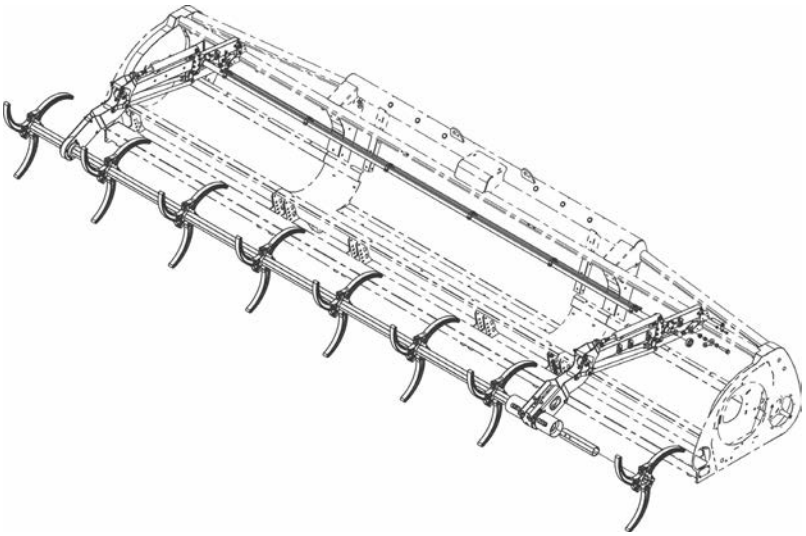
Assembly Instructions

MA_Sweeper_en



ICF SWEEPER

Optional Equipment

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Web: www.geringhoff.com

1 General information

1.1 Introduction

Dear customer,

Thank you for your trust in our products.

Regular maintenance and care contribute to maintaining this machine's value, guaranteeing a problem-free use for many years.

Your experiences and findings are very important for us. This information contributes to the constant further development and optimization of our products.

This operating manual was supplied to you together with your machine. Please store this operating manual carefully. Please hand this operating manual over to the buyer in case you sell this machine.

Important notes about the operating manual

Please read the operating manual carefully prior to commissioning/start-up. This applies to each person working with this machine. Commissioning/start-up is the first intended use of the machine by the user.

Always adhere to the safety and accident prevention regulations, <dg_ref_source_inline>Safety chapter</dg_ref_source_inline>, as well as the notes about the intended use, <dg_ref_source_inline>Intended use</dg_ref_source_inline>.

Always keep the operating manual within reach. Also read the combine harvester manufacturer's operating manual concerning the use of headers. You will receive a separate operating manual for the cardan shaft, directly attached to the cardan shaft. In addition, we also advise reading the spare parts catalog.

- Dimensions are indicated in the internationally standardized SI system of units.
- The right-hand and left-hand side are always seen in the driving direction.
- The header rows are numbered from left to right, also seen in the driving direction.
- Dimensions and weights are approximate indications and refer to the standard versions of the individual header types.
- If no specified torque is indicated, please always use the table "Torques for screws",<dg_ref_source_inline>Table of torques</dg_ref_source_inline> in the appendix.

This manual was created and inspected with great care. Should you find mistakes nonetheless, please inform our editing team.

Symbols and notes

Important notes and information in this operating manual are marked by symbols and signal words. Always adhere to notes about safety. Act with caution to avoid accidents, injuries and damage to property. Also always adhere to local accident prevention regulations as well as general safety regulations. The following symbols and notes warn of possible injuries or damage to property or contain important information.

DANGER

This warning note signifies a danger which could lead to death, severe, medium or minor injuries or damage to property, depending on the situation. The degree of danger is indicated in the respective safety instruction. Always adhere to these warning notes and act with special attention and caution.

Important note! This information is important for problem-free working processes or to ensure that the machine functions correctly. Always adhere to these notes.

Note: This information is helpful and facilitates use of the machine.

Tip: Useful tips and additional information.

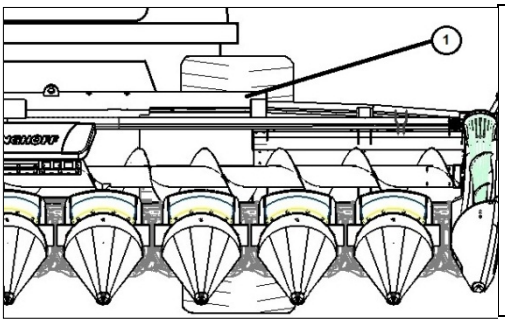
Exemplary figures and wordings

Some figures in this operating manual are not identical to the supplied machine. In these cases, this is of no importance for depicting the situation, because these figures refer to statements about all models of this machine type.

Safety-relevant information required for safe and problem-free operation of the machine always refers to the supplied product.

Prior to commissioning/start-up

Note down the most important data of your machine in the intended fields. This makes it possible to clearly answer possible questions from your supplier. For the data, refer to the type plate of your machine (1); for the position of the type plate, refer to the figure below.



Type plate position

Type plate

Mach.-Type:_____

Mach.-No.:_____

Key-Code:_____

Weight (kg):_____

Year of construction:_____

Row spacing:_____

Work width / number of header rows:_____

Combine harvester type:_____

Contact your specialist retailer, if you require replacement parts and have the required data ready.

Only use original Geringhoff replacement parts.

Do not modify important load-bearing and/or safety-relevant assembly components. The manufacturer does not assume liability for damage resulting from use of the machine other than that intended.

(Errors and technical changes excepted.)

1.2 Information about environment protection

Ensure that consumables and auxiliary materials as well as assembly components are disposed of in a proper and environment-friendly manner. Adhere to the legally valid regulations as well as the environment protection and disposal standards valid in your country of use.

General information

1. Avoid skin contact with liquid fuels, oils, lubricants, acids, solvents, etc. Always wear suitable protective clothing during disposal.
2. Never set fire to oils and similar materials.
3. Ensure that no consumables (oils, greases, etc.) which can endanger the ground water seep into the ground water or the ground.
4. When changing oil, ensure that the used oil is collected in suitable containers and does not seep into the ground. Ensure a proper disposal taking into account the valid environment protection regulations.
5. Immediately repair defects or leakages on the hydraulic unit. Regularly check the hydraulic hoses for defective parts.
6. If you have questions about the disposal, contact a certified disposal company.

2 Safety

2.1 Intended use

This machine is only intended for harvesting corn and sunflowers.

Likewise only use load handling devices for their intended use. Any modification or use with other machines is prohibited.

Any use other than the above is regarded as use other than that intended. The manufacturer does not assume liability for damage resulting from use other than that intended; the owner/user bears the sole risk.

Adherence to the operating, maintenance and repair regulations specified by the manufacturer is also part of the intended use.

Ensure that the machine is only used, maintained and repaired by qualified personnel and/or persons who are familiar with it and informed about the dangers.

Always observe and adhere to the relevant accident prevention regulations as well as all other generally accepted and valid regulations concerning safety, Health and Safety at Work and road traffic laws.

In case of unauthorized modifications on the machine, the manufacturer will not assume liability for the resulting damage.

2.2 Basic safety instructions

1. Read the machine operating manual carefully.
2. Strictly adhere to the generally valid safety and accident prevention regulations in addition to the safety instructions in this operating manual.
3. Read the combine harvester manufacturer's operating manual.
4. The warning notes attached to the machine contain important information for safe operation of the machine.
5. Observe maximum permissible weights. Use suitable load handling devices. The machine weight is indicated on the machine type plate.
6. Attach transport securing devices for transport on roads. If necessary, have additional headlights fitted by qualified personnel (see admission requirements).
7. Check the driving and steering characteristics as well as the braking capability.
8. Always adhere to the permissible axle loads and the regulations for the total weight.
9. Ensure that persons only use the intended seats when riding on the machine.
10. When using public traffic routes, adhere to the respective locally valid legal regulations. Always establish the machine transport position when driving on public routes.
11. Check the machine for operational and traffic safety prior to each start-up.
12. Prior to starting work, familiarize yourself with the operation and functions of the machine.
13. Always close all protection devices/guards and maintenance openings prior to commissioning/start-up. Check the machine for loose parts.
14. Carry out all work (repairs, maintenance, cleaning as well as malfunction rectification) in and on the machine while the motor is switched off and the lowering protection is activated. To do so, pull off the ignition key and turn off the battery separator switch. Ensure that hydraulic lines are depressurized and operating levers in their neutral position. Always secure the equipment against unauthorized operation.
15. Always turn off the battery separator switch prior to working on the electrical unit.
16. Use the intended supporting devices for all work on the machine.
17. Only initiate the folding process when the chassis is at a standstill and secured against rolling away. Remove persons from the swivel range.
18. Ensure that no persons are in the hazard zone when the machine is running.
19. There is an increased danger of injury when replacing knives.
20. The intake auger and other movable parts cannot be completely secured by construction measures. For this reason, always keep a sufficient distance from movable parts during operation.

21. Ensure that the cardan shafts are always equipped with suitable protection devices/guards.
22. Be especially cautious when attaching the header to the combine harvester. Increased danger of injury!
23. Only carry out test runs when the machine is lowered.
24. Replace damaged or missing safety labels on the machine.

2.3 General accident prevention regulations

The following instructions are general accident prevention regulations, which are generally valid for working with any machine.

DANGER

Protect yourself!

- Always wear the required protective clothing during set-up, work or service.

This includes:

Protective helmet and protective goggles

Safety shoes

Work gloves

Protective suit/ Rain protection

Breathing mask

Hearing protection

Conduct regulations

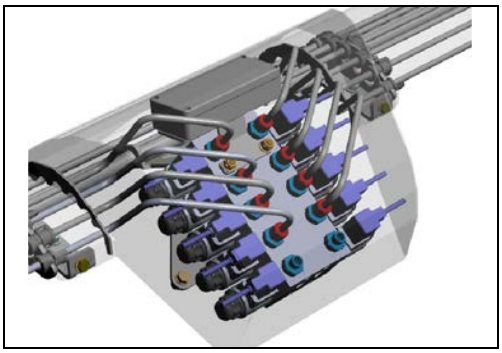
1. Always have a First Aid box at hand for emergencies.
2. Always have a functioning fire extinguisher available. Check it for proper function prior to use and familiarize yourself with the operation.
3. Never allow young children or animals to come near machines.
4. Accidents are often caused by tiredness and/or time pressure. Always carry out your work calmly and with concentration. Never ignore signs of tiredness.
5. Always wear tight-fitting clothes. Cover long hair. Do not wear hanging pieces of jewelry or necklaces.
6. Always keep your hands and feet as well as clothing and hair away from moving parts. Never try to remove blockages or objects from the machine while the motor is running.
7. Never modify or remove safety devices. Leave all parts in their place. Ensure that all drives run without problems.
8. Only use service and replacement parts approved or produced by the manufacturer. Unauthorized replacement parts can deviate in strength, design or safety requirements and can lead to loss of warranty claims.
9. Do not modify the machine under any circumstance. Unauthorized modifications can negatively affect the function, safety and operating life of the machine.
10. When leaving the driver's seat, always stop the engine and pull off the key. Securely prevent unintentional machine starts.
11. Keep the machine maintenance environment clean and dry. Avoid the danger of slipping resulting from wet or oily floors. Avoid the danger caused by wet patches when working with electrical tools. Always ensure that the electrical tools are grounded.
12. Provide sufficient lighting in the work place.
13. Always keep the machine clean. Materials such as straw or chaff can catch fire from hot machine components. Do not allow oil or grease to accumulate on service stations, ladders or inspection devices. Thoroughly clean the machine before placing it in storage.
14. Never use gasoline, solvents or similar substances for cleaning. Substances may be toxic or flammable.
15. When placing the machine in storage, ensure that there is no danger of injury from sharp-edged or protruding parts.

3 Assembly

3.1 Note

Two variations are available for connecting the hydraulic components:

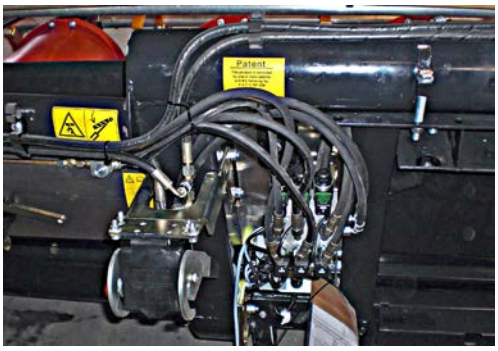
1. Central hydraulic system with pre-bent hydraulic lines made of steel above the machine frame.



Central hydraulic system above the machine frame

2. Hydraulic valve with hose lines on the LH side of the machine frame.

- As an option this version can also be equipped with the central hydraulic plumbing. All necessary parts can be ordered from your local dealer.



Hydraulic valve on the LH side of the machine frame

The respective design depends on the combine harvester model.

3.2 Installing the support arms (2 arms, rigid, <6.0 m working width)

DANGER

Danger of injury!

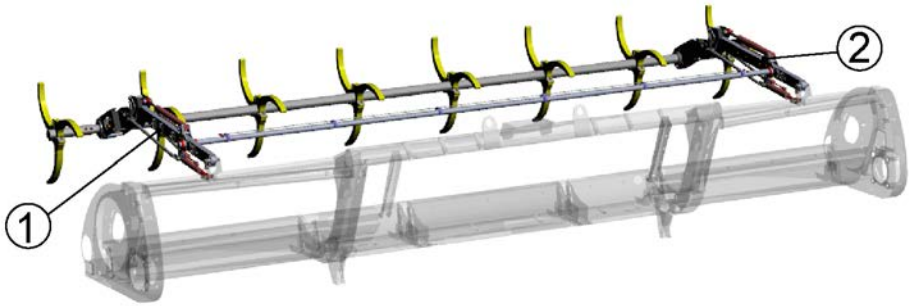
- Only carry out assembly work when the lowering protection is activated!
- Always turn the diesel engine off before working on the machine!
- Ensure that there are no persons in the hazard zone!

- The RH and LH sides are always seen in the driving direction.
- Tighten all bolts according to the torque table in the appendix.
- See also drawing 5303001 in the appendix.

Installing the support arms

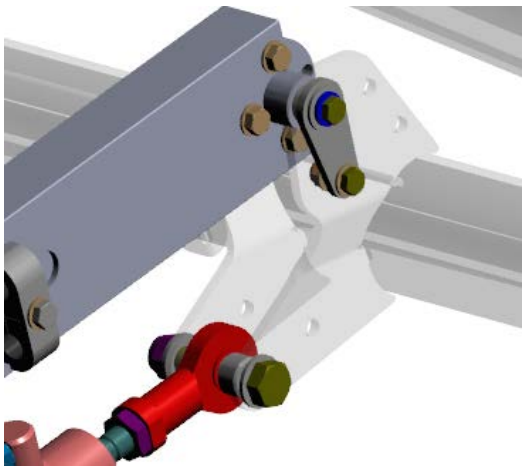
1. Unpack the sweeper and assign the support arms to their respective intended positions:

- The hydraulic motor is located on the LH support arm (1).
- A counter-weight is located on the RH support arm (2).

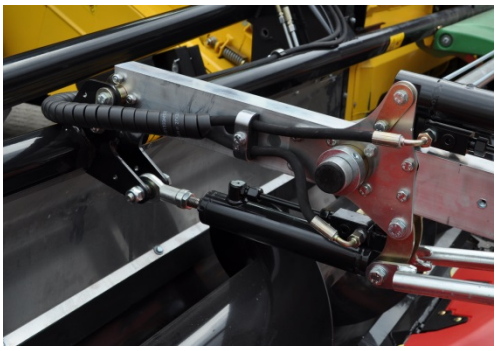


2. Fasten the two support arms on brackets in the intended positions by means of pins with lock bolts. Subsequently tighten the bolts.

Pre-install the clamping rings of the bearings in retrofitting kits in the respective positions to avoid assembly errors!



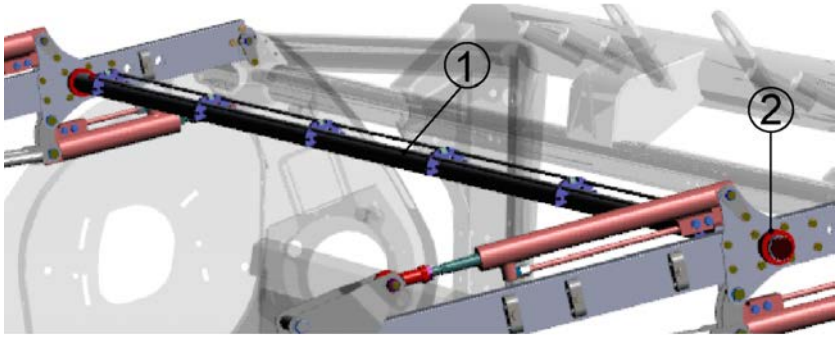
3. Use the supplied bolts to install the hydraulic cylinder on the intended mounting points.



Installing the cylinder

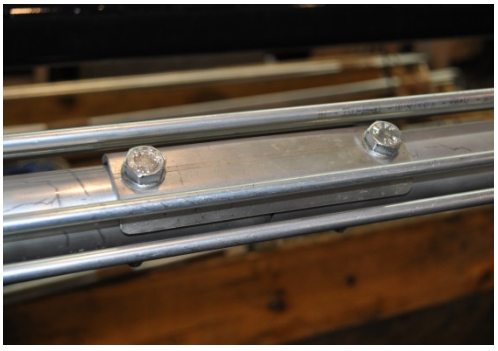
Installing the connecting pipe

4. Insert the connecting pipe (1). While doing so, insert one clamping ring (2) per side on both hubs (observe the installation direction).



Installing the connecting pipe

5. Use the rod end bearings on the cylinder to align the support arms such that they are exactly flush with each other.
6. Depending on the machine width, the connecting pipe may be divided, see RH figure. After assembly, connect pipe using the supplied connectors.



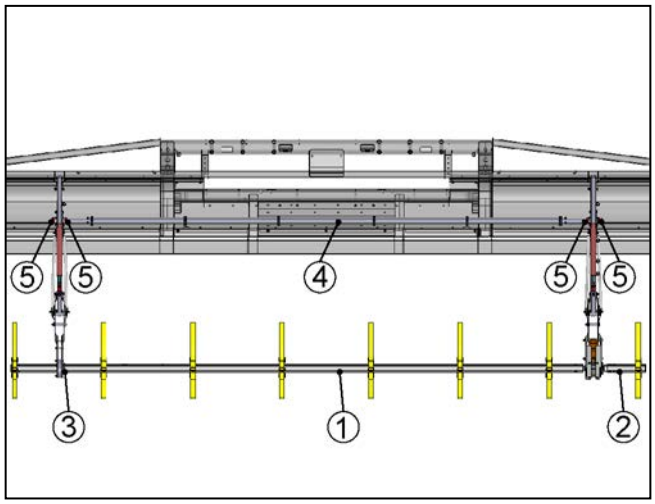
Connectors on the support arm pipe

7. Subsequently use suitable tools to tighten the clamping rings and the set screws.

Installing the profile pipe for conveying elements

8. For later assembly of the plastic conveying elements, push the long front profile pipe with one clamping ring per bearing from the RH to the LH side up to the hydraulic motor and tighten. Ensure that the clamping rings are inserted in a way that tightening by means of the bearing is possible.
9. Screw-fit the short profile pipe to the LH side of the gearing.

Tighten the clamping rings

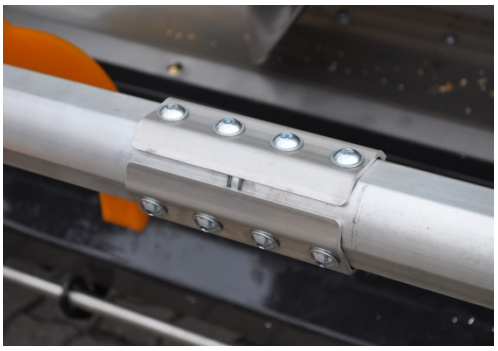


Diagram, 2 arms

- 1 long profile pipe
- 2 short profile pipe
- 3 clamping ring profile pipe
- 4 round pipe
- 5 clamping ring round pipe

10. Use suitable tools to tighten the clamping rings on the hub and tighten the set screws.

11. Depending on the machine width, the profile pipe may be divided, see RH figure. After assembly, connect the profile pipe using the supplied connectors.



Connectors on profile pipe

12. Install hoses on the respective arm.
- Hose clamps are already pre-installed on the support arms at delivery.

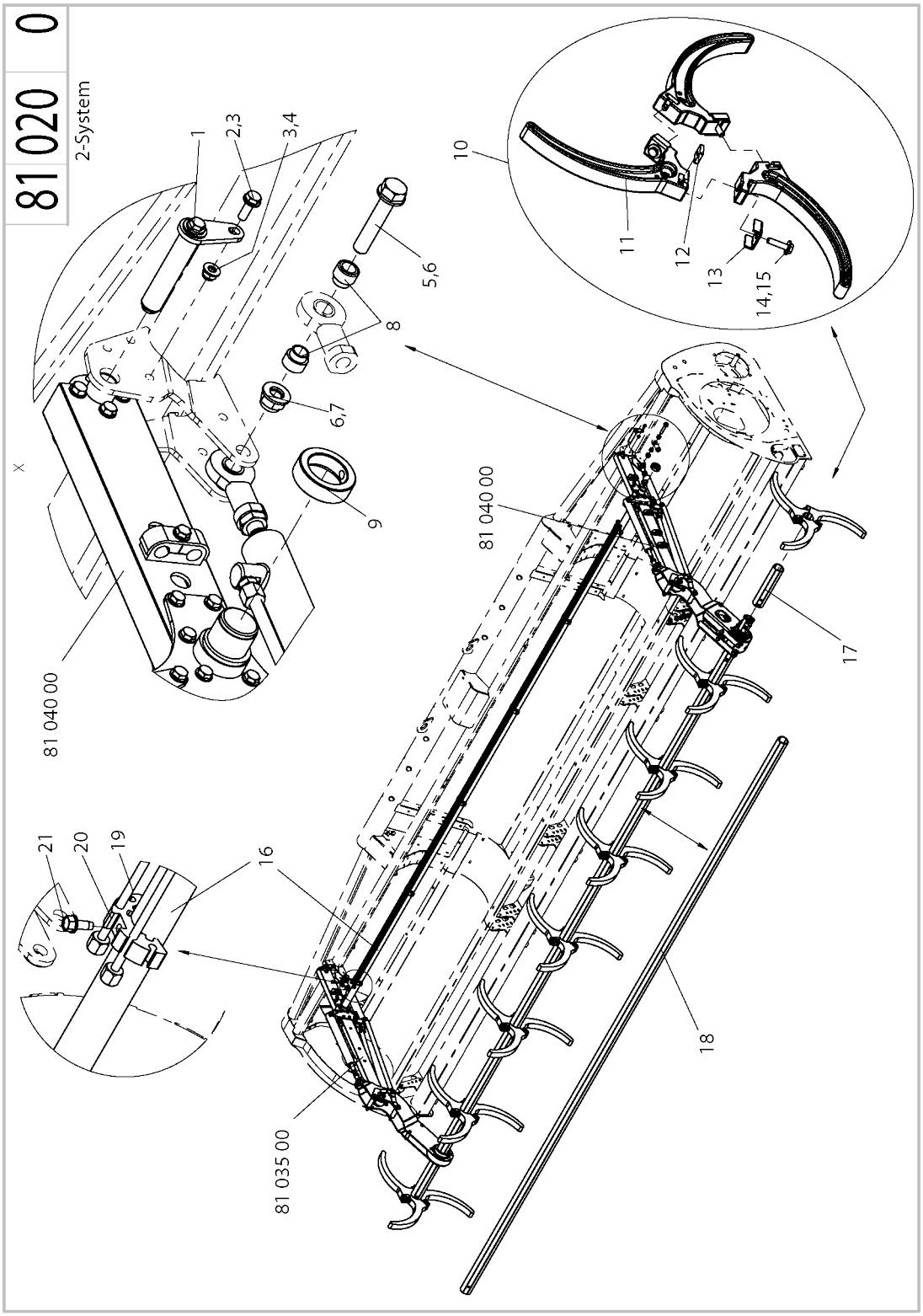
Hose clamps pre-installed

13. Evenly spread the hydraulic pipe fasteners on the connecting pipe and pre-install. Mark the screw position and drill a hole (Ø 6.5 mm). Subsequently install the clip with the cutting screws!

Screws are self-tapping!

Fasteners for hydraulic pipes

3.3 Drawing for 2-armed, rigid version



3.4 Installing the support arms (4 arms, rigid, >6.0 m working width)

DANGER

Danger of injury!

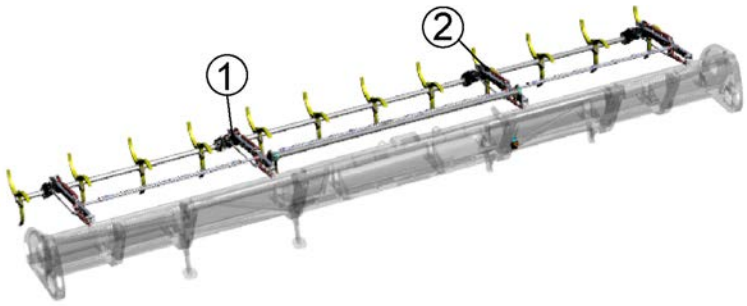
- Only carry out assembly work when the lowering protection is activated!
- Always turn the diesel engine off before working on the machine!
- Ensure that there are no persons in the hazard zone!

- The RH and LH sides are always seen in the driving direction.
- Tighten all screws according to the torque table in the appendix.
- See also drawing 530300 in the appendix.

Installing the support arms

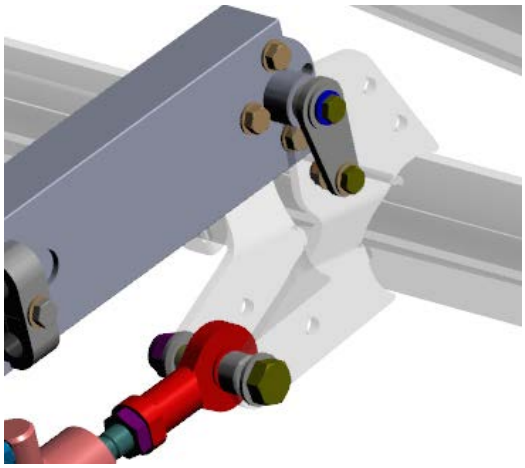
1. Unpack the sweeper and assign the support arms to their respective intended positions:

- The support arms on the RH and LH exterior are identical.
- A counter-weight is located on the RH interior support arm (2).
- The hydraulic motor is located on the LH interior support arm (1).



2. Fasten all support arms on brackets in the intended positions by means of pins with lock bolts. Subsequently tighten the bolts.

   Pre-install the screw joint material in retrofitting kits in the respective positions to avoid assembly errors!

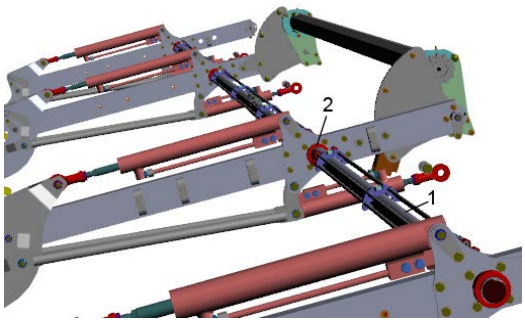


3. Use the supplied bolts to install the hydraulic cylinder on the intended mounting points.

Installing the cylinder

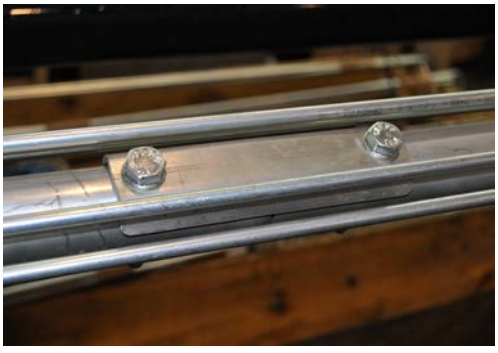
Installing the connecting pipe

4. Insert the connecting pipe (1). While doing so, insert one clamping ring (2) per side on each hub (observe the installation direction).



Installing the connecting pipe

5. Use the rod end bearings on the cylinder to align the support arms such that they are exactly flush with each other.
6. Depending on the machine width, the connecting pipe may be divided, see RH figure. After assembly, connect pipe using the supplied connectors.



Connectors on the support arm pipe

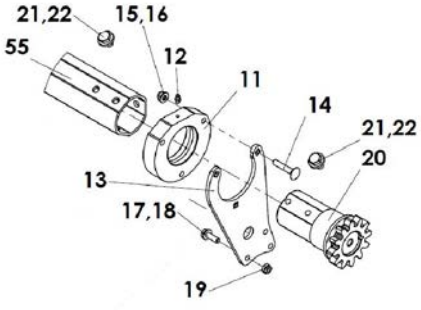
7. Subsequently use suitable tools to tighten the clamping rings and the set screws.

Installing the parallel guide

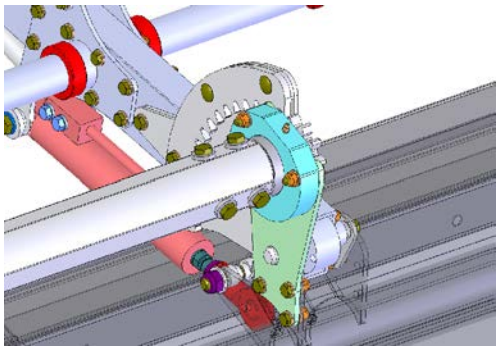
8. Install the parallel guides on the RH and LH side.
- The tooth system is already pre-installed on the support arm at delivery.

Installing the parallel guides and pipe

9. Pre-install the pinion in the pipe.
- Install the sprockets on the brackets on the trough side.

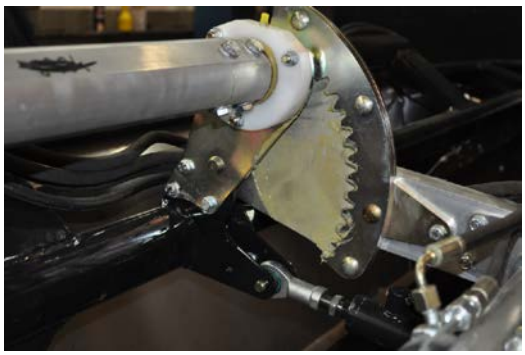


Installing the pinion in the pipe



Sprocket

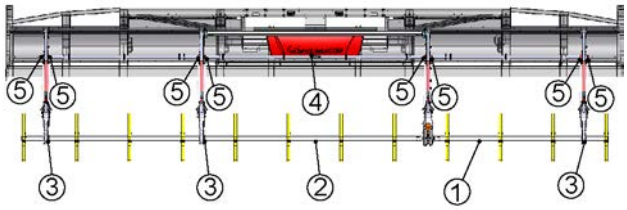
10. Insert the parallel guide pipe with the pinion. While doing so, ensure that the pinion is in the same position in the tooth system on the RH and LH side. This ensures that all pipes are in parallel.



Ensure that the pinion is in the same position in the tooth system on the RH and LH side

Installing the profile pipe for conveying elements

11. For later assembly of the plastic conveying elements, push the long front profile pipe with one clamping ring per bearing from the RH to the LH side up to the hydraulic motor and tighten. Ensure that the clamping rings are inserted such that tightening by means of the bearing is possible.
12. For later assembly of the plastic conveying elements, push the short front profile pipe with one clamping ring per bearing from the LH side up to the hydraulic motor and tighten. Ensure that the clamping rings are inserted such that tightening by means of the bearing is possible.



Diagram, 4 arms

- 1 short profile pipe
- 2 long profile pipe
- 3 clamping rings, profile pipe
- 4 round pipe
- 5 clamping rings, round pipe

13. Use suitable tools to tighten the clamping rings on the hub and tighten the set screws.

14. Depending on the machine width, the profile pipe may be divided, see RH figure. After assembly, connect the profile pipe using the supplied connectors.

Connectors on profile pipe

15. Install hoses on the respective arms.
- Hose clamps are already pre-installed on the support arms at delivery.

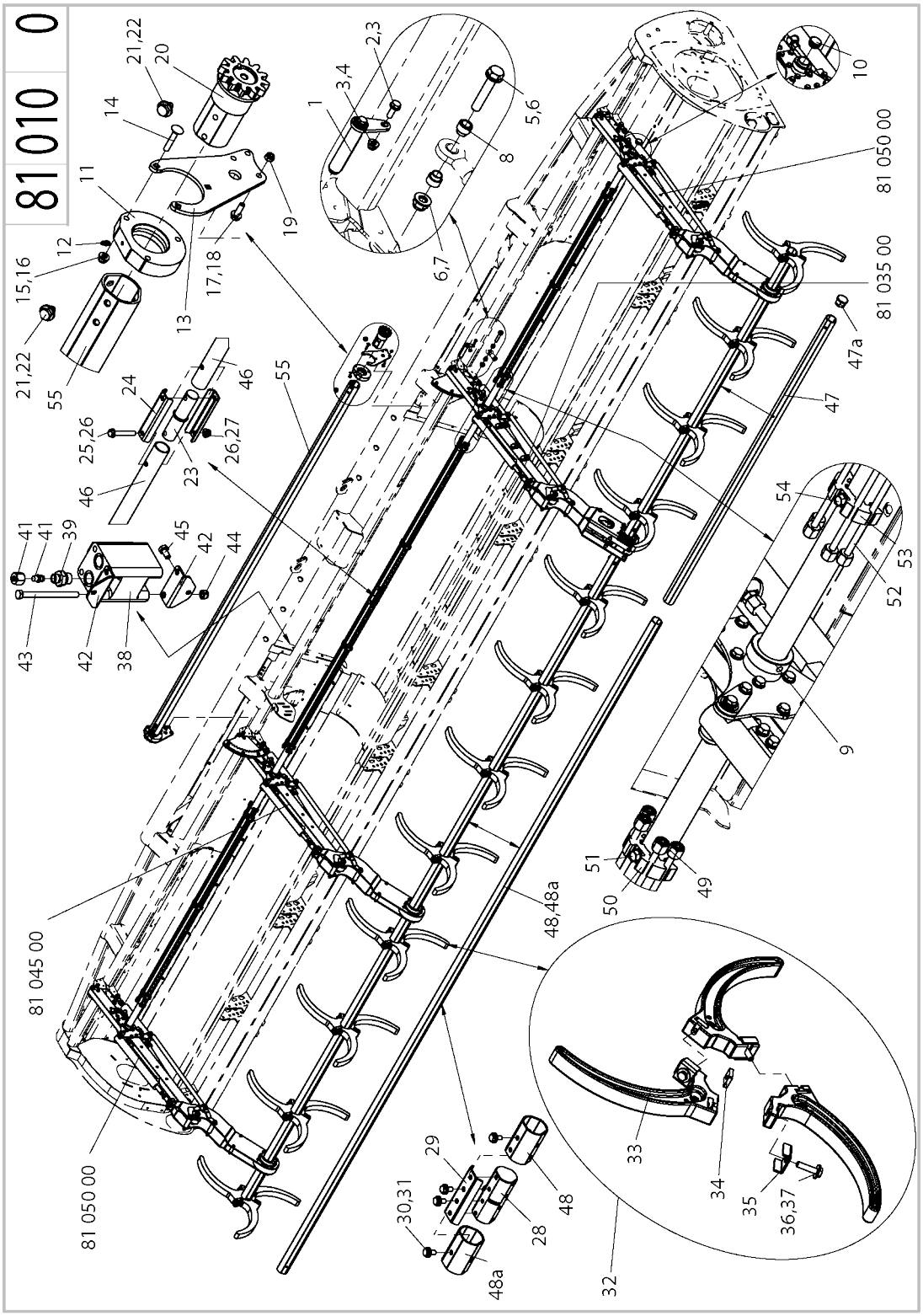
Hose clamps pre-installed

16. Evenly spread the hydraulic pipe fasteners on the connecting pipe and pre-install. Mark the screw position and drill a hole (Ø 6.5 mm). Subsequently install the clip with the tapping bolts.

Screws are self-tapping!

Fasteners for hydraulic pipes

3.5 Drawing for 4-armed, rigid version



3.6 Installing the support arms (2 arms, foldable, <20 ft working width)

DANGER

Danger of injury!

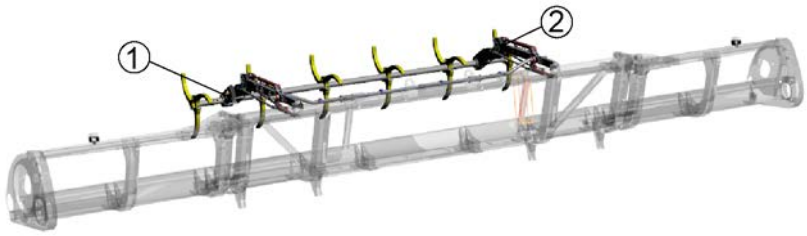
- Only carry out assembly work when the lowering protection is activated!
- Always turn the diesel engine off before working on the machine!
- Ensure that there are no persons in the hazard zone!

- The RH and LH sides are always seen in the driving direction.
- Tighten all screws according to the torque table in the appendix.
- See also drawing 5303079 in the appendix.

Installing the support arms

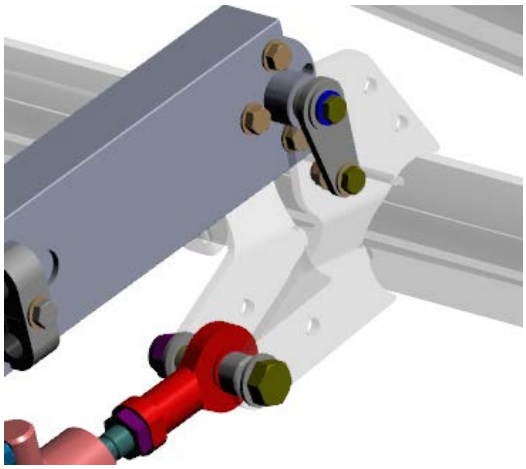
1. Unpack the sweeper and assign the support arms to their respective intended positions:

- The hydraulic motor is located on the LH support arm (1).
- A counter-weight is located on the RH support arm (2).



2. Fasten the two support arms on brackets in the intended positions by means of pins with lock bolts. Subsequently tighten the bolts.

Pre-install the clamping rings of the bearings in retrofitting kits in the respective positions to avoid assembly errors!

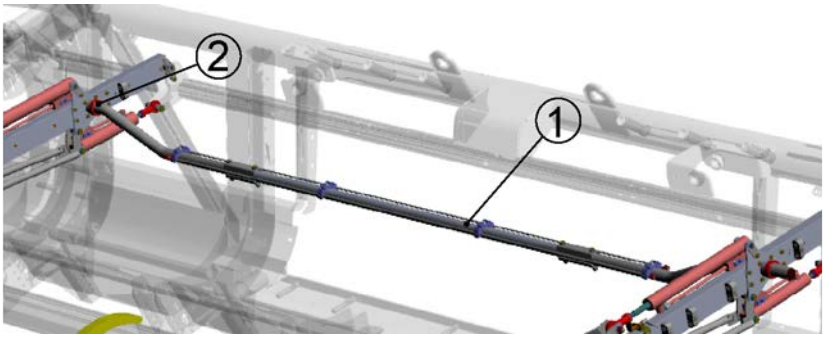


3. Use the supplied bolts to install the hydraulic cylinder on the intended mounting points.

Installing the cylinder

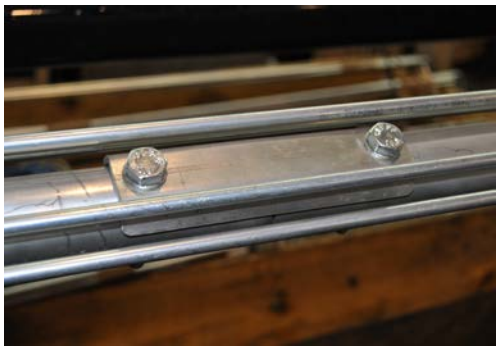
Installing the connecting pipe

4. Insert the curved connecting pipe on the RH and LH side. While doing so, insert one clamping ring (2) per side on both hubs (observe the installation direction).



Installing the connecting pipe

5. Use the rod end bearings on the cylinder to align the support arms such that they are exactly flush with each other.
6. Subsequently use the supplied pipe connectors to install the center pipe.
7. Depending on the machine width, the connecting pipe may be divided, see RH figure. After assembly, connect pipe using the supplied connectors.



Connectors on the support arm pipe

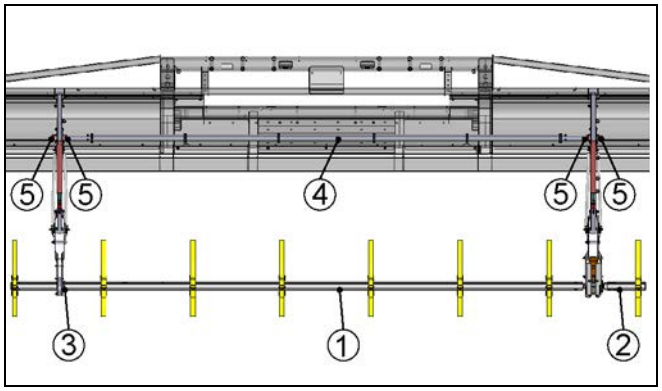
8. Subsequently use suitable tools to tighten the clamping rings and the set screws.

Installing the profile pipe for conveying elements

9. For later assembly of the plastic conveying elements, push the long front profile pipe with one clamping ring per bearing from the RH to the LH side up to the hydraulic motor and tighten. Ensure that the clamping rings are inserted such that tightening by means of the bearing is possible.

10. Screw-fit the short profile pipe to the LH side of the gearing.

Tighten the clamping rings



Diagram, 2 arms

- 1 long profile pipe
- 2 short profile pipe
- 3 clamping ring profile pipe
- 4 round pipe
- 5 clamping ring

11. Use suitable tools to tighten the clamping rings on the hub and tighten the set screws.
12. Depending on the machine width, the profile pipe may be divided, see RH figure. After assembly, connect the profile pipe using the supplied connectors.

Connectors on profile pipe

13. Install hoses on the respective arm.

- Hose clamps are already pre-installed on the support arms at delivery.

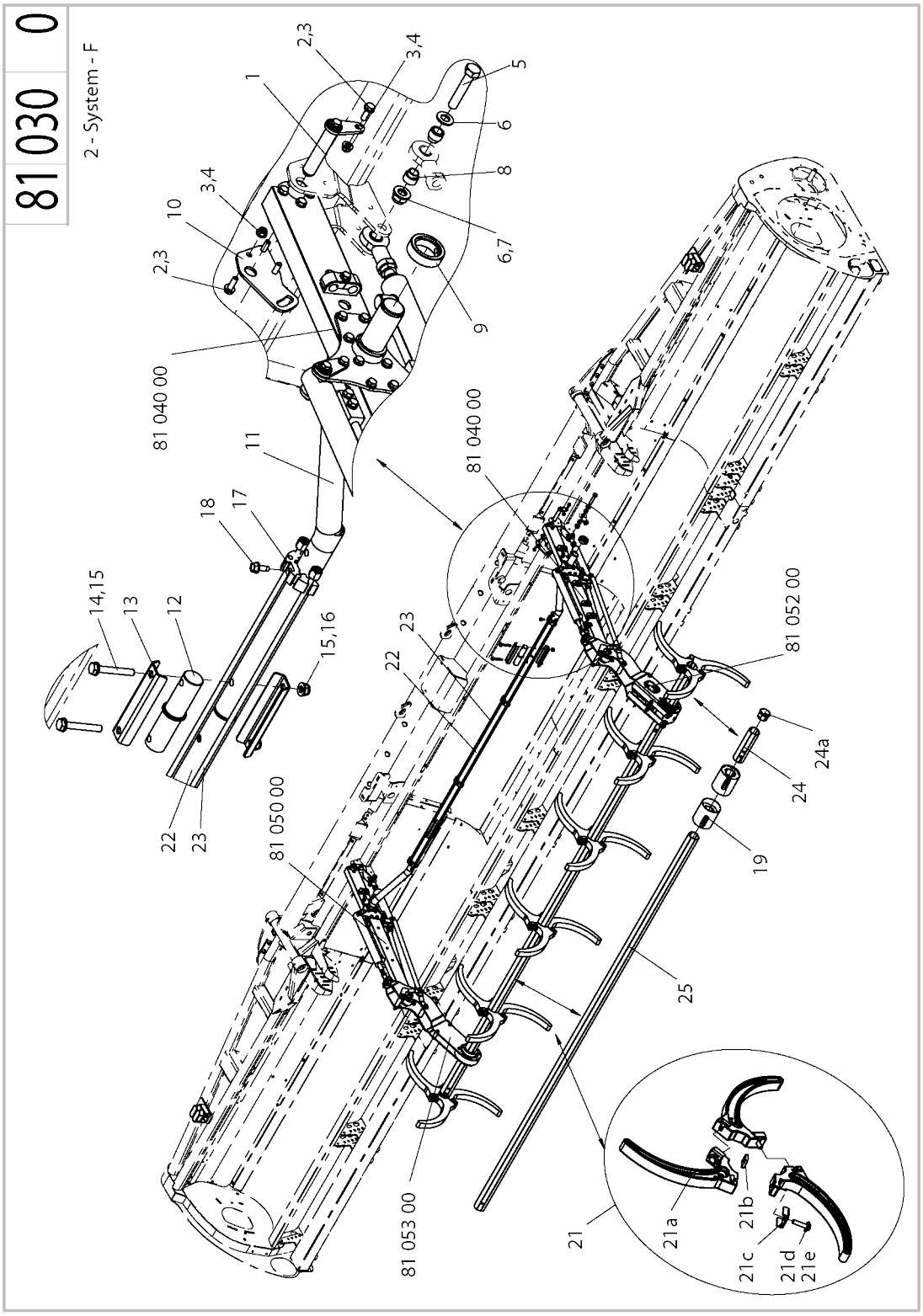
Hose clamps are pre-installed

14. Evenly pre-install the hydraulic pipe fasteners on the connecting pipe. Mark the screw position and drill a hole (Ø 6.5 mm). Subsequently install the clip with the tapping bolts.

Bolts are self tapping!

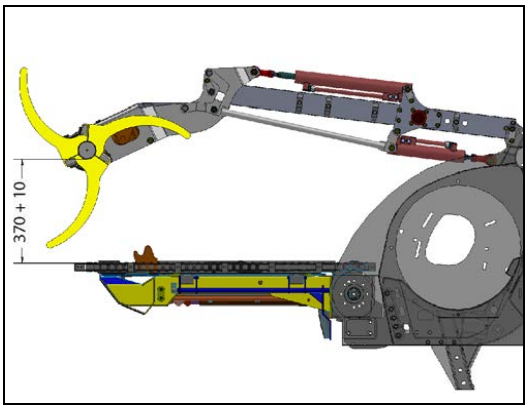
Fasteners for hydraulic pipes

3.7 Drawing for 2-armed, foldable version



3.8 Aligning the support arms

1. Move the sweeper to its lowest vertical position and its front-most horizontal position.
2. Use the rod end bearings of the lower hydraulic cylinder (sweeper, vertical) to evenly set the profile pipe to 370+10 mm resp. 14,50 + 0,4 inch (see figure) on the RH and LH side.



Profile pipe on 370 + 10 mm resp. 14,50 + 0,4 inch

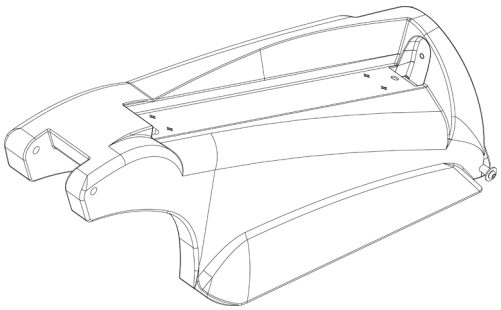
3.9 Assembling the corn auger (optional)

DANGER

Danger of injury!

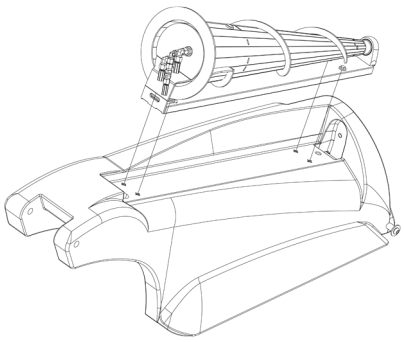
- Only assemble the corn auger when the diesel engine is switched off.

1. Undo the screws of the rectangular pipe and remove the rectangular pipe.



Remove the rectangular pipe from the body

2. Fit the corn auger to the body and fasten with 2 screws on top (M 8 x 45) and 2 screws on the bottom (M 8 x 40).

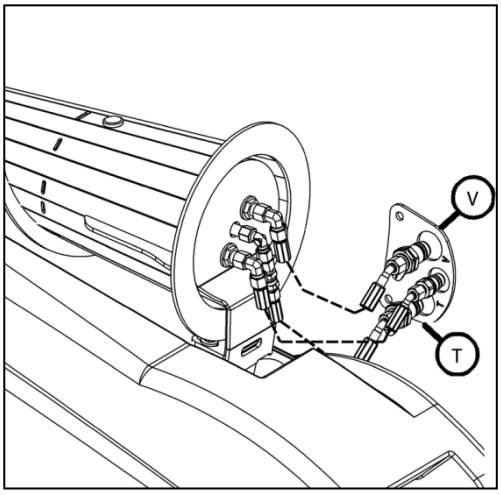


Assemble the corn auger with the rectangular pipe

Establishing the hydraulic connections

The corn auger has 3 hydraulic connections on the LH side and 2 hydraulic connections on the RH side.

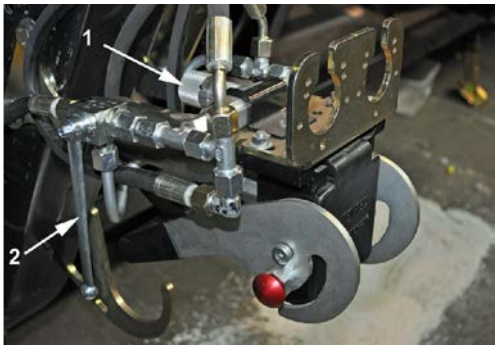
3. Connect according to the markings: V=Supply, T=Tank (Return flow). If corn augers are installed on both sides, there is an additional bypass (without a marking) on the LH side.



V=supply line, T=return flow, center= bypass

Rotational speed adjustment of the corn auger

Only corn augers without sweeper: The rotational speed is adjusted by means of the combine harvester function "reel rotational speed adjustment". For Case and New Holland combine harvesters, there is an additional re-adjustment by means of reduction valve on combine harvester.



Auger speed reduction valve (1), ball valve for activating and deactivating the sweeper (2)

3.10 Installing the hydraulic lines for the auger

DANGER

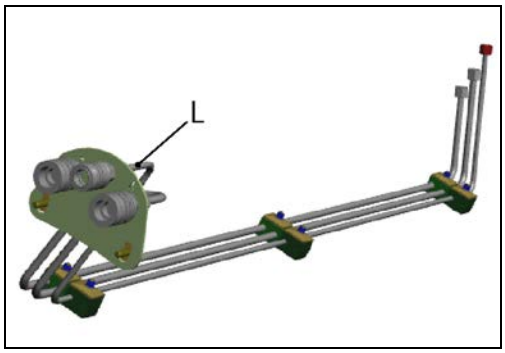
- Only connect the hydraulic lines when the diesel engine is switched off!
- Avoid leakages and protect the environment!
- Ensure that the connection lines are not damaged!

Arrangement of the pre-bent lines on the LH side:

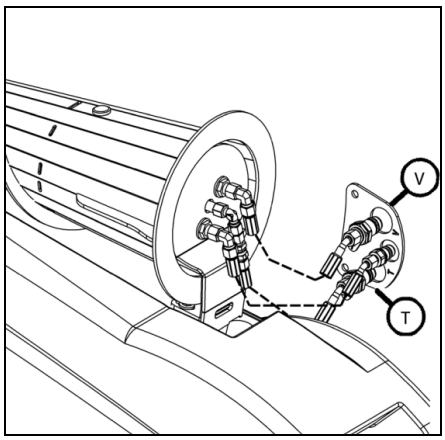
V=supply

T=return flow

L=case drain

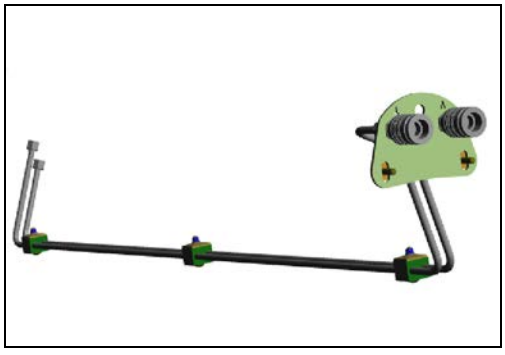


L= case drain line



V=supply; T=return flow

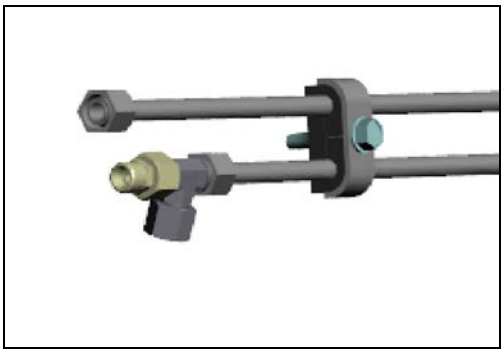
Pre-bent lines on the RH side



RH line

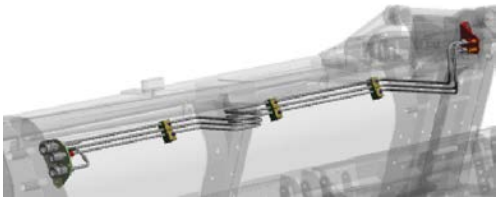
Center line:

Install the T-piece on the LH side. Hydraulic reel drive for the return line (only for machines with corn augers).



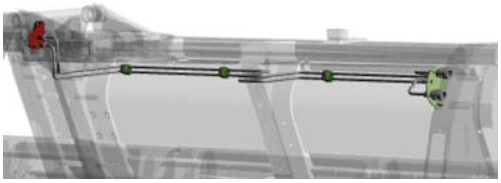
LH center line

Pre-bent lines on the LH side for foldable corn headers



LH lines

Pre-bent lines on the RH side for foldable corn headers



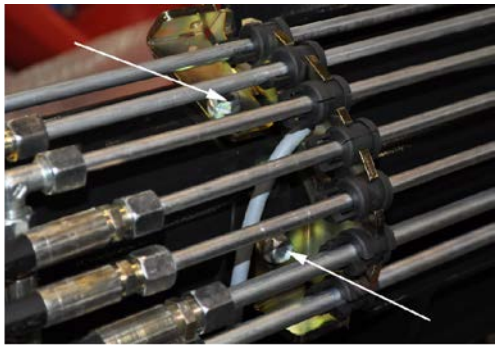
RH lines

3.11 Installing the hydraulic system for rigid corn headers

DANGER

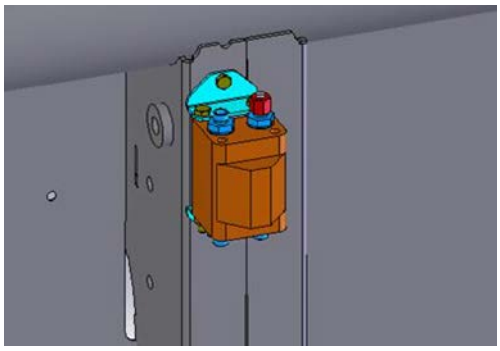
- Only connect the hydraulic lines when the diesel engine is switched off!
- Avoid leakages and protect the environment!
- Ensure that the connection lines are not damaged!

1. Install the intended number of line holders and hose clamps, see figure in the appendix.

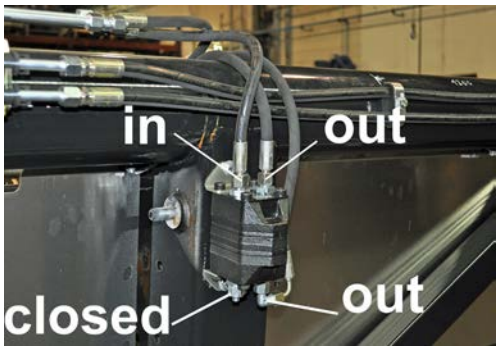


Line holders with hose clamps

2. For the 4-armed version: Drill a threaded hole on the RH side of the frame and fix the flow divider with screws (M8 x 20 plus washer).

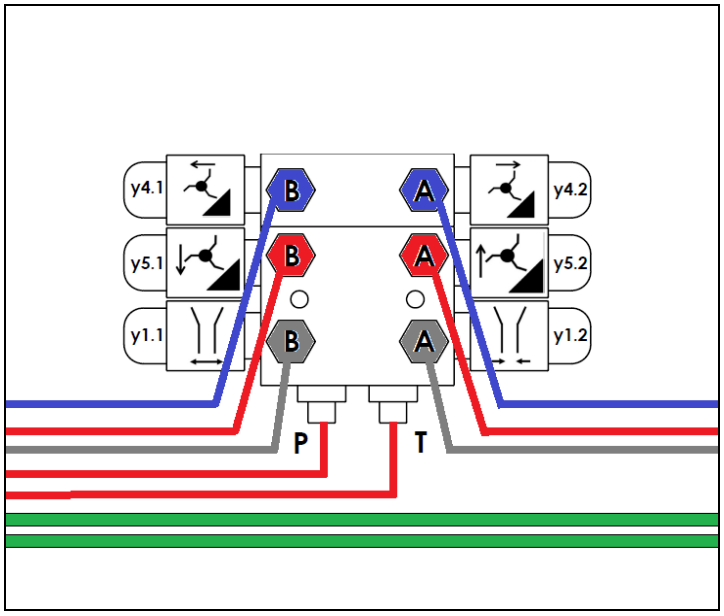


Fix the flow divider

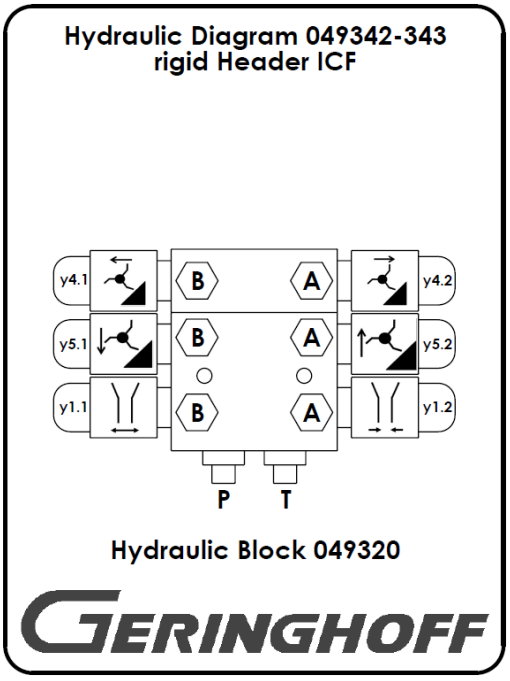


Flow divider for 4-armed version

3. Install the central hydraulic system in the intended position, see diagrams below.



Color allocation, see also wiring diagram



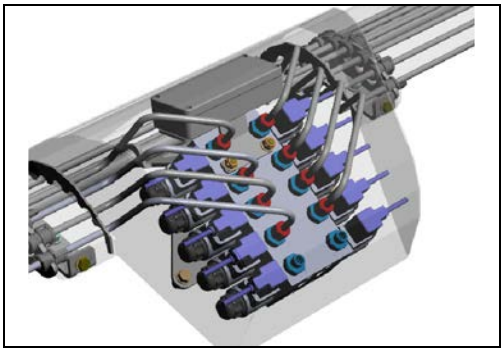
Pictogram: Hydraulic system of rigid header with sweeper

4. Allocate the hydraulic lines.
5. First, pre-install.

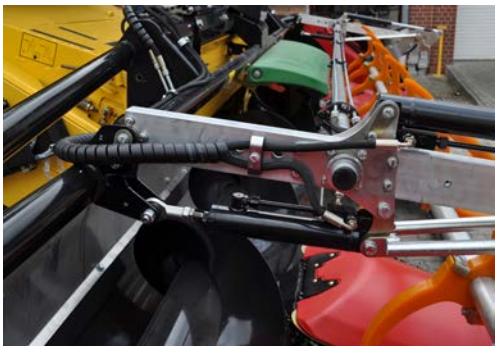
Only carry out the final assembly once all lines have been completely allocated and everything has been correctly installed.

6. Connect the hydraulic lines on the LH and RH side according to the retrofitting version, diagrams in the appendix.
7. Connect via lines. See also drawing 5302040 in the appendix.

Ensure that all lines are equipped with rubber cuffs and securely fastened in the line supports.



Central hydraulic system (fig. foldable header)



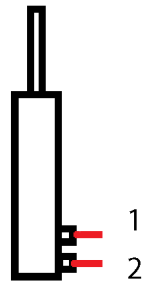
Equip lines with rubber cuffs

8. Install the remaining lines in groups (use the diagram in the appendix).

Always adhere to the hydraulic arrangement on the cylinders, see RH figure.

- 1 = Connection on the piston rod side
- 2 = Cylinder base connection

Always adhere to the graphic depiction. Hose connections may be installed on the RH and LH side.



1=piston rod side, 2= cylinder base connection

9. Install the T-pieces according to the diagram.
10. Use the diagram to check the connections.
11. Tighten all lines. While doing so, ensure that all connections have been correctly established. Prior to carrying out a test run, check the lines for leaks!
12. Mark each connection after tightening to facilitate checking.

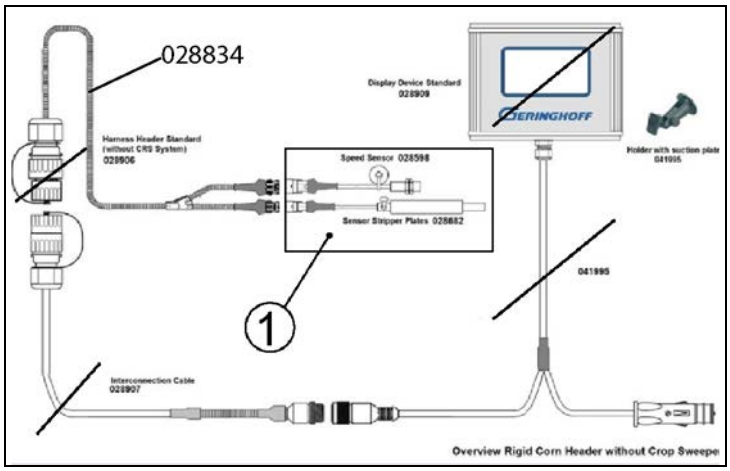
3.12 Retrofitting the electrical connection with a sweeper for rigid corn headers

DANGER

Danger of short-circuit!

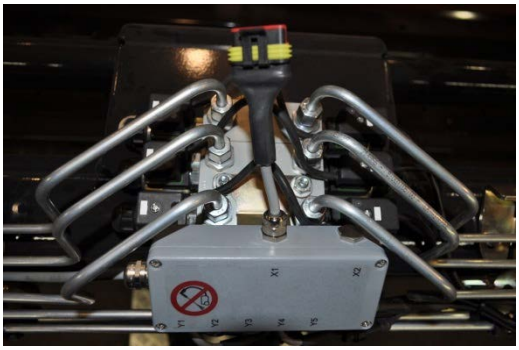
1. Remove the previously used monitor and all cables from the combine harvester.
2. Install cable X1 (028834) on the header. Disassemble the previously used cable.

- The sensors (1) for rotational speed and deck plate adjustment on the corn header continue to be used.



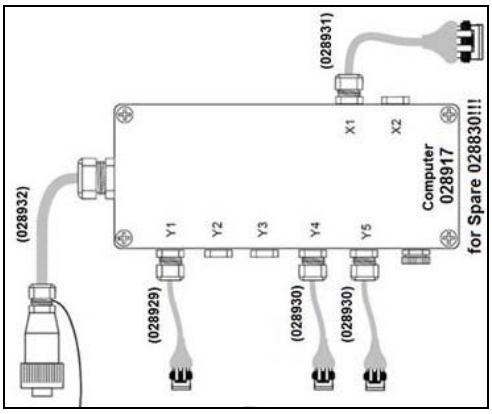
Disassemble the monitor with the cables

3. Install the supplied, completely wired task controller above the central hydraulic system in the intended position.



Install the task controller

- Task controller with individually labeled connections.

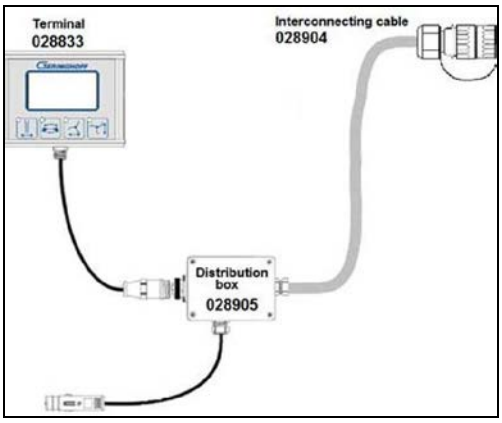


Connections are labeled

4. Install a new terminal with a terminal box in the cab.

   Adhere to the assembly instructions in the corn header operating manual.

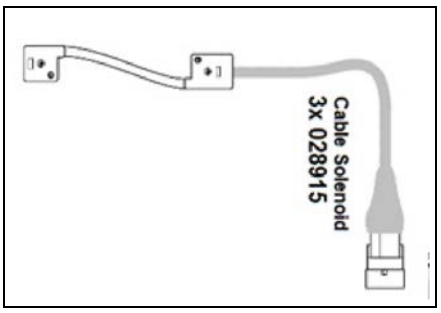
5. Install the 12 Volt connection dependent on the ignition lock.
6. Route a cable from the terminal box to the corn header. Ensure that the cable is not tensioned and cannot be crushed.



Install a new terminal

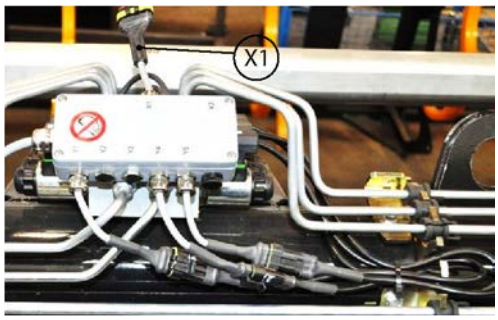
7. Use the connecting cables to establish the connection between the task controller and solenoid valves according to the diagram.

   Connect the task controller with the central hydraulic system such that the connection matches the marking on the task controller!



Connect the valve lines

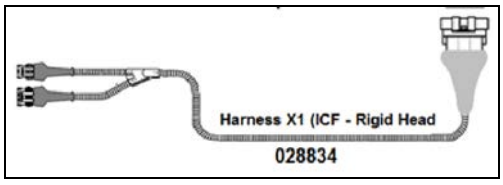
- Connections y1, y4 and y5 are connected with solenoid valves.
- Connections Y2, y3 and x2 are not required.
- Connect cable X1 with the connection X1 on the task controller.



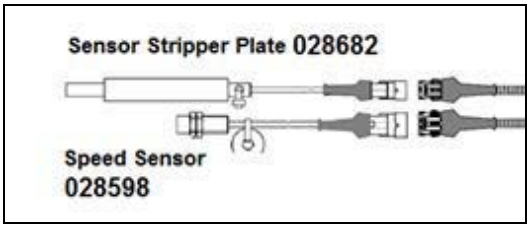
Connect the task controller

8. Use the supplied cable set to connect the connection x1 with the sensor for rotational speed detection and the connection of the picking plate position.

- The complete diagram for terminal connection is contained in the appendix.



Cable set for x1



Sensors

3.13 Installing the hydraulic system for foldable corn headers

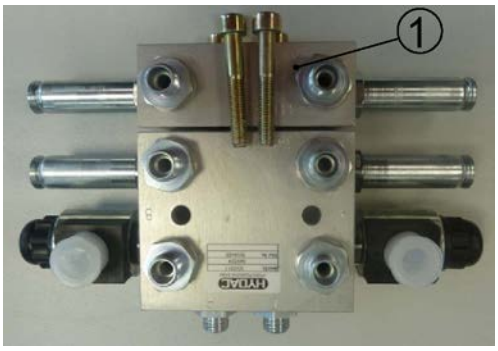
DANGER

- Only connect the hydraulic lines when the diesel engine is switched off!
- Avoid leakages and protect the environment!
- Ensure that the connection lines are not damaged!

Foldable corn headers are converted for use with sweepers.

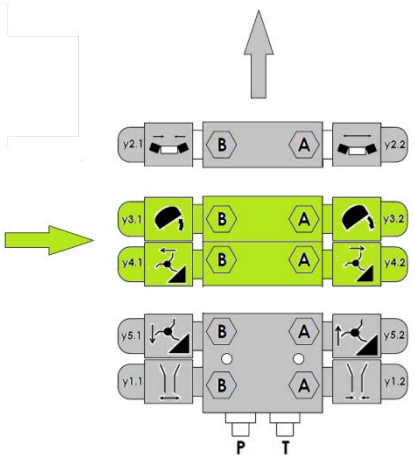
Do not disassemble or modify the pre-bent connecting pipe lines on the central hydraulic system!

1. Remove covers.
2. Disassemble electrical connections and task controller.
3. Undo hydraulic screw connections.
4. Disassemble installed hydraulic block.
5. Remove the screwed-on valve block (1), (4 Allen screws).
6. Ensure that the sealing rings are not damaged, replace, if necessary.



Remove the top valve block (1)

7. Install two new additional valve blocks (color-coded) together with the required sealing rings, see RH drawing.



Re-arrange the valve blocks

8. Ensure that the sealing rings fit securely.
9. Use the four supplied longer screws for assembly.
10. Tighten the screws according to the torque table.
11. Re-assemble valve block (1).

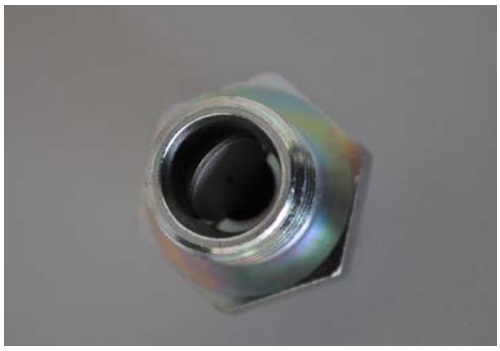
The function of individual valves changes accordingly, see previous drawing.

Re-assemble valve block

- The change in the individual valve functions makes it necessary for the hydraulic lines to be re-connected on the end of the line support, see RH figure or connection diagram in the appendix).

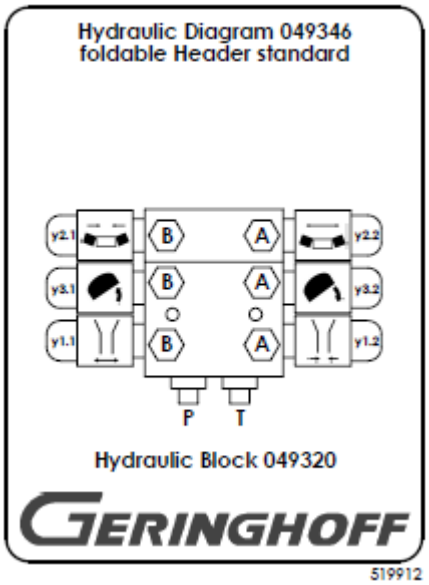
Re-connect hydraulic lines

12. Before installing the hydraulic lines insert throttle disks in the screw connections on the positions B (arrows) of the valve blocks for the horizontal and vertical sweeper adjustment. The throttle disks are contained in the scope of delivery (0.6 mm center hole, 8 mm outer diameter, 0.7 thickness).

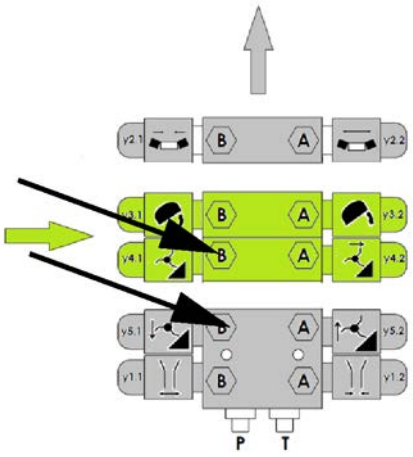


Inserted the wrong way

Inserted correctly



Previous arrangement without sweeper

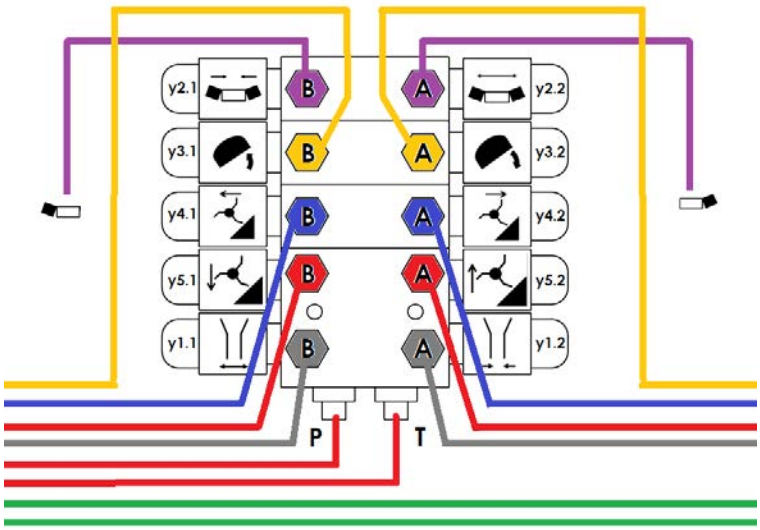


New valve block

Line arrangement

- The previously used hydraulic line for picking plate adjustment (y1.1) remains unchanged.
- The line previously used as locking line (y3.1) is now used as (y5.1) for the vertical adjustment of the sweeper.
- The line (y2.1) previously used for the folding process is now used as (y4.1) for the horizontal adjustment of the sweeper.
- Re-route the lines (y2.1) and (y3.1) and connect them accordingly.

Always connect the lines according to the diagram below, as the electrical connections are adjusted for this diagram.



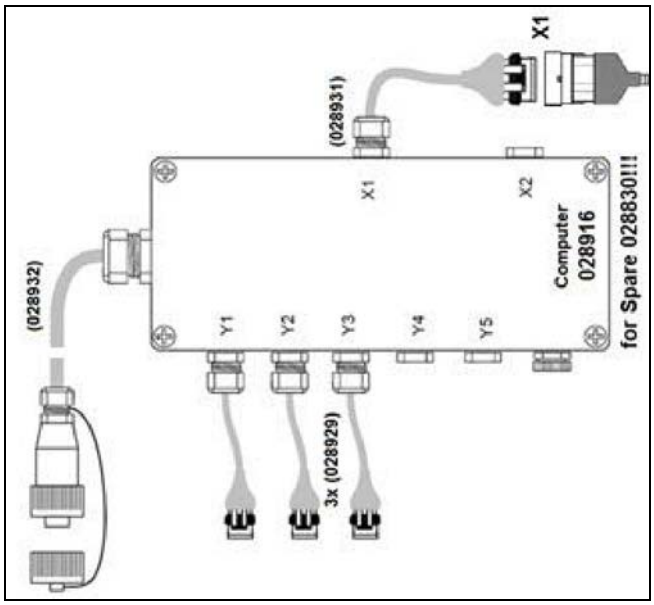
3.14 Retrofitting the electrical connection with a sweeper for foldable corn headers

DANGER

Danger of short-circuit!

- Do not install the electrical components until the hydraulic lines have been completely assembled.
- Prepare the task controller for operation with a sweeper.

- The figure below shows the connections y1, y2, y3 and X1 required up to this point as well as the connecting cable to the terminal.



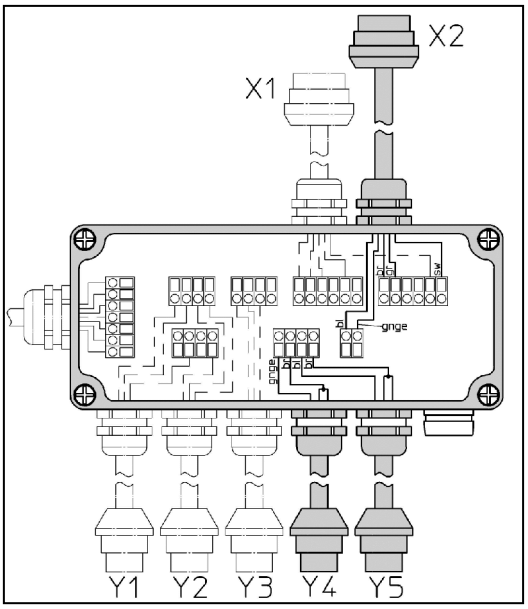
Connections on the task controller

1. Carefully open the task controller. Dust and dampness can cause malfunctions.
   - The connections y4, y5 and X2 are also required for operating the machine with a sweeper.
2. Connect the required connection cables No. 028930 and No. 028931 in addition.

Abbreviations for color coding in the task controller (see also diagram No. 02895 in the appendix):

- gnge=green/yellow
- gr=gray
- bl=blue
- sw=black

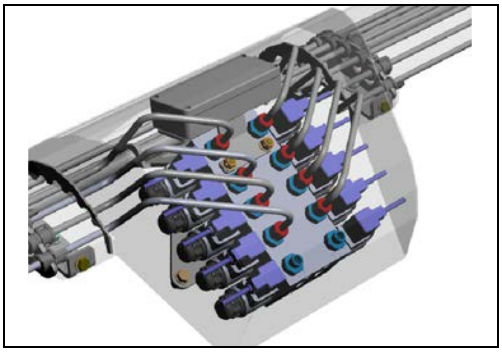
Always check the correct allocation after connecting. Incorrect cable allocation will destroy the circuit board!



Connections

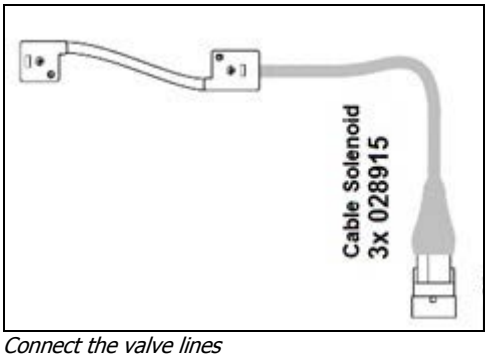
3. Install the task controller above the central hydraulic system in the intended position.

Always use original fastening parts!



Central hydraulic system

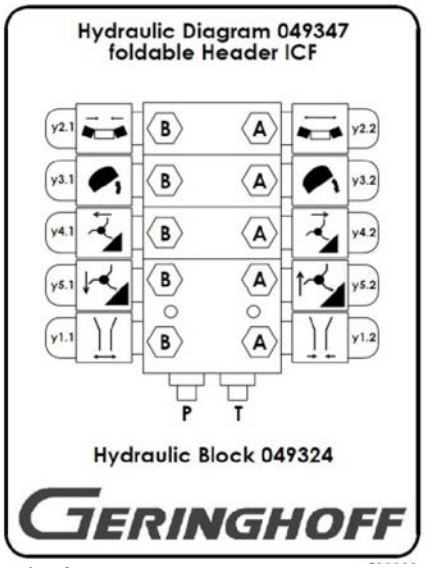
4. Use the valve lines No. 028915 to connect the task controller to the solenoid valves according to the diagram.
- Ensure that the marking on the task controller always matches the marking on the central hydraulic system when connected.



Connect the valve lines

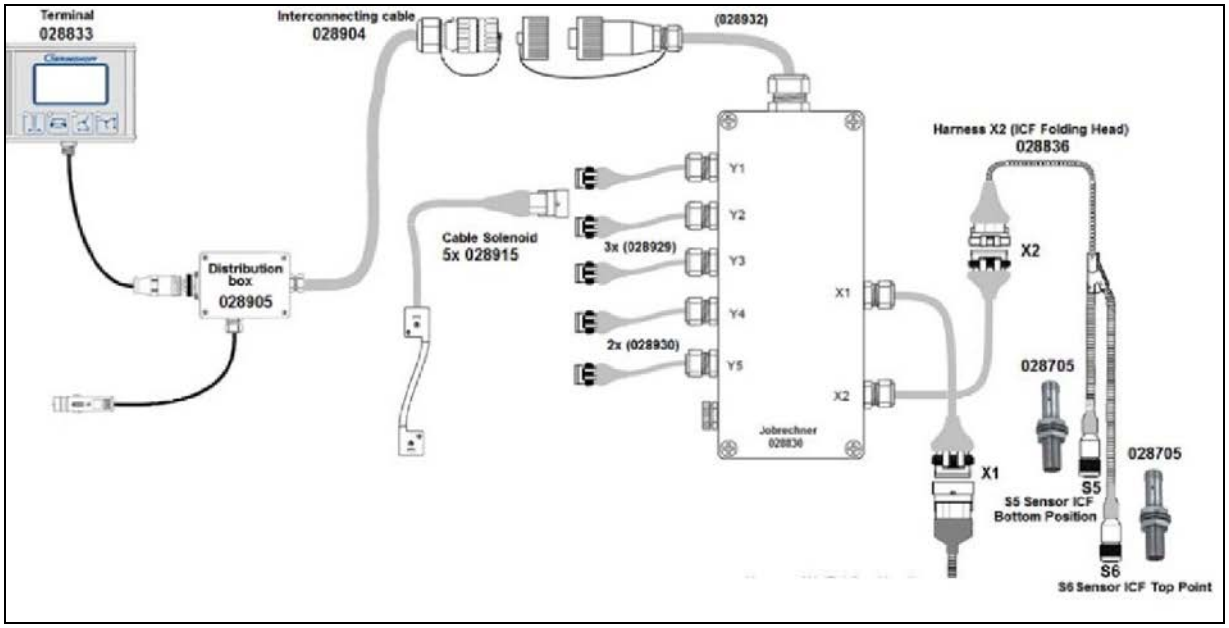
Valve functions of the central hydraulic system

Example: y 2.1 and y 2.2 of the central hydraulic system are connected to the task controller in pos. y 2.



Valve functions

5. Connect the connecting cable X1 to the task controller as before. All functions of the folding process are now active again.
6. Connect the cable harness No. 028836 of the sweeper position controls on position X2. This ensures that the sweeper is first moved to its front bottom position (transport position) when the folding process is initiated.



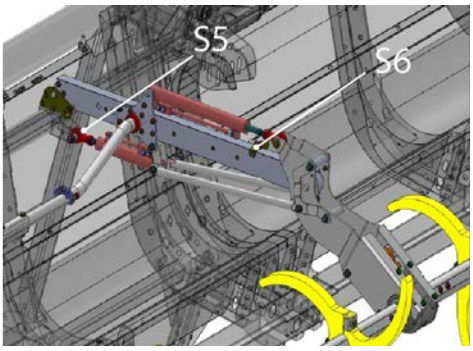
Connecting the cables

3.15 Installing sensors for sweepers, 2-armed, foldable

To ensure that the corn header with the installed sweeper can be folded in for transport, install two sensors on the LH support arm.

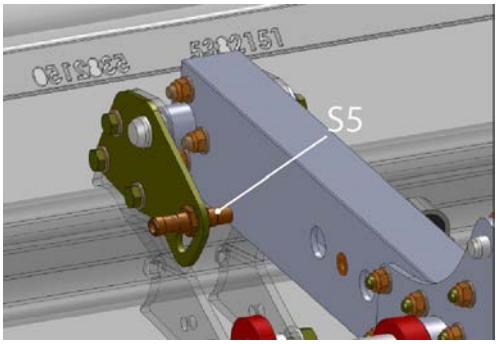
- Sensor (S5) vertical position
- Sensor (S6) horizontal position

When the folding process is initiated, the sweeper must first be automatically moved to the front-most horizontal position and then be completely lowered vertically. The actual folding process does not start until this has been completed.



Install the sensors

1. Horizontally push the sweeper forward up to the maximum forward position.
2. Completely lower the sweeper vertically. Ensure that all hydraulic cylinders on the sweeper are completely retracted prior to the folding process.
3. Install the vertical sensor (S5) by means of the assembly plate as depicted.
- Adjust the sensor such that at least 2/3 of it is covered by the arm. Sensor spacing S5 = 3 ± 1 mm.

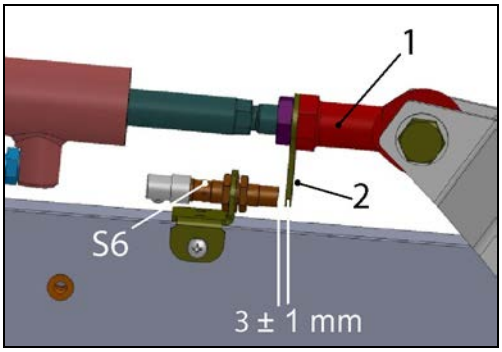


2/3 of the sensor should be covered by the arm

4. Remove the hydraulic cylinder bolt (1) and assemble the metal plate (2) as depicted.
5. Position and install the horizontal sensor on the arm.
- Ensure that the spacing between the sensor (S6) and the metal plate is 3 ± 1 mm!
6. Screw-fit the sensor.

Observe when routing cables!

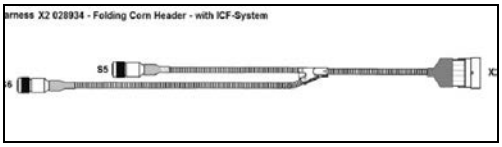
Ensure that the cable is not tensioned or crushed at its pivot point!
Fasten the cable closely to the arm!



Spacing between sensor and plate min. 3 mm

7. Connect the cable harness to the task controller X2, route it to the sensors while ensuring it is not damaged and fasten it.

Carry out a function test according to the corn header operating manual.



Route the cable harness to the sensors

3.16 Venting

Connect the multi-coupling with the combine harvester and vent the hydraulic system reliably and evenly by carefully and slowly approaching the respective vertical and horizontal limit positions of thy hydraulic cylinders several times.

- To vent, actuate the valve for approx. 10 s more at the limit positions.
- Always avoid warping of the support arms.
- Subsequently always ensure that the support arms are flush!

3.17 Installing the protective devices/guards

After completing the function check, install the protective devices/guards as depicted on the RH side.

Install the protective device/guard.

3.18 Assembling the conveyor segments of the sweeper

DANGER

Danger of crushing!

- Only install the conveyor segments of the sweeper when the header and the sweeper are lowered!
- Always move the sweeper to its bottom position for road transport!

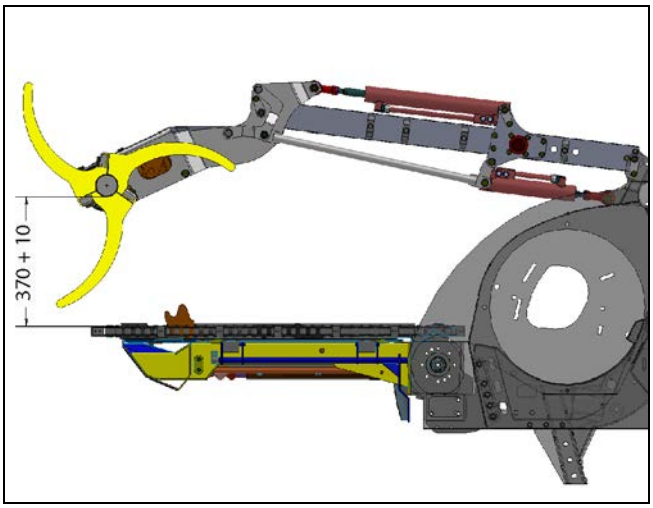
The chapter "Operating the monitor" of the operating manual describes how to operate the sweeper.

Before assembly, ensure that the hydraulic system and the monitor are connected and that the header is lowered.

1. Remove transport securing devices.
2. Switch on monitor and press "raise/lower sweeper" button. Use the "reel forward" button to lower the sweeper completely so that the conveyor segments can easily be assembled.

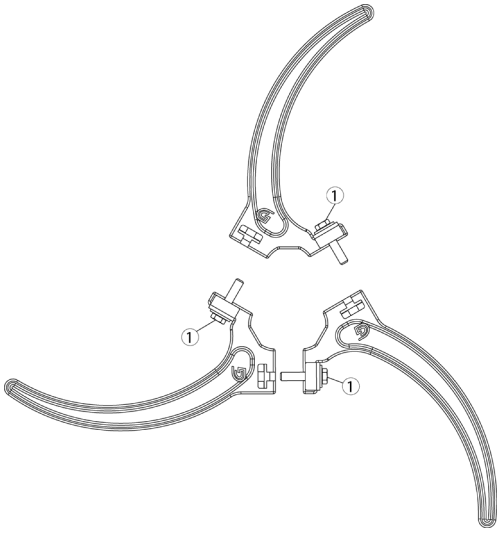
Raise/lower sweeper button

3. Use the rod end bearings of the lower hydraulic cylinder (reel, vertical) to set the profile pipe to 370+10 mm resp. 14,50 + 0,4 inch (see figure).



Set the profile pipe to 370 + 10 mm resp. 14,50 + 0,4 inch

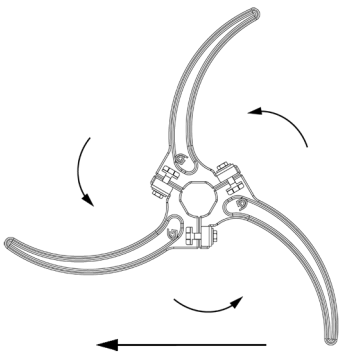
4. Assemble the conveyor segments on the support pipe as depicted. Tighten the surrounding screws (1) evenly in alternation.



Three-component conveyor segment

Keep a degressive work direction, see figure on the RH side.

Degressively install the conveyor segments on the support and drive pipe. While doing so, center the conveyor segments precisely in relation to the header row.



Degressively installed conveyor segment, arrow=driving direction of the combine harvester

For rigid headers, the conveyor segments are installed on all header rows; for foldable headers they are only installed on the non-foldable header rows.
For the harvesting process, set the sweeper (horizontally and vertically) such that the conveying capacity within the header rows is optimal.

Avoid unnecessary strain on the conveyor segments caused by faulty setting!

Rotational speed adjustment of the sweeper and the corn augers

- Adjust the rotational speed of the sweeper by means of the "reel rotational speed adjustment" function of the combine harvester.
- Adjust the rotational speed of the corn auger by means of the adjustable reduction valve on the corn header.

3.19 Operating the sweeper and the corn auger simultaneously

DANGER

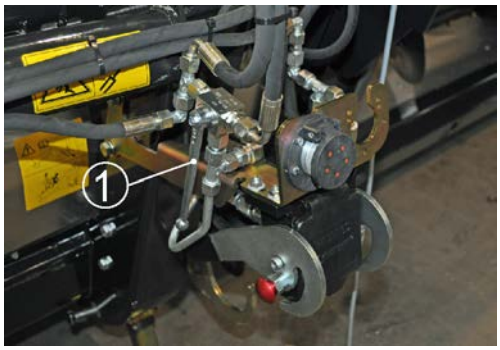
Danger of injury!

- Only toggle between the sweeper and the corn auger when the machine is at a standstill!

When using the corn auger and the sweeper simultaneously, it is possible to switch off the sweeper and only use the corn auger.

1. Either turn the sweeper on or off by positioning the lever (1) as depicted.

➲ The respective on and off positions depend on the model and can deviate from the figures.

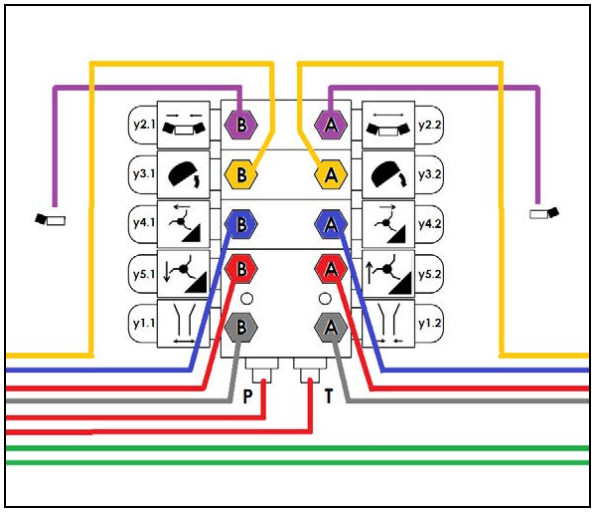


Lever position as an example

3.20 Converting a foldable corn header with a LH hydraulic control system

- On some foldable corn headers, the hydraulic control system is located on the LH side next to the intake channel of the combine harvester.
- It is possible to convert these headers for operation with the sweeper by expanding the electromagnetic control valve (see also, chapter "Installing the hydraulic system for foldable corn headers".)

1. Expand the valve.
2. Route the hoses of the sweeper to the valve and fasten securely. Avoid chafing!
3. Install the hoses according to the diagram below.



Allocation of the hydraulic hoses

4. Modify the task controller as described in the chapter "Retrofitting the electrical connection with a sweeper for foldable corn headers" and establish the respective connections to the control valve.
- Function and handling identical with described central hydraulic system.

4 Appendix

4.1 Brief instructions for assembling the sweeper retroactively

1. Allocate the support arms. Install the support arm with the hydraulic motor on the LH exterior (rigid models =< 6 m working width and foldable models).

- For machines with a working width of > 6 m, install the support arm with the hydraulic motor as the second from the LH side. Always install the support arm with the counter-weight opposite of the hydraulic motor.

2. Adjust the limit positions of the support arms according to the assembly manual's specifications.
3. Install or expand the central hydraulic system.

Initially only manually install all pipes and hoses, do not tighten yet!

4. Install line support and connect the pre-bent pipe lines to the central hydraulic system.
5. Guide the pipes from one support arm to another by means of the corresponding fastening parts.
6. Connect the hydraulic hoses according to the diagram. Ensure that the length is sufficient for the requirements.
7. Use the diagram to check that all hydraulic lines are correctly connected.
8. Subsequently tighten and mark all hydraulic lines.
9. Connect the task controller and electrical lines/terminals according to the diagram.
10. Carry out all expansions of the multi-coupling required to use the sweeper and, if necessary, the end row auger according to the diagram. (For examples of the ball valve and auger speed reduction valve arrangement, refer to the appendix of the assembly manual). Mark the lines after tightening them.
11. Connect the multi-coupling with the combine harvester and vent the hydraulic system reliably and evenly by carefully and slowly approaching the limit positions several times.

- To vent, actuate the valve for approx. 10 s more at the limit positions.
- Always avoid warping of the support arms.
- Subsequently always ensure that the support arms are flush.

12. Test the sweeper / auger. Adhere to the safety regulations!
13. Raise the sweeper and start the hydraulic motor. If necessary, also start the end row auger.

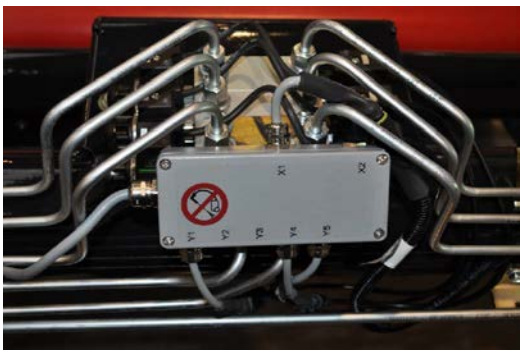
- Check the function of the ball valve and auger speed reduction valve arrangement. The ball valve deactivates the sweeper hydraulic motor.

14. Check for leaks!
15. Install all protective devices and guards.

4.2 Wiring overview, 2-armed, rigid version

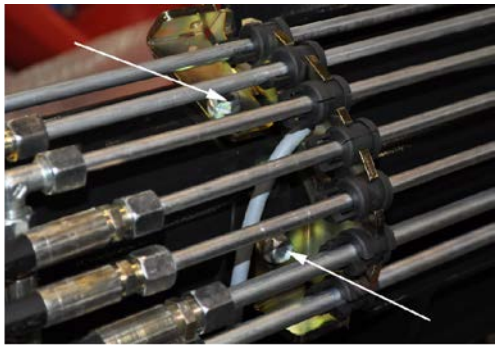
Retrofitting a rigid corn header <= 6 m working width, 2-armed

- Central hydraulic system arrangement



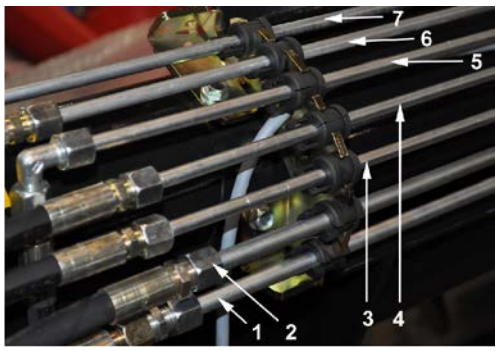
Central hydraulic system

- Assembly of line support
- Fastening of cutting screws (arrows)
- Use of rubber cuffs



Line support

1. Return flow, augers
2. Supply, augers
3. Return flow, central hydraulic system
4. Supply, central hydraulic system
5. Deck plates
6. Supply, sweeper, vertical
7. Supply, sweeper, horizontal



Function allocation

Paths of all further hose lines

Hose lines

- Hose line to the LH corn auger with case drain line

Hose line, LH corn auger

- Pipe line to the LH corn auger with case drain line

Pipe line to LH corn auger

- Routing of the hose lines on the frame

Hose lines on the frame

- Hose lines on the LH side to the hydraulic motor and the hydraulic cylinders

Hose lines to the hydraulic motor

- Hose guide with sleeve between the hydraulic motor and the first fastener on the support arm

Line to the hydraulic motor and cylinders

- Hose guide with sleeve at the end of the support arm

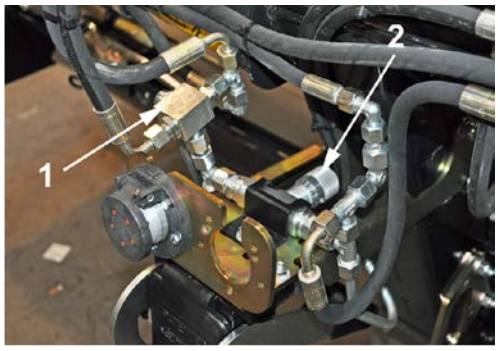
Hose guide at the end of the support arm

- Pipe line path from the LH to the RH side of the sweeper horizontal and vertical adjustment

Pipe line, horizontal and vertical adjustment

- Multi-coupling with ball valve and auger speed reduction valve installed in addition
- For the arrangement of the individual components, refer to the hydraulic diagram

1. Ball valve
2. Auger speed reduction valve

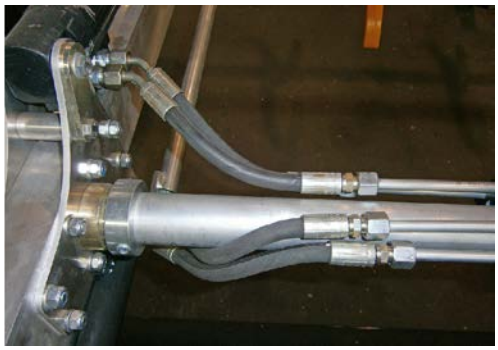


1 Ball valve, 2 Auger speed reduction valve

4.3 Wiring overview, 4-armed, rigid version

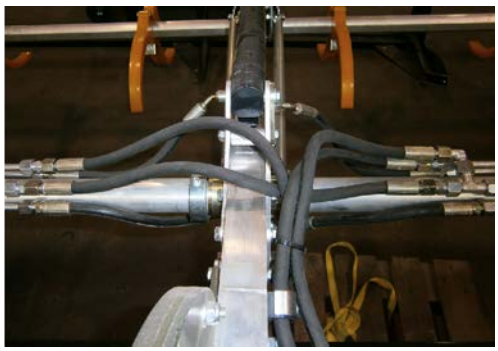
Sweeper retrofitting, rigid corn header > 6m working width, 4-armed

Hose arrangement on the LH exterior

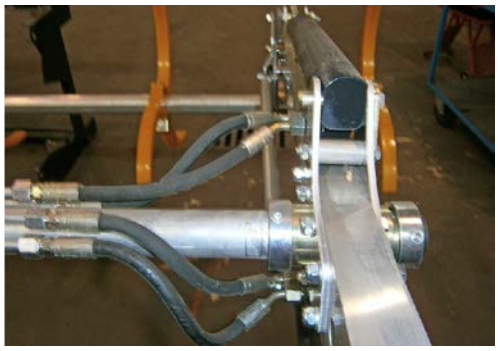


Hose arrangement in the LH center

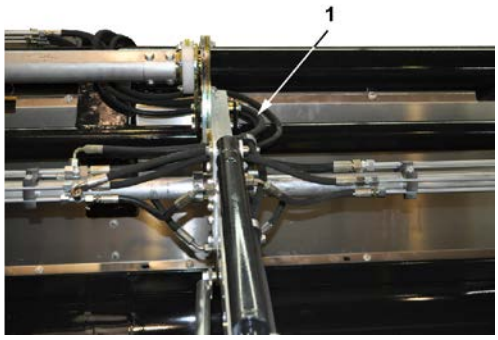
Hose arrangement in the RH center



Hose arrangement on the RH exterior

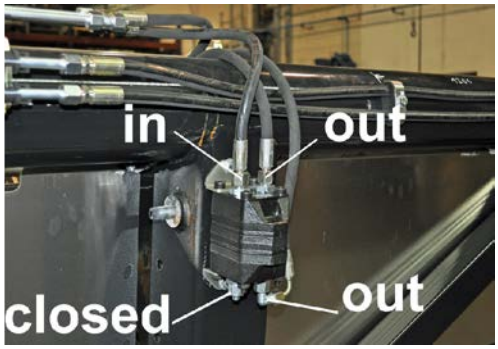


Hose arrangement coming from the central hydraulic system



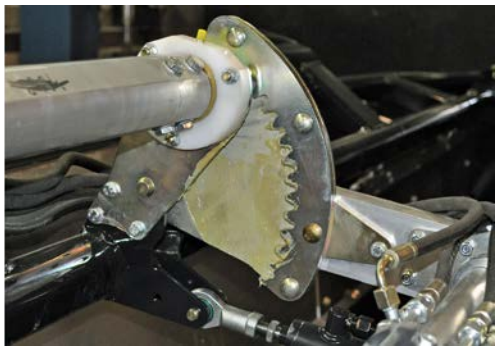
Position of the flow divider on the first vertical beam on the RH side of the center

- in = Supply from the central hydraulic system (on the flow divider, the infeed is labeled "in")
- out = Outfeed line to the RH or LH support arm group
- closed = must be closed with a plug



Flow divider

Mechanical simultaneous control system for the RH and LH support arm groups



Simultaneous control system

Place and fasten the star conveyor exactly above the center of the picking row.

Star conveyor

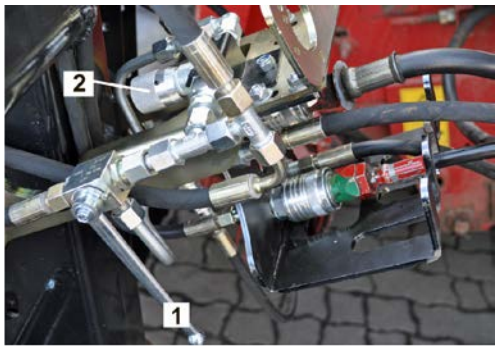
Connection, RH support arm

Connection, support arm

All hydraulic cylinders are equipped with an adjustable piston rod for exact alignment of the positions of the support arms in relation to each other.

Cylinder, adjustable

Example: Hose coupling Case AF ../..



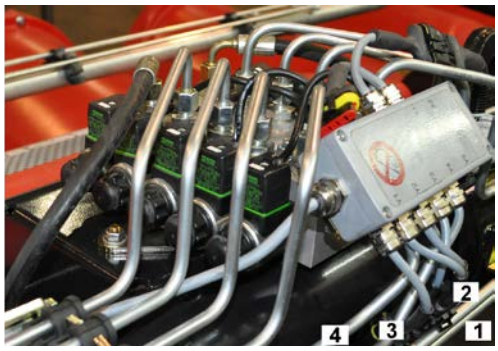
1. Ball valve for deactivating the sweeper
2. Auger speed reduction valve for regulating the rotational speed of the end row augers

4.4 Wiring overview, 2-armed, foldable version

Sweeper retrofitting, foldable corn header

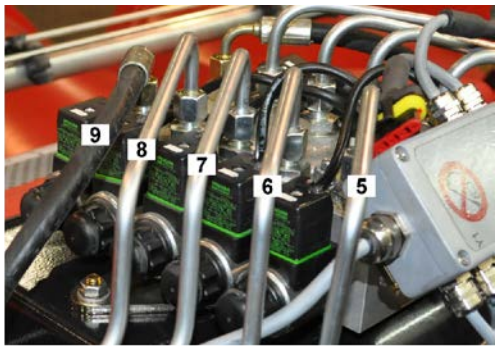
Central hydraulic system arrangement

1. Return flow, augers
2. Supply, augers
3. T central hydraulic system
4. P central hydraulic system



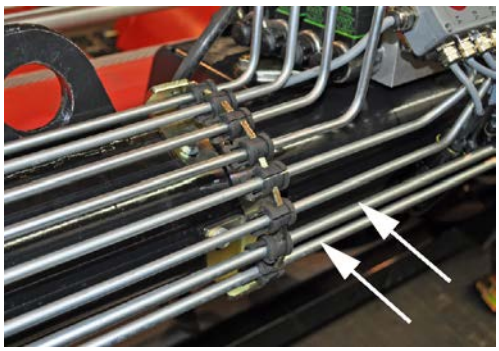
Central hydraulic system

5. Deck plates
6. Sweeper, vertical
7. Sweeper, horizontal
8. Corn header locking mechanism
9. Corn header folding mechanism



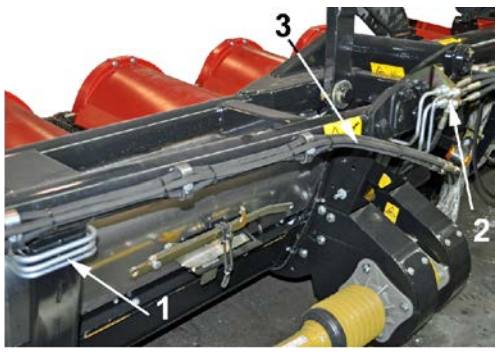
Central hydraulic system

- Arrangement of eight pipe lines on the LH side, if end row augers are installed.
- If no end row augers are installed, the two bottom lines are not equipped.



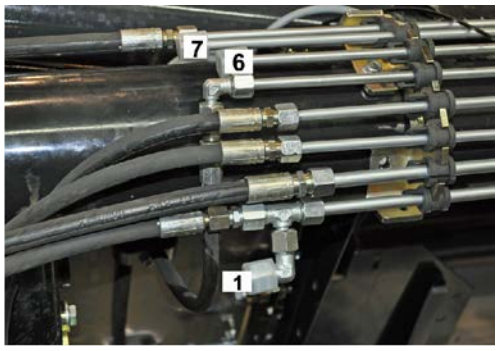
LH arrangement

- Installed pipe line to the auger drive (1)
- Connection and fastening on pivot point (2)
- A hose line (3) may be used as an alternative (depending on the model)



Pipe hose line

- T-fitting with connection bracket for return line of the LH auger (1)
- Connection of the sweeper vertical adjustment not connected in fig. (6)
- Connection of the sweeper horizontal adjustment not connected in fig. (7)

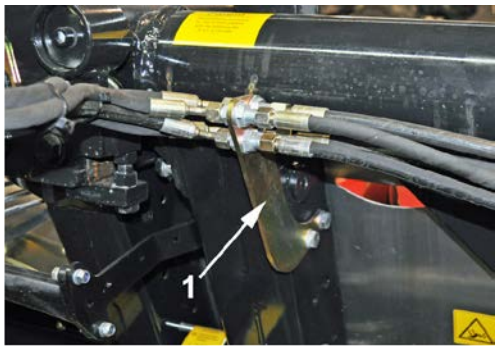


T-piece, vertical and horizontal connection

- Holder of hose group on foldable part (1). Line to picking plate adjustment (2), 12 rows.

Holder on foldable part

1. Holder of hose group on center section (1)

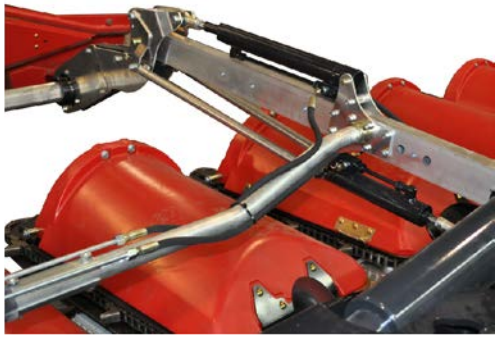


Holder on center section

Hose line to the auger drive


Auger drive

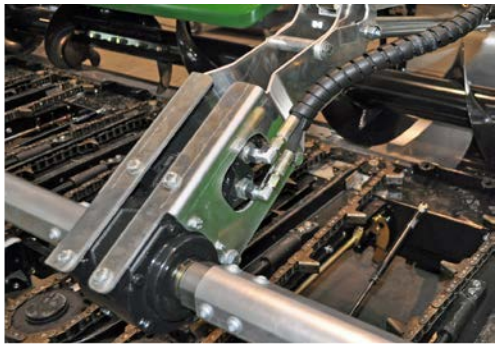
Curved connecting pipe with hose/pipe line



Curved connecting pipe

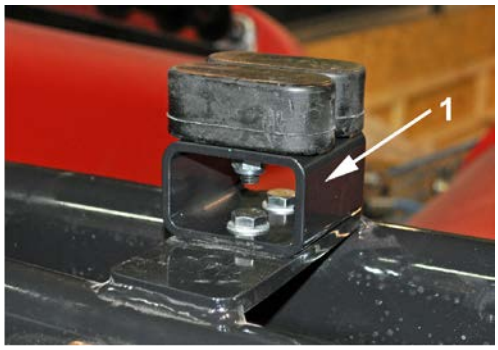
Hydro motor connection

- The rotational direction can be changed by interchanging the connection lines



Hydro motor connection

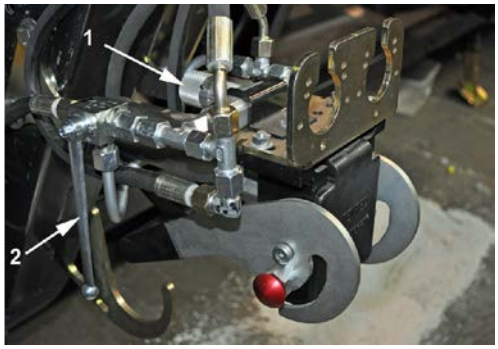
- Intermediate piece (1) placed beneath the buffer on the center frame to ensure sufficient space for the sweeper when it is folded in.



Intermediate piece placed beneath the buffer

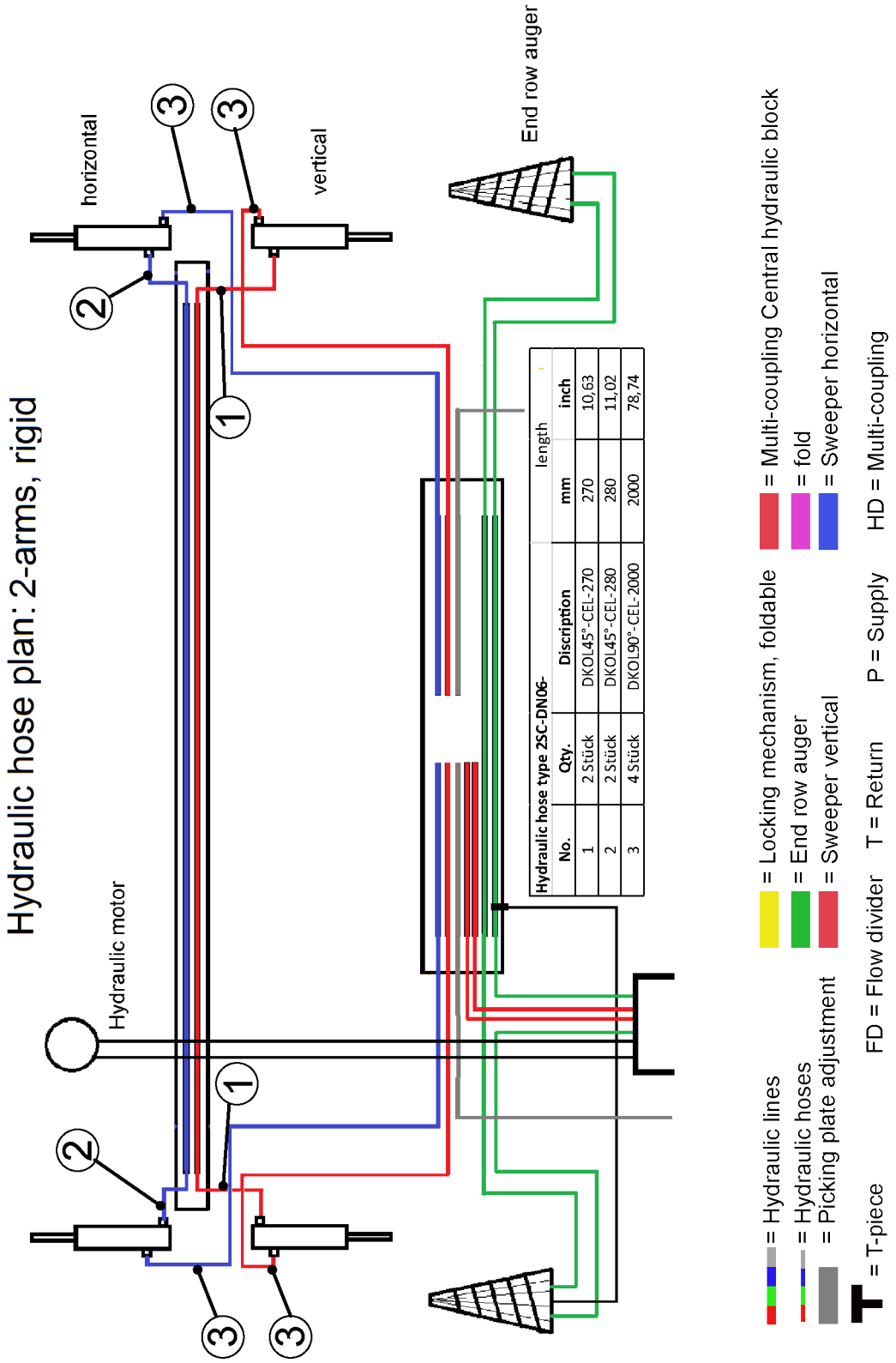
Example multi-coupling CNH:

1. Auger speed reduction valve
2. Ball valve for activating and deactivating the sweeper.

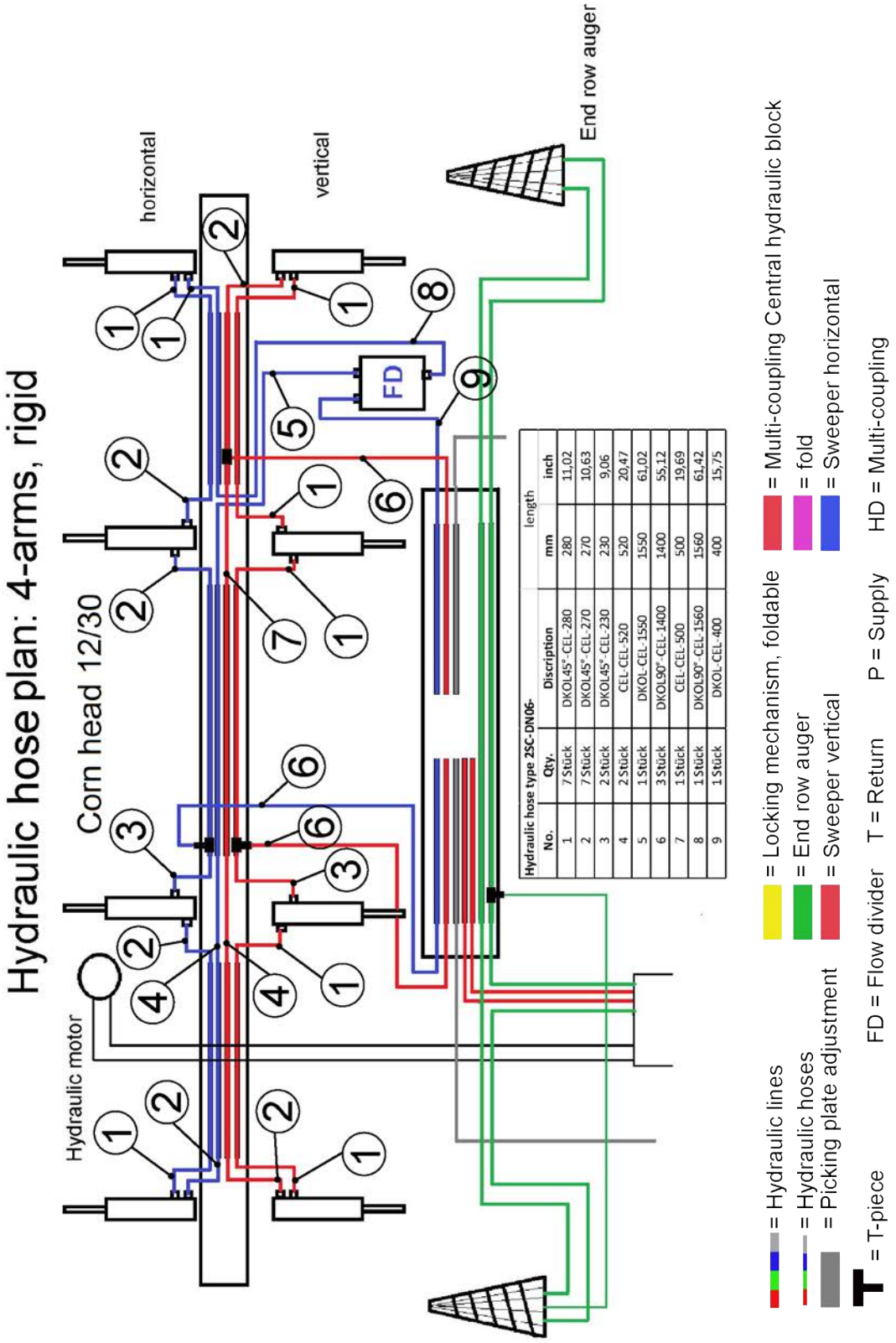


Multicoupling CNH

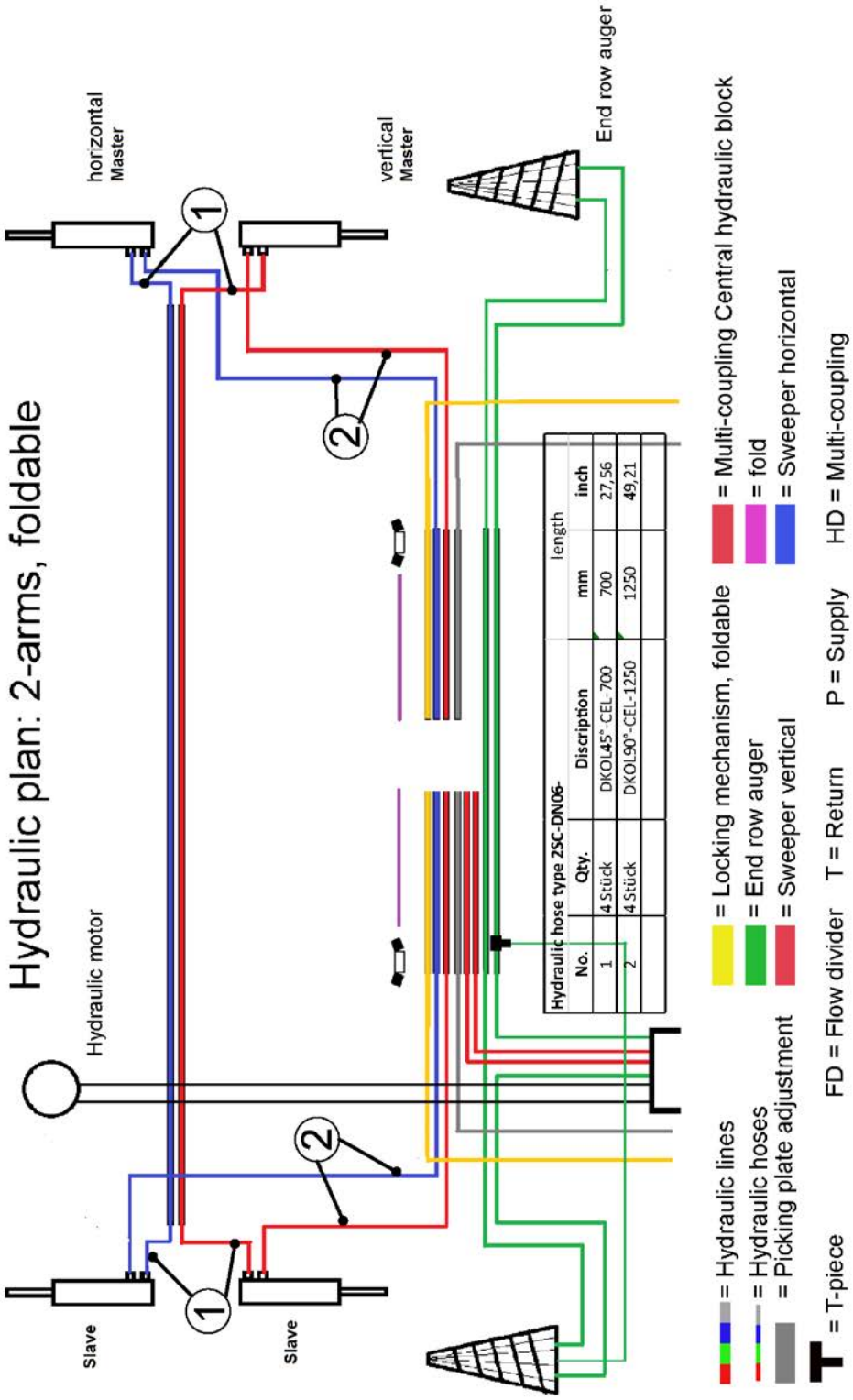
4.5 Hydraulic hose plan, 2-arms, rigid



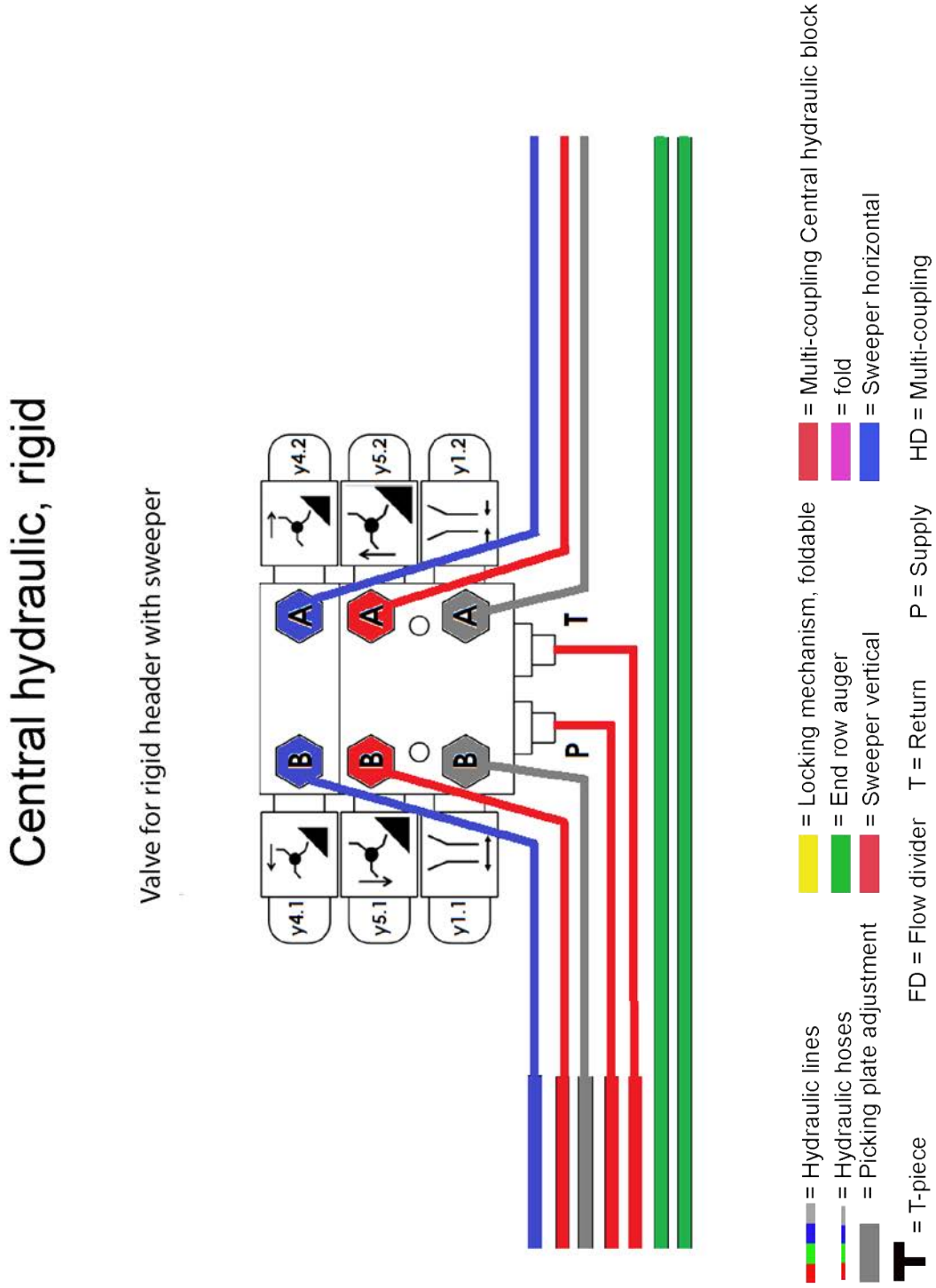
4.6 Hydraulic hose plan, 4-arms, rigid



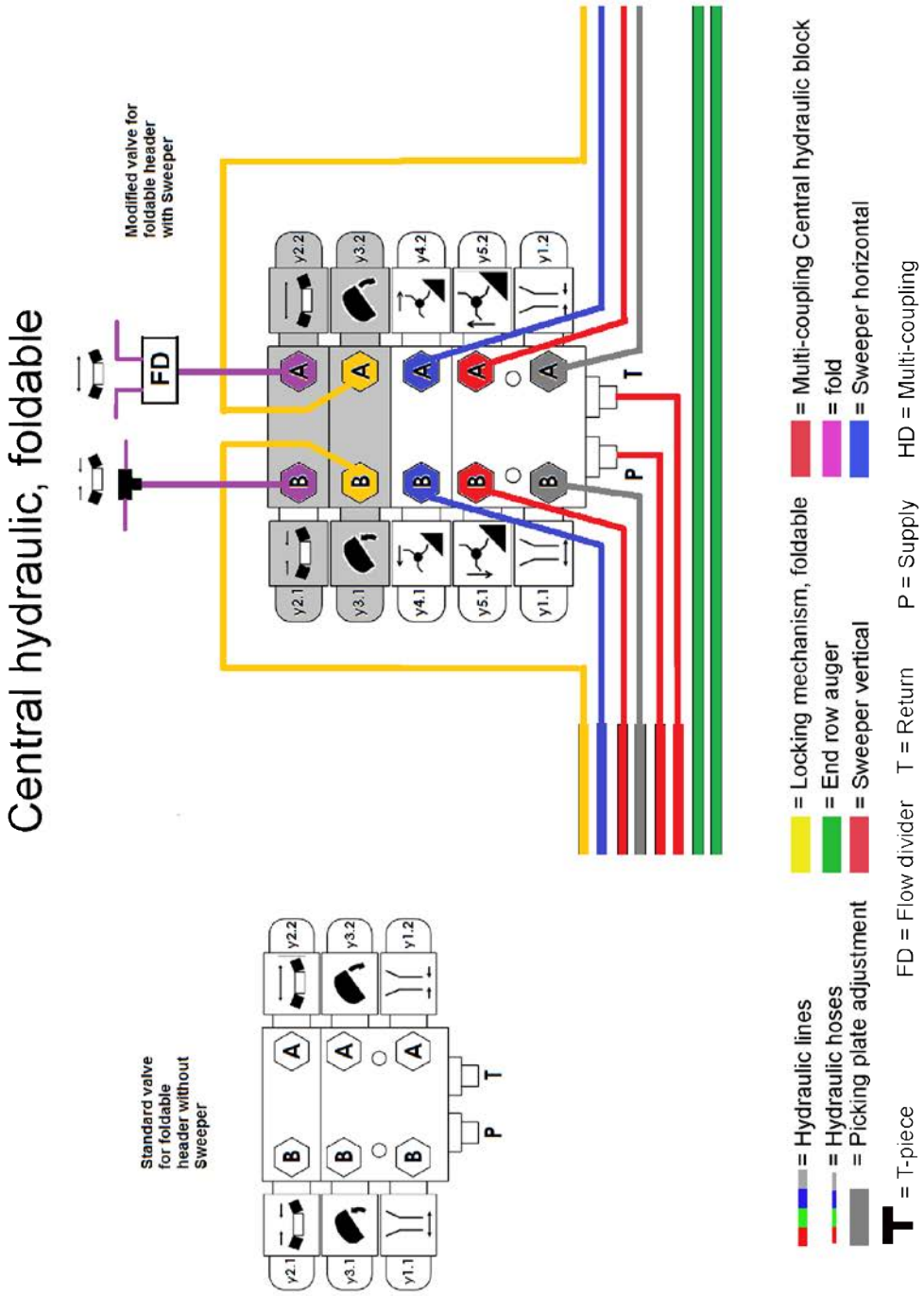
4.7 Hydraulic hose plan, 2-arms, foldable



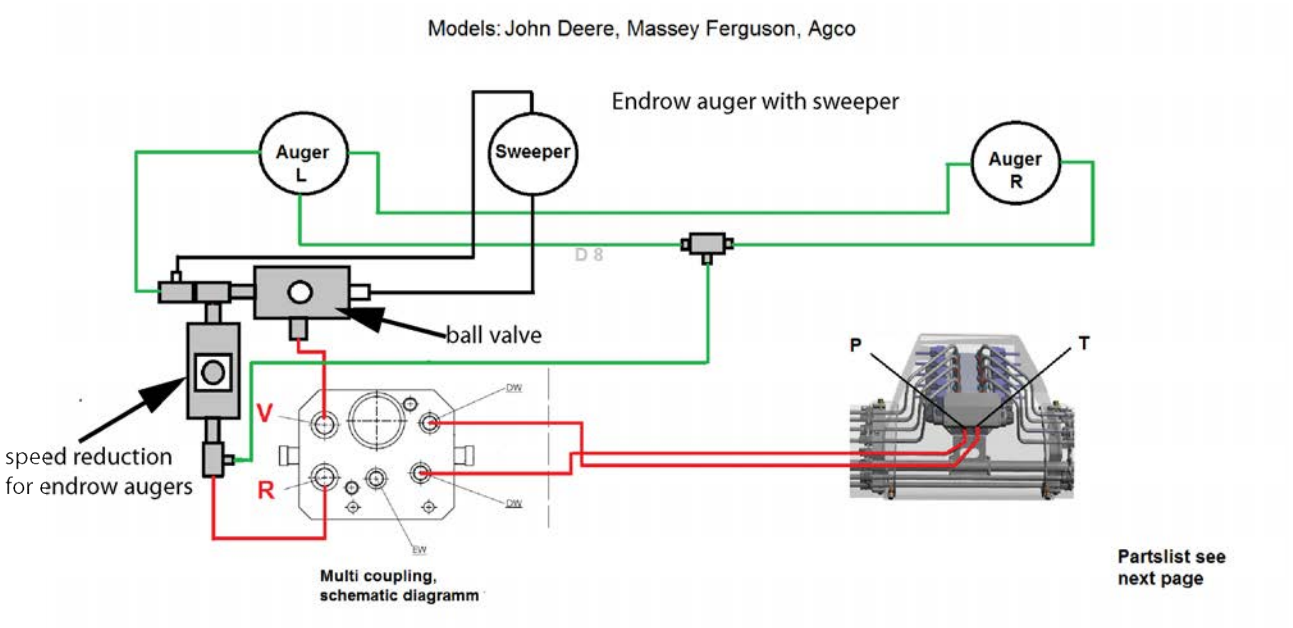
4.8 Diagram Central hydraulic, rigid

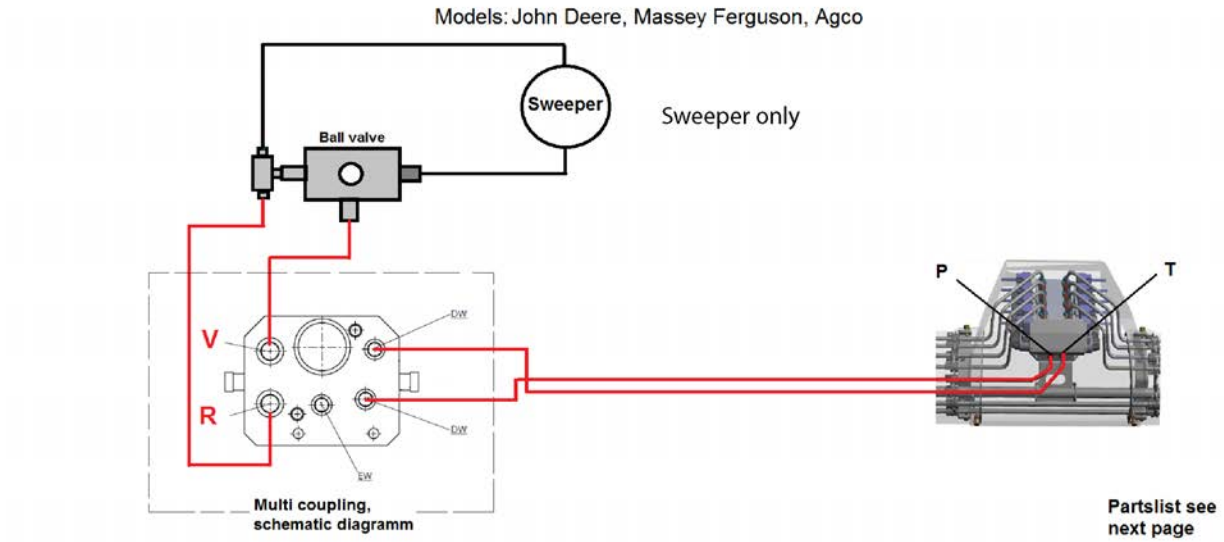


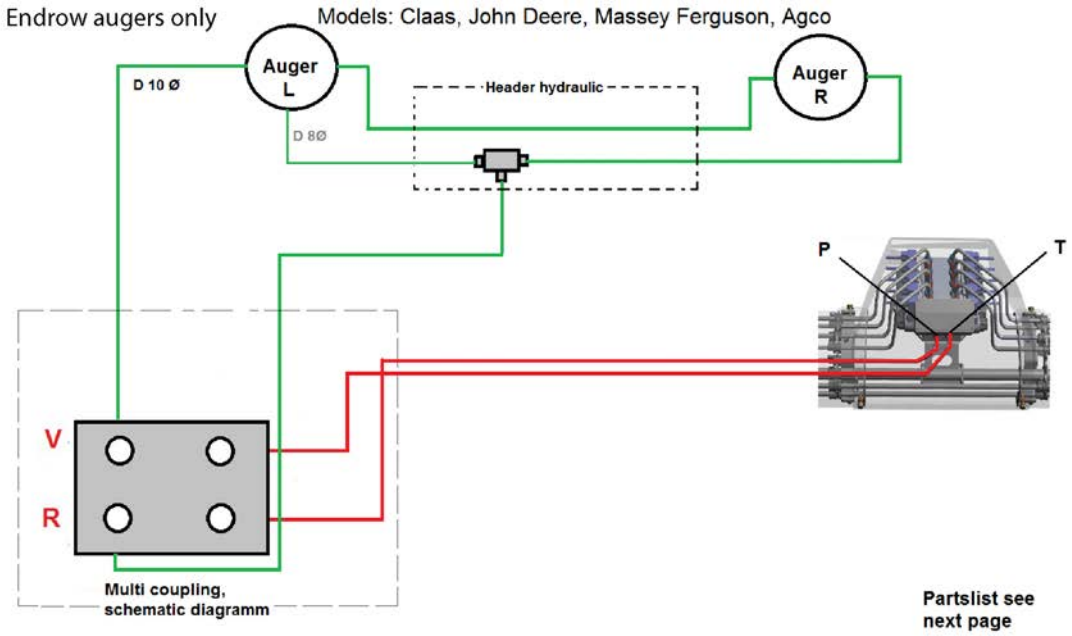
4.9 Diagram Central hydraulic, foldable



4.10 Hydraulic diagram for John Deere, Massey Ferguson and Agco

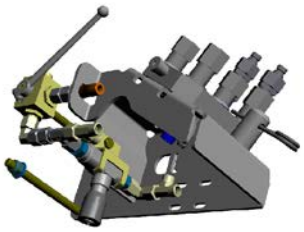






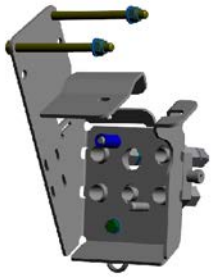
4.11 Multi coupling John Deere, Massey Ferguson and Agco

John Deere



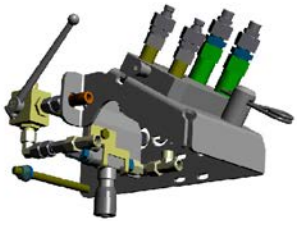
Sweeper and auger

Sweeper

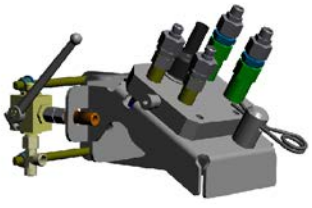


Auger

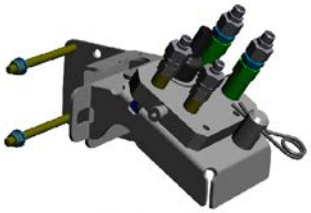
Massey Ferguson / Agco



Sweeper and auger

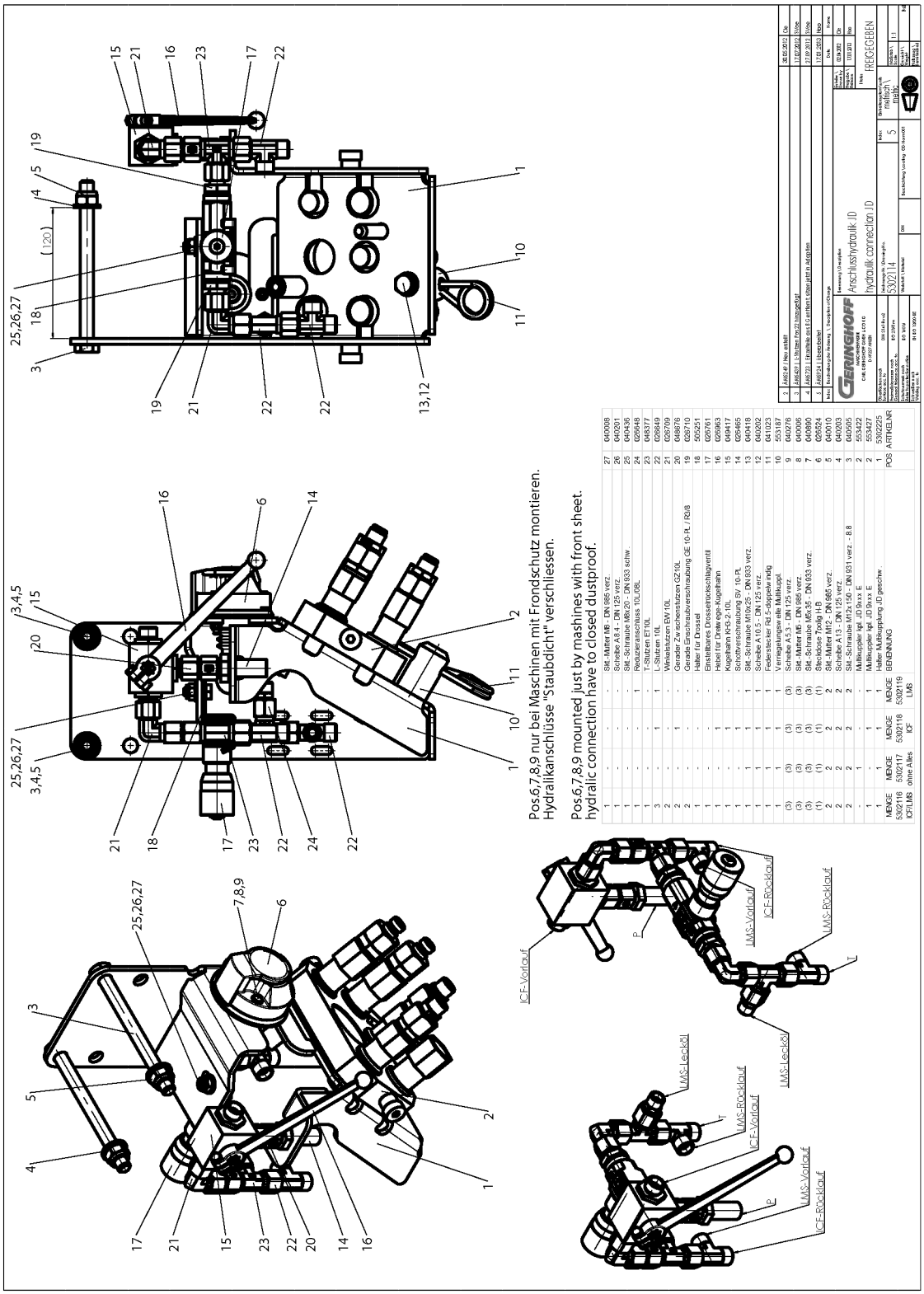


Sweeper

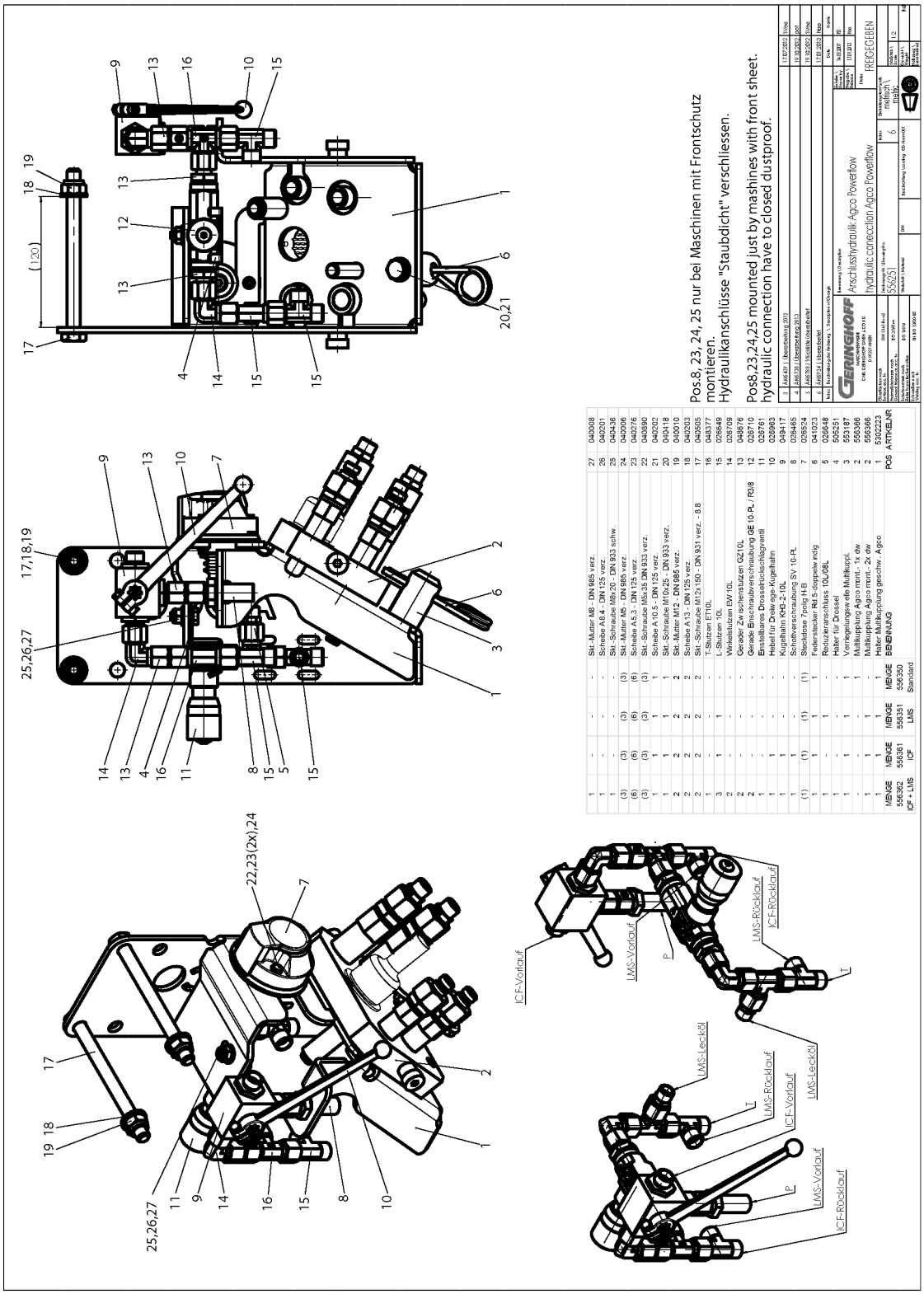


Auger

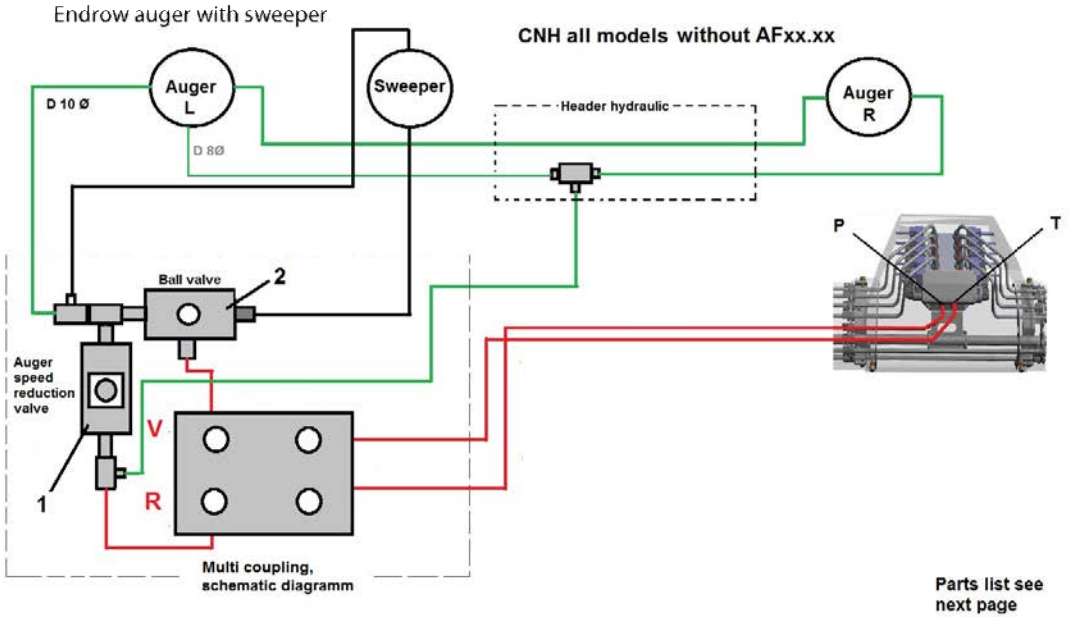
4.12 Hydraulic connection John Deere

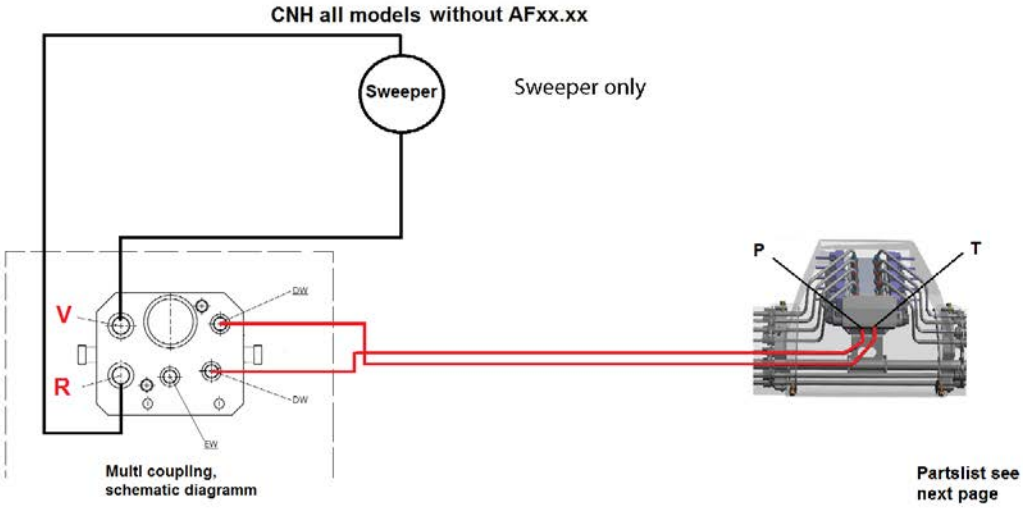


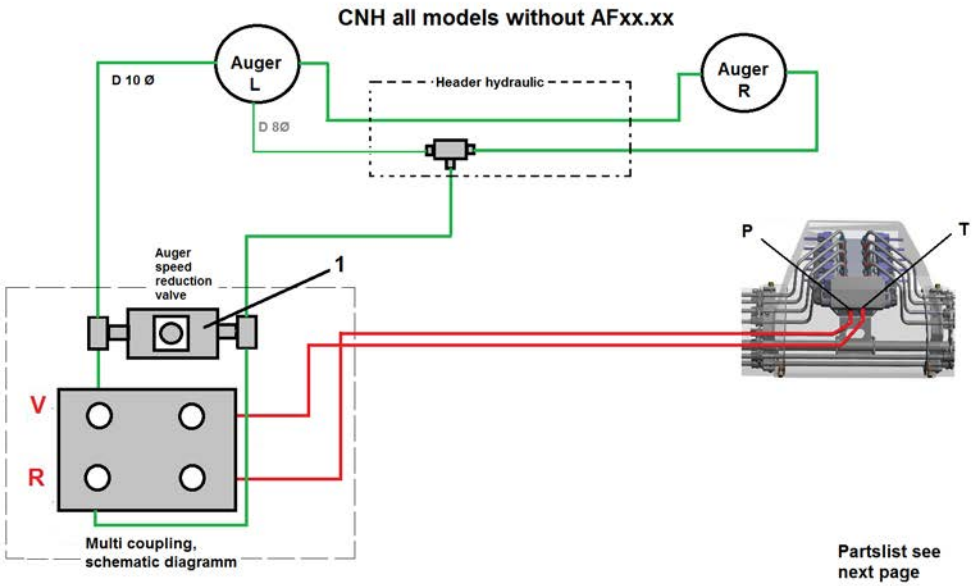
4.13 Hydraulic connection Massey Ferguson, Agco



4.14 Hydraulic diagram for New Holland and Case

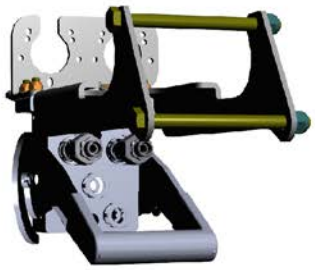




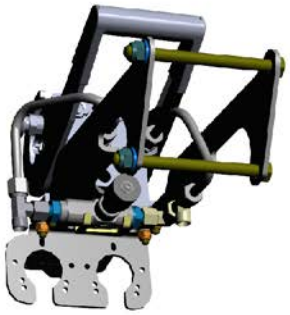


Multi coupling New Holland and Case

Sweeper and auger

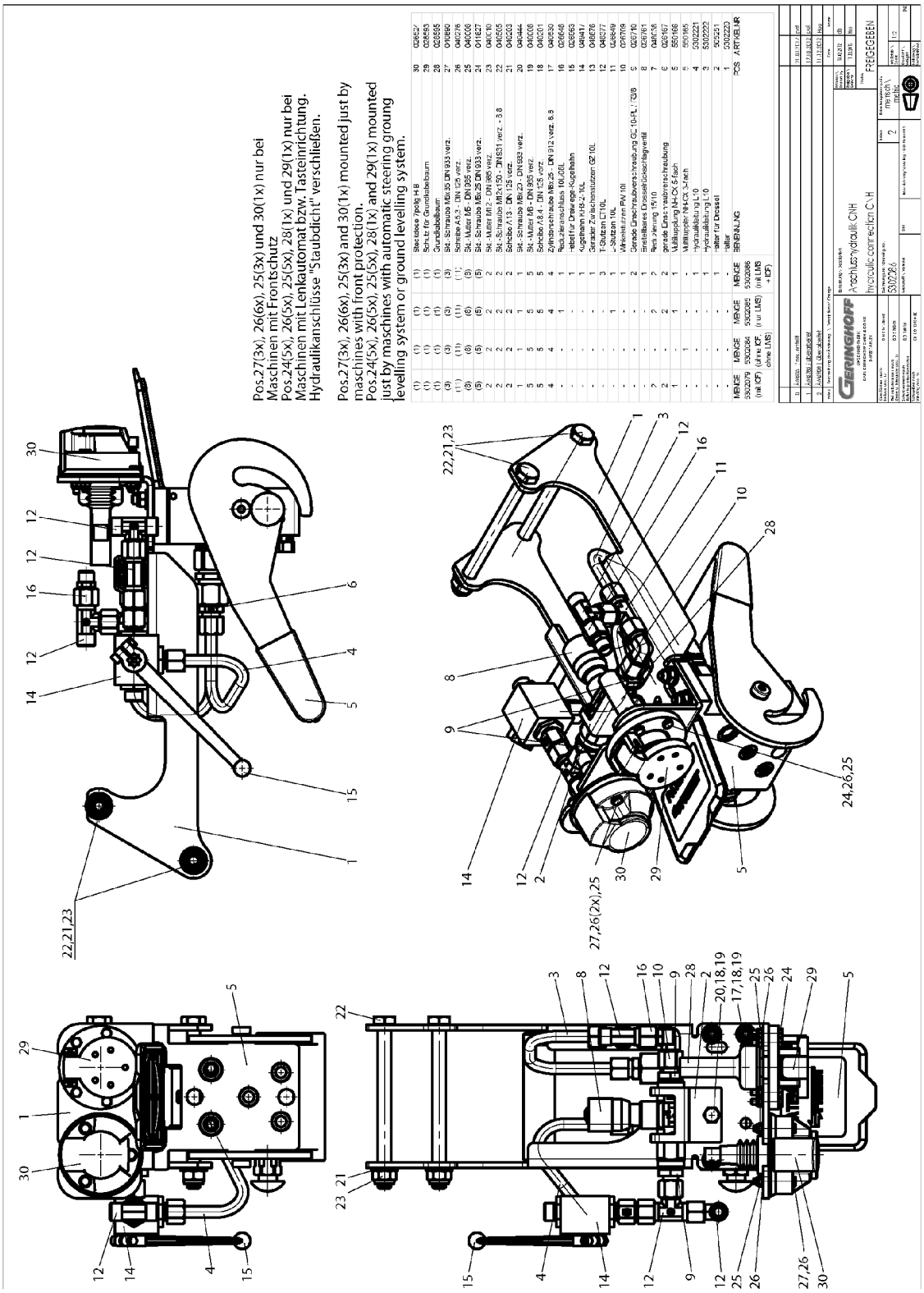


Sweeper

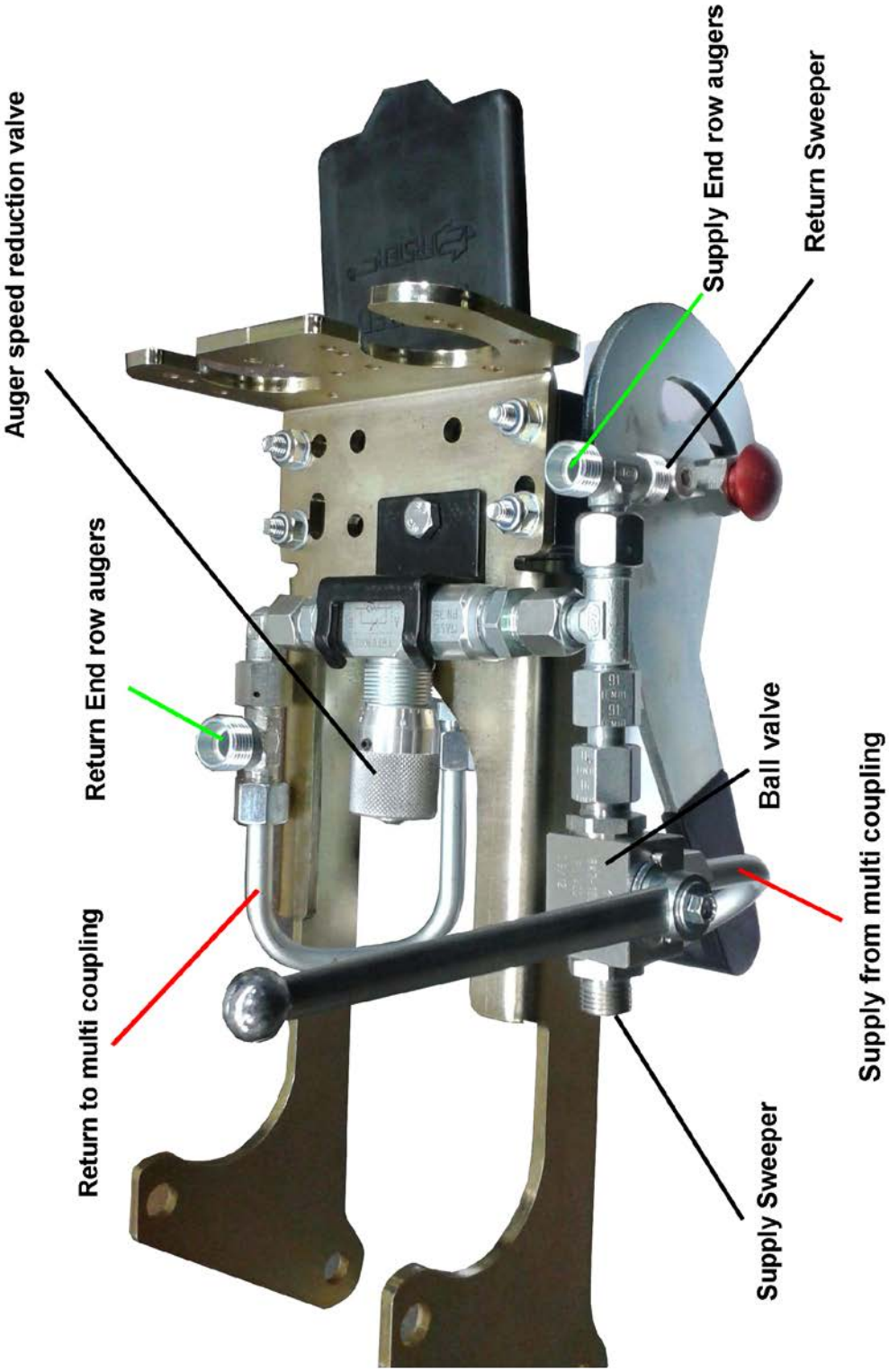


Auger

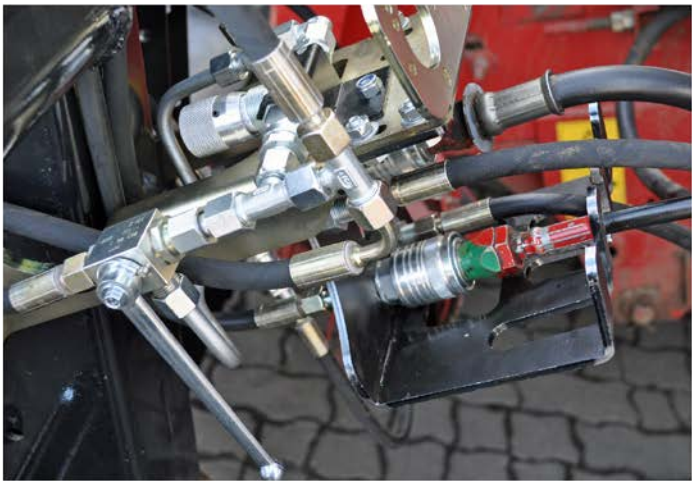
4.15 Hydraulic connection Case and New Holland

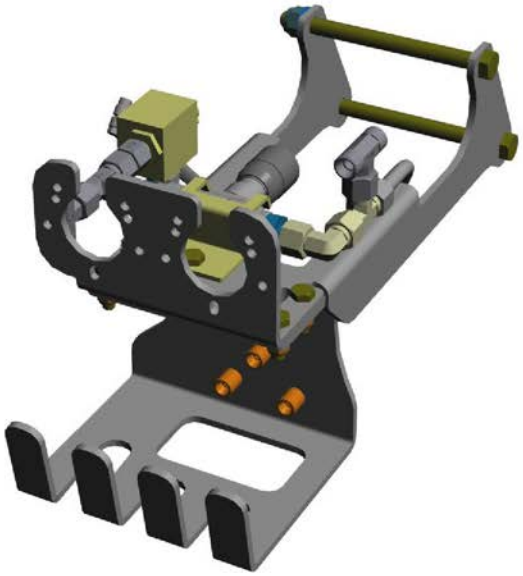


4.16 Example multi coupling Sweeper/auger CNH

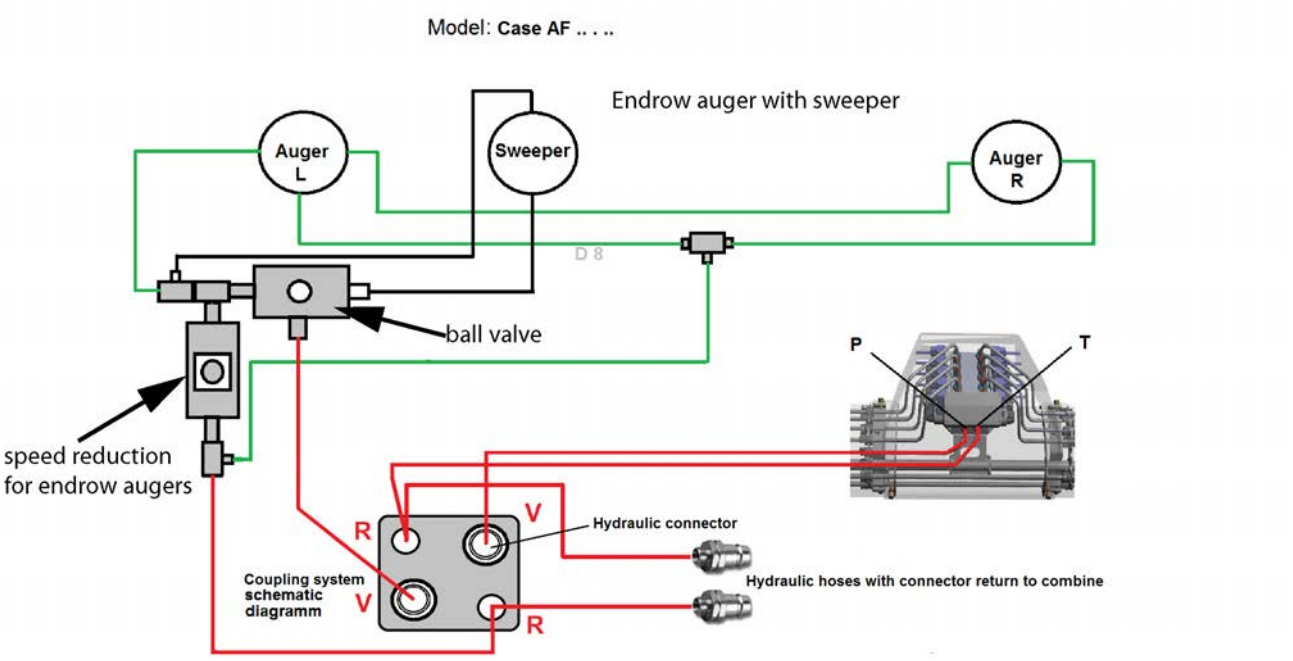


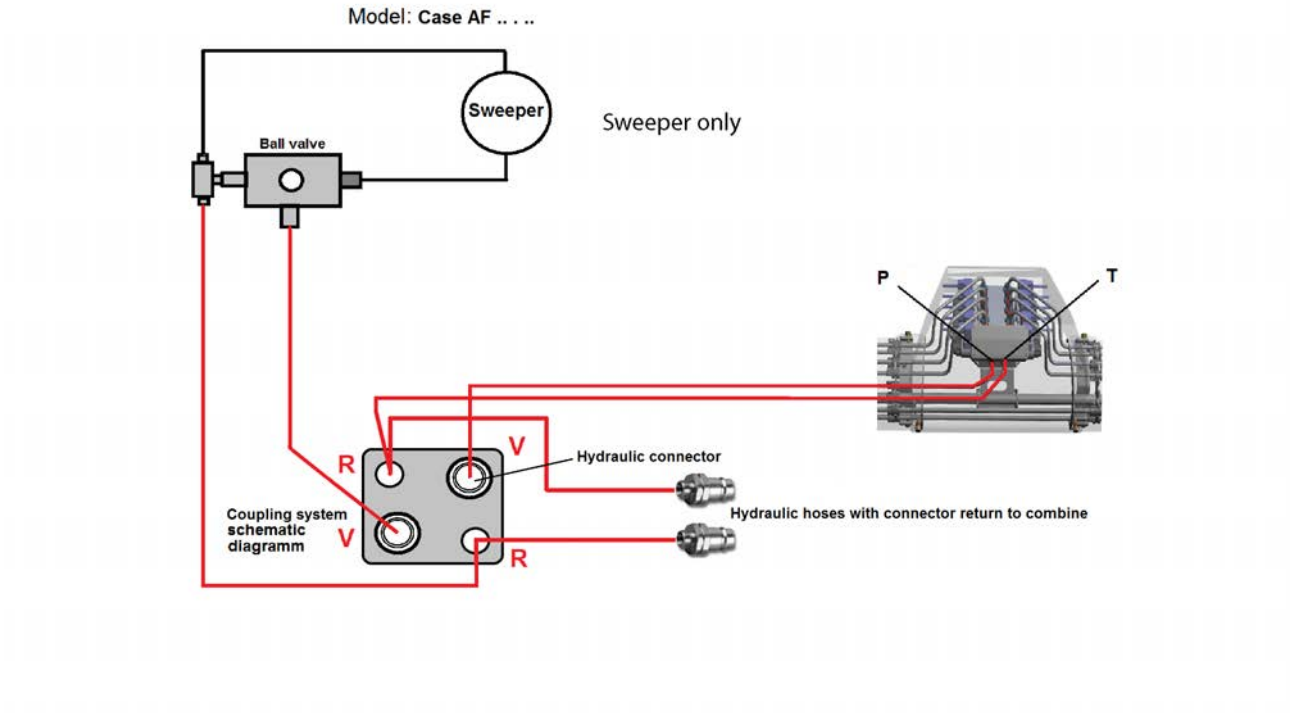
4.17 Coupling system Case / AF

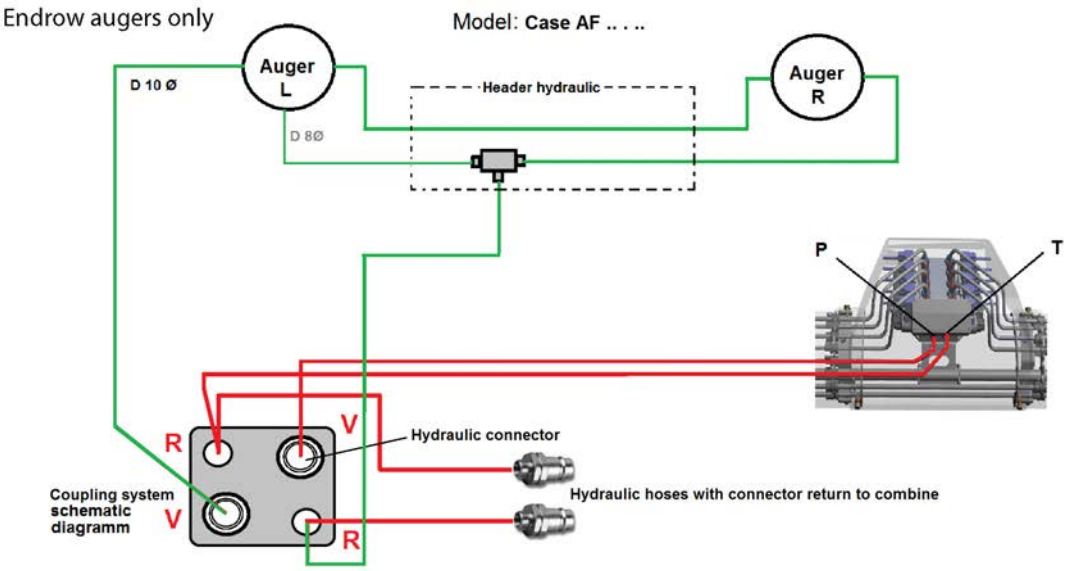




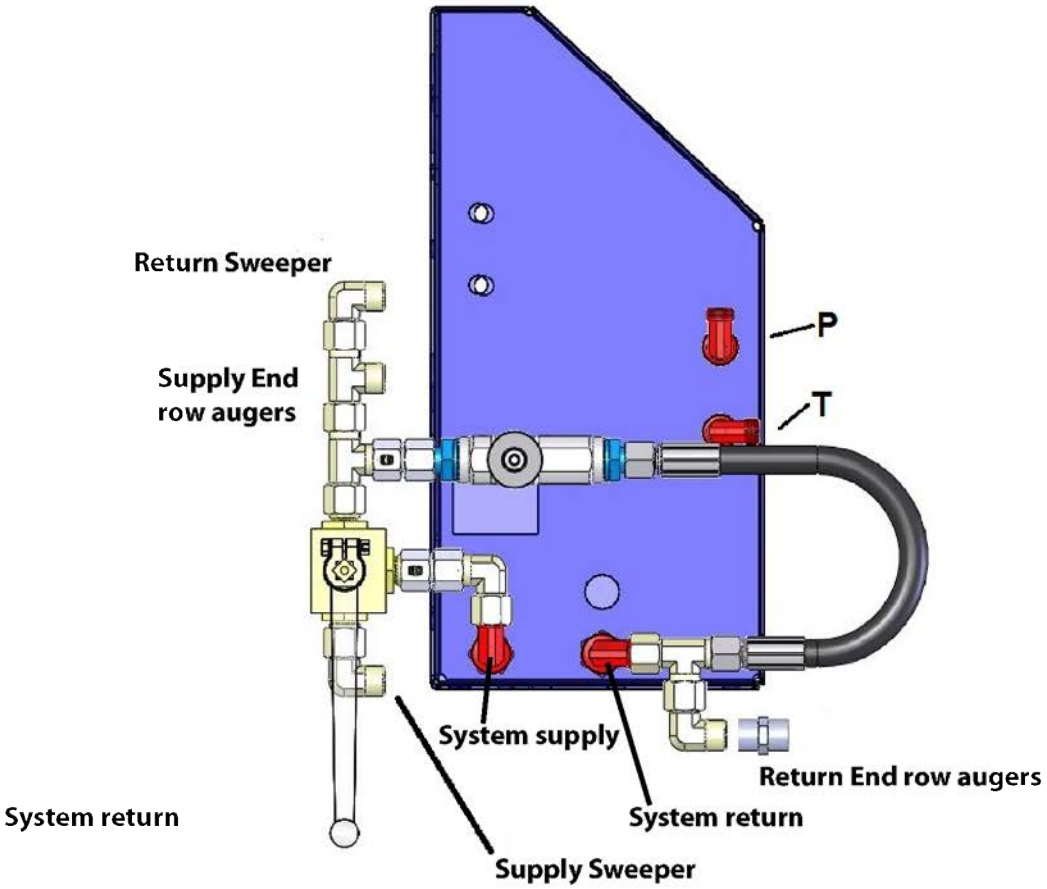
4.18 Hydraulic diagram for Case / AF

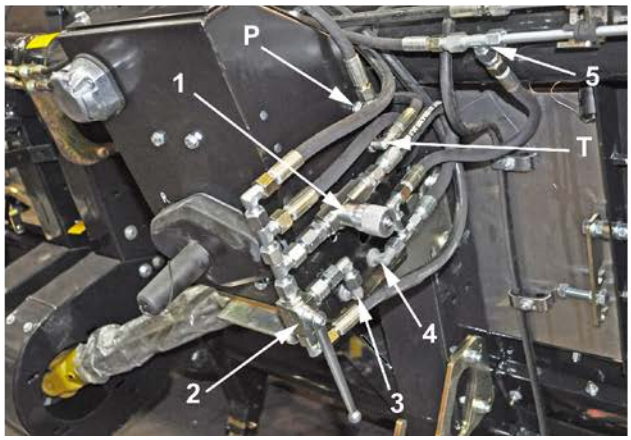





Endrow augers only
Model: Case AF .. . ..
Auger L
Auger R
D 10 Ø
D 8Ø
Header hydraulic
P
T
R
V
Hydraulic connector
Coupling system schematic diagramm
V
R
Hydraulic hoses with connector return to combine

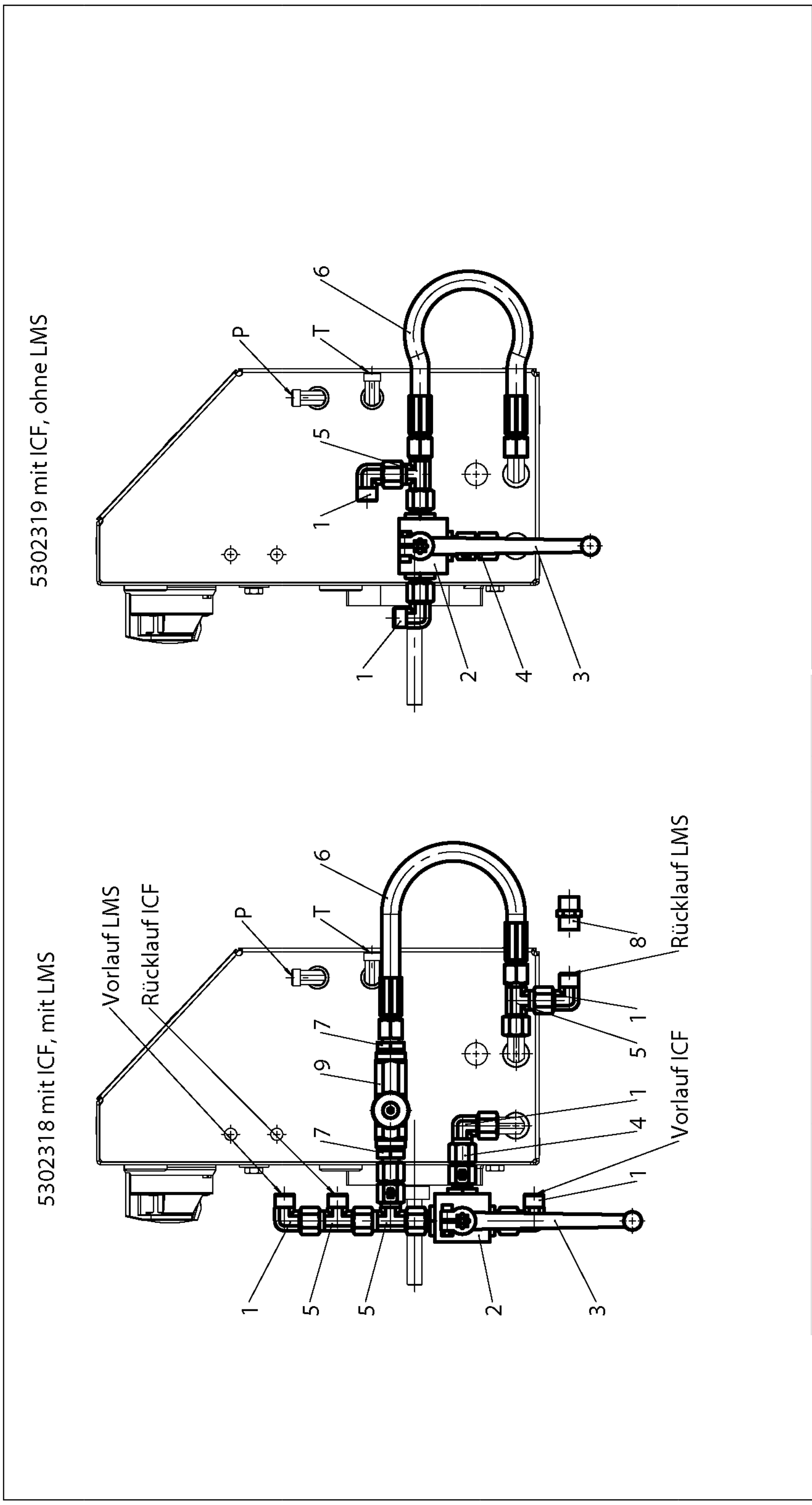
4.19 Multi coupling Lexion





1 = auger speed reduction valve
2 = ball valve
3 = Supply
4 = Return
5 = Return Endrow auger
P = line to central hydraulic block
T = line to central hydraulic block

4.20 Hydraulic connection Lexion



MENGE (5302318 mit ICF, mit LMS)	MENGE (5302319 mit ICF, ohne LMS)	BENENNUNG	POS	ARTIKELNR
1	-	Einstellbares Drosselrückschlagventil	9	026761
1	-	Gerader Stutzen G10L	8	049103
2	-	Gerade Einschraubverschraubung GE 10-PL / R3/8	7	026710
1	1	Hydraulikschlauch Brücke Claas Hydrobox	6	049495
3	1	Einstellbarer L-Anschlussstutzen	5	026649
2	1	Gerader Zwischenstutzen GZ10L	4	048676
1	1	Hebel für Dreiwege-Kugelhahn	3	026963
1	1	Kugelhahn KH3-2-10L	2	049417
4	2	Winkelstutzen	1	026709

0 ÄM6112 | Neu erstellt

GERINGHOFF

Nachrüstsatz Claas Hydrobox +ICF/+LMS

Zeichnungs-Nr. \ Drawing No. 5302318-319

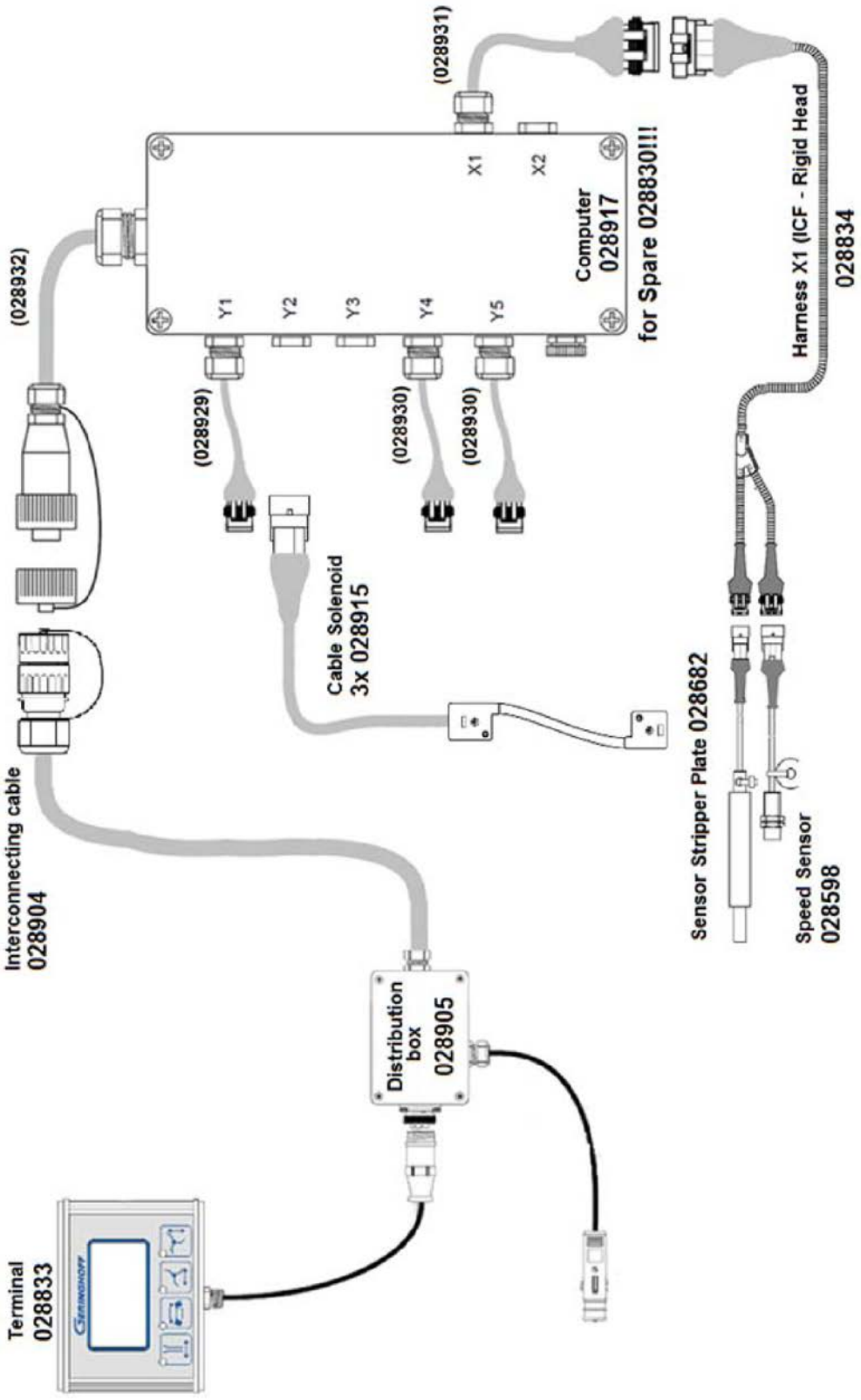
Index 0

metrisch \ metric

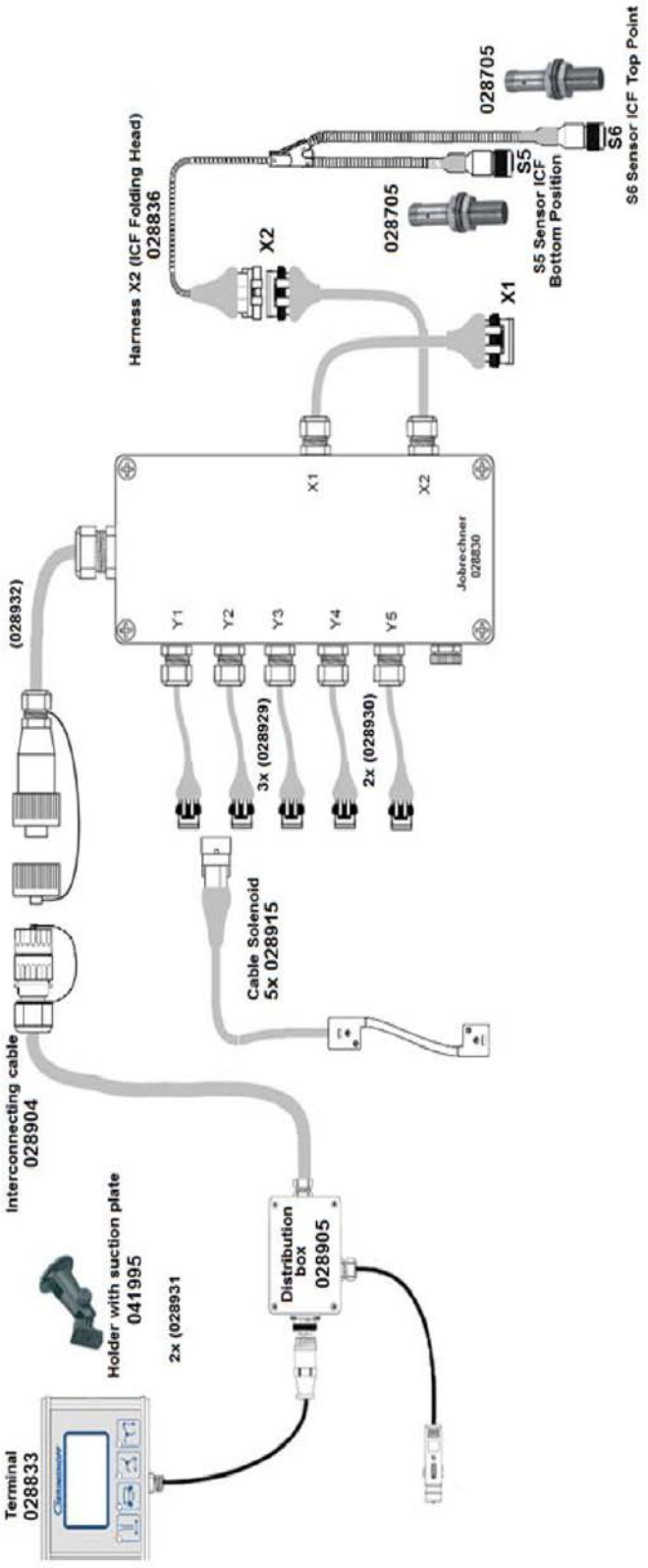
Maßstab \ Scale 1:3

FREIGEGEBEN

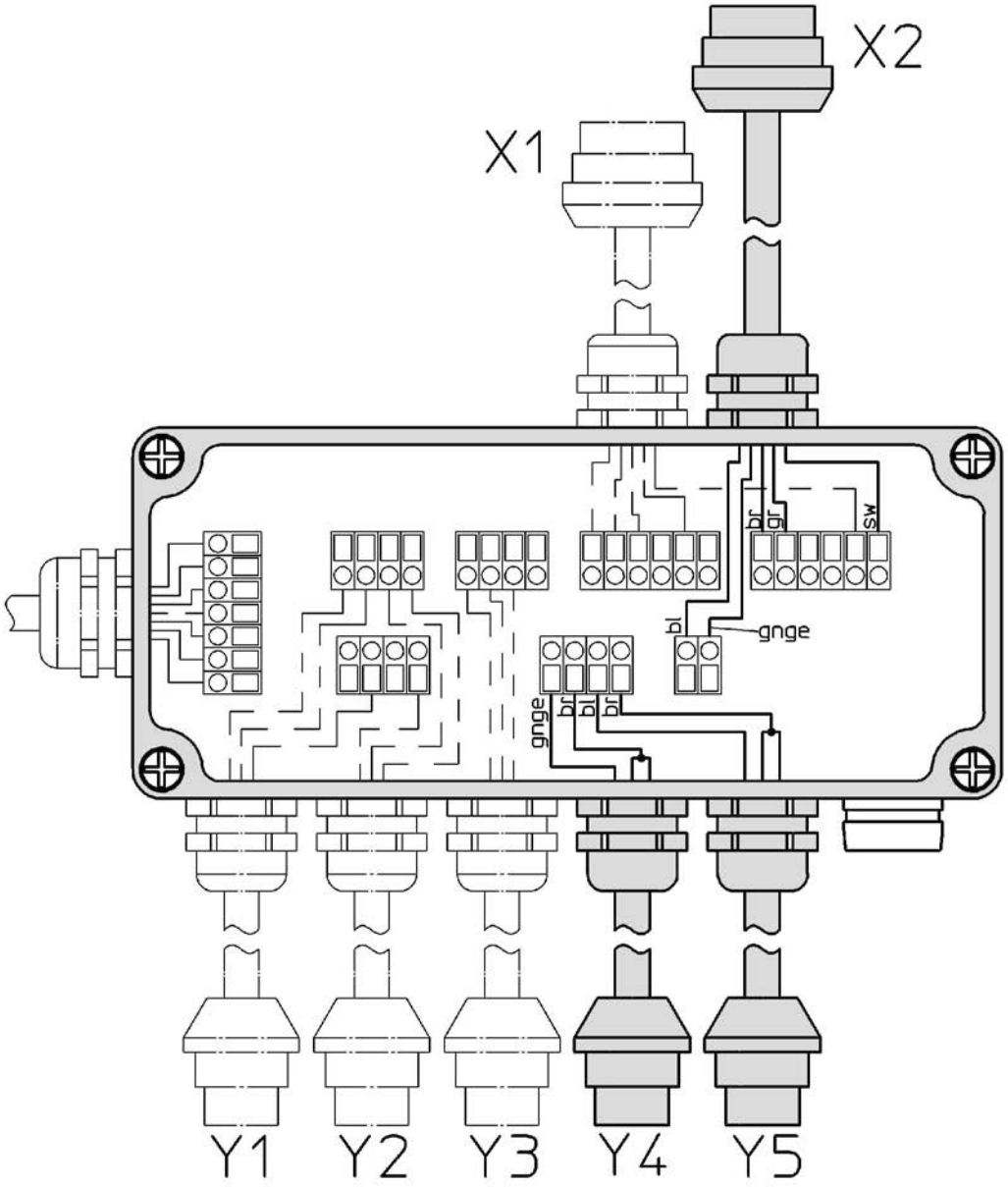
4.21 Electrical wiring diagram, rigid



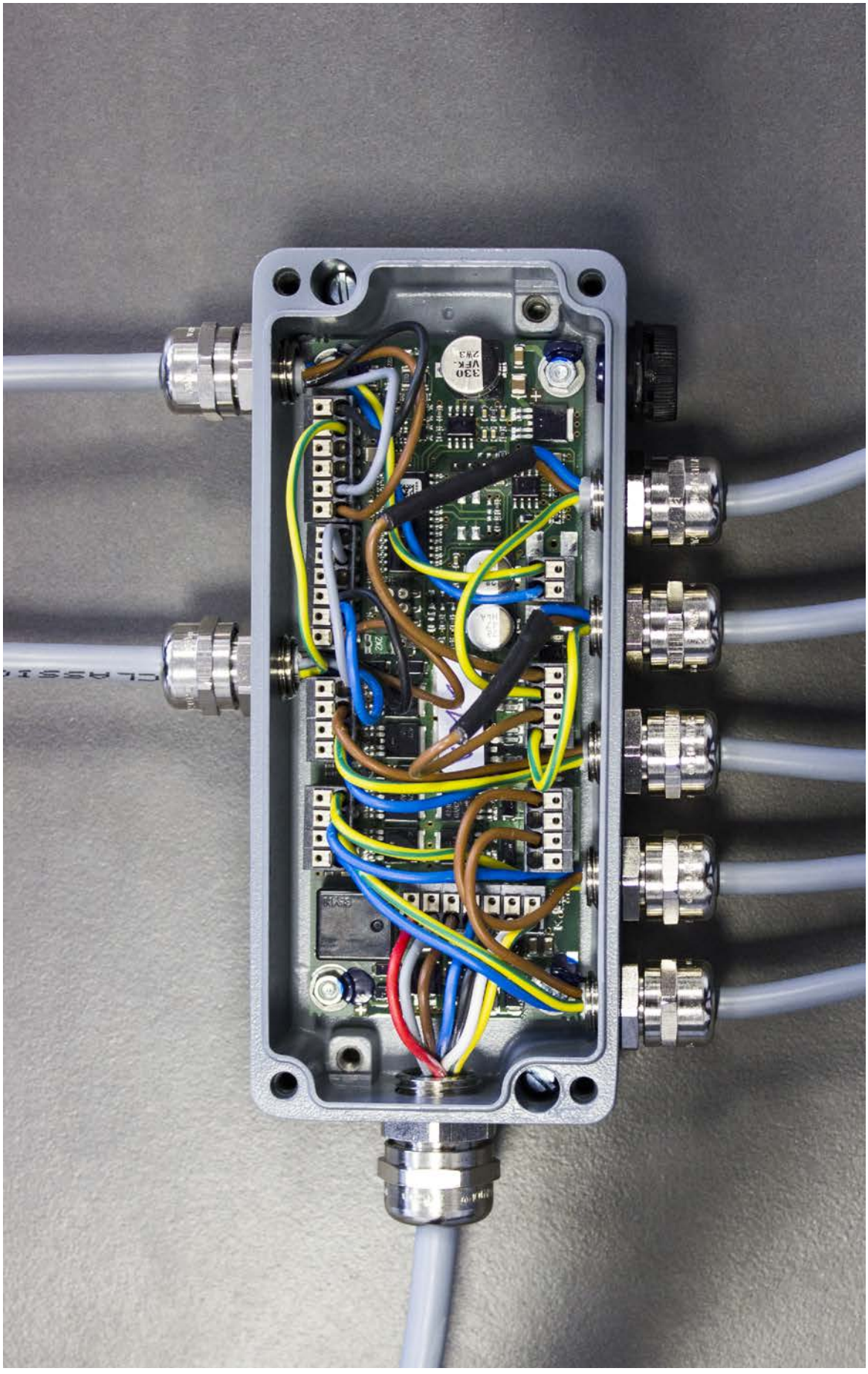
4.22 Electrical wiring diagram, foldable



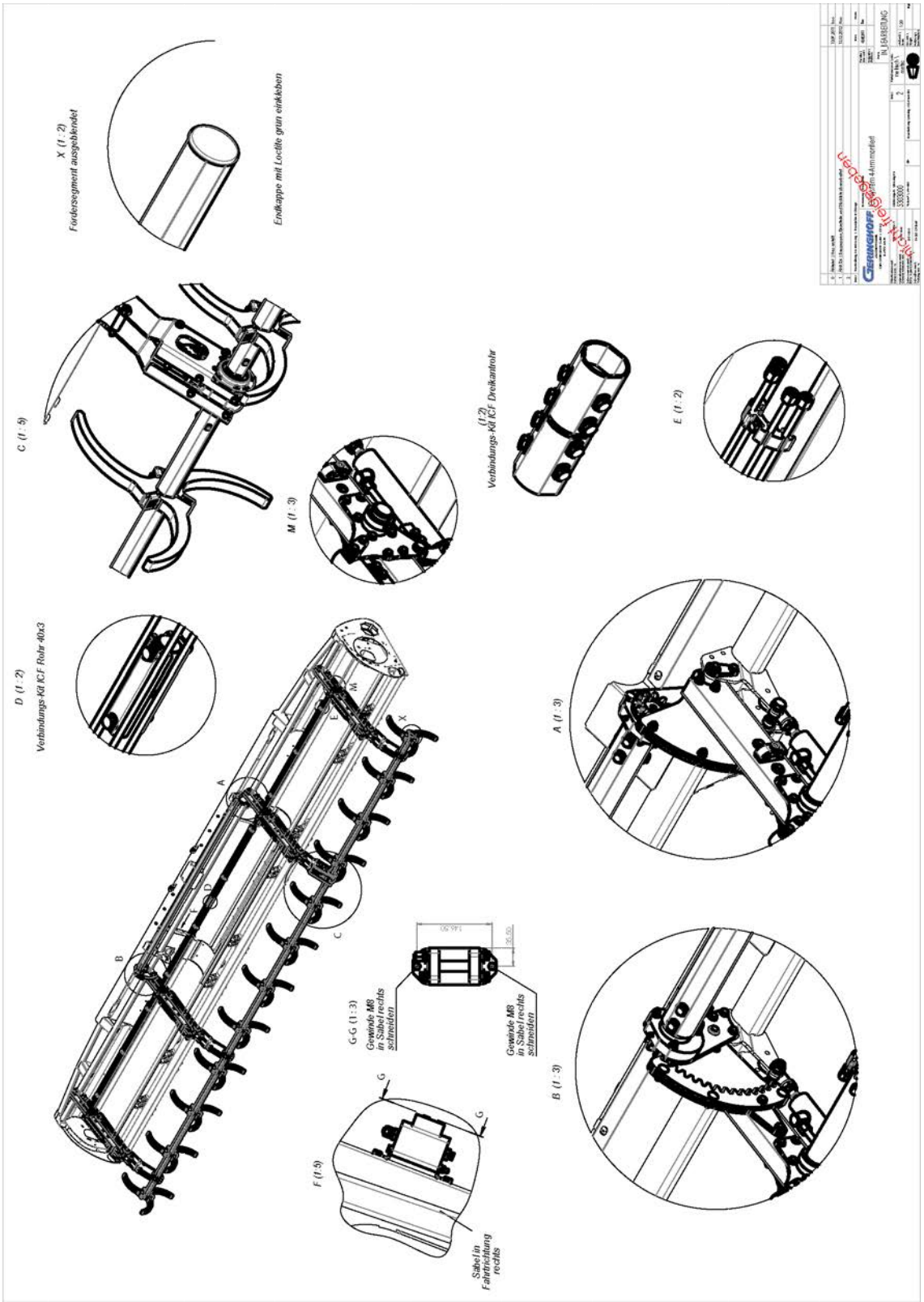
4.23 Electrical switch box, foldable



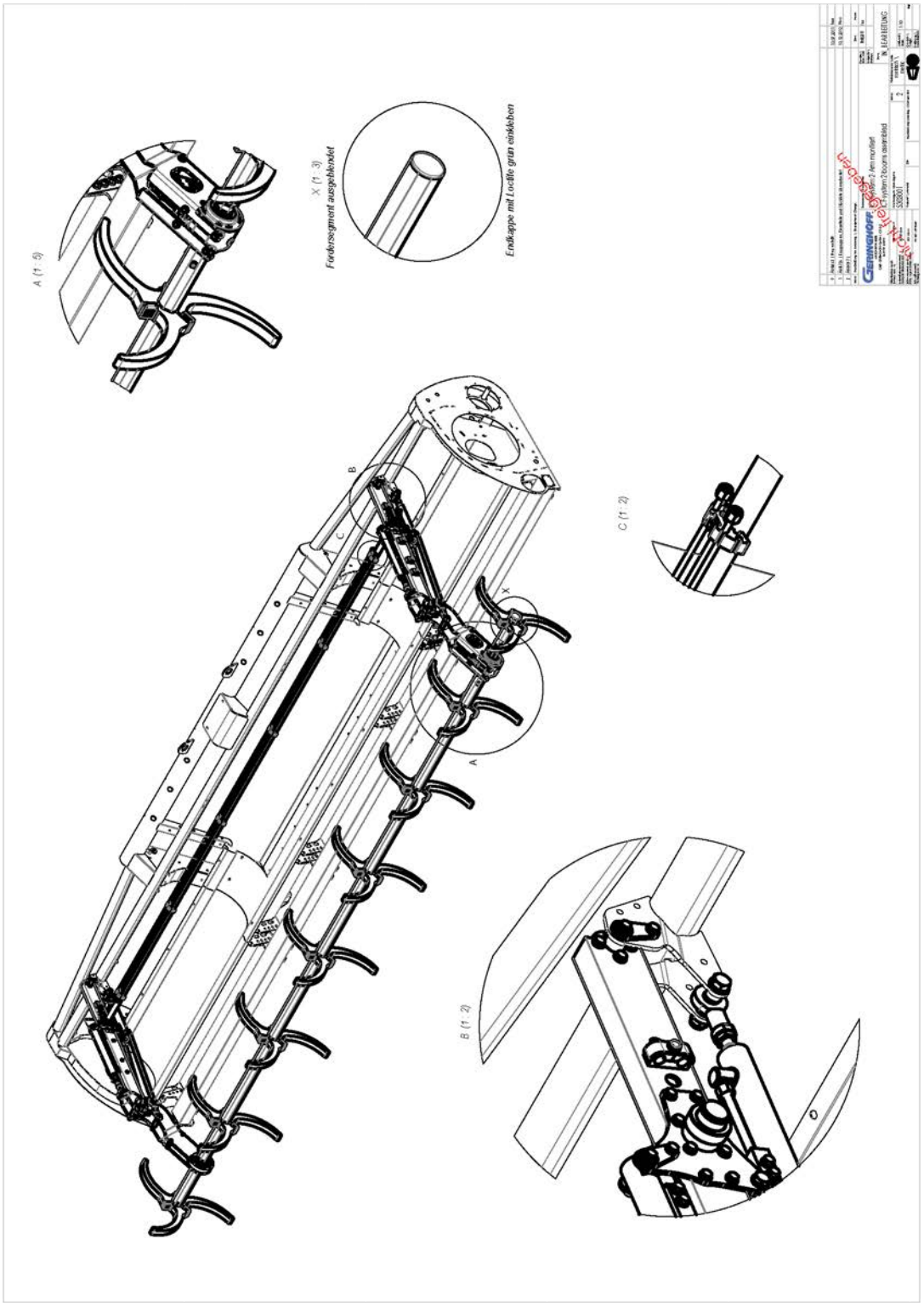
- gnge=green/yellow
- gr=grey
- bl=blue
- sw=black



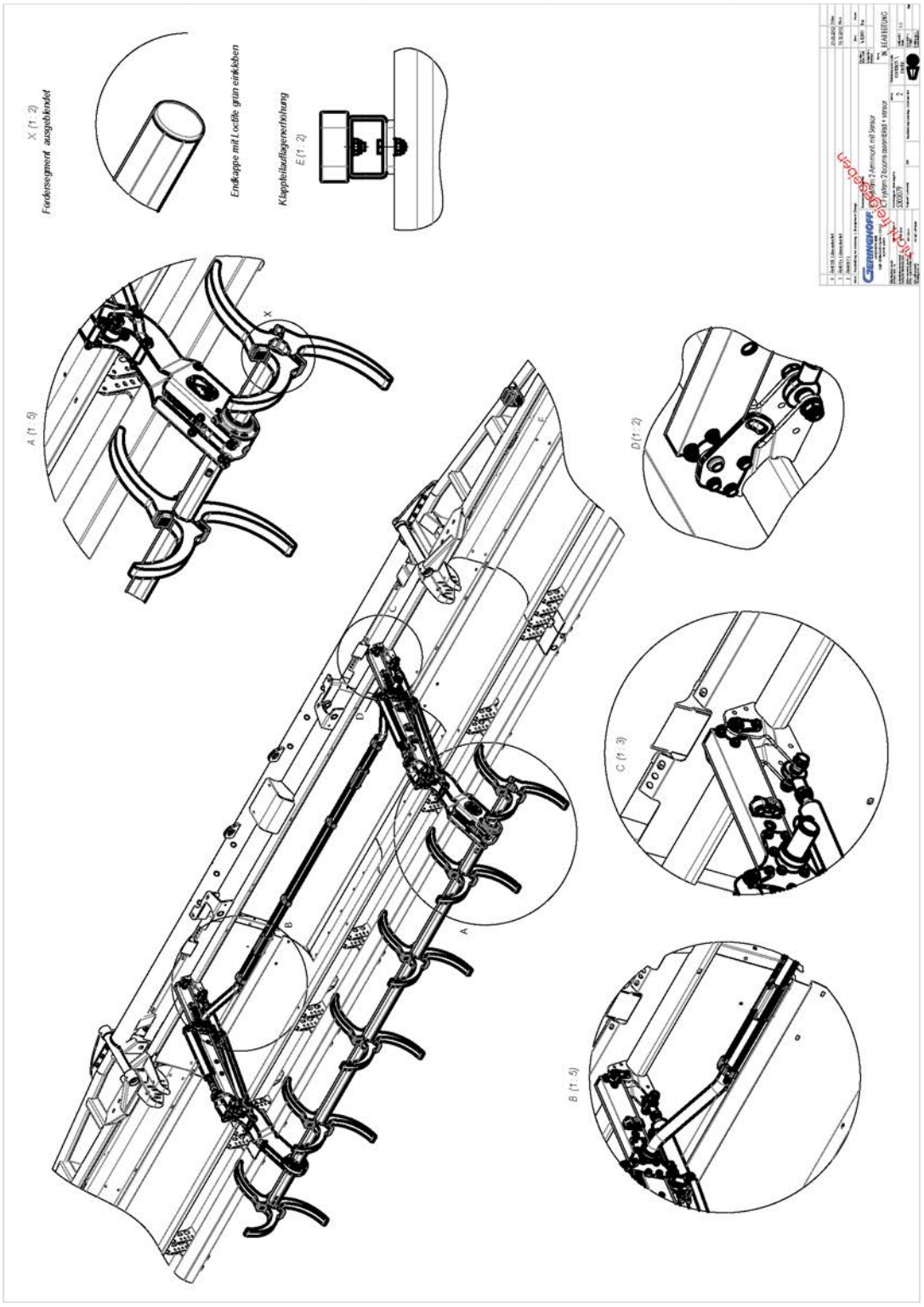
4.24 Drawing 4 arms, rigid



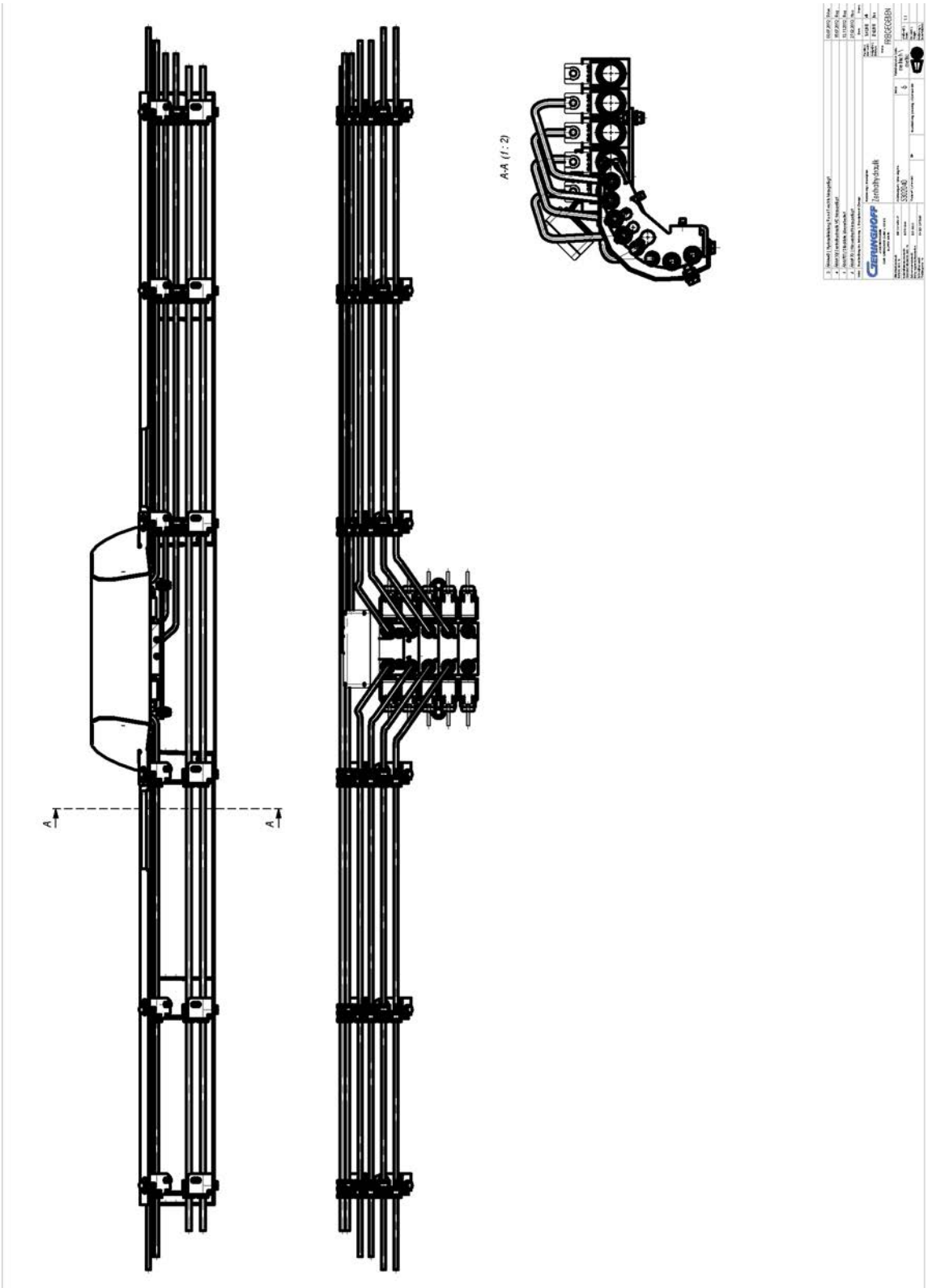
4.25 Drawing 2 arms, rigid



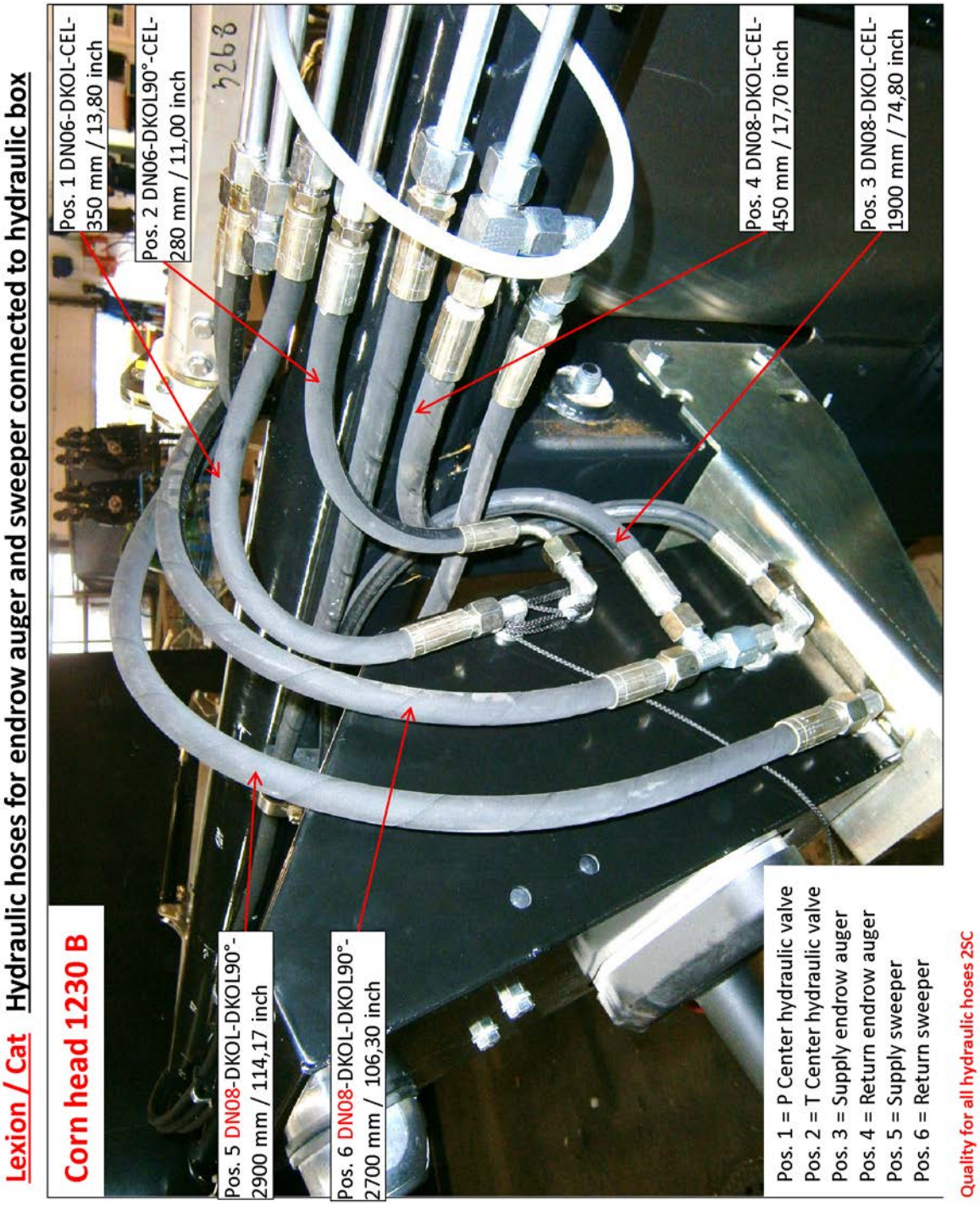
4.26 Drawing, 2 arms, foldable

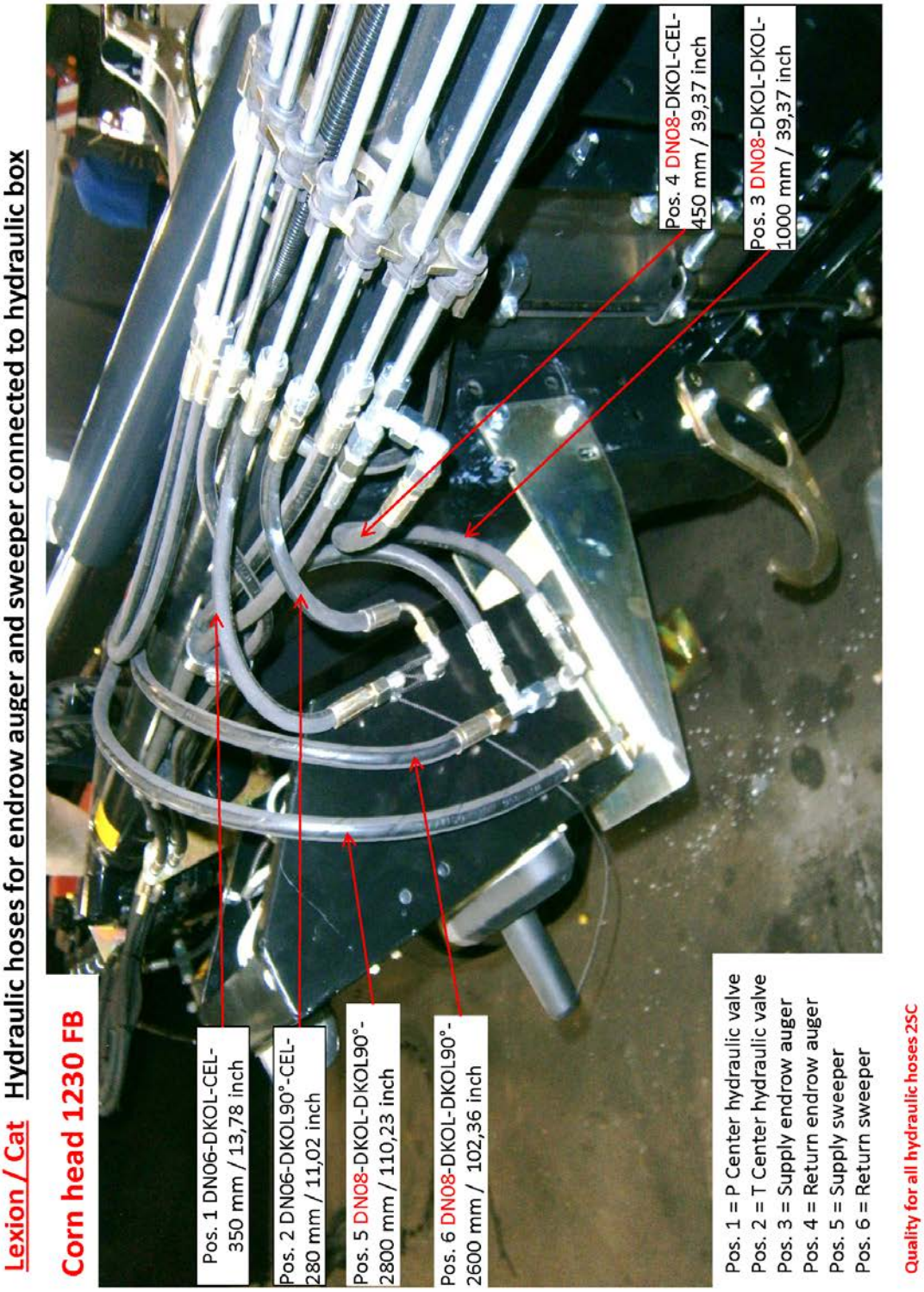


4.27 Drawing 5302040: Hydraulic pipes

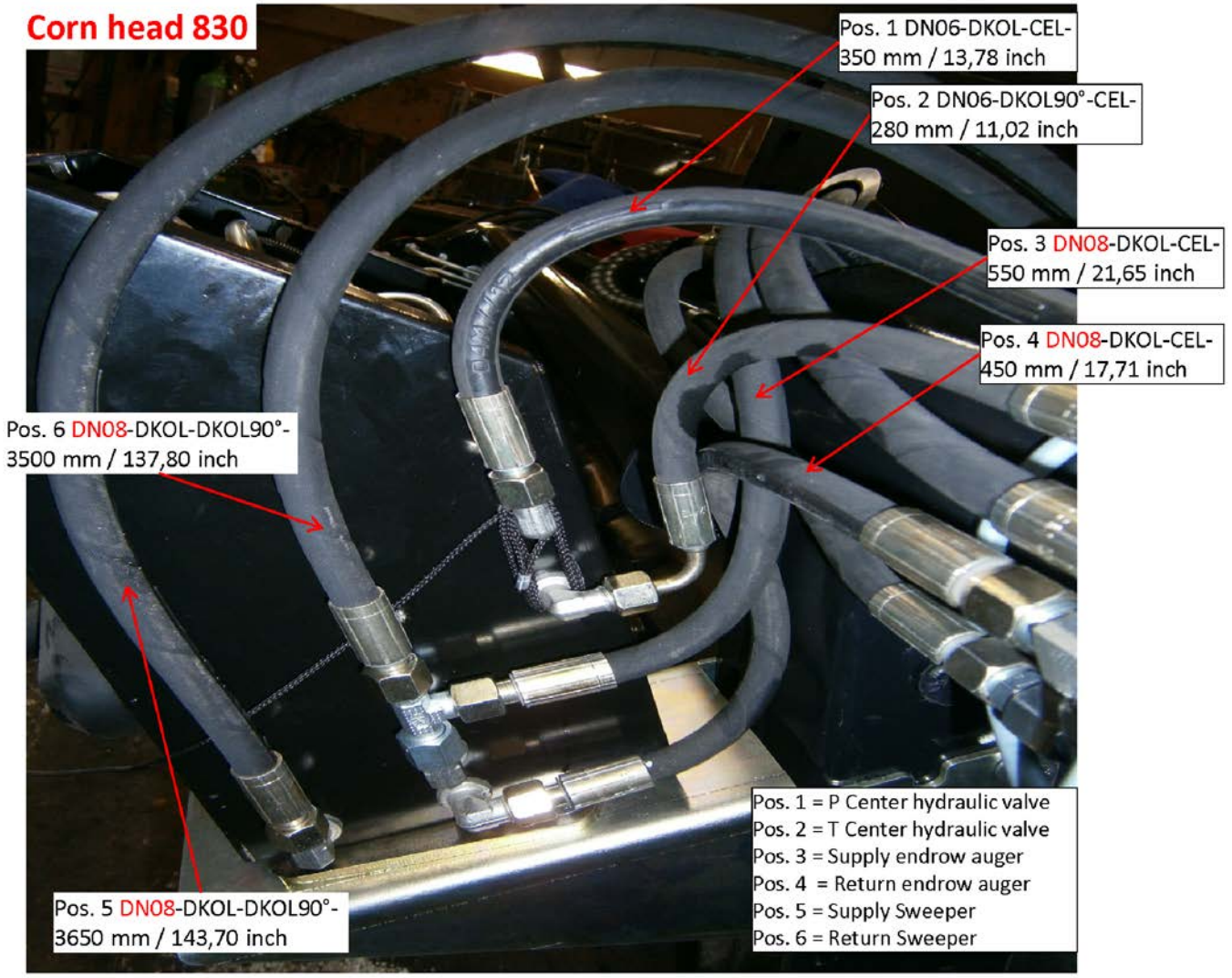


4.28 Hydraulic hoses for Sweeper and endrow auger



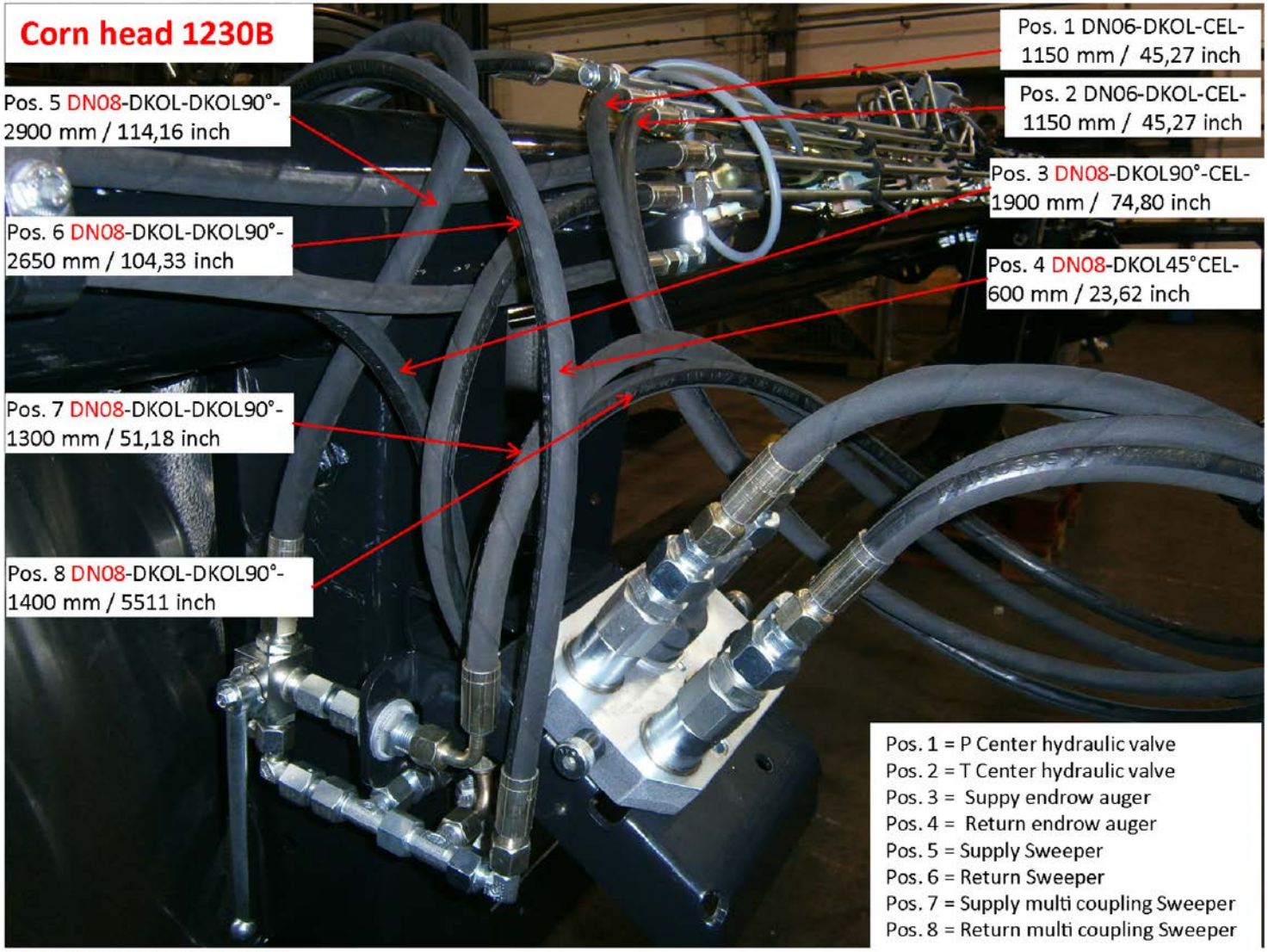

Lexion / Cat Hydraulic hoses for endrow auger and sweeper connected to hydraulic box
Corn head 1230 FB
Pos. 1 DN06-DKOL-CEL- 350 mm / 13,78 inch
Pos. 2 DN06-DKOL90°-CEL- 280 mm / 11,02 inch
Pos. 5 DN08-DKOL-DKOL90°- 2800 mm / 110,23 inch
Pos. 6 DN08-DKOL-DKOL90°- 2600 mm / 102,36 inch
Pos. 4 DN08-DKOL-CEL- 450 mm / 39,37 inch
Pos. 3 DN08-DKOL-DKOL- 1000 mm / 39,37 inch
Pos. 1 = P Center hydraulic valve
Pos. 2 = T Center hydraulic valve
Pos. 3 = Supply endrow auger
Pos. 4 = Return endrow auger
Pos. 5 = Supply sweeper
Pos. 6 = Return sweeper
Quality for all hydraulic hoses 2SC

Lexion / Cat Hydraulic hoses for endrow auger and sweeper connected to hydraulic box



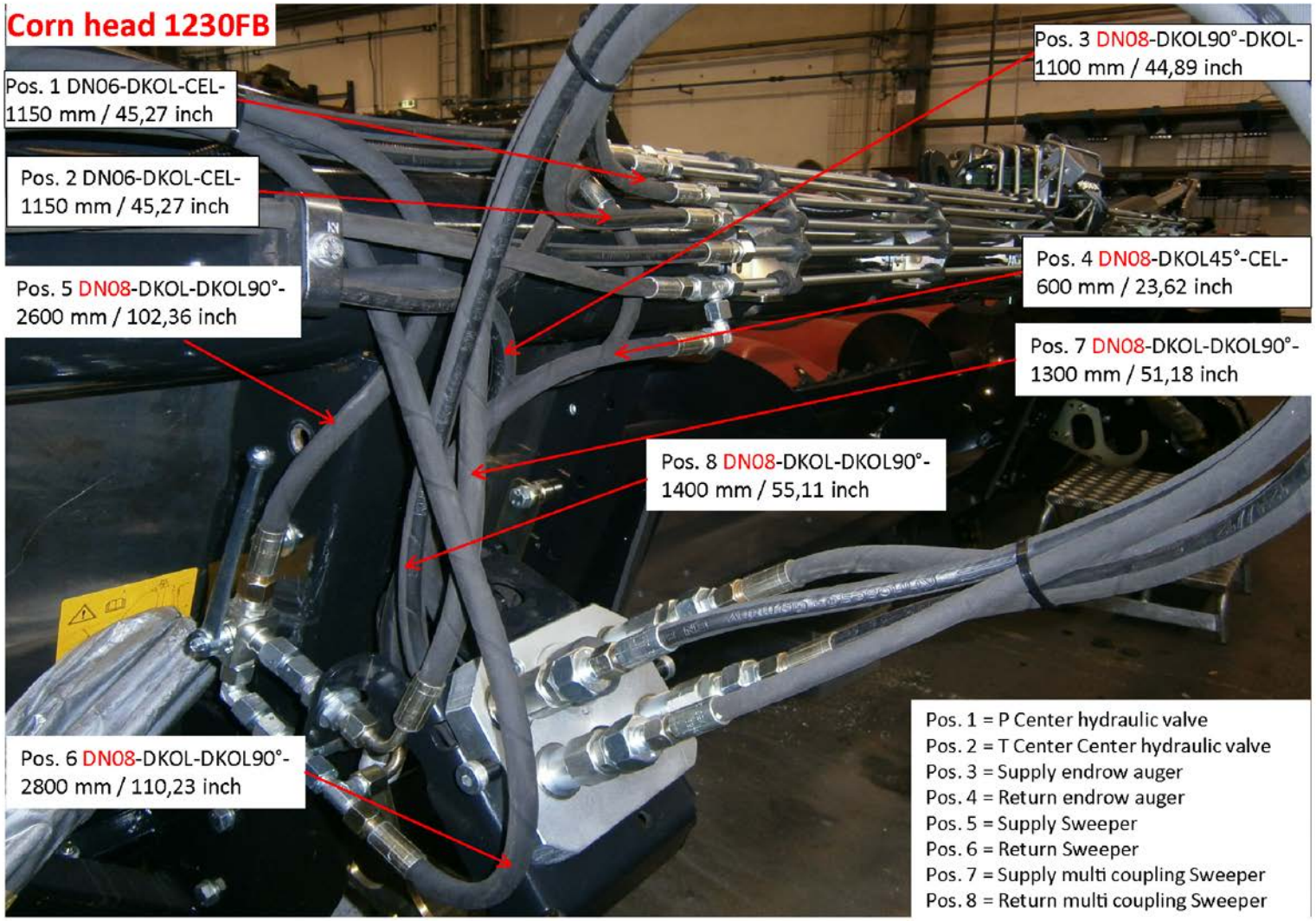
Quality for all hydraulic hoses 2SC

JD und MF Hydraulic hoses for endrow auger and sweeper connected to multi coupling



Quality for all hydraulic hoses 2SC

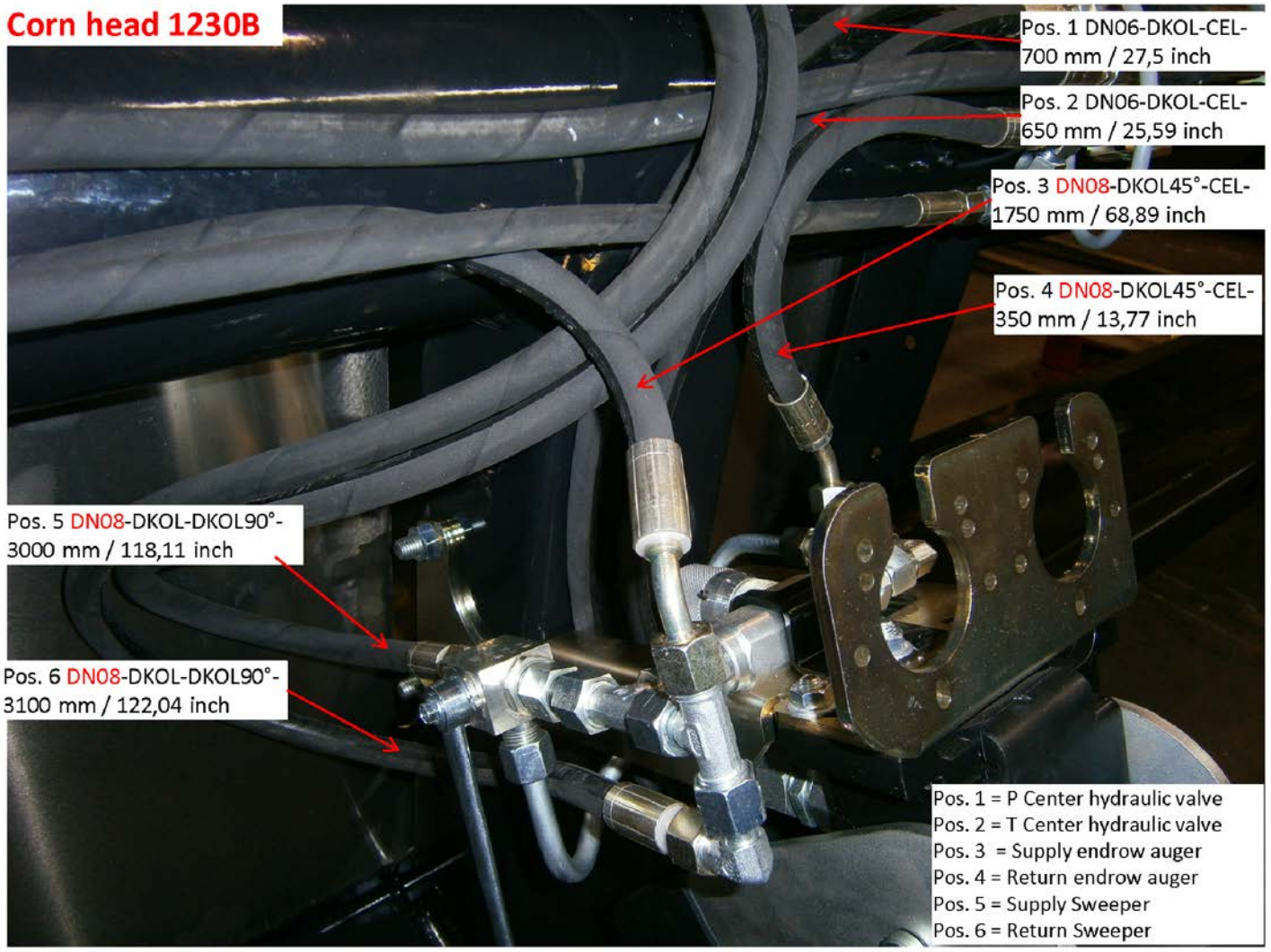
JD / MF Hydraulic hoses for endrow auger and sweeper connected to multi coupling



Quality for all hydraulic hoses 2SC

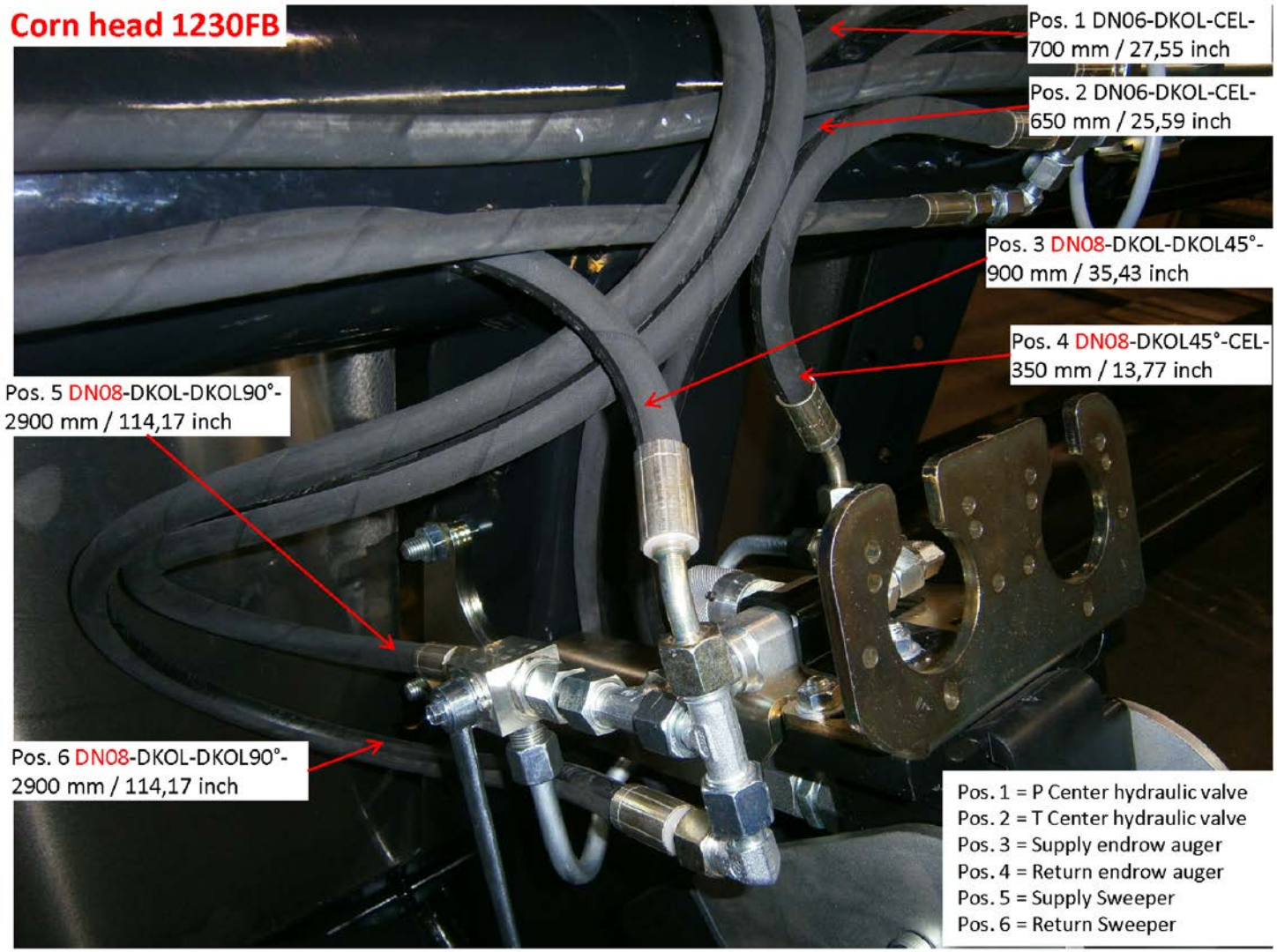
NH / AFX Hydraulic hoses for endrow auger and Sweeper connected to multi coupling

Corn head 1230B



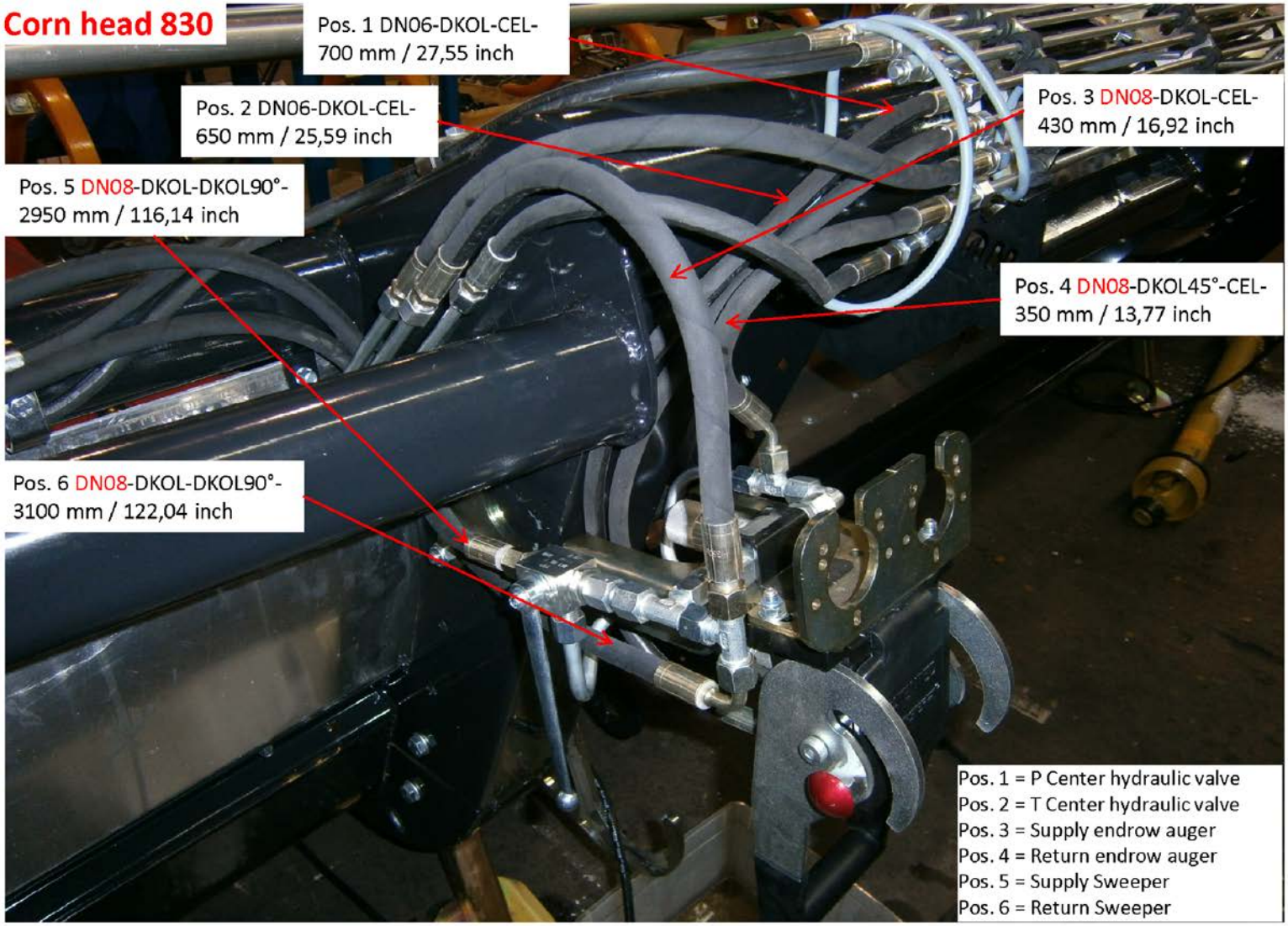
Quality for all hydraulic hoses 2SC

NH und AFX Hydraulic hoses for endrow auger and Sweeper connected to multi coupling



Quality for all hydraulic hoses 2SC

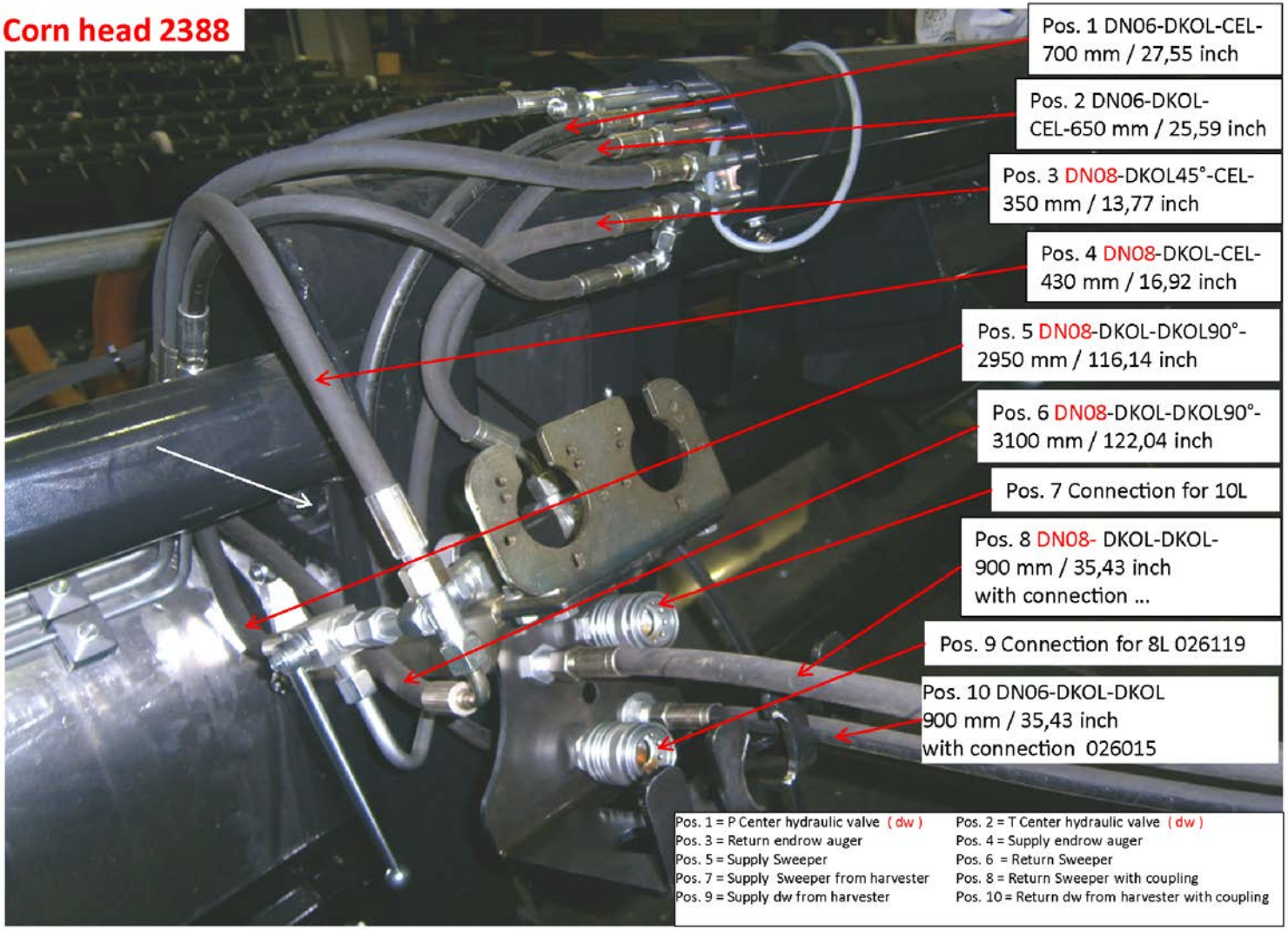
NH und AFX AFX Hydraulic hoses for endrow auger and Sweeper connected to multi coupling



Quality for all hydraulic hoses 2SC

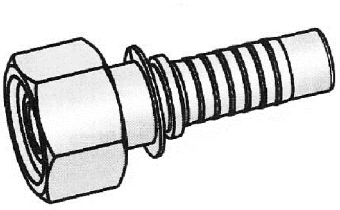
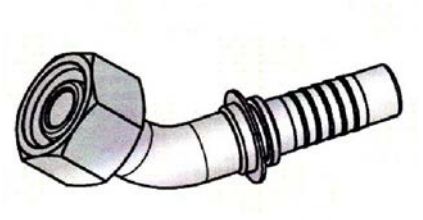
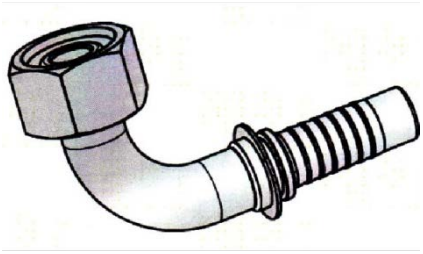
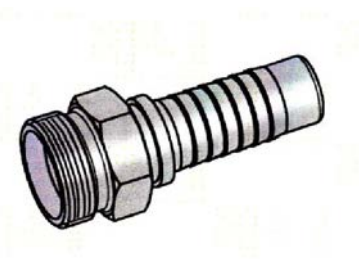
CASE Hydraulic hoses for endrow auger and Sweeper without multi coupling

Corn head 2388

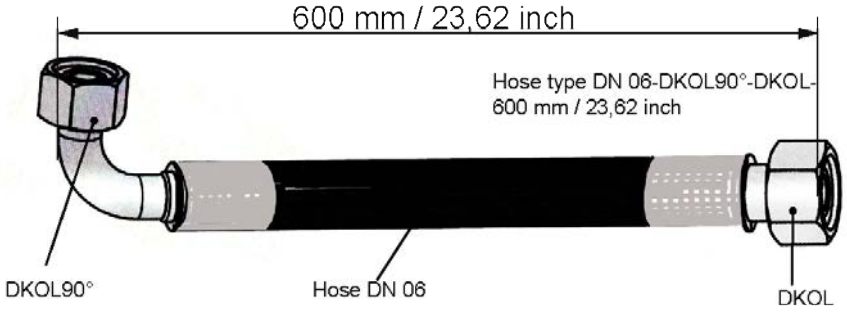


Quality for all hydraulic hoses 2SC

4.29 Hose nipples

Type of hose nipple	Description	Dimension
	DKOL	DN 06 or DN 08
	DKOL45°	DN 06 or DN 08
	DKOL90°	DN 06 or DN 08
	CEL	DN 06 or DN 08

Example:



4.30 Screw tightening torques

Minimum tightening torques for screw connection category II according to 1c

Dimensions	**M nominal value in Nm** Strength category 8.8	**M nominal value in Nm** Strength category 10.9	**M nominal value in Nm** Strength category 12.9
M4	2.7	3.8	4.6
M5	5.4	7.6	9.1
M6	9.2	13.0	15.5
M8	22.0	31.0	37.5
M8 x 1	24.0	33.5	40.0
M10	43.5	61.0	73.5
M10 x 1.25	46.0	65.0	77.5
M10 x 1	50.0	70.0	84.0
M12	76.0	106.0	127.0
M12 x 1.5	79.0	111.0	133.0
M12 x 1.25	82.5	116.0	139.0
M14	120.0	168.5	202.0
M14 x 1.5	130.0	183.0	219.0
M16	187.0	262.0	314.0
M16 x 1.5	198.0	278.0	333.0
M18	257.5	362.0	433.0
M18 x 2	272.0	382.0	457.5
M18 x 1.5	287.0	403.0	483.0
M20	362.5	509.0	610.0
M20 x 2	381.0	535.0	641.0
M20 x 1.5	400.0	562.0	673.0

Applies to solid screws. Use suitable tools to reach the required tightening torque.