



# OPERATING MANUAL

SF870 · SF1270 · SF1470 · SF1670

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ZÜRN SOLERO

Sunflower header

## Masthead

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Title: Operating Manual Sunflower Header Solero  
Manufacturer: Zürn Harvesting GmbH & Co. KG  
Schöntal  
Applicable to: SF870, SF1270, SF1470, SF1670  
Print number: 45368

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We reserve the right to make technical amendments.

Printed on paper made from chlorine-free and acid-free bleached pulp.

## Foreword

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This machine 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 machine 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 trailer release the manufacturer from liability for any resulting damage.

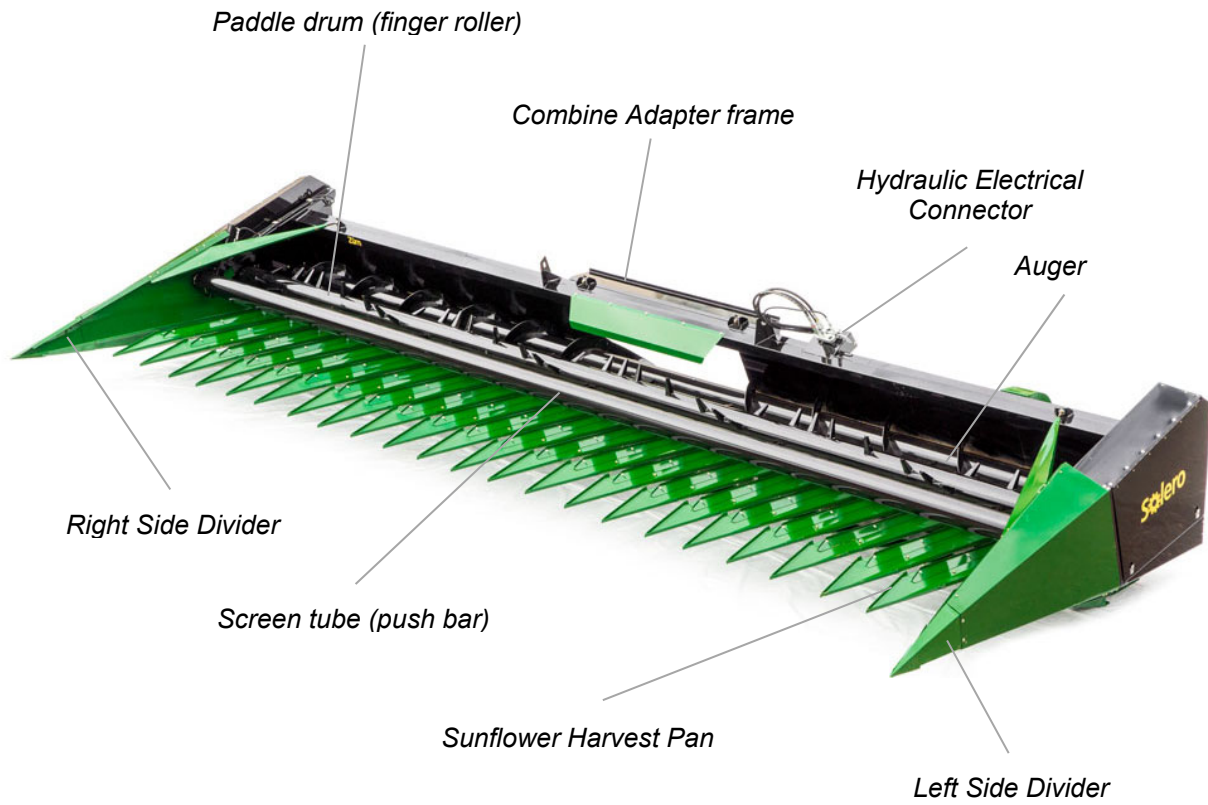
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## Description

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## Type Plates

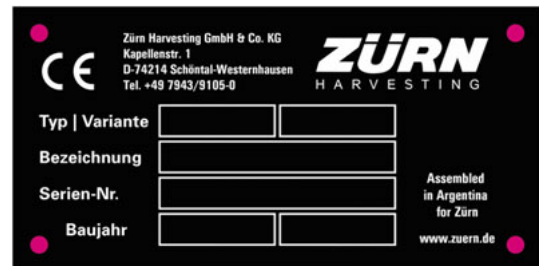
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Please make a note of the type designation and serial number of your machine here. This information must be given to the authorized dealer when ordering spare parts or making guarantee enquiries.

Type: \_\_\_\_\_

Serial number: \_\_\_\_\_

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The image shows a black rectangular type plate with white text and fields. At the top left is the CE mark. To its right is the company information: 'Zürn Harvesting GmbH & Co. KG', 'Kapellenstr. 1', 'D-74214 Schöntal-Westernhausen', and 'Tel. +49 7943/9105-0'. At the top right is the 'ZÜRN HARVESTING' logo. Below the company information are four input fields: 'Typ | Variante' (two boxes), 'Bezeichnung' (one box), 'Serien-Nr.' (one box), and 'Baujahr' (two boxes). At the bottom right, it says 'Assembled in Argentina for Zürn' and 'www.zuern.de'. There are two small pink dots on the left and right sides of the plate.

## Safety Instructions

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### Explaining the symbols used in this document

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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.

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## Safety Instructions

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### 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!

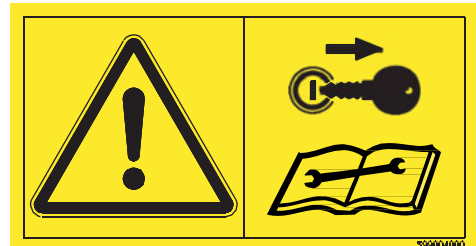
Never leave the machine to anyone who has not been trained in using and operating it properly.

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



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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.



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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

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### Hydraulic system

Attention! The hydraulic system is under high pressure. Maximum operating pressure: 200 bar (2900 psi).

Before connecting hydraulic hoses to the hydraulic system of the machine, make certain that it is not pressurised. Before disconnecting hydraulic hoses, depressurise the hydraulic system.

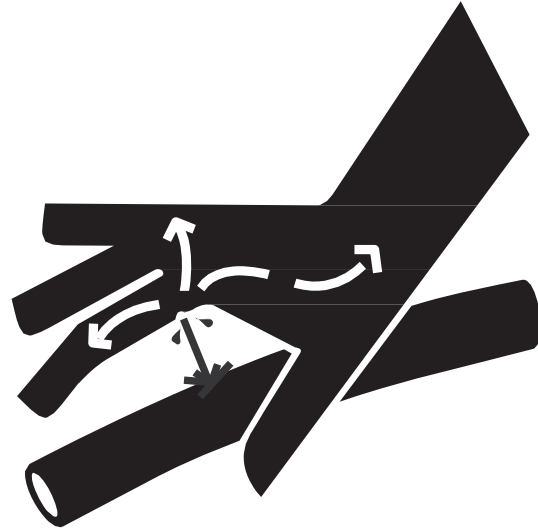
In order to prevent connecting the hydraulic hoses to the wrong connections, colour code the hoses and their respective connections without fail. Risk of injury through reverse function because of reversed connections (e.g. raising instead of lowering).

Inspect the hydraulic hoses at regular intervals. Hydraulic hoses must always be replaced after 5 years at the latest. If hydraulic hoses are found to be damaged or worn, they must be replaced immediately. The replacement hydraulic hoses must comply with the technical requirements specified by the manufacturer.

Only use the appropriate resources when looking for leakages. Protect body and hands against pressurised fluids.

Oil escaping under pressure can puncture the skin and cause severe injuries. In the event of injury, seek medical attention immediately. There is a risk of infection.

Before carrying out any work on the hydraulic system, lower the machine to the ground, depressurise the hydraulic system, switch the engine OFF, remove the ignition key and wait until all moving parts have come to a complete standstill.



## Safety Instructions

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### Universal drive shafts

Only use universal drive shafts that have been provided by or prescribed by the manufacturer.

The protective tube and protective cone on the PTO shaft and all PTO shaft protective devices on the header must be in place and in good condition.

Worn or damaged protective parts must be renewed immediately. Defective protective parts or an unprotected universal drive shaft can cause severe or even fatal injuries.

Always wear close-fitting clothing to prevent being caught up in a rotating universal drive shaft.

Before connecting or disconnecting a universal drive shaft and before any intervention in the header, uncouple the main drive, switch the engine OFF, remove the ignition key and wait until all moving parts have come to a complete standstill.

When using universal drive shafts with and overload or free-wheel clutch, always connect the overload or free-wheel clutch to the machine.

Always make certain that the universal drive shaft is connected and latched in position correctly.

Before switching the PTO shaft ON, make certain that the speed and direction of rotation of the attachment conform with the speed and direction of rotation of the machine specified by the manufacturer.

Before switching the PTO shaft ON, make certain that there are no persons or animals within the machine's danger zone. Never switch the PTO shaft ON or engage it if the forage harvester's motor is switched ON.



## Safety Instructions

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### Precautions for use and shunting

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

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### Precautions for maintenance and repair work

Before carrying out any work or intervention, shut off the engine, 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 machine.

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

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## Safety Instructions

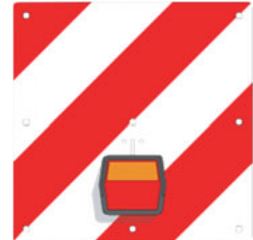
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### Precautions for travelling on public roads

#### Dimensions

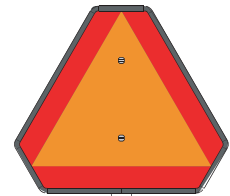
The combination must comply with local requirements relating to maximum dimensions for travel on public roads. In case of doubt, seek information beforehand from the relevant authorities.

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

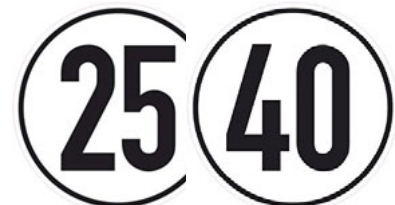
Before travelling on public roads, place and secure the machine on a suitable transporter, following the instructions in this manual.



#### 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.

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**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!**



## Safety Instructions

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### Modifications to the machine

Any modifications to the machine 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 machine render any manufacturer liability for any consequential damage null and void.

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### 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. In case of non-compliance, the manufacturer shall consider the weldment as an unauthorised modification to the transporter.

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### 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 lose their holding power with each reuse.

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## Safety Instructions

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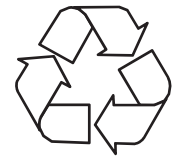
### Using original parts

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.

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### 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

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### Safety decals

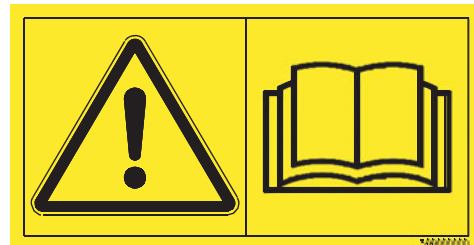
Safety decals are placed in various locations on the machine. Always follow these instructions! The decals alert operators to potential hazards and provide rules of practice to cut out any risk of an accident.

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

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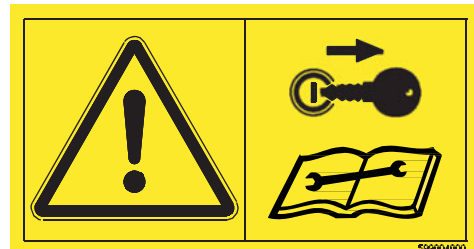
### Operating instructions

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.



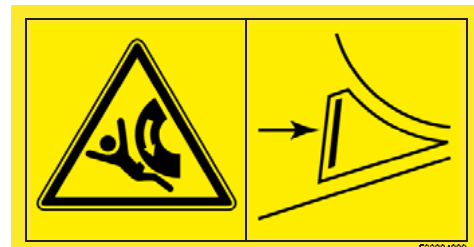
### Working on and intervening in the header

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.

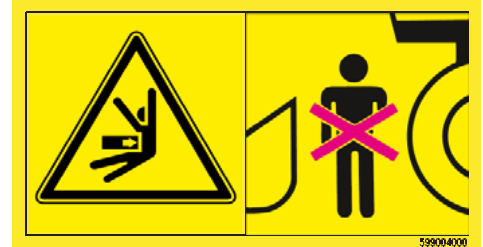


## Safety Instructions

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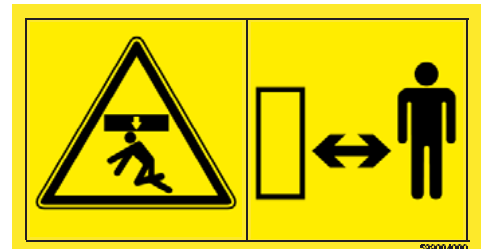
### Placing the header on the transporter

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



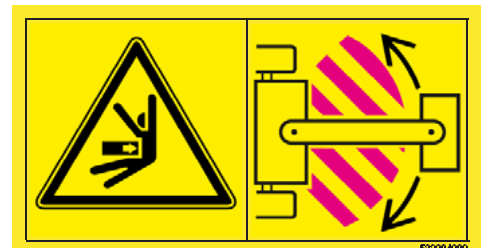
### The header is lifted

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



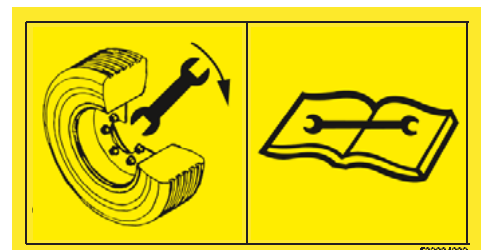
### Risk of crushing

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.

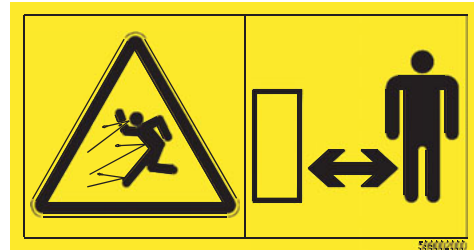


## Safety Instructions

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### Ejection and foreign objects

Stones and other foreign objects can be thrown out over long distances. The protective devices must always be in place and in a perfect state. Always keep a safe distance from the machine.



### Do not open guards

Do not open or remove protective devices during operation or while the engine is running.



### Do not open guards

Do not open or remove protective devices during operation or while the engine is running.



### Rotating Auger

Never reach into the rotating auger.



## Final Assembly

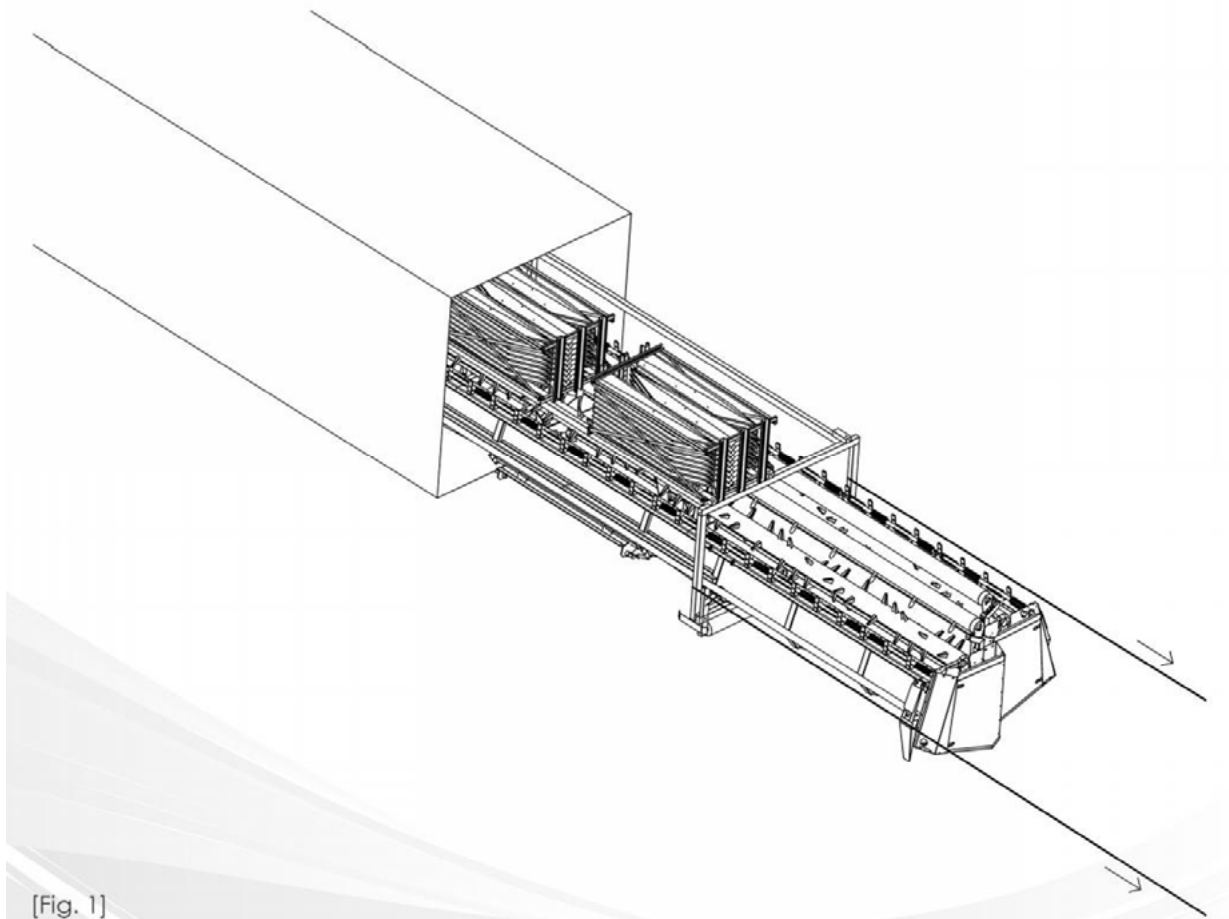
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### Mount and final assembly of equipment delivered in containers

#### Unpacking

Our headers travel perfectly packed and secured in containers.

When removing and installing, it is very important that the device does not harm any of the moving parts. When you get the equipment off the container, first loosen the ties that bind it to the container walls and pull it from steel structure that holds the header. The loading/unloading structure is easy to identify as it comes whole painted yellow.

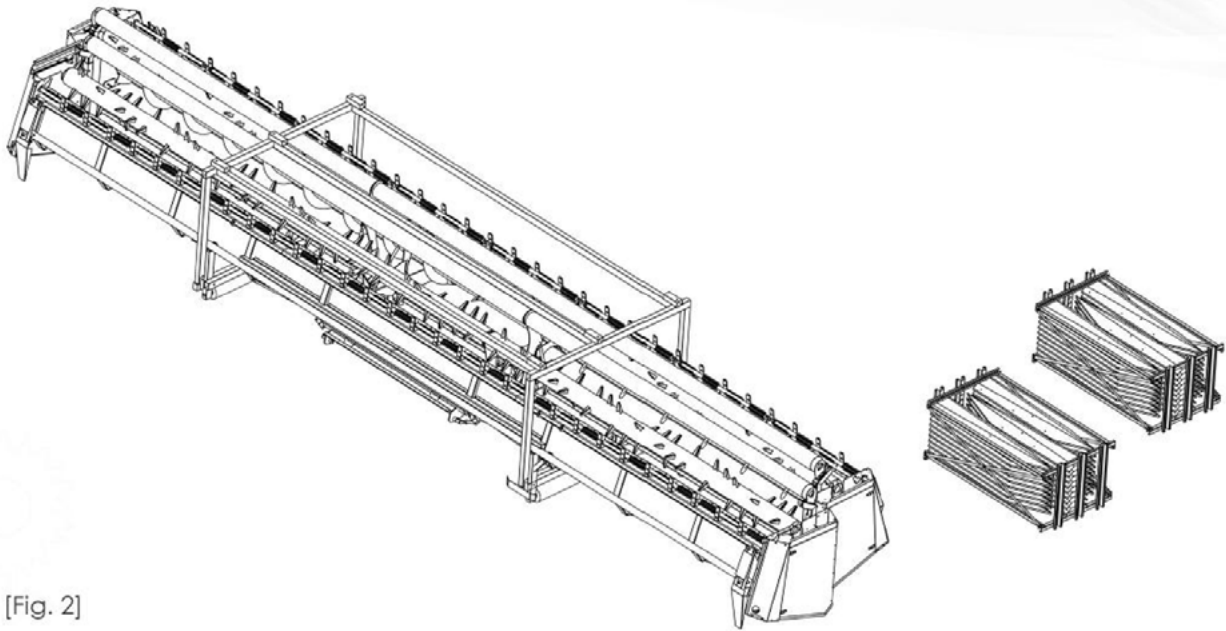


[Fig. 1]

## Final Assembly

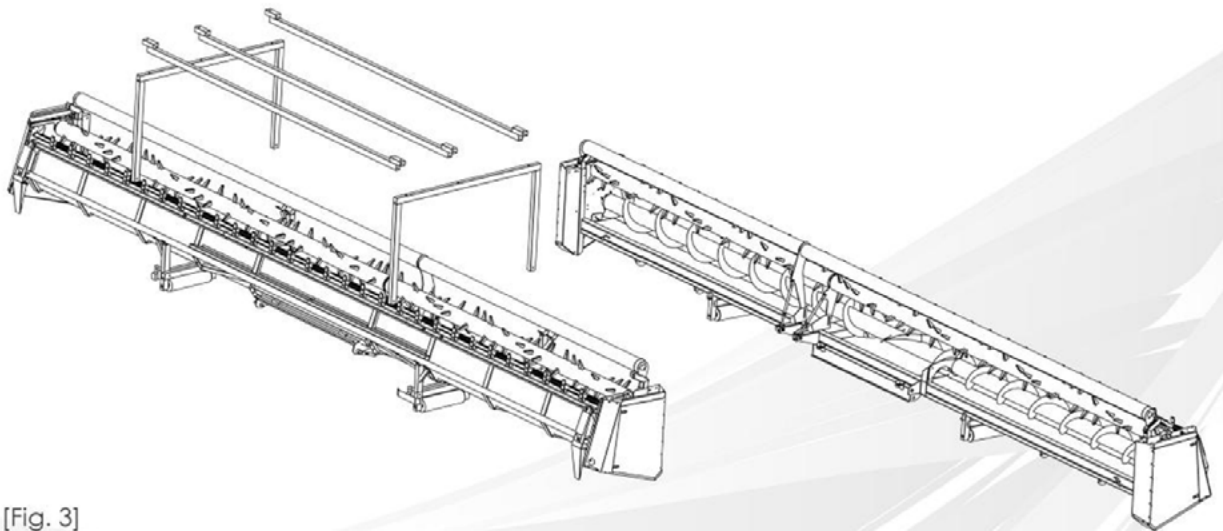
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When the header is outside the container, proceed to download the various parts, which can be placed on the equipment (guards, boxes, pans, adaptation kits or trailers). In the end only the header with the yellow structure should remain.



[Fig. 2]

Carefully proceed to disarm the yellow structure leaving only the two legs with rollers that are in contact with the ground. Use suitable lifting equipment for this purpose.

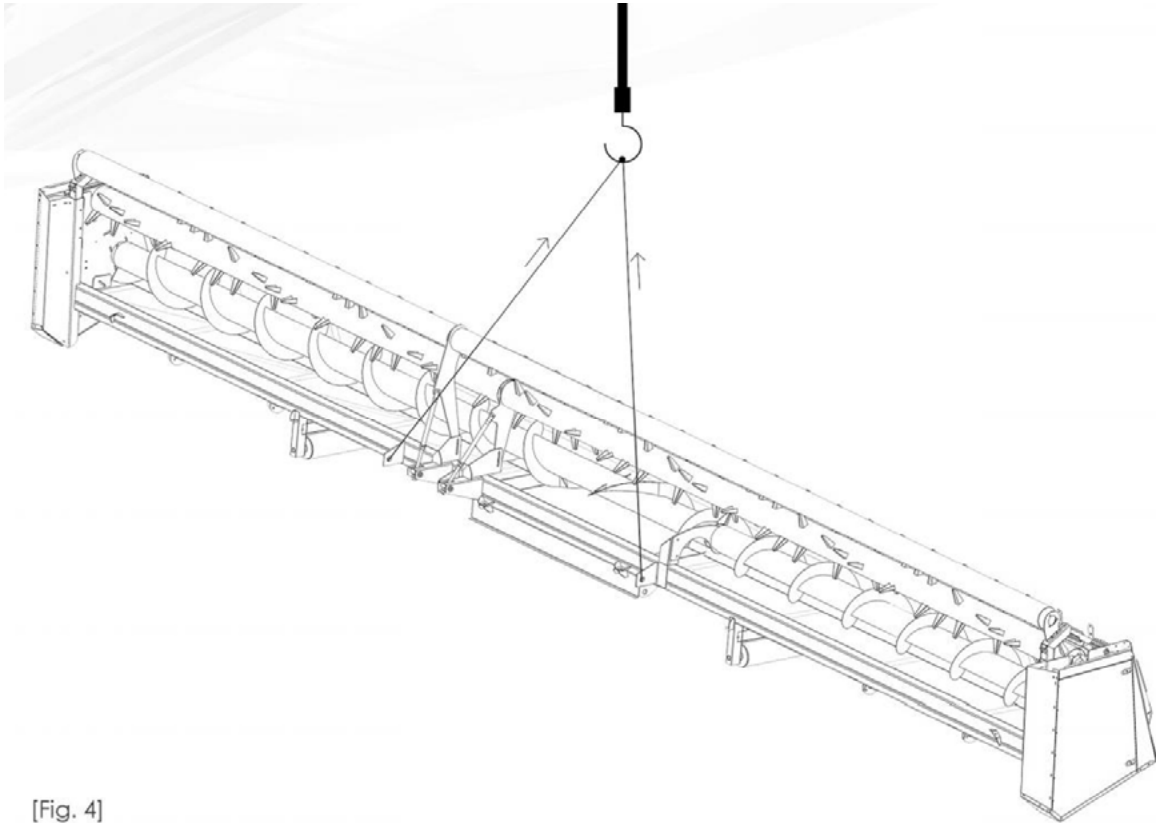


[Fig. 3]

## Final Assembly

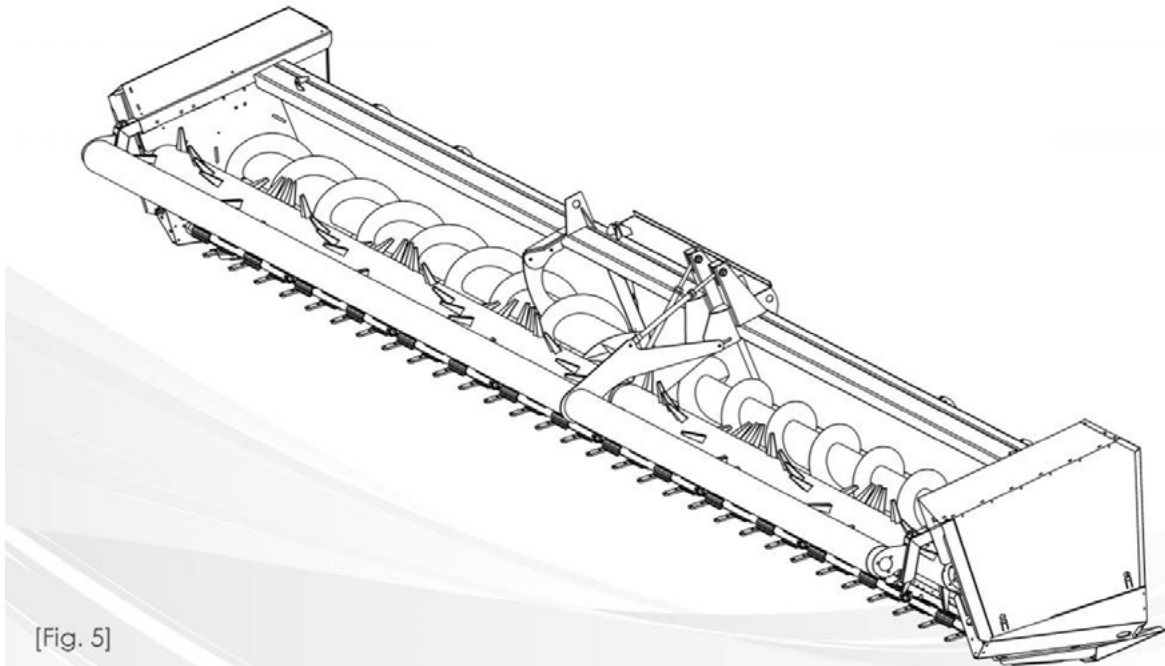
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Now the header needs to be rotated by 90 degrees by the use of suitable lifting equipment. Important: the header must tie from upper quadrant, so that turning the header is supporting with side skates on the ground



[Fig. 4]

And finally, we take out the two legs with rollers that are screwed with clamps at the lower pipe and upper quadrant of the header to leave the header ready for final assembly (figure 5).



## Final Assembly

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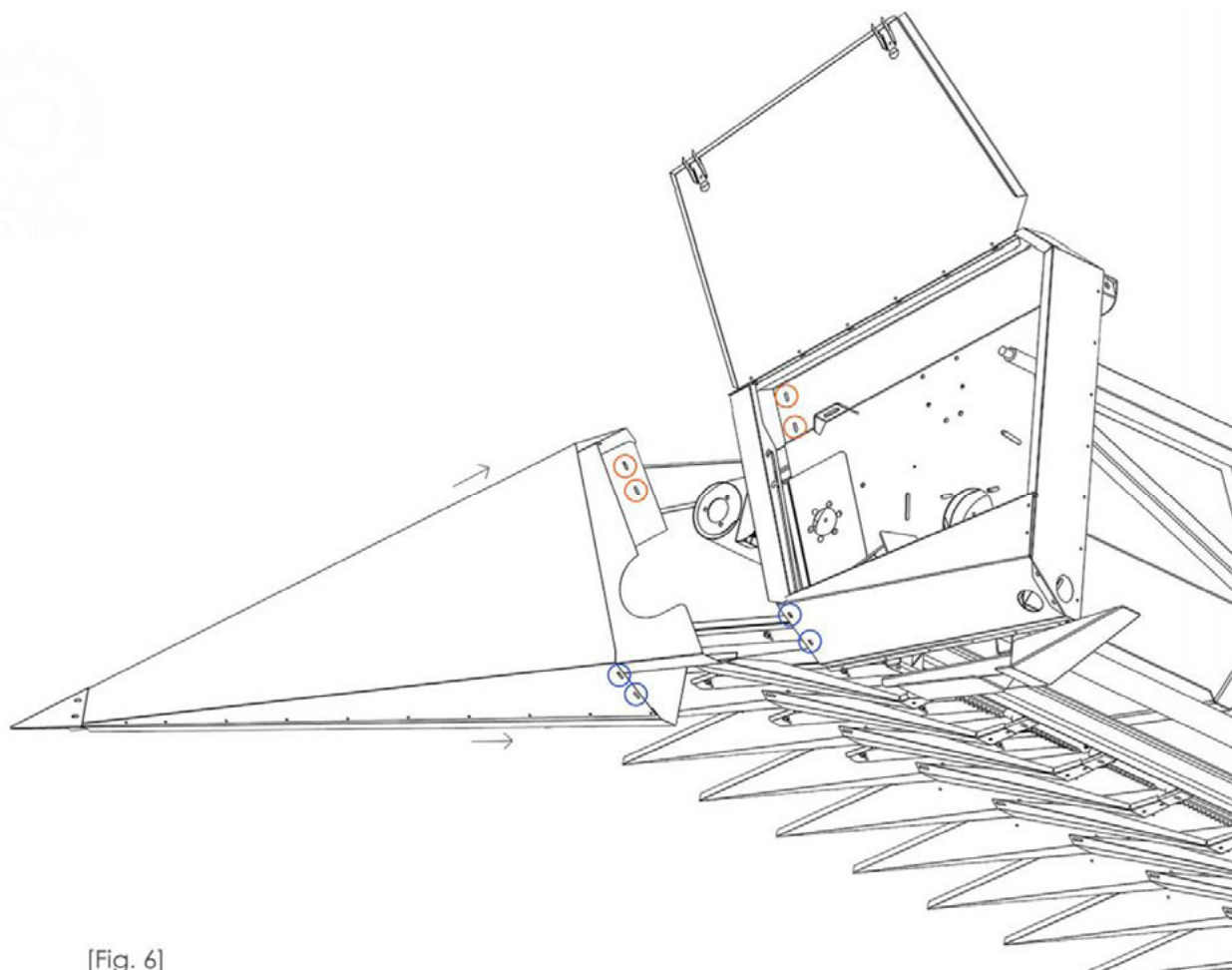
### Final assembly of the header

Solero headers come with removed parts to reduce the transport dimensions. The following parts are dismantled:

- Left and right divider
- Sunflower Harvest Pans and supports for the pans
- Combine Adaptation Kit incl. the roller chain driveline

### Left and right divider

Place the divider in the right position on the main frame. Fit the 4 bolts in the holes and check the alignment of the divider before tightening the bolts.



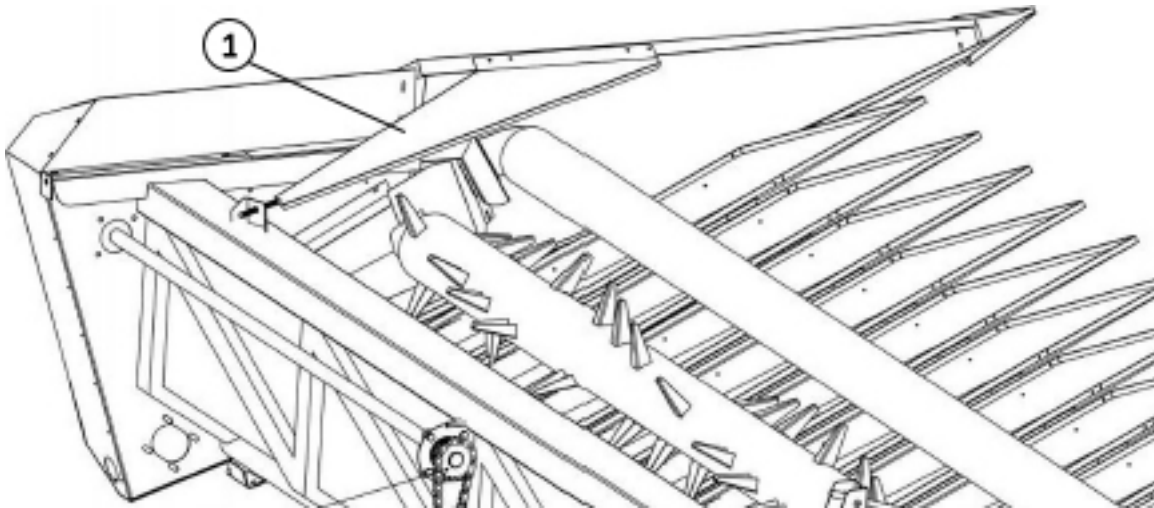
[Fig. 6]

## Final Assembly

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### Left and right support for the divider

Place the stabilization triangle in the assembly position on top of the divider. The M16 nuts are used to adjust the divider, which should be 90° to the cutterbar frame. After adjusting the divider, fit the 2 bolts and the nut in the holes and check the alignment of the divider before tightening the bolts to the specified torque.

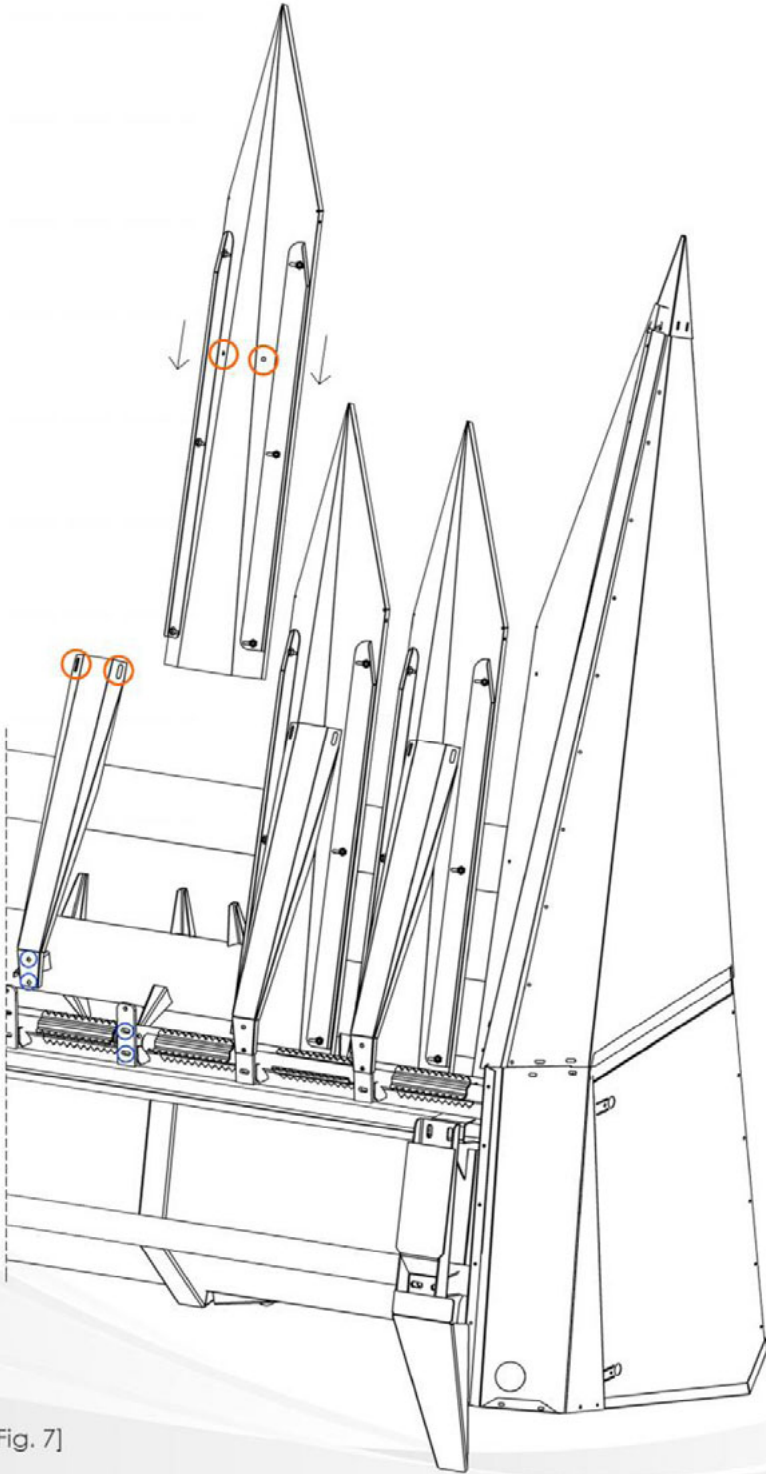


## Final Assembly

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### **Sunflower Harvest Pan and supports for the pan**

All sunflower harvest pans including the support of the pan must be placed on the main frame, and be assembled with the delivered bolts and nuts. It is important to align the top of the pans with the side divider so that they are in parallel and at the same height and the knife is sliding freely underneath the pan. After adjusting the pans, tighten the bolts.



[Fig. 7]

## Final Assembly

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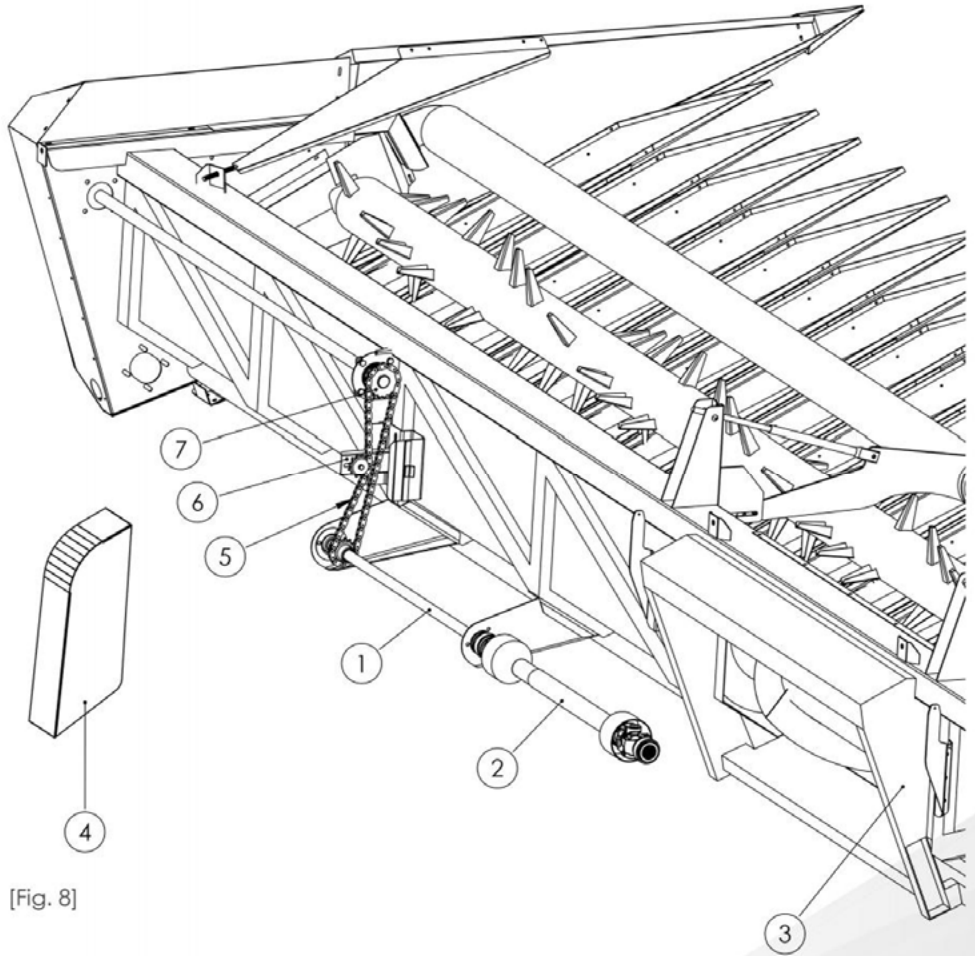
### Combine adaptation kit

Adaptation Kits are available for several combine brands. The feeder house frame is usually placed on the header, the rest must be bolted to the frame. Backshaft and chain driveline are fixed at the back wall. Delivered parts can depend on the combine brand.

#### Table of content

- 1 backshaft
- 2 PTO Shaft
- 3 adapter frame
- 4 safety guard
- 5 roller chain incl. chain joint
- 6 chain tension sprockets
- 7 driveline sprocket (different tooth rates possible)
- 8 hydraulic coupling (multi-coupling depends on combine brand)

Place the backshaft including the support and the chain drive sprocket in the right position (depending on the combine brand)



[Fig. 8]

## Fitting to a combine

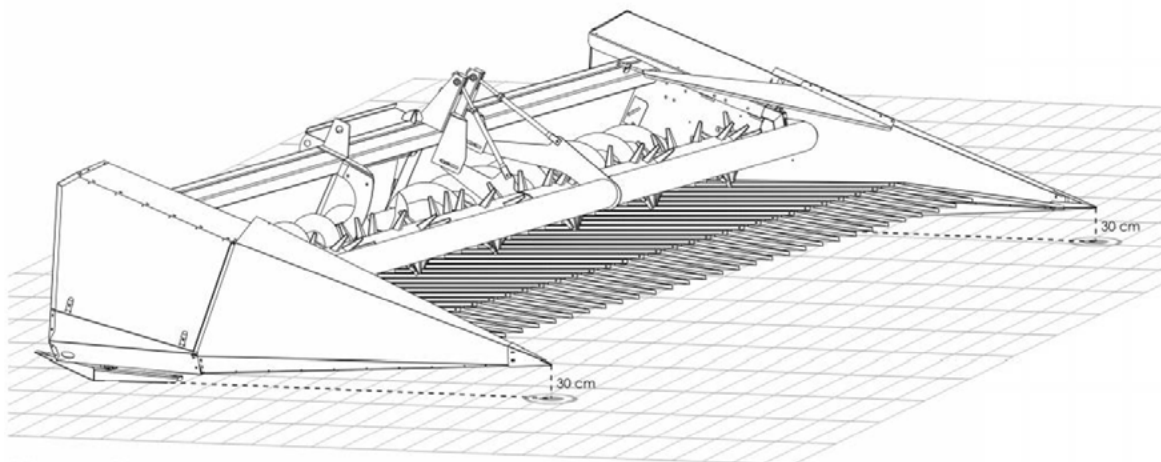
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### Working Position

The sunflower header should be mounted or attached in such a way that the angle of the harvest pans always rises towards the front. This ensures that the sunflower heads fall into the cutting unit trough so that they are caught by the intake auger. If this is not the case, this must be adjusted.

### Basic Setting of the header

- Hook the header to the combine.
- Lower the head to the ground (left and right skid plate should touch the ground).
- Check the position of divider (distance to the ground). This should be 30 cm (11 in).
- If necessary, adjust the angle with the feeder house angle adjustment of the combine (check the operator manual of the combine).



[Fig. aux]

---

This position must be confirmed and checked in principle whenever the sunflower header is hooked to the combine.



## Harvest settings

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### Header Settings

The sunflower header has a number of setting options that allow the driver of the combine to modify the values of operation. These adjustments make the header more efficient and can minimize losses based on the different soil conditions and/or plants at all times. An incorrectly adjusted header additionally reduces the performance of the combine.

### Setting Options

- Sunflower Harvest Pan Gap
- Screen tube position (push bar) (mechanically or hydraulically)
- Paddle / Finger Roller position
- Paddle / Finger Roller speed Adjustment (mechanically or hydraulically)
- Change Input Speed of the complete header

## Harvest settings

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### Adjustments sunflower harvest pan gap

The sunflower header is designed to accommodate different widths of stalks and sunflower heads. It is possible by small adjustable deck plates located on the side of the sunflower harvest pan.

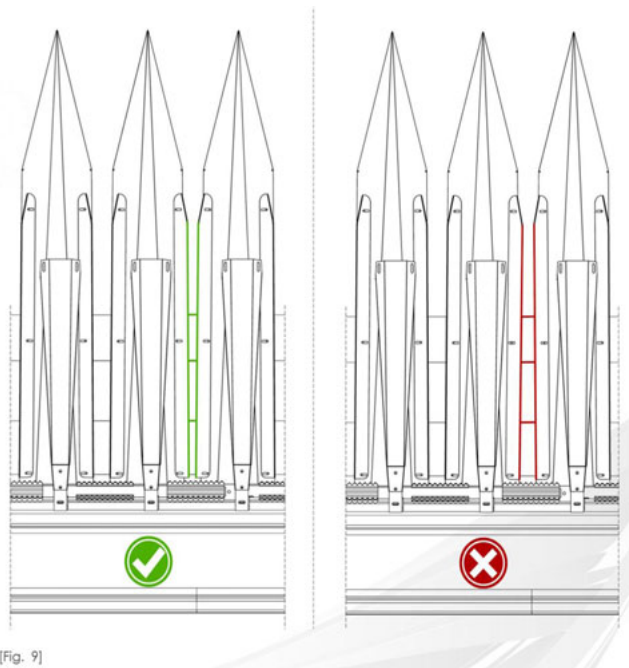
The Sunflower header pans will be delivered with fully pended deck plates.

With thin or weak stalks, we expect small sunflower heads, then the gap of the deck plates must be adjusted.

Also, when sunflower heads appear on the soil, the deck plates must be adjusted.

To correct the gap of Deck plates, open the four (M6) bolts (Figure 9).

Adjust the deck plates parallel or in a positive angle to the front. tighten the bolts (M6) after you have the right setting for the harvest situation.



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Check all sunflower harvest pans, if the deck plates have the right adjustment for the harvest condition.





## Harvest settings

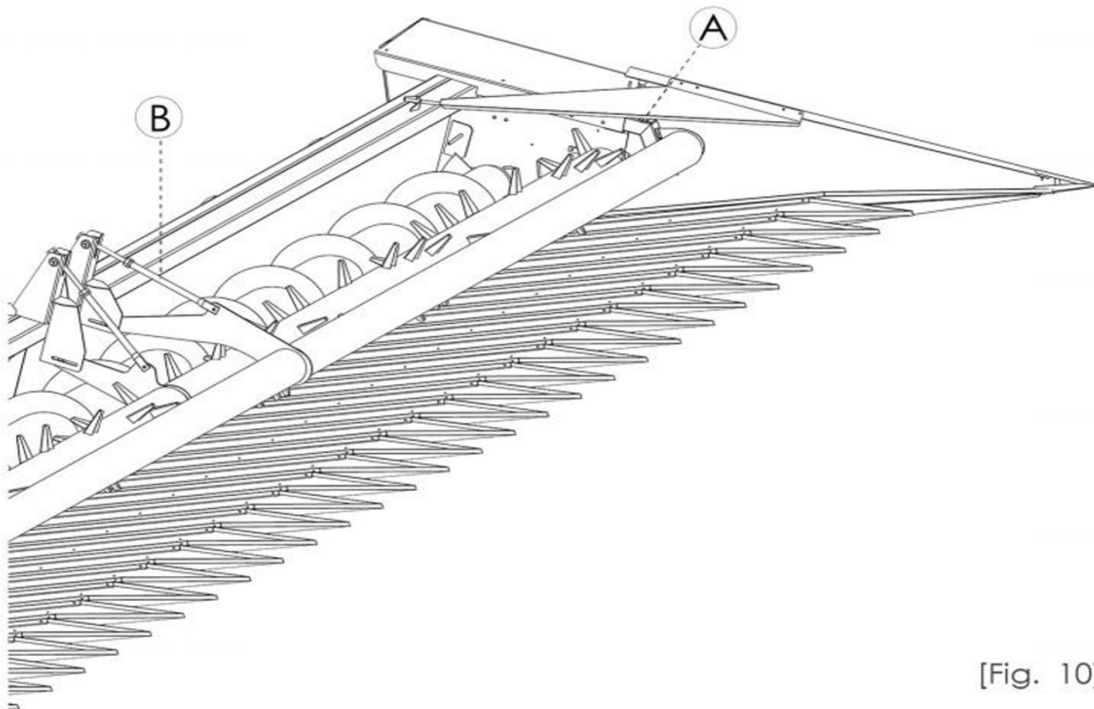
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### Screen tube (push bar) settings

The Screen tube (push bar) can be adjusted in two directions, horizontal and vertical to the driving direction. This adjustment is important to get a proper cutting of the sunflower.

The screen tube (push bar) will be delivered with a standard setting which allows to harvest the sunflower with a normal height of the plants (between 1,4 m [55 in] to 2 m [78 in]). To reduce losses of the sunflower heads or working with different sunflower heights, the position of the screen tube (push bar) must be adjusted.

The position of the screen tube (push bar) could be adjust at the reel arm in the middle (depending on the width of the sunflower header) and the reel arms on the left and right side (Fig. 10 Pos. A and B). The central reel arm is only installed on SF1470 and bigger.



[Fig. 10]

## Harvest settings

### Harvest Settings of the screen tube (push bar)

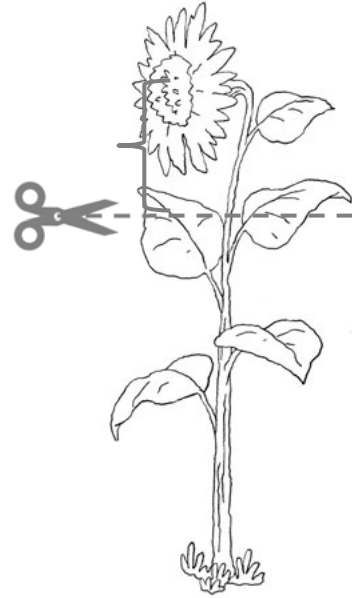
#### Cutting length of the stalks

- Cutting too below the heads.

If the operator perceives that cutting the sunflower plant happens too far away from the heads, and long parts of stalks were thrown inside the combine harvester, he has to adjust the screen tube (push bar). For this situation he has to move the screen tube (push bar) forward and a little higher.

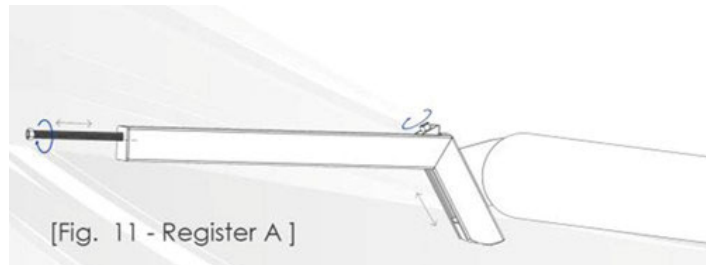
- Cutting is destroying heads

If the operator perceives that cutting the sunflower plant happens too near from the heads, he has to adjust the screen tube (push bar). For this situation he has to move the screen tube (push bar) backwards and a little down.

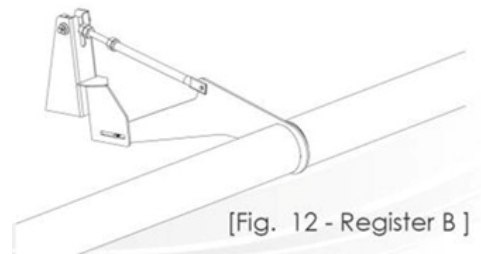


*If the sunflower header is equipped with hydraulic adjustment, it could be easily done from the cabin.*

Picture Fig. 11 shows the mechanical reel arm on the left and right side of the sunflower header. The adjustment will be made with the two bolts on the reel arm.



Picture Fig. 12 shows the mechanical central reel arm which is installed in SF 1470 and bigger headers. The adjustment will be made with the top linkage and the slot hole in the main frame.



## Harvest settings

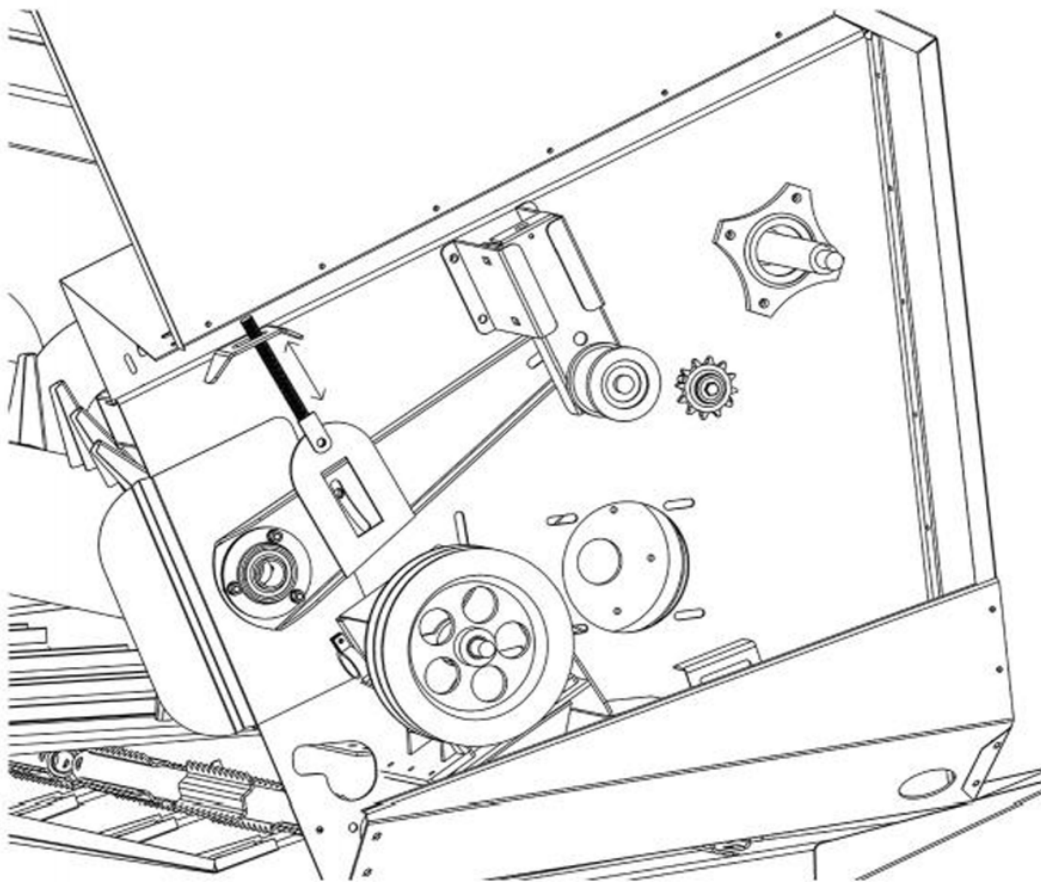
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### Paddle drum (finger roller) settings

The paddle drum (finger roller) can be adjusted in two directions, horizontal and vertical to the driving direction. This adjustment is important for different size of the sunflower heads. there should be a consistent flow of the sunflower heads to the auger.

The paddle drum (finger roller) will be delivered with a standard setting for mid-size sunflower heads. To reduce losses of the sunflower heads or working with different sunflower heights, the position of the paddle drum (finger roller) must be adjusted.

The position of the paddle drum (finger roller) can be adjusted at the reel arm in the middle (depending on the width of the sunflower header) and at the arms inside the side walls of the sunflower header (Fig. 13 and Fig. 14). The central reel arm is only installed on SF1470 and bigger.



[Fig. 13 - Register A ]

## Harvest settings

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### Harvest Settings of the paddle drum (finger roller)

#### Diameter of the sunflower heads

- Cutting sunflowers with big sunflower heads

If the operator perceives that the paddle drum (finger roller) is knocking or punching on the sunflower heads and destroys them, he has to adjust the paddle drum (finger roller). For this situation he has to move the paddle drum (finger roller) a little higher.

- Cutting sunflowers with small sunflower heads

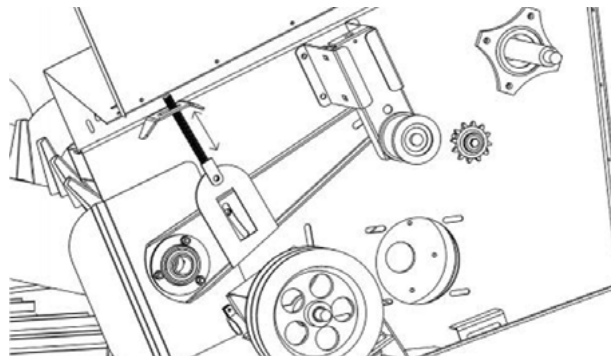
If the operator perceives that the paddle drum (finger roller) does not reach or push the sunflower heads to the auger, he should lower the paddle drum (finger roller) a little bit.



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The picture shows the mechanical arm from the paddle drum (finger roller) inside the left and right side walls of the sunflower header. The adjustment will be made with linkage (M16 bolt) on the top of the arm.

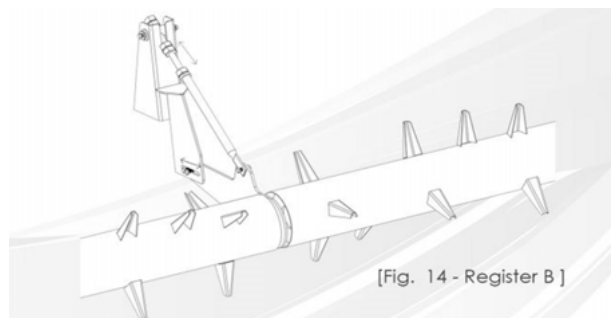
The horizontal position of the paddle drum (finger roller) can be adjusted in three positions. There are three holes inside the wall.



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Picture Fig. 14 shows the mechanical central reel arm which is installed in SF 1470 and bigger headers. The adjustment will be made with the top linkage and the three holes in the main frame.

- Top Linkage vertical position
- Three holes horizontal position



## Header Speed

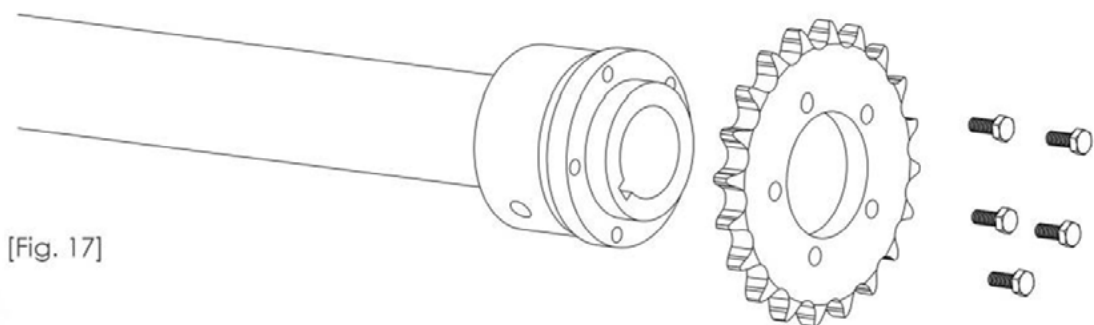
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### Changing the standard header speed

To change the standard input speed of the sunflower header, it is possible to change the sprocket on the top input shaft. This changes the settings of all turning parts except the hydraulic driven shafts (option on some headers).

To change the setting, dismount the safety guard and loosen the chain tensioner. Take the roller chain off and loosen the bolts (5x M8) at the sprocket (flange). Take the sprocket off and change it.

Check the parts list for the available sprocket size.



Assembly the whole driveline. Check the tension of the roller chain.

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#### Technical Information:

- Bigger Sprocket = less input rpm
- Smaller Sprocket = faster input rpm



## Maintenance

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Stop the motor before lubricating the universal drive shafts. Clean all grease nipples before lubricating.

If used intensively, it is recommended to shorten the lubricating intervals.



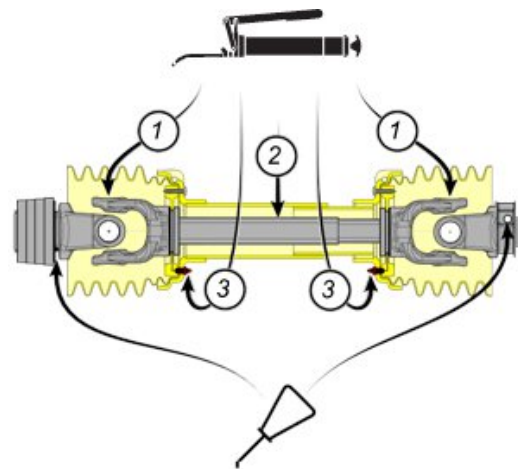
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All PTO shafts after 25h:

The joints of the PTO shafts (1)

The profiled tube of the PTO shafts (2)

The bearing rings of the PTO shaft (3)



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### Maintenance every 25h or as required:

Lubricate all other lubrication points.

There are lubrication points on all bearings and ball joints.

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### Maintenance every 250h or at the end of the season:

Check the tension of all drive chains.

Check the main drive's belt tension.

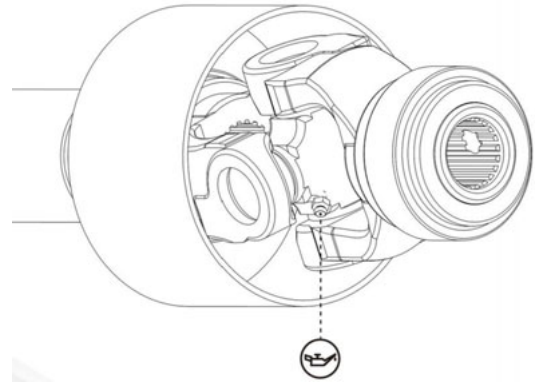
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## Position of the lubrication points

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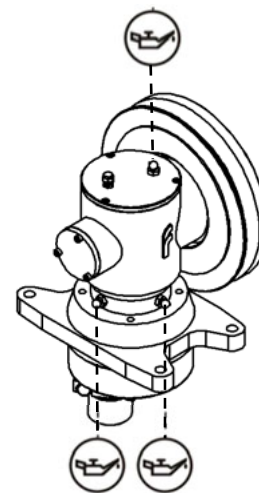
### PTO shaft

- PTO shaft has on each side in the middle of the crosses one greasing nipple.
- Lubrication must be done before beginning the work (each day or at least every 25h)



### Knife Drive gearbox

- Knife Drive gearbox has 3 greasing nipples
- Lubrication must be done twice a week during the harvest

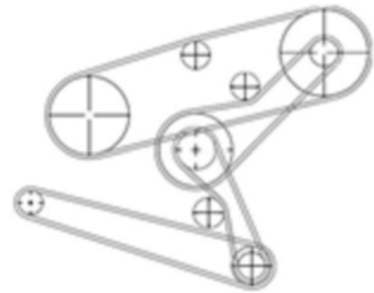
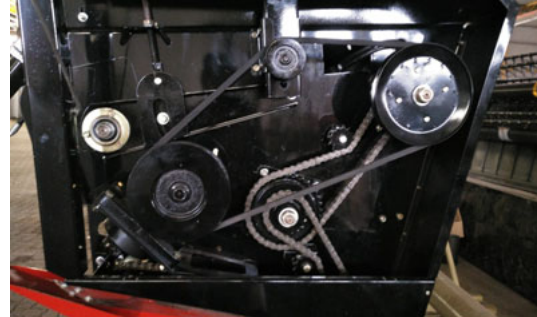


## Position of the lubrication points

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### Roller Chain Left Side

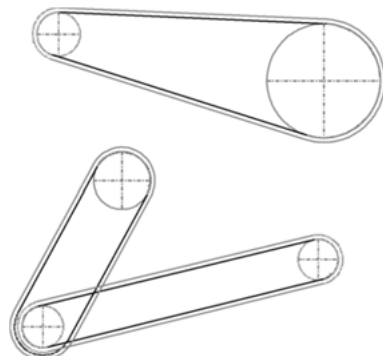
- Auger drive chain
- Counter Shaft chain
- Stalk remover chain



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### Roller Chain Right Side

- paddle drum (finger roller) chain (picture shows hydraulic driven version)
- Counter Shaft chain (depending on the width of the header)
- Stalk remover chain (depending on the width of the header)



## Maintenance Mechanical Parts

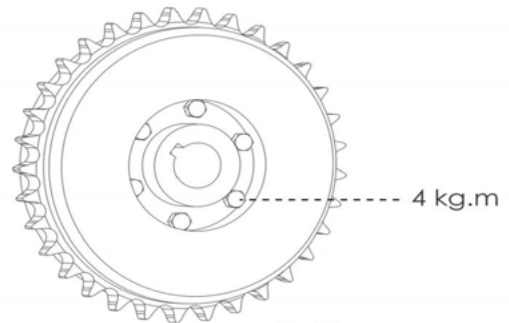
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### Safety Clutch (Slip Clutch)

The sunflower header has a safety coupling (slip clutch) on the left side. This clutch is securing the auger and the paddle drum (finger roller) in case of block these shafts.

If the paddle drum (finger roller) or the auger stopped due to a blockage of the header, it is extremely important to reset the slip clutch to its nominal torque.

Use a torque wrench and tighten the slip clutch bolts to a torque of 4 kgm (40 Nm)



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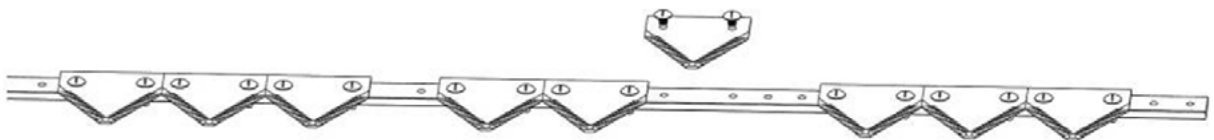
### Cutting section

The sunflower header has a cutter bar that cuts the stalks of the sunflower plants under the harvest pans.

Check the knife section before the harvest and every day. Replace damaged section of the knives immediately.

The knife sections are very simple to replace:

- loose the two bolts (M6) of the sections (shown in the picture)
- replace the section with a new one.



[Fig. 23]

## Lubricants and oils

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### Grease

Select grease according to NLGI consistency and the outdoor temperatures expected until the next servicing.

The following grease is recommended:

Shell Alvania Grease RL 2, Gadus S2 V100 2

Other greases can be used if they meet the specifications.

### Important:

**Replace missing grease nipples immediately.  
Clean grease nipples thoroughly before lubricating.**

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### Chain lubrication

The following oil is recommended:

Shell Naturelle HF-E 46

You can also use oils of viscosity class (at 40 °C) = 40–300 mm<sup>2</sup>/s.

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## Technical Data

### Measurements of the sunflower header:

Header model	SF 870	SF 1070	SF 1270	SF 1470	SF 1670	SF 1870	SF 2070
Working width, m	5,60	7,00	8,40	9,80	11,20	12,60	14,00
	Header can work row dependent 0,70 m and independent row						
Rows amount	8,00	10,00	12,00	14,00	16,00	18,00	20,00
Pan length, m	1,70						
Transport length, mm	6100 / 3000	7500 / 3000	8900 / 3000	10300 / 3000	11700 / 3000	13100 / 3000	14500 / 3000
Net weight, kg (mechanic headers)	1490	1700	1920	2240	2560	2880	3200
Net weight, kg (hydraulic headers)	1580	1800	2025	2606	2950	3280	3600

### Standard RPM Setting:

	speed, (rpm.)
Backshaft	Depend on combine
Top Input Shaft	400±20
Knife Drive (gearbox)	400±20
Auger Speed	160±10
Stalk remover	320±20
Paddle drum (Finger Roller)	85±5

## Faults and Troubleshooting

Fault	Cause	Remedial Action
Sunflower heads were damaged	Big sunflower heads were destroyed by the paddle drum (finger roller)	Lift and set the paddle drum (finger roller) a little forward
	Small sunflower heads were destroyed by the paddle drum (finger roller)	Lift and set the paddle drum (finger roller) a little forward
Roots of the sunflowers are pulled out	Cutting sections are destroyed or broken	Change the cutting section
	Harvesting speed (forward) of the combine is too fast	Reduce the speed of the combine or change the rpm setting of the header
Sunflower head stems are too long	Screen tube (push bar) must be adjusted	Lower and forward the screen tube (push bar) a little and check the working quality again
Sunflower heads are laying on the floor	Gap of the sunflower harvest pan to wide	Close the gap of the sunflower harvest pan a little
	Paddle drum (finger roller) must be adjusted	Lower the paddle drum (finger roller) a little and check the working quality again
	Screen tube (push bar) must be adjusted	Lower and return the screen tube (push bar) a little and check the working quality again
Sunflower heads are torn off	The cutting angle of the header is incorrect	Check the divider position to the ground (300 mm). Adjust the position if it is not correct (Feeder house of the combine). See therefore the operator manual of the combine.
	The main rpm setting of the header is incorrect	Check the main rpm setting of the sunflower header and change the sprocket to the right setting.

## Faults and Troubleshooting

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In conclusion, the settings described above are independent of each other. But in different harvest situations, more than one setting should be made at the same time to achieve the desired harvest goal with minimal losses, based on the characteristics of the sunflower plant and the soil.



## General terms of guarantee

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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.

### I. 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.

### II. 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.

### III. 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, inexperienced 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

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### IV. 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.

### V. 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.

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

## 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 <i>Hereby declares</i>	<b>Zürn Harvesting GmbH &amp; Co. KG</b>	
in alleiniger Verantwortung dass das landwirtschaftliche Anbaugerät  <i>the full responsibility for the agricultural implement</i>	Fabrikmarke <i>Brand</i>	<b>Zürn Harvesting</b>
	Typ <i>Type</i>	<b>Solero</b>
genehmigt in <i>approved in</i>	<b>Schoental</b>	
am <i>on</i>	<b>01.02.2023</b>	
durch den <i>by the</i>	<b>Hersteller / manufacturer</b>	
den grundlegenden Sicherheits- und Gesundheitsanforderungen der Richtlinie 2006/42/EG entspricht.  <i>to full fill the complete safety- and health requirements according to machinery directive 2006/42/EG.</i>		
Zur sachgerechten Umsetzung der in den EU- Richtlinien genannten Sicherheits- und Gesundheitsanforderungen wurden folgende Normen herangezogen:  <i>For proper implementation according to the EU- Directives for health and safety requirements, the following standards were used:</i>	<b>DIN EN ISO 4254-1 (2022-12)</b>  <b>DIN EN ISO 4254-7 (2019-12)</b>	
Geschehen zu <i>Done at</i>	<b>Schoental</b>	
am <i>on</i>	<b>01/02/2023</b>	
	  Rolf Zürn Geschäftsführer, CEO	



## Notes

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