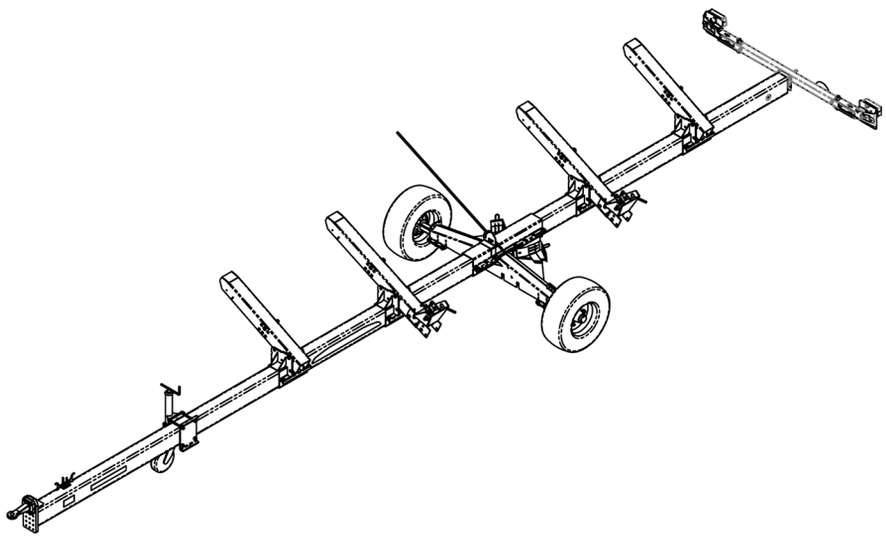
ZÜRN
HARVESTING

OPERATING MANUAL

SWW 100 · 120
200 · 220 · 250 · 260
300 · 320 · 350 · 360



1-Axle Header Transporter

35932 Version B

Masthead

Title:	Operating Manual 1-Axle Header Transporters
Manufacturer:	Zürn Harvesting GmbH & Co. KG Schöntal
Applicable to:	SWW100 · SWW120 · SWW200 · SWW220 · SWW250 · SWW260 SWW300 · SWW320 · SWW350 · SWW360
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Foreword

This transporter is designed only for the usual application in agricultural work or similar activities. Any other use beyond this is deemed improper use of the machine. The manufacturer accepts no liability whatsoever for damage resulting from improper use; the risk will be borne solely by the user. Proper use also includes complying with the operation, maintenance and service conditions specified by the manufacturer.

Read this operating manual thoroughly to familiarise yourself with the correct operation and maintenance of the machine and to prevent injuries or damage to the machine. Not doing so can result in injuries or machine damage. This operating manual and the safety labels on the machine may also be available in other languages: please enquire at your dealership.

This operating manual is part of the machine and should be handed over to the purchaser if the machine is re-sold.

Dimensions specified in this operating manual are metric. Use only appropriate parts and bolts. Different spanners are required for metric bolts and bolts with imperial (inch) dimensions.

The designations "left" and "right" are with reference to the forward direction of the machine.

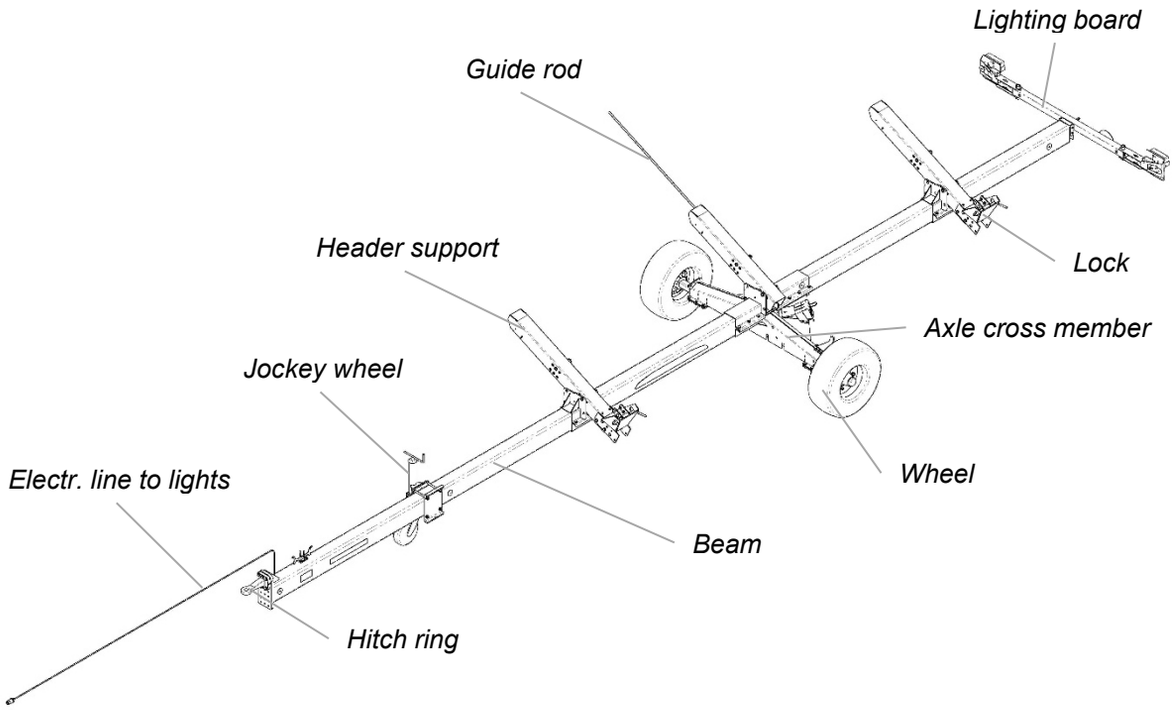
Enter the serial number in the first section of the operating manual. Please record all numbers accurately. In case of theft, these numbers can be important for tracing the machine. Your dealer also needs these numbers when you order spare parts. It is a good idea to keep a second record of these numbers in another location.

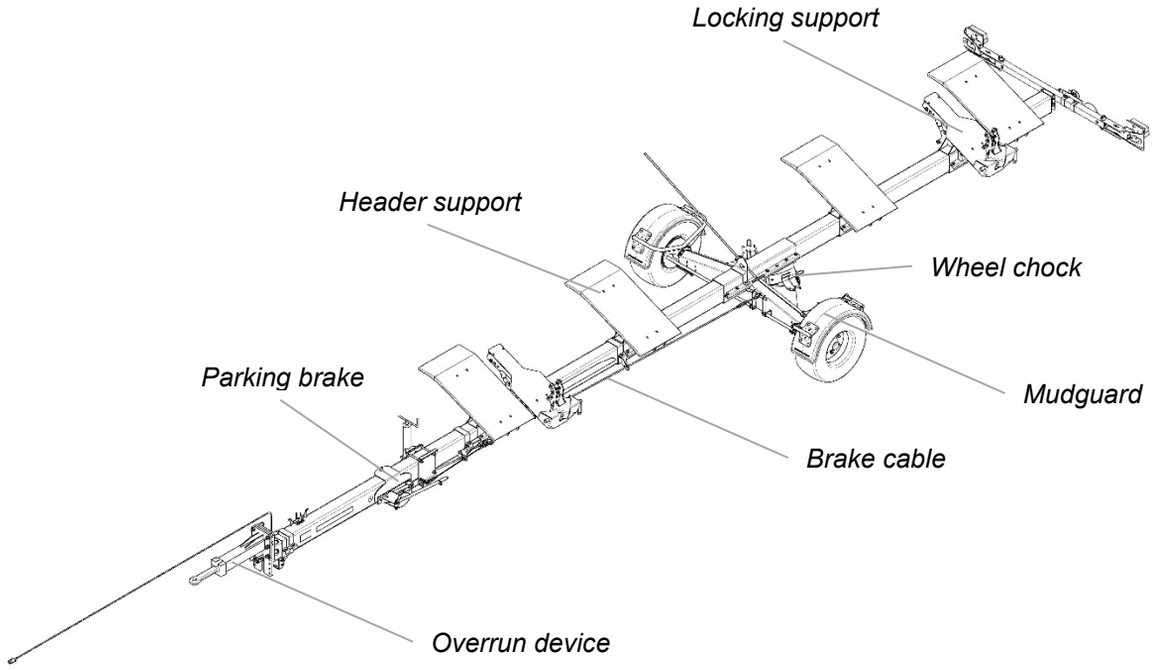
Your dealer has carried out an inspection of the machine prior to delivery. A further inspection should be carried out by your dealer after the first 20 to 50 hours of operation in order to ensure the best possible performance for the machine.

This transporter must only be used, serviced and repaired by persons who are familiar with it and who have been briefed about its hazards. The relevant accident prevention regulations and other generally recognized rules and laws for safety, occupational health and road traffic must also be observed. Unauthorized changes to this transporter release the manufacturer from liability for any resulting damage.

Contents

Header transporter components





Type Plates

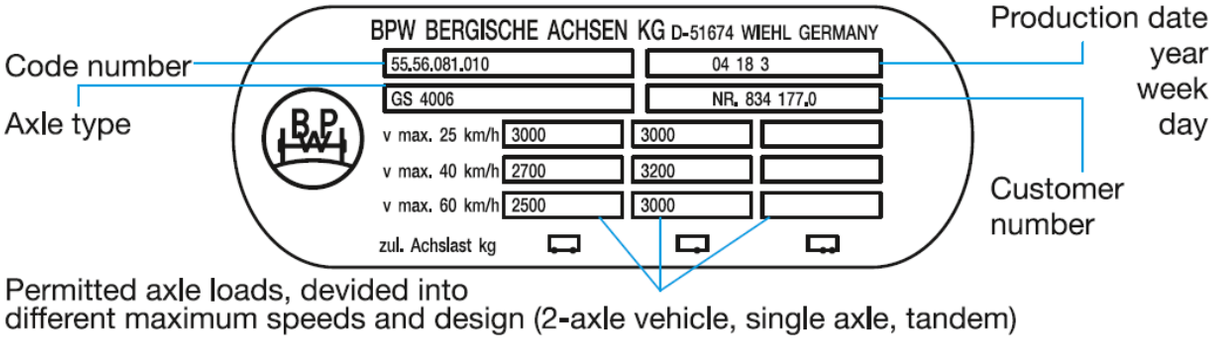
Please make a note of the type designation and serial number of your machine here. This information must be given to the authorised dealer when ordering spare parts or making guarantee enquiries.

Type: _____

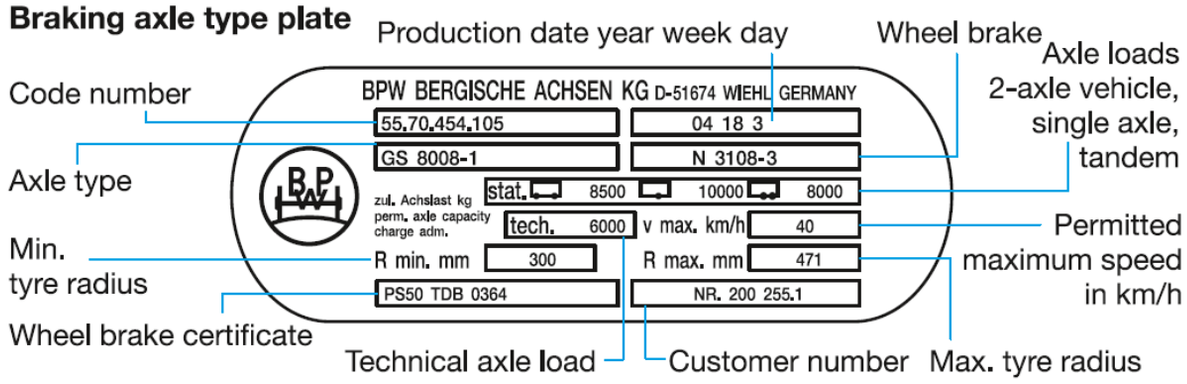
Serial number: _____

Chassis number: (VIN) _____

Trailer axle type plate



Braking axle type plate



Safety Instructions

Explaining the symbols used in this document

This symbol indicates a potentially hazardous situation which, if not avoided, may lead to personal injury.

This symbol indicates special rules or procedures that need to be observed to avoid machine damage.

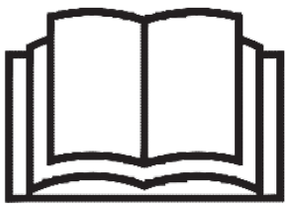
This symbol indicates special technical instructions.

The illustrations in this manual are used as examples and may differ from the product. All information and data are subject to change by the manufacturer alone without prior notice.

Safety Instructions

Safety instructions for technical staff and operators

Before using the machine, carefully read and observe all safety rules listed in this manual and observe all decals on the machine.

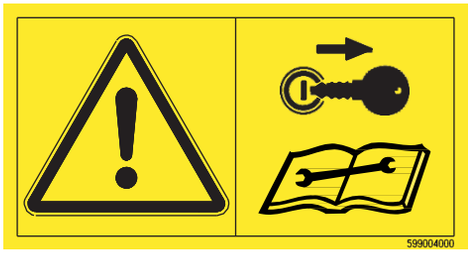


Before starting work, make sure that you are familiar with all mechanisms and controls and their functions. During operation is too late!

Never leave the machine to anyone who has not been trained in using and operating it properly.

Contact your Zürn sales partner if you have problems understanding certain parts of this manual.

Always apply the handbrake on the header transporter and shut off the engine of the towing vehicle before you work on the transporter. Remove the ignition key and wait until all moving parts have come to a complete stop.



Wear close-fitting clothes! Loose clothing can easily get caught in moving machine parts.

Wear protective gear that suits the work at hand (gloves, footwear, goggles, helmet, ear protectors, etc.).

Any ropes, cables, linkages, etc. of remote-controlled mechanisms must be routed and installed in such a way that they do not cause unintentional machine action leading to accidents and damage. This applies to all transport and working positions.

Before each use verify that nuts and bolts are tight - especially those that attach tools such as blades. Retighten if necessary.

Before you use the machine make sure all safety features and guards are in place, in protective position and operable. Immediately replace any inoperable safety features.

Safety Instructions

Precautions for use and shunting

Before changing over from transport to working position and vice versa, ensure that no persons are within the manoeuvering zone of the machine.

Precautions for maintenance and repair work

Before carrying out any work or intervention on the header transporter, shut off the engine on the towing vehicle, remove the ignition key, wait until all moving parts have come to a complete standstill and apply the parking brake. Depressurise the hydraulic system.

Prop up and secure any machine parts that are raised for maintenance or repair.

Disconnect all electric lines from the towing vehicle before working on the electric system or before welding on the transporter.

Repairs on parts under strain or pressure (springs, accumulators, etc.) must be carried out solely by specialist staff who have the necessary qualification and special tools.

Wear protective gear that suits the work at hand (gloves, footwear, goggles, helmet, ear protectors, etc.).

Do not weld, solder or use flame cutters near pressurised liquids or highly flammable products.

Only use original spare parts to ensure your personal safety and correct functioning of the header transporter.

We strongly recommend to have the machine and its parts and fastening elements checked by your authorised Zürn Harvesting sales partner after each season.

Safety Instructions

Precautions for travelling on public roads

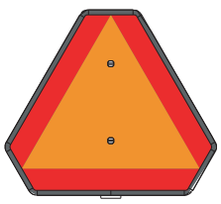
Dimensions

The combination must comply with local requirements relating to maximum dimensions for travel on public roads. In case of doubt, seek information beforehand from the relevant authorities.

If the combination exceeds the maximum dimensions and yet has to be transported on public roads, contact the local authorities to obtain a special permit before you travel on public roads.

Transport position

Before travelling on public roads, place and secure the machine on a suitable transporter, following the instructions in this manual.



Lights and warning devices

Before travelling on public roads, ensure that all required lights and warning panels are in place.

Check these devices for proper functioning and visibility. Replace any missing or damaged parts immediately.

Maximum speed

Always comply with the current regulations regarding speed limits on public roads.

When travelling on public roads, always comply with the relevant regulations.

Before travelling on public roads and before each use check the header transporter and the towing vehicle for road safety and operational safety!

Modifications to the header transporter

Any modifications to the transporter and its optional features must be approved in writing by the manufacturer. The warranty and product liability will be voided, if such modifications are carried out without the written approval of the manufacturer.

The manufacturer's liability refers to the original condition in which the vehicle is delivered to the country of destination as contractually agreed by the manufacturer.

Any unauthorised modifications to this transporter render any manufacturer liability for any consequential damage null and void.

Welding

Ensure that any type of welding is carried out by qualified and certified welders. Welding must not affect the warranted properties of the steel structure. This applies in particular to structural parts and to the components that support the load. For this reason, any type of welding on the chassis and axles must be approved in writing by the manufacturer. In case of non-compliance, the manufacturer shall consider the weldment as an unauthorised modification to the transporter.

Using original parts

Only use original parts sourced from the manufacturer. This is mandatory. Using third-party parts voids the manufacturer warranty including for consequential damage resulting from this.

Safety Instructions

Bolted assemblies

Observe the property class when fastening and replacing bolts and nuts (see the table in this manual and the parts list).

After assembling the transporter, tighten all bolts to the proper torque.

For special torques read the assembly instructions or ask the manufacturer.

For any torques of regular bolts refer to the table.

Self-clinching bolts and nuts must be replaced by new ones after they have been removed during a repair.

This is necessary as nuts with a self-clinching fastener loose their holding power with each reuse.

Before selling the vehicle and optional equipment to a third-party country, the seller must seek information on whether an official approval or a safety inspection by an officially recognised testing centre is required before the vehicle can be put into operation in the specific country.

Waste prevention

Never pour environmentally hazardous products (oils, greases, filters, etc.) into a sink or empty them onto the ground or in other spaces. Never burn or throw away used tyres. Have waste disposed of by specialised disposal companies.

Safety Instructions

Safety decals

Safety decals are placed in various locations on the machine. Always follow these instructions! The decals alert operators to potential hazards and provide rules of practice to cut out any risk of an accident.

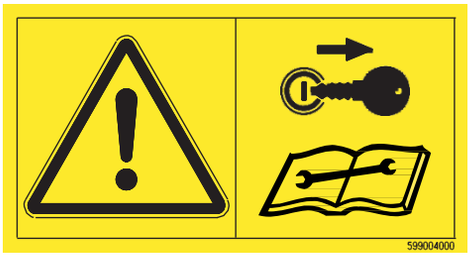
Keep the safety decals clean and legible and replace them immediately when damaged, worn or lost.

Operating instructions

The operating instructions contain all the necessary information for the safe use of the machine. To avoid the risk of accidents, read the operating instructions carefully and follow all instructions.

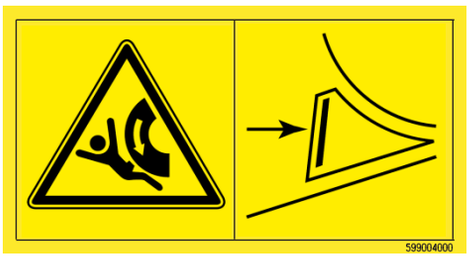
Working on and intervening in the header

Before carrying out any type of work on or intervention in the header, disengage the clutch in the driveline, shut off the engine, remove the ignition key, wait until all moving parts have come to a complete standstill and apply the parking brake.



Parking the transporter

Secure the transporter with a wheel chock before removing it from the towing vehicle or parking it.



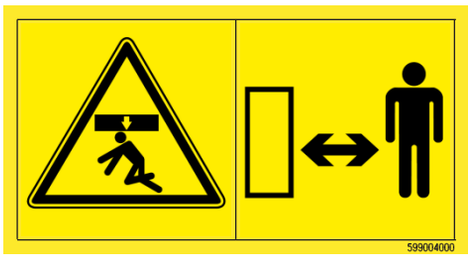
Safety Instructions

Placing the header on the transporter

When placing the header on the transporter, keep clear of the danger zone between the header and the transporter.

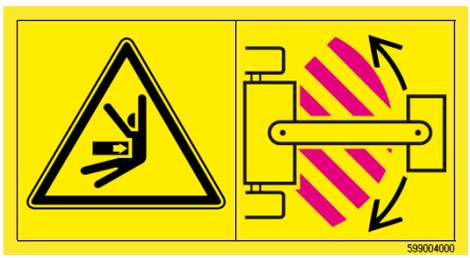
The header is lifted

Keep clear of the header swing area when placing it on the transporter.



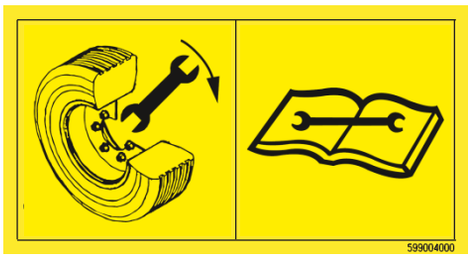
Risk of crushing

Keep clear of the drawbar unit and all steering elements (e.g. turntables, steering rods) while operating the machine. Risk of being crushed at a full lock turn.



Retighten the wheel bolts

Retighten the nuts after the first journey.



Intended use

This vehicle is intended solely for transporting combine headers behind an agricultural machine such as a tractor or combine harvester. Any other use is considered as not intended. The manufacturer will not be held liable for any damage resulting from applications that are not considered intended use. The risk involved by such unintended use rests solely with the user. The intended use also refers to adhering to the conditions dictated by the manufacturer regarding operation, service and maintenance and repair.

It is absolutely necessary to observe the following instructions. The improper use or non-compliance with the general rules given below will invalidate the warranty and the vehicle approval.

General rules

- Never exceed the permissible gross weight of the machine.
- Never exceed the total vehicle width, length and height.
- Never exceed the permissible brake load.
- Never shift too much weight on one side of the vehicle by overloading it or steering it over kerbs or similar obstacles.
- Do not fit wheels or tyres that are not approved. Ensure the track width is set to maximum.
- Do not expose the machine to excessive stress and strain due to wheel camber and inappropriate offset.
- Never exceed the permissible maximum speed.
- Before each use of the vehicle, ensure that the brakes and brake systems are configured correctly and function trouble free.
- The manufacturer gives no warranty on wear and unauthorised modifications.
- Verify that all lights function properly before each use.

Never exceed the permissible payload and maximum speed of the vehicle!

All important information on the technical data of the vehicle are provided in the registration papers or the vehicle ID document.

Intended use

Intended use

- All Zürn header transporters and all elements used to support and secure a header must be used solely as intended.
- Any other use is considered as not intended. The manufacturer shall not be liable for any damage resulting from this type of use.
- Observe all technical data and do not exceed any maximum limits when operating the header. This applies in particular to the permissible payload, gross weight, axle loads, tongue load and the maximum speed of the vehicle.
- The intended use refers to adhering to the conditions dictated by the manufacturer regarding operation, service and maintenance and repair. The vehicle must be operated, serviced and maintained by staff who received the proper training and instructions and who have been advised of the hazards involved when operating the machine.
- Safe ground speeds during transport on public roads are down to the road gradient and slope, to the weight as well as to the position and centre of gravity of the load, to weather conditions and traffic rules.
- It is absolutely necessary to substantially reduce the ground speed when cornering or travelling in sloping or difficult terrain.
- The towing vehicle must have the capacity to pull and brake the laden header transporter.
- The hitch system of the towing vehicle must be suitable to accommodate the hitch ring of transporter and meet the requirements to pull the combined gross weight of the header transporter and the header itself.
- Never pull the header transporter at speeds that exceed its permissible maximum speed!

The following uses are not considered intended use:

- Using the header transporter to transport loads that are different from that which is specified in this manual.
- Exceeding any of the maximum figures specified in the technical data.
- Having the transporter operated by unauthorised and untrained staff.
- Allowing people to ride on the transporter.

Limitations of use

- The technical data and limits must not be exceeded in any stage of the life cycle of the machine.

Solely operate the vehicle and its optional equipment within its maximum limits and according to its intended use.

Intended use

Liabilities

Owner

The owner is in charge and liable for the following:

- Keep the machine and the elements that support and secure the load in good condition.
- Operate the machine in line with its intended use.
- Forbear carrying out functions and actions that are not in line with the intended use.
- Select the proper staff to assemble, operate and service the machine.
- Train the staff who will assemble, operate and service the transporter, using the complete assembly and operating instructions.
- The manual is made available to operators and service staff in a language that is widely understood in the country.
- Service all service points at the intervals specified in the lubrication plan.
- Document any accidents the transporter may have been involved in.
- Provide workshop staff access to the operating and service and maintenance instructions before and during service and maintenance and repair work.

Operator

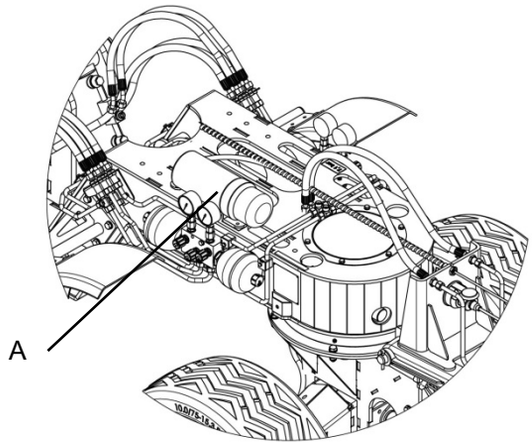
Operators are responsible for:

- not being intoxicated when driving.
- not exceeding the maximum speed to which the machine is approved.
- being familiar with the local traffic rules and measures to be taken in an emergency.
- telling the owner if they didn't understand the functions or controls of the machine.
- telling the owner if some functions have failed or if it is not possible to operate the machine safely.

The manufacturer understands that the operator has a driver's license that is valid in the country where the header transporter is operated and that he or she is licensed to operate a combination of such gross weight and length.

Scope of Delivery

An operating manual is stored in the document box (A) when the machine is delivered.



Assembling the transporter

Condition of the product on delivery

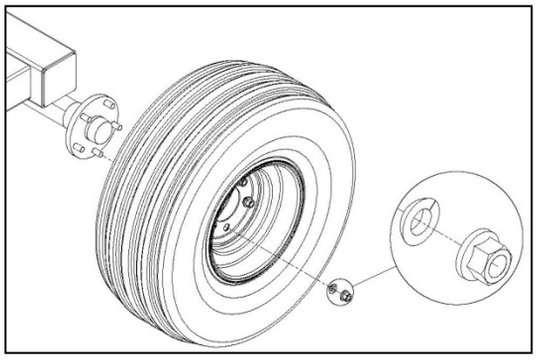
For reasons of transportation, the header transporter is delivered by the manufacturer with some components (e.g. drawbar, wheels) not being mounted to the chassis. These are included in the delivery. Yet the header supports are pre-bolted to their mountings on most machines.

Fitting the wheels

The transporter is delivered from the factory with its wheels not attached but included in the delivery. They have to mounted to the transporter before this can be operated.

The wheels are fitted to the hubs using the wheel nuts and limes-type conical spring washers.

► See section “Wheels” for further instructions on fitting the wheels.



Fitting and setting up the header supports

In factory-fitted condition the mountings for the header supports are bolted in place.

The cargo securing system is tailored to the specific header that the transporter is designed to carry. Therefore, the header supports and their mountings vary depending on the specific header.

Before operating the transporter, bolt the header supports to their mountings. The angle of the header supports is set by adjusting the top links.

► See section “Securing the load” for instructions on configuring the header supports.

Assembling the transporter

Fitting the lashing rings to the header

Fit the lashing rings that are supplied with the transporter to the combine header. They are customised to the specific header model and supplied with the header transporter.

► See section “Securing the load” for instructions on fitting the lashing rings.

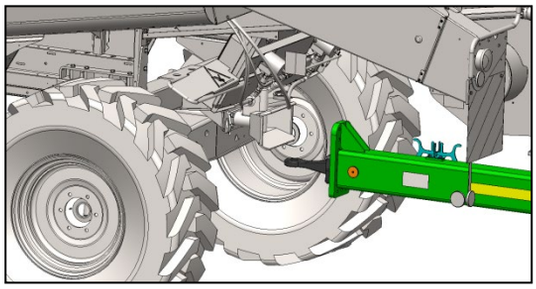
Assembling the transporter

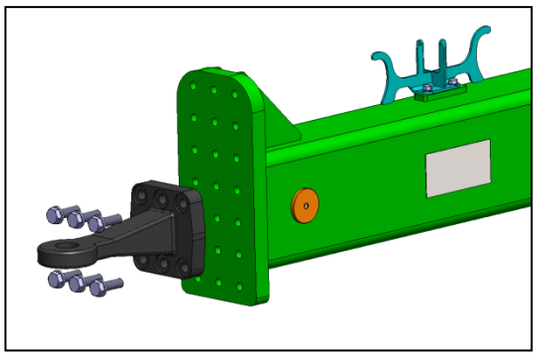
Configuring the hitch ring (unbraked single-axle models)

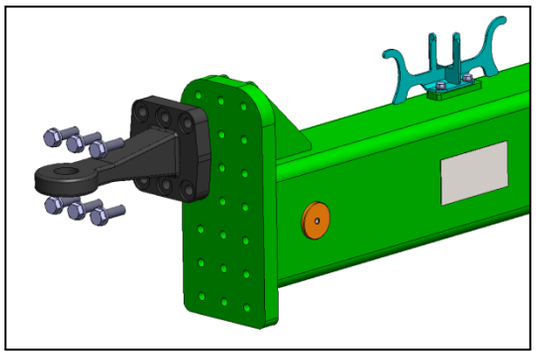
SWW100, SWW120, SWW200, SWW220, SWW300 and SWW320

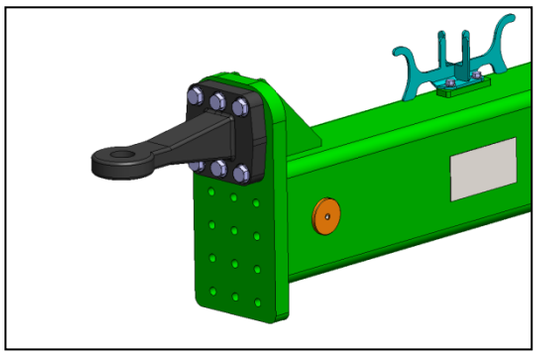
Before the transporter is put into use, adjust the hitch ring to match the coupling height of the towing vehicle. The drawbar is delivered with the hitch ring mounted in its uppermost position. To alter this position, proceed as follows:

- Park the unladen header transporter on firm, level ground and adjust the jockey wheel until the chassis is level.
- On the towing vehicle, measure the distance from the middle of the clevis to the road surface. The towing vehicle should also stand on firm, level ground.
- The transporter is delivered with the hitch ring mounted at a rated height of approx. 755 mm (from the middle of the hitch ring to the road surface). This measure refers to the laden transporter and may be slightly larger on the unladen machine.
- Now check whether the factory-fitted position of the hitch ring matches the hitch height of the clevis on the towing vehicle or whether it should be refitted to a lower position.
- If the hitch ring needs refitting, remove the 6 bolts that fasten the hitch ring to the drawbar and relocate the hitch ring. The smallest vertical measure is 55 mm.
- After the hitch ring is in the correct position, tighten the bolts at a torque of 220Nm.



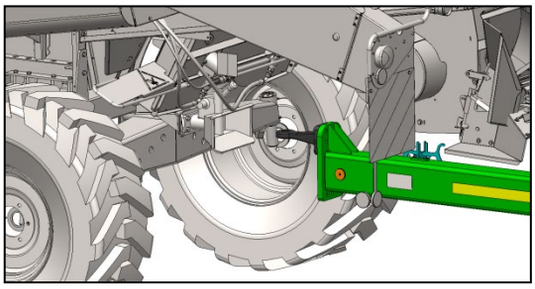


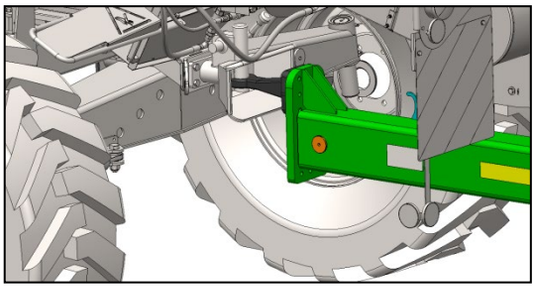




Assembling the transporter

The hitch ring is set to the correct height to couple to the towing vehicle. The chassis of the header transporter should be horizontal.





Setting up the brake (on an unbraked single-axle transporter)

After the hitch ring is set correctly, check the parking brake before you operate the machine. If necessary, re-adjust the brake.

► See section “Setting up the braking system” for detailed instructions on configuring the parking brake.

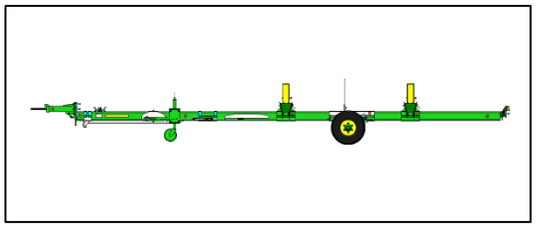
Assembling the transporter

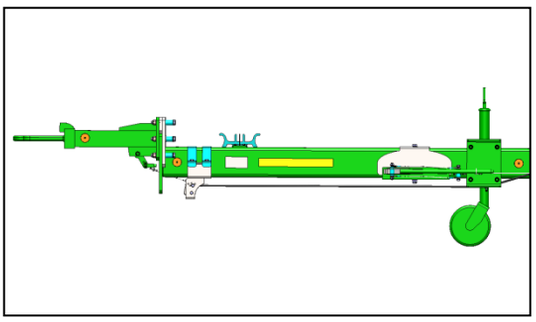
Configuring the overrun head (single-axle transporter with service brake)

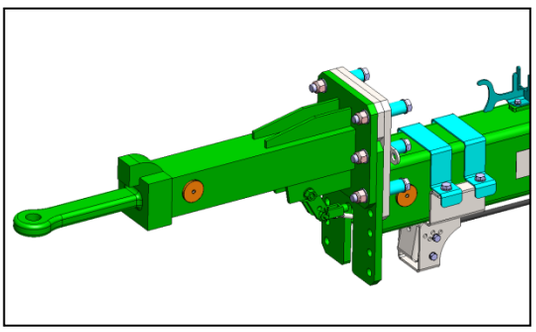
SWW250, SWW260, SWW350 and SWW360

Before the transporter is put into use, adjust the overrun head to match the coupling height of the towing vehicle. The drawbar is delivered with the head mounted in its uppermost position. To alter this position, proceed as follows:

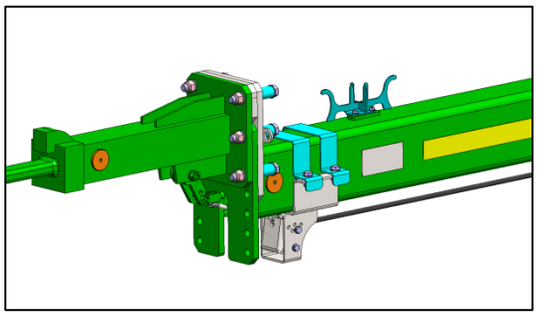
- Park the unladen header transporter on firm, level ground and adjust the jockey wheel until the chassis is level.
- Measure the distance from the middle of the hitch ring to the road surface. The towing vehicle should also stand on firm, level ground.
- The rated clearance between the middle of the factory-fitted overrun head and the road surface is approx. 755 mm. This measure refers to the laden transporter and may be slightly larger on the unladen machine.
- Now check whether the factory-set position of the overrun head matches that of the clevis on the towing vehicle or whether it should be relocated to a lower position.
- To this, remove the pin from the clevis joint that connects the brake cable to the downthrust clamp under the overrun head.
- Next, undo the 6 bolts that fasten the overrun head to the drawbar frame and relocate the overrun head. The smallest vertical measure is 55 mm.







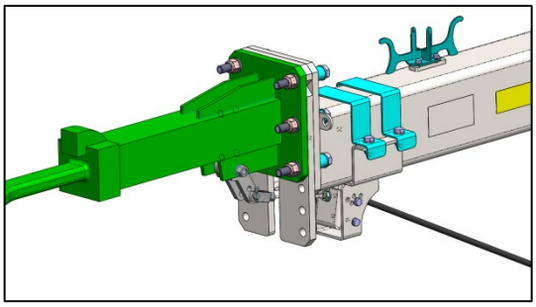
- The illustrations to the right show all setting options for the overrun head. It can be fitted to a height between 755 mm and 535 mm (measured from the road surface).
- You may have to use one or more of the factory-fitted shims.



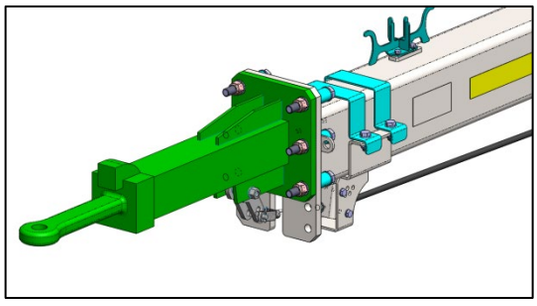
The overrun head at 755 mm

Assembling the transporter

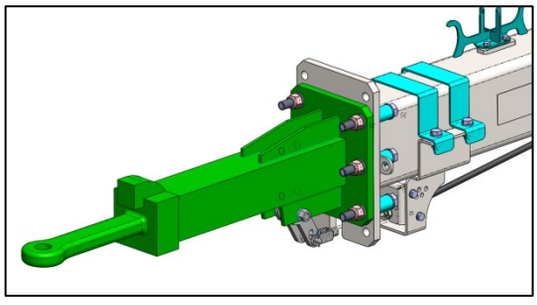
- After the overrun head is in the correct position, tighten the bolts at a torque of 425Nm.



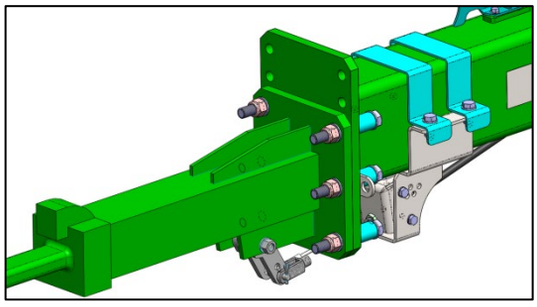
The overrun head at 700 mm



The overrun head at 645 mm



The overrun head at 590 mm



The overrun head at 535 mm

Assembling the transporter

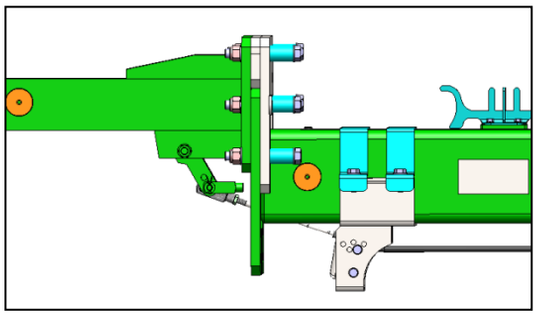
Replace the self-locking nuts after undoing. This is a safety measure.

After the overrun head has been relocated, it is necessary to adjust also all elements that guide the brake cable to the rear.

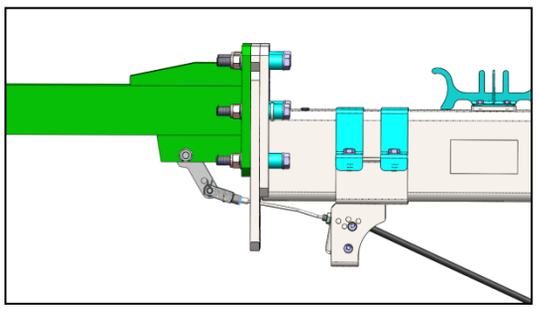
Failure to do this may have serious consequences: The brake cable may not run properly through the bulk head screw assembly. This may lead to premature wear and permanent damage to the cable and failure of the service brake.

Ensure that the brake cable is not kinked as it leaves the bulk head screw assembly.

This is the position of the bulk head screw assembly plate when the overrun head is in its uppermost position and a coupling height of approx. 755mm from the road surface.

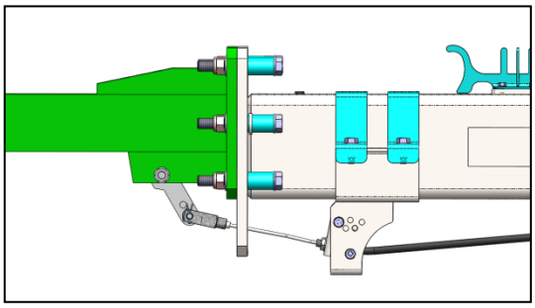


The is the position of the bulk head screw assembly plate when the overrun head at 700mm coupling height.

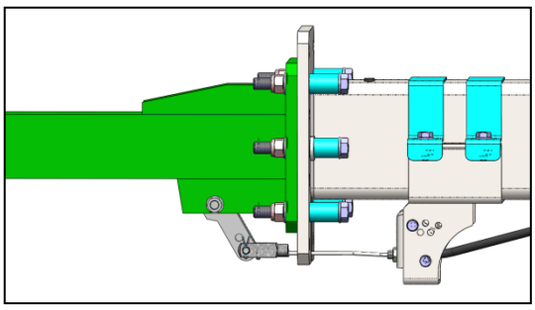


Assembling the transporter

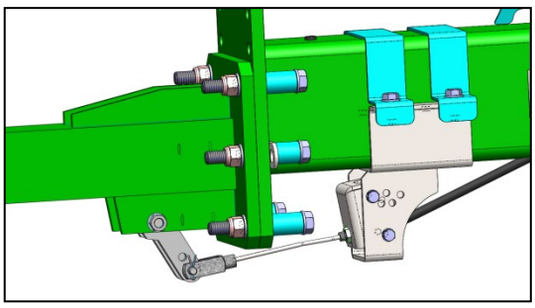
This is the position of the bulk head screw assembly plate when the overrun head at the 645mm coupling height.



The is the position of the bulk head screw assembly plate when the overrun head at the 590mm coupling height.



The is the position of the bulk head screw assembly plate when the overrun head at the 535mm coupling height.



Setting up the brake (on a single-axle transporter with service brake)

After the overrun head is at the correct height, check the configuration of the brake before you operate the transporter. If necessary, re-adjust the brake.

► See section “Setting up the braking system” for detailed instructions on configuring the parking and service brake.

Start-up operations

Assembling

The header transporter must be fully assembled before it is operated the first time.

► See section “Assembling the transporter” for information on assembling the transporter after taking its delivery from the factory.

The towing vehicle

To operate the transporter the first time, attach the unladen transporter to a suitable vehicle or machine and pull it off.

The header transporter may be pulled only by an agricultural tractor or a combine harvester.

The D-value of the drawbar is 62.8 kN. Ensure the towing vehicle has the capacity to pull the laden transporter safely and that the permissible D-value of 62.8 kN is not exceeded.

The hitch ring on the transporter measures 40 mm in diameter. The hitch system on the towing vehicle must be appropriately sized to accommodate the hitch ring.

The towing vehicle must provide a 7-pin electric socket (DIN 1724) to connect the electric system (lights) of the transporter.

Adjusting the drawbar

Prior to operation, adjust the drawbar and the overrun device on the single-axle and tandem-axle header transporters to the height of the clevis on the towing vehicle.

► See section “Assembling the transporter” for information on obtaining the correct coupling height.

Start-up operations

Setting up the brakes

Before operating the header transporter the first time, set up the brakes to their default configuration. After that, check the brakes for proper functionality before each use.

► See section “Setting up the braking system” for instructions on configuring the brake system.

Setting up the steering system

It is necessary to set up the steering system on header transporters with two steered axles. Test the steering system for straight run before each use.

► See section “Setting up the steering system” for instructions on configuring the steering system.

The load

Secure the load with the load securing elements provided.

► See section “Securing the load” for instructions on configuring the header supports correctly.

Header supports

Adjust the header supports as required by the intended header and the specific combine harvester.

► See section “Securing the load” for instructions on configuring the header supports correctly.

Final inspection

Check all threaded assemblies, especially on the wheels. Re-torque after the first use. Check the tyre pressure. Check all header supports and latches. Check the lights. Do a test drive testing the brakes

Operating the header transporter

Securing the load

All Zürn header transporters are equipped with form-fit load securing elements. These elements are specifically designed and tailored to each specific header model.

It is neither permitted to use any other type of load securing system nor to transport any load other than the header for which the header transporter is specified.

Never operate the header transporter without securing the header first.

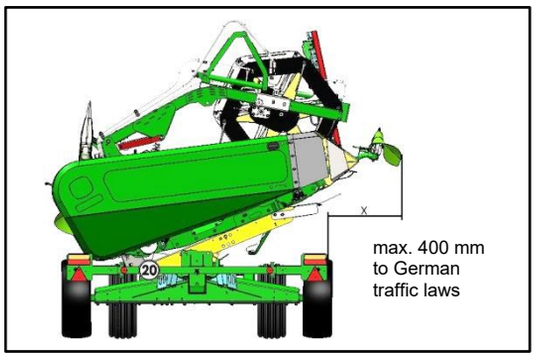
After placing the header on the transporter, secure it immediately from falling off and sliding on the transporter.

The various load securing systems for the various types of headers are discussed in the following sections:

- 700PF
- RA / 600R / 600PF
- XA / 600X
- FA / 600F
- BP15 / 615P

Special safety measures

The pointed and sharp parts on any header (knife sections, dividers, crop lifters, side knives) can cause personal injury. Some parts stick out from the header or the header transporter. Therefore it is necessary to take special safety measures before operating the header transporter on public roads.



Follow the instructions given in an expertise on Zürn header transporters by the German testing agency TÜV Süd. This expertise gives the following the instructions:

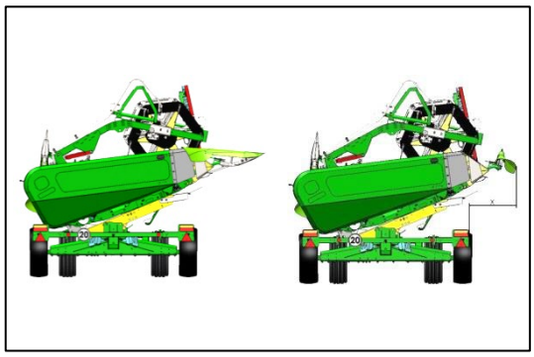
- Remove the dividers
- Remove the crop lifters
- Remove the side knives
- Fit the cutterbar guard

Operating the header transporter

Remove the dividers

For reasons of safety remove the dividers each time before you transport the header.

Folding the dividers into transport position is not necessarily enough to comply with traffic law requirements.



Remove the crop lifters

For reasons of safety, remove the crop lifters each time before you transport the header.

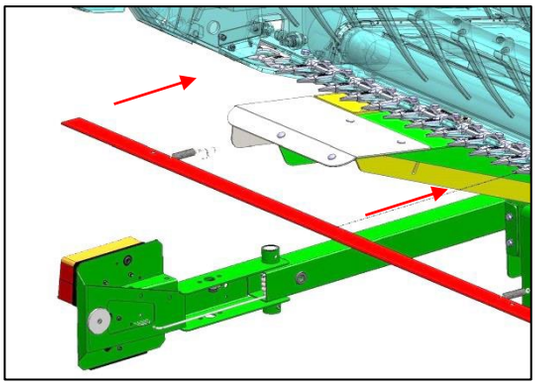
Remove the side knives

For reasons of safety, remove the side knives and fit their guards before each transport.

Operating the header transporter

Fit the cutterbar guard

The geometries of the cutterbar sections present a risk of injury. Therefore always guard the cutterbar with the appropriate elements.



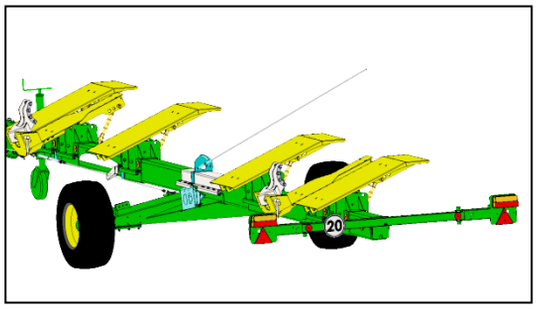
Retract the guide rod

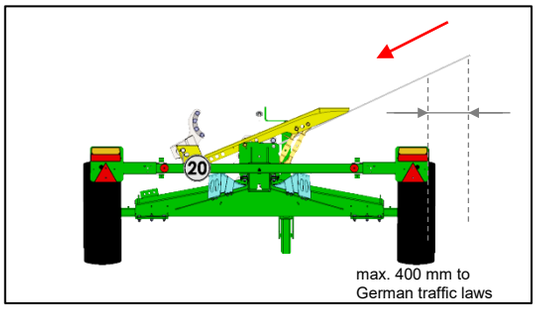
All header transporters from Zürn Harvesting have a guide rod that helps operators loading the header on the transporter.

Move the guide rod into its working position before placing the header on the transporter. To do this, release the clamp that fixes the guide rod in its holder and pull out the rod until you can see the “Middle of the header“ mark from the combine cab when the transporter is attached to the combine with the header on it.

In working position, the guide rod sticks out far from the chassis of the transporter. Therefore, push it in until it does not stick out from the header before the combination pulls off.

Also, fix the guide rod in its bracket ensuring it cannot slide in its tube during travel.



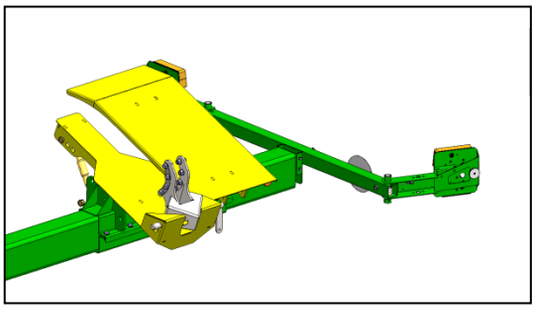


Operating the header transporter

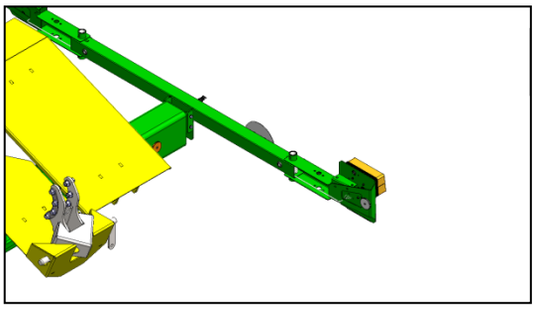
Folding out the lights

All Zürn header transporters have foldable rear lights.

This solution allows you to swing the lights out of the way and protect them from potential damage when placing the header on the transporter.



Extend both rear light holders before pulling off with the header transporter in tow. It is not permitted to operate the header transporter without the light holders being extended into transport position.



Operating the header transporter

The towing vehicle

The header transporters must be pulled by an agricultural tractor or a combine harvester. No other towing vehicles are permitted to pull the transporter.

The clevis size of the towing vehicle must match the size of the hitch ring on the header transporter (ID = 40mm).

The clevis must be appropriately sized to pull the gross transporter weight, i.e. the kerb weight of the transporter plus the kerb weight of the header.

Attachment to the towing vehicle and uncoupling from the towing vehicle

Stability

When attaching the header transporter to the towing vehicle and when uncoupling it from the towing vehicle, secure the transporter from moving and tipping over.

Always use both wheel chocks. Always apply the parking brake (if specified).

Both wheels must be inflated to the correct pressure (► see section “Wheels“). It is not permitted to inflate the wheels to different pressures.

Take special safety measures when attaching a laden transporter to the towing vehicle.

Avoid steep downhill/uphill travel in line of travel of the transporter and avoid travelling on sloped roads.

Ensure the jockey wheel never sinks into the ground. If it does, the header transporter is at risk of overturning.

Operating the header transporter

Adjusting the clevis on the towing vehicle

The clevis on the towing vehicle must be set to a height above road surface that matches a height to which the hitch ring can be set.

It is not permitted to attach the transporter to a clevis that is in a higher position than the hitch ring, because this puts the rear end of the transporter at risk of hitting the road when travelling on gradients.

Neither is it permitted to couple the header transporter to a clevis that is at a lower height than the hitch ring.

Before you couple the header transporter to the towing vehicle, determine and set up the correct hitch height.

► See section “Assembling the transporter” for instructions on obtaining the correct coupling height.

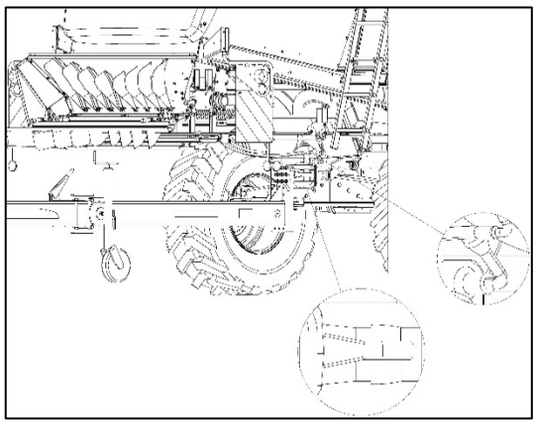
Attachment to the towing vehicle

The jockey wheel offers an additional way of fine tuning the position of hitch ring to the clevis on the towing vehicle.

When inching up to the header transporter, avoid pushing the transporter so this rolls off or overturns.

Ensure the hitch ring is properly inserted in the clevis and the clevis is closed properly.

Never push the header transporter toward the towing vehicle.

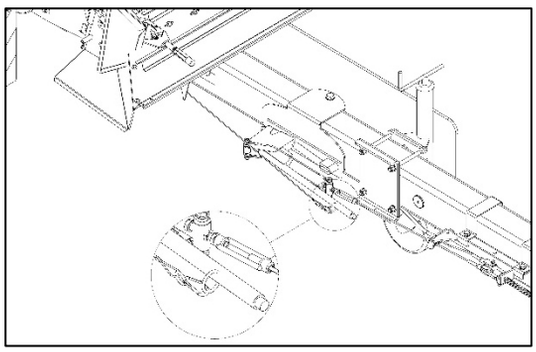


Operating the header transporter

Attaching the breakaway cable to the towing vehicle

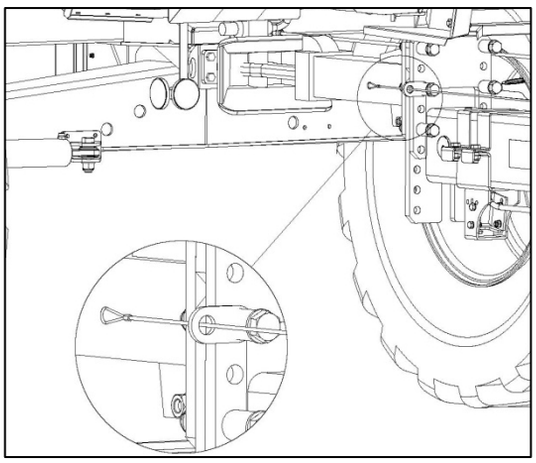
On transporters with overrun brakes, attach the breakaway cable to the towing vehicle in a suitable position (e.g. to its rear axle).

Never fix the breakaway cable to the clevis.



Ensure you route the breakaway cable through the guide on the left side of the overrun head.

Ensure the breakaway cable is not torn when the combination travels around bends, which would accidentally operate the parking brake on the header transporter.

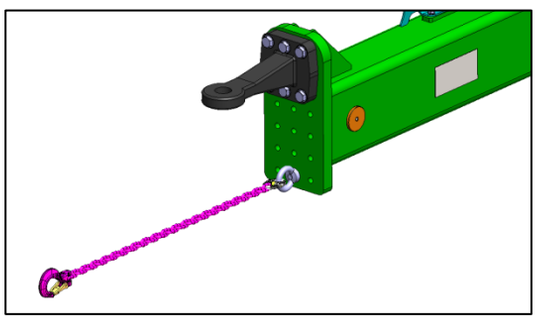


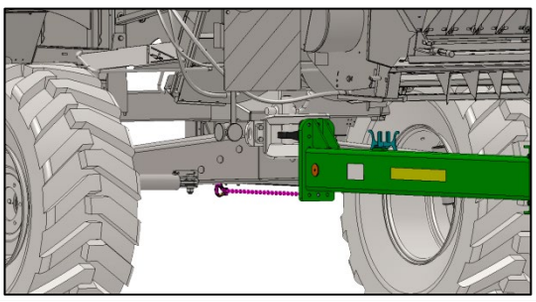
Attach the safety chain

On transporters with a safety chain (a requirement in France), attach the chain in a suitable position (e.g. to its rear axle) on the towing vehicle.

It is not permitted to attach the safety chain to the clevis on the towing vehicle.

Ensure the safety chain is not torn when the combination travels around bends.



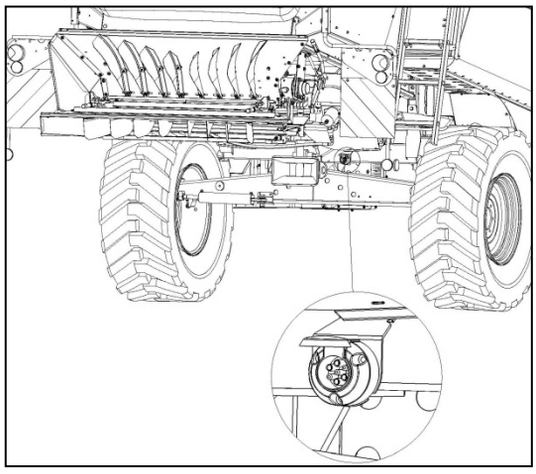


Operating the header transporter

Connecting the electric line to the towing vehicle

The towing vehicle must have a 7-pin socket (DIN 1724).

- After the transporter is coupled to the towing vehicle, connect the electric line to the 7-pin socket.
- Ensure that the electric line is long enough.
- After the electric line is connected to the towing vehicle, ensure it is not torn and damaged when the combination travels around bends.
- Also ensure that the electric line does not rub on machine parts or drag on the road.



Operating the header transporter

Before operating the header transporter

Each time before you operate the header transporter, test it for proper road safety. In particular, test the brake system and all lights for correct operation, the tyres for correct inflation pressure and verify that all guards are in place and in good condition.

Each time before you operate the header transporter, bring all transporter and header parts that may pose a hazard to motorists into transport position.

Each time before you operate the header transporter, fold the jockey wheel into transport position and secure it.

Each time before you operate the header transporter, ensure the hitch ring is properly attached to the clevis, the breakaway cable is attached in a proper position on the towing vehicle (not to the clevis) and the electric line is connected.

Before the combination pulls away, ensure good operator visibility around the towing vehicle and the header transporter.

Driving, steering and braking the towing vehicle is very different when the header transporter is laden or unladen. Operators must be aware of this before they set out.

Avoid making sudden turns especially when driving across steep slopes and up- and downhill.

Always avoid situations in which the laden header transporter may be tilted significantly.

Use a helper when shunting in reverse and in obstructed visibility of the rear end of the transporter. Helpers must always stand in the visibility zone and must not step between the towing vehicle and the header transporter.

Check the brakes each time before you operate the combination!

Carry out a thorough inspection of the brake systems on a regular basis.

Repairs or set-up work on the brake system must be carried out solely by qualified dealerships.

Operating the header transporter

Forward speed

Never exceed the transporter's maximum speed. Exceeding the maximum speed reduces the load capacity and service life of the wheels.

Always adapt the forward speed to the prevailing conditions.

Placing the header on the transporter

Placing the header on the header transporter

Park the header transporter on firm, level ground. Apply the hand brake. Secure the transporter with wheel chocks or leave it coupled to the towing vehicle.

Bring all parts on the header into transport position before placing the header on the transporter. This means, remove the crop lifters and side knives (if fitted) and fit all guards that are required for road transport.

Verify that all securing pins on the transporter are removed from their locking position and in park position.

When placing the header on the transporter, observe all instructions regarding header attachment / removal as specified in the header / combine manual.

Then release the header from the combine's pendulum frame, disconnect the pto driveshaft and the multi-coupler / oil lines from the combine (see the combine manual).

Then, with the header still on the combine and the elevator raised as high as possible, inch the combine up to the transporter until the header is above the transporter. Align the middle of the reel with the guide rod. The header hovers now exactly above the header transporter.

Lower the elevator until the front edge of the header rests on the header supports.

As the hook catches approach the hooks lower header carefully onto the transporter. Ensure that both catches engage with the appropriate hooks. Next, remove the header from the combine as described in the combine manual.

Placing the header on the transporter

Lock the header in its transport position by inserting the locking pin. Secure the locking pin with the linch pin. Repeat on the other locking pin.

Before operating the header transporter, verify that the header is safely secured to avoid damage during transport.

Before travelling on public roads, attach the breakaway cable to the towing vehicle, retract the guide rod and secure it in its transport position. Connect and test the rear lights and move the light holders into transport position.

All locking pins must be secured, the cutterbar sections and crop lifters must be guarded and dividers (if fitted) folded up or removed before travelling on public roads.

To reattach the header to the combine, reverse the above procedure.

Placing the header on the transporter

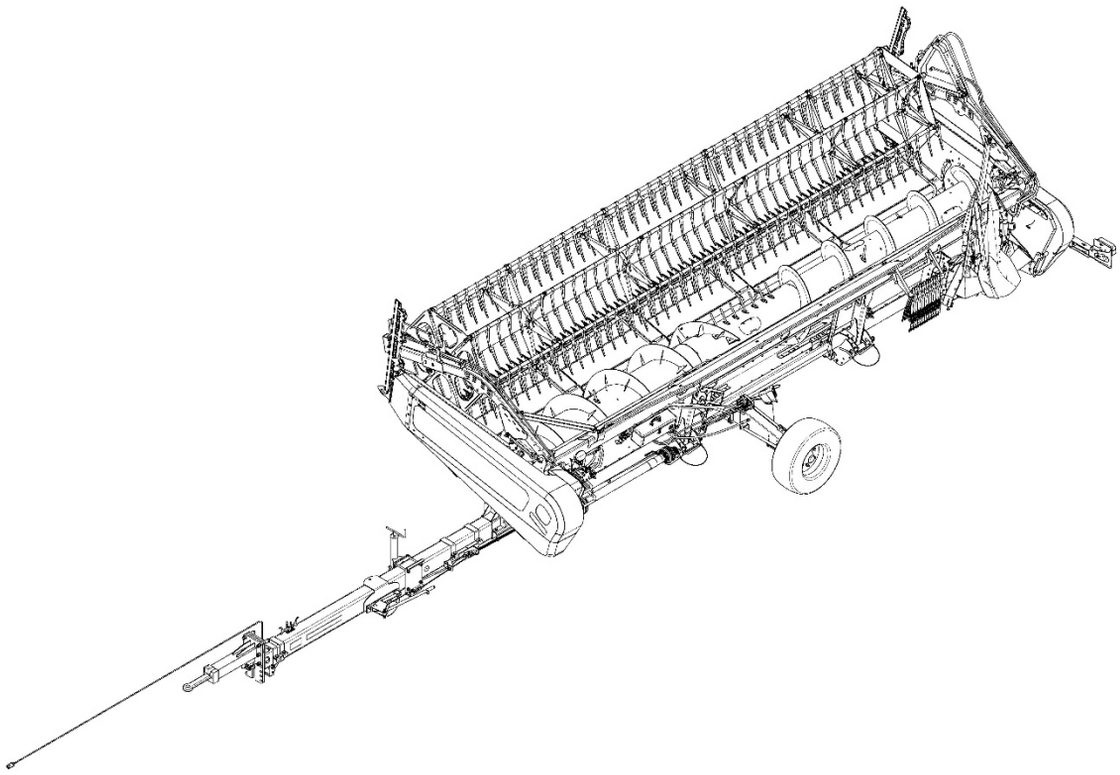
Special header support kits

The Zürn header transporters can be specified with custom header supports for specific header models. A header transporter may transport only those header models it is specified for. Only use the manufacturer-specified mountings and brackets to secure a header.

See the following sections on “Securing the load” for detailed information on securing various header models to the transporter.

Placing the header on the transporter

The illustration shows the header after it has been placed on the transporter.



Caution!

Make sure the elevator does not hit the left wheel when handling the header.

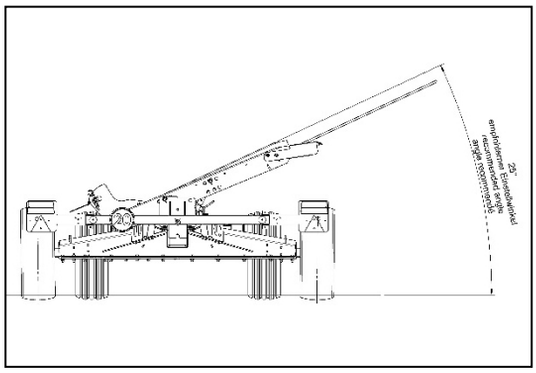
Securing ZÜRN 700PF headers

All instructions given below are merely recommendations. The actual settings are down to the specific combine make and model and its tyres. The proper adjustment of all load securing elements is essential for a smooth and safe handling of the header.

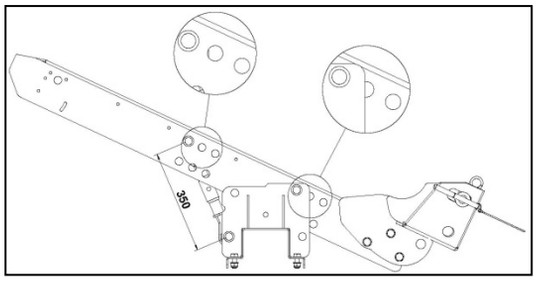
Adjusting the angle of the header supports

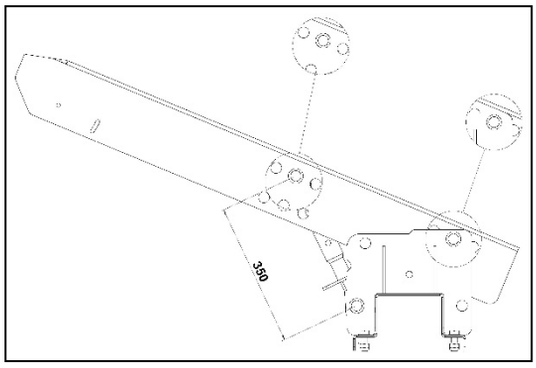
The angles of the header supports are adjusted individually and steplessly on the top link turnbuckles. Adjust each header support to the specific header before placing the header on the supports.

The recommended angle for 700PF headers is 25°.



The illustration shows the best positions where the header supports should be bolted to their mountings and also the recommended length for the top links.





Securing the load

Ensure that both turnbuckles on the top link are set to equal lengths.

Adjust the turnbuckles, threading them at least 30 mm down. Do not undercut this depth, as this would put the header at risk of falling off the transporter.

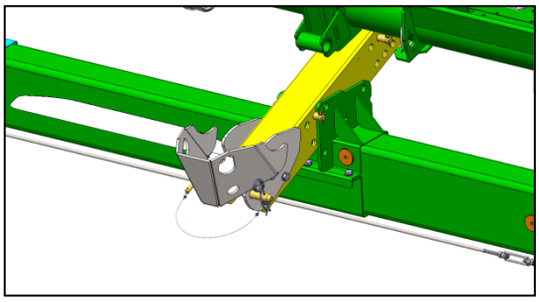
Placing the header on the transporter

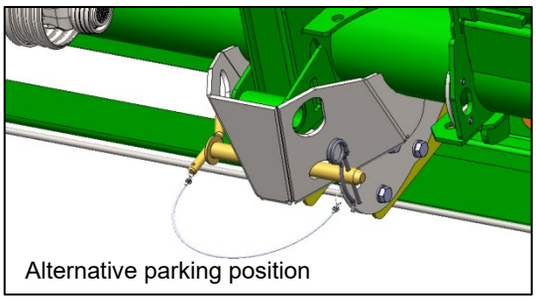
Remove the locking pins from the catches.

Then, with the header still attached to the combine and the elevator raised as high as possible, inch the combine up to the transporter until the header is above the transporter. Lower the elevator until the front edge of its floor contacts the header supports.

On the combine, remove the pins that secure the header to the machine. Reverse the combine while lowering the elevator and keep reversing until the header is being pulled against the stops.

Lower the elevator until it is possible to pull it out of the header by reversing the combine.



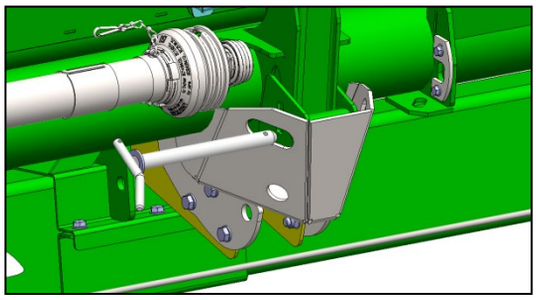


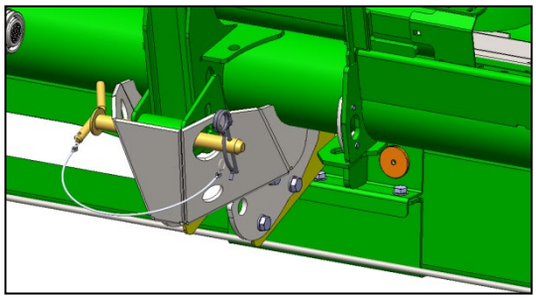
Alternative parking position

Securing the load

Securing the load

Fit and secure both locking pins with the R-clips provided.





Removing the header from the transporter

Remove the R-clips from the locking pins, then remove both pins from the catches.

Inch the combine up to the transporter and header and raise / lower the elevator until it fits in the opening on the header.

Then raise the elevator, driving cautiously forward.

As the last step, attach the header to the combine by fitting the locking pins on the combine.

Securing the load

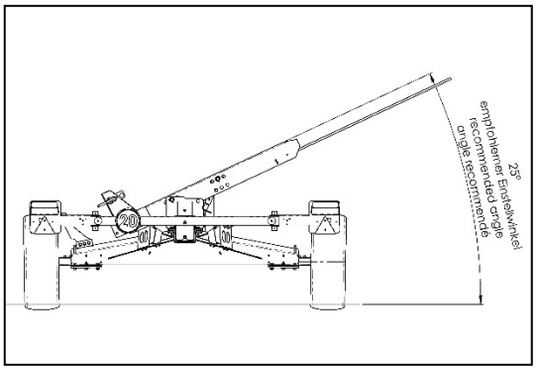
Securing John Deere RA / 600R / 600PF headers

All instructions given below are merely recommendations. The actual settings are down to the specific combine make and model and its tyres. The proper adjustment of all load securing elements is essential for smooth and safe handling of the header.

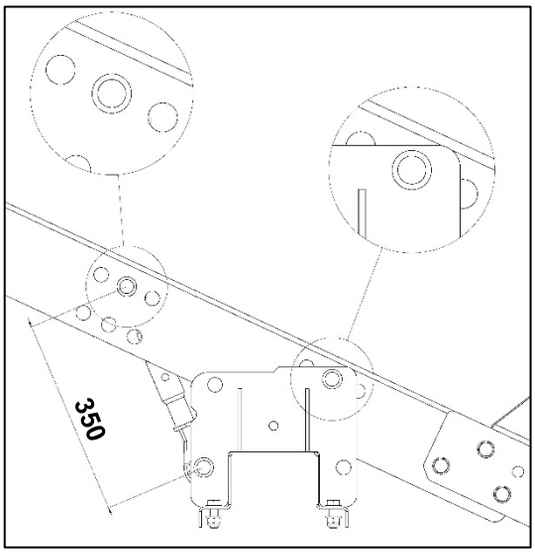
Adjusting the angle of the header supports

The angles of the header supports are adjusted individually and steplessly on the top link turnbuckles. Adjust each header support to the specific header before placing the header on the supportss.

The recommended angle for RA / 600R / 600PF headers is 25°.



The illustration shows the best positions where the header supports should be bolted to their mountings and also the recommended length for the top links.



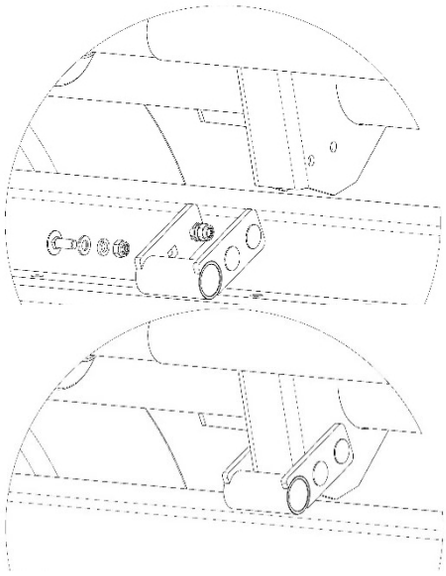
Ensure that both turnbuckles on the top link are set to equal lengths.

Adjust the turnbuckles, threading them at least 30 mm down. Do not undercut this depth, as this would put the header at risk of falling off the transporter.

Securing the load

Fitting the mechanical interfaces necessary to secure the header to the transporter

Bolt the two hook catches with four carriage bolts to the vertical header frame beam that is specified for the individual header size.



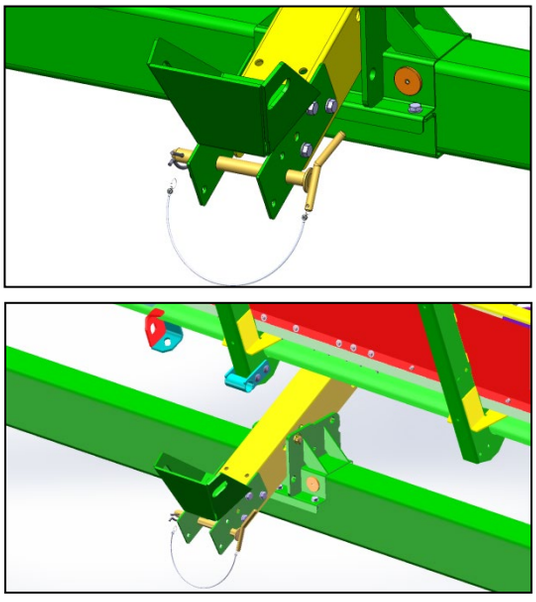
Placing the header on the transporter

The locking pins must be in their park positions.

Then, with the header still attached to the combine and the elevator raised as high as possible, inch the combine up to the transporter until the header is above the transporter. Lower the elevator until the front edge of its floor contacts the header supports.

On the combine, remove the pins that secure the header to the machine. Reverse the combine while lowering the elevator and keep reversing until the header is being pulled against the stops.

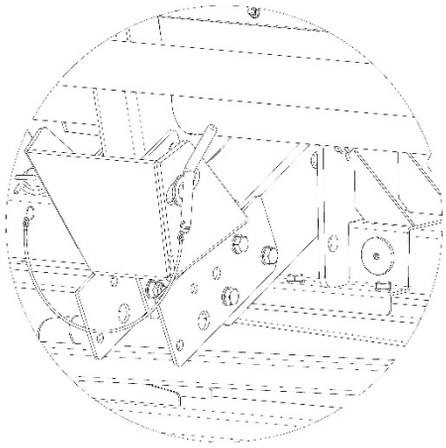
Lower the elevator until it is possible to pull it out of the header by reversing the combine.



Securing the load

Securing the load

Fit and secure both locking pins with the R-clips provided.



Removing the header from the transporter

Remove the R-clips from the locking pins, then remove both pins from the catches and fit them in their parking positions.

Inch the combine up to the transporter and header and raise / lower the elevator until it fits in the opening on the header.

Then raise the elevator, driving cautiously forward.

Next, secure the header to the combine by fitting the locking pins and lift the header off the transporter.

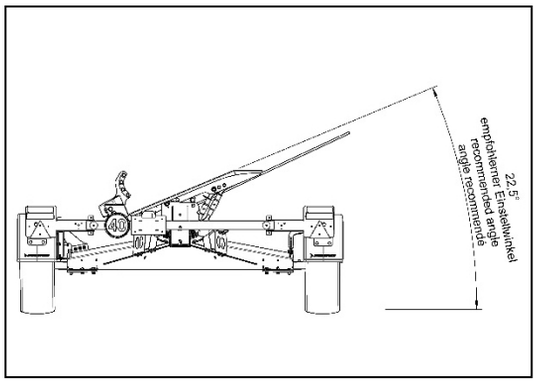
Securing John Deere XA / 600X headers

All instructions given below are merely recommendations. The actual settings are down to the specific combine make and model and its tyres. The proper adjustment of all load securing elements is essential for a smooth and safe handling of the header.

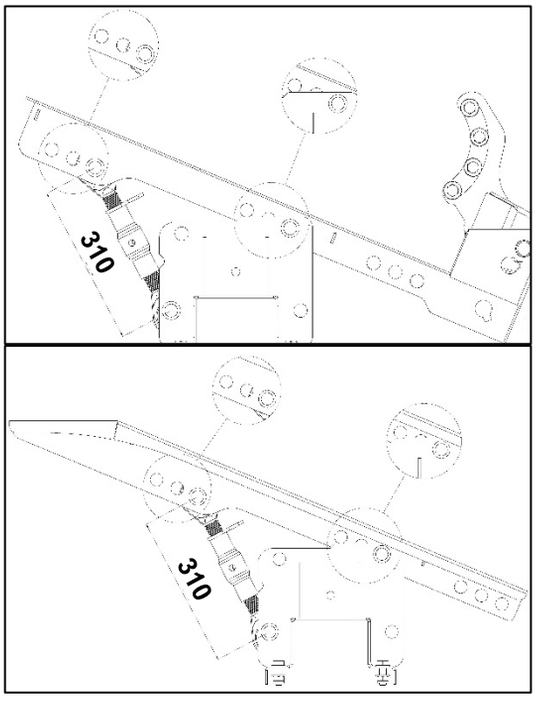
Adjusting the angle of the header supports

The angles of the header supports are adjusted individually and steplessly on the top link turnbuckles. Adjust each header support to the specific header before placing the header on the supports.

The recommended angle for XA / 600X headers is 22.5°.



The illustration shows the best positions where the header supports should be bolted to their mountings and also the recommended length for the top links.



Securing the load

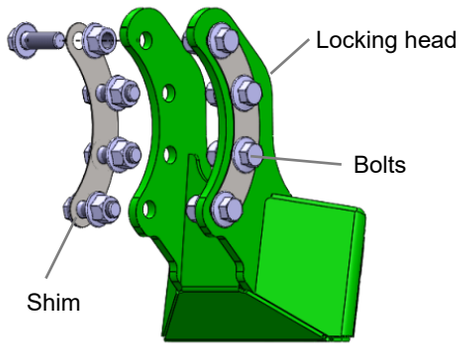
Ensure that both turnbuckles on the top link are set to equal lengths.

Adjust the turnbuckles, threading them at least 30 mm down. Do not undercut this depth, as this would put the header at risk of falling off the transporter.

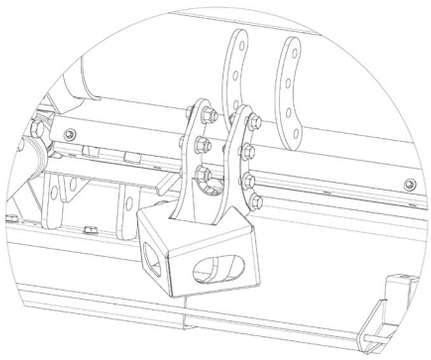
Fitting the mechanical interfaces necessary to secure the header to the transporter

Bolt the two locking heads to the brackets on the header frame using eight bolts for each head.

The header transporter is supplied with (rust-free) chrome-nickel steel shims for filling small gaps and spaces.



Use as many shims as necessary and fit them between the brackets and the sides of the locking heads. All elements will be set up correctly when there is only a minimum gap and no part is deformed permanently when being bolted in place.

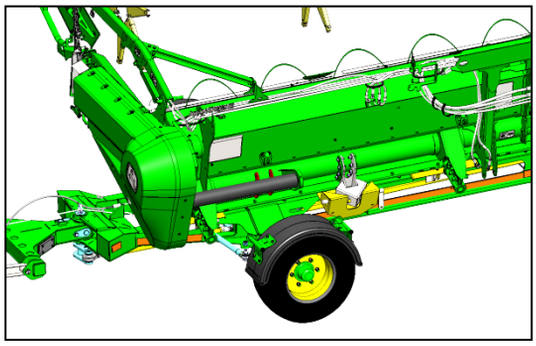


Securing the load

The load securing elements on an SWW-X6-625X transporter are not compatible with the mechanical interfaces on the header.

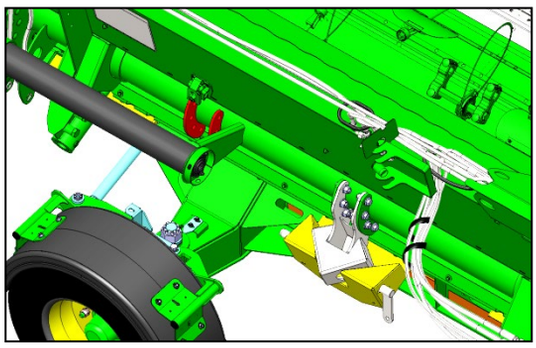
The following instructions apply to SWW-X6-625X models for transporting John Deere 625X headers.

This header has factory-fitted arched brackets on its back. The special geometries make it impossible to position and lock these brackets to their counterparts on the header transporter. Therefore it is necessary to relocate the header supports on the transporter, moving them inwards.



The header transporter is therefore supplied with four extra brackets that are welded to the header.

Two of these arched brackets must be welded to each end of the header. They serve as mountings for the locking heads.



Securing the load

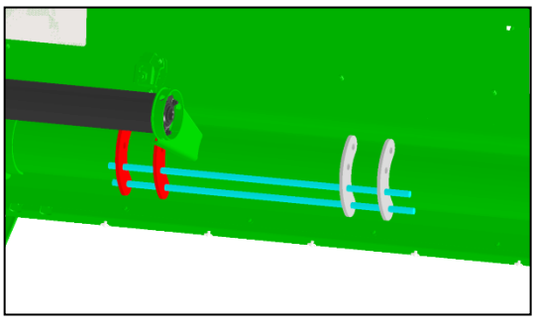
To position the brackets correctly on the header you will need two 16mm diameter steel tubes (preferably bank metal). These are not supplied with the transporter. Insert the two tubes into the two bottom holes on the factory-fitted brackets. Then push the two weld brackets onto the steel tubes. They should now be centred sufficiently well. The insides of their arches should lie flat on the curved header beam.

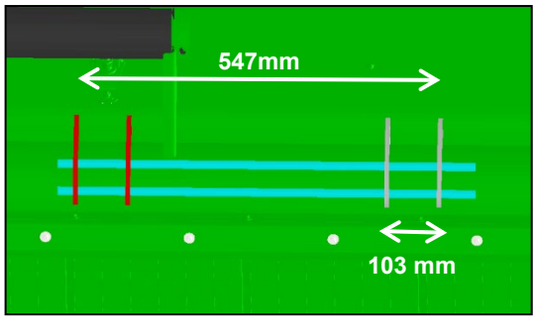
Next, slide the outer weld bracket on the round steel until it is spaced 547 mm from the inner factory-welded bracket. The gap between the two brackets to be welded is now 103mm.

Circle the weld area around the brackets with a pen. (Do not use a scriber!)

Sandpaper the area where you will apply the weld (around both brackets) down to the blank metal, removing the paint finish and primer.

As a next step, insert the round steels into the factory-fitted brackets and slide the two weld brackets onto the steel tubes, position them as illustrated and weld them to the header frame, applying an a3 fillet weld.





Caution! This weld must be carried out by a qualified welder.

The following welding techniques may be used:

111 (manual arc welding); minimum DIN EN ISO 2560-A E 35 0 RC 11 standard filler rod

135 (MAG welding);
minimum ISO 14341-A-G 35 0 M21 3Si1 standard filler rod

Securing the load

After welding the brackets to the blank metal, prime the area and the welds. Wait until the primer has dried, then apply the paint coat.

Next attach the two locking heads to the welded brackets. Follow the instructions given above, using the fasteners supplied.

Securing the load

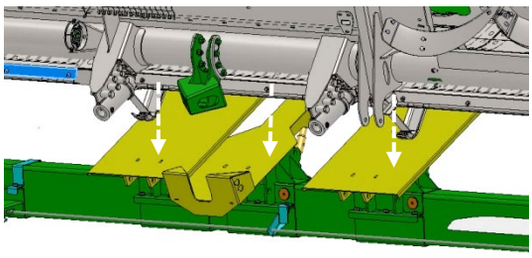
Placing the header on the transporter

Remove the locking pins from the prisms.

Then, with the header still attached to the combine and the elevator raised as high as possible, inch the combine up to the transporter until the header is above the transporter. Lower the elevator until the front edge of its floor contacts the header supports.

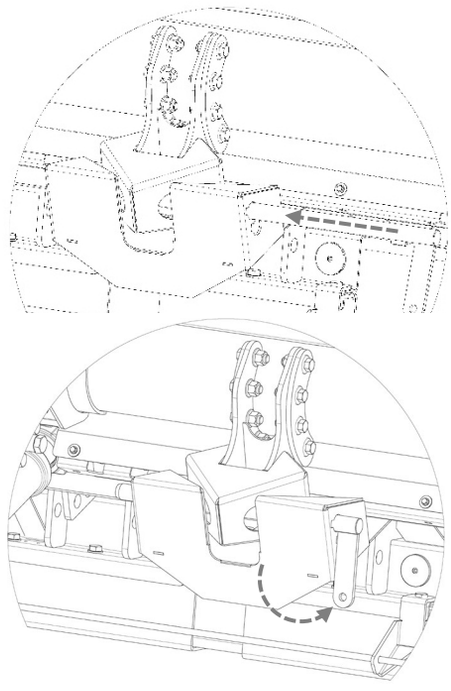
On the combine, remove the pins that secure the header to the machine. Reverse the combine while lowering the elevator and keep reversing until the header is being pulled against the stops on the prisms.

Lower the elevator until it is possible to pull it out of the header by reversing the combine.



Securing the load

Fit and twist lock both locking pins to secure them from working loose.



Securing the load

Removing the header from the transporter

Turn both locking pins until you can remove them from the prisms.

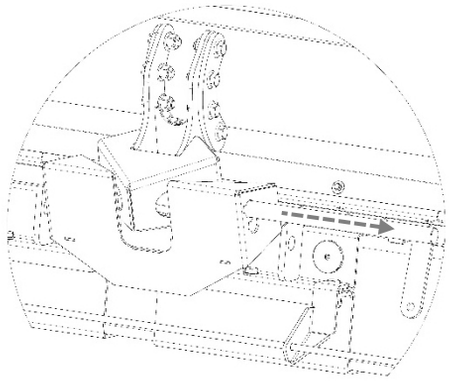
Pull out both pins until the hole in the prism is exposed and you can pull the locking heads from the prisms.

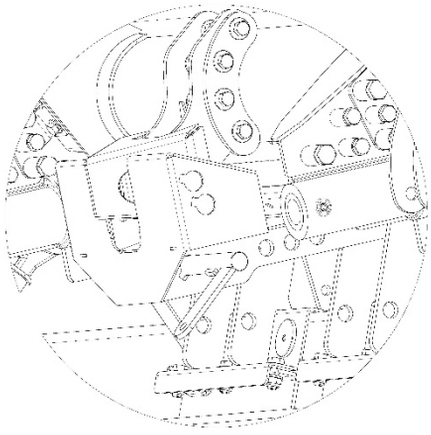
Store the locking pins on the bottom of the locking shims.

Inch the combine up to the transporter and header and raise / lower the elevator until it fits in the opening on the header.

Then raise the elevator, driving cautiously forward.

As the last step, attach the header to the combine by fitting the locking pins on the combine.





Securing the load

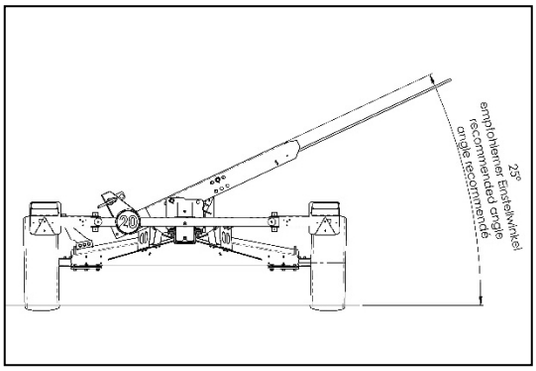
Securing John Deere FA / 600F headers

All instructions given below are merely recommendations. The actual settings are down to the specific combine make and model and its tyres. The proper adjustment of all load securing elements is essential for a smooth and safe handling of the header.

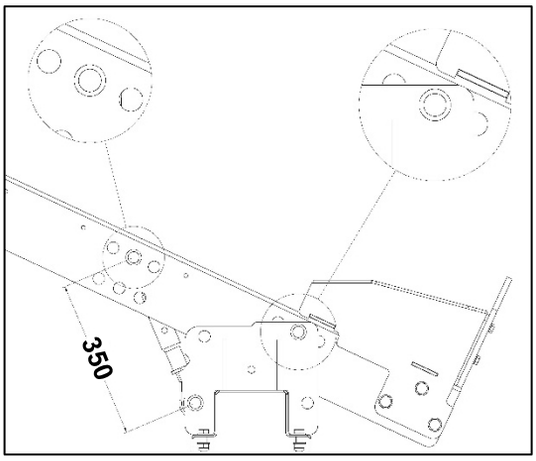
Adjusting the angle of the header supports

The angles of the header supports are adjusted individually and steplessly on the top link turnbuckles. Adjust each header support to the specific header before placing the header on the supports.

The recommended angle for 600F headers is 25°.



The illustration shows the best positions for installing the header supports to their mountings and also the recommended length for the top links.



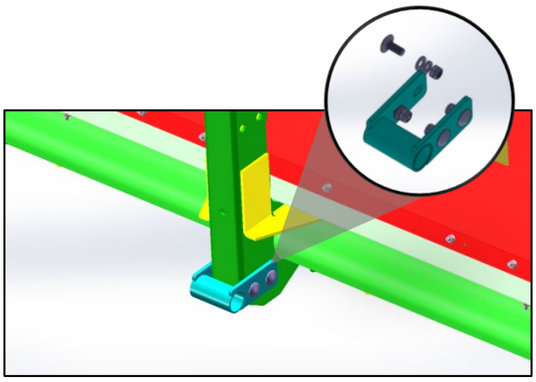
Ensure that both turnbuckles on the top link are set to equal lengths.

Adjust the turnbuckles, threading them at least 30 mm down. Do not undercut this depth, as this would put the header at risk of falling off the transporter.

Securing the load

Fitting the mechanical interfaces necessary to secure the header to the transporter

Bolt the two hook catches with four carriage bolts to the vertical header frame beam that is specified for the individual header size.



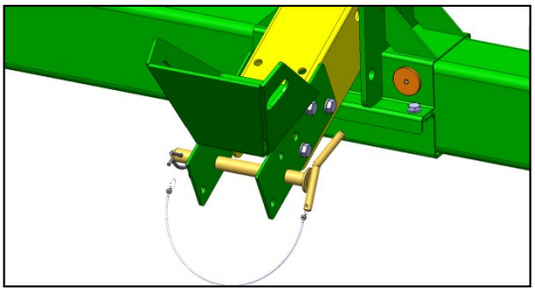
Placing the header on the transporter

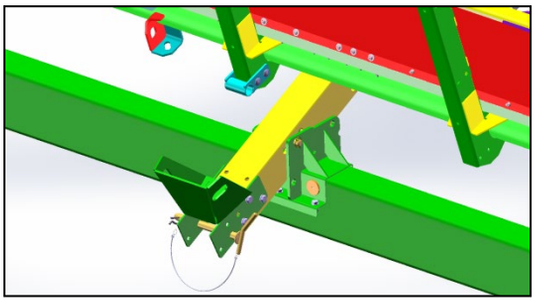
The locking pins must be in their park positions.

Then, with the header still attached to the combine and the elevator raised as high as possible, inch the combine up to the transporter until the header is above the transporter. Lower the elevator until the front edge of its floor contacts the header supports.

On the combine, remove the pins that secure the header to the machine. Reverse the combine while lowering the elevator and keep reversing until the header is being pulled against the stops.

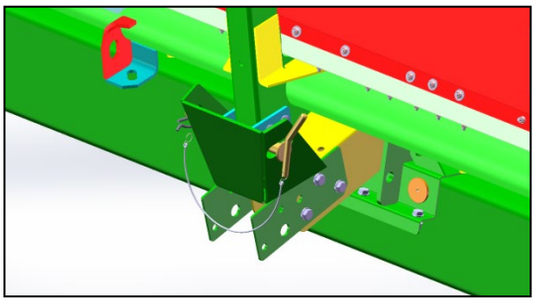
Lower the elevator until it is possible to pull it out of the header by reversing the combine.





Securing the load

Fit and secure both locking pins with the R-clips provided.



Securing the load

Removing the header from the transporter

Remove the R-clips from the locking pins, then remove both pins from the catches and fit them in their parking positions.

Inch the combine up to the transporter and header and raise / lower the elevator until it fits in the opening on the header.

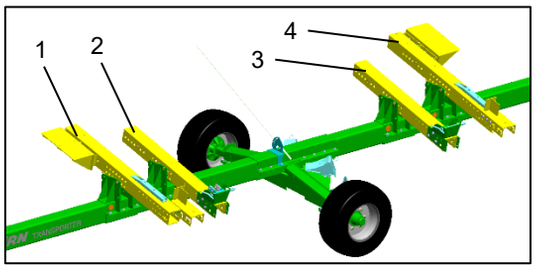
Then raise the elevator, driving cautiously forward.

Next, secure the header to the combine by fitting the locking pins and lift the header off the transporter.

Securing the load

Securing John Deere BP15 / 615P headers

All settings and adjustments described below are recommendations and should not be regarded as rules. The actual adjustments that ensure a smooth handling of the header depend on the individual combine make and model and the tyres fitted.

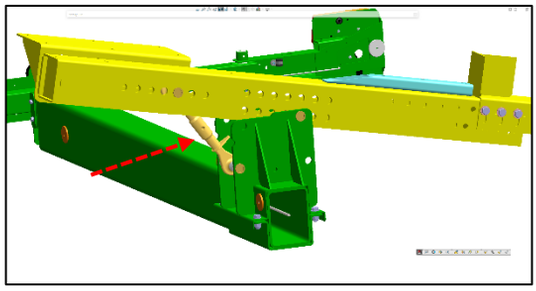


Adjusting the angle of the header rests

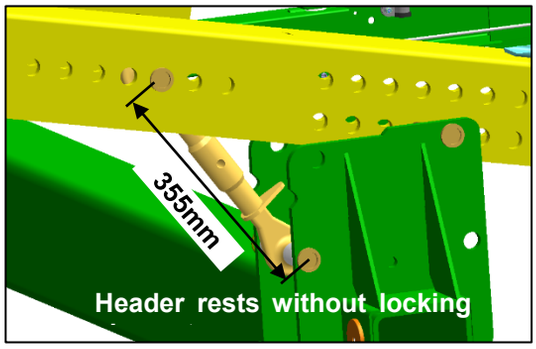
The angles of the header rests are adjusted individually and steplessly by adjusting the top link turnbuckles.

Before placing the header on the transporter, set the top links on the header rests and the securing elements to the correct length. This ensures the belt or any other component of the BP15 header is not damaged as this is placed on the header.

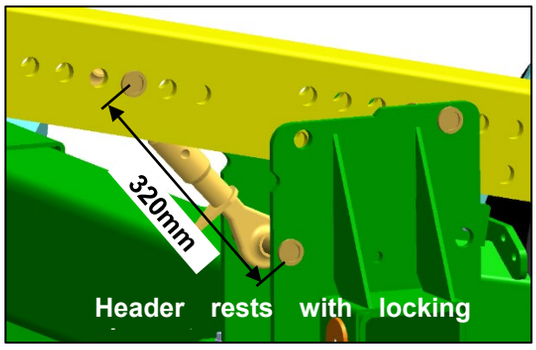
When adjusting the top links, make sure that the holes and angles of the header rests always maintain their relative positions to each other.



Turn the top links on header rests 1 and 4 to a thread length of 355mm.



The top links on header rests no. 2 and no. 3 and the header securing elements are set to a length of 320mm.



Securing the load

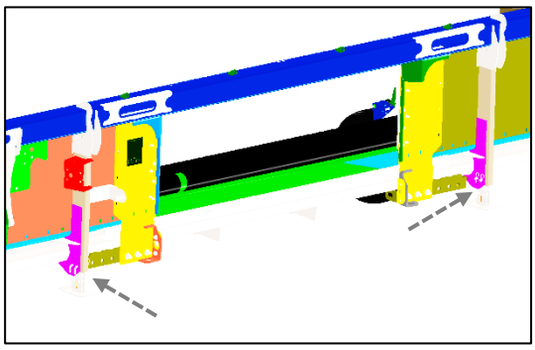
Ensure that the turnbuckles of both top links are set to identical thread lengths.

Adjust the turnbuckles to a thread length of 30mm as a minimum. The thread length must not be smaller, because otherwise the header is at risk of falling off the transporter.

Fitting interface components for securing the header

Plates are provided on the back of the header which serve as interface parts.

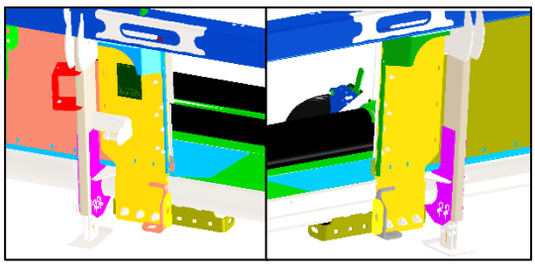
These plates are attached to the two vertical posts of the frame.



As a first step, determine the width of elevator opening of PB15.

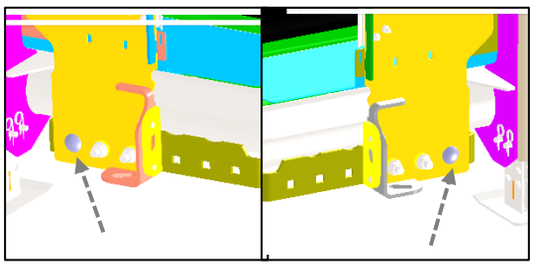
On a PB15 model with a small elevator opening, these plates are fitted in their inward mounting positions.

On a PB15 model with a wide elevator opening, these plates are fitted in their outward mounting positions (see illustration on the right).



On models with a wide elevator opening, remove the outer carriage bolt from the plate next to the vertical post. Then re-insert the bolt from the other side. This prevents the bolt from fouling with the catch on the transporter when the header is placed on the transporter.

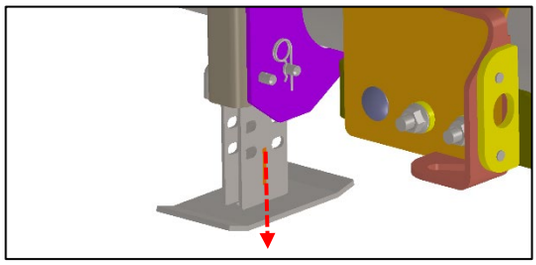
Header models with small elevator openings have these plates fitted on the right and left side of the opening. Here, it is not necessary to remove the bolts and re-insert them from the other side.



Securing the load

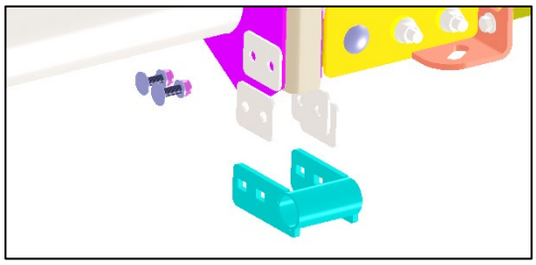
As a next step, attach the BP15 to the combine and raise it.

Then remove the two stands from the vertical posts. To do this, remove the R-clips from the cotter pins, remove the pins and pull the stands out of the vertical posts.

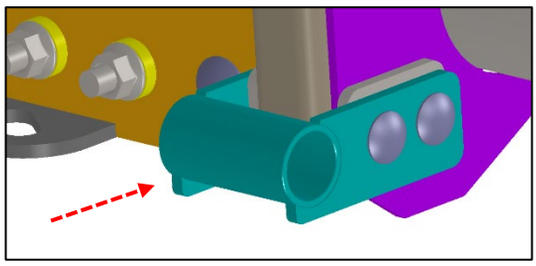


After the two stands are removed, attach the two catches in the positions of the cotter pins.

Use the intermediate plates, the carriage bolts, washers and self-locking nuts to attach the catches to the vertical posts.



Ensure that the tube of each catch is in the position depicted. Otherwise it will not be able to insert the locking pins properly.

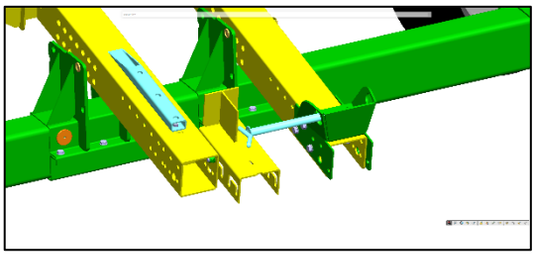


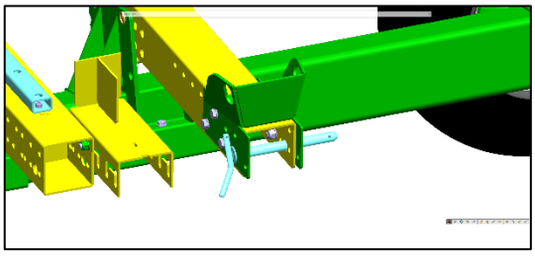
After the catches are bolted to the BP15, the header is ready for loading.

Securing the load

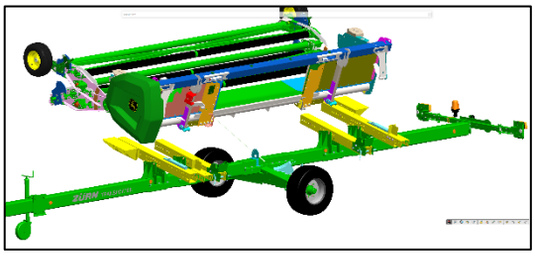
Placing the header on the transporter

Remove the locking pins from the catches and store them in their storage positions underneath the catches.

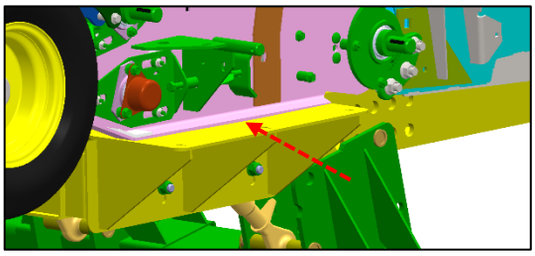




Then, with the BP15 attached to the combine and the elevator raised as high as possible, inch the combine up to the transporter until the header is hovering above the transporter.



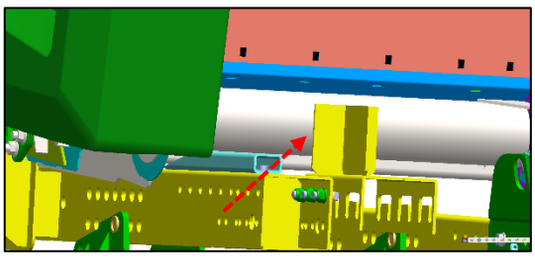
Next, lower the elevator until the wide bottom plates on both sides of the header rest on the yellow angles left and right.



On the combine, remove the pins that secure the header to the machine. Reverse the combine while lowering the elevator. Keep reversing, pulling the header to the rear until it contacts the yellow stops.

Ensure that the bottom tube of the ladder frame of the BP15 rests on the galvanized elements. The BP15 is now in its transport position on the transporter.

Lower the elevator until it is possible to pull it out of the header by reversing the combine.



Securing the load

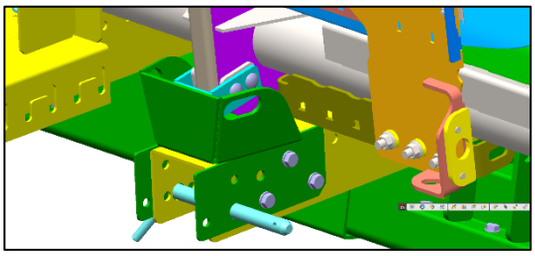
Verify the correct transport position

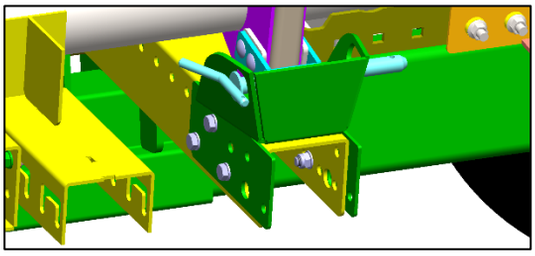
When the BP15 is placed properly on the header transporter, the bottom of the belt does not contact the header rests or securing elements.

The belt on the BP15 must not contact any parts of the transporter. If it does, adjust the top links on the header rests no. 1 to 4.

Securing the load

Remove both locking pins from their storage positions and insert them in the green catches. Cotter in place.





Removing the header from the transporter

Reverse the above procedure to remove the BP15 from the transporter. As a first step, remove the R-clips from the locking pins, then remove both pins from the catches pulling them to the side.

Fit both pins in their parking positions. You can now remove the BP15 from the transporter.

Setting up the braking system

Understanding the overrun brake and the auto reverse system

For a better understanding of how the brake systems are set up and serviced, the following paragraphs explain all major components that form the brake system.

General

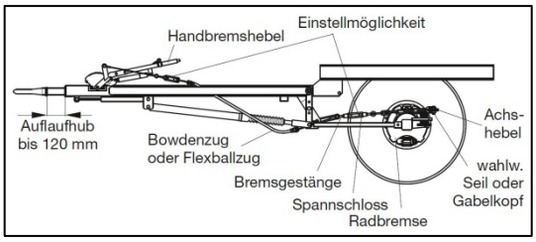
All braked header transporters from Zürn Harvesting have a mechanical brake system (overrun brake). This consists of the overrun device on the drawbar, the system of cables or rods that transmit the brake force to the wheels and the brakes themselves.

Road traffic laws require all braked vehicles to have two independent braking systems – the service brake and the parking brake. The service brake is actuated by the overrun device. The parking brake is actuated by the hand brake lever which sits either on the drawbar or on one side of the header transporter.

Components of the overrun braking system (service brake)

The following components are found on all header transporters from Zürn Harvesting that have a service brake:

- Overrun head with hitch ring
- Bell crank
- Brake force transmitting system
- Transfer lever
- Wheel brakes



An overrun/service brake [Source: BPW]

Setting up the braking system

How the overrun brake system works

An overrun brake transforms kinetic energy into braking energy and applies the braking force as uniformly as possible to all wheels.

This is done by an angled mechanism that transforms the load of the overrunning trailer into pull on the brake rods.

When the service brake is applied, the pushrod that is attached to the hitch ring assembly or the hitch ring itself pushes the bell crank which is linked to rods and cables that act on the drum brakes of the header transporter. When the towing vehicle brakes, the trailer is pushing forward which triggers the brake.

The device has an integral oil damper that cuts out the jolting. This dampens the shock loading as the trailer is pushing forward and actuates the trailer brake more gently.

Adjusting the brake pads automatically

It is necessary to routinely inspect and adjust the brake pads and brake rods.

Worn brake pads or an excessive gap between the pads and brake drum will delay the brake response and result in a longer stopping distance. Therefore the brake pads on the wheels are adjusted automatically to ensure an optimum gap at all times.

The brake adjusts the gap between the drum and the pads automatically whenever it is too wide.

Setting up the braking system

Setting up the parking brake (SWW120, SWW220 and SWW320)

General

All Zürn Harvesting header transporters that are specified with a parking brake have a mechanical braking system. This consists of the hand brake lever on the frame, the brake fore transmitting system and the brakes on the wheels.

The parking brake provides the braking forces and movements necessary to secure the stationary header transporter and prevent it from rolling.

The components of the parking brake system

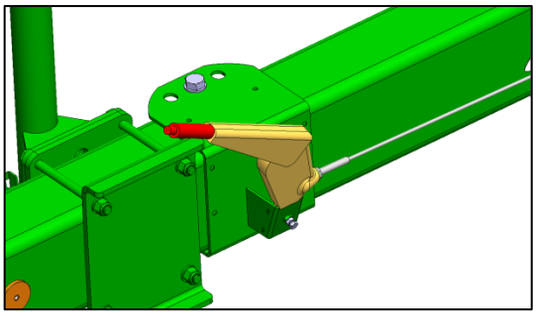
All single-axle Zürn Harvesting header transporters with a service and a parking brake have the following components:

- Hand brake lever c/w console
- Brake force transmitting system
- Transfer lever
- Wheel brakes

Configuring the brake force transmitting system in its default position

Release the parking brake before testing and configuring the service brake as described below.

- Always release the parking brake first.



Released hand brake lever = default position

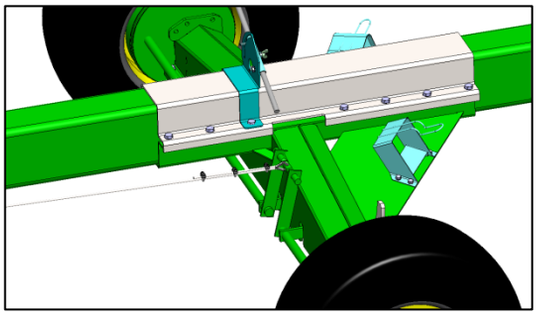
Setting up the braking system

In default position, the brake levers (nearside in front of the axle) are released, which means they are slightly angled to the rear.

Should this not be case, the brake levers need resetting:

- To do this, release the locking screws on the brake levers and remove the brake levers from the two splined shafts.
- Next, move both brake levers clockwise by one tooth on the ratchet bracket. Then slide it back on to the splined shafts. If this is not possible because the splined shafts are in an awkward position so that the brake levers would foul with the axle cross member, turn the splined shafts with a suitable tool (e.g. with a pair of massive pump pliers). Turn the shafts locking clockwise until you can slide the brake levers onto them.
- Before you tighten the locking screws on the brake levers, jack up the transporter under the axle and turn the wheels to verify that the brakes are now set up correctly. The configuration is correct, if you feel a slight drag from the brake pads on the drum. If you can't turn the wheels, the brakes will be set too tight. Remove the brake levers again from the splined shafts and turn them locking clockwise one tooth on the ratchet bracket.

After the brake levers are in release position (see illustration), inspect the brake force transmitting system for loose connections. Ensure the movement of the hand brake lever is instantly transferred to the rear to the axle without any loss of brake force.



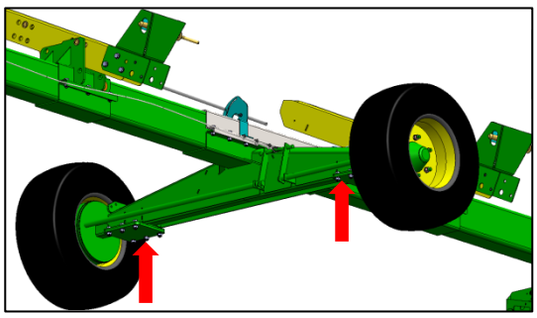
Released brake lever on the axle = default position

Setting up the braking system

Setting up the parking brake

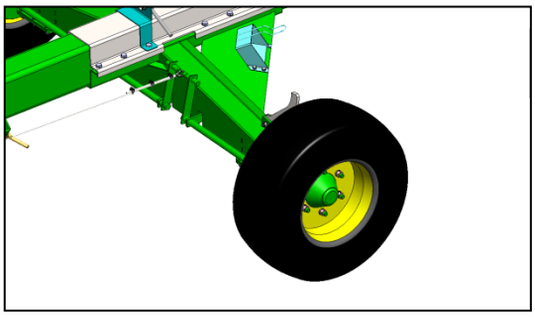
All tests and settings described below are carried out on the unladen transporter.

- Park the transporter on firm level ground and secure it so it cannot roll or tip over.
- Position the jack under the tandem axle and raise the transporter until both wheels have lost contact with the ground and rotate freely.

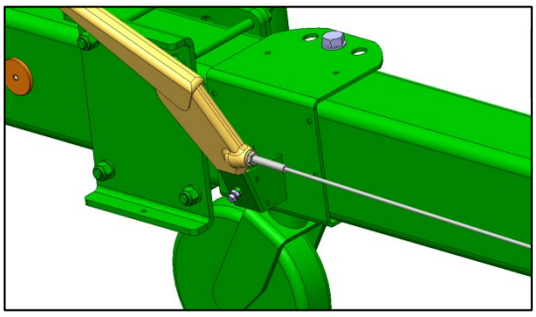


Position the jack under the jack points.

- Next, turn the nearside wheel in direction of travel.
- The setting is correct, if you can hear a faintly grinding noise as the pads drag on the drum and if the wheel is turning with slight resistance.
- If you can't feel any resistance when turning the wheel forward, optimise the brake configuration.

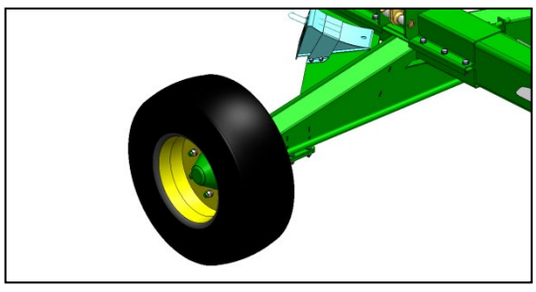


- To do this, alter the tension of the cable by undoing the two locking nuts on the hand brake lever. This must be released. Keep adjusting the tension until you see both brake levers responding slightly and you feel a slight resistance when turning the wheel.
- This said, it must still be easy to turn the wheel with one hand.
- If this not possible, the setting will be too tight. In that case, turn the locking nut in the opposite direction.



Setting up the wheel brakes by adjusting the turnbuckle

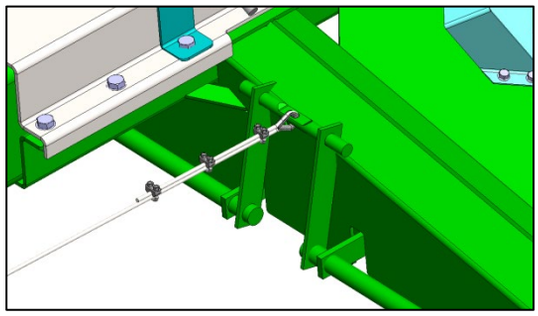
After the nearside wheel is properly configured, repeat the procedure on the offside wheel.



Setting up the braking system

The brakes on both wheels are connected by the equalizer which sits in front of the axle, which suggests that setting the nearside brake also adjusts the offside brake. Both brakes are adjusted exclusively on the locking nuts.

Should this not be the case and the wheel lock up or should you even feel no resistance at all when turning the wheel, adjust the brake on this wheel on the turnbuckle until you can feel a slight resistance.



The equalizer connects the brakes on the left and right wheels

Checking the configuration of the parking brake on the laden machine

As a last step, check the correct configuration of the parking brake on the laden machine. This completes the start-up operations. This is done by placing the header on the transporter ► see sections “Placing the header on the transporter” and “Operating the header transporter”

- Place the header on the transporter and attach the transporter to the towing vehicle.
- Apply the parking brake.
- Then start the tractor or combine and try to pull off with the header transporter in tow.
- If the transporter wheels do not move, the parking brake is set correctly.
- However, should the wheels on the transporter turn as the towing vehicle is pulling off, the parking brake will need optimising.
- To do this, undo the two locking nuts on the hand brake lever. Then turn the rear locking nut (viewed in direction of travel), slightly increasing the tension.
- Then apply the parking brake and start the towing vehicle, trying to pull off with the transporter in tow. Watch the wheels.
- If they are not turning, the configuration of the parking brake is completed.

Setting up the braking system

Setting up the service brake (SWW250, SWW260, SWW350 and SWW360)

General

All Zürn Harvesting header transporters that are specified with a service brake have a mechanical braking system. This consists of the overrun device on the drawbar, the system of cables or rods that transmit the brake force to the wheels and the brakes themselves.

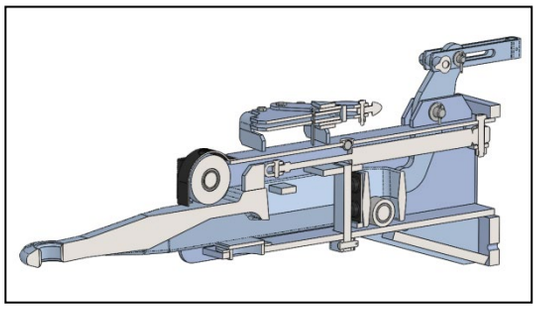
The overrun device provides the forces and action that are necessary to decelerate the header transporter. The header transporter is attached to the towing vehicle by a drawbar with hitch ring that pivots inside the drawbar casing. A pushrod transfers the pivoting movement of the hitch ring to a bell crank. This operates a system of cables and mechanical rods that transmit the braking force to the brakes. A hydraulic damper is also necessary. The damper is triggered when the load exceeds a specific minimum threshold. This prevents the brakes from being applied at very small loads.

Road traffic laws require all braked vehicles to have two independent braking systems – the service brake and the parking brake. The service brake is actuated by the overrun device. The parking brake is actuated by the hand brake lever which sits either on the drawbar or on one side of the header transporter.

Setting up the braking system

The components of the service and parking brake systems

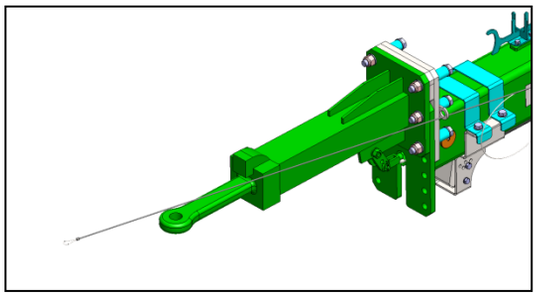
All single-axle Zürn Harvesting header transporters with a service and a parking brake have the following components:



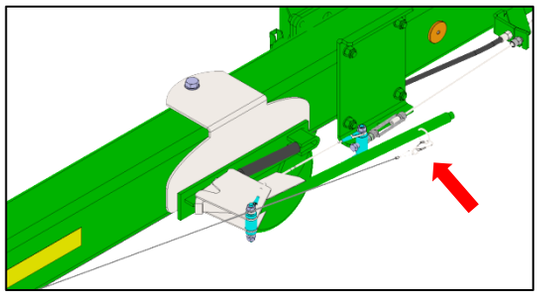
- Overrun head with hitch ring
- Brake force transmitting system
- Hand brake lever with transmitting elements
- Breakaway cable
- Transfer lever
- Wheel brakes

The overrun head complete with the hitch ring consists of the casing in which the hitch ring is pivoting, the hitch ring itself, the damper and the bell crank. The latter is linked to the brake force transmitting system on the chassis and the brakes.

The brake force transmitting system – the brake cable from the downthrust clamp (overrun head) to the rear end of the transporter.

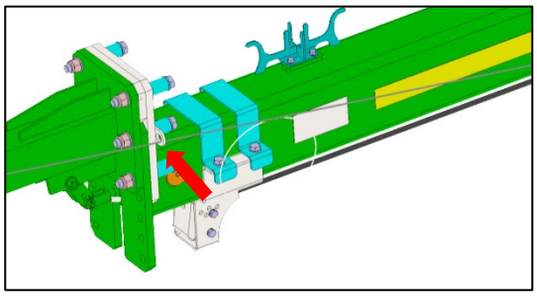


The breakaway cable is attached to the hand brake lever

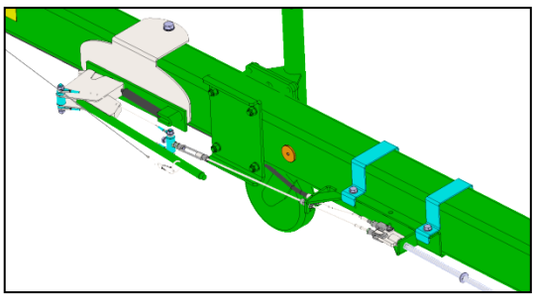


Setting up the braking system

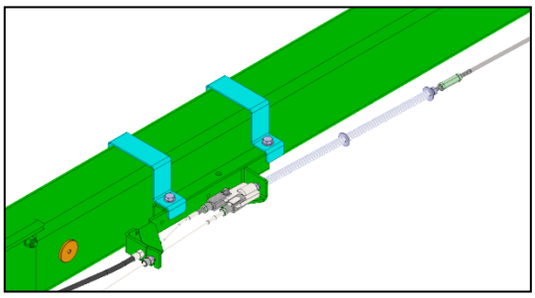
Breakaway cable – guide plate behind the overrun head.



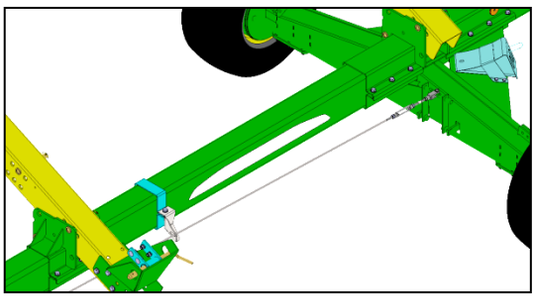
The brake force transmitting system - the brake cable from the downthrust clamp on the overrun head to the connector.



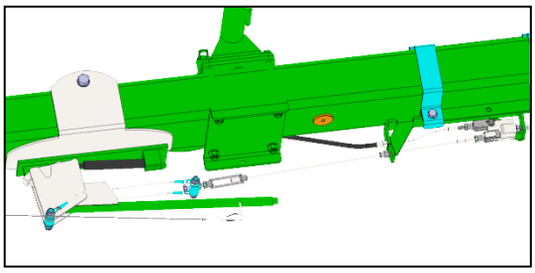
The brake force transmitting system - the connector between the service brake cable and the hand brake transmitting system; the spring assembly that helps releasing the wheel brakes.



The brake force transmitting system - the linkage between the connector and the brake levers on the axle.



Hand brake lever complete with the brake force transmitting system

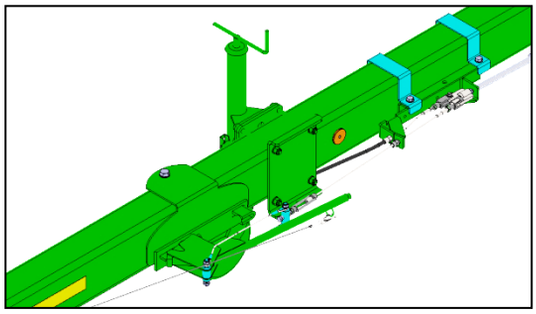


Setting up the braking system

Configuring the brake force transmitting system in its default position

Release the parking brake before testing and configuring the service brake as described below.

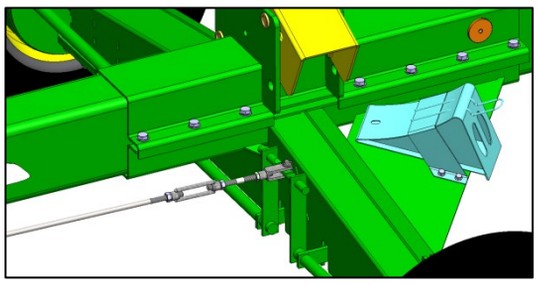
- Always release the parking brake first.



In default position, the brake levers (nearside in front of the axle) are angled slightly to the rear when the brakes are released.

Should this not be case, the brake levers need resetting.

- To do this, release the locking screws on the brake levers and remove the brake levers from the two splined shafts.
- Next, move both brake levers clockwise by one tooth on the ratchet bracket. Then slide it back on to the splined shafts. If this is not possible because the splined shafts are in an awkward position so that the brake levers would foul with the axle cross member, turn the splined shafts with a suitable tool (e.g. with a pair of massive pump pliers). Turn the shafts locking clockwise until you can slide the brake levers onto them.
- Before you tighten the locking screws on the brake levers, jack up the transporter under the axle and turn the wheels to verify that the brakes are now set up correctly. The configuration is correct, if you feel a slight drag from the brake pads on the drum. If you can't turn the wheels, the brakes will be set too tight. Remove the brake levers again from the splined shafts and turn them locking clockwise one tooth on the ratchet bracket.

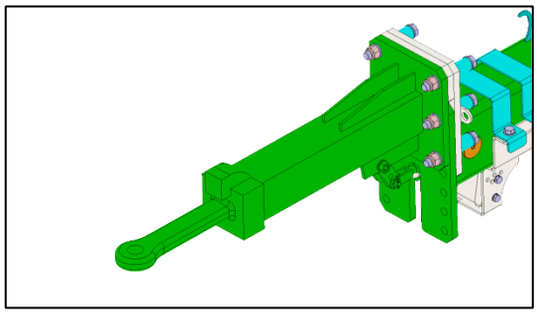


Released brake lever on the axle = default position

Setting up the braking system

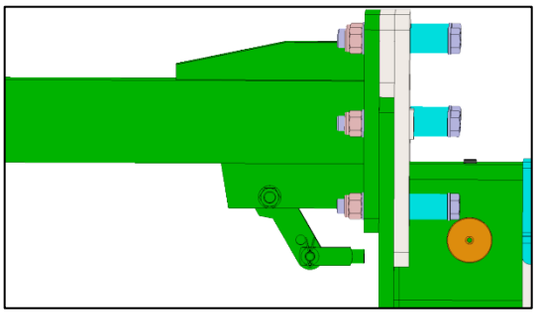
After the brake levers are in release position (see illustration), inspect the brake force transmitting system for loose connections. Ensure the movement of the overrun head or its downthrust clamp is instantly transmitted to the rear axle without any brake force being lost.

- To do this, check whether the hitch ring is fully extended from the overrun head.
- The distance between the middle of the ring and the reference face (see illustration) is 120mm when the hitch ring is in release position. The hitch ring is not fully extended if this distance is significantly smaller.



The hitch ring is in release position inside the overrun head = fully extended

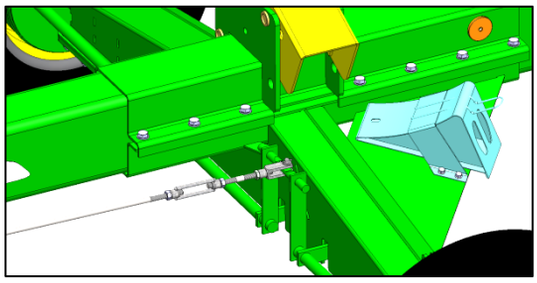
- When the hitch ring is fully extended, move the downthrust clamp under the overrun head all the way to the rear. This is done without the brake cable being connected to it.
- The downthrust clamp now contacts the rear end of the hitch ring assembly. In this position it follows any movement of the hitch ring. In doing so, it swings forward, pulling the cable and all force transmitting elements. This action actuates the two brake levers on the axle. As these move forward, they close the brake.
- As a next step, pull the cable hard until this is no longer possible due to the resistance of the brake levers on the axle or the resistance of the spring assembly on the brake linkages.
- Then insert the pin of the clevis joint into the downthrust clamp which is now in its most rearward position.



The downthrust clamp is in its default position = folded all the way to the right and contacting the hitch ring

Setting up the braking system

- If necessary, adjust the position of the clevis joint or the braking system by turning the turnbuckle in front of the axle until it is possible to insert the pin.
- Now it should no longer be possible to operate the brake force transmitting system manually.
- However, if this is still possible, turn the turnbuckle in front of the tandem axle to adjust the cable until the downthrust clamp cannot move and until the brake levers on the axle cannot be pulled forward.
- The brake force transmitting system is now set up in its default configuration.

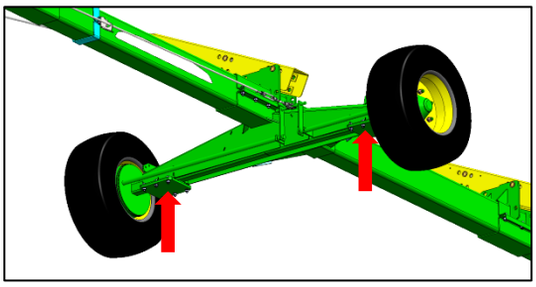


The turnbuckle that sets and readjusts the wheel brakes

Setting up the service brake

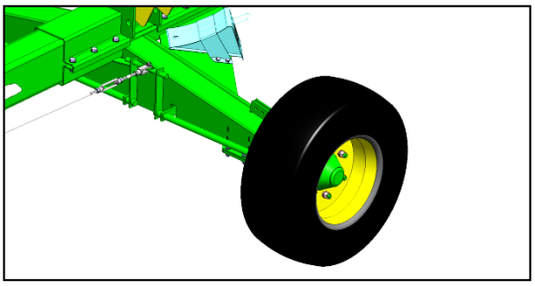
Release the parking brake before testing and configuring the service brake on the unladen machine as described below.

- Park the transporter on firm level ground and secure it so it cannot roll or overturn.
- Release the parking brake.
- Position the jack under the tandem axle and raise the transporter until both wheels have lost contact with the ground and rotate freely.



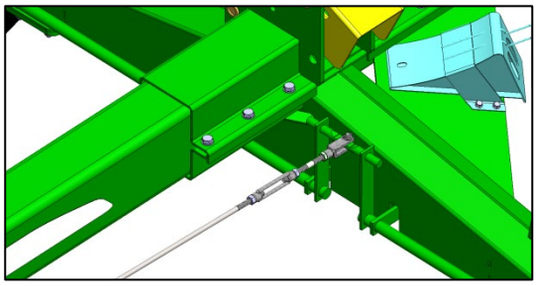
Position the jack under the jack points.

- Next turn the nearside wheel in direction of travel.
- The setting is correct, if you can hear a faintly grinding noise as the pads drag on the drum and if the wheel is turning with clear resistance.
- If you can’t feel any resistance when turning the wheel forward, optimise the brake configuration.



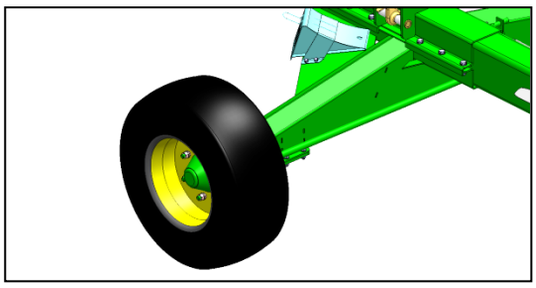
Setting up the braking system

- To do this, turn the turnbuckle until you feel a clear resistance when turning the wheel.
- However, it should be possible to turn the wheel with both your hands.
- If this not possible, the setting will be too tight. In that case, turn the turnbuckle in the opposite sense.



Setting up the wheel brakes by adjusting the turnbuckle

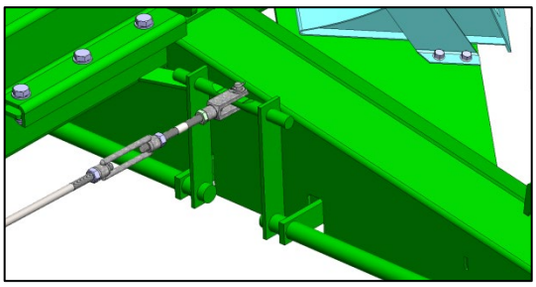
After the nearside wheel is properly configured, repeat the procedure on the offside wheel.



The brakes on both wheels are connected by the equalizer in front of the axle. They are set up by adjusting only one turnbuckle. This suggests that setting the nearside brake also adjusts the offside brake.

Should this not be the case and should the wheel lock up or should you even feel no resistance when turning the wheel, adjust the brake on this wheel on the turnbuckle until you can feel a clear resistance.

In general, the cables should be set rather tight before the machine is operated the first time. This is recommended, because the brake pads still need adapting to the brake shoes during the initial phase of operation. After that the shoes will apply a uniform pressure.



The equalizer connects the brakes on the left and right wheels

- Then lower the transporter until both wheels are on the ground and secure it from rolling by applying the parking brake.

Setting up the braking system

- Attach the transporter to the towing vehicle, release the parking brake and reverse the combination.
- Should the brakes engage when the transporter is being reversed, the brakes are set too tight.
- In that case, open the turnbuckle until the brakes no longer engage when the transporter is being reversed.
- Tighten the locking nut on the turnbuckle. This secures the turnbuckle from twisting.

Checking the configuration of the service brake on the laden machine

The correct configuration of the service brake is verified on the laden machine. This completes the start-up operations. This is done by placing the header on the transporter ► see sections “Placing the header on the transporter” and “Operating the header transporter”

- After placing the header on the transporter and attaching the transporter to the towing vehicle, drive the combination at a moderate speed of 10-15km/h. Then brake the towing vehicle.
- Doing this, watch the header transporter and how it responds.
- You must feel that the transporter is slowing down.
- To ‘train’ the brake pads and increase the grip it is necessary to brake the towing vehicle about 20 times while driving at approx. 10-15km/h.
- After this ‘training period’ apply the brake again, this time while driving at approx.15km/h.
- Watch the hitch ring and how it responds.
- If the hitch ring retracts all the way (120mm), hitting the stop, the brake will need adjusting.
- To adjust the brake, adjust the turnbuckle in front of the axle. As you turn the turnbuckle, the two brake levers in front of the axle must slightly move forward.
- Setting up the braking system
- After the turnbuckle is adjusted, drive and brake the combination again at 15km/h, watching the hitch ring and how it responds.
- Should the hitch ring continue to retract all the way and even hit stop, adjust the brake again on the turnbuckle.

Setting up the braking system

- Repeat the procedure until the hitch ring no longer retracts all the way or even hits stop when the transporter is operated and braked at its maximum forward speed.
- When this is the case, the service brake is correctly configured.
- As a last step, verify that the wheel brakes and the entire brake force transmitting system are correctly configured.
- This completes the start-up operations of the brake.
- After the above adjustments are completed, inspect the brake force transmitting system between the overrun head and of the axle for loose connections or damage.

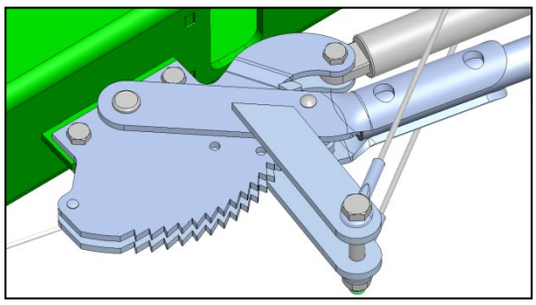
Setting up the braking system

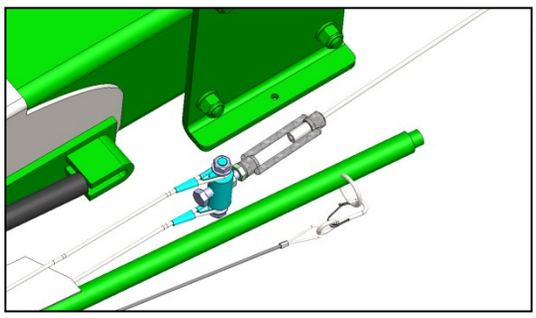
Setting up the parking brake (SWW250, SWW260, SWW350 and SWW360)

After the service brake is configured correctly, it is necessary to set up the parking brake. This procedure is carried out on the unladen vehicle.

Checking the braking position of the hand brake lever

- Operate the hand brake lever.
- After the lever has covered about 1/3 of its path on the ratchet bracket it should be in its working position and not move any further.
- Should this not be case and should the lever move much further forward on the bracket, undo the hex nut on the connector that connects the two cables.
- Reduce the length of the connector between both cables attached to the hand brake lever and the turnbuckle by threading the hex shank into the turnbuckle.
- Retighten the locking nuts.





Setting up the braking system

Checking the configuration of the parking brake on the laden machine

As a last step, check the correct configuration of the parking brake on the laden machine. This completes the start-up operations. This is done by placing the header on the transporter ► see sections “Placing the header on the transporter” and “Operating the header transporter”

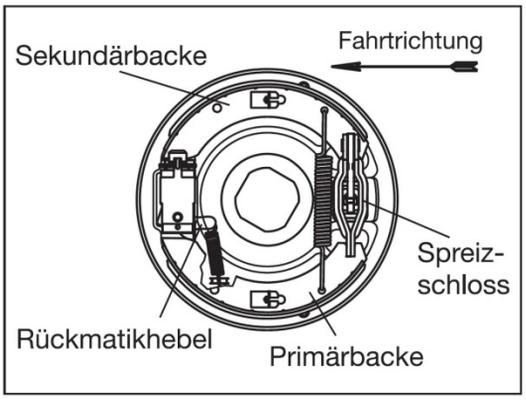
- Place the header on the transporter and attach the transporter to the towing vehicle.
- Apply the parking brake.
- Then start the tractor or combine and try to pull off with the header transporter in tow.
- If the transporter wheels do not move, the parking brake is set correctly.
- However, should the wheels on the transporter turn as the towing vehicle is pulling off, the parking brake will need optimising.
- To do this, undo the two locking nuts on the connector that connects the two cables and thread the hex shank into the turnbuckle to reduce the cable length.
- Then apply the parking brake and start the towing vehicle, trying to pull off with the transporter in tow. Watch the wheels.
- If they are not turning, the configuration of the parking brake is completed.

Automatic Reversing Mechanism

Function of the reversing mechanism

A special brake shoe support arrangement in the wheel brake cancelsthe braking effect while reversing and thereby ensures the vehicle can be backed up effortlessly at any time, even uphill. This therefore rendersunnecessary a reverse locking lever for mechanical locking operation. Normal brake operation is resumed immediately when driving forwards.

The associated overrun device is equipped with a gas pressure-assisted hydraulic shock absorber maximizing control in both driving and braking conditions. The individual components namely the wheel brake, transmission and overrun mechanism are designed as a system to ensure effective performance.



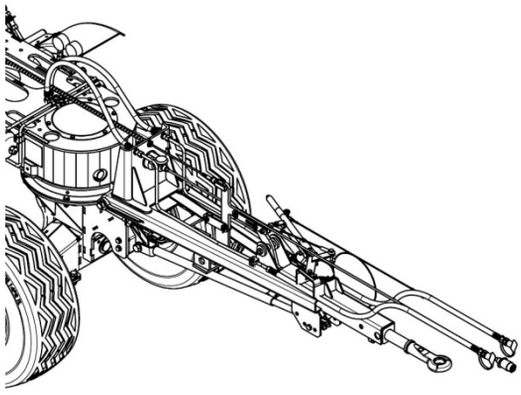
Quelle: BPW

Parking brake lever

The brake system operates fully automatically and requires no specific handling procedures. Please comply with the following information when operating the parking brake lever:

Firmly pull the barking brake lever beyond the dead centrepoint (min. 3 teeth). The parking brake lever will be retensioned automatically by the gas spring if the trailer has a tendency to roll backwards. Compressing the drawbar with the towing vehicle makes operation of the parking brake lever easier. In this case, the wheel brake is normally pushed into the automatic reversing mechanism and the parking brake lever can be pulled up to the end position (12 teeth).

The towing vehicle must be connected to the parking brake lever by means of a breakaway cable. In the event of the trailer breaking away from the towing vehicle, the trailer is stopped by the parking brake lever in conjunction with the breakaway cable.



Automatic Reversing Mechanism

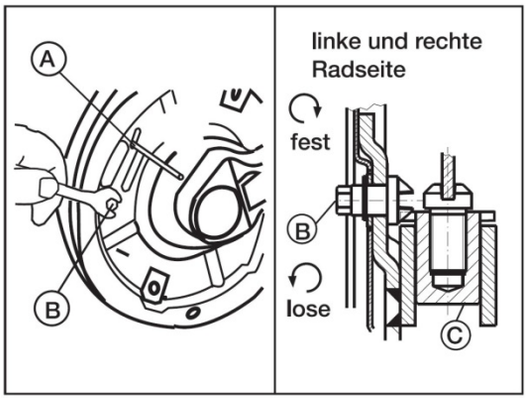
Adjusting the wheel brakeS 3006-7 RAZG

Secure the trailer to prevent it moving and jack it up. Release the towing linkage to the overrun device and to the parking brake lever. Using the aid(< 4 mm Ø pin), lock the swivel cam of the wheel brake from the outside by inserting the pin through the locking hole (insert to a depth of min. 50 mm). With the aid of a spanner, tighten the adjusting nuts (item C) on the adjusting pin (item B) at the wheel brakes until the wheel can no longer turn in the driving direction. Turn back the adjusting pin until the braking effect can no longer be felt when turning the wheel forwards.

Caution: The wheel brake should only be readjusted at the adjusting pin! Reconnect the towing linkage to the overrun mechanism and adjust so that it is free of play. For this purpose, the drawbar of the overrun mechanism must be completely extended and reversing must lever rest on the drawbar.

As a check, lightly apply the parking brake and check that the braking torque (in the driving direction) is the same at the wheels on the left and right. Check that the individual brakes take effect at the same time.

Caution:Remove the locking pin (< 4 mm Ø pin) from the swivel cam!



Quelle: BPW

Automatic Reversing Mechanism

Basic setting of the wheel brake

The basic setting is carried out at the factory prior to delivery. The basic setting only requires readjustment after the drawbar or parts of the mount assembly have been replaced. Proceed as follows:

Release the towing linkage to the overrun device and the parking brake lever.Remove pin (Fig. 2, item D) by releasing the retaining clips. Using the aid (Fig. 1, item A, < 4 mm Ø pin), lock the swivel cam of the wheel brake from the outside by inserting the pin through the locking hole (insert to a depth of min. 50 mm). With the aid ofa spanner, tighten the adjusting nuts (Fig. 1, item C) on the adjusting pin (Fig. 1 item B) at the wheel brakes until the wheels can no longer turn in the driving direction. When making the initial setting, make sure that the holes in the yoke ends (Fig. 2, item E) exactly line up with the holes in the steering lever and the towing linkages are connected without play. Now reinstall the pins (Fig. 2, item D) and secure with clips.

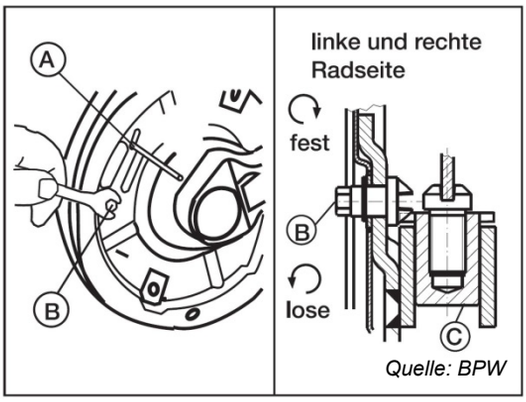
Turn back the adjusting pin until the braking effect an no longer be felt when turning the wheel forwards.

Caution: The wheel brake should only be readjusted at the adjusting pin!

Reconnect the towing linkage to the overrun mechanism and adjust so that it is free of play. For this purpose, the drawbar of the overrun device must be completely extended and the reversing lever rest on the drawbar. With the parking brake lightly applied in the forwards direction, check the position of the brake lever of the mount assembly (angle position approx. 40°,Fig. 3). Readjust the brake setting, if necessary. Check that the brakes respond uniformly when the parking brake is lightly applied. Readjust the brake setting, if necessary.

Caution: Remove locking pin (< 4 mm Ø pin) from the swivel cam!

With the parking brake lightly applied in the reverse direction, check the positon of the brake lever in relation to the mount assembly (brake lever parallel to the axle beam). Readjust the brake setting, if necessary.



Quelle: BPW

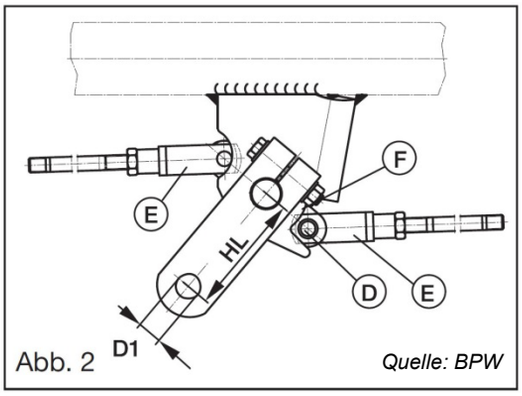


Abb. 2 Quelle: BPW

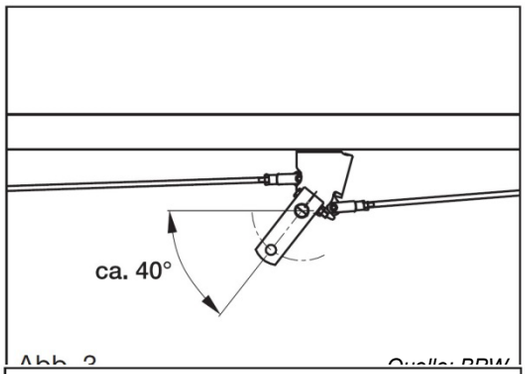


Abb. 3 Quelle: BPW

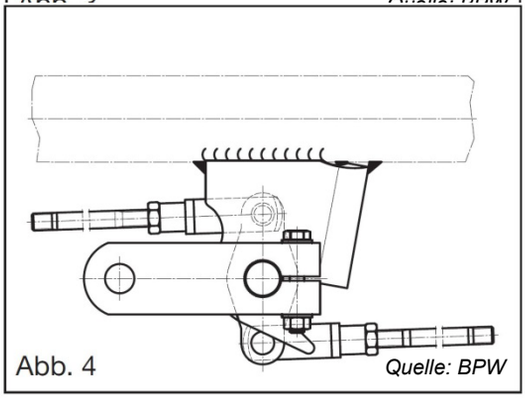
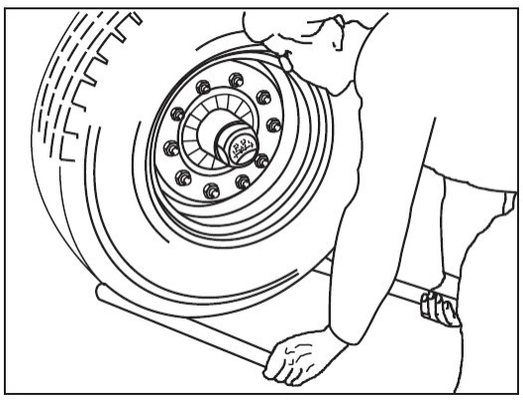


Abb. 4 Quelle: BPW

Axle Bearing

Checking the bearing play in the wheel hub

To check the bearing play in the wheel hub, raise the axle until the tyres are clear of the ground. Release the brake, place a lever between the tyre and the ground, and check for play.



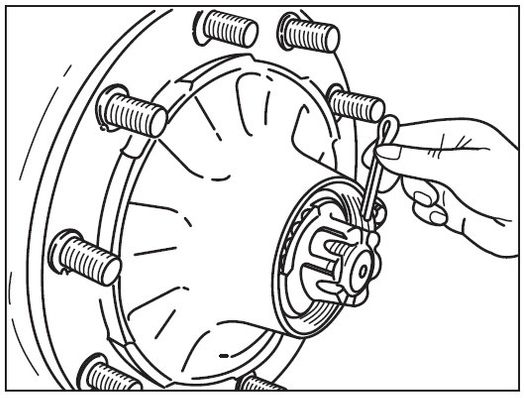
Quelle: BPW

Adjusting the bearing play

If you can feel play in the bearing:

Nachstellen der Kegelrollenlager an den Hinterachsen der Typen SWW500, SWW510, SWW550 und SWW560; bei den Typen SWW400HM, SWW450HM, SWW400L und SWW450L; bei allen 1-Achsern, sowie X2 und X6.

1. Remove the bearing cap, or hub end-cap.
2. Remove the split pin from the wheel nut.
3. Tighten the wheel nut while turning the wheel, until the turning of the hub is slightly impeded.
4. Turn back the axle nut to the nearest possible splint pin hole. If already in line, turn back to the next hole (maximum of 30°).
5. Insert the split pin and gently bend it over.
6. Refill the bearing cap with a little special long lifegrease (e.g. BPW ECO-Li 91) and tap or screw it back into the wheel hub



Quelle: BPW

Caution!

To sharp focus will cause bearing damage.

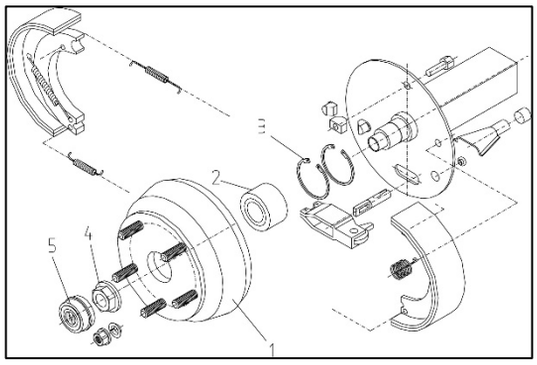
Wheel bearings

Replacing the compact bearings

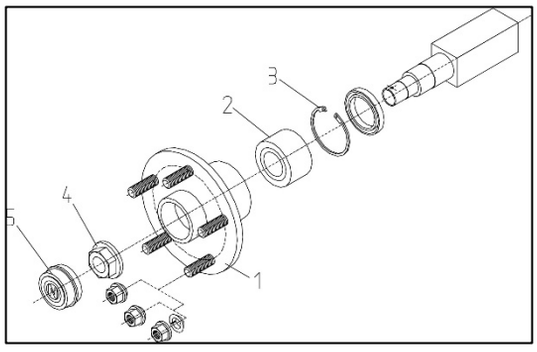
Replacing the compact bearings on the front axle on SWW500, SWW510, SWW550 and SWW560 and on SWW400, SWW450, SWW460 and SWW460HM models.

The wheel bearings are absolutely maintenance-free. Should you notice a very loud noise on the wheels or substantial play in a bearing, replace the entire bearing. It is not possible to dissemble the sealed bearings.

1. Remove the wheel bearing dust cap (5)
2. Remove the flanged nut (4)
3. Remove the hub or brake drum (1). The compact bearing (2) sits inside the hub.
4. Remove the seeger circlip ring (3)
5. Remove the compact bearing (2)
6. Fit the new compact bearing (2); fit the seeger circlip ring (3)
7. Replace the hub or brake drum (1) on the steering knuckle
8. Fit a new flanged nut (4). The flanged nut needs replacing whenever the brake drum is removed.
9. Torque the flanged nut (4) to 280 Nm
10. Tap the dust cup on to the hub (5)



Source: Nieper



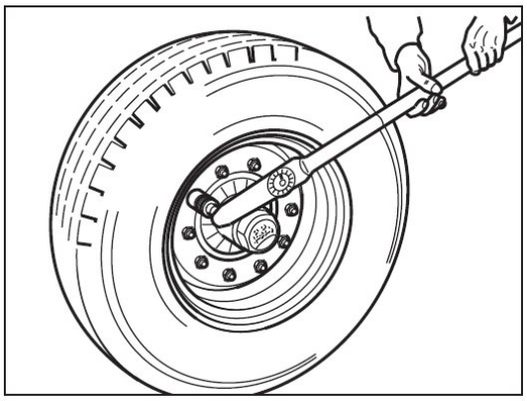
Source: Nieper

Wheels

Retighten wheel nuts

Check wheel nuts for tight fit.

Check that the wheel nuts are tight after the first laden journey, likewise after each wheel change and every 500 hours in operation or annually. Use a torquewrench to tighten the wheel nuts to the correct torque setting, as shown in the sticker (310Nm (228 ft.lb)).



Quelle: BPW

Tighten the wheel nuts in the proper sequence.

Tightening torques for wheel bolts

Type	Thread size	Tightening torque
SWW100 to SWW360	M18x1,5	310 Nm
SWW450, SWW460	M12x1,5	95 Nm
SWW450, SWW 460	M14x1,5	125 Nm
SWW500, SWW510, SWW550, SWW560	M14x1,5 (front axle)	125 Nm
	M18x1,5 (rear axle)	310 Nm
SWW-X2, SWW-X6	M18x1,5	310 Nm

Wheels

Tyres

Ensure the tyres have sufficient tread depth. The minimum tread depth should be 1.6 mm. Replace cracked or damaged tyres.

Use tyres and wheels that are specified for the header transporter.

Tyre pressure

The tyre pressure should be 5 bar on the 25km/h header transporters.

Increase the pressure to 7.1 bar on 40km/h models or when travelling long distances.

Pin allocation DIN/ISO 1724 (7-Pin Connector)

L/1	yellow
54g/2	blue
31/3	white
R/4	green
58R/5	brown
54/6	red
58L/7	black

Maintenance

General service and maintenance instructions

Any service and maintenance work must be carried out by trained staff who are familiar with the mode of operation of the machine.

The engine of the towing vehicle must be shut off and all ancillaries must have come to stop before any service, maintenance or repair work can be carried out.

- Visually inspect the header transporter for damage, deformations and cracks in structural parts.
- Check the tyres for wear.
  The minimum tread depth is 1.6 mm and must not be undercut. Damaged tyres must be replaced.
- Check the lights for proper function.
- Replace defective components.

The manufacturer accepts no liability if the instructions on service and maintenance are not observed. The manufacturer neither accepts liability for any damage caused by improper service and maintenance.

Cleaning the machine regularly helps to preserve its paint finish. Cleaning the contaminated parts fairly promptly helps to prevent fading and corrosion. It is best to repair any damage to the paint coat immediately.

CAUTION! Avoid using a pressure washer to clean those areas that contain bearings and hydraulic components. A pressure washer that is set to an excessive pressure is at risk of damaging the paint finish.

Maintenance

Wear suitable protective clothing!

Disconnect the driveline before working on the mechanical drive components.

Always disconnect the electric line before working on the electrical system.

After the first 10 operating hours

After an initial period of driving, the brake linings will have adapted to the brake drum and the components of the transmission device will have settled. The resulting play must be taken up by readjustment.

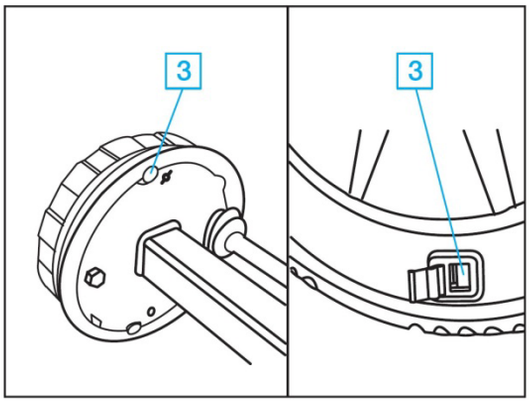
Proceed as follows:

1. Adjust the wheel brake as described in ► chapter “Adjusting the brake system“.
2. Then check the amount of overrun travel used by braking the vehicle to a stop. It should not exceed 50-60% of the maximum overrun range. If this is the case, repeat the wheel brake adjustment procedure
3. Now check whether the towing vehicle can easily push back the trailer. If the trailer is braked too much, the setting at the wheel brake should be released a little.
4. On completion of adjustment, ensure all lock nuts are firmly tightened.

Every 200 operating hours

Check the function of the brake system. Carry out the wheel brake adjustment procedure as described in ► chapter “Adjusting the brake system”. Now proceed from point 2 as described under “after 10 operating hours”.

Check the brake lining thickness. For this purpose, remove the plastic plug from the inspection hole in the brake anchor plate and carry out a visual inspection. New brake shoes must be fitted if the brake linings are damaged or less than 2 mm thick. Also replace any worn or damaged parts (springs, brake shoe expander, etc.).



Source: BPW

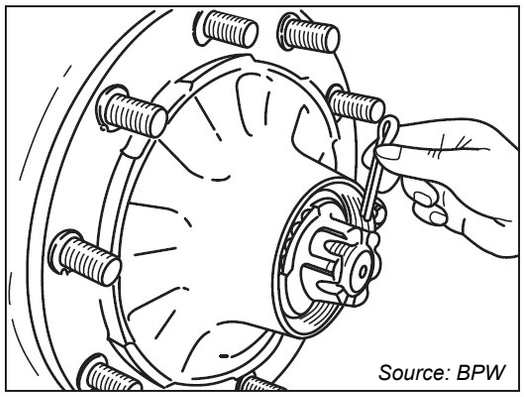
Quarterly

Lubricate all bearing points at least every three months.

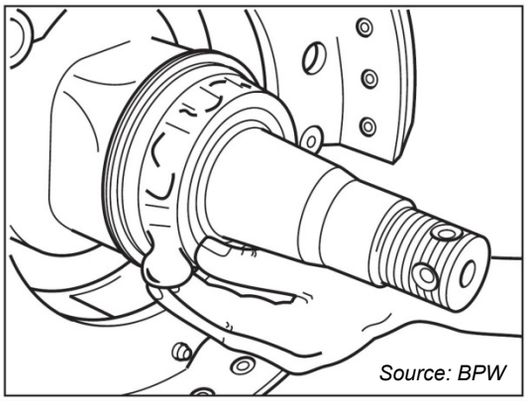
Every 1000 hours in operation (latest annually)

Changing the grease in the wheel hub bearing

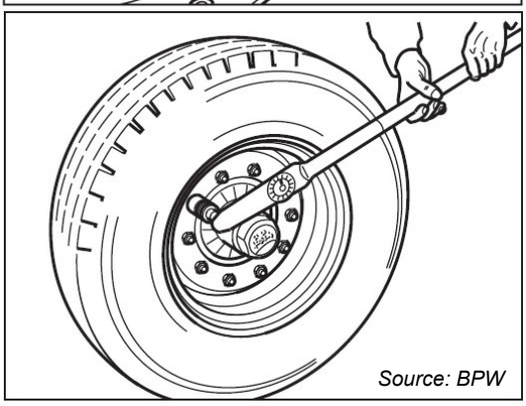
Jack up and secure the trailer and release the brakes. Remove the wheels and bearing caps. Remove the split pin and unscrew the axle nut. Using a suitable retractor, withdraw the wheel hub with the brake drum, the roller bearings and the sealing elements from the axle stub. Label or mark the wheel hubs and bearing cages so that they do not become mixed up during re-assembly. Clean the brake, check for wear, make sure that it is intact and operates correctly, and replace any worn parts.


Source: BPW

The inside of the brake must be kept free of grease and dirt. Clean the wheel hubs thoroughly on the inside and the outside, removing every trace of old grease. Clean the bearings and seals thoroughly (diesel oil) and check to ensure that they are suitable for re-use. Lightly grease the bearing seats before fitting the bearings, and then assemble all the parts in the reverse order. Carefullydrive the parts into place on the bearing shells, without tilting or damaging them. Coat the bearings, the wheel hub cavity between the bearings and the bearing cap with grease before re-assembly. The quantity of grease should fill approximately a quarter to a third of the space in the assembled hub. Fit the axle nut andadjust the bearings and the brake.


Source: BPW

Finally, check that everything is in working order and carry out a suitable test drive, correcting any faults that you may discover. The wheel hubs must only be lubricated with special long lifegrease (ECO Li 91) with a drop point above 190°C. using the wrong grease or excessive quantities may lead to damage. Damage can be caused by the mixing of lithium-based grease with sodium-based grease, because of incompatibility.


Source: BPW

Lubricants and oils

The service intervals given below are based on an average utilisation of the machine. Reduce these service intervals, if the machine is used at above-average levels.

The specific lubricant to be used is indicated by a symbol. These symbols are explained in the table below.

Type of service	Type of lubricant	Comment
Grease ◆	Multi-purpose grease	Grease nipples: Apply about two shots of grease from the grease gun. Remove any excessive grease from the nipple.
Lubricate ●	Vegetable oils unless specified otherwise	Sliding surfaces: Apply a thin film of the oil with a brush or a spray can. Remove any excessive oil.
Oil		Apply a uniform film of oil on the surface.

CAUTION!

Lubricants are a hazard to the environment if stored and disposed of incorrectly.

- Store the lubricants in suitable bins and in accordance with the legal requirements.
- Dispose of used lubricants in accordance with the legal regulations.

IMPORTANT!

Immediately replace missing grease nipples. Clean the grease nipples thoroughly before greasing them.

Lubricants and oils

Grease

Select the grease according to its NLGI grade and the anticipated outside temperatures in which the machine will be operated until the next service.

The use of the following greases is recommended:

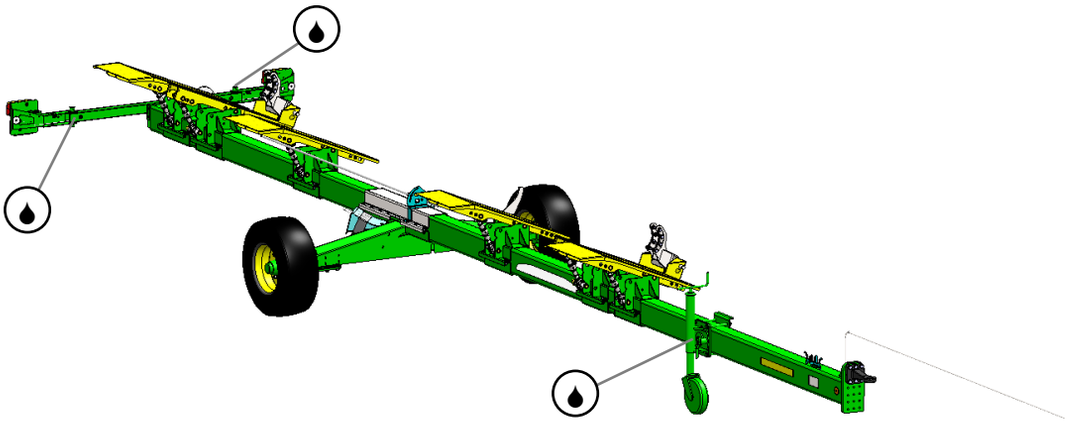
Shell Alvania Grease RL 2, Gadus S2 V100 2, John Deere Grease-Gard Premium, Petronas Grease CA 00

Other greases can also be used provided they meet the required specification.

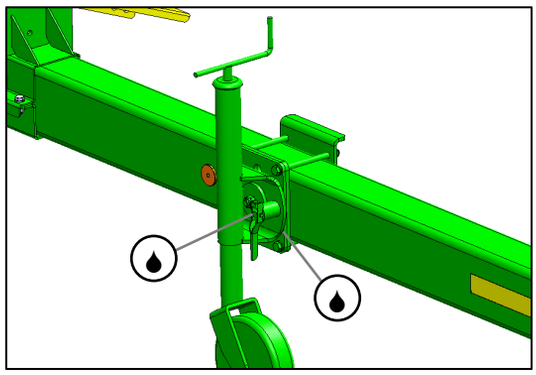
Lubricate Bowden cables with grease gun oils, do not use grease.

Service points

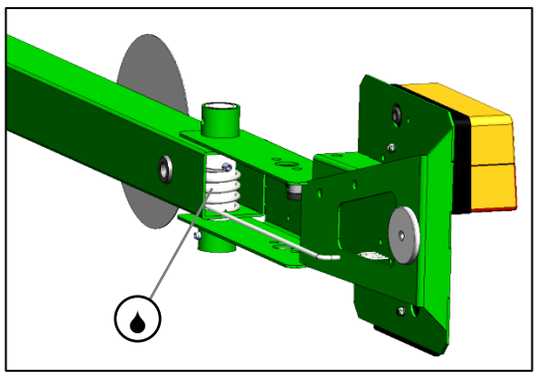
Service points on SWW100, SWW200, SWW300



Apply grease or penetrating oil to the locking pin and the guide and bearing of the jockey wheel

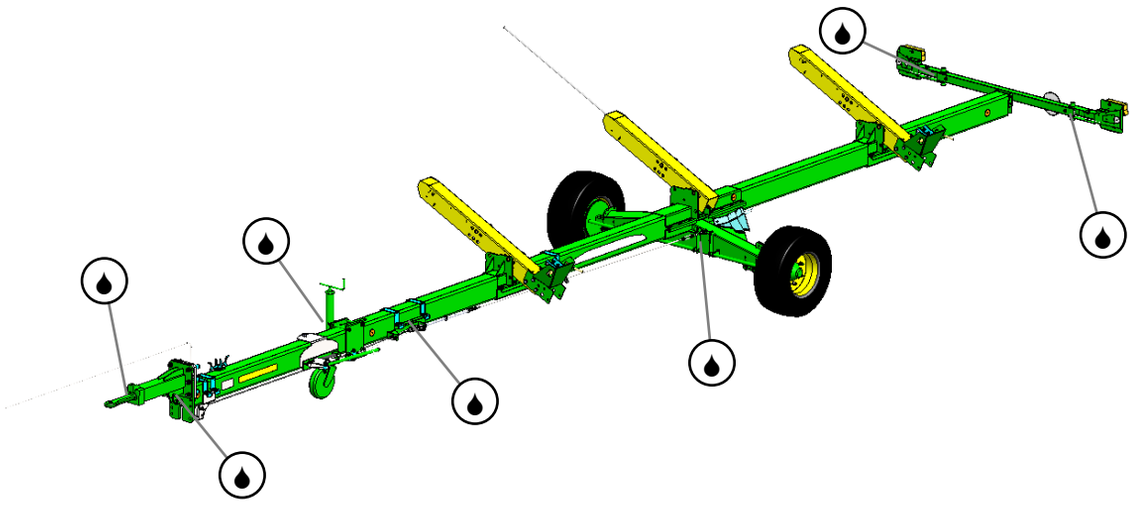


Apply penetrating oil or similar to the bearings on both folding light boards

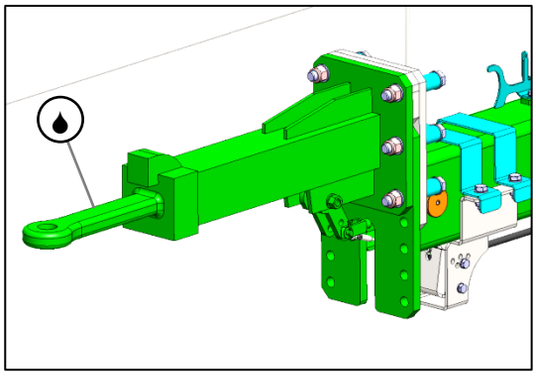


Service points

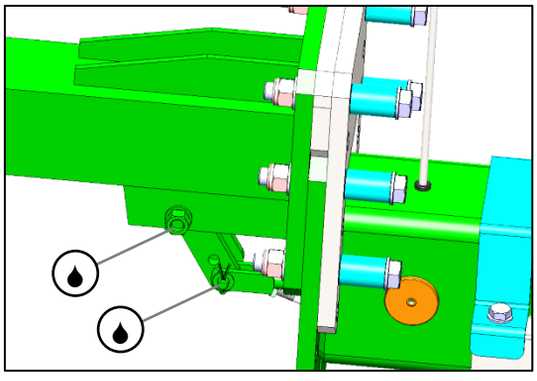
Service points on SWW250, SWW260, SWW350, SWW360



Grease the hitch ring

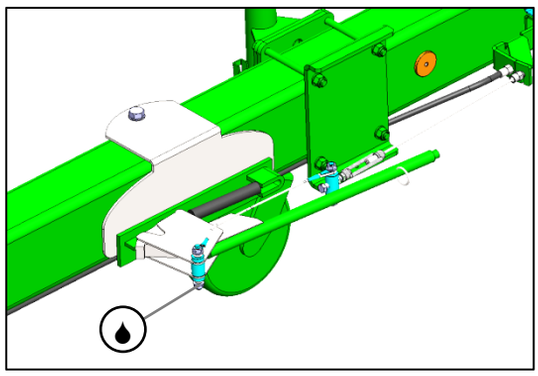


Apply penetrating oil or similar to the bolts on the shaft

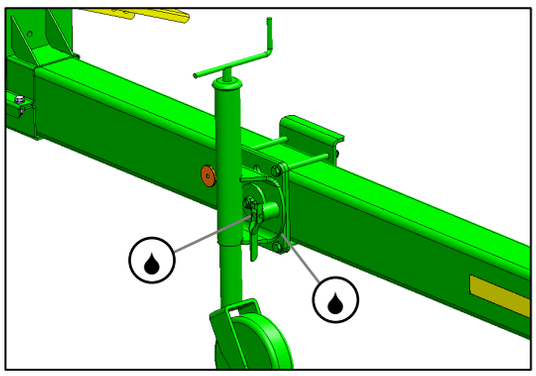


Service points

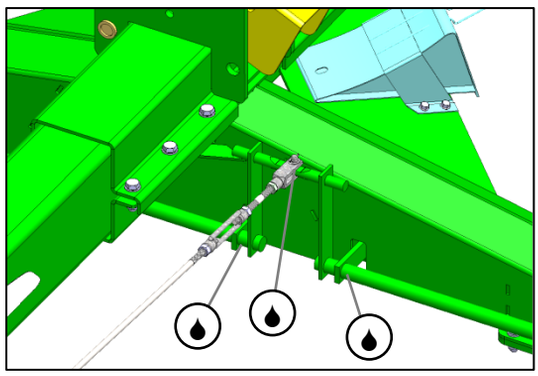
Apply penetrating oil or similar to the bolts and joints on the hand brake lever



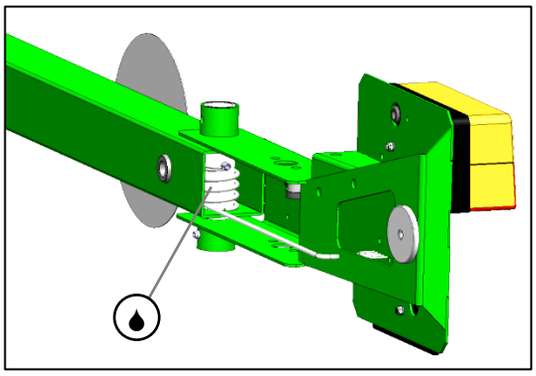
Apply grease or penetrating oil or similar to the locking pin and the guide and bearing of the jockey wheel



Apply penetrating oil or similar to the shafts and equalizer



Apply penetrating oil or similar to the bearings on both folding light boards.



Torques for Metric Bolts

Bolts	Grade 4.8				Grade 8.8 oder 9.8				Grade 10.9				Grade 12.9			
	Oiled		Dry		Oiled		Dry		Oiled		Dry		Oiled		Dry	
Size	N•m	lb-in	N•m	lb-in	N•m	lb-in	N•m	lb-in	N•m	lb-in	N•m	lb-in	N•m	lb-in	N•m	lb-in
M6	4,7	42	6	53	8,9	79	11,3	100	13	115	16,5	146	15,5	137	19,5	172
M8	11,5	102	14,5	128	22	194	27,5	243	32	23,5	40	29,5	37	27,5	47	35
M10	23	204	29	21	43	32	55	40	63	46	80	59	75	55	95	70
M12	40	29,5	50	37	75	55	95	70	110	80	140	105	130	95	165	120
M14	63	46	80	59	120	88	150	110	175	130	220	165	205	150	260	190
M16	100	74	125	92	190	140	240	175	275	200	350	255	320	235	400	300
M18	135	100	170	125	265	195	330	245	375	275	475	350	440	325	560	410
M20	190	140	245	180	375	275	475	350	530	390	675	500	625	460	790	580
M22	265	195	330	245	510	375	650	480	725	535	920	680	850	625	1080	800
M24	330	245	425	315	650	80	820	600	920	680	1150	850	1080	800	1350	1000
M27	490	360	625	460	950	700	1200	885	1350	1000	1700	1250	1580	1160	2000	1475
M30	660	490	850	625	1290	950	1630	1200	1850	1350	2300	1700	2140	1580	2700	2000
M33	900	665	1150	850	1750	1300	2200	1625	2500	1850	3150	2325	2900	2150	3700	2730
M36	1150	850	1450	1075	2250	1650	2850	2100	3200	2350	4050	3000	3750	2770	4750	3500

The tightening torques given are guideline values. Do NOT use these values if a different torque or another securing method is specified for a specific application. For stainless steel bolts and nuts for stirrup bolts, see specific instructions. Tighten locking nuts with plastic insert or edge-raised steel locking nuts to the corresponding torque for dry bolts and nuts given in the table unless otherwise instructed.

Shear pins are designed to break at a certain load. When replacing shear pins, use only pins of the same grade. When replacing bolts and nuts, make sure that equivalent parts of the same or a higher grade are used. Tighten higher-grade nuts and bolts to the same torque as the originally used parts. Make sure that the thread is clean and the bolts correctly fitted. If possible, oil normal and galvanised nuts and bolts (except for locking nuts and wheel studs or nuts) unless specified otherwise for the specific application.

“Oiled” means that a lubricant, such as engine oil, is applied to the bolts or that phosphatized or oiled bolts with a size from M20 are used.

“Dry” means the use of normal or galvanised bolts without lubrication or bolts with a size between M6 and M18 that are zinc-coated.

Malfunctions and Remedies

Malfunction	Cause	Remedy
Poor brake response	The brake pads are not broken in	Apply the brake repeatedly to improve brake response
	The pullrod retracts all the way	Adjust the pullrod
	Excessive friction	Check the brake force transmitting system
Braking is difficult when reversing	The brake linkage is set too rigid	Re-adjust the brake linkage
Poor hand brake effect	The brake pads are not broken in	Apply the brake repeatedly to improve brake response
	Excessive friction	Check the brake force transmitting system
	The hand brake is not set up properly	Re-adjust the hand brake
The transporter is not tracking properly (2 steering axles)	The steering system is not set up correctly	Re-adjust the system
	The push-pullrod or tie rod is deformed	Replace the rod

Technical data

Single-axle header transporters for ZÜRN 700PF headers

Model	Total length [mm]	Total width [mm]	Maximum height [mm]	Track width [mm]	Kerb weight [kg]	GVWR [kg]	Axle load [kg]	Tongue load [kg]
SWW300-722PF	11,225	2,550	1,700	2,270	920	4,200	4,000	200
SWW320-722PF	11,225	2,550	1,700	2,270	940	4,200	4,000	200
SWW350-722PF	11,900	2,550	1,700	2,270	1,080	4,200	4,000	200
SWW360-722PF	11,900	2,550	1,700	2,270	1,080	4,200	4,000	200
SWW300-725PF	11,225	2,550	1,700	2,270	920	4,200	4,000	200
SWW320-725PF	11,225	2,550	1,700	2,270	1940	4,200	4,000	200
SWW350-725PF	11,900	2,550	1,700	2,270	1,050	4,200	4,000	200
SWW360-725PF	11,900	2,550	1,700	2,270	1,050	4,200	4,000	200

Technical data

Single-axle header transporters for John Deere RA (600R) headers

Model	Total length [mm]	Total width [mm]	Maximum height [mm]	Track width [mm]	Kerb weight [kg]	GVWR [kg]	Axle load [kg]	Tongue load [kg]
SWW100-315R	8,145	2,550	1,700	2,270	850	3,200	3,000	200
SWW120-315R	8,145	2,550	1,700	2,270	870	3,200	3,000	200
SWW200-317R SWW200-620R SWW200-W440-620R	9,775	2,550	1,700	2,270	870	3,200	3,000	200
SWW220-317R SWW220-620R SWW220-W440-620R	9,775	2,550	1,700	2,270	890	3,200	3,000	200
SWW250-620R	10,450	2,550	1,700	2,270	1,030	4,200	4,000	200
SWW260-620R	10,450	2,550	1,700	2,270	1,030	4,200	4,000	200
SWW300-622R SWW300-W440-622R	11,225	2,550	1,700	2,270	920	3,200	3,000	200
SWW320-622R SWW320-W440-622R	11,225	2,550	1,700	2,270	940	3,200	3,000	200
SWW350-622R	11,900	2,550	1,700	2,270	1,090	4,200	4,000	200
SWW360-622R	11,900	2,550	1,700	2,270	1,090	4,200	4,000	200
SWW300-625R	11,225	2,550	1,700	2,270	920	3,200	3,000	200
SWW320-625R	11,225	2,550	1,700	2,270	940	3,200	3,000	200
SWW350-625R	11,900	2,550	1,700	2,270	1,050	4,200	4,000	200
SWW360-625R	11,900	2,550	1,700	2,270	1,050	4,200	4,000	200

Technical data

Single-axle header transporters for John Deere XA (600X) headers

Model	Total length [mm]	Total width [mm]	Maximum height [mm]	Track width [mm]	Kerb weight [kg]	GVWR [kg]	Axle load [kg]	Tongue load [kg]
SWW300-622X	11,225	2,550	1,500	2,270	1,020	4,200	4,000	200
SWW320-622X	11,225	2,550	1,500	2,270	1,040	4,200	4,000	200
SWW350-622X	11,900	2,550	1,500	2,270	1,150	4,200	4,000	200
SWW360-622X	11.900	2,550	1,500	2,270	1,150	4,200	4,000	200
SWW300-625X	11,225	2,550	1,500	2,270	1,020	4,200	4,000	200
SWW320-622X	11,225	2,550	1,500	2,270	1,040	4,200	4,000	200
SWW350-625X	11,900	2,550	1,500	2,270	1,150	4,200	4,000	200
SWW360-625X	11,900	2,550	1,500	2,270	1,150	4,200	4,000	200

Technical data

Single-axle header transporters for John Deere FA (600F) headers

Model	Total length [mm]	Total width [mm]	Maximum height [mm]	Track width [mm]	Kerb weight [kg]	GVWR [kg]	Axle load [kg]	Tongue load [kg]
SWW300-622F	11,225	2,550	1,700	2,270	1,235	3,200	3,000	200
SWW320-622F	11,225	2,550	1,700	2,270	1,235	3,200	3,000	200
SWW350-622F	11,900	2,550	1,700	2,270	1,405	4,200	4,000	200
SWW360-622F	11,900	2,550	1,700	2,270	1,405	4,200	4,000	200
SWW300-625F	11,225	2,550	1,700	2,270	1,255	3,200	3,000	200
SWW320-625F	11,225	2,550	1,700	2,270	1,275	3,200	3,000	200
SWW350-625F	11,900	2,550	1,700	2,270	1,385	4,200	4,000	200
SWW360-625F	11,900	2,550	1,700	2,270	1,385	4,200	4,000	200

Technical data

Single-axle header transporters for John Deere BP15 (615P) headers

Model	Total length [mm]	Total width [mm]	Maximum height [mm]	Track width [mm]	Kerb weight [kg]	GVWR [kg]	Axle load [kg]	Tongue load [kg]
SWW300-615P	11.225	2.550	1.500	2.270	1.200	3.200	3.000	200

General terms of guarantee

Zürn Harvesting GmbH & Co. KG, Kapellenstraße 1, D-74214 Schöntal-Westernhausen (hereinafter "**Zürn Harvesting**") hereby certifies for each customer who has purchased a new Zürn Harvesting machine from an authorised dealer that the materials and workmanship of this machine are guaranteed under the conditions specified below, providing that the machine is put into operation and maintained in accordance with the specifications in the operating instructions.

Duration of the guarantee

The guarantee period is one year from delivery of the machine by Zürn Harvesting and is valid for up to 500 operating hours within this period. The replacement of individual parts or repair will not prolong the above guarantee period for the machine.

Scope of the guarantee

The guarantee embraces only the reimbursement or repair of the parts and reimbursement of work time required in order to effect the repair, based on the repair times allowed by Zürn Harvesting, under the prerequisite that the fault was determined by our technical customer service department and was acknowledged by Zürn Harvesting to be attributable to faulty materials or workmanship. Replaced parts will become the property of Zürn Harvesting. The customer must allow services received from the vendor/dealer under warranty to be credited to the guarantee.

The guarantee does not cover any further claims against Zürn Harvesting. This means in particular that travel and transport costs will not be reimbursed, nor will Zürn Harvesting be liable for consequential damage, such as loss of harvest or losses of income.

Limitations of the guarantee

The guarantee does not apply to defects or faults that are attributable to:

- usual wear and tear;
- failure to heed operating, storage or transport instructions contained in the operating manual;
- use other than as intended, inadequate maintenance, inexpert operation or excessive use;
- damage caused to the machine or its equipment caused during transportation or loading; machines, equipment and parts are shipped at the risk of the recipient;
- external influences on the machine, e.g. third-party damage, weathering or other natural occurrences;
- circumstances that were known to the buyer at the time of purchase.

The guarantee will be rendered null and void if technical modifications are made to the machine without the written consent of Zürn Harvesting or if spare parts other than original Zürn Harvesting spare parts are installed and/or if repairs were not carried out by an authorised dealer. The guarantee is likewise voided if the machine was not put into service for the first time by the dealer in accordance with the instructions of Zürn Harvesting.

General terms of guarantee

Assertion of the guarantee

The terms of the guarantee are dependent upon precise observance of the following regulations by both the dealer and the purchaser:

- The guarantee card (machine card) completed by the dealer and customer must be returned to Zürn Harvesting by post or e-mail as soon as the machine has been delivered to the customer.
- Applications for guarantee claims must be formulated on the corresponding Zürn Harvesting form and presented to Zürn Harvesting by the dealer within one calendar month of discovery of the defect/fault.
- The application must be completed legibly and must contain the following information:
    - Name, address and dealer customer number
    - Name and address of the purchaser
    - Exact machine type and designation
    - Complete serial number of the machine
    - Date of delivery to the dealer and to the purchaser
    - Date of the claim
    - Number of operating hours or acreage harvested by the machine
    - Exact description of the damage and information regarding the probable cause
    - Quantity, item numbers and description of damaged parts

The parts reported as damaged must be returned to Zürn Harvesting free of charge for appraisal, complete with a copy of the guarantee claim application. Any costs incurred for returning the parts replaced or repaired will be borne by the sender.

If the guarantee claim application is refused, the dealer or the customer has a period of 15 days, starting from the day the Zürn Harvesting decision was received, to demand return of the damaged parts. Once this period has elapsed, the parts will be disposed of.

Additional clauses

Claims under the guarantee may not be transferred to third parties without the prior, written consent of Zürn Harvesting.

The dealer has neither the right nor the authority to make declarations or to enter into a commitment etc., whether express or implied, in the name of Zürn Harvesting.

The technical support for repair of the machine given by Zürn Harvesting or their representatives excludes any further liability whatsoever by Zürn Harvesting and has no influence whatsoever on the existing terms of guarantee.

Zürn Harvesting reserves the right to modify the design of the machine without prior notice. It is not obliged to transfer such modifications to machines which have already been sold or are in use.

Furthermore, due to the rapid development of the state of the art, no guarantee can be given for the machine descriptions contained in these operating instructions or other technical leaflets and data sheets.

EG- Konformitätserklärung

EG- Konformitätserklärung nach Maschinenrichtlinie 2006/42/EG

Bitte sorgfältig aufbewahren, jedoch nicht im Fahrzeug

EU CERTIFICATE OF CONFORMITY
According to Machinery Directive 2006/42/EG

Please keep safely, not inside the vehicle

Hiermit bestätigt die *Hereby declares*	**Zürn Harvesting GmbH & Co. KG**	
in alleiniger Verantwortung dass das landwirtschaftliche Anbaugerät *the full responsibility for the agricultural implement*	Fabrikmarke *Brand*	**Zürn Harvesting GmbH**
	Typ *Type*	**SWW 100, 120**
genehmigt in *approved in*	**Schoental**	
am *on*	**19.01.2017**	
durch den *by the*	**Hersteller / manufacturer**	
den grundlegenden Sicherheits- und Gesundheitsanforderungen der Richtlinie 2006/42/EG entspricht. *to full fill the complete safety- and health requirements according to machinery directive 2006/42/EG.*		
Zur sachgerechten Umsetzung der in den EU-Richtlinien genannten Sicherheits- und Gesundheitsanforderungen wurden folgende Normen herangezogen: *For proper implementation according to the EU-Directives for health and safety requirements, the following standards were used:*	**DIN EN ISO 4254-1 (06/06)** **DIN EN 745 (08/99)**	
Geschehen zu *Done at*	**Schoental**	
am *on*	**05/03/17**	
CE	R. Zürn Rolf Zürn Geschäftsführer, CEO	

EG- Konformitätserklärung

EG- Konformitätserklärung nach Maschinenrichtlinie 2006/42/EG

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in alleiniger Verantwortung dass das landwirtschaftliche Anbaugerät *the full responsibility for the agricultural implement*	Fabrikmarke *Brand*	**Zürn Harvesting GmbH**
	Typ *Type*	**SWW 200, 220, 250, 260**
genehmigt in *approved in*	**Schoental**	
am *on*	**19.01.2017**	
durch den *by the*	**Hersteller / manufacturer**	
den grundlegenden Sicherheits- und Gesundheitsanforderungen der Richtlinie 2006/42/EG entspricht. *to full fill the complete safety- and health requirements according to machinery directive 2006/42/EG.*		
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Geschehen zu *Done at*	**Schoental**	
am *on*	**05/03/17**	
CE	Rolf Zürn Geschäftsführer, CEO	

EG- Konformitätserklärung

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in alleiniger Verantwortung dass das landwirtschaftliche Anbaugerät *the full responsibility for the agricultural implement*	Fabrikmarke *Brand*	**Zürn Harvesting GmbH**
	Typ *Type*	**SWW 300, 320, 350, 360**
genehmigt in *approved in*	**Schoental**	
am *on*	**19.01.2017**	
durch den *by the*	**Hersteller / manufacturer**	
den grundlegenden Sicherheits- und Gesundheitsanforderungen der Richtlinie 2006/42/EG entspricht. *to full fill the complete safety- and health requirements according to machinery directive 2006/42/EG.*		
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am *on*	**05/03/17**	
CE	R. Zürn Rolf Zürn Geschäftsführer, CEO	

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