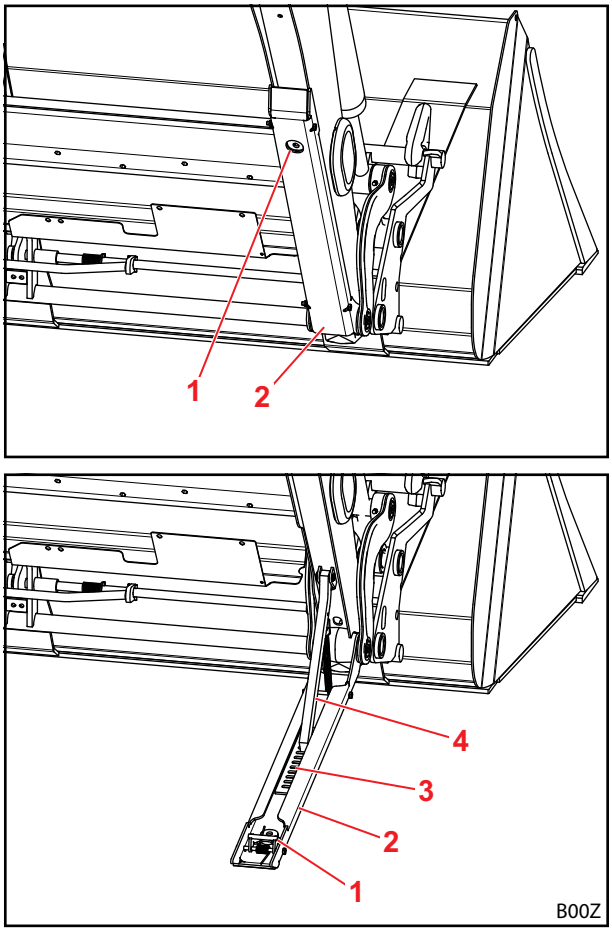


Fig. 71 Parking support

Legend

1 Latch
2 Parking support
3 Latching section
4 Locking strut

6.3 Operating the hydraulic couplings

6.3.1 Operating plug-in couplings

Connecting plugs with coupling sleeve:

(1) Depressurize the hydraulic system (see *6.1 Operating elements*).

(2) Take off the caps and wipe off couplings if necessary.

(3) Plug in the plugs on the coupling sleeve.

(4) Stick the caps together to prevent soiling.

✓ The plug-in couplings are connected.

Disconnect the plugs from the coupling sleeve:

(1) Depressurize the hydraulic system (see *6.1 Operating elements*).

(2) Pull down the coupling sleeve and pull the plugs out of the coupling sleeve.

(3) Put the caps on the plugs and coupling sleeve.

✓ The plug-in couplings are disconnected.

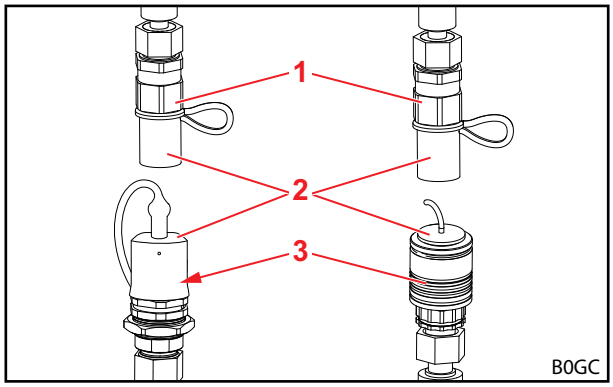


Fig. 72 Plug-in couplings (sample illustrations)

Legend

1 Coupler plug
2 Cap
3 Coupling sleeve

Protect the uncoupled front loader and uncoupled implement from direct sunlight! A hydraulic system that is heated up through ambient influences cannot be coupled.

6.3.2 Operating screw couplings

Connecting plugs with coupling sleeve:

(1) Depressurize the hydraulic system (see *6.1 Operating elements*).

(2) Unscrew the caps and wipe off the couplings if necessary.

(3) Screw the plugs into the coupling sleeve.

(4) Stick the caps together to prevent soiling.

✓ The screw-in couplings are connected.

Disconnect the plugs from the coupling sleeve:

(1) Depressurize the hydraulic system (see *6.1 Operating elements*).

(2) Unscrew the plugs from the coupling sleeve.

(3) Screw the caps onto the plugs and coupling sleeve.

✓ The screw-in couplings are disconnected.

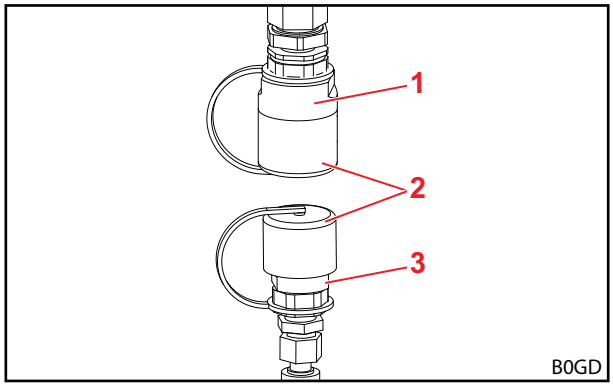


Fig. 73 Screw couplings (sample illustration)

Legend

1 Coupler plug
2 Cap
3 Coupling sleeve

Protect the uncoupled front loader and uncoupled implement from direct sunlight! A hydraulic system that is heated up through ambient influences cannot be coupled.

6.3.3 Operating the Hydro-Fix

⚠ WARNING

Risk of injury and material damage due to soiled hydraulic couplings!

Hydro-Fix couplings that are not cleaned on a regular basis can result in plug parts not being correctly connected or parts of the Hydro-Fix being damaged when attempting to couple them. This can cause malfunctions of the hydraulic system. All functions of the hydraulic system can result in uncontrolled movements of the implement or of the front loader, and cause severe injuries.

- Clean the Hydro-Fix before coupling.
- Always close the cover of the lower part of the Hydro-Fix to prevent contamination.

Coupling the hydraulic lines:

(1) Depressurize the hydraulic system (see *6.1 Operating elements*).

(2) Open the cover on the lower part (see *3.8.2 Multiple coupling Hydro-Fix*).

(3) Wipe off the coupling surfaces with cloths.

Do not wipe dust into any nearby plug connectors.

(4) Press the lock button and push the lever upwards.

(5) Remove the upper part from the holder on the front loader.

(6) Remove the protective cap on the upper part.

(7) Insert the upper part into the lower part using the guide pins.

(8) Push the lever down.

✓ The guide presses the upper part onto the lower part by means of the pins. The lock button is pushed out.

✓ The hydraulic lines are coupled.

Uncoupling the hydraulic lines:

(1) Depressurize the hydraulic system (see *6.1 Operating elements*).

(2) Press the lock button and push the lever upwards.

(3) Pull out the upper part.

(4) Put on the protective cap.

(5) Hook the upper part onto the appropriate mounting on the front loader.

(6) Close the cover on the lower part.

(7) Push the lever down.

✓ The lock button is pushed out.

✓ The hydraulic lines are uncoupled.

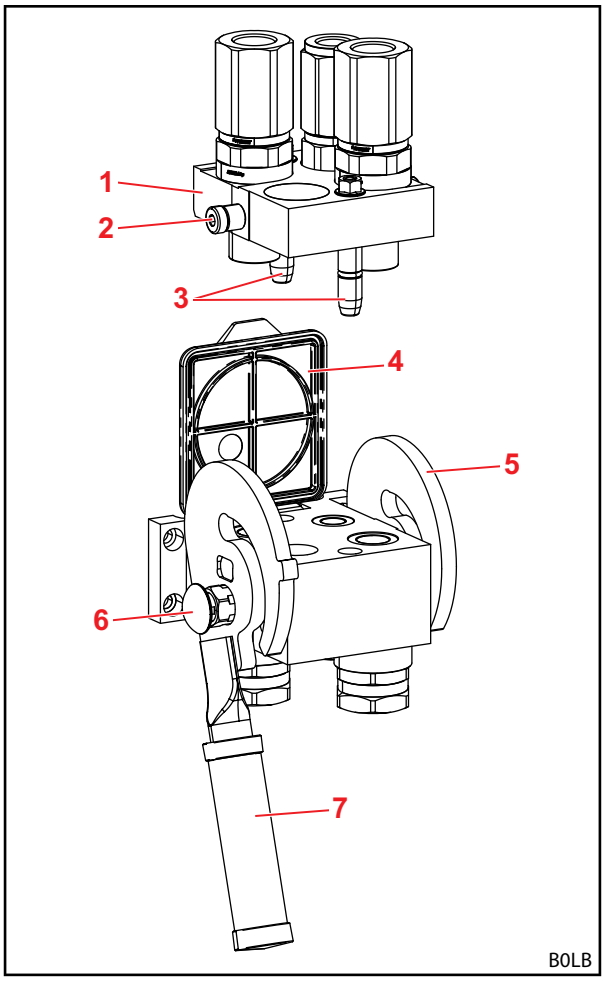


Fig. 74 Hydro-Fix

Legend

1 Hydro-Fix upper part
2 Pin
3 Guide pins
4 Cover
5 Guide
6 Lock button
7 Lever

6.3.4 Operating the Implement-Fix

⚠ WARNING

Risk of injury and material damage due to soiled hydraulic couplings!

Implement-Fix couplings that are not cleaned on a regular basis can result in plug parts not being correctly connected or parts of the Implement-Fix being damaged when attempting to couple them. This can cause malfunctions of the hydraulic system. All functions of the hydraulic system can result in uncontrolled movements of the implement or of the front loader, and cause severe injuries.

- Clean the Implement-Fix before coupling.
- Always close the cover of the lower part of the Implement-Fix to prevent contamination.

Coupling the hydraulic lines:

(1) Depressurize the hydraulic system (see *6.1 Operating elements*).

(2) Open the cover on the lower part (see *3.8.3 Multiple coupling Implement-Fix*).

(3) Wipe off the coupling surfaces with cloths.

(4) Press the lock button and push the lever upwards.

(5) Insert the upper part into the lower part using the guide pins.

(6) Push the lever down.

✓ The guide presses the upper part onto the lower part by means of the pins. The lock button is pushed out.

✓ The hydraulic lines are coupled.

Uncoupling the hydraulic lines:

(1) Depressurize the hydraulic system (see *6.1 Operating elements*).

(2) Press the lock button and push the lever upwards.

(3) Pull out the upper part.

(4) Close the cover on the lower part.

(5) Push the lever down.

✓ The lock button is pushed out.

✓ The hydraulic lines are uncoupled.

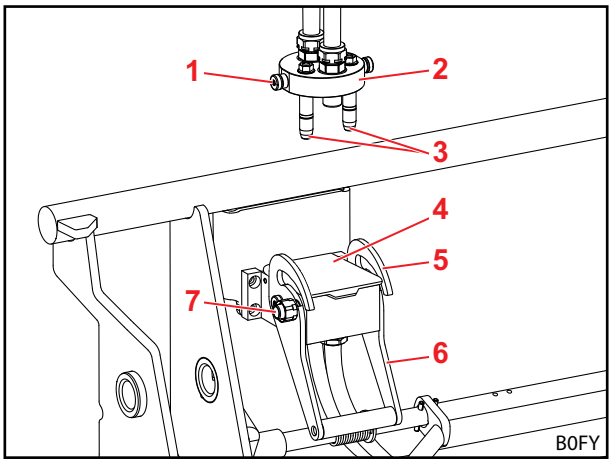


Fig. 75 Uncoupled Implement-Fix

Legend

1 Pin
2 Implement-Fix upper part
3 Guide pins
4 Cover
5 Guide
6 Lever
7 Lock button

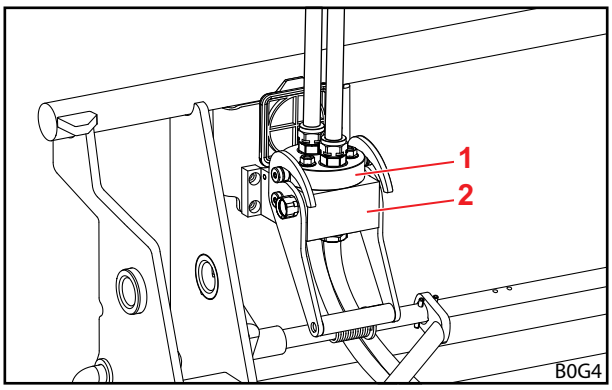


Fig. 76 Coupled Implement-Fix

Legend

1 Implement-Fix upper part
2 Implement-Fix lower part

6.4 Operating the implement locking mechanism

6.4.1 Operating the mechanical implement locking mechanism on Euro and Combi change frames

⚠ WARNING

Risk of injury due to implements falling down!

The implement may fall down if the implement locking mechanism is open or not locked correctly. This can cause serious injury to persons standing in the surrounding area.

- Only actuate the implement locking mechanism when the implement is lowered close to the ground or over a secure rack.
- Always check that the implement is correctly locked.

⚠ CAUTION

Risk of crushing due to spring tension!

There is spring tension on the handle of the implement locking mechanism, which closes the locking mechanism when the handle is lifted. Improper use can lead to injury to hands and fingers.

- Always operate the handle with one hand and grab it in the middle.

Opening the implement locking mechanism:

(1) Lift the handle and pull out.

(2) Move the handle downwards until the nose hooks onto the change frame.

✓ The implement locking mechanism is open.

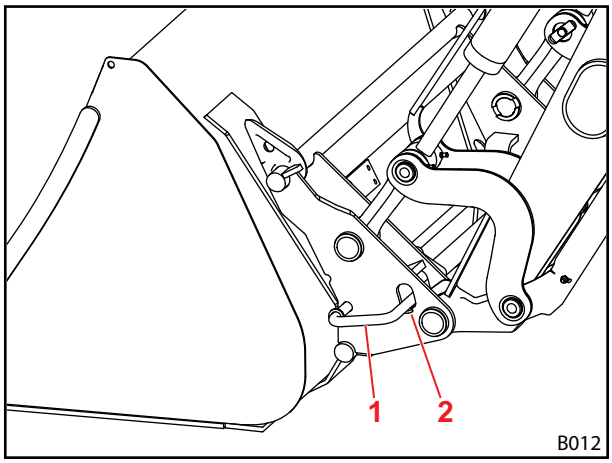


Fig. 77 Mechanical implement locking mechanism

Legend

1 Handle

2 Nose

Closing the implement locking mechanism:

(1) Actuating the *scooping* function. To do this, the front loader may not be lifted to a height of more than 1.5 m.

✓ The implement locking mechanism closes automatically.

Check the implement locking mechanism:

➢ Check that the tip of the arrow on the sticker is aligned directly at the bushing.

For Euro-MX Combi change frames, the sticker is in the middle on one of the rods (see *Fig. 79*).

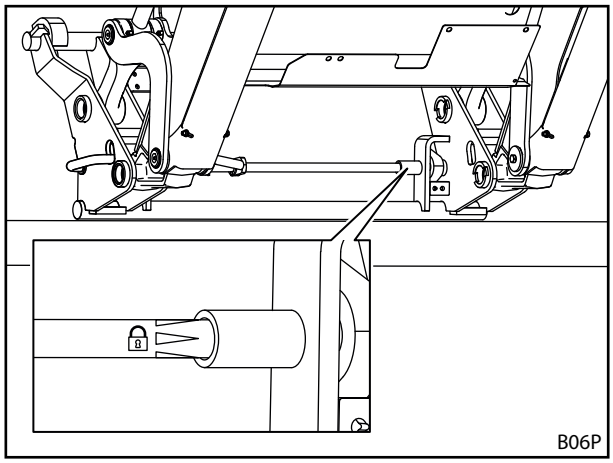


Fig. 78 Using the sticker to check the implement locking mechanism

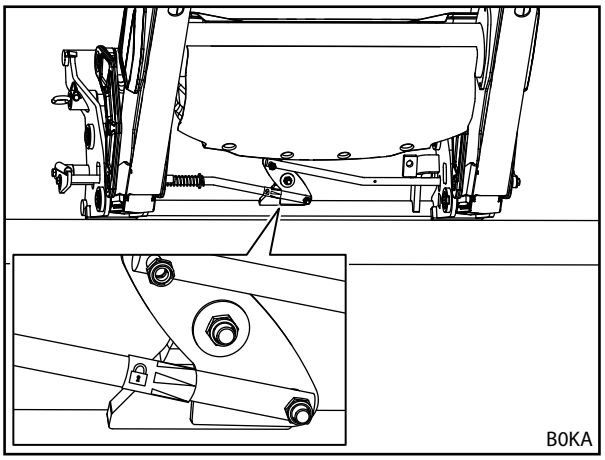


Fig. 79 Use the sticker to check the implement locking mechanism (Euro-MX Combi change frame)

➢ Check that both the locking pins engage correctly in the eyelets of the implement.

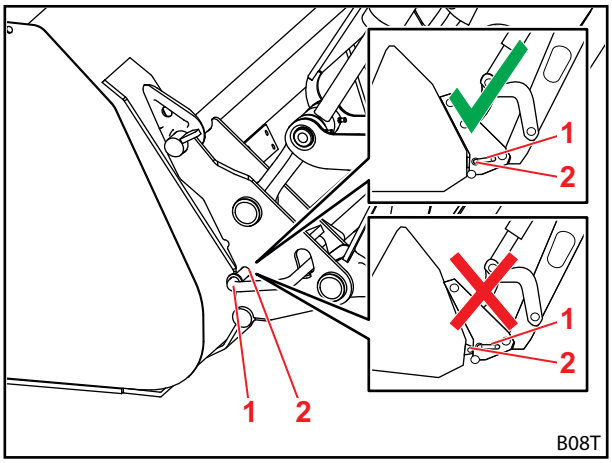


Fig. 80 Checking the position of the locking pins

Legend

1 Locking pin
2 Eyelet

➢ Press the implement with the tip on the ground.

✓ When locked correctly, the implement remains on the change frame.

✓ The implement locking mechanism is checked.

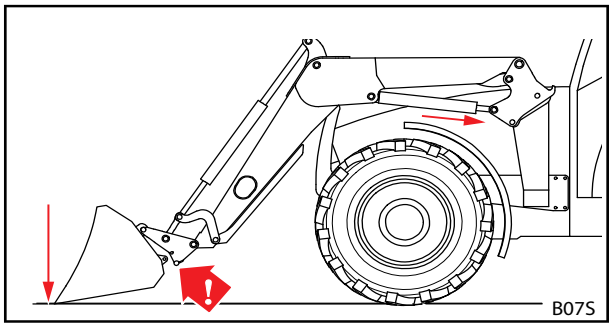


Fig. 81 Pressing the implement onto the ground

6.4.2 Operating the hydraulic implement locking mechanism

⚠ WARNING

Risk of injury due to implements falling down!

If not installed or operated correctly, the implement can fall down. This can cause serious injury to persons standing in the surrounding area.

- The hydraulic implement locking mechanism must only be installed by a specialist workshop.
- Lower the implement close to the ground or over a secure rack before using the implement locking function.

Actuation of the hydraulic implement locking mechanism only works when close to the ground.

Open the implement locking mechanism:

➢ Refer to the separate software instructions

Close the implement locking mechanism:

➢ Refer to the separate software instructions

Check the implement locking mechanism:

Only for Euro change frame:

➢ Check whether the yellow indicators are each in the outer positions.

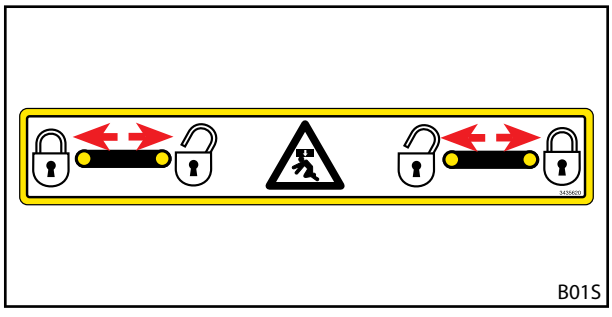


Fig. 82 Checking the position of the yellow indicators

Only for Euro-SMS Combi change frame:

➢ Check that the tip of the arrow on the sticker is aligned directly at the mounting plate.

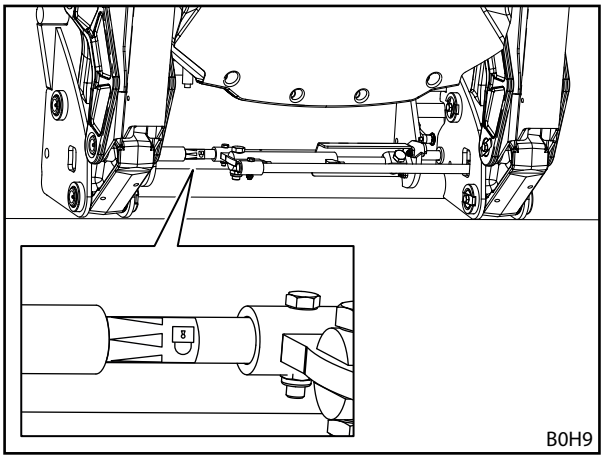


Fig. 83 Using the sticker to check the implement locking mechanism

Only for Euro-MX Combi change frame:

➢ Check that the tip of the arrow on the sticker is pointing directly at the straight side of the setting disc.

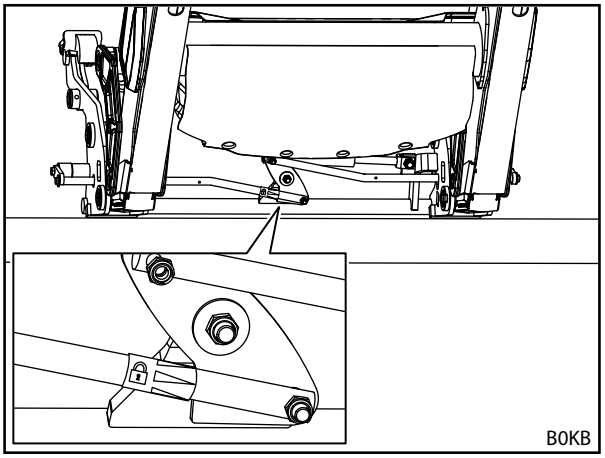


Fig. 84 Using the sticker to check the implement locking mechanism

➢ Check that both the locking pins engage correctly in the eyelets of the implement.

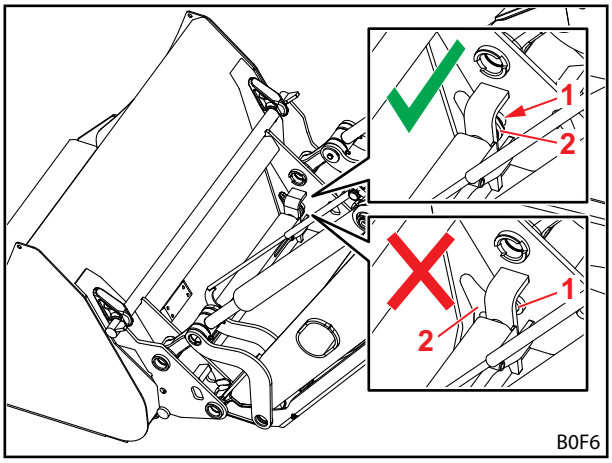


Fig. 85 Checking the position of the locking pins

Legend

1 Locking pin

2 Eyelet

➢ Press the implement with the tip on the ground.

✓ When locked correctly, the implement remains on the change frame.

✓ The implement locking mechanism is checked.

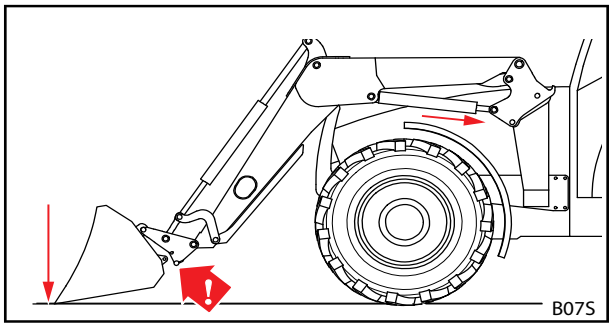


Fig. 86 Pressing the implement onto the ground

6.5 Picking up and putting down the implement

⚠ WARNING

Risk of injury and material damage caused by falling loads or lowering front loader!

With dumping implements that are long or protrude far to the front, the centre of gravity can shift and cause the pressure relief valve of the front loader to open by itself. As a result, the front loader dumps or lowers uncontrollably and can lead to serious injuries and damage.

- Observe the maximum load of the front loader (see *11 Technical specifications*).
- Always use sufficient counterweights at the rear of the tractor (see *5.3.2 Ballasting*).
- During loading work, instruct persons to exit the working area (see *2.8 Danger zones*).

NOTICE

Material damage due to unsuitable implements!

The mounting of implements that are too long, too wide or too heavy can cause damage to the tractor, the front loader or the implement.

- Ensure that the dimensions and weights of the front loader and implements fit to each other.
- Only use implements that are designed for the front loader and the mounted change frame.
- Only use implements that are appropriate for the kind of work you are doing.
- Observe the operating instructions of the implement.

6.5.1 Preparing Euro-SMS Combi change frames for implements

Prepare the change frame for Euro implements:

➢ Pull on the lock button and swivel the support down to the lower cross bar.

✓ The locking pin engages in the hole in the inner wall of the change frame.

Repeat the procedure for both supports.

✓ The change frame is prepared for the Euro implement.

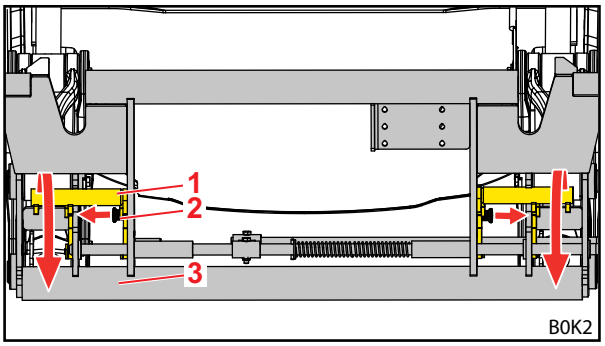


Fig. 87 Swivelling down the supports

Legend

1 Support
2 Lock button
3 Lower cross bar

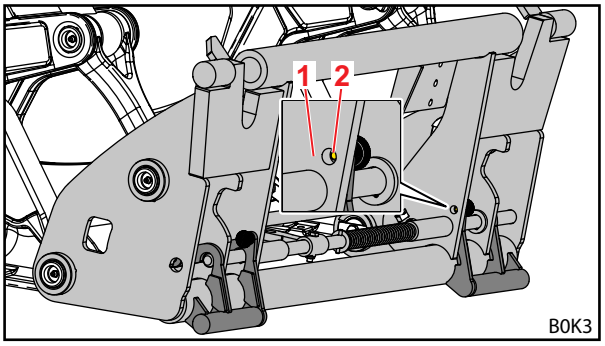


Fig. 88 Supports swivelled down

Legend

1 Inner wall of the change frame
2 Locking pin

Prepare the change frame for SMS implements:

➢ Pull on the lock button and swivel up the support.

✓ The locking pin engages behind the inner wall of the change frame.

Repeat the procedure for both supports.

✓ The change frame is prepared for the SMS implement.

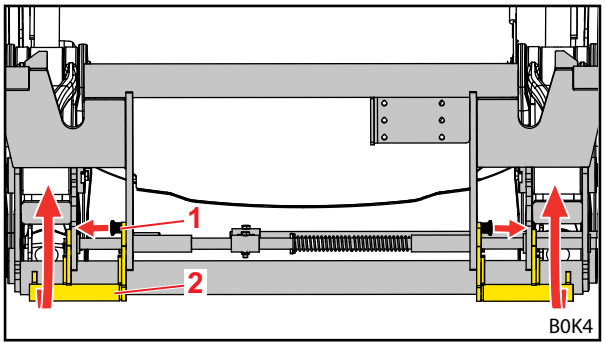


Fig. 89 Swivelling up the supports

Legend

1 Lock button

2 Support

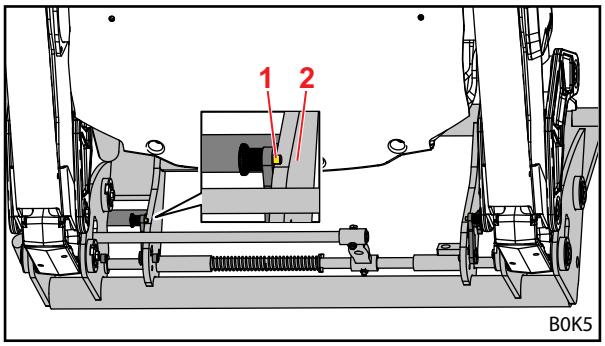


Fig. 90 Swivelled-up support (view from the rear)

Legend

1 Locking pin

2 Inner wall of the change frame

6.5.2 Preparing Euro-MX Combi change frames for implements

On narrow and wide change frames, the adapters look slightly different. The figures show adapters for a narrow change frame.

Prepare the change frame for Euro implements:

(1) Remove the tube linch pin from the locking pin.

(2) Remove the locking pin and take off the adapter.

(3) Slide the adapter onto the bracket and secure with a cotter pin.

(4) Reinsert the locking pin and secure with the tube linch pin.

Repeat the procedure for both adapters.

✓ The change frame is prepared for the Euro implement.

Prepare the change frame for MX implements:

(1) Remove the cotter pin from the adapter.

(2) Take the adapter off of the bracket and put it on the upper cross bar.

(3) Insert the cotter pin back into the bracket.

(4) Secure the adapter with a locking pin.

(5) Secure the locking pin with the tube linch pin.

Repeat the procedure for both adapters.

✓ The change frame is prepared for the MX implement.

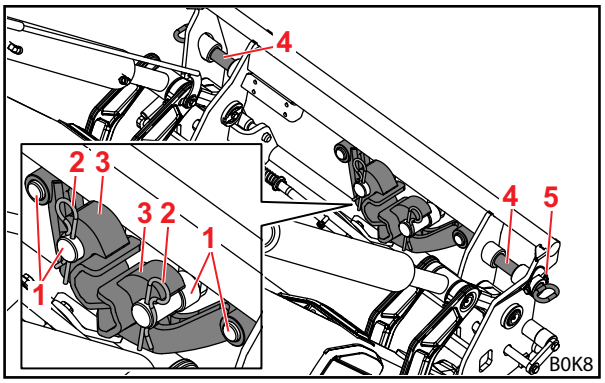


Fig. 91 Adapter in parking position (change frame prepared for Euro implement)

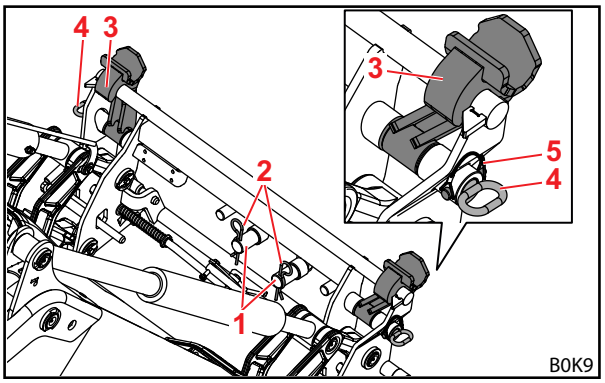


Fig. 92 Adapter in working position (change frame prepared for MX implement)

Legend

1 Mount
2 Spring cotter pin
3 Adapter
4 Locking pin
5 Tube linch pin

6.5.3 Picking up implements with mechanical implement locking mechanism on Euro and Combi change frames

⚠ WARNING

Risk of injury and material damage due to implements falling down!

The automatic locking mechanism only works up to a height of about 1.5 m. Implements not locked correctly may fall down and cause damage to the surroundings as well as injuries.

- Always check that the implement is correctly locked.

⚠ CAUTION

Risk of crushing due to spring tension!

There is spring tension on the handle of the implement locking mechanism, which closes the locking mechanism when the handle is lifted. Improper use can lead to injury to hands and fingers.

- Always operate the handle with one hand and grab it in the middle.

Mount the implement:

(1) Open the implement locking mechanism (see *6.4.1 Operating the mechanical implement locking mechanism on Euro and Combi change frames*).

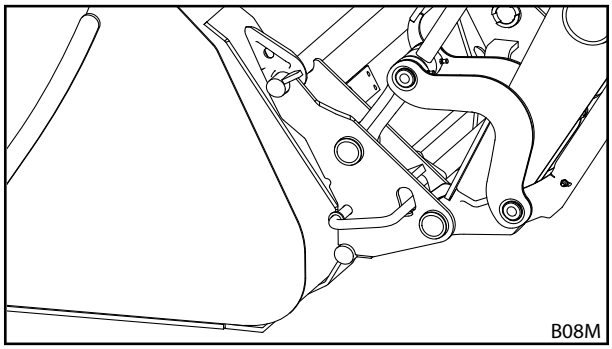


Fig. 93 Opening the implement locking mechanism

(2) Use the *dumping* function until the upper cross bar of the change frame is positioned under the hook of the implement.

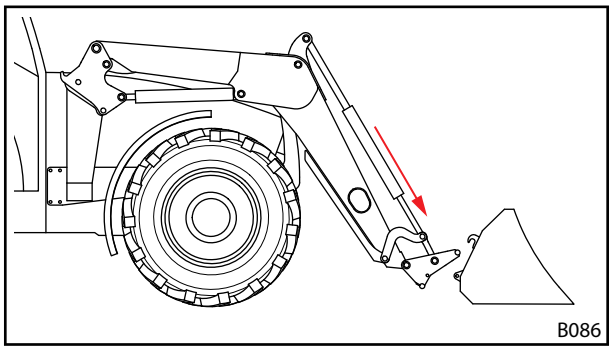


Fig. 94 Position the lifting arm

(3) Drive up close to the implement.

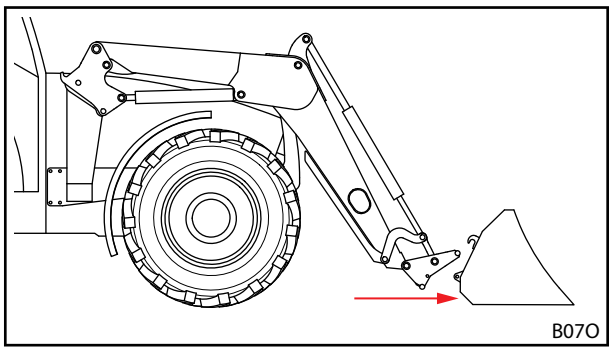


Fig. 95 Driving up

(4) Carefully drive the tractor forwards until the cross bar of the change frame touches the implement.

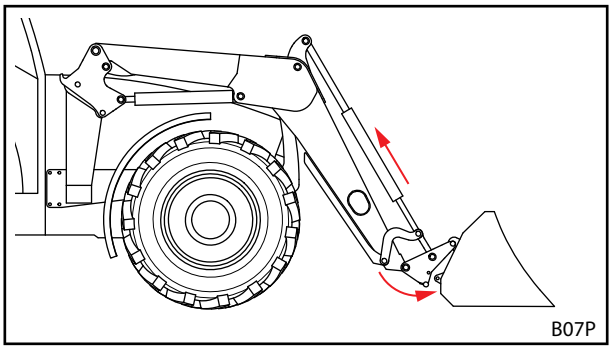


Fig. 96 Hooking in

(5) Use the *scooping* function and drive forward a bit until the cross bar is hooked in.

✓ The implement locking mechanism closes automatically.

(6) Checking the implement locking mechanism (see *6.4.1 Operating the mechanical implement locking mechanism on Euro and Combi change frames*).

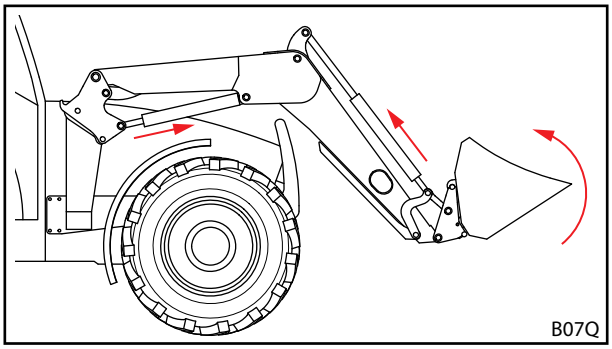


Fig. 97 Triggering the implement locking mechanism

(7) If applicable, connect the hydraulic lines of the implement with the front loader couplings.

- ➢ Lower the front loader until the implement is level on the ground.
- ➢ Apply the parking brake.
- ➢ Stop the engine.
- ➢ Depressurize the hydraulic system (see *6.1 Operating elements*).
  or
  With the implement function actuated, move the operating lever in the lateral end positions in order to depressurize the implement hydraulic system (see *6.1 Operating elements*).
- ➢ Connect the hydraulic lines of the implement to the couplings on the change frame.

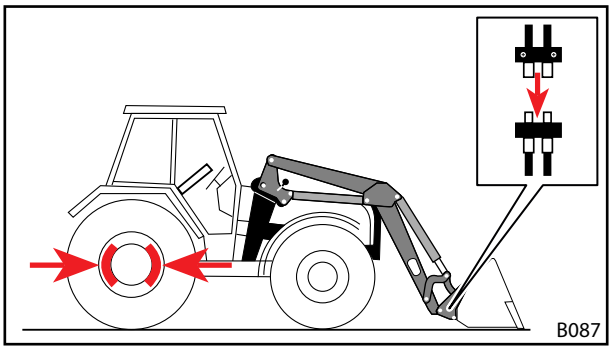


Fig. 98 Connecting the hydraulic lines of the implement to the front loader couplings

(8) For implements from other manufacturers: carefully swivel the implement to all end positions, to ensure that the implement does not collide with the front loader.

✓ The implement is mounted and ready for operation.

6.5.4 Picking up implements with a hydraulic implement locking mechanism

⚠ WARNING

Risk of injury due to implements falling down!

The implement may fall down if the implement locking mechanism is open or not locked correctly. This can cause serious injury to persons standing in the surrounding area.

- Only actuate the implement locking mechanism when the implement is lowered close to the ground or over a secure rack.
- Always check that the implement is correctly locked.

Mounting the implement:

(1) Drive up close to the implement.

(2) Open the implement locking mechanism (see *6.4.2 Operating the hydraulic implement locking mechanism*).

(3) Use the *dumping* function until the upper cross bar of the change frame is positioned under the hook of the implement.

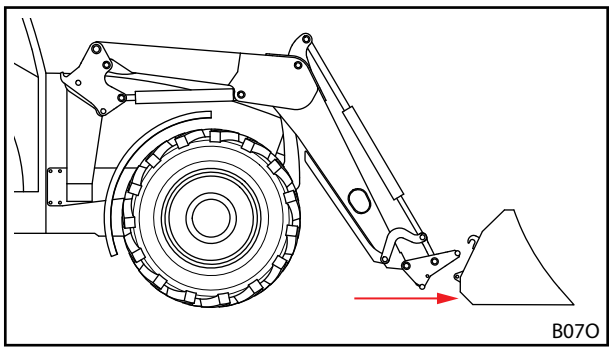


Fig. 99 Driving up

(4) Carefully drive the tractor forwards until the cross bar of the change frame touches the implement.

(5) Closing the implement locking mechanism (see *6.4.2 Operating the hydraulic implement locking mechanism*).

(6) Checking the implement locking mechanism (see *6.4.2 Operating the hydraulic implement locking mechanism*).

(7) If applicable, connect the hydraulic lines of the implement with the front loader couplings.

- ➢ Lower the front loader until the implement is level on the ground.
- ➢ Apply the parking brake.
- ➢ Stop the engine.
- ➢ Depressurize the hydraulic system (see *6.1 Operating elements*).
  or
  With the implement function actuated, move the operating lever in the lateral end positions in order to depressurize the implement hydraulic system (see *6.1 Operating elements*).
- ➢ Connect the hydraulic lines of the implement to the couplings on the change frame.

(8) For implements from other manufacturers: carefully swivel the implement to all end positions, to ensure that the implement does not collide with the front loader.

✓ The implement is mounted and ready for operation.

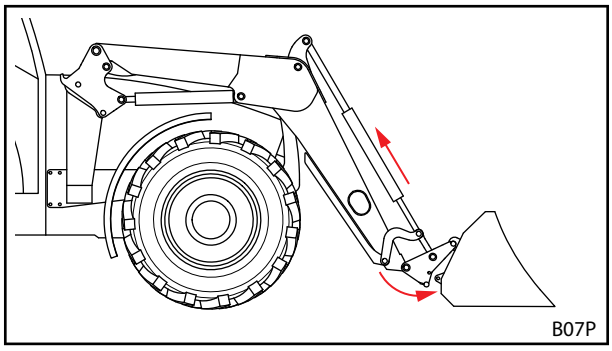


Fig. 100 Hooking in

6.5.5 Putting down the implement

Putting down the implement:

(1) Lower the front loader close to the ground and position the implement horizontally on the ground or place on a secure rack.

> Do not completely lower the front loader onto the ground.

(2) Switch off the tractor.

- ➢ Apply the parking brake.
- ➢ Stop the engine.
- ➢ Depressurize the hydraulic system (see *6.1 Operating elements*).

  or

  With the implement function actuated, move the operating lever in the lateral end positions in order to depressurize the implement hydraulic system (see *6.1 Operating elements*).

(3) Open the implement locking mechanism (see *6.4 Operating the implement locking mechanism*).

(4) If applicable, disconnect the hydraulic lines from the couplings on the change frame (see *3.8 Hydraulic couplings*).

(5) Switch on the tractor.

(6) Lower the implement to the ground.

(7) Unhook the change frame from the implement hooks.

- ➢ Use the *dumping* function until the upper cross bar is positioned under the implement hook.

(8) Slowly drive the tractor away in reverse.

(9) Check that the implement is in a stable position.

(10) If applicable, cover the implement with a protective tarp.

✓ The implement is put down.

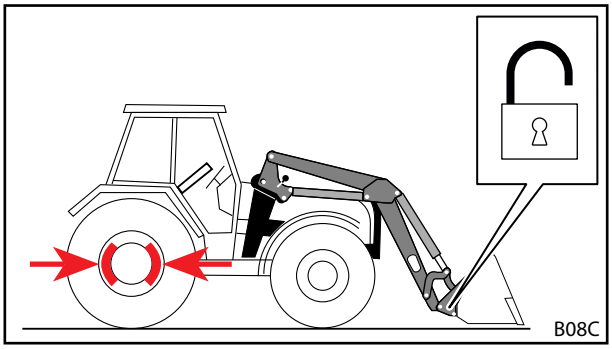


Fig. 101 Opening the implement locking mechanism

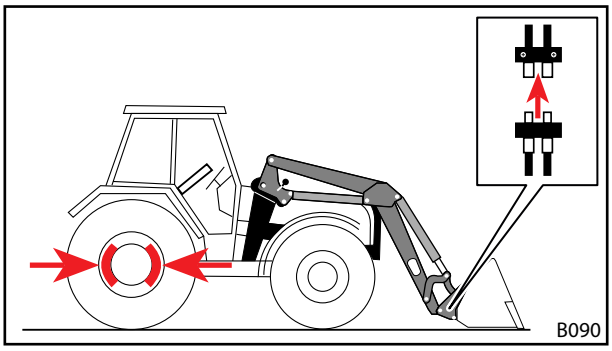


Fig. 102 Releasing the hydraulic lines

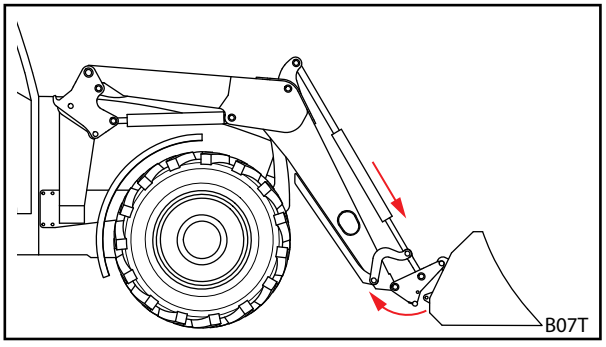


Fig. 103 Unhooking the change frame

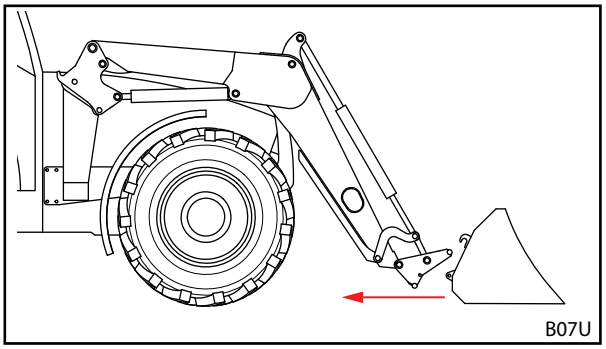


Fig. 104 Driving away

6.6 Levelling in reverse

NOTICE

Material damage due to improper levelling!

If the front loader is not correctly used for levelling, the machine can be overloaded and damaged.

- Only perform levelling work with bucket implements.
- Level only with the front edge of the bucket.
- Maintain a maximum angle of 45° between the bottom edge of the bucket and the ground.
- Only drive in reverse with the bucket in this position.
- Do not exceed a speed of 10 km/h.

With a bucket implement, the front loader can perform light levelling work.

Levelling in reverse:

(1) Lower the front loader.

(2) Use the *dumping* and *scooping* function until the angle between the bottom edge of the bucket and the ground does not exceed 45°.

(3) Slowly drive in reverse.

✓ The ground is levelled.

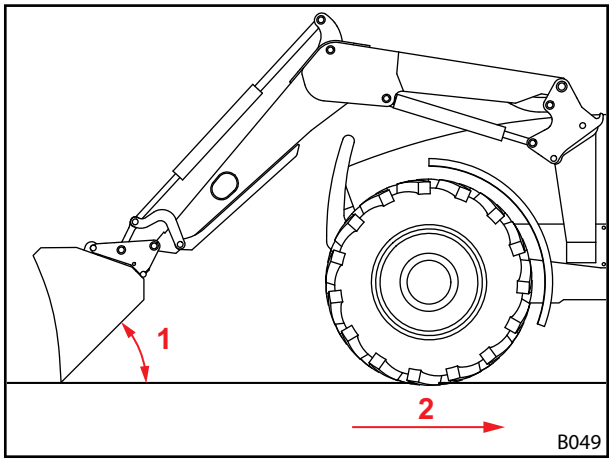


Fig. 105 Levelling in reverse

Legend

1 Maximum angle of 45° between the bottom edge of the bucket and the ground

2 Maximum speed of 10 km/h

6.7 Clearing work (especially clearing snow)

NOTICE

Material damage due to improper clearing!

Obstacles (e.g. manhole cover, kerbs) under the material to be cleared (e.g. snow) can strongly damage the implement, front loader, mounting parts, and the tractor in case of collision.

- Only clear obstacle-free terrain.
- Do not exceed a speed of 6 km/h.

With a bucket implement, the front loader can perform light clearing work.

Clear an area:

(1) Set the bucket vertically.

(2) Lower the front loader until the edge of the bucket touches the ground.

(3) Activate the float position (see front loader operating instructions).

(4) Drive forwards at max. 6 km/h.

✓ The area has been cleared.

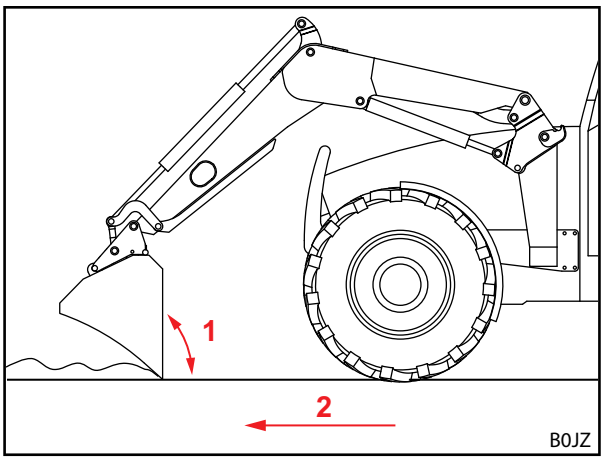


Fig. 106 Clearing

Legend

1 Angle of 90°

2 Maximum speed of 6 km/h

6.8 Picking up loads

⚠ DANGER

Lethal danger due to loads falling down from front loaders without parallel motion!

On front loaders without parallel motion, the implement tilts to the rear when lifting. As a result, the load can fall on the driver and cause lethal injuries.

- Watch the load as you are lifting. Do not lift the load when reversing.
- Compensate for the increased angle on front loaders without parallel motion when lifting by “dumping” with the implement.

⚠ WARNING

Risk of injury and material damage caused by falling loads or lowering front loader!

With dumping implements that are long or protrude far to the front, the centre of gravity can shift and cause the pressure relief valve of the front loader to open by itself. As a result, the front loader dumps or lowers uncontrollably and can lead to serious injuries and damage.

- Observe the maximum load of the front loader (see *11 Technical specifications*).
- Always use sufficient counterweights at the rear of the tractor (see *5.3.2 Ballasting*).
- During loading work, instruct persons to exit the working area (see *2.8 Danger zones*).

⚠ WARNING

Risk of accident when driving on roads when the front loader is raised too far!

When the front loader is raised too far, there can be collisions with power lines, bridges, trees, etc.

- Observe the instructions for driving on roads (see *6.9 Driving on roads*).
- Do not drive on public roads with a loaded implement.

NOTICE

Material damage due to improper driving in reverse under load!

When the implement or the change frame touch the ground while driving in reverse under load, it can cause strong wear and damage to the front loader and change frame.

- After picking up a load with the front loader in the lower position, first lift the front loader and then drive in reverse.

NOTICE

Material damage by scooping when the front loader is completely lowered!

If the *scooping* function is used when the front loader is completely lowered, the change frame can rub on the ground. This can result in strong wear and damage to the change frame.

- First raise the front loader (approx. 10 cm) and then use the *scooping* function.

To prevent wear on the change frame and implement, the front loaders can be equipped with optional wear runners (see *3.6 Wear runners*). The wear runners increase the distance between the change frame or implement and the ground. For FZ 46-26 to FZ 48-42 front loaders, the wear runners are included in the standard equipment.

Picking up loads is described based on the example of a STOLL bucket implement.

Observe the operating instructions of the mounted implement.

Pick up the load:

➔ Before beginning operation, check that the implement functions properly and safely without a load.

(1) Lower the front loader to the desired height.

(2) Position the implement horizontally and drive straight into the load.

To make it easier to fill the implement, slightly raise the front loader when driving into the load.

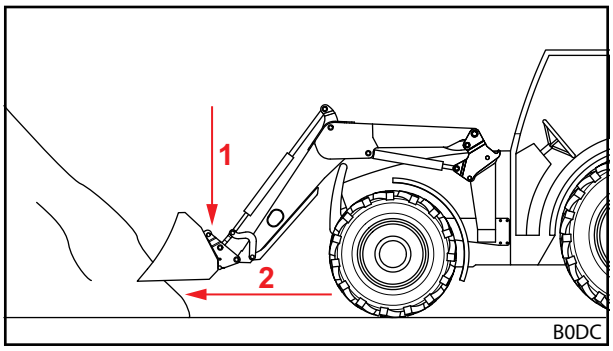


Fig. 107 Lowering the front loader and driving straight into the load

(3) Tip the implement to the rear.

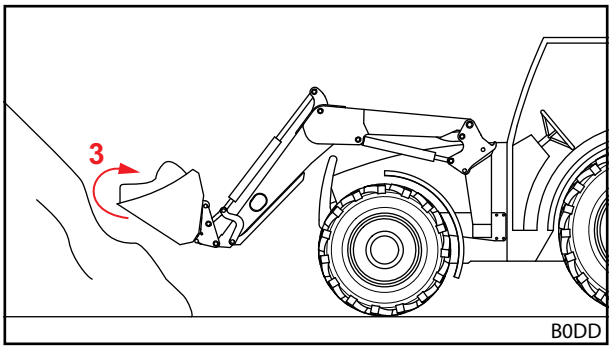


Fig. 108 Tipping the implement to the rear and picking up the load

(4) Raise the front loader.

(5) Slowly drive in reverse.

(6) Drive the load to the target site.

✓ The load has been picked up.

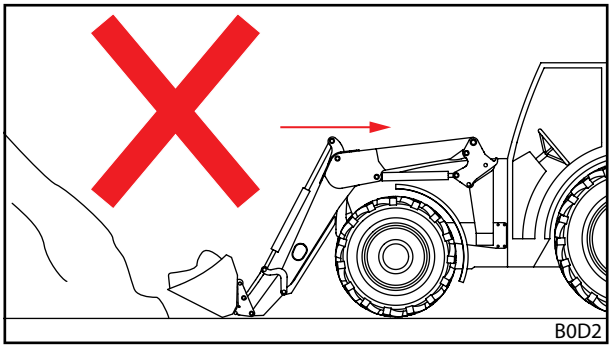


Fig. 109 Driving in reverse under load – Wrong

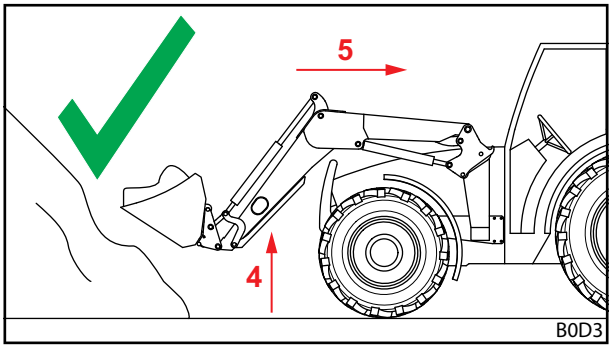


Fig. 110 Driving in reverse under load – Right

6.9 Driving on roads

⚠ WARNING

Serious risk of accidents and injury due to loads falling down!

When driving on roads, serious accidents and injuries can be inflicted on other road users due to loads falling down.

- Only drive on roads without a load.

⚠ WARNING

Possible risk of accident and injury due to accidental movement of the front loader!

Accidental actuation of the front loader while driving on roads can cause accidents and personal injury.

- Lock the operating lever or hydraulic system of the front loader when driving on roads.

⚠ WARNING

Possible risk of injury due to uncontrolled movement of the front loader!

If the control unit was not actuated for a longer period of time, there may be e.g. temperature differences between the hydraulic fluid and the control unit. This can cause the control valves to jam and the front loader moves uncontrollably. This may result in serious accidents.

- At ambient temperatures lower than 10 °C and when the front loader is not used for longer than 15 minutes, always first actuate the *scooping* and *dumping* functions at a standstill to warm up the control unit.
- Only use the *lifting* and *lowering* functions after the warm-up phase.

⚠ WARNING

Risk of accident due to raised front loader!

When driving on roads, the tractor with the raised front loader can tip over and cause serious accidents.

- Always use sufficient counterweights at the rear of the tractor.
- Do not drive faster than 25 km/h.
- Pay attention to changes in the dimensions of the machine.
- Pay attention to the clearance height, e.g. under bridges, power lines and trees.
- Take extra care on bends.
- Pay attention to the longer braking path.
- If necessary, let somebody else guide you at blind spots.

⚠ WARNING

Risk of accident due to blinding of other road users!

When driving on roads, the headlights can blind other road users and cause accidents and injuries. The headlights are not approved for operation in road traffic.

- Switch off the headlights before driving on roads.

When driving on roads, the tractor with a mounted front loader may only be driven by people who have the necessary driving licence and knowledge of the traffic regulations.

Also to be observed:

➢ Dismount the implement at a distance of more than 3.5 m between the steering wheel and the front edge of the implement.

➢ If possible, raise the front loader such that the top edge of the implements does not exceed a height of 4 m and the bottom edge of the implements begins at least 2 m above the road surface.

➢ Activate the road operating lock (see *6.9.1 Activating and deactivating the road operation lock*).

➢ If equipped, activate Comfort Drive (see *4.7.2 Comfort Drive*).

➢ Observe the applicable national traffic regulations.

6.9.1 Activating and deactivating the road operation lock

Tractor's own operating lever and **STOLL joystick**

To activate the road operation lock:

(1) Switch off the system in the ISOBUS software (refer to the separate software instructions).

✓ The road operation lock is activated. Accidental actuation of the front loader is no longer possible.

6.9.2 Passing through low clearances

When passing e.g. bridges, power lines or trees, the clearance height can be too low for the raised front loader. In this case, the following procedure must be observed:

Passing through low clearances:

(1) Stop before driving through.

(2) Deactivate the road operation lock.

(3) Use the *scooping* and *dumping* function to warm up the control unit if necessary.

(4) Lower the front loader.

(5) Pass through the clearance.

(6) Once the clearance has been passed, raise the front loader.

(7) Activate the road operation lock.

✓ The clearance has been passed.

6.10 Parking the tractor with the front loader

⚠ WARNING

Possible risk of injury due to lowering of the front loader!

The front loader is lowered over time by the drop in pressure in the hydraulic system. This can result in damage and accidents.

- Always lower the front loader when parking or exiting the tractor.
- Observe all of the action steps to correctly park the tractor with the front loader.

Parking the tractor with the front loader:

(1) Lower the front loader to the ground.

(2) Switch off the tractor.
   - ➢ Apply the parking brake.
   - ➢ Stop the engine.

(3) Depressurize the hydraulic system (see *6.1 Operating elements*).

(4) Pull out the ignition key to secure the tractor against unauthorised use.

✓ The tractor with the front loader is safely parked.

To park the tractor with the front loader, also observe the operating instructions for the tractor.

Instructions for parking the tractor without front loader, see *9.1 Temporary decommissioning*.

7 Troubleshooting

⚠ WARNING

Mortal danger and material damage due to lack of safety!

Troubleshooting and repair work carried out incorrectly can impair the safety of the front loader.

- Necessary repair work should only be performed by an authorised specialised workshop.

Faults on the front loader are frequently caused by factors that are not a result of a malfunction on the front loader.

In case of faults, first check:

- Is there enough oil in the hydraulic tank of the tractor?
- Has the correct oil been used?
  Only use oil types specified in the tractor operating instructions. The wrong oil can cause foam to build up and leaks.
- Is the hydraulic oil clean and free of moisture?
  You may need to change the oil and filter.
  Install an additional filter in the hydraulic system if necessary.
- Are the hoses and connections mounted correctly?
  The connections must be locked in place.
- Are the hoses and connectors undamaged, not clamped or twisted?
- Have the cylinders of the front loader been moved several times into their end positions to remove the air from the lines and the cylinders?
- Have you taken the low outside temperatures into consideration?
  Is the oil at operating temperature already?

If these points do not resolve the problem, the following table will help to localize and correct the fault.

Incorrect repairs can lead to safety risks. That is why the repair work must only be carried out by suitably qualified personnel!
STOLL recommends that the repair work be performed at a specialised workshop.

Description of the fault	Cause	Rectifying the fault
It is difficult to move the operating lever (stiff).	Bowden cables are stiff.	Check the attachment and routing of the Bowden cables and if they are stuck anywhere. If necessary, oil or replace the Bowden cables.
	Stiff shutters in the control block.	Check the shutters, and replace if necessary.
Front loader and/or implements work in the wrong direction to the operating lever.	Hydraulic connection is not connected properly.	Check the hydraulic connections, correct if necessary.
	Bowden cables are mounted incorrectly.	Check the connection of the Bowden cables and adjust if necessary.
	Operating lever not aligned correctly.	Check the installation position, and change the connection of the Bowden cables if necessary.

Description of the fault	Cause	Rectifying the fault
The front loader, implement and implement with hydraulic function, such as a top-loading grip, move too slowly or not at all.	Not enough oil in the hydraulic system.	Check oil level and refill if necessary.
	Hydraulic couplings are not connected correctly.	Check the connections.
	Tractor pump is worn.	Check the tractor pump, replace if necessary.
	Insufficient oil flow.	Check the tractor hydraulic system.
	Engine speed too low.	Increase engine speed.
	Hydraulic fluid too cold.	Warm up the hydraulic system to operating temperature.
	Too big load in the implement.	Reduce load.
	Hydraulic coupling defective.	Check couplings, replace if necessary.
	Internal leaking in the hydraulic cylinder.	Check the cylinders, repair or replace defective cylinders.
	Pressure relief valve is set incorrectly.	Check the setting of the pressure relief valve.
	Internal leakage in the control block.	Check the control block, replace if necessary.
	Operating lever not adjusted correctly.	Correct the settings of the operating lever.
	The top-loading grip valve does not switch.	Check the magnet and shutters, replace if necessary.
Insufficient lifting and tear-out force.	Insufficient oil pressure.	Check the tractor hydraulic system.
	Internal leaking in the hydraulic cylinder.	Check the cylinders, repair or replace defective cylinders.
	Too big load in the implement.	Reduce load.
	The primary or secondary pressure relief valve is incorrectly set or defective.	Check the settings of the pressure relief valve and replace if necessary.
	Internal leakage in the control block.	Check the control block, replace if necessary.
Air in the hydraulic fluid (recognizable by the foamy hydraulic fluid).	The hydraulic pump sucks in air.	Check the lines between the hydraulic pump and tank for loose or defective connections.
	The hydraulic filter is dirty.	Check the hydraulic filter, replace if necessary.
	Low oil quantity in the tank.	Check the oil level, refill if necessary.
	Mixed oil types.	Only use recommended oils.
	Discharging of returning oil.	Connection for returning oil according to the specifications.
Leaks on the hydraulic couplings of the front loader or the 3rd or 4th control circuit.	Leaks caused by infiltrated dirt.	Clean the coupling, replace if necessary. If the front loader or the 3rd or 4th control circuits are not used, seal the hydraulic couplings with the protective caps, or close the cover of the Hydro-Fix.
	Couplings are worn or damaged.	Replace the couplings.
Front loader, implement and implement with hydraulic function is blocked during lifting or lowering movement.	Coupling not completely closed.	Check the hydraulic coupling.
	The coupling is defective.	Replace the defective coupling halves.
	Hydro-Fix, multi-coupler and Implement-Fix not fully closed.	Check the locking lever for deformation. Check the couplings for firm seating, fasten if necessary.
The front loader rocks when lowering the load.	Lowering speed too high.	Reduce the lowering speed.
The implement cylinder are extended, but are not retracted again.	Piston seal in the implement cylinder is defective, so that the surface of the piston and the ring are stuck together.	Check each cylinder separately for leaks and if necessary replace any defective cylinders.
	Insufficient oil flow.	Check the tractor hydraulic system.
	The double pressure relief valve of the front loader control block does not close.	Clean the double pressure relief valve and replace if necessary.

Description of the fault	Cause	Rectifying the fault
Leaks on the hydraulic block and system.	Loose bolted connections.	Tighten the screw again.
	Leak between the magnet and valve.	Unscrew the knurled nut, remove the magnet, tighten the magnetic core again with an open-end spanner.
	Leak between the valve flanges.	Tighten the screws again or renew the gasket rings.
	Defective gaskets.	Replace the gasket rings such as Walform.
The front loader is raised when scooping from a lowered position.	Oil shortage on the piston rod side of the lifting arm cylinder.	Increase the engine speed when lowering.
		Lower without float position.
The front loader is raised when scooping from a lowered position, and when subsequently dumping, the front loader is lowered very fast.	Oil shortage on the piston crown side of the lifting arm cylinder.	After the previous error, only actuate the *lifting* function until the front loader is raised and the implement can be carried in a parallel position.
The front loader locking mechanism cannot be correctly locked.	The front loader locking mechanism is not correctly adjusted.	Adjust the front loader locking mechanism (see *5.6 Adjusting the front loader locking mechanism*).
	The clamping wedge is installed in the wrong position.	Check the installation position of the clamping wedge, have it adjusted if necessary (see *5.6 Adjusting the front loader locking mechanism*).
	Wear on the front loader mountings.	Check the front loader mountings (see *8.2.2 Service instructions for front loader mountings*), and have the mounting parts repaired or replaced by a specialist workshop if necessary.
Plug-in couplings cannot be coupled.	Pressure in the system.	Have a specialist workshop reduce the pressure.

8 Servicing

⚠ WARNING

Serious risk of injury due to uncontrolled lowering of the front loader!

During service and repair work, a raised front loader can be lowered unexpectedly and crush and injure nearby persons.

- Only perform maintenance work when the front loader is completely lowered.

⚠ WARNING

Risk of injury due to the front loader tipping over!

When the front loader is put down on the parking supports, it does not have sufficient stability to perform maintenance work. The front loader can tip over and cause serious injury to persons standing nearby.

- Only perform maintenance work when the front loader is mounted.
- If mounting is not possible, secure the front loader against overturning using a crane or with load-bearing ropes or chains.

⚠ WARNING

Risk of injury due to hydraulic fluids under high pressure!

Even when the tractor is switched off or the front loader has been removed, the hydraulic system can still be under pressure. If the service work is not carried out correctly, oil can spurt out at high pressure and cause serious injury to persons standing nearby.

- Before opening the couplings or dismounting hydraulic components, depressurize the hydraulic system.
- Always used suitable auxiliary materials when searching for leaks.
- Never search for leaks using your fingers.

⚠ CAUTION

Risk of burns by hot machine parts!

Hydraulic components as well as other parts of the front loader and tractor can get very hot during operation. This can cause burns to the skin when performing maintenance work.

- Allow the machine and components to cool down to under 55 °C before performing maintenance work.

Repairs help to maintain proper functioning of the front loader and prevents premature wear. A distinction is made between the following measures:

- Cleaning and care
- Service
- Repairs

8.1 Cleaning and care

NOTICE

Possible material damage due to unsuitable cleaning agents!

Unsuitable cleaning agents can damage surfaces and safety devices as well as destroy seals.

- Only use cleaning agents that are compatible with the machine surfaces and seal materials.

- Clean the front loader with water and a mild cleaning agent.
- Lubricated surfaces of the front loader must be re-greased after cleaning.

8.1.1 Cleaning schedule

The specified cleaning intervals are guidelines.

- Adjust the intervals according to the operating conditions.
- Consult with a workshop for any questions.

Maintenance position	Job	Interval [Operating hours]
Turning angle sensor on the change frame	Clean the interior of the housing and sensor (see *Fig. 111*)	100 h

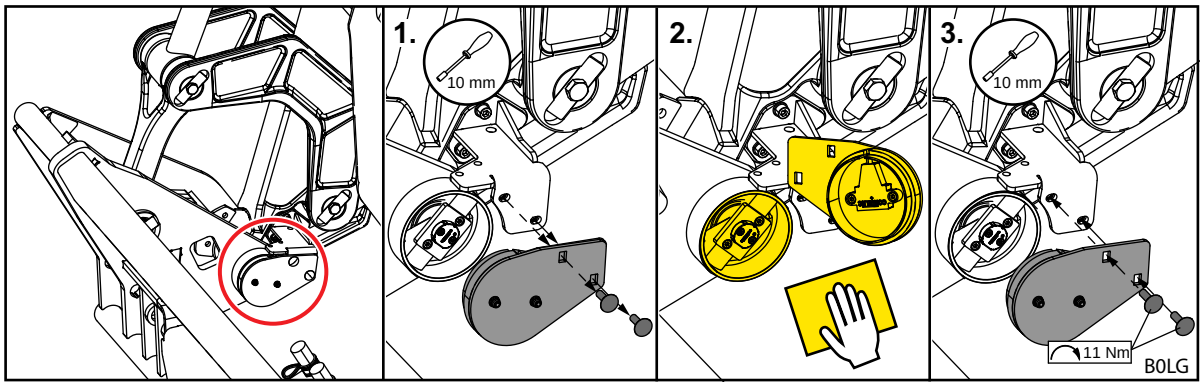


Fig. 111 Clean the turning angle sensor

8.1.2 Lubrication points

Lubrication points on the catch hooks

The front loader mountings must be lubricated regularly, (see *8.1.3 Lubrication schedule*).

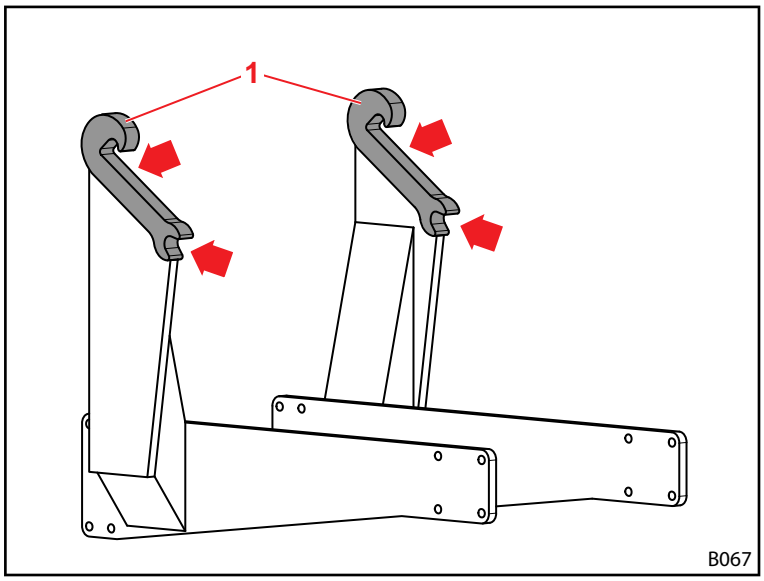


Fig. 112 Lubrication points on the front loader mountings

Grease the lubrication points on the front loader mounting each time the front loader is mounted or dismounted to save extra work.

Lubrication points on FS IB+ and FZ IB+ front loaders

The FS IB+ front loader has 9 lubrication points on each side:

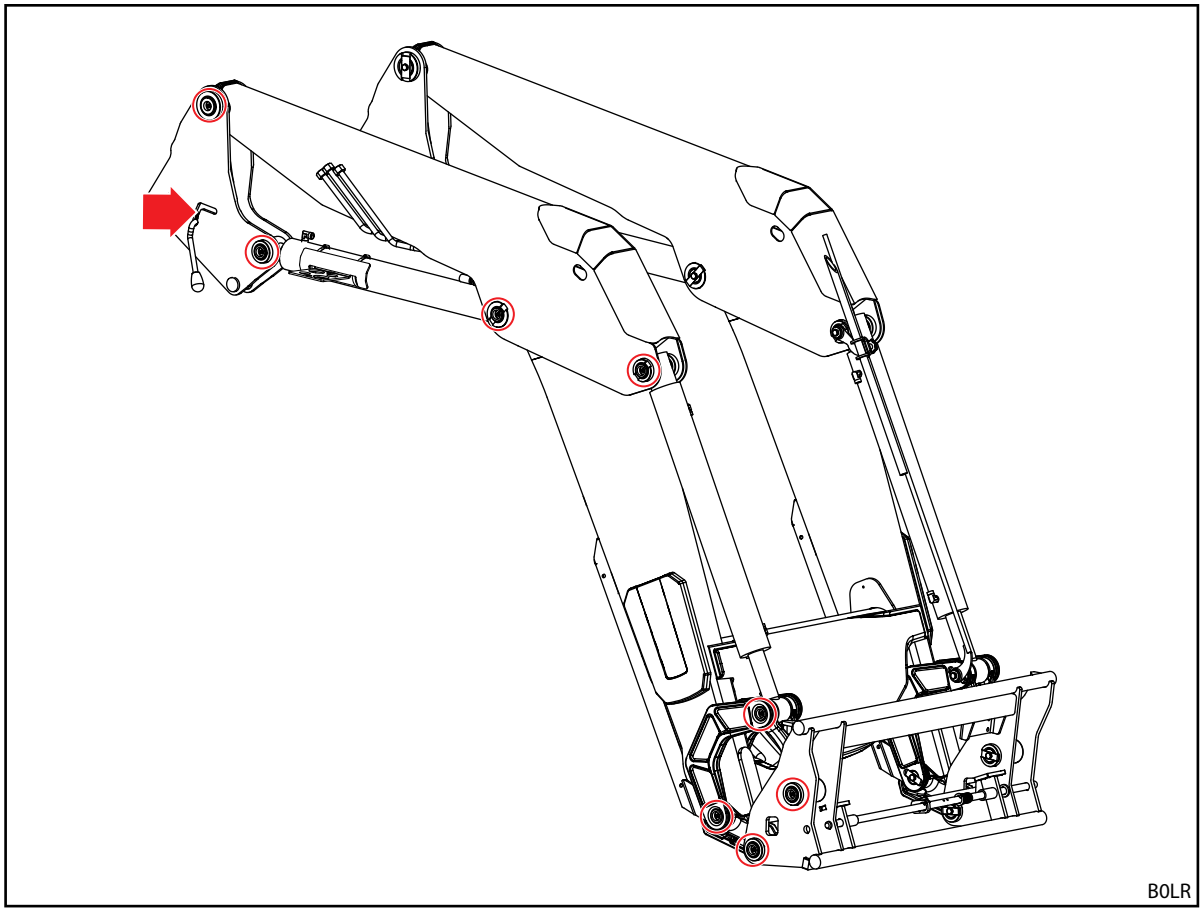


Fig. 113 FS IB+ lubrication points

The FZ IB+ front loader has 12 lubrication points on each side:

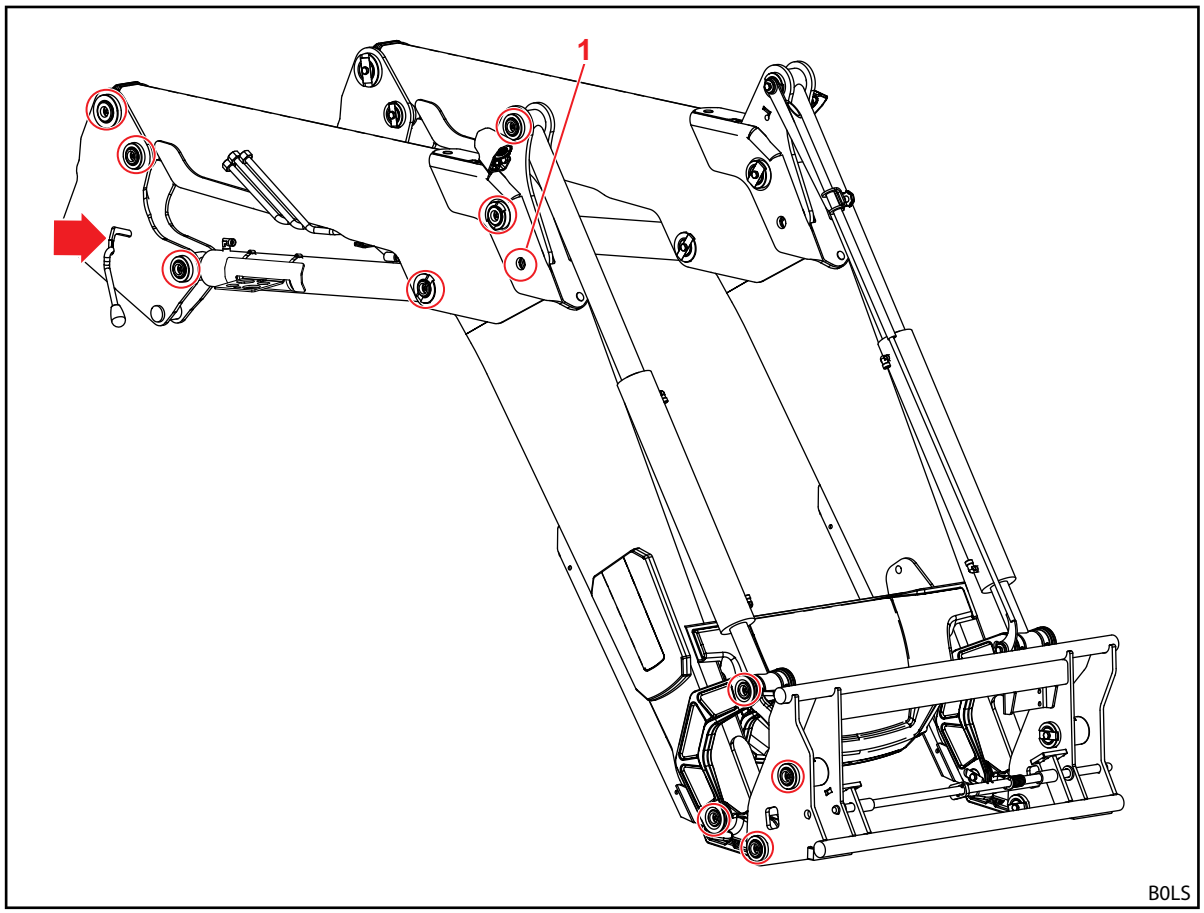


Fig. 114 FZ IB+ lubrication points

The grease nipple at Position 1 can only be reached by slightly lifting the front loader and putting it down on the tip of the implement.

8.1.3 Lubrication schedule

Lubrication point	Interval [operating hours]	Lubricant
Bearing positions	20 h	Multipurpose grease DIN 51502 K2K, ISO 6743 ISO-L-XCCEA2, or comparable product
Front loader mountings (catch hooks)	100 h	
Front loader locking mechanism	100 h	Multipurpose grease or lubricating oil

Shorten the lubrication intervals if there is strong dirt contamination.

8.2 Service

⚠ WARNING

Lethal danger and material damage due to lack of service!

Service tasks deferred or carried out incorrectly impair the safety of the front loader.

- Only have service carried out by authorised personnel.
- Only have visible defects repaired by trained qualified personnel.
- Observe additional documentation, e.g. for implements, for other service tasks.

To ensure proper operating condition of the front loader, the defined service tasks must be performed at the specified intervals by qualified personnel.

➢ Have service tasks performed regularly according to the service intervals described in the following.

8.2.1 Service schedule

The specified service intervals are guidelines.

➢ Adjust the intervals according to the operating conditions.

➢ Consult with a workshop for any questions.

Maintenance position	Job	Interval [Operating hours]
Check the screw connections	Check, tighten if necessary (see *11.3 Tightening torques for screws*)	100 h
Bearing positions	Check the bearing clearance[1], have the bearing bushes replaced by a specialised workshop if necessary	100 h[2]
	Lubrication (refer to the lubrication schedule)	20 h
Front loader mountings (catch hooks)	Check for wear (see *8.2.2 Service instructions for front loader mountings*)	200 h
	Lubrication (refer to the lubrication schedule)	100 h
Front loader locking mechanism	Check the setting (see *8.2.3 Service instructions for front loader locking mechanism*)	20 h
	Lubrication (refer to the lubrication schedule)	100 h
Hydraulic hose lines	Visual inspection, if necessary, have them replaced by an authorized workshop	100 h
	Replacement by authorized workshop	4 years[3]
Front loader and mounting kit	Visual inspection for damage (especially for cracks)	100 h
Change frame	Check for wear on the lower edge (see *8.2.7 Service instructions for the change frame*)	100 h

[1] The bearing clearance may not exceed 0.5 mm.

[2] At least once a month

[3] See information under *8.2.5 Service instructions for the hydraulic lines*

8.2.2 Service instructions for front loader mountings

⚠ WARNING

Risk of serious injury due to the front loader breaking off!

In cases of strong wear of the catch hook, the front loader can break off of the mounting part and thus cause serious injury to the driver or persons standing nearby.

- Check the catch hooks regularly for wear.
- Only mount the front loader on supports that are not worn or damaged.
- Worn or damaged mounting parts must be repaired or replaced by an authorised specialised workshop.

➢ To check the wear of the catch hooks, use the following wear dimensions:

Variable	Dimension
L	300 mm
X	Wear limit: 61 mm Nominal size: 60 ±0.2 mm
D	40 mm

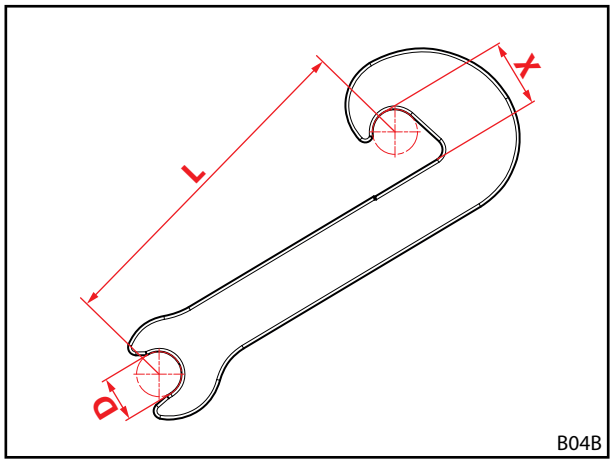


Fig. 115 Wear dimensions of the catch hook

8.2.3 Service instructions for front loader locking mechanism

Checking the FS and FZ 36-20 to 43-34 front loader locking mechanism

Checking the front loader locking mechanism:

(1) Completely open the front loader locking mechanism.

(2) Close the front loader locking mechanism.

➢ Use the required manual force as soon as the tensioning begins in the pivot point.

➢ Move the lever all the way down.

✓ When the front loader locking mechanism is closed, the lever does not rattle.

(3) If necessary, readjust the front loader locking mechanism (see *5.6.1 Adjusting the front loader locking mechanism for FS IB+ and FZ IB+ 39-20 to 43-34*).

✓ The front loader locking mechanism has been checked.

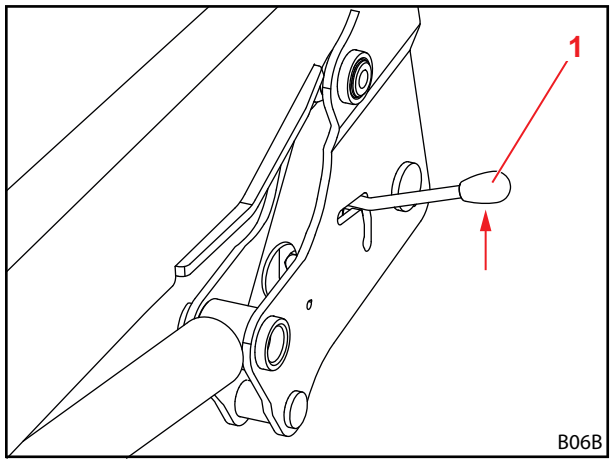


Fig. 116 Checking the front loader locking mechanism

1 Lever

Checking the "Double locking mechanism" FS and FZ 41-25 to 48-42 front loader locking mechanism

Checking the front loader locking mechanism:

(1) Close the front loader locking mechanism.

➢ Push the lever down.

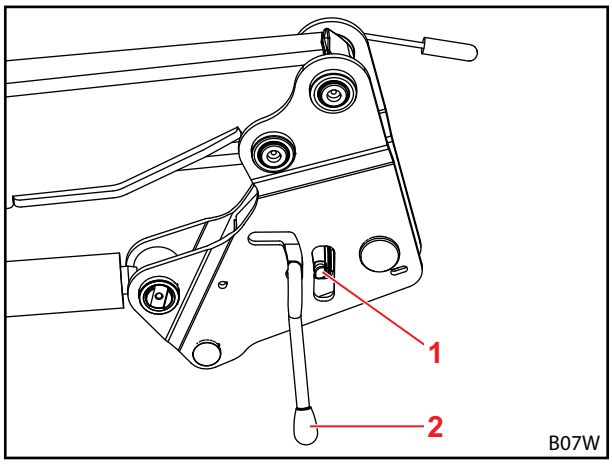


Fig. 117 Checking the front loader locking mechanism

Legend

1 Turning lock

2 Lever

(2) Blow out the front loader locking mechanism with compressed air.

(3) Pay attention to the gap between the disc springs and the turning lock.

✓ The clamping wedge is tensioned to the maximum when the gap virtually disappears or the disc spring is flat.

(4) If necessary, readjust the front loader locking mechanism (see *5.6.2 Adjusting the "double locking mechanism" front loader locking mechanism for the FS IB+ and FZ IB+ 41-25 to 48-42*).

✓ The front loader locking mechanism has been checked.

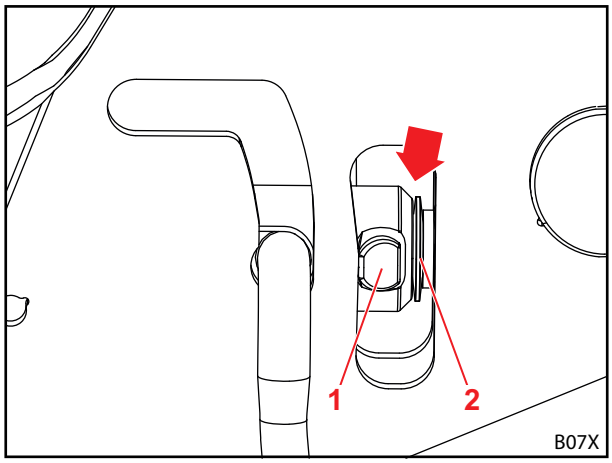


Fig. 118 Checking the gap

Legend

1 Turning lock

2 Disc springs

8.2.4 Service instructions for Comfort Drive

Maintenance on the Comfort Drive may only be performed by an authorised specialist workshop.

8.2.5 Service instructions for the hydraulic lines

⚠ WARNING

Risk of accident and injury due to defective hydraulic hose lines!

Defective or worn hydraulic hose lines can cause uncontrolled escaping of hydraulic fluid and injury to persons nearby or the safety of the front loader can be impaired.

- Do not use hydraulic hose lines that are more than 6 years old.
- Do not use hydraulic hoses with tubing material that is more than 10 years old.
- Shorten the replacement interval when hoses wear out prematurely.
- For all work on the hydraulic system, wear personal protective equipment, especially oil-proof gloves and goggles.
- Have the hydraulic lines replaced if they are porous or cracked.

⚠ WARNING

Risk of injury due to hydraulic fluids under high pressure!

Even when the tractor is switched off or the front loader has been removed, the hydraulic system can still be under pressure. Hydraulic fluid can escape under high pressure and cause personal injury.

- Depressurize the hydraulic system before performing any service tasks.

In accordance with DIN 20066, hydraulic hose lines should be stored for a maximum of 2 years and used for a maximum of 6 years from the date of manufacture. This results in a service life of at least 4 years with normal loading.

Hydraulic hose lines are marked with 2 dates:

- On the hose material, e.g. "1Q15" for production of the hose in the 1st quarter of 2015;
- on the fittings, e.g. "0415" or "04/15" for production of the hose line in April 2015.

8.2.6 Service instructions for crack formation

⚠ WARNING

Risk of serious injury due to components breaking off!

Cracks can cause components to break off. The driver or bystanders can be seriously injured.

- Check the front loader and mounting kit regularly for the formation of cracks.
- Only operate the front loader if it is in perfect condition.
- Contact a specialised workshop immediately if there are cracks.

8.2.7 Service instructions for the change frame

⚠ WARNING

Risk of serious injury due to the change frame breaking off!

In cases of strong wear of the change frame, the change frame can break off of the front loader and thus cause serious injury to the driver or bystanders.

- Check the change frame regularly for wear.
- Only operate the front loader if there is no wear or damage on the change frame.
- Worn or damaged change frames must be repaired or replaced by an authorised specialised workshop.

➢ To check the wear on the change frame, observe the following wear dimension:

Variable	Dimension
X	Wear limit: 8 mm

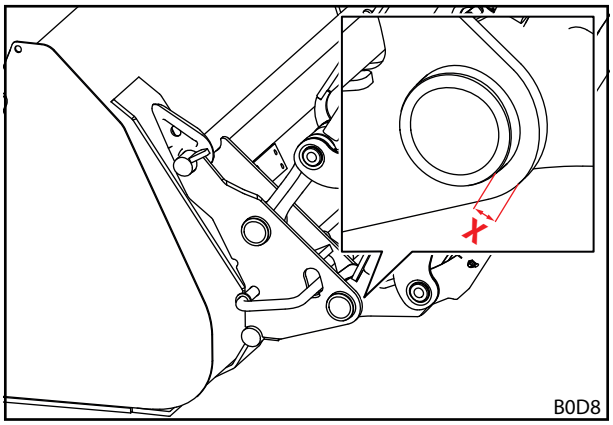


Fig. 119 Wear dimension of the change frame

8.2.8 Service instructions for oil changes

The front loader is supplied by the oil circulation of the tractor.

➢ Observe the oil change intervals specified for the tractor.

➢ Before performing an oil change, lower the front loader onto the ground.

➢ After an oil change or after working on the hydraulic system, move the front loader carefully to all end positions without a load to remove any air that might have entered.

8.3 Repairs

⚠ WARNING

Mortal danger and material damage caused by repair work carried out incorrectly!

Repair work carried out incorrectly can impair the safety of the front loader and can lead to serious accidents and injuries.

- Repair work should only be performed by an authorised specialised workshop.

Repairs involve the replacement and repair of components. This is only necessary if components are damaged after wear or due to external circumstances.

The specialised workshop must:

➢ Perform all required repair work professionally and complying with the applicable regulations and according to the rules of engineering.

➢ Worn or damaged parts should never be provisionally repaired.

➢ Only use original or approved spare parts for repairs (see *10.1 Spare parts*).

➢ Replace the gaskets.

9 Decommissioning

9.1 Temporary decommissioning

⚠ WARNING

Risk of injury due to lacking stability!

If the front loader is not correctly and safely parked, it can tip over and injure persons nearby.

- Only park the front loader with a mounted implement that weighs at least 70 kg.
- Use the parking supports and lock them correctly.
- Only park the front loader on load-bearing and level ground.

Remove the front loader:

(1) Switch off the tractor.
   - ➢ Apply the parking brake.
   - ➢ Stop the engine.

(2) Lower the front loader to the ground.

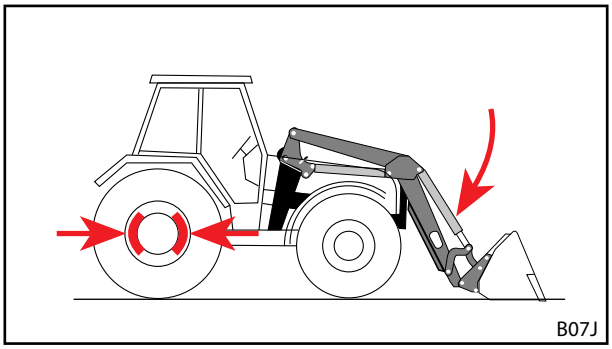


Fig. 120 Applying the parking brake and lower the front loader

(3) Release the front loader locking mechanism on both sides (see *5.4 Mounting the front loader*).

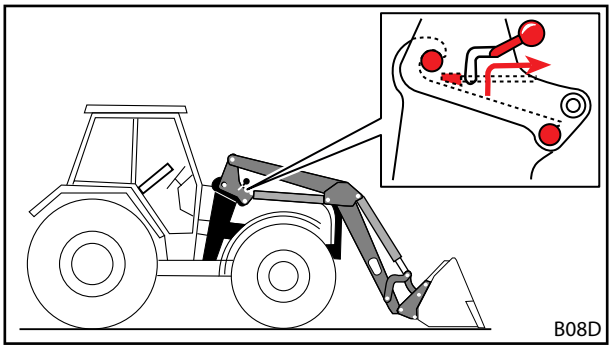


Fig. 121 Releasing the front loader locking mechanism

(4) Unfold the parking supports (see *6.2 Operating the parking supports*).

(5) Start the tractor.

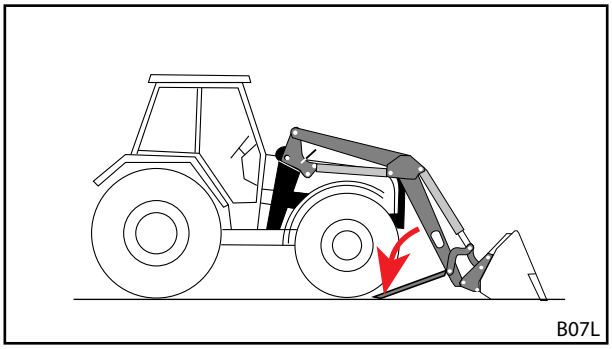


Fig. 122 Unfolding the parking supports

(6) Using the *lowering* function, release the front loader pins from the catch hooks.

(7) Switch off the tractor.

- ➢ Apply the parking brake.
- ➢ Stop the engine.
- ➢ Depressurize the hydraulic system (see *6.1 Operating elements*).

(8) Uncouple the front loader hydraulic system.

(9) Disconnect the electrical system.

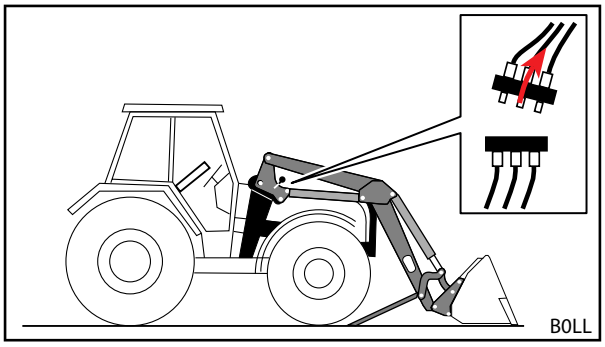


Fig. 123 Uncoupling the hydraulic system

(10) Drive the tractor in reverse out of the front loader.

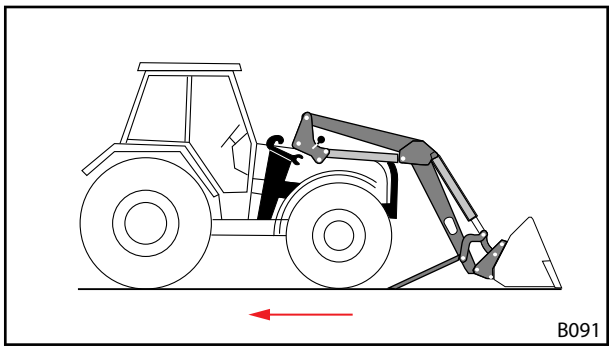


Fig. 124 Driving the tractor in reverse

(11) Hang the hydraulic lines for the front loader on the coupling mount on the front loader.

(12) Replace the protective caps on the hydraulic couplings and plugs.

(13) If applicable, put the protective tarp over the front loader.

✓ The front loader is dismounted.

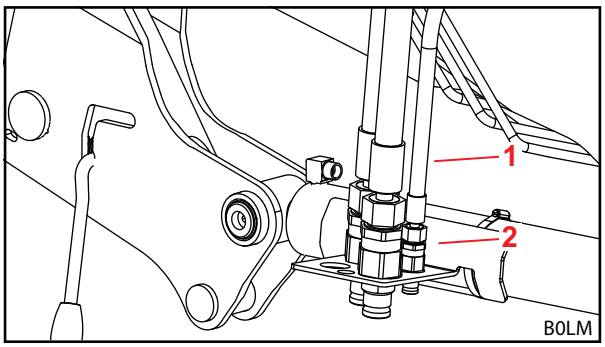


Fig. 125 Hanging the hydraulic lines on the coupling mount (shown with plug-in couplings)

Legend

1 Hydraulic lines of the front loader

2 Coupling holder

9.2 Recommissioning

Recommissioning the front loader:

(1) Remove the tarp from the front loader.

(2) Clean the front loader if necessary.

(3) Have maintenance performed on the front loader if necessary (see *8.2.1 Service schedule*).

(4) Perform a "Check before each start-up" (see *5.2 Check before each start-up*).

(5) Check all of the front loader functions.

✓ The front loader is ready for operation.

9.3 Final decommissioning and disposal

NOTICE

Environmental damage due to improper disposal!

The front loader contains operating materials as well as electrical and hydraulic components that need to be disposed of separately. Improper disposal can harm the environment.

- Observe the national and local regulations and environmental legislation for the disposal.
- Hand the front loader over to the dealer or a specialised company for disposal.

The front loader does not have a limit on its service life. In case of disposal, the front loader must be decommissioned and disposed of correctly.

➢ Also observe the safety instructions for service and maintenance.

10 Spare parts and customer service

10.1 Spare parts

⚠ WARNING

Risk of injury and material damage due to using the wrong spare parts!

The use of non-approved spare parts can impair the safety of the front loader and results in expiry of the operating permit.

- Only use original spare parts or those approved by STOLL.

Original spare parts and fitting accessories are listed in separate spare part lists.

➢ Download spare part lists at www.stoll-germany.com.

Order information for safety stickers

Order no.	Designation	Stickers included
3742000	Set of stickers "Technology"	1 sticker each at Pos. no. 1, 4, 5, 6, 7, 2 sticker at Pos. no. 8
3431550	Label sheet "Technology yellow"	2 sticker at Pos. no. 3 1 sticker at Pos. no. 9
3449070	Sticker "Cab"	1 sticker at Pos. no. 2
3435500	"Hydraulic implement locking mechanism" sticker in the cab	1 sticker at Pos. no. 10
3435620	"Hydraulic implement locking mechanism" sticker	1 sticker at Pos. no. 11
1439830	"Pressure oil" sticker	1 sticker at Pos. no. 12
1432670	"Pressure accumulator" sticker	1 sticker at Pos. no. 13
3667720	"Work area" sticker	1 sticker at Pos. no. 14
3793860	"Euro-SMS Combi change frame" sticker	1 sticker at Pos. no. 15
3792380	"Adapter Euro MX" sticker	1 sticker at Pos. no. 16

10.2 Customer service

For further questions regarding your front loader, please contact your dealer.

11 Technical specifications

11.1 Dimensions and weights

Front loader	Nominal width[1] [mm]	Lifting arm length[2] [mm]	Nominal lifting force[3] [daN]	Weight[4] [kg]
FZ IB+ 39-23	916	2562	1850	604
FZ IB+ 39-27		2562	2140	610
FZ IB+ 39-31		2562	2460	612
FS IB+ 39-35		2562	2800	575
FZ IB+ 41-25		2735	2040	650
FZ IB+ 41-29		2735	2340	657
FZ IB+ 41-33		2735	2660	665
FS IB+ 41-37		2735	3010	615
FZ IB+ 43-27		2875	2230	767
FZ IB+ 43-30		2875	2530	770
FZ IB+ 43-34		2875	2860	775
FS IB+ 43-38		2875	3210	710
FZ IB+ 39-23.1	1100	2562	1850	612
FZ IB+ 39-27.1		2562	2140	618
FZ IB+ 39-31.1		2562	2460	620
FS IB+ 39-35.1		2562	2800	583
FZ IB+ 41-25.1		2735	2040	658
FZ IB+ 41-29.1		2735	2340	665
FZ IB+ 41-33.1		2735	2660	673
FS IB+ 41-37.1		2735	3010	623
FZ IB+ 43-27.1		2875	2230	775
FZ IB+ 43-30.1		2875	2530	778
FZ IB+ 43-34.1		2875	2860	783
FS IB+ 43-38.1		2875	3210	718
FZ IB+ 46-26.1		3055	2280	852
FZ IB+ 46-29.1		3055	2600	860
FZ IB+ 46-33.1		3055	2930	864
FS IB+ 46-37.1		3055	3290	790
FZ IB+ 48-33.1		3250	2760	886
FZ IB+ 48-37.1		3250	3100	890
FZ IB+ 48-42.1		3250	3450	898

1 Measured from the centre of the pillar to the centre of the pillar.

2 Measured from the lifting arm pivot point to the implement pivot point.

3 Mathematically determined lifting force in the implement pivot point with hydraulic pressure at 195 bar, lifting arm raised to 1.5 m and ideal typical mounting. Since the geometry of the actual mounting parts must also take the specific geometry of different tractor equipment (tire sizes, axles, etc.) into account, the actual values in individual cases may vary significantly. The lifting force at the highest position of the front loader is up to 15 % lower, the lifting force on the ground is correspondingly higher.

4 Typical weight without implement, without special equipment. Deviations in individual cases are possible.

11.2 Noise emissions

The emission sound pressure level is less than 70 dB(A) (depending on the tractor).

11.3 Tightening torques for screws

Tightening torque for screws						
Thread	Strength category					
	8.8		10.9		12.9	
	Nm	lb-ft	Nm	lb-ft	Nm	lb-ft
M4	3	2	4.5	3	5	4
M6	11	8	15	11	17	13
M8	27	20	36	27	42	31
M8x1	29	21	38	28	45	33
M10	54	40	71	52	83	61
M10x1.25	57	42	75	55	87	64
M12	93	69	123	91	144	106
M12x1.5	97	72	128	94	150	111
M12x1.25	101	74	133	98	155	114
M14	148	109	195	144	229	169
M14x1.5	159	117	209	154	244	180
M16	230	170	302	223	354	261
M16x1.5	244	180	320	236	374	276
M18	329	243	421	311	492	363
M18x2	348	257	443	327	519	383
M18x1.5	368	271	465	343	544	401
M20	464	342	592	437	692	510
M20x2	488	360	619	457	724	534
M20x1.5	511	377	646	476	756	558
M22	634	468	807	595	945	697
M22x2	663	489	840	620	984	726
M22x1.5	692	510	873	644	1022	754
M24	798	589	1017	750	1190	878
M24x2	865	638	1095	808	1282	946
M27	1176	867	1496	1103	1750	1291
M27x2	1262	931	1594	1176	1866	1376
M30	1597	1178	2033	1499	2380	1755
M30x2	1756	1295	2216	1634	2594	1913
5/8“ UNC (normal)	230	170	302	223		
5/8“ UNF (fine)	244	180	320	236		
3/4" UNC (normal)	464	342	592	437		
3/4" UNF (fine)	511	377	646	476		

Make sure that the threads are clean! The specified tightening torques are valid for screws and threads that are clean, dry and free of grease.

11.4 Hydraulic diagram

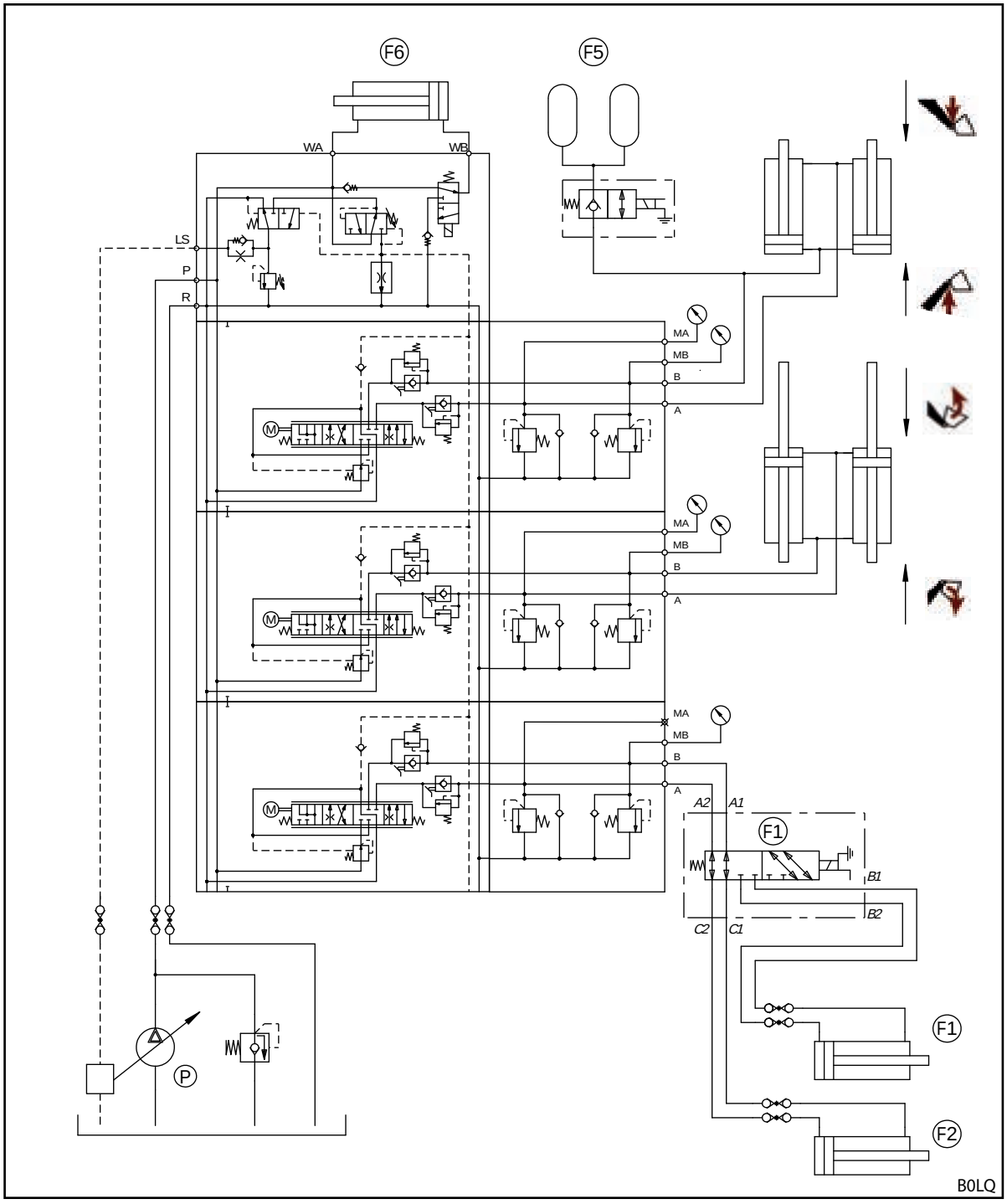


Fig. 126 Hydraulic diagram FS IB+ and FZ IB+

Legend

F1	4th control circuit (optional)
F2	3rd control circuit (optional)
F5	Comfort Drive (optional)
F6	Hydro-Lock (optional)
P	Tractor pump

11.5 Electric circuit diagram

NOTICE

Material damage due to improper tensioning or lacking fuse!

If the rated voltage of 12 V is exceeded, the system can be damaged.

- Connect the rated voltage of 12 V via a switched voltage source (ignition switch) and directly to the battery.
- The connection must be protected with a fuse.

The optional functions Q1 to Q6 on the front loader lifting arm are shown in simplified form, as they may vary depending on the type of front loader.

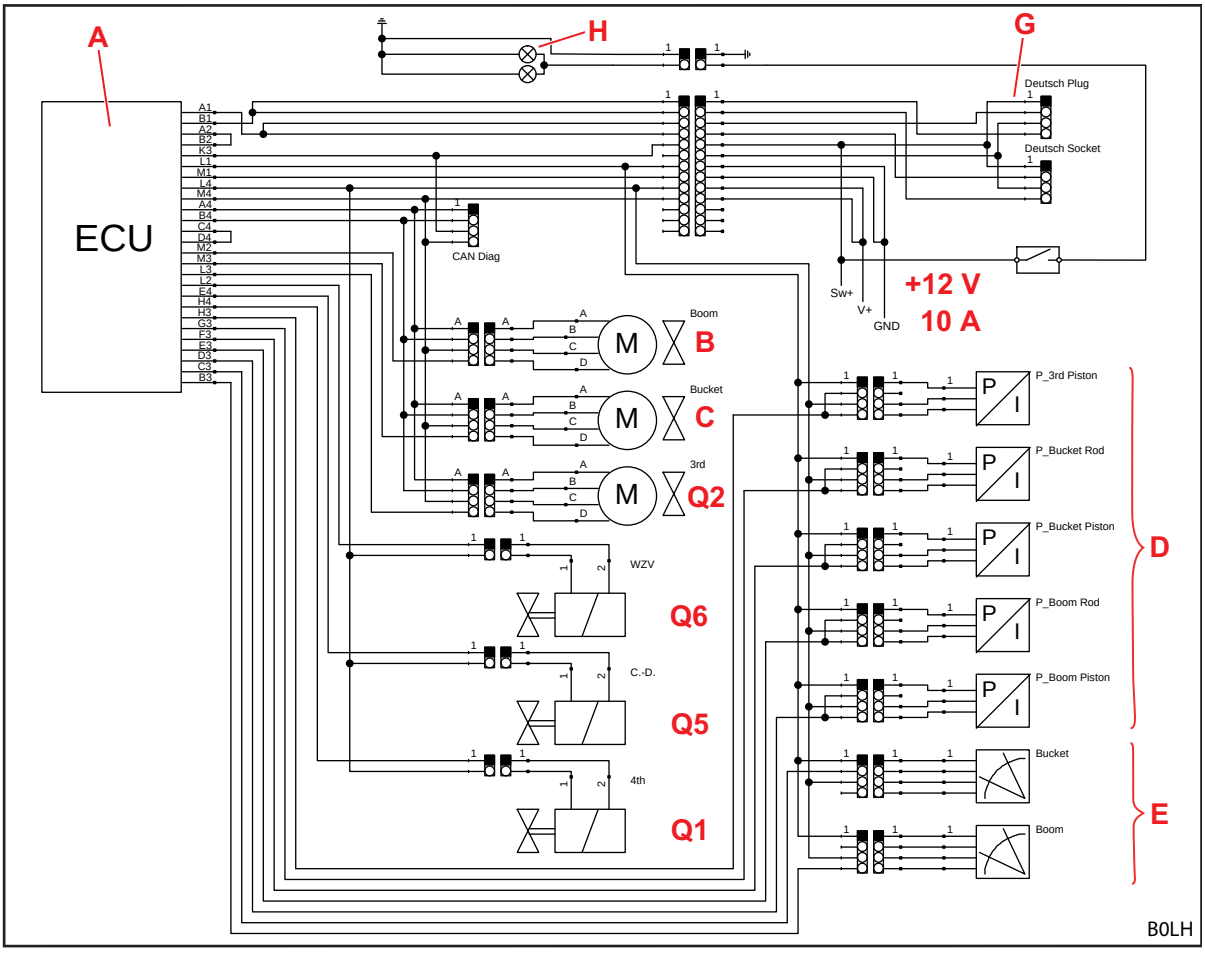


Fig. 127 Electric circuit diagram

Legend

Q1	4th control circuit
Q2	3rd control circuit
Q5	Comfort Drive (vibration damping)
Q6	Hydro-Lock (hydraulic implement locking mechanism)
A	Front loader control unit
B	Lifting arm
C	Implement
D	Pressure sensors
E	Turning angle sensors
G	Tractor plug for ISOBUS connection
H	Floodlights (FZ IB+)

11.6 Arrangement of the hydraulic valves for additional functions

The figure shows the arrangement of the hydraulic valves for the additional functions Q1 to Q6 on the cross bar of the front loader lifting arm. The maximum equipment for FZ IB+ and FS IB+ front loaders is shown.

The designations Q1 to Q6 correspond to the designations in the electric circuit diagram (see *11.5 Electric circuit diagram*).

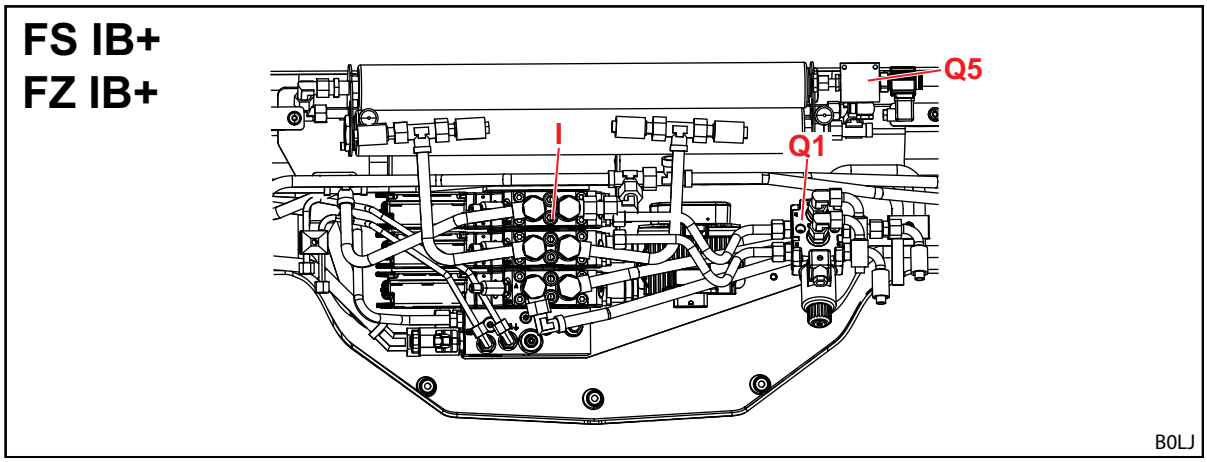


Fig. 128 Arrangement of the hydraulic valves for additional functions

Legend	
Q1	Hydraulic valve for 4th control circuit
Q5	Comfort Drive
I	ISOBUS hydraulic valve (main valve)

The 3rd control circuit (Q1) and Hydro-Lock (Q6) additional functions are included in the ISOBUS hydraulic valve.

12 EC/EU Declaration of Conformity

(in accordance with EU Directive 2006/42/EC, Appendix II 1.A)

Wilhelm STOLL Maschinenfabrik GmbH
Bahnhofstrasse 21
38268 Lengede, Germany

hereby declares that the machine in its state on delivery and with the contractually agreed scope of delivery complies with the directives and harmonised standards listed in the following, and will be made available on the market:

(Trade) Designation:	Front loader ProfiLine ISOBUSConnected
Model/Type:	FS IB+, FZ IB+
Machine no.:	7343533 bis 7999999
Description/Function:	As a mounted implement, the front loader is "interchangeable equipment" as defined by the Machinery Directive 2006/42/EC. The front loader is mounted on agricultural and forestry tractors using a mounting frame, and serves to mount other interchangeable equipment (implements), which are used for processes and tasks in the agricultural and forestry sector. Functions of the front loader include lifting, loading and transporting goods sas well as special functions in combination with the ISOBUS system such as weighing or shaking the implement. Further information on the intended use with the operating conditions, the description, the function and other technical data for the front loader can be found in the operating instructions.

The machine complies with all relevant and applicable provisions of the

- Directive 2006/42/EC on machinery,
- Directive 2014/30/EU on EMC,
- Directive 2011/65/EU on RoHS.

The technical documentation was produced according to Annexe VII A of Directive 2006/42/EC, and is the responsibility of the development manager at Wilhelm STOLL Maschinenfabrik GmbH, Bahnhofstrasse 21, D-38268 Lengede.

The design and manufacturing of the front loader observed the following harmonised standards that are also published in the EU official gazette:

Harmonised standards	Date	Titel der Norm
DIN EN ISO 12100	2011-03	Safety of machinery – Basic terms, General principles for design for the safety of machinery – General principles for design – Risk assessment and risk reduction
DIN EN ISO 4254-1	2022-12	Agricultural machinery – Safety – Part 1: General requirements
DIN EN 60204-1	2019-06	Safety of machinery – Electrical equipment of machines – Part 1: General requirements
DIN EN 894-1	2009-01	Safety of machinery – Ergonomic requirements for the design of displays and controls – Part 1: General principles for user interaction with displays and controls
DIN EN ISO 13857	2020-04	Safety of machinery – Safety distances to prevent hazard zones being reached by upper and lower limbs
DIN EN 1005-1	2009-04	Safety of machinery – Human physical performance – Part 1: Terms and definitions
DIN EN 1005-2	2009-05	Safety of machinery – Human physical performance – Part 2: Manual handling of machinery and component parts of machinery
DIN EN ISO 13854	2020-01	Safety of machinery – Minimum gaps to avoid crushing of parts of the human body
DIN EN ISO 3744	2011-02	Acoustics – Determination of sound power levels and sound energy levels of noise sources using sound pressure – Engineering methods for an essentially free field over a reflecting plane
DIN EN ISO 4413	2011-04	Hydraulic fluid power – General rules and safety requirements for systems and their components
DIN EN ISO 13732-1	2008-12	Ergonomics of the thermal environment – Methods for the assessment of human responses to contact with surfaces – Part 1: Hot surfaces
DIN EN 60529	2014-09	Degrees of protection provided by enclosures
DIN EN ISO 14982	2009-12	Agricultural and forestry machines – Electromagnetic compatibility – Test methods and acceptance criteria
DIN EN IEC 63000	2019-05	Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances
DIN EN ISO 13849-1	2023-12	Safety of machinery – Safety-related parts of control systems – Part 1: General principles for design
DIN EN ISO 25119-1	2024-07	Tractors and machinery for agriculture and forestry – Safety-related parts of control systems – Part 1: General principles for design and development

Lengede, 06.08.2024

ppa. Radan Havelka
Registered manager

Ulrich Flötzinger
Head of Engineering Center

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Address of the dealer

Stick or write down the serial number here

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