OPERATING INSTRUCTIONS
Terrano GX

TRANSLATION OF THE ORIGINAL OPERATING INSTRUCTIONS
READ CAREFULLY PRIOR TO STARTING UP!
KEEP OPERATING INSTRUCTIONS IN A SAFE PLACE!

ART.: 80290207
ISSUE: 11/2016

HORSCH
Farming with passion

- Translation of the Original Operating Instructions -

Machine Identification

The corresponding data is to be entered into the list below upon receiving the machine:

Serial number: .....
Machine type: .....
Year of construction: .....
Initial installation: .....
Fittings: .....
.....
.....
.....

Publication date of Operation Manual: 11/2016 — 80290207 en
Latest change: — Terrano GX

Address of Retailer:
Name: .....
Road: .....
Town/City: .....
Tel.: .....

Customer No.:
Retailer: .....

Address of HORSCH:
HORSCH Maschinen GmbH
92421 Schwandorf, Sitzenhof 1
92401 Schwandorf, Postbox 1038

Tel.: +49 (0) 9431 / 7143-0
Fax: +49 (0) 9431 / 41364
E-mail: info@horsch.com

Customer No.:
HORSCH: .....

Confirmation of receipt of machinery

Warranty claims become only effective when the first use of the machine is reported to HORSCH Maschinen GmbH within a week.

At *www.horsch.com* under *SERVICE PARTNERBEREICH* an interactive PDF form is available for download for this purpose (not available in all languages).
By clicking on *Send* – depending on the email program installed – a mail draft with the completed form is generated automatically. Alternatively, the form can be sent as email attachment to *machine.registration@horsch.com*.

A different form of registration (postal mail, by fax, etc.) is not allowed for.

EC Declaration of Conformity
Exchangeable equipment
(Directive 2006/42/EC)

The manufacturer *HORSCH Maschinen GmbH*
Sitzenhof 1
D-92421 Schwandorf

hereby declares, that the product,

Designation of machine*:* *Cultivation tool*

Machine type:			
	Terrano 4.3 GX	*Serial No.*	*34491250*
	Terrano 4.4 GX		*34971250*
	Terrano 5.3 GX		*34581250*
	Terrano 5.4 GX		*34981250*
	Terrano 6.3 GX		*34801250*
	Terrano 6.4 GX		*34991250*

this declaration refers to, conforms with all relevant fundamental health and safety requirements of the EC directive 2006/42/EC.

For proper implementation of the health and safety requirements mentioned in the EC-directive, the following standards and technical specifications have been used:

- DIN EN ISO 4254-1 2013-10
- DIN EN ISO 12100 2011-03

Schwandorf, 17/08/2016
Place and date

Klaus Winkler
Documentation officer

M. Horsch
(Managing director)

P. Horsch
(Managing director)

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Introduction

Foreword

Before commissioning the machine, read and strictly comply with the operating instructions. In doing so, you will avoid accidents, reduce repair costs and downtime and increase the reliability and service life of your machine. Pay attention to the safety notes!

HORSCH will not assume liability for any damage or malfunctions resulting from failure to comply with the operating instructions.

These operating instructions will assist you in getting to know your machine and in using it correctly for its intended purposes.

The operating instructions must be read and strictly adhered to by all persons working on or with the machine e.g.:

- Operation (including preparation, fault rectification during work, care)
- maintenance (maintenance and inspection)
- Transport

You receive an acknowledgement of receipt together with the operating instructions. The trained personnel of our service and sales partners will train and instruct you in the operation and care of your machine. You or the service engineer should subsequently pass the acknowledgement of receipt to the sales partner. This confirms your formal acceptance receipt of the machine.
The warranty period starts with the date of delivery.

We reserve the right to alter illustrations as well as technical data and weights contained in these operating instructions for the purpose of improving the machine.

The illustrations in these operating instructions show different versions of the implement and different equipment variants.

Notes on representation

Warning notes

These operating instructions distinguish between three different types of warning notes.

The following **signal words with warning symbols** are used:

⚠ DANGER

Highlights a danger that will lead to death or severe **injury** if it is not avoided.

⚠ WARNING

Highlights a danger **that can lead** to death or severe injury if it is not avoided.

⚠ CAUTION

Highlights a danger that can lead to injury if it is not avoided.

Please read the warning notes given in these operating instructions!

Instructions

⚠ NOTE

Identifies important notes.

Take-action instructions are indicated by arrow points:

➢ ...

➢ Keep the order of the instructions. Alternatively, instructions may be numbered consecutively.

The designations *right*, *left*, *front* and *rear* apply as seen in travel direction.

Service

HORSCH Company would like you to be completely satisfied with your machine and our services.

If you encounter any problems, please feel free to contact your sales partner.
The service staff of our sales partners and the service employees at HORSCH will always be available for assistance.

In order to be able to solve technical problems as quickly as possible, we ask you kindly to support us.

Please help the service personnel by providing the following information to avoid unnecessary queries.

- Customer number
- Name of customer representative
- Name and address
- Machine model and serial number
- Purchasing date and operating hours or area performance
- Type of problem

Warranty claim processing

Warranty claim forms must be submitted to HORSCH through your local HORSCH sales partner.

Consequential damage

The machine has been manufactured by HORSCH with greatest care. However, despite the intended use deviations in placing quantity up to total failure may be caused by e.g.:

- damage caused by external influences
- wear of wear items
- missing or damaged cultivation tools
- incorrect travel speeds
- incorrect setting of the unit (incorrect connection, non-observance of setting tables)
- failure to comply with the operating instructions
- neglect and improper care and maintenance

Therefore, it is crucial to always check your machine before and during use for correct operation and adequate application accuracy.

Compensation claims for damages which have not been caused by the machine, are excluded. This also means that any liability for consequential damages caused by travel and operating faults is excluded.

Safety and responsibility

The following warnings and safety notes apply to all sections in these operating instructions.

The machine has been built in accordance with latest technical standards and generally accepted safety regulations. However, risks for life and limb of the operator or third parties and impairment of the machine or other material assets can occur during use.

Please read and comply with the following safety notes, **before** you start to use the machine!

Intended use

The machine is intended for normal use in soil cultivation in accordance with agricultural practice. Any other use or use beyond the limitations of intended use, like e.g. as transport means, is considered unintended use and can lead to persons being severely or fatally injured.
HORSCH will not assume liability whatsoever for damage resulting from unintended use. The risk will be borne solely by the user.

The respective accident prevention regulations of the agricultural liability associations and other generally recognised safety-related, occupational medical and road traffic regulations are to be adhered to.

The machine must only be operated in a technically perfect condition and in a safety and danger conscious manner!
Faults, particularly those which impair safety, must be remedied immediately.

The machine must only be operated, serviced and repaired by persons who are familiar with it and have been made aware of the dangers involved, see "Qualification of personnel".

Spare parts

Genuine spare parts and accessories from HORSCH have been specially designed for this machine.
Spare parts and accessories which are not delivered by us, have not been tested or approved by us. Installation or use of non-original HORSCH products may have a detrimental effect on specific design features of the machine and impair the safety of machine operators and the machine itself.
HORSCH will not assume liability whatsoever for damage resulting from the use of non-original parts and accessories.

If the component to be replaced is marked with a safety sticker, these stickers must also be ordered and attached to the spare part.

Operating Instructions

Intended use also includes the strict compliance with the operating instructions and adherence to the operating, maintenance and repair instructions specified by the manufacturer.
The operating instructions are a part of the machine! The machine is solely intended for use as described in the operating instructions. Failing to comply with the operating instructions can result in severe or even fatal physical injuries.

- Read and follow the corresponding sections in the operating instructions before starting work.
- Store the operating instructions and keep for future use.
- Pass the operating instructions on to a later user. When selling on into countries with different languages, pass on in the corresponding official language.

Qualification of personnel

Unintended use of the machine can lead to severe or even fatal physical injuries. In order to prevent accidents, each person involved in work with the machine must meet the following general minimum requirements:

- The person must be physically able to keep the machine under control.
- The person is able to perform work with the machine safely within the scope of these operating instructions.
- The person is acquainted with the function of the machine within the scope of its work and is able to assess and avoid any work related dangers. The person is able to recognize and avoid work related dangers.
- The person has understood the operating instructions and is able to implement the information given in the operating instructions accordingly.
- The person is fully familiar with the safe operation of the vehicle.
- The person knows all applicable road traffic regulations and is in possession of a valid driving permit for road travels.
- A person being instructed must only work with or on the machine under the supervision of an experienced person.

The owner of the machine must

- regulate the area of responsibility, competence and monitoring of personnel.
- if necessary train and instruct the personnel.
- make the operating instructions accessible for the machine operator.
- ensure that the operator has read and understood the operating instructions.

Groups of operators

Persons who work with the machine must have been trained for the different activities involved.

Instructed operators

These persons must have been trained for their respective activities by the owner or other qualified experts. This refers to the following activities:

- Road transport
- Application and set-up work
- Operation
- Maintenance
- Troubleshooting and repair

Operators trained by HORSCH

Furthermore, for certain activities the corresponding personnel must have been trained by service personnel from HORSCH. This refers to the following activities:

- Loading and transport
- Commissioning
- Troubleshooting and repair
- Waste disposal

Certain work concerning maintenance and repair must only be carried out by an expert workshop. Such work is identified with the additional comment "Workshop work".

Children in danger

Children are not able to assess dangers and may behave unpredictably. Children are therefore especially endangered:

- Keep children away from the machine.
- Especially when starting to drive and before triggering machine movements you must make sure that the danger zone is free of children.
- Shut down the tractor before leaving it.
  Children can trigger dangerous machine movements. An insufficiently secured machine parked without being attended poses a danger for playing children!

Personal protective equipment

Missing or incomplete protective equipment increases the risk of health damage. Personal protective equipment includes, e.g.:

- tight fitting clothes / protective clothing, possibly a hair net
- safety shoes
- safety gloves
- Safety goggles to protect the eyes against dust or spray, when working with fertiliser or liquid fertiliser (follow the instructions of the fertiliser manufacturer)
- Respiratory masks and protective gloves when handling dressing or dressed seed (follow the instructions of the pickling agent manufacturers)
- Determine the personal protective equipment for the corresponding work place.
- Provide effective protective equipment in proper condition.
- Never wear rings, bracelets or other jewellery.

Safety in traffic

⚠DANGER

No passengers are allowed to ride on the machine!

- Pay attention to the permissible transport widths and heights. Pay attention to the transport height when passing under bridges and low hanging overhead power lines.

- Do not exceed the permissible axle loads, tyre load bearing capacities and total weights, in order to ensure sufficient steering and braking capabilities. The front axle must be loaded with at least 20 % of the tractor weight.

For road transport the machine must be set to transport position. The machine must have been folded up and secured, see chapter "Folding" and "Hitching up and transport position".

- Clean soil from the folding areas before folding up. Otherwise there could be damage to the mechanics.
- If present: Secure the hydraulic cylinders on undercarriage and drawbar in transport position against uncontrolled movements using aluminium clips, see chapter “Connecting and transport position”.
- Assemble lighting, warning and protective features and check the function.
- Before driving on roads clean the entire machine from picked up dirt.

Handling is affected by the connected equipment.

- Pay particular attention to the wide overhang and the centrifugal mass of the working implement when cornering.

Raised machine (Three-point hydraulics):

- Consider the limited stability and steerability of the tractor.

- For transport on public roads pay attention to the permissible top speed mentioned in the operating licence!
- The specifications in the type approval document or in the technical data are decisive for the design dependent top speed.
- Always match the travel mode to the road conditions to avoid accidents and damage to the undercarriage.
- Consider your personal abilities, carriage way, traffic, sight and weather conditions.

Safety in operation

Commissioning

The operational safety of the machine cannot be guaranteed without an orderly performed commissioning. This can lead to accidents with severe or even fatal physical injuries.

- The machine must only be put into operation after receiving instructions by employees of the authorized dealer or a HORSCH employee.
- The machine registration form must be completed and returned to HORSCH.

All protective features and safety equipment, such as detachable protective devices (wheel chocks, etc.), must be correctly in place and reliably functioning before the machine is put into operation.

- Check nuts and bolts, especially the ones on wheels and cultivation tools regularly for tight fit and retighten if necessary.
- Check the tyre pressure at regular intervals, see maintenance overview.

Damage to the machine

Damage to the machine can impair the operational safety of the machine and cause accidents. This can lead to severe or even fatal physical injuries.
The following machine parts are particularly important for safety:

- Hydraulics
- Brakes (if available)
- Connecting features
- Protective features
- Lighting

If in doubt about the safety relevant status of the machine, e.g. in case of leaking out operating fluids, visible damage or unexpected changes in travel behaviour:

- Immediately shut down and secure the machine.
- If possible locate and rectify the faults by following these operating instructions.
- Rectify possible causes for damage (e.g. remove coarse dirt and tighten loose screws).
- Have damage, that could affect safety and that cannot be rectified by yourself, rectified by a qualified expert workshop.

Hitching and unhitching

Faulty coupling of the machine to the pulling tool of the tractor causes dangers, which could result in severe accidents.

- Strictly comply with all operating instructions:
  - These operating instructions
  - Operating instructions of the tractor
- Exercise special caution when reversing the tractor. Never stand between tractor and machine.
- Only park the machine on a firm and level surface. Before unhitching the towed machine, lower it to the ground.
- Secure the machine against rolling away.

Hydraulics

The hydraulic system is under high pressure. Escaping fluid can penetrate the skin and cause serious injuries. In the event of injury, consult a doctor immediately.

The machine's hydraulic system has several functions, which can cause injury to persons or damage to the machine if operated incorrectly.

- Do not connect hydraulic hoses to the tractor before both hydraulic systems on machine and tractor are de-pressurised.
- Lower all hydraulically lifted parts (e.g. wings, packer, undercarriage, etc.) to the ground before performing any work on the hydraulic system. Depressurise the hydraulics on the tractor and implement side.
- The hydraulic system is under high pressure. Check all lines, hoses and screwed connections regularly for leaks and any visible external damage!
- Use only appropriate means when searching for leaks. Repair any damage immediately! Oil sprays can cause injuries and fire!
- Power sockets and connectors on the hydraulic connections should be marked in order to exclude operating errors.
- In the case of injury, contact a doctor immediately!
- Secure and lock the control unit on the tractor if not in use!
- Replace hydraulic hoses at the latest after six years, see *Maintenance overview*.

Pressure accumulator

The hydraulic system may be equipped with pressure accumulators.

- Do not open or work (welding, drilling) on pressure accumulators. Even when empty, the tanks are still preloaded by gas pressure.

The hydraulic system must be depressurized before maintenance!

Brake system

Depending on the equipment, the machines can be equipped with a pneumatically or hydraulically operated service brake system.

For road travel the brake system must always be connected and fully functional.

- After hitching the machine and before transportation you should always check the function and condition of the brake system.
- Check the setting on the brake pressure regulator.
- Always release the parking brake before starting to drive.
- Always secure the machine against rolling away and apply the parking brake before unhitching.

Adjustments and repair work on the brake system must only be carried out in a professional workshop or by an operator, who has been specially trained by HORSCH.

Overhead lines

When unfolding or folding the wings, the machine may reach the height of overhead power lines. Possible voltage flashover to the machine causing fatal electric shock or fire.

- Keep a safe distance to electric high voltage power lines with the folded up machine or when unfolding or folding the machine.
- Do not unfold or fold the wings in the vicinity of pylons and power lines.
- Never leave or access the machine under overhead power lines to avoid possible risks of electric shock or voltage flashover.

What to do in case of voltage flashover

Voltage flashover generates high electric voltages on the outside of the machine. This results in extreme voltage differences at the ground around the machine. Wide strides, laying on the ground or supporting yourself with your hands on the ground can cause life-threatening electric currents (pace voltage).

- Do not leave the cabin.
- Do not touch any metal objects.
- Do not create a conductive connection to ground.
- Warn persons: DO NOT come near the machine. Electric voltages at the ground can cause severe electric shock.
- Wait for professional rescuers. The overhead power line needs to be switched off.

If persons need to leave the cabin despite the voltage flashover, e.g. in case of a potential life-threatening risk of fire:

- Jump away from the machine. Ensure a safe stand when jumping. Do not touch the outside of the machine.
- Move away from the machine with short stepping strides.

Technical limiting values

If the technical limiting values of the machine are not complied with, the machine may get damaged. This can lead to accidents with severe or even fatal physical injuries.
The following technical limiting values are of particular importance for safety:

- permissible total weight
- maximum axle loads
- maximum drawbar load
- top speed

See chapter "Technical data", type plate and type approval.

- Also pay attention to the max. permitted loads for the tractor.

Use in the field

⚠ DANGER

No passengers are allowed to ride on the machine!

- Check the area immediately around the machine (for children!) before driving off and commissioning the machine. Ensure sufficient visibility.
- Ensure sufficient stability of the machine in case of longitudinal or transverse inclination when working in uneven terrain. Pay attention to the limiting values for the tractor.
- Do not remove any of the mandatory and supplied protective devices.
- Stay clear of the operating range of hydraulically operated parts.
- Do not drive backwards with the machine lowered. The components have only been designed for forward travel in the field and may be damaged when reversing.

Changing equipment / wear items

- Secure the machine against unintended rolling away!
- Secure raised frame parts you have to work under with suitable supports!
- Caution! Danger of injury caused by projecting parts (e.g. coulters)!

Do not use packer tyres or other rotating parts to climb on the machine. These could rotate and you could be seriously injured by falling down.

Fertiliser and dressed seed

Inappropriate handling of fertiliser and dressed seed can cause poisoning and death.

- Follow the information given in the safety data sheet of the manufacturer. If necessary ask the dealer for the corresponding safety data sheet.
- Determine and provide the personal protective outfit as specified by the manufacturer.

Environmental protection

Operating materials such as hydraulic oil, lubricants, etc. can damage the environment and the health of persons.

- Do not allow operating materials to drain out into the environment.
- Take up drained operating materials with absorbent material or sand, fill it into a leak tight tank and dispose of in accordance with statutory regulations.

Retrofits

Structural changes and extensions can adversely affect the functionality and the operational safety of the machine. This can lead to severe or even fatal physical injuries.

- Do not make any structural changes or extensions to the machine that have not been approved by HORSCH.
- Structural changes and extensions must only be made in an authorized workshop or by an operator who has been trained by HORSCH.
- Comply with country specific instructions for weights, weight distribution and dimensions.

For equipment influencing the weight or weight distribution one must check and comply with the regulations concerning towing facilities, support and axle loads.
For machines without brakes a brake system may need to be retrofitted if the permissible weight limits are exceeded.

In case of changes concerning data mentioned on the type plate, a new type plate with updated data must be attached.

In case of changes which concern the data in the type approval, this type approval needs to be renewed.

Care and maintenance

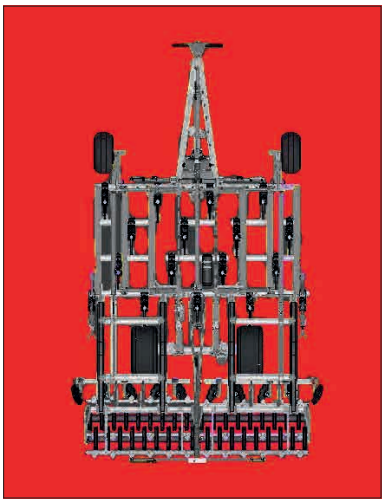
Inappropriate care and maintenance puts the operational safety of the machine at risk. This can lead to accidents with severe or even fatal physical injuries.

- Conform with prescribed schedules for repetitive tests or inspections.
- Service the machine according to the maintenance plan, see chapter "Care and maintenance".
- Only perform the work described in these operating instructions.
- Before starting maintenance and service work park the machine on level and firm ground and secure it against rolling away.
- De-pressurise the hydraulic system and lower or support the implement.
- Prior to working on the electrical system, disconnect it from the electric current supply.
- Before cleaning the machine with high pressure cleaning equipment cover all openings, which should stay clear of water, steam or cleaning agents for reasons of safety or operation. Do not aim the water jet directly on electric or electronic components and bearings.
- When cleaning with high pressure or steam cleaning equipment keep a distance of at least 50 cm to machine components.
- After cleaning, check all hydraulic lines for leaks and loose connections.
- Check for chafing and signs of other damage. Remedy any faults immediately!
- Screw connections loosened for the purpose of care and maintenance work must be retighten after work is completed.
- **All other maintenance and repair tasks, which are not described in the operating instructions, must only be carried out by an authorized professional workshop or by an operator who has been trained by HORSCH for this purpose.**

Do not clean new machines with a steam jet of a high pressure cleaner. The paint takes approx. 3 months to cure and could thus be damaged if this time has not yet expired.

Danger zone

The area marked red indicates the danger zone of the machine:



The danger zone around the machine poses the following endangerments:

- Accidental operation of the hydraulic system can trigger dangerous movements of the machine.
- Defective or not correctly fastened electric lines can cause electric shocks.
- With the drive still running, machine parts may rotate or swing out.
- Hydraulically raised machine parts can lower slowly and unnoticed.

Failing to pay attention to the danger zone can result in severe or even fatal physical injuries.

- Do not stand under lifted loads. Lower such loads to the ground first.
- Instruct persons to leave the danger zone around the machine and tractor before any machine movements.
- Before working in the danger zone of the machine or between machine and tractor: **Shut down the tractor!**
  This also applies for short-term inspection work.
  Many accidents happen because of carelessness and running machines!
- Pay attention to the information in all operating instructions.

Safety stickers

Safety stickers on the machine warn of hazards at dangerous points and are an important part of the safety equipment of the machine. Missing safety stickers increase the risk of severe or even fatal injuries.

- Clean soiled safety stickers.
- Damaged or illegible safety stickers must be replaced immediately.
- Affix the specified safety stickers on spare parts.

No passengers are allowed to ride on the machine!

00380054

Stay clear of the operating range of foldable machine parts!

00380135

Before commissioning the machine you need to read and follow the operating instructions!

00380055

When connecting the machine and when operating the hydraulics, no persons should be between the machines.

00380145

Caution for fluids spraying out under high pressure, follow the notes in the operating instructions!

00380133

The pressure accumulator is charged with gas or oil pressure. Dismantle and repair only in strict compliance with the instructions in the technical manual.

00380252

Never reach into areas where there is a risk of crushing as long as parts could still be moving!

00380134

Shut the engine down and pull off the key before starting maintenance and repair work.

00380294

Do not climb on rotatable parts. Use mounting steps provided for this purpose.

00380299

Remaining in the danger zone is only permitted when the lifting cylinder pin is inserted.

00380896

Remaining in the danger zone is only permitted if the safety support is in place.

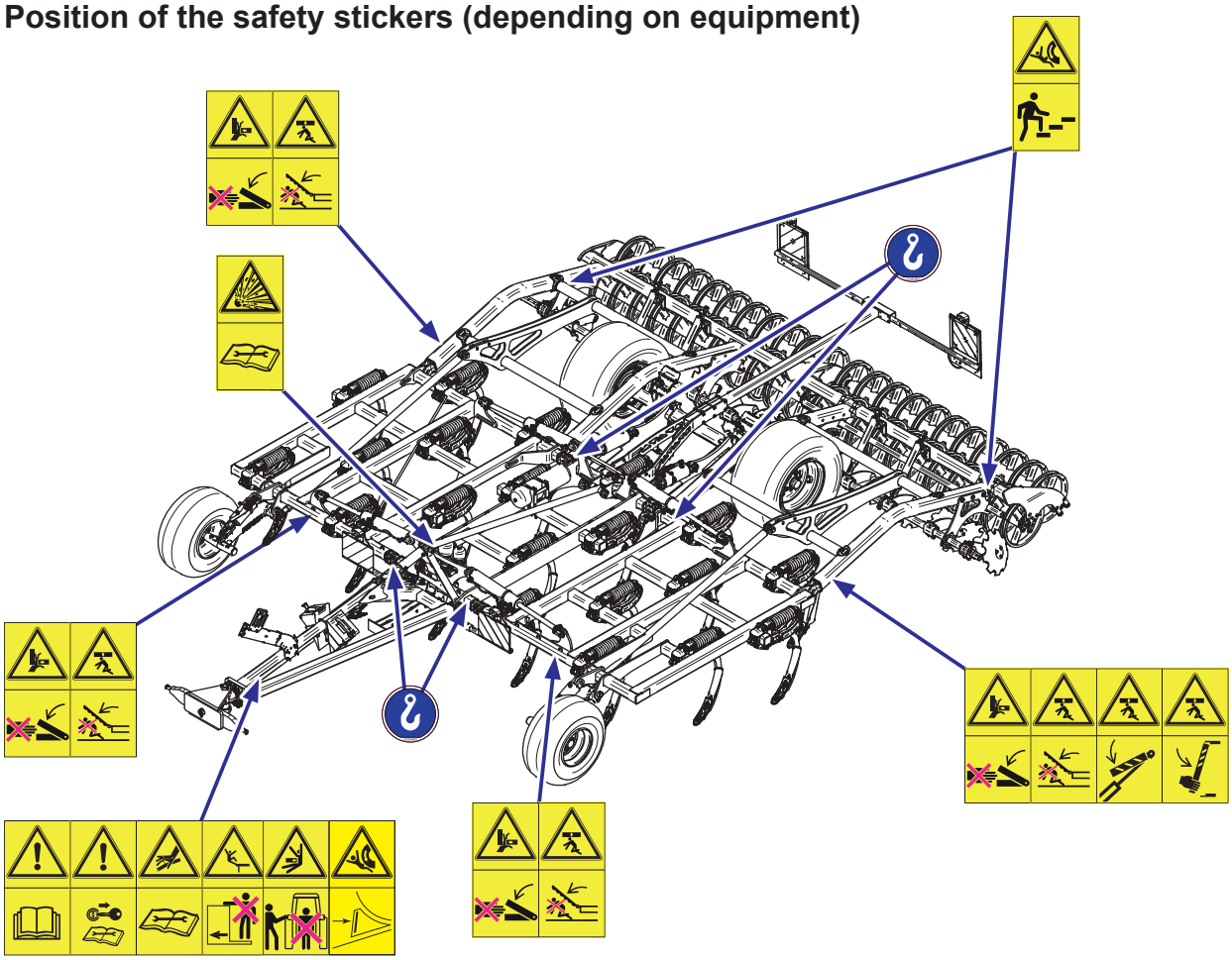
00380953

Secure machine with wheel chocks before uncoupling or parking.

00381116

Loading hook;
hook the load suspension gear (chains, ropes etc.) into this loading hook during loading.

Position of the safety stickers (depending on equipment)



Commissioning

⚠ NOTE

These work activities may be carried out only by persons trained by HORSCH for this purpose.

⚠WARNING

Increased danger of accidents during commissioning.

➢ Observe the notes in the safety chapter.

Delivery

The machine with implements is normally delivered completely assembled on a low loader.

If parts or assembly groups had to be disassembled for transport purposes, these will be assembled locally by our distributor or field technician.

Depending on the design of the low loader the machine can be unloaded with a tractor or needs to lifted off with suitable lifting gear (forklift truck or crane).

➢ Use only lifting equipment and lifting gear with adequate lifting capacity and approval!

Lifting and lashing points are identified by labels. When using other lifting points pay careful attention to the centre of gravity and the weight distribution. These points must, in any case, only be on the frame of the machine.

Transport

Depending on country specific regulations and working width the equipment can be transported on public roads, either attached to a tractor or on a trailer or low loader.

➢ The permissible dimensions and weights for transport must be complied with.
➢ The tractor must be large enough so that sufficient steering and braking abilities are ensured.
➢ If the machine is hitched up in two-point mode, the tractor link arms must be blocked against swinging sideways.
➢ On a trailer or low loader the machine must be secured with tensioning straps or other means.
➢ Attach lifting gear only at the marked points.

Installation

Instruction of the operator and initial installation of the machine will be carried out by our service technicians or distributors.

Any preceding use of the machine is prohibited!

The machine can only be released for operation after the instruction session conducted by our service technician / distributor and after the operating instructions have been read.

⚠WARNING

Increased danger of accidents during installation and maintenance.

➢ Read these operating instructions and become acquainted with the machine before starting this work.

Depending on scope of equipment

➢ Take loosely delivered parts off the machine!
➢ Check all important screw connections!
➢ Lubricate all grease nipples!
➢ Check air pressure in tyres.
➢ Check all hydraulic connections and hoses for correct fastening and function!
➢ Immediately rectify any occurring damage or have it corrected!

Technical data

Terrano	4.3 GX	4.4 GX	5.3 GX	5.4 GX
Working width (m)	4.0	4.0	4.9	4.9
Transport width (m)	3.0	3.0	3.0	3.0
Transport height (m)	2.8	2.8	3.3	3.3
Length (m)	8.6	9.4	8.6	9.4
Weight from (kg)	4,720	5,050	5,900	6,250
Tyre size support wheels	400/60-15.5			
Tyre size undercarriage	550/45-22.5			
Number of tines	13	13	16	17
Tine spacing in row (cm)	92	123	94	118
Groove spacing (cm)	31	31	31	29
Frame height (cm)	850	850	850	850
Design related top speed	Specification in type approval			

Terrano	6.3 GX	6.4 GX
Working width (m)	5.9	5.9
Transport width (m)	3.0	3.0
Transport height (m)	3.8	3.8
Length (m)	8.6	9.4
Weight from (kg)	6,220	6,550
Tyre size support wheels	400/60-15.5	
Tyre size undercarriage	550/45-22.5	
Number of tines	19	21
Tine spacing in row (cm)	95	114
Groove spacing (cm)	31	29
Frame height (cm)	850	850
Design related top speed	Specification in type approval	

NOTE:

- Deviations due to technical further development reserved.
- The weight of the implement depends on the equipment; data with minimum equipment
- The permissible transport heights and transport width for road traffic may differ from country to country. Comply with the national registration regulations.
- Implement attachment tractor link arm:

III:	Coupling point distances Cat. III;	Pin diameter Cat. III
IV:	Coupling point distances Cat. IV;	Pin diameter Cat. IV
II/III:	Coupling point distances Cat. II;	Pin diameter Cat. III
III/IV:	Coupling point distances Cat. III;	Pin diameter Cat. IV

Requirements for the tractor

⚠ WARNING

Danger of accident!

- Observe the permissible values of the tractor for axle loads, total weight, tyre load bearing capacity and air pressure.

- Verify the suitability of the tractor before commissioning.

The tractor must meet the following requirements to be able to use the machine as intended:

Implement attachment

Implement hitching tractor link arm	Cat. III - Cat. III/IV - Cat. IV
Implement hitching adjustable drawbar	Drawbar eye with ball and socket joint Ø 42 mm Drawbar eye with ball and socket joint Ø 51 mm
Attachment of ball head	K 80

Electrics

Electric power supply	12 V
Road lighting equipment:	Socket, 7-pin, see chapter *Lighting*

Hydraulics

Maximum system pressure	210 bar
Oil grade	Mineral hydraulic oil
Number of dual-acting control units	2 (3 with hydraulic depth setting)

Brake connections

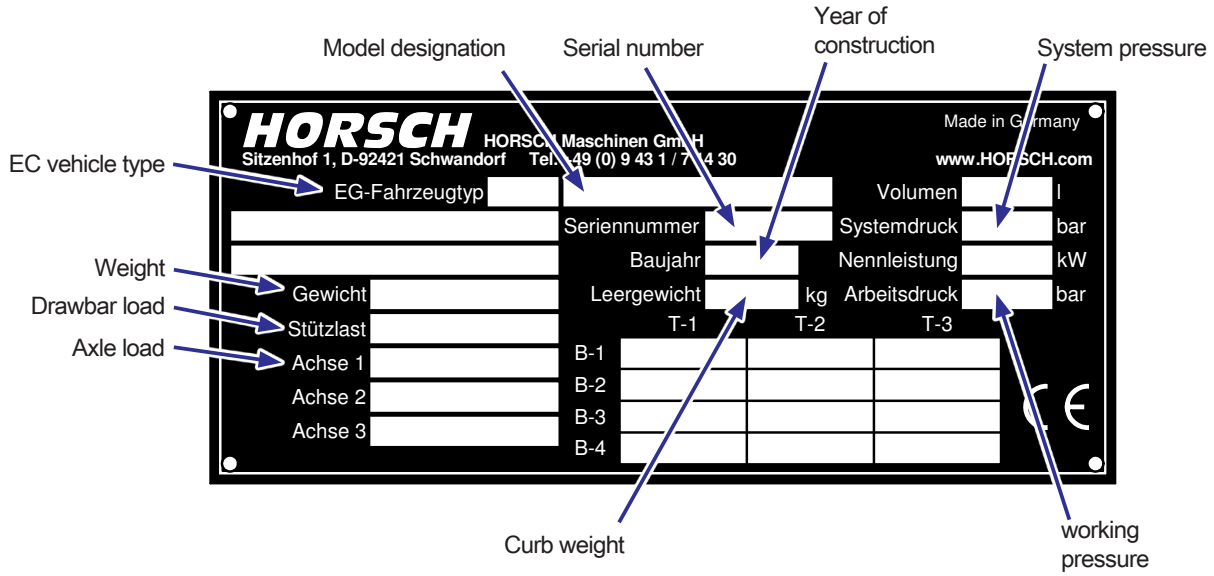
Pneumatic brake	*Red* connection for supply line
	Yellow connection for brake line

Engine power

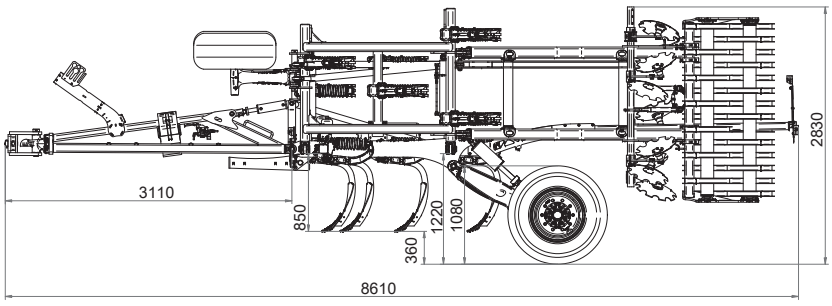
Terrano 4.3 GX	min.	115/160 (kW/HP)
	max.	175/235 (kW/HP)
Terrano 4.4 GX	min.	115/160 (kW/HP)
	max.	175/235 (kW/HP)
Terrano 5.3 GX	min.	140/195 (kW/HP)
	max.	215/290 (kW/HP)
Terrano 5.4 GX	min.	150/205 (kW/HP)
	max.	225/310 (kW/HP)
Terrano 6.3 GX	min.	170/230 (kW/HP)
	max.	255/345 (kW/HP)
Terrano 6.4 GX	min.	185/255 (kW/HP)
	max.	280/380 (kW/HP)

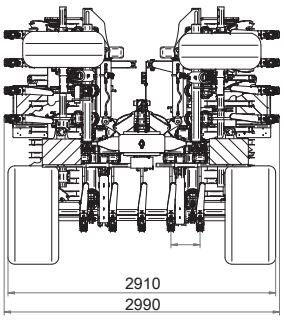
Type plate

The type plate with the CE marking is located on the frame of the machine.
Data on the type plate:

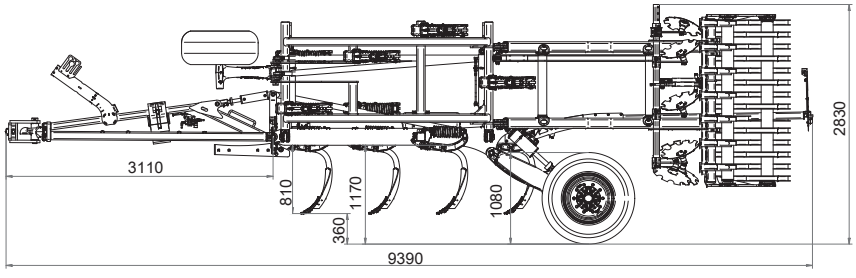


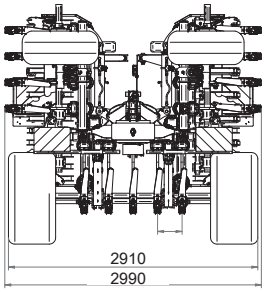
Terrano 4.3 GX



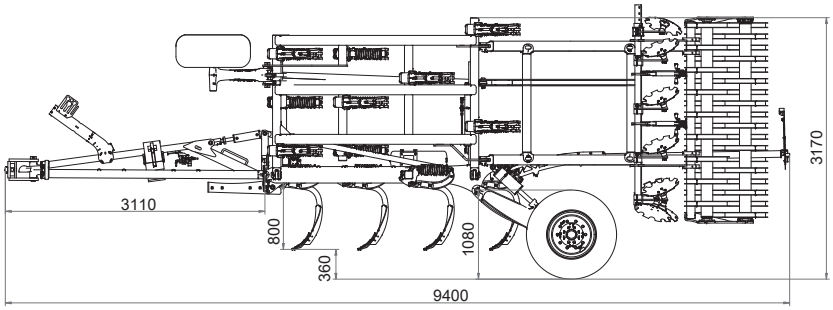


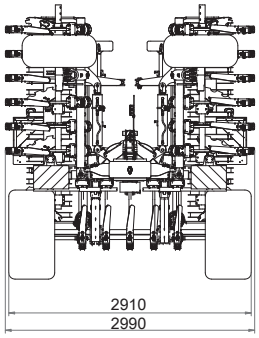
Terrano 4.4 GX



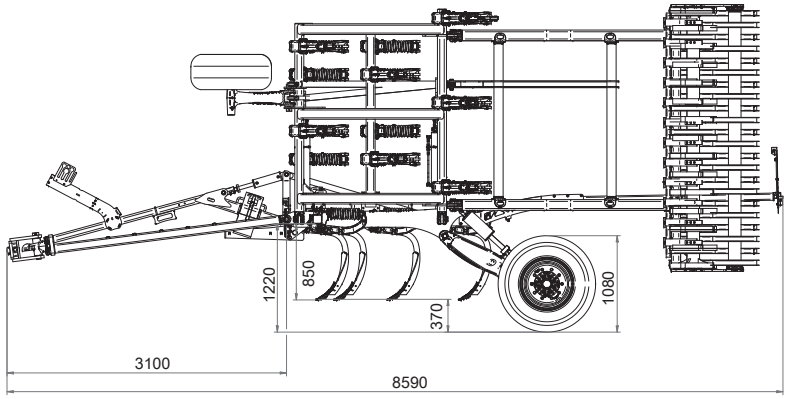


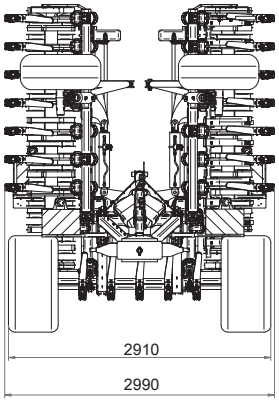
Terrano 5.4 GX



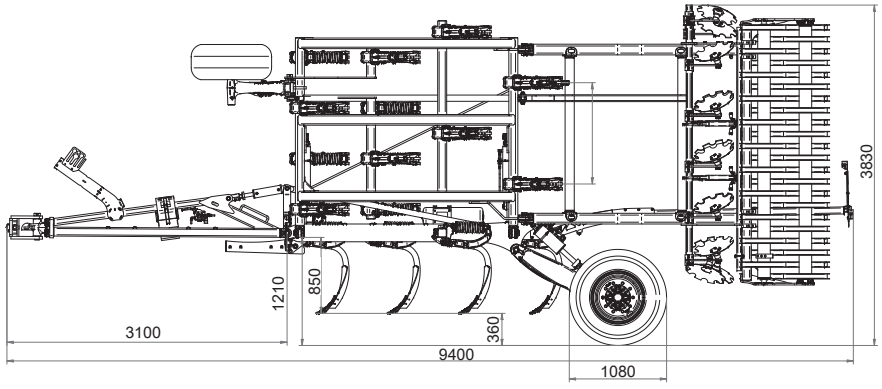


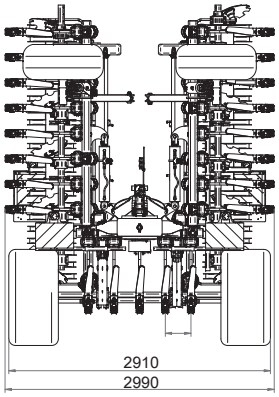
Terrano 6.3 GX





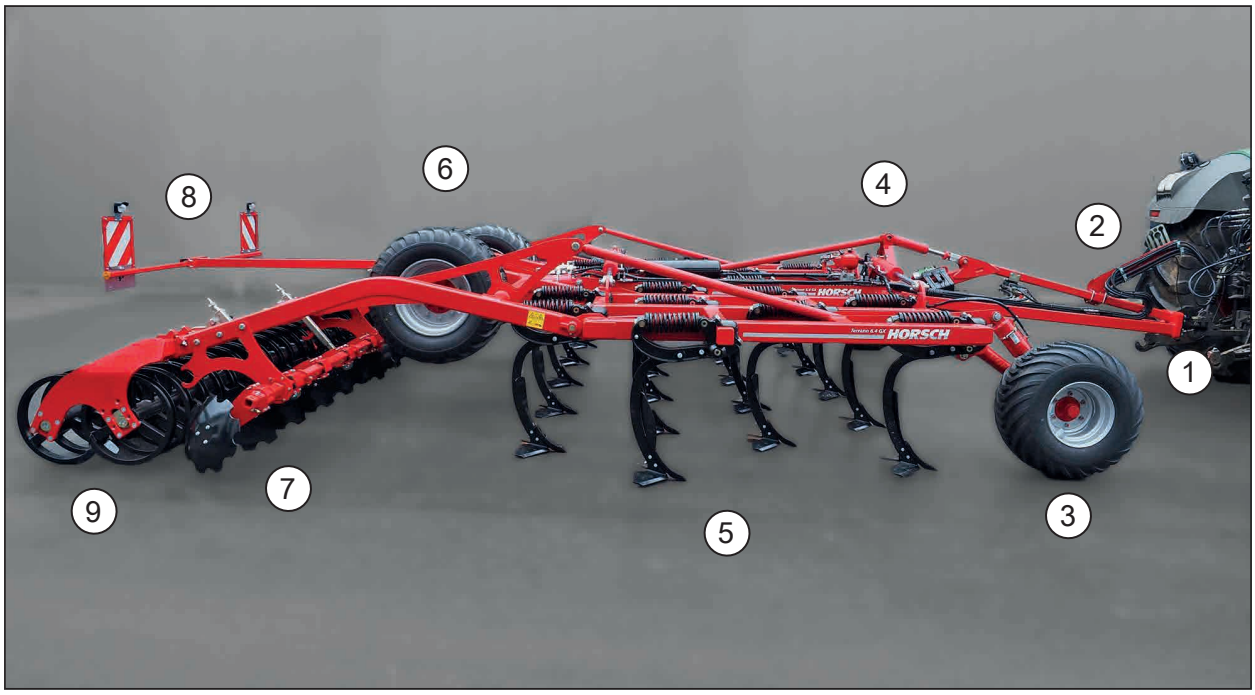
Terrano 6.4 GX





Design

Overview



Terrano 6.4 GX

1 Connecting
2 Hose bracket
3 Support wheel (single or double support wheel version)
4 Hydraulic cylinder for support wheel / traction intensifier
5 Tines on three or four-bar frame
6 Undercarriage
7 Levelling discs
8 Rear lighting
9 Packer

Hydraulics

⚠WARNING

Accidental hydraulic movements (e.g. caused by passengers or children) can lead to severe accidents and injuries!

- Secure or lock the control units on the tractor.
- Instruct persons to leave the slewing range of foldable machine parts.
- Switch all control units to the locked position before switching on the tractor again.

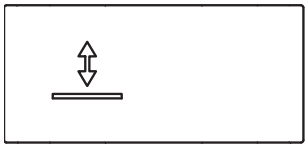
⚠ NOTE

- The hydraulic circulation of the tractor must contain mineral-based hydraulic oil!
- Always plug in all hydraulic lines! Otherwise components may get damaged because of interrelated functions.
- Observe the notes on hydraulics and pressure accumulator in chapter *Safety and responsibility*!

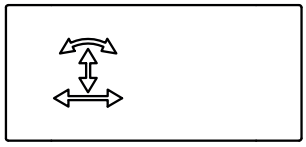
Identification of hydraulic hoses

The symbol is always located above the hose that requires pressure to bring the machine in transport position (lift out, folding, etc.).

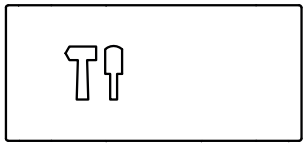
Lift / lower



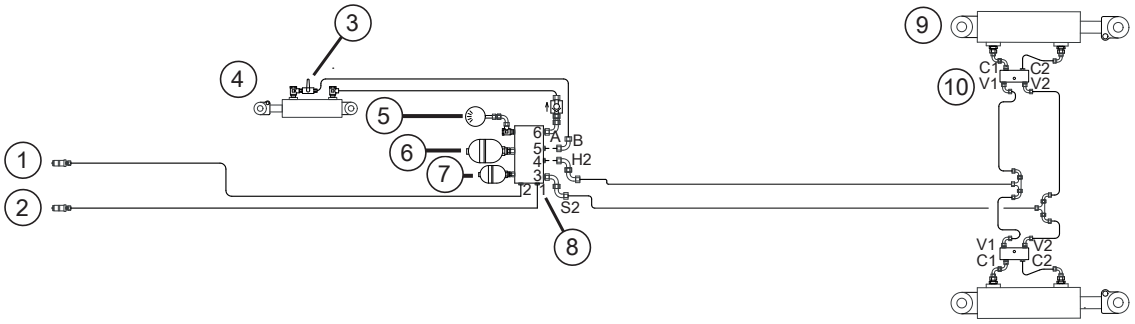
Folding



Tools



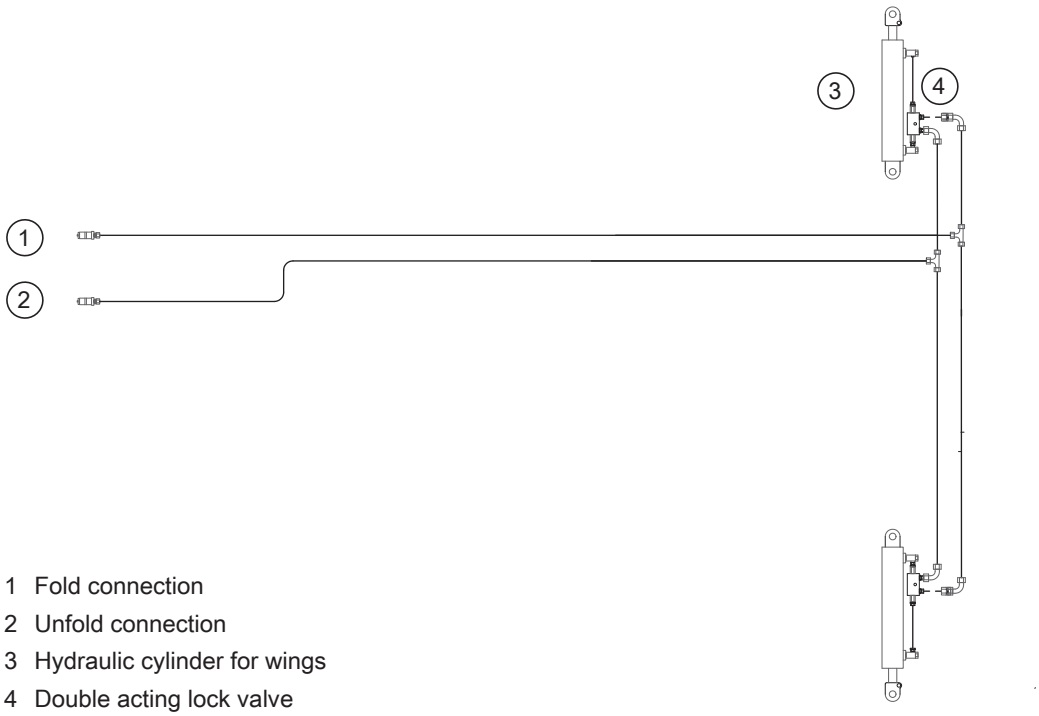
Lift / lower



1 Lift connection
2 Lower connection
3 Lock valve
4 Hydraulic cylinder for drawbar
5 Pressure gauge
6 Pressure accumulator 1.4 l
7 Pressure accumulator 0.75 l
8 Valve block traction intensifier
9 Hydraulic cylinder, undercarriage
10 Load retaining valve

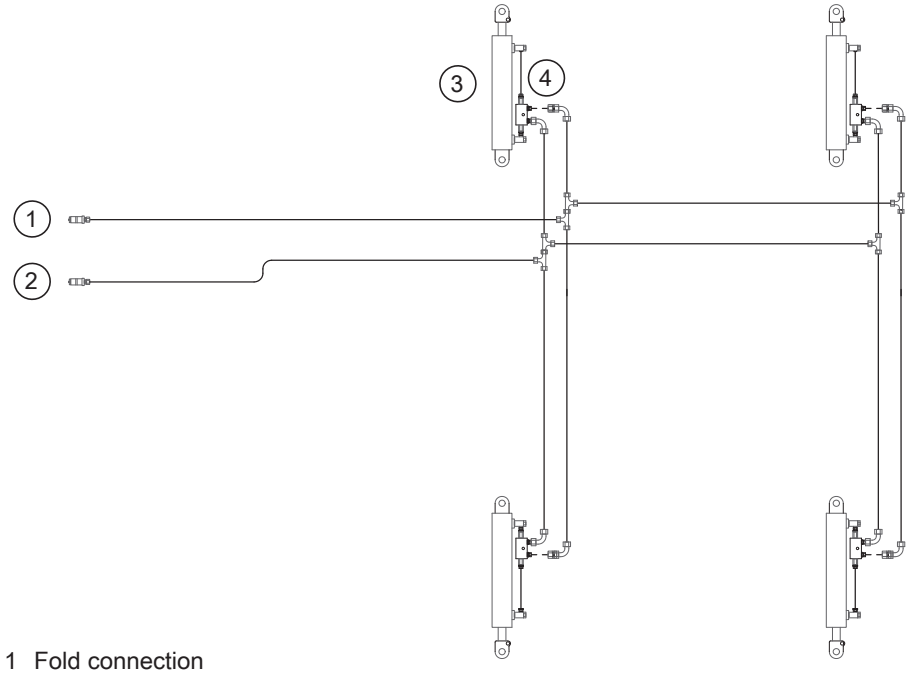
Folding

Terrano 4.3 / 5.3 GX



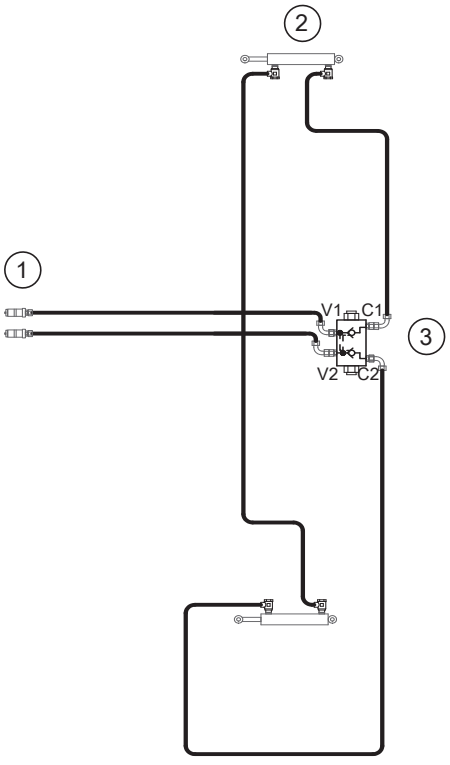
1 Fold connection
2 Unfold connection
3 Hydraulic cylinder for wings
4 Double acting lock valve

Terrano 4.4 / 5.4 / 6.3 / 6.4 GX



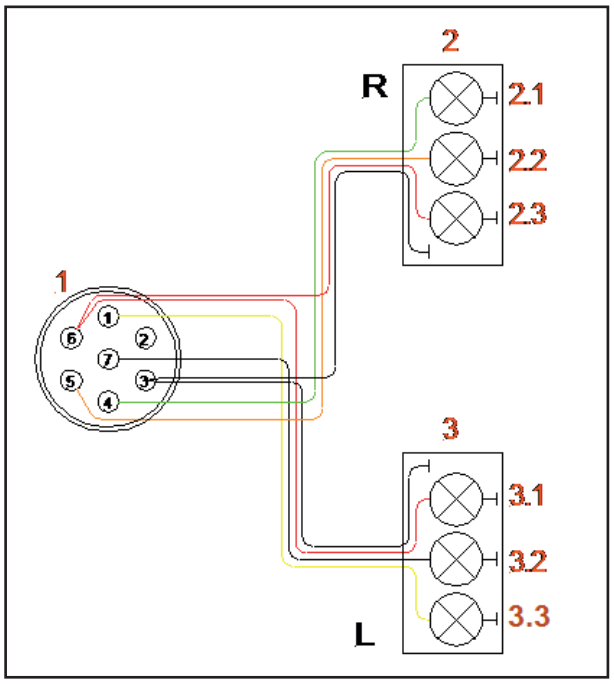
1 Fold connection
2 Unfold connection
3 Hydraulic cylinder for wings
4 Double acting lock valve

Hydraulic depth adjustment



1 Connection
2 Depth adjustment hydraulic cylinder
3 Double acting lock valve

Lighting

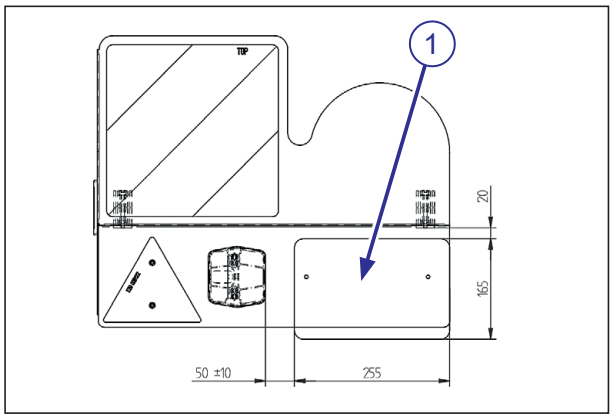


1. 7-pin plug
2. Rear light, right
2.1 Lamp, direction indicator
2.2 Lamp, tail light
2.3 Lamp, brake light
3. Rear light, left
3.1 Lamp, brake light
3.2 Lamp, tail light
3.3 Lamp, direction indicator

Plugs and cable assignment

No.	Desig.	Colour	Function
1	L	yellow	Indicator left
2	54 g	---	---
3	31	white	Earth
4	R	green	Indicator right
5	58 R	brown	Rear light, right
6	54	red	Brake light
7	58 L	black	Rear light, left

Position number plate (1):



⚠WARNING

Traffic accidents caused by defective lighting.

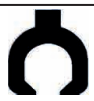
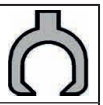
- ➢ Check the lighting before setting off.
- ➢ Check warning notices and lamps for cleanliness.

Aluminium clips

The aluminium clips are placed on hydraulic cylinders depending on the operating states, see chapter *Operation*.

Different aluminium clips

The thickness of the clips differs according to colour:

Colour					
	blue	red	yellow	black	silver
Thickness	7 mm	10 mm	19 mm	30 mm	50 mm

⚠WARNING

Danger of injury!

- ➢ When attaching or removing the clips the machine must be parked with the parking brake pulled.
  Nobody may be about in the area of the tractor cab at this time.

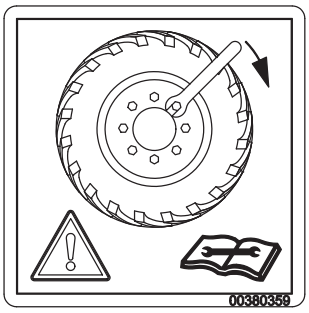
⚠ NOTE

- ➢ Pay attention to the ratio on the machine, see *Depth setting*.

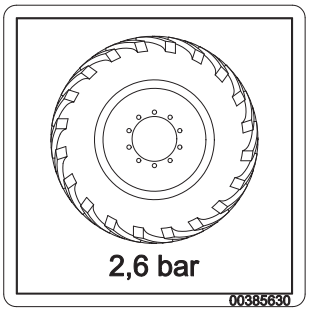
Instruction stickers

- Clean soiled stickers.
- Damaged or illegible stickers must be replaced immediately.
- Apply the specified stickers to spare parts.

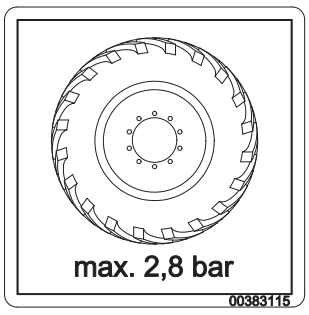
Retighten the wheel nuts / wheel bolts after 50 km or 10 hours. Retighten daily - see maintenance overview.



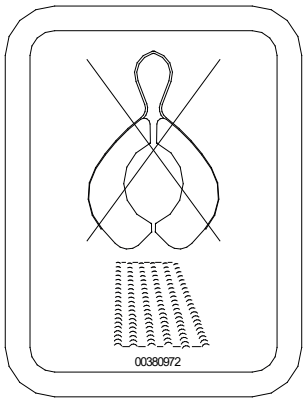
Maximum tyre pressure 2.6 bar



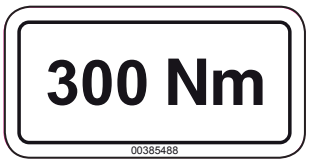
Maximum tyre pressure 2.8 bar

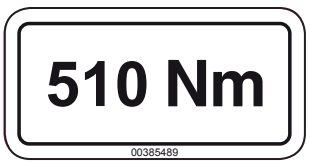


Do not place any clips for use in the field.

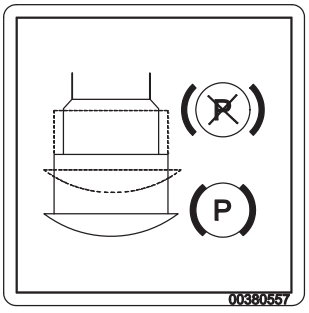


Tighten with the appropriate torque.





Operating button for parking brake.
Upper position released, lower position for parking.



Operation

Whenever working on the machine pay attention to the associated safety notes in the chapter "Safety and prevention of accidents" as well as the accident prevention instructions!

Commissioning / Tractor change

During initial commissioning and when changing the tractor, the machine must be adapted to the tractor.

⚠WARNING

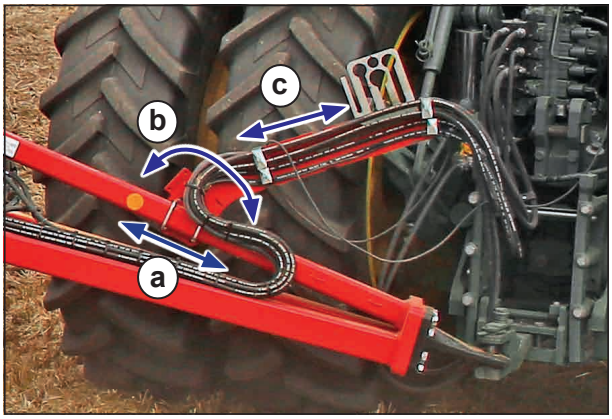
Dropping or lowering machine parts can cause severe crushing injuries etc.!

- Instruct persons to leave the danger zone.
- Comply with the accident prevention instructions.

Adapting the hose bracket

Adapt the hose bracket and the hose length to the tractor.

The hoses should be routed at this that hoses and couplings are not damaged during any operating condition, especially when cornering.



Hose bracket

- Loosen the hose bracket on the frame and displace it so, that there is sufficient movement space for lifting/lowering and cornering (a).
- Adjust the inclination of the hose bracket. In this setting fix the bracket suitable for transport and working position (b).
- Adjust the free length of the hoses to the tractor. For this purpose loosen the clamping brackets and move the hoses accordingly. Please consider also a loop for cornering. Fasten the clamping bracket again (c).

Connecting/Parking

⚠ DANGER

There is a risk that persons may become crushed and severely injured between machine and tractor!

➢ Instruct persons to leave the area between tractor and machine.

⚠ DANGER

Danger of severe accidents when manoeuvring. Keep an eye on your environment.

➢ Keep persons (children) out of the manoeuvring range of the machine.

⚠ WARNING

Leaking hydraulic fluid can cause serious injuries! Danger of injury by unwanted machine movements.

➢ Connect and disconnect the hydraulic lines only when the hydraulics have been de-pressurized on both machine and equipment sides.

Connecting

The machine must be properly connected to a tractor before any machine movements.

⚠ DANGER

Serious accidents caused by the machine rolling away!

➢ When connecting machines with pneumatic brake always connect the **yellow** connection (brake line) first.

1. Machines with drawbar eye or ball and socket coupling:
   Remove the immobiliser.
2. Clean the towing facilities of machine and tractor and check for wear.
3. Move the tractor to the machine and set the brake.
4. Close the lock valve on the hydraulic hose for the drawbar cylinder.
5. Switch off the traction intensifier with the lock valve, see *Traction intensifier* section.
6. Coupling the machine.

   Machines with tractor link arm hitching:

   - Engage the machine.
   - Insert the securing device of the catching hooks.
   - Lock the tractor link arms against movement sideways.

   Machines with drawbar eye:

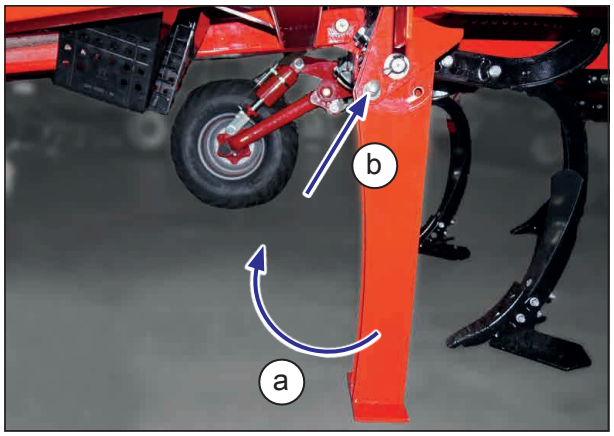
   - Connect hydraulic lines of the hydraulic cylinder to the drawbar at the control unit of the tractor.
   - Open the lock valve on the hydraulic hose for the drawbar cylinder.
   - Adjust the height of the drawbar to allow the machine to engage.

   - Engage the machine.
   - Insert the pins and secure them.

Machines with ball and socket coupling:

- Connect hydraulic lines of the hydraulic cylinder to the drawbar at the control unit of the tractor.
- Open the lock valve on the hydraulic hose for the drawbar cylinder.
- Lower the drawbar or spherical cap onto the ball and slightly lift up the machine.
- Position the hold-down.
- Check the gap between hold-down and spherical cap and adjust; see chapter *Maintenance overview*.

7. Connect the brake.
8. Connect the hydraulic lines, see chapter *Hydraulics*.
9. Connect lighting and ISOBUS.
10. Relieve the support by lifting the machine, fold it up (a) and secure it with the bolt (b). Secure the bolt with the cotter pin:



11. Insert the wheel chocks into the brackets provided and secure them.
12. Releasing the parking brake (option).
13. Lift the machine.
14. Place a green aluminium clip (length 200 mm) on the hydraulic cylinder of the drawbar:

Hydraulic cylinder for drawbar

15. Lower the machine on the clip.
16. Check before starting to drive whether the machine has been properly connected and secured

Transport position

⚠ WARNING

Danger of traffic accidents

- ➢ Do not move the machine without brake lines connected!
- ➢ Check all interlocks before starting to drive.
- ➢ Check whether all securing elements of the connection are in place and set correctly.
- ➢ Verify whether the green aluminium clip (200 mm) has been placed on the hydraulic cylinder of the drawbar and the machine has been lowered on it.
- ➢ Check components of the connection for wear.
- ➢ Lock the control units mechanically or electrically, depending on the version, during transport travel. Never switch them to the floating position.
- ➢ In regard to the ball and socket coupling follow the notes in the *Maintenance overview* chapter.

⚠ NOTE

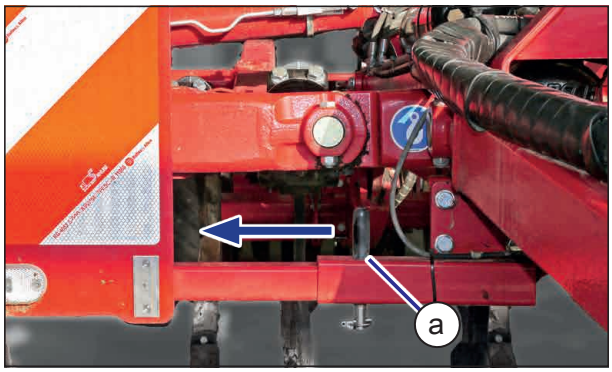
- ➢ Make sure before driving on public roads that the machine meets all respective applicable road traffic regulations.

Make the following adjustment in addition before road transport:

1. Retract the packer fully to observe the maximum permissible transport width.
2. Fold the machine in completely, see section *Folding*.
3. Switch off the E-Manager.
4. Switch all control units to the locked position and secure against unintentional actuation.

Terrano 4.3 GX / 4.4 GX

Adjust the two front lighting carriers in addition:



5. Loosen cotter pin and bolt (a).
6. Slide the lighting carrier toward the outside and secure with bolt and cotter pin.

Position of control units during transport travel

Position / Control unit	Floating position	Locked position
Folding		✓
Lift/lower (undercarriage)		✓
Tools		✓

Parking

⚠ DANGER

Serious accidents caused by the machine rolling away!

- ➢ Before unhitching secure the machine with the parking brake and/or wheel chocks.
- ➢ When unhitching machines with pneumatic brake always disconnect the **red** connection (supply line) first.

⚠ WARNING

Risk of accident due to insufficient stability

- ➢ Park the machine only with empty hopper.
- ➢ Park the machine on a flat, paved surface. If this is not possible, park the machine at least on flat and firm ground.

⚠ NOTE

- ➢ Clean the machine and prepare properly before parking it for an extended period; see chapter *Care and Maintenance.*

The machine can be parked in a hall or under a roof either folded or unfolded.
Park the machine as low as possible when folded.
In case of longer parking periods, preferably park the machine unfolded on the packer to prevent damage to the tyres.

1. Position the machine at a suitable location and set the tractor brake.
2. Lift the machine.
3. If necessary, unfold the machine, see *Unfolding* section.
4. Switch off the traction intensifier with the lock valve (position *"0"*, see symbol plate).
5. Unfold and secure the support.
6. Lower the machine to the support.

Machines with drawbar eye or ball head:

- Lower the machine on the support using the hydraulic cylinder of the drawbar.
- Close the lock valve on the hydraulic hose for the drawbar cylinder.

7. Apply the parking brake (option).
8. Secure the machine with wheel chocks against rolling away. Position the wheel chocks under the side of the undercarriage wheels pointing to the downward slope.
9. Unplug the brake lines, ISOBUS and lighting and hook in the bracket.
   Attach the cover caps if so equipped.
10. Unhitch the machine.

    Machines with tractor link arm hitching:

    - Release the securing device of the catching hooks.
    - Lower the tractor link arm.

    Machines with drawbar eye:

    - Open the lock valve on the hydraulic hose for the drawbar cylinder.
    - Position the drawbar with the drawbar cylinder to loosen the bolt.
    - Release the bolt and move the machine to clear.
    - Close the lock valve on the hydraulic hose for the drawbar cylinder.

    Machines with ball and socket coupling:

    - Open the lock valve on the hydraulic hose for the drawbar cylinder.
    - Release the hold-down.
    - Lift the drawbar or spherical cap with the drawbar cylinder until the ball has cleared.
    - Close the lock valve on the hydraulic hose for the drawbar cylinder.

11. Depressurise the hydraulic lines and disconnect them.
12. Drain the air reservoir if equipped with pneumatic brake system.
13. Machines with drawbar eye or ball and socket coupling: Mount the immobiliser and secure it with the padlock.

Wings

⚠WARNING

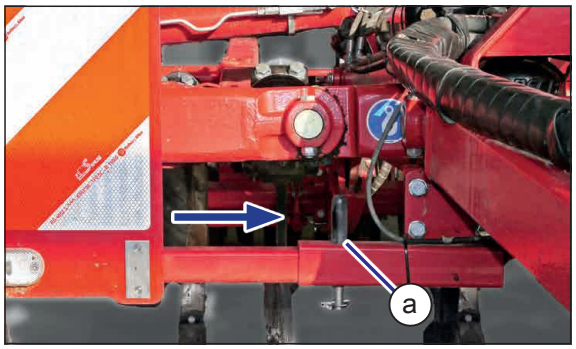
Dropping or lowering machine parts can cause severe crushing injuries etc.!

- ➢ Instruct persons to leave the danger zone.
- ➢ Comply with the accident prevention instructions.

⚠ CAUTION

Damages to the machine and the supporting surface

- ➢ Fold the machine only while lifted out.
- ➢ Fold the machine only on a level and firm surface.
- ➢ **Terrano 4.3 GX / 4.4 GX**
  Make sure to push in both front lighting carriers before folding!



- Loosen cotter pin and bolt (a).
- Slide the lighting carrier toward the inside and secure with bolt and cotter pin.

- ➢ Lower the undercarriage to lift the machine.
- ➢ Adjust the oil flow rate on the control unit of the tractor.
- ➢ Slow the control unit before the machine components reach the stop position.
- ➢ Operate the control unit and completely unfold or fold the machine.

Depth setting

In the field the machine is guided in the depth by the packer and support wheels.

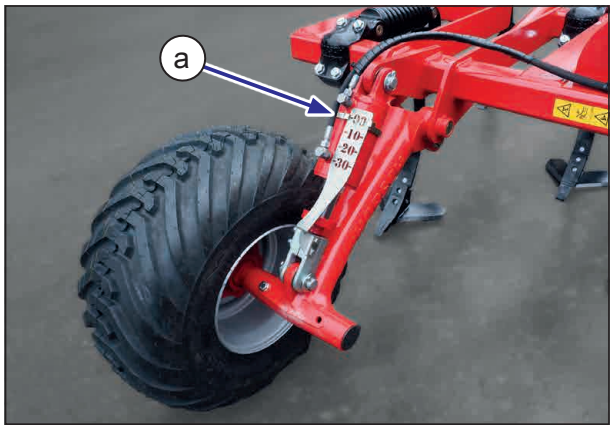
⚠ NOTE

The coulter's loosing action differs according to the soil conditions. As a result, the packer sinks to different depths.
The intended working depth can therefore not be clearly set before use in the field.

- ➢ The working depth must be checked before starting work and, when processing larger areas, also in between.

Hydraulic depth setting

The depth over the hydraulic cylinders is adjusted with the support wheels.



Adjusting the working depth

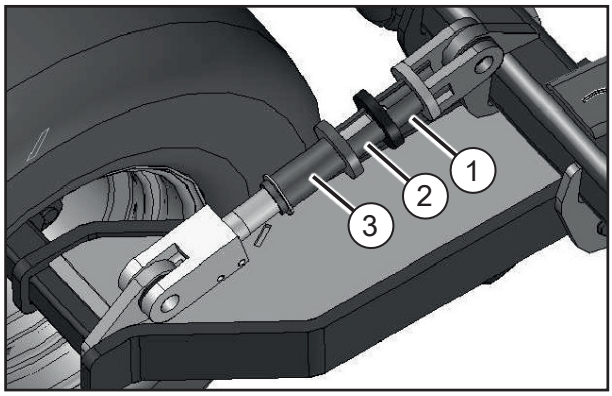
- ➢ Unfold the machine, see *Folding* section.
- ➢ Operate the control unit and adjust the machine to the desired working depth. Observe the scale (0 - 30) at this.

Manual depth setting

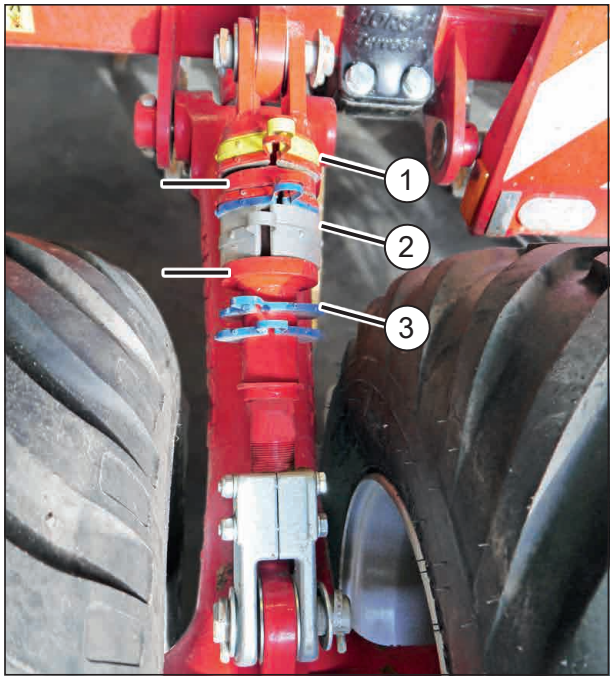
The aluminium clips for depth setting are plugged on the setting bar.
The clips may only be removed, respectively inserted when the respective side is relieved.
It is therefore necessary to raise or lower the machine so that either the packer or the support wheels are loaded or relieved.

⚠ NOTE

- To reach the hydraulic cylinders on the packer, enter the machine on the side in the area of the undercarriage. Do not climb onto the machine at this.



Adjustment rod of mechanical depth setting with adjustment ranges



Adjustment rods with clips (packer)

- Use clips in the same quantity and colour on all adjusting rods on support wheels and packer.
- Always fill all adjustment areas (1) and (2) completely with clips, if this is possible.
- Insert clips, which are not required, in area (3).

Increase the working depth:

- Slightly lift the machine.
- Remove clips from area (1).
- Lower the machine.
- Reinsert the clips again in the area (2).

Reduce the working depth:

- Lower the machine.
- Remove clips from area (2).
- Lift the machine.
- Reinsert the clips again in the area (1).

With the cylinders fully extended (area (2) no clips) the coulters will just touch the ground.

Adjusting the working depth:

- Observe the ratio of 1 : 2.5.
  Example:
  For a desired working depth of approx. 10 cm insert clips with a total thickness of 4 cm in each case in area (2).

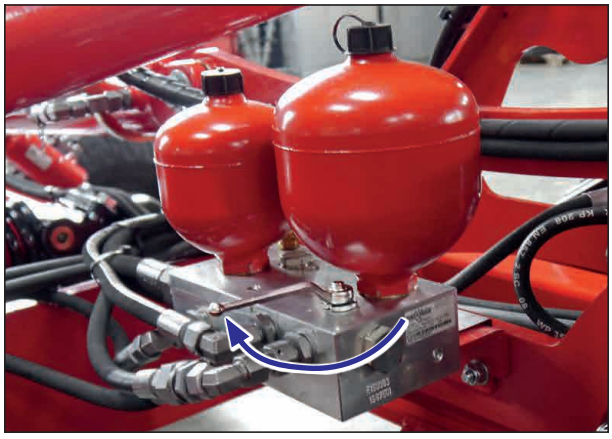
- During work in the field increase or reduce the working depth as required.
- In the field lower the machine and raise the undercarriage. Now switch the control unit *Lift/Lower* to the floating position.

Traction intensifier

If traction intensifiers are enabled, part of the load caused by the bottom pull will always be transferred to the tractor during use.

- Disable traction intensifiers prior to connecting and unhitching, on loose soils or shallow cultivation.
  For this purpose turn the lock valve towards the back to position "0" (see symbol plate).
- Set the lock valve across the travel direction to use the traction booster.
- When working in the field you should always set the control unit (Lift/Lower) to floating position.

Hydraulic valve block traction intensifier with symbol plate



Traction intensifier lock valve - position “0”

Use in the field

NOTE

Please note:

- The machine must be in horizontal position when used in the field.
- Do not drive backwards with the machine lowered.

  The components have only been designed for forward travel in the field and may be damaged when reversing.

➢ Unfold the machine in the field and adjust; see chapter *Depth setting* (working depth, levelling discs, support wheels).

With tractor link arm hitching:

➢ Align the machine in parallel with the tractor link arm.

➢ Lock the tractor link arm against swinging sideways.

Headland

➢ Slowly lift out the machine already during the last 10 - 15 m before turning.
Soil may collect on the coulters when the machine is lifted out while stopped and a wavy headland may be created.

Position of control units during use in the field

Position / Control unit	Floating position	Locked position
Folding		✓
Lift/lower (undercarriage)	✓	
Tools		✓

Checks

The working quality essentially depends on the adjustments and checks made prior to and during use, as well as on regular care and maintenance of the machine.

➢ Carry out all maintenance tasks and adjustments before starting to work.

Checks before and during use on the field:

➢ Have the hydraulic lines been connected without being mixed up by mistake?
➢ Has the machine been secured for road travel and does the lighting work properly?
➢ Has the machine been levelled in working position and the working depth correctly adjusted?
➢ Are coulter, packer, harrow and other cultivation tools and optional equipment still in a serviceable state?

⚠ NOTE

➢ Perform checks when starting work and with larger fields also regularly in between!

Assembly groups

Tines

The tines are robust, of simple design and suitable for all types of soil.

Due to the inclination of the tines long fibre harvest residues can move up quickly and turn away.

⚠WARNING

Danger of severe injuries caused by the tensioned spring assembly.

- Replace the spring assembly only as a complete unit (workshop work).
- Never open the spring assembly.
- If a tine is blocked or jammed by stones etc., please contact the HORSCH Service.
  The blockage may give way and the tine jump forward into its normal position.
  Never stand in front of the tines!

TerraGrip Tines

The spring loaded stone release protection with a tripping force of approx. 550 kg prevents damage to tines, tine holder and coulters. Once the tripping force is reached the tine can easily and quickly escape up to 30 cm upwards.

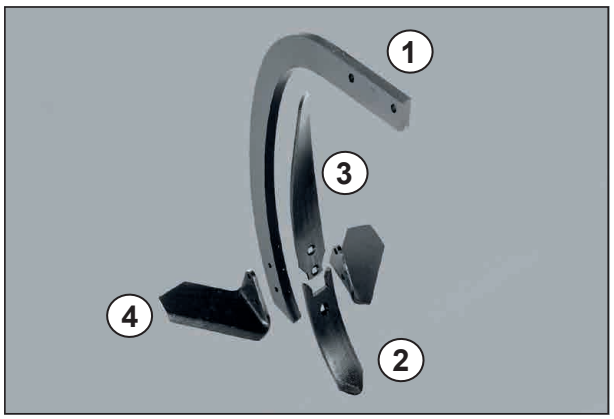
MulchMix Coulters

⚠WARNING

Danger of injury caused by the machine lowering.

- ➢ Always support the machine with suitable means before starting any assembly or maintenance work on tines and coulters.
- ➢ Secure the lift cylinders with aluminium clips.

The tines can be equipped with different coulters to suit various operating conditions.



1 Tine stem
2 Coulter tip
3 Guide plate
4 Lateral wing

Different variants are available for the components:

- Coulter tip - narrow, wide, carbide-tipped (HM)
- Guide plate - narrow, wide
- Lateral wings - narrow, wide, carbide-tipped (HM)
- Side plate

Carbide-tipped tips and lateral wings increase the service life.

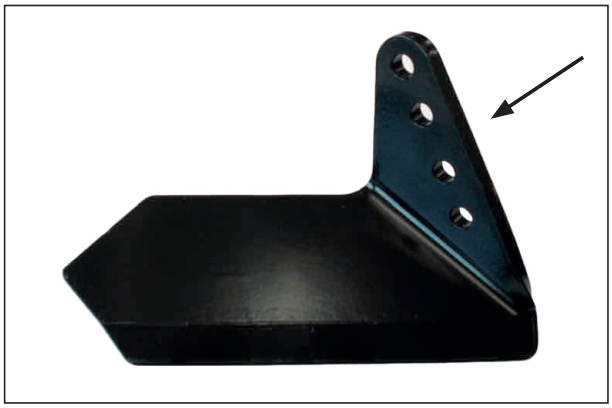
Depending on the type of soil, the lateral wings are suitable up to approx. 20 cm working depth and ensure full-area tillage.

Use without lateral wings is recommended with deep tillage.

Wide tips or narrow lateral wings (for large working depth) are recommended for light soil.

4-hole wing

Adjustable wings are available for shallow soil or overall cutting of the plants.
The working depth of the wings can be adjusted in relationship to coulter tip.



4-hole wing

Levelling discs

Spade discs are installed behind the tines to prevent ridge formation during any conditions of use.

The discs distribute the thrown up soil and level the ground in front of the packer.

Setting the depth

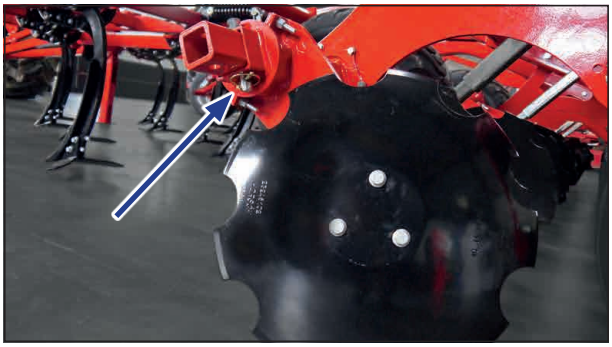
The working depth must be adjusted to the operating conditions (working depth of tines, working speed, amount and type of harvest residues) in the field.
The depth must be adjusted so that the walls created by the tines are fully levelled by the discs.

Levelling discs with adjustment crank

- Turn the adjustment cranks and check the working results until the desired degree of levelling is achieved.
- Perform the same setting on all adjustment cranks. Turn the adjustment cranks in alternating fashion to prevent cocking.

Adjusting the width

The width of the border discs can be adjusted in 4 positions. During use the discs can be pushed in, e.g. at the field boundary.



Border disc

- Loosen bolt and cotter pin.
- Adjust the border disc and secure with bolt and cotter pin.

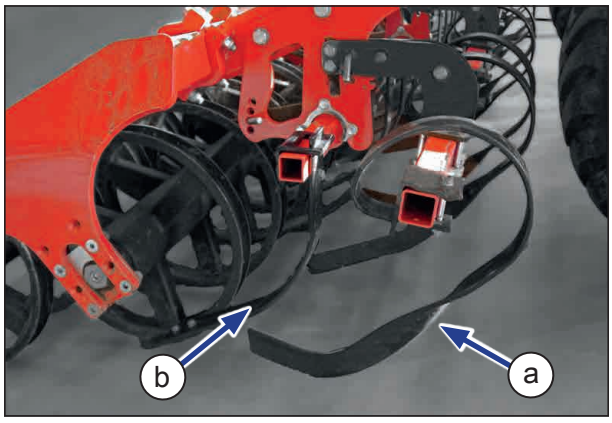
Cleaning

- Do not wash the bearing points with high pressure cleaners.

Levellers

The levellers and intermediate springs level the ground in front of the packer and distributes any existing harvesting residues.

The correct setting depends on the conditions of use and must be determined in the field.
The levellers should operate with preferably little pressure and fully level the walls created by the tines.



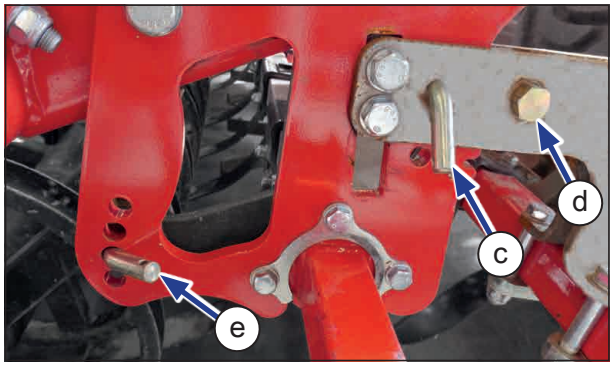
(a) Levellers
(b) Intermediate springs

⚠WARNING

Dropping or lowering machine parts can cause severe crushing injuries etc.!

- Instruct persons to leave the danger zone.
- Do not reach or step under the raised levellersand intermediate springs.

Adjusting the height of the levellers



- Apply the spanner to the screw (d) and turn until the bolt can be loosened.
- Remove the bolt (d) and adjust the required height by turning the screw.
- Insert the bolt and secure it with the cotter pin.
- Adjust the same height on the other end of the bar.
- When adjusting across several holes, adjust on both sides in alternating fashion to prevent cocking.
- Adjust the second bar in the same manner.
- Check the adjustment and correct, if necessary.

Adjusting the angle of attack between the intermediate springs

- Lift the bar and remove the bolt (e).
- Adjust the required angle.
- Insert the bolt and secure it with the cotter pin.
- Adjust the same height on the other end of the bar.
- When adjusting across several holes, adjust on both sides in alternating fashion to prevent cocking.
- Adjust the second bar in the same manner.
- Check the adjustment and correct, if necessary.

Packer

In the working position the machine runs on the packer. Due to the weight of the machine a high consolidation and a fine crumbly, level surface is achieved.

Packers are available in the following versions:

- Double RollFlex Packer
- Double RollFlex Packer

With cohesive soils the packers may become blocked with soil and thus become considerably heavier. This may overload machine components. Roads may be soiled during transport.

⚠ NOTE

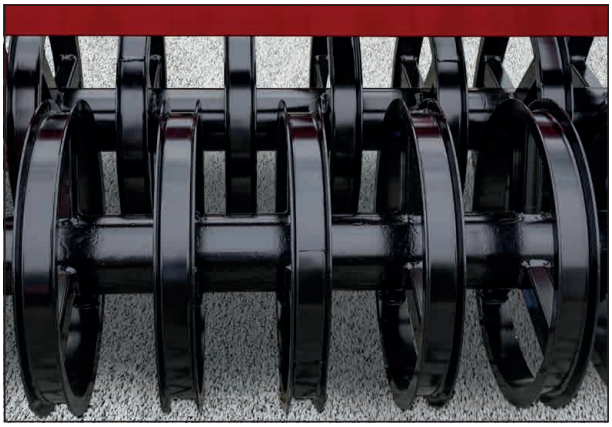
- ➢ Clean packer the packer regularly during work when soil attaches to it.
- ➢ Generally clean the packer before starting road travel.

Double RollFlex Packer

Double RollFlex Packer

- Self-cleaning due to the natural resonance of the leaf springs.
- Deep-acting consolidation and good levelling through open packer rings
- Additional mixing effect caused by soil movement in the packer

Double RollPack Packer



Double RollFlex Packer

- High stability due to U-section rings
- Low wear
- Deep-acting consolidation and good levelling through open packer rings

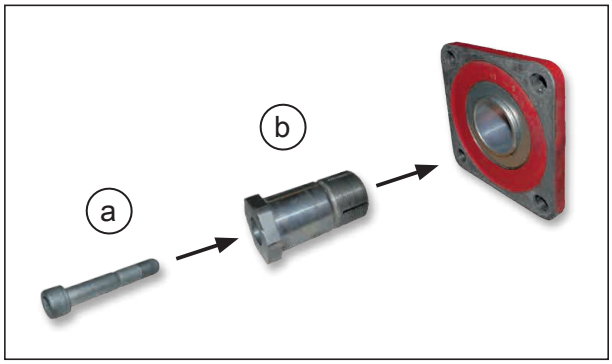
Mounting the packer

⚠ WARNING

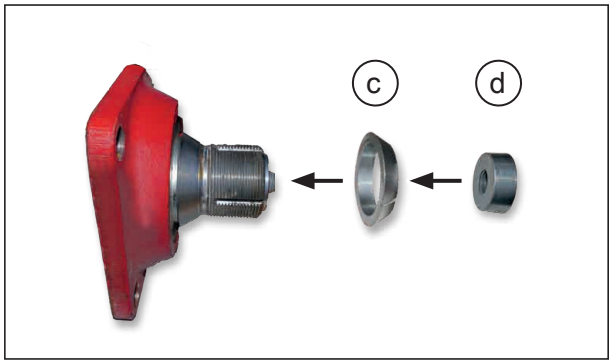
Dropping and rolling machine parts
can cause severe crushing etc.!

- ➢ Support the raised machine by appropriate means and secure the packer against rolling away.
- ➢ Comply with the accident prevention instructions.

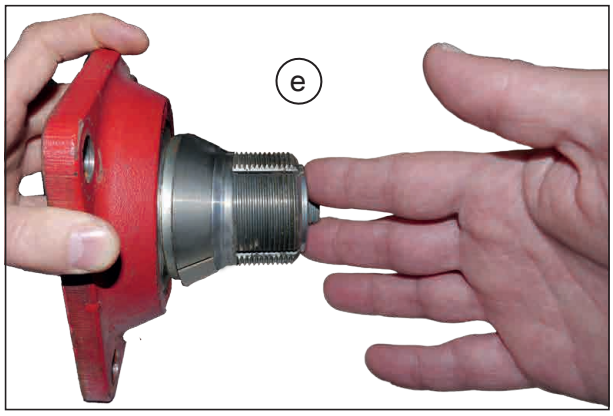
Perform this action on all packer bearings:



1. Place the inside screw (a), outside screw (b) and bearing into each other.

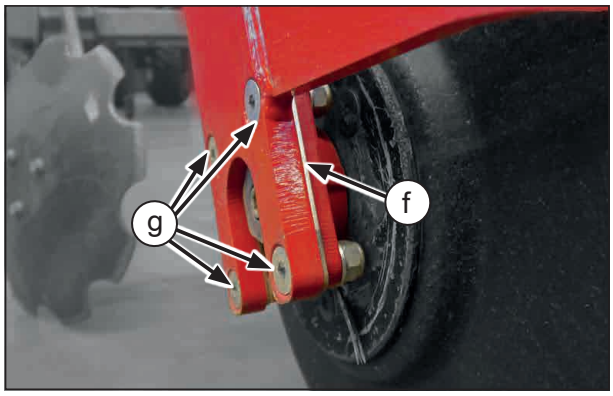


2. Slide the conical ring (c) on the outer screws.
3. Screw the conical nut (d) on the inside screw.



4. Press the conical nut against the outside screw (e). Do not use a hammer, or similar!
5. Lubricate the external thread with grease or copper paste.
6. Screw the bearing with the outside screw onto the shaft (tightening torque 370 ± 20 Nm).
7. Tighten the inside screw (tightening torques 180 ± 20 Nm).

   Pull out the screw if it cannot be tightened and press the conical nut against the outside screw.



8. Bolt the packer shaft together with the spacer (f) to the side arm (g)

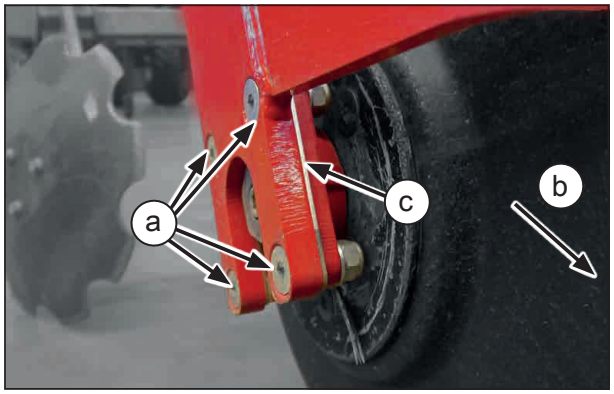
Dismantling the packer

⚠ WARNING

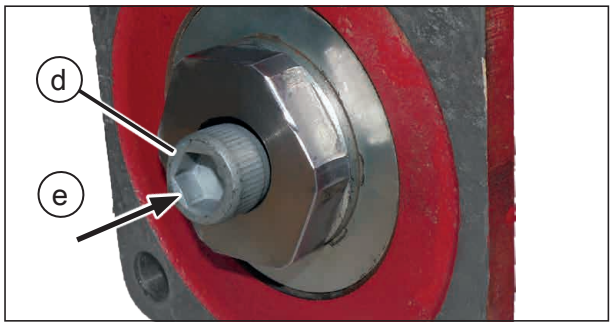
Dropping and rolling machine parts
can cause severe crushing etc.!

- ➢ Support the raised machine by appropriate means and secure the packer against rolling away.
- ➢ Comply with the accident prevention instructions.

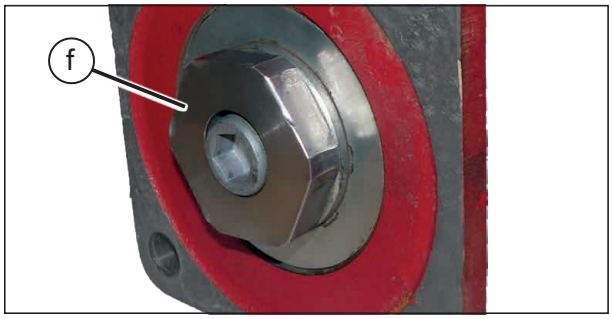
Perform this action on all packer bearings:



1. Remove the screws (a) and remove the packer from the side arm (b).
2. Remove the spacer (c).



3. Unscrew the inside screw (d) for about 1 cm.
4. Knock the screw inward to detach the conical nut from the outside screw (e).



5. Loosen the outside screw (f) and remove the bearing.

Optional equipment

Brake system

The machine can be equipped with a pneumatic or hydraulic brake system. The machine is equipped with a parking brake for safe parking.

DANGER

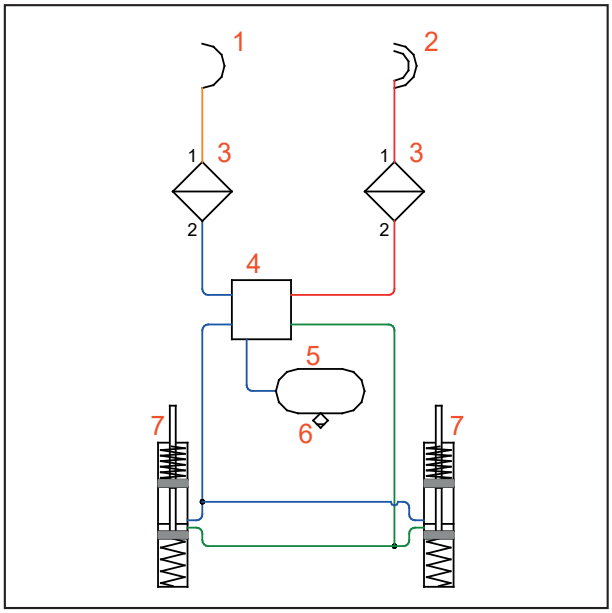
Uncontrolled rolling of the machine can cause severe injuries by crushing or rolling over.

- ➢ Park the machine only on level ground with sufficient load bearing capacity.
- ➢ Secure the machine with wheel chocks against rolling before releasing the brake.

NOTE

Adjustments and repair work on the brake system must only be carried out in a professional workshop or by an operator, who has been specially trained by HORSCH for this purpose.

Pneumatic brake



Pneumatic brake

1. Coupling head “Brake” yellow
2. Coupling head “Provision” red
3. Pipe filter
4. Trailer brake valve with brake pressure regulator and parking brake
5. Air reservoir
6. Drain valve
7. Spring brake cylinder

Connecting

The tractor must always be secured with the parking brake when connecting.

1. Connect the coupling head “Brake” (yellow) **first**.
2. **Next**, connect the coupling head “Provision” (red).
3. Press the parking brake button up and release the parking brake.

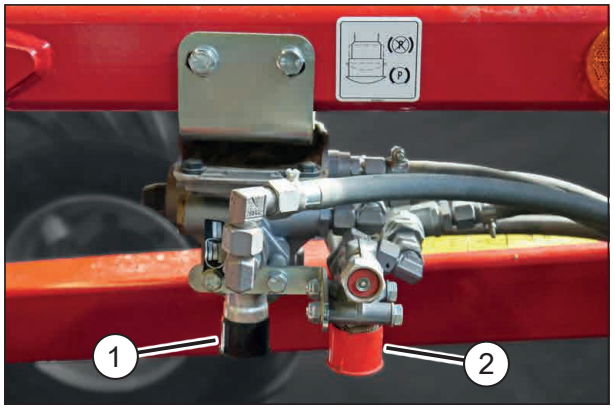
Unhitching

1. The tractor must be secured with the parking brake when unhitching.
2. **First disconnect the** coupling head “Provision” (red).
3. **Then** disconnect the coupling head “Brake” (yellow).

The machine always needs to be secured with the parking brake (2), to prevent it from rolling away in case of a pressure loss in the service brake.

➢ For this purpose pull the parking brake button down.

The parking brake works with spring brake cylinders.



Brake valve

1. Operation of service brake / releasing valve
2. Operation of parking brake

Releasing the brake

Press the service brake button (1) up, this releases the service brake.
Then press the parking brake button (2) up to release the parking brake.

⚠ NOTE

➢ Before parking the machine pull the parking brake button down again to apply the parking brake.

Maintenance

➢ Drain the air reservoir every day during operation.
➢ Clean the pipe filter as required, but at least once every year.
➢ Check the brake lining for wear every year and renew as required.

For functional safety of the valves, anti-freeze agent should be mixed to the compressed air (follow the operating instructions of the tractor manufacturer).
This agent maintains the elasticity of the seals and reduces rust deposits in lines and reservoirs.

As a preventive measure against damage caused by moisture, the pneumatic brake hose couplings can be covered with plastic lids or a plastic bag.

Releasing the brake mechanically

In events of emergency the spring brake cylinders can also be released manually.

➢ For this purpose back out the screw under the blue covering on the housing until the brake is released.

Care and Maintenance

⚠ WARNING

Risk of injuries during maintenance work

- Please observe the safety notes on care and maintenance!
- Turn off the tractor and secure it against reactivation.
- Secure the machine against lowering and unexpected movements. Shut off the lock valve on the hydraulic cylinder of the drawbar.

Your machine has been designed and built to offer maximum performance, economy and operator friendliness under a vast variety of operating conditions.

Before delivery the machine was examined in the factory and by your dealer to make sure that it is in optimal condition. For trouble-free operation it is very important to carry out the necessary work for care and maintenance at the recommended intervals.

Cleaning

Perform regular cleaning and maintenance work in order to maintain the operability of the machine and to achieve optimal performance.

⚠ NOTE

- Do not clean hydraulic cylinders and bearings with a high pressure cleaner or direct water jet. Seals and bearings are not water proof under high pressure.

Lubricating the machine

The machine should be lubricated at regular intervals and after washing with a pressure cleaner.
This ensures operability and reduces repair costs and downtimes.

Hygiene

Lubricants and mineral oil products are no threat to health as long as they are used as instructed. Avoid prolonged skin contact or the inhalation of vapours.

Maintenance intervals

The maintenance intervals are determined by various factors.
Different application conditions, weather influences, working speeds and soil conditions have an influence on the maintenance intervals. The quality of the lubricants and cleaning agents also affects the time to the next care work.

The specified maintenance intervals therefore only serve as a reference.
In case of deviations from normal operating conditions the intervals for the necessary maintenance tasks must be adapted accordingly.

Regular maintenance is the basis for a fully operable machine. Properly serviced machines reduce the risk of failing and ensure economical use and operation of the machines.

Storage

If the machine is to be shut down for a longer period of time:

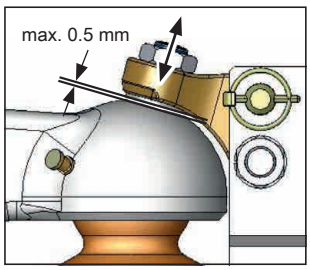
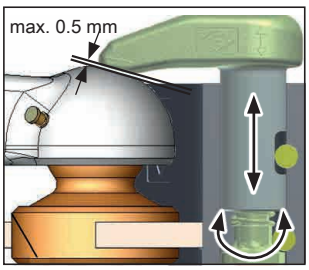
- If possible, park the machine under a roof.
- Protect the machine against corrosion. For spray coating use only readily biodegradable oils, e.g. rape seed oil.
- Protect the hydraulic cylinder piston rods against corrosion.

⚠ NOTE

- Do not spray the plastic and rubber parts with oil or corrosion protection agent. These parts would become brittle and break.

Maintenance overview Terrano GX

Maintenance location	Work instructions	Interval
After 10 operating hours		
Retighten all screw and plug-in connections as well as the hydraulic connections.	Even firmly tightened screw connections can come loose (e.g. because of material settlement or paint residues between the screw elements). This can lead to loose screw connections and leaking hydraulic connections.	
Retighten all wheel nuts M18 x 1.5 - 300 Nm M22 x 1.5 - 510 Nm	➢ initially after 10 hours or 50 km ➢ again after 10 hours or 50 km ➢ then retighten daily until the screws have settled and further tightening is no longer possible. ➢ then always before the start of the season and every 50 operating hours during use.	
Retighten TerraGrip tool carrier	Retighten with 500 Nm	
Before the season		
Complete machine	Read the operating instructions carefully as a refresher.	
	Check all screw connections for firm seating and retighten as necessary	
	Check condition and function of all protective features and replace, if necessary	
In use		
Hydraulics		
⚠ WARNING	Lower all hydraulically lifted parts (e.g. wings, packer, undercarriage, etc.) to the ground before performing any work on the hydraulic system. Depressurise the hydraulics on the tractor and implement side!	
	Observe the notes on hydraulics in the chapter *Safety and responsibility*.	
Hydraulic system and components	Check all hydraulic components and hoses for function, leak tightness, fastening and chafing	40 h
Hydraulic hoses	Check the hydraulic hoses regularly for damage (cracks, chafing, etc.).	
	Replace damaged and faulty hoses immediately.	
	Hydraulic hoses must be replaced after 6 years. For this purpose pay attention to the manufacturing date on the crimp sleeve (year/month) and the hose (quarter/year):  Crimp sleeve Hose Depending on the conditions of use (e.g. weather influences) or in case of higher strains on the machine the hoses may need to be replaced earlier.	
	Have the hydraulic system checked by an expert at least once every year.	
	In addition follow the country specific regulations and directives.	
Pressure accumulator	Follow the country-specific regulations and directives.	

Maintenance location	Work instructions	Interval
Ball-and-socket coupling		
Before connecting:	Clean ball and spherical cap.	daily
	Replace the foam ring if damaged and/or heavily soiled.	daily
	Place the foam ring.	daily
	Check ball and spherical cap for wear. The wear limit has been reached when the gauge rests fully on the ball or enters the spherical cap. Hold the gauge lengthwise toward the direction of travel:  Ball ok  ball worn	40 h
	 Spherical cap ok  spherical cap worn	40 h
	Check possibly existing wear limits on the hold-down: 	40 h
	Lubricate the ball socket.	as required
After connecting:	Adjust the distance of the hold-down to the ball to max. 0.5 mm:   For this purpose, according to the design, e.g. - turn upper stop screw and secure with nut or - remove hold-down and turn lower setscrew. Now secure the hold-down with bolts and cotter pins.	daily
After unhitching:	Place the protective cap on the ball.	daily

<table>
<tr><th>Maintenance location</th><th colspan="3">Work instructions</th><th>Interval</th></tr>
<tr><td colspan="5">Drawbar eye</td></tr>
<tr><td>Fastening</td><td colspan="3">➢ Check mounting screws for firm seat (560 Nm)</td><td>40 h</td></tr>
<tr><td rowspan="7">Wear</td><td colspan="3">➢ Replace the component concerned if one of the wear limits has been exceeded or fallen short of (workshop work):</td><td></td></tr>
<tr><td>Designation</td><td>Nominal dimension (mm)</td><td>Wear dimension (mm)</td><td rowspan="6">40 h</td></tr>
<tr><td>ø eye</td><td>42.0</td><td>43.5</td></tr>
<tr><td>ø eye</td><td>51.0</td><td>52.5</td></tr>
<tr><td>ø swivel ball</td><td>110.0</td><td>108.5</td></tr>
<tr><td>Ball height</td><td>70</td><td>68</td></tr>
<tr><td>Height of ring</td><td>54</td><td>50</td></tr>
<tr><td colspan="5">Machine</td></tr>
<tr><td>Frame, frame connection point</td><td colspan="3">Check condition and firm seating</td><td>daily</td></tr>
<tr><td>Tines, tine holders and stone release protection</td><td colspan="3">Check for condition, firm seating and wear
(Tool carrier bolts (M 20): 500 ± 50 Nm)</td><td>daily</td></tr>
<tr><td>Coulter</td><td colspan="3">Check condition, mounting, firm seating and wear</td><td>daily</td></tr>
<tr><td rowspan="2">Levelling discs</td><td colspan="3">Check for play and free rotation</td><td>daily</td></tr>
<tr><td colspan="3">➢ In case of loose discs, tighten all screws with 160 ± 20 Nm.
➢ When replacing discs, tighten all screws with 200 ± 20 Nm.
➢ Do not use adhesives for securing.</td><td>as required</td></tr>
<tr><td>Levellers</td><td colspan="4">Check for wear and replace as required.</td></tr>
<tr><td rowspan="3">Undercarriage / wheels</td><td colspan="3">Check for damage (cracks, etc.)</td><td>daily</td></tr>
<tr><td colspan="3">Check fastening / retighten wheel nuts - see above</td><td>see above</td></tr>
<tr><td colspan="3">Check air pressure
• Undercarriage: 550/60-22.5 V Line 16 TL: 2.8 bar
• Support wheels: 400/60-15.5 TR 882 14 PR TL: 2.6 bar</td><td>daily</td></tr>
<tr><td>Bearings of carrying axle journal</td><td colspan="3">Check clearance and adjust if necessary (must only be carried out by an expert workshop)</td><td>120 h /
6 months</td></tr>
<tr><td rowspan="4">Packer</td><td colspan="3">Check packer bearings for tight fit.</td><td>daily</td></tr>
<tr><td colspan="3">Check packer shafts for free rotation</td><td>daily</td></tr>
<tr><td colspan="3">Check packer segments for wear, deformation and breakage.</td><td>daily</td></tr>
<tr><td colspan="3">Readjust scraper, if so equipped.</td><td>as required</td></tr>
<tr><td rowspan="4">Brake system</td><td colspan="3">Check condition and function</td><td>daily</td></tr>
<tr><td colspan="3">Drain air reservoir</td><td>daily</td></tr>
<tr><td colspan="3">Check brake lines and hoses for damages, crushing points and kinks</td><td>daily</td></tr>
<tr><td colspan="3">Clean the pipe filter</td><td>annually/
as required</td></tr>
</table>

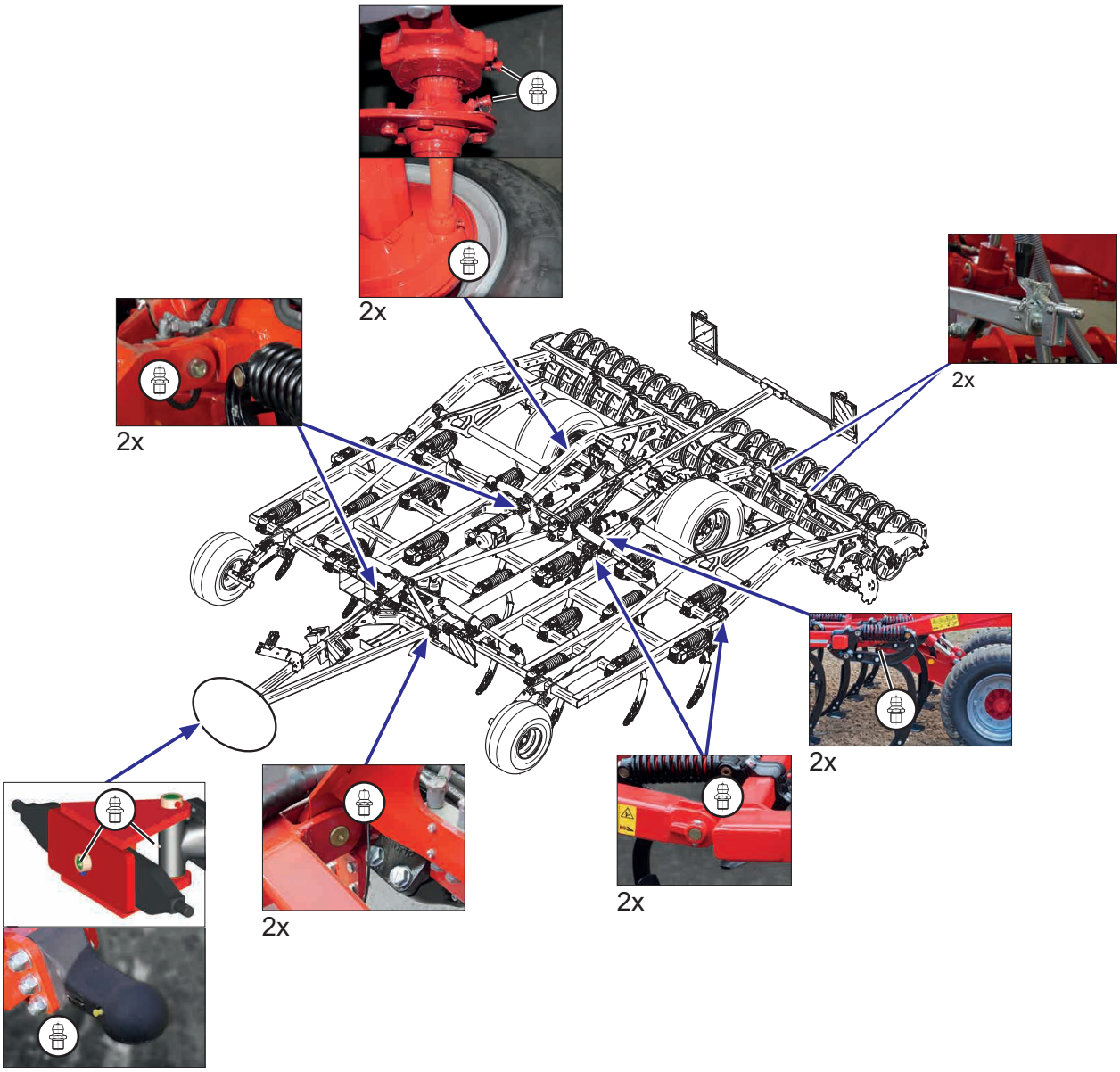
Maintenance location	Work instructions	Interval
Safety installations		
Lighting and warning boards	Check condition and function	daily
Warning and safety stickers	Check that they are in place and legible	daily
At the end of the season		
Complete machine	Perform care and cleaning work; do not spray plastic parts with oil or similar	
	Spray the piston rods of the hydraulic cylinder with a suitable corrosion protection agent	
	Check all screw and plug-and-socket-connections for firm seating (see torque table)	
	Check frame and connecting parts for condition and firm seating	
Brake system	Release parking brake, drain air reservoir, close brake lines, check setting	

NOTES:

- The maintenance interval *Daily* designates maintenance on each working day before working with the machine.
- Follow additional maintenance notes in the respective chapters.

Lubrication points (Lubrication grease: DIN 51825 KP/2K-40) - Number of lubrication points in brackets		
Lubricate ball and socket coupling	(1)	25 h
Lubricate tractor link arm	(2)	daily
Lubricate drawbar joints	(2)	daily
Lubricate wing joints	(4)	50 h
Lubricate packer carrier joints	(4)	50 h
Lubricate undercarriage joint	(2)	50 h
Lubricate levelling disc adjustment cranks	(*4.3/4.4 GX*: 2; *5.3/5.4/6.3/6.4 GX:* 4)	50 h
Brake system	(6)	50 h

Lubrication points with the addition "2x" can be found on either side of the machine.



Waste disposal

Oils, greases and wastes contaminated with these substances represent a great danger for the environment and must be disposed of environmentally and in compliance with the corresponding legal regulations.
If necessary contact your local authorities to get all relevant information.

Various substances will accumulate during operation and maintenance, which must be disposed of appropriately.
For the disposal of auxiliary and operating media as well as other chemicals you must strictly comply with the specifications in the respective safety data sheets.

Decommissioning

If the machine is no longer suitable for use and needs to be disposed of, it must be decommissioned. All machine parts must be separated by material and passed on to environmentally friendly waste disposal or recycling. Attention must be paid to all valid regulations.

Decommissioning and waste disposal must only be carried out by operators who have been trained by HORSCH.
Contact a waste disposal company, if this should be necessary.

Appendix

Tightening torques

NOTE

- The tightening torques only serve as guidelines and are generally valid. Actual data given at the corresponding points in the operating instructions have priority.
- Screws and nuts must thereby not be treated with lubricant, since this would change the friction value.

Metric screws

Tightening torques - metric screws in Nm							
Size ø mm	Pitch mm	Screw design - strength classes					wheel nuts
		4.8	5.8	8.8	10.9	12.9	
3	0.50	0.9	1.1	1.8	2.6	3.0	
4	0.70	1.6	2.0	3.1	4.5	5.3	
5	0.80	3.2	4.0	6.1	8.9	10.4	
6	1.00	5.5	6.8	10.4	15.3	17.9	
7	1.00	9.3	11.5	17.2	25	30	
8	1.25	13.6	16.8	25	37	44	
8	1.00	14.5	18	27	40	47	
10	1.50	26.6	33	50	73	86	
10	1.25	28	35	53	78	91	
12	1.75	46	56	86	127	148	
12	1.25	50	62	95	139	163	
14	2.00	73	90	137	201	235	
14	1.50	79	96	150	220	257	
16	2.00	113	141	214	314	369	
16	1.50	121	150	229	336	393	
18	2.50	157	194	306	435	509	
18	1.50	178	220	345	491	575	300
20	2.50	222	275	432	615	719	
20	1.50	248	307	482	687	804	
22	2.50	305	376	502	843	987	
22	1.50	337	416	654	932	1090	510
24	3.00	383	474	744	1080	1240	
24	2.00	420	519	814	1160	1360	
27	3.00	568	703	1000	1570	1840	
27	2.00	615	760	1200	1700	1990	
30	3.50	772	995	1500	2130	2500	
30	2.00	850	1060	1670	2370	2380	

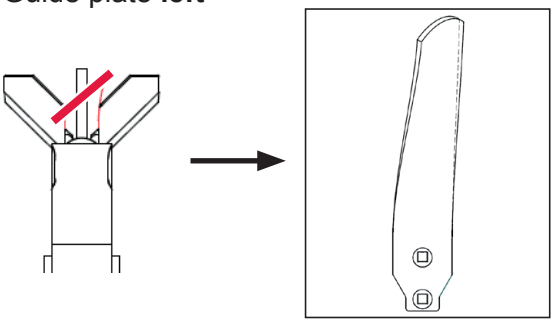
Inch screws

Tightening torques - inch screws in Nm							
Screw diameter		Strength 2		Strength 5		Strength 8	
		No marks on head		3 marks on head		6 marks on head	
Inch	mm	Coarse thread	Fine thread	Coarse thread	Fine thread	Coarse thread	Fine thread
1/4	6.4	5.6	6.3	8.6	9.8	12.2	13.5
5/16	7.9	10.8	12.2	17.6	19.0	24.4	27.1
3/8	9.5	20.3	23.0	31.2	35.2	44.7	50.2
7/16	11.1	33.9	36.6	50.2	55.6	70.5	78.6
1/2	12.7	47.5	54.2	77.3	86.8	108.5	122.0
9/16	14.3	67.8	81.3	108.5	122.0	156.0	176.3
5/8	15.9	95.0	108.5	149.1	169.5	216.0	244.0
3/4	19.1	169.5	189.8	271.1	298.3	380.0	427.0
7/8	22.2	176.3	196.6	433.9	474.5	610.0	678.0
1	25.4	257.6	278.0	650.8	718.6	915.2	1017
1 1/8	28.6	359.3	406.8	813.5	908.4	1302	1458
1 1/4	31.8	508.5	562.7	1139	1261	1844	2034
1 3/8	34.9	664.4	759.3	1491	1695	2414	2753
1 1/2	38.1	881.3	989.8	1966	2237	3128	3620

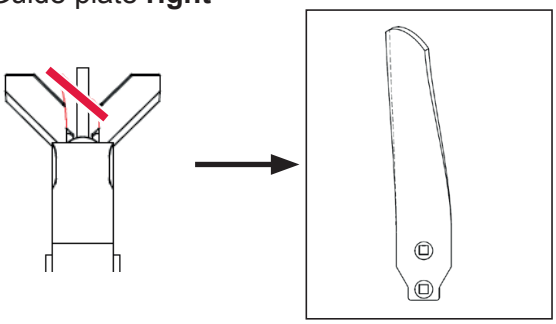
Coulter arrangement

The coulter spirals point in different directions to produce good mixing:

Guide plate **left**



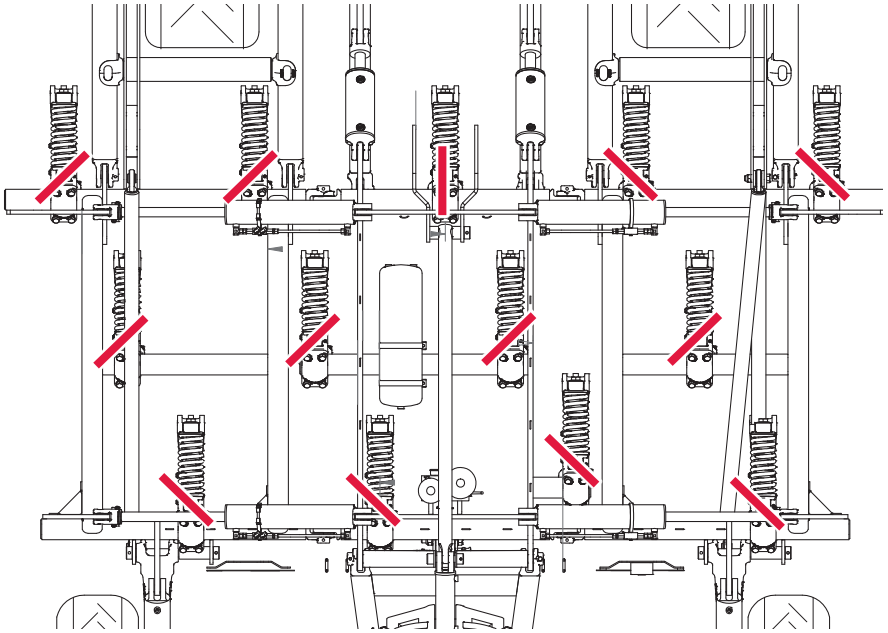
Guide plate **right**



NOTE

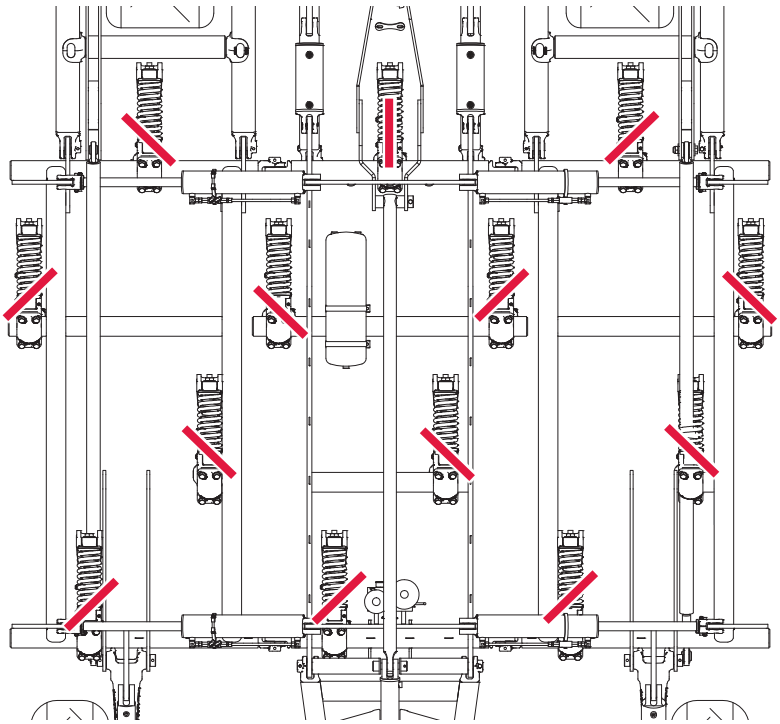
Observe the correct direction of installation when replacing coulters!

Terrano 4.3 GX



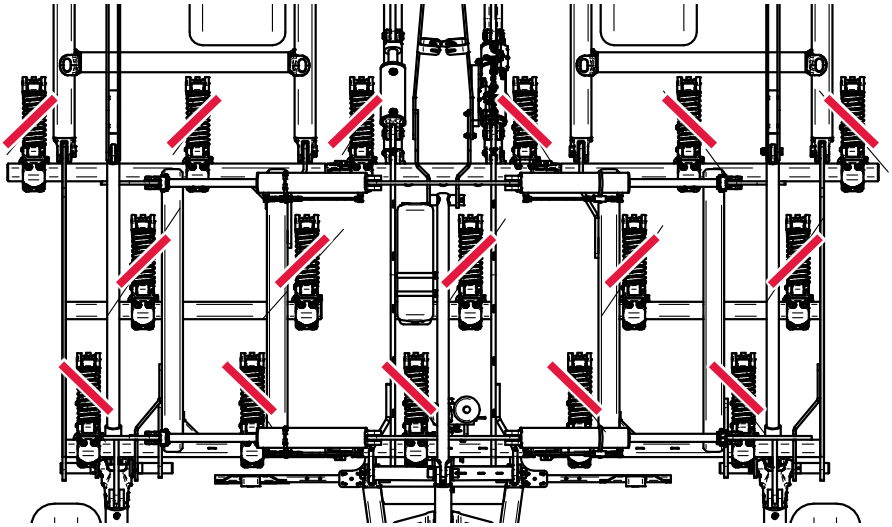
Direction of travel

Terrano 4.4 GX



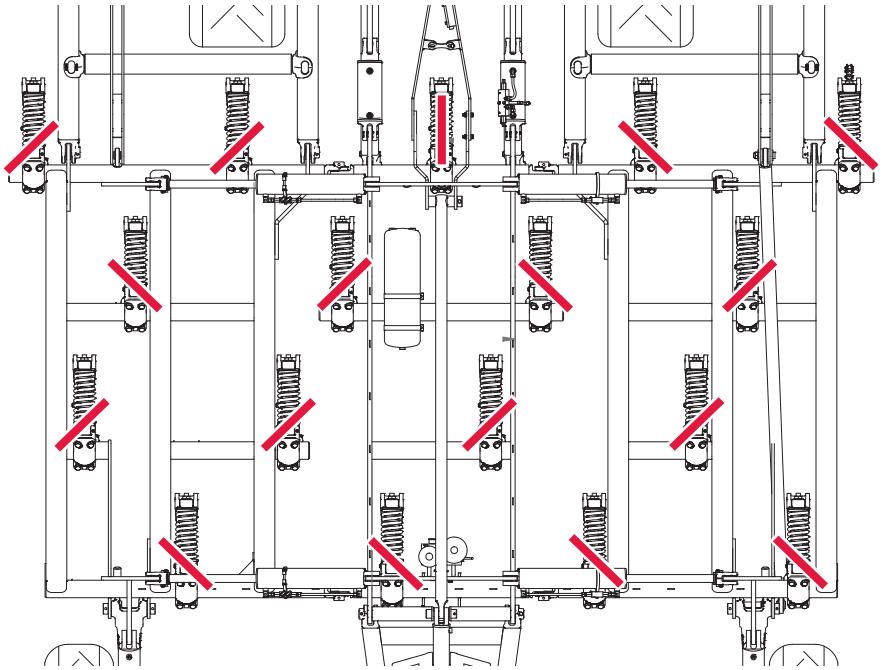
Direction of travel

Terrano 5.3 GX



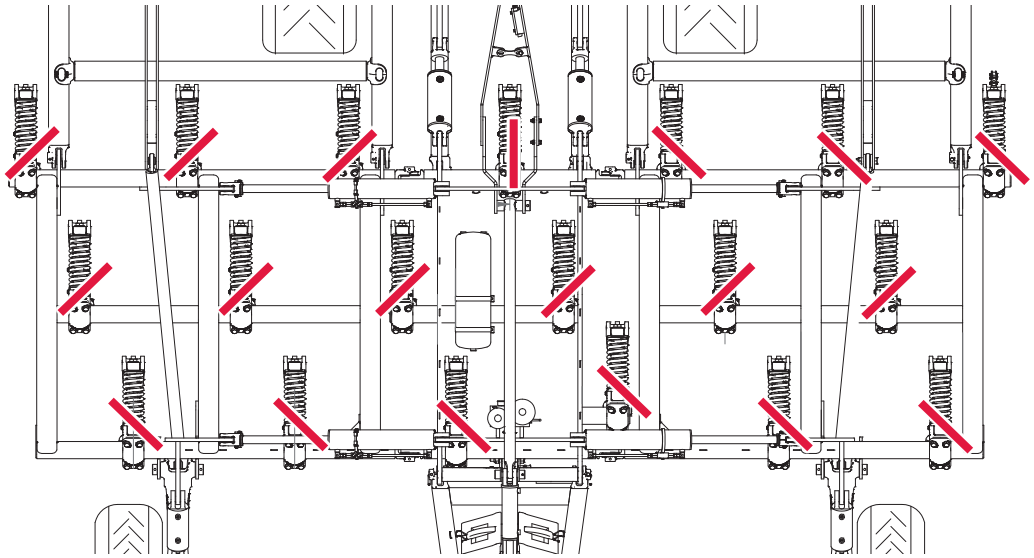
Direction of travel

Terrano 5.4 GX



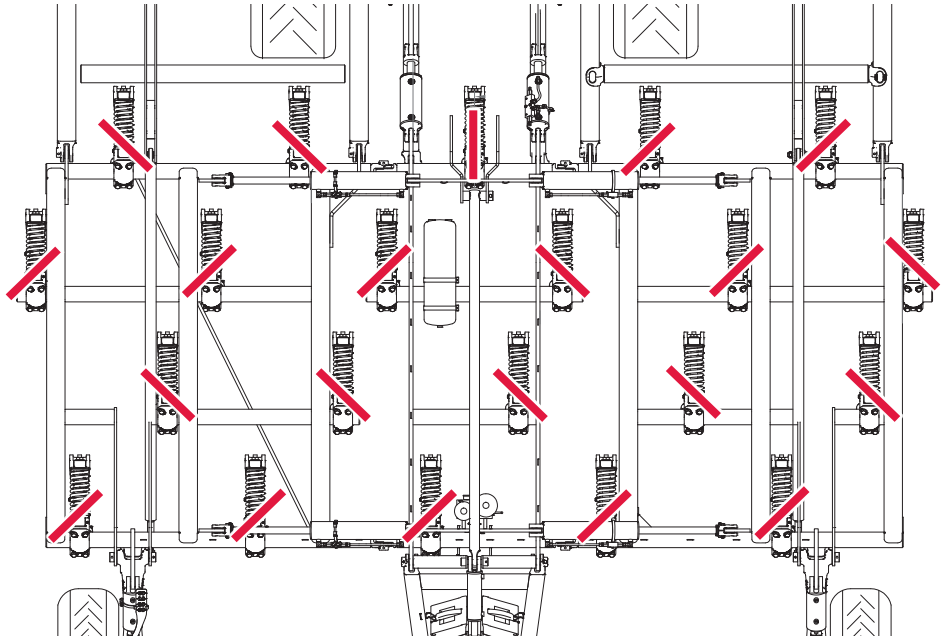
Direction of travel

Terrano 6.3 GX



Direction of travel

Terrano 6.4 GX



Direction of travel

Changing wheels (undercarriage)

⚠ WARNING

Traffic and work accidents from improper mounting!

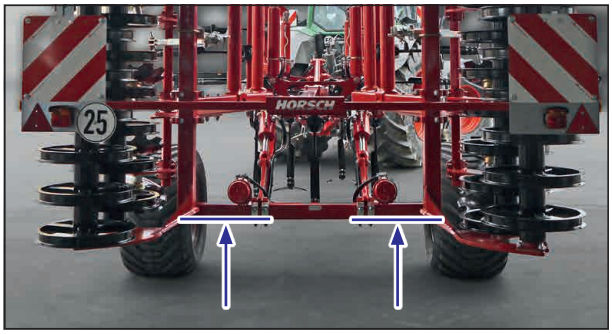
- ➢ Perform the wheel change only when the machine is hitched to the tractor and in stable position.
- ➢ Perform the wheel change only if all tools are available.
- ➢ Have the wheel change performed by a qualified shop or tire service if not fully knowledgeable about the procedure and/or not all tools are available.
- ➢ Danger of explosion! Do not exceed the specified tire pressure, see *Maintenance overview*.
- ➢ Observe the tightening torque for the wheel nuts.

Required tools

- Ring spanner, 30 mm, with extension, if necessary
- Torque wrench 500 Nm
- Jack with lifting force 5,000 kg
- Tripod trestle with permitted load capacity min. 5,000 kg

Procedure

1. Park the machine on a level and paved area.
1. Fold the machine, see *Folding.*
2. Engage the brake.
3. Place the jack on the side of the wheel to be changed at the jack lifting point of the axle:

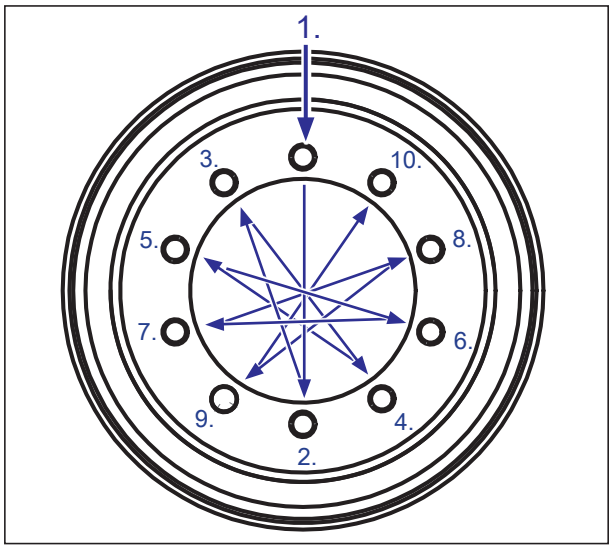


4. When using a hydraulic jack without safety lock, use a tripod trestle or similar support device in addition to secure the load against lowering.
5. Loosen the wheel nuts by half a turn.
6. Lift the axle with the jack until the wheel is clear.
7. Adjust the tripod trestle to the correct length and put it under the axle.
8. Loosen the wheel nuts and remove the wheel.

⚠ WARNING

➢ Never park the machine without securing it when the wheel(s) is/are dismantled!

9. Attach the new wheel and fasten it with the wheel nuts. Tighten the wheel nuts crosswise at this:



10. Remove the tripod trestle and lower the machine.
11. Tighten the wheel nuts with the torque wrench (500 Nm).

⚠ NOTE

➢ Retighten the wheel nuts with 500 Nm after 10 km.

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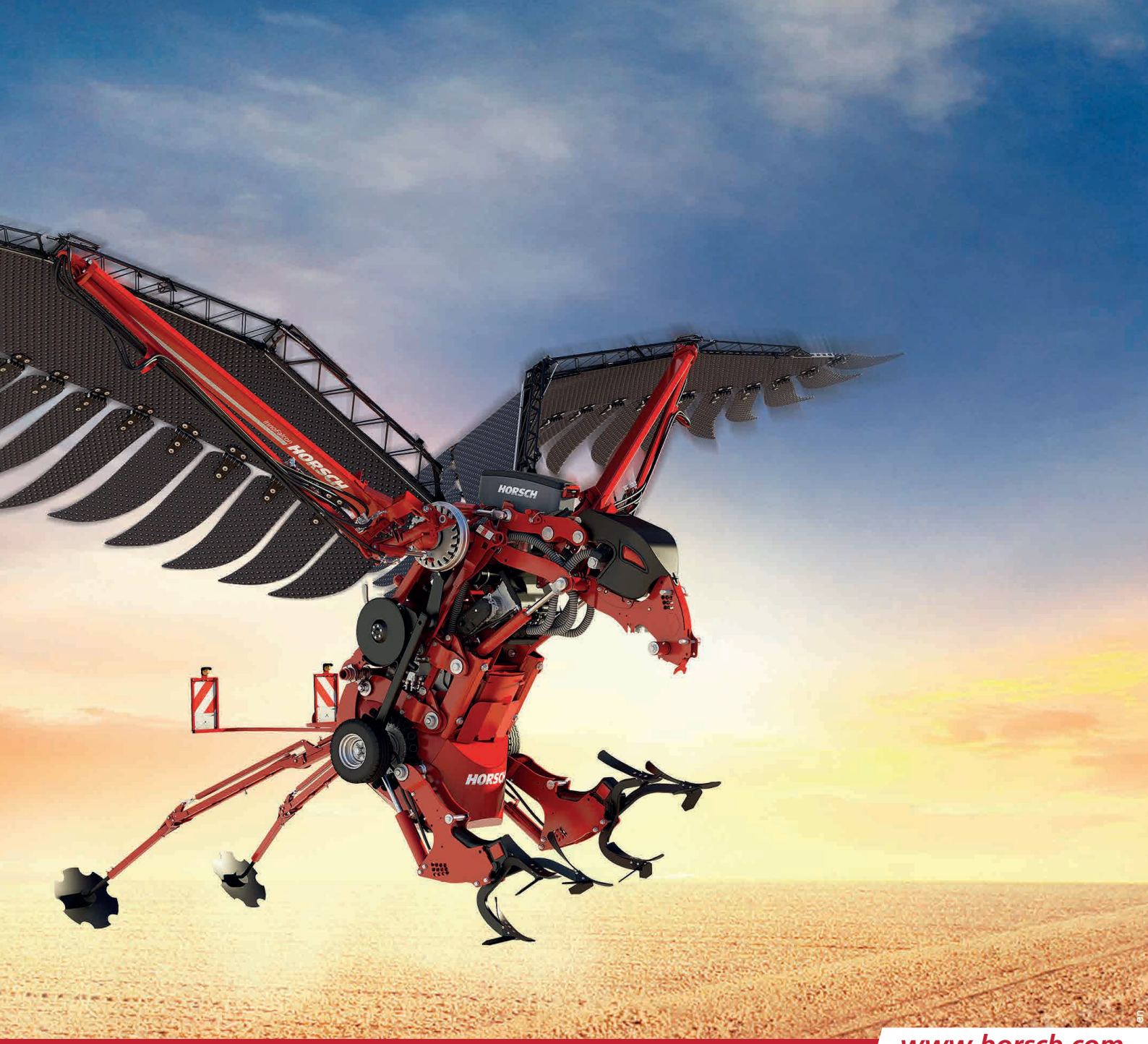

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All details on technical specifications and pictograms are approximate and for information only. Subject to technical product revisions.

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