Technique you can depend on

Instruction Manual

Version 0501

English

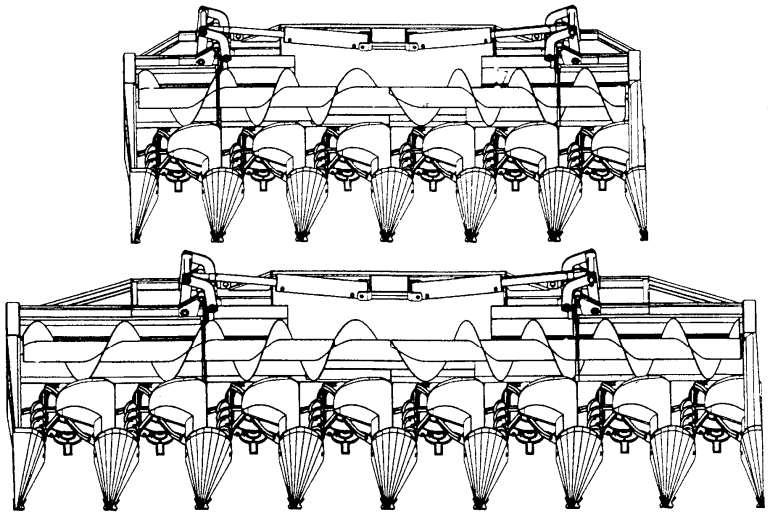
No. : 88937

Maize Harvesting Header

With Rotational Intake

CornStar

206 - 208



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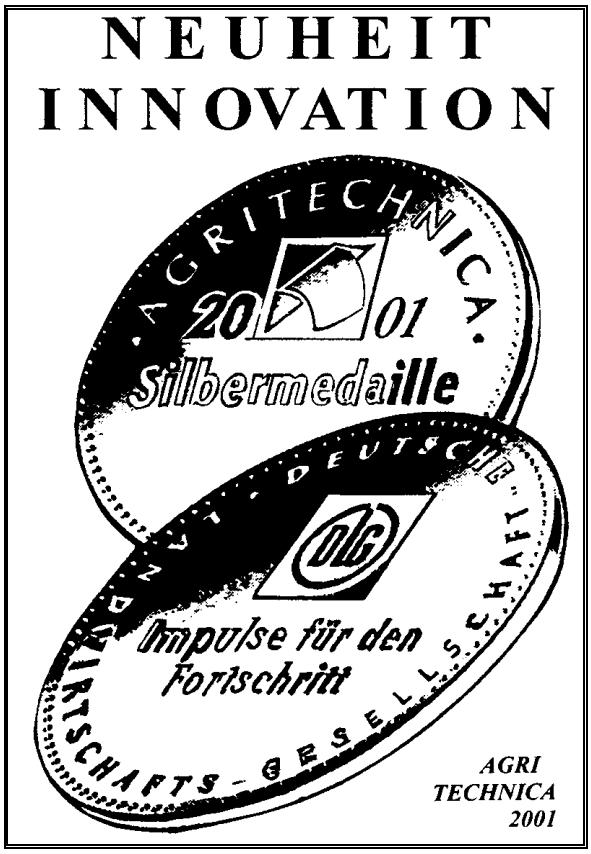

Design and model claims

The construction and function of our products are subject to technical continuous and further development, which means information and data pertaining to a delivery are not binding.

Telephone - National	Sales Management	+49 (0) 25 63 - 88 33
	Sales, Machinery	+49 (0) 25 63 - 88 34
	Shipping Status	+49 (0) 25 63 - 88 35
	Sales, Spare Parts	+49 (0) 25 63 - 88 36 / 88 37
	Customer Service	+49 (0) 25 63 - 88 26 / 88 32/ 88 84
Fax - National	Sales Management	+49 (0) 25 63 - 88 155
	Sales, Machinery	+49 (0) 25 63 - 88 98
	Sales, Spare Parts	+49 (0) 25 63 - 88 95
	Customer Service	+49 (0) 25 63 - 88 147
Telephone - International	Sales Management	+49 (0) 25 63 - 88 152
	Sales, Machinery	+49 (0) 25 63 - 88 22 / 88 25 / 88 28
Fax - International	Sales Management	+49 (0) 25 63 - 88 155
	Sales, Machinery	+49 (0) 25 63 - 88 44
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Telephone – National + International	Product Information	+49 (0) 25 63 - 88 151
Fax – National + International	Product Information	+49 (0) 25 63 - 88 155

Operating Instructions for Maize Harvester CornStar 206 -208

68622

Before commencing any repair or maintenance work, switch off engine and remove ignition key.

6605

Do not touch any moving machine parts. Wait until machine and all parts come to a complete stop.

73056

Do not climb on the machine before switching the engine off.

Z60640

Danger! - Do not approach the intake elements of the harvester header before drive has been switched off, the engine has stopped and the ignition key has been removed.

68623

Never reach into the rotating auger.

66507

Do not stand or walk underneath the raised external cutting units as long as the hydraulic is active or being operated.

66503

If instructions are unclear and/or you require help, please contact your local dealer.

68600

Never place your hands in areas where there is a crush hazard while it is still possible for parts to move.

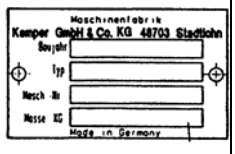
47046

53616

85425 Size 84 x 188
85427 Size 57 x 126

85426 Size 85 x 188
85428 Size 57 x 126

79565



Accident Prevention Regulations

1.	The picking rollers and the distributor rotors of the maize harvesting header cannot be completely shielded by structural parts due to their function. Always maintain a safe distance to these moveable elements while operating the equipment!
2.	Do not feed crops by hand or attempt to clean out the equipment by hand while in operation. The picking rollers feed the crop faster than it is possible to let go of the crop.
3.	Always ensure that the jointed shafts are connected correctly.
4.	Keep jointed shaft guard in good condition and secure the guard tube to prevent it from rotating.
5.	Do not alter the number of fins on the protection cone of the jointed shafts .
6.	If necessary, attach counterweights in order to make the tractor easier to steer, but be sure to observe maximum permitted axle loads. Adhere to the stipulations of the individual operating license (homologation) or certificate of conformity.
7.	Headers should only be detached and removed when the equipment is standing on a level surface.
8.	Whenever performing any work on the picking unit, switch off the drive, turn off the engine and remove the ignition key.
	Before searching for foreign matter/blockage: Switch off all drive units, switch off the engine, and allow all moving parts to come to a complete standstill.
9.	The equipment should be securely supported whenever any work is carried out underneath the machine. Never work underneath a machine only supported by a car jack.
	To ensure safety, it is best to disassemble the equipment when carrying out special repairs at the picking unit or harvester.
10.	Ensure that all blades fit securely.
11.	The hydraulic system operates under high pressure. Any porous, broken or damaged hoses must be replaced immediately. Otherwise, hoses and hydraulic lines must be replaced after 6 years at the latest. Maximum permissible oil pressure: 190 bar.
	The system must be depressurized before disconnecting hydraulic lines. If injury is caused by escaping pressurized hydraulic oil, a doctor must be consulted immediately.
12.	When driving on public roads: ■ Follow these steps: Wait until all cutting rotors have stopped rotating. ■ Observe all requirements relating to public traffic regulations listed in the extended individual operating license (ABE=General Operating License, EBE = Individual Operating Licence) or the Motor Vehicle Construction And Use Regulation (C.U.R.). ■ Attach the accident prevention guard to the picking header. ■ Connect the additional side marker lamps and direction indicators. ■ Switch on the dipped bean headlamp when driving after dark. ■ The retro-reflecting hazard warning signs on the guard must be in good condition. ■ The picking header must be raised high enough so that the front guard is approx. 300 mm above the roadway. ■ Always comply with the specifications about max. axle loads and permissible gross weights.
13.	Moreover, observe the general specifications contained in the accident protection regulations for machinery, equipment, tools, technical equipment and vehicles issued by the agricultural professional associations, UVV 3.1 to 3.11.
14.	During the CE inspection, a noise test was performed as well: Max. allowed noise at the driver's ear in accordance with the guidelines 86/188 EEC; measurements according to ISO 5131 with a closed cabin in connection with a John Deere SPF 9680 = 80.1 db (A).
15.	Use only genuine Kemper spare parts.

Safety instructions when working on systems with pressurised fluids

High-pressure fluid emitted from the system can penetrate the skin and cause serious injury.
You should therefore ensure the system is de-pressurised before removing any hydraulic lines.
Replace all connections firmly before re-pressurising the system.
Hydraulic fluid emitted from a small opening may be scarcely visible; you should therefore exercise extreme caution when working on high-pressure systems with leaks! Always protect hands and body when looking for leaks.
Immediately consult a doctor in the event of an injury of this type. If any fluid has penetrated beneath the skin, it must be removed as soon as possible or serious infection may result.

Safety guidelines pertaining to welding and open flame tasks

Hazard from electrical current

- Use only welding equipment with electrical components that are in perfect condition.
- Do not weld where and when there is an increased electrical hazard.
  (Standing on a surface that conducts electricity, welding in a constrained position, welding in confined spaces...)

Hazard from optical and UV radiation

- Use a face screen with sight glasses appropriate to the welding task in question.
  (Welding goggles, hand or head guard with appropriate glasses)
- Protect your body by wearing clothing appropriate to the welding task.

Hazard from build-up of gases

- When components are subjected to heat, layers of paint and deposits of contamination contained on the components may combust. This will result in the formation of noxious vapours.
  It is therefore essential that layers of paint and any impurities and contamination be removed before heat is applied to the components in the area to be welded.
  (These impurities will cause faults in the weld seam regardless of the involved danger.)
  Weld seam faults will also occur when welding is carried out where a draft is present (stream of inert gas is blown away), or when moisture is present (hydrogen entering the weld seam).

Hazard from heat

- Remember that a large amount of heat is applied to the material when welding, making the work pieces extremely hot. Make sure combustible material is not located within your work area. Wait until all hot tools and equipment have cooled down before touching them.

Dear Customer

You have made an excellent choice. We are pleased to congratulate you on your selection of a KEMPER machine. As your partner, we offer quality and performance together with reliable service.

Product Liability and Obligatory Information

Product liability laws require that manufacturers and dealers provide customers with the instruction manual for each purchased machine and give the customer practical instruction on operation, safety and maintenance.
A multiple-copy form (A, B, C) similar to the one illustrated below is supplied with each Operator's Manual. Confirmation is required that the customer has taken possession of the machine and the Operator's Manual.
For this purpose, send the signed document A to Kemper. Document B is retained by the dealer who supplied the machine. Document C is retained by the customer. At the same time, this will activate your warranty.

EC Certificate of Conformity

This product is CE tested and labelled in conformity with EC Directive 89/392/EEC.
(Communauté europeenne / European Community). This
Operator's Manual is accompanied by a CE Certificate of Conformity. Both are to be delivered to the respective end customer.

Delivery of Operator's Manual

Attention! Even if the machine is sold by the customer at a later date, the Operator's Manual must be transferred to the new owner.

In this manual, all passages affecting and pertaining to your safety are marked with this symbol. Please share all safety notes with all other operators or users of the machine or equipment.

kemper **Übergabeerklärung für Landmaschine** A

[1] Typ:

Maschinen-Nr: ___ –

[4] Tag der Übergabe

Kd-Nr. Händler

[2] Anschrift des Kunden:

[5] Anschrift des Händlers:

Firmenstempel / Unterschrift

[3] Die unter (1) angeführte Maschine wurde von mir erworben

Mit der Übergabe der Maschine wurde mir die Betriebsanleitung überreicht, außerdem wurde mir die Bedienung, die Sicherheits- und Wartungsvorschriften erläutert.

Unterschrift des Kunden

Datum

Kundenexemplar

Firmenstempel / Unterschrift, falls mit (5) nicht identisch

[6] Die Maschine wurde gemäß Herstellerrichtlinien dem Kunden übergeben.

Unterschrift des KD-Fachmannes

Datum

Maschinenfabrik KEMPER GmbH - Postfach 1352 - 48694 Stadtlohn

Foreword

In addition to detailed technical descriptions, this manual also provides general and specific explanations concerning the function and operation of the maize picking unit header as well as troubleshooting notes.
We reserve the right to modify specifications since technical solutions are always further developed and adapted to meet the latest scientific and industrial findings and knowledge.
The terms "right" and "left" relate to the forward direction of travel of the machine, i.e. as seen when sitting in the machine cab and looking in the driving direction.
Please enter the serial numbers of the machine on the page enclosed at the rear of the Operator's Manual. This information will enable your dealer to send the correct spare parts quickly and efficiently.

Intended Use

The Kemper maize picking unit header for harvesters is designed for harvesting grain maize and sunflowers.

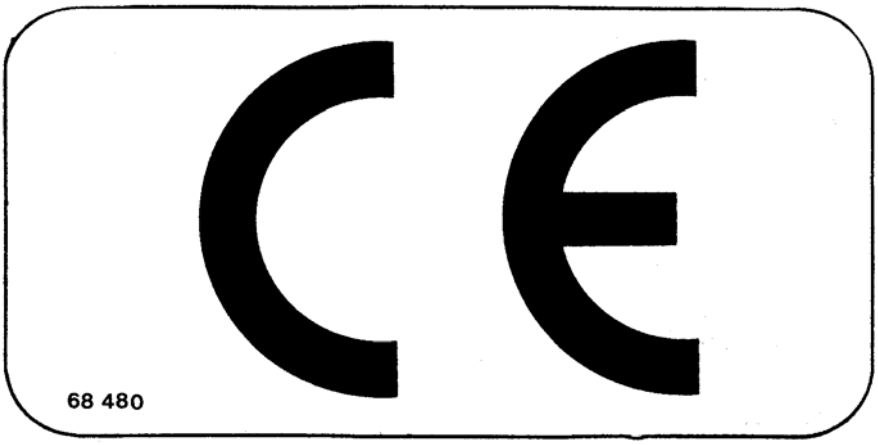
The standard picking unit header consists of a basic frame, main drive unit with safety clutches, auger, the corresponding number of picking units, intake rotor, picking unit rollers, forage harvester rotor as well as crop separators.

In conformity with the relevant machine safety regulations, the machine may only be operated in accordance with the outlined specifications. Otherwise, no liability will be assumed for resulting damage. Intended use includes adherence with our operating and maintenance instructions and sole use of genuine Kemper replacement parts.

The maize picking unit header may only be used, serviced and repaired by persons who are familiar with the operation of this equipment or who have been instructed regarding the associated hazards (see UVV 1.1 §1).

Always comply with all relevant accident prevention, safety, occupational health and highway regulations.
If unauthorized alterations are carried out on the machine, the manufacturer bears no responsibility for consequential damage.

- The maize picking unit header has been CE tested and labelled accordingly.



		Type	206	208
Technical Data		Weight (basic equipment) in kg:		
		Transport position:		
		Width in m:	3.25	3.25
		Height in m:	1.87	1.87
		Length in m:	2.72	2.72
		Working position:		
		Overall width in m:	4.60	6.10

Standard Equipment

Attachment: Picking unit attachment for self-propelled combine harvesters. The header is suitable for attaching to the combine harvesters of the company JOHN Deere if fitted with the corresponding connection points.

Drive: Power is supplied via drive shafts from the combine harvester to the harvesting header, to the transverse augers as well as the left and right side picking units with oil-immersed gears and safety clutches. The speed of the augers and picking units depends on the driving speed.
206: one-sided drive, 208: dual-sided drive
Basic machine: Powered via drive shafts. Hillmaster: Powered via jointed shafts (cardan drive).

Transmission: All function elements of the picking units are bedded in a compact spur gear angle drive unit or spur angle epicyclical transmission.

Picking System: Large intake opening width - intake with distributor rotor - cutting with combine harvester - forage harvester - two picking rollers and one topside conveyor roller - hydr. adjustable picking plates - maize cobs are fed through distributor rotor and transverse auger with maize cob ejection towards the combine harvester.

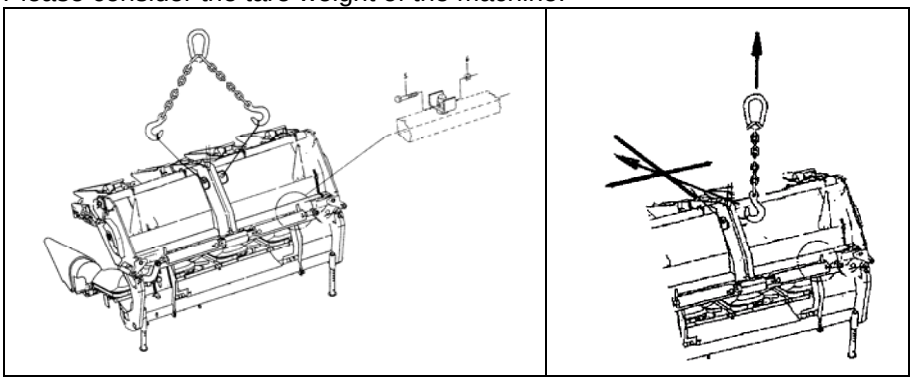
Forage Harvester: Flush-mounted chopping system chops stalks into evenly sized pieces that quickly decompose (chopping unit can be deactivated).

Transverse Auger: Three-sectional transverse auger with cob ejection towards combine harvester.

Machine Transport: The outer picking units can be hydraulically folded up to a transport width of 3.15 m. The accident prevention guard for the crop separators has to be attached for transport. The accident prevention transport guard for the front crop separators is equipped with flashing lights and position lights.

Overload Protection: All functions of the picking unit are safeguarded with an overload protection in the oil-immersed transmission.

Loading/Unloading the Machine The folded up and latched machine can be lifted on two points using suitable lifting devices.
The machine is latched and locked using one hexagon bolt M16x100-8.8-v and one hexagon nut M16 D934-8.8-v on each side.
When loading in this way, you must exercise great care and use additional securing chains if necessary.
Please consider the tare weight of the machine.

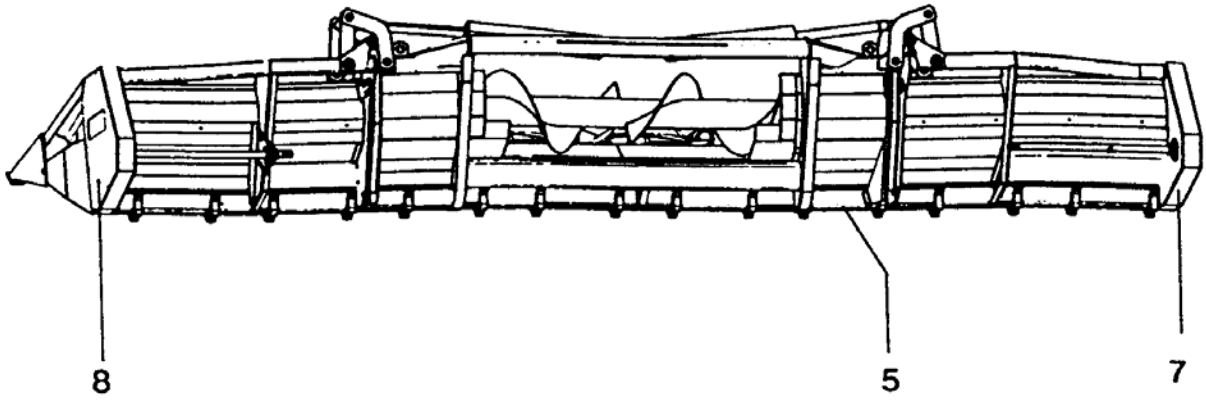


Control Valve The outer picking units are raised and lowered by means of double-acting hydraulic cylinders. The combine harvester should be equipped with a double acting control valve for the operation of these cylinders.
If a different type of control valve is used, it is imperative that the two outlets are sealed tightly without any leaks. Leaks cause a pressure drop in the hydraulic line and could lead to impermissibly high-pressure values. Damage to the machine is then unavoidable. It may be necessary to use a ball valve to prevent pressure from being exerted on the folding cylinders. (Operating pressure: max. 200 bar)

- Each picking unit is safeguarded against overloads with a friction clutch integrated into the transmission (immersed in oil).
- Intake rotors are mounted on the compact gears; these are centred in the transmission.
  - A The intake rotor bridges the wide intake width and thus renders the machine almost entirely row-independent.
  - B It transports the scraped off maize cobs safely to the transverse auger.
- The new maize-picking unit has a low-loss drive unit for a reliable transmission to the picking units.
  - A Model 206 has a one-sided drive unit. Model 208 has a dual-sided drive unit.
  - B The basic machine is powered with the help of drive shafts; the Hillmaster is powered with jointed shafts (cardan drive).
- The forage harvester drive unit is also installed in the compact transmission of the forage harvester. It does not require any additional gears. A blade rotor chops the entire maize stalk into evenly sized, short and quickly decomposing pieces. It is also possible to drive without forage harvester.
- The picking plate spacing is hydraulically adjustable. (setting range = 30 mm, picking gap width adjustable to approx. 20 mm – 50 mm).
- When transporting the machine over roadways, the outside units are folded up hydraulically. Once the protective lining strip with integrated side lamps are attached, the machine meets the requirements of the Motor Vehicle Construction And Use Regulation (C.U.R.) concerning traffic on public roads.
- With the Hillmaster, the jointed shaft at the harvester has to be detached and attached at the picking unit in park position before flipping up the side parts. (206: one-sided jointed shaft, 208: dual-sided jointed shaft)
  The drive shafts of the basic machine do not have to be dismantled.
- When folding out the sides to working position, the transverse augers and drives of the picking units are also automatically threaded.
- The first maize harvester with rotation intake and a completely new intake concept is available for the different performance classes of the harvesters with six or eight rows. The special feature of this concept is the enormous intake opening width, which is bridged by an intake rotor.
- Each picking unit has a compact transmission (gearbox) for the picking rollers, intake rotor and the flush mounted forage harvester.
- The picking unit functions independently of the forward movement speed of the harvester. This is due to the harvesting sequence: Cutting off - fed through intake rotors and two laterally aligned picking and conveyor rollers - secure further routing through the intake rotor - cobs scraped off in the picking gap and simultaneous cutting off of the maize stalk with the flush-mounted forage harvester.
  A variable speed gear to adjust to the forward movement speed is not necessary!
- The covering caps with crop separator are carefully rounded. This means that even drooping plants and cobs of maize are carefully picked. The caps are individually height adjustable.
- The covering cap of each picking unit is easily removed. All function elements are thus accessed easily and quickly.
- Each picking unit has a return blade mounted on the picking roller. This prevents weeds are wound.
- Required connections for the different John Deere harvesters:

John Deere Series 2200	Series-production status
John Deere Series 9000	Series-production status
John Deere Series CTS starting with model year 2002	Series-production status
John Deere Series CTS up to model year 2002	The header is easily installed. Please contact us to find out what connections are already on your combine harvester and what additional equipment you might need.

- Retrofitting existing machines to a different harvester make and manufacture is frequently possible upon request.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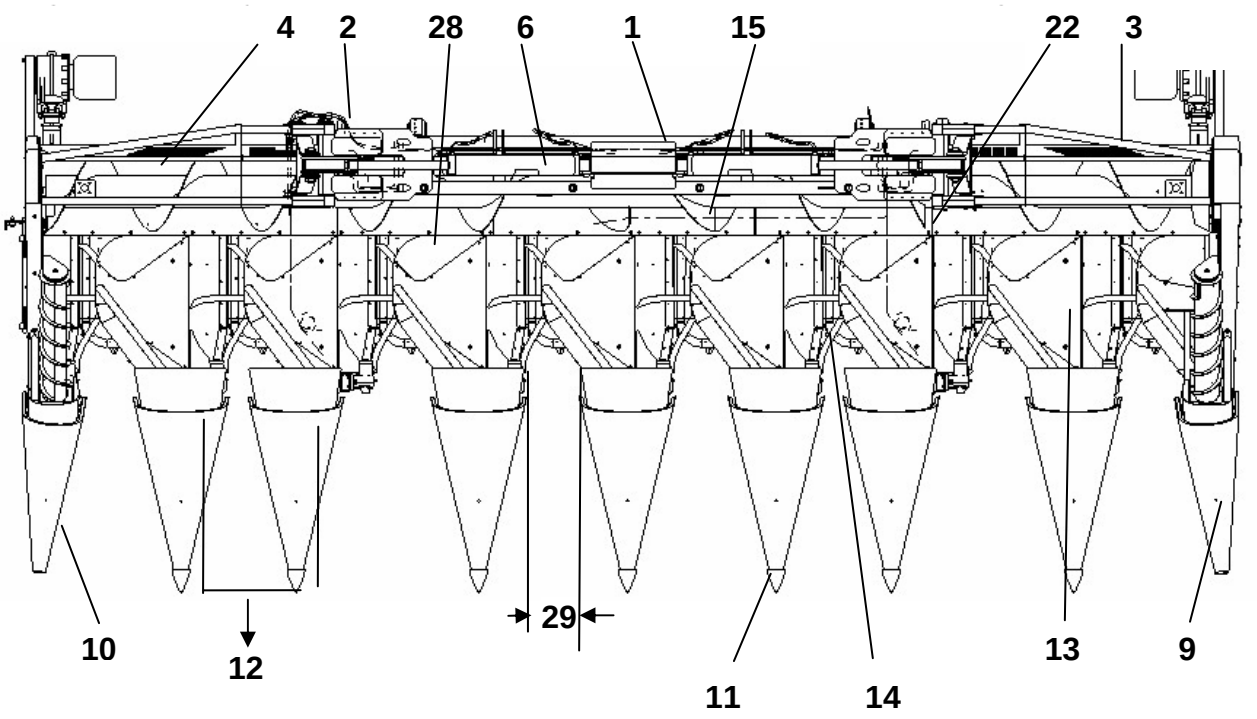
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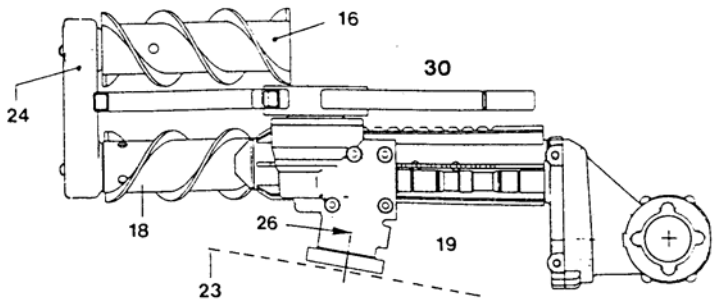
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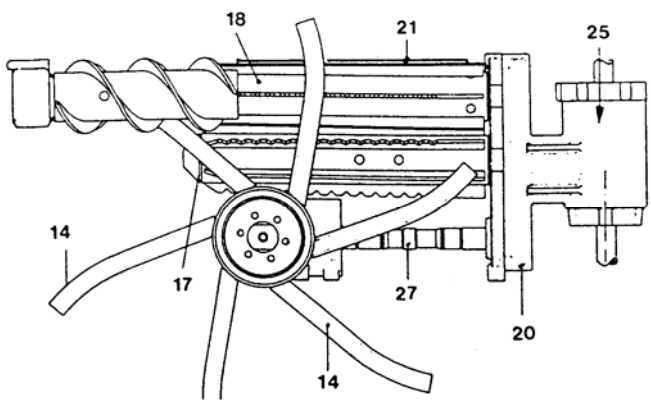
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Designation of Assembly Groups

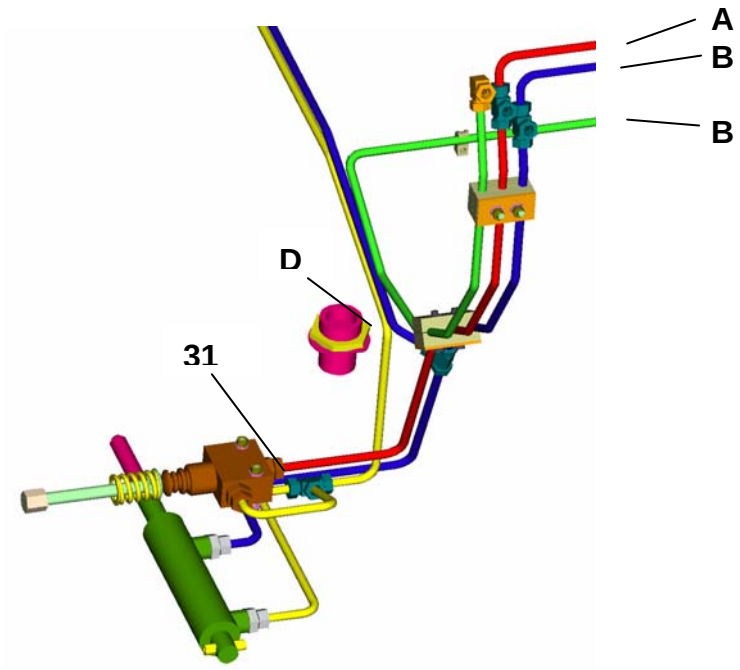
1 Attachment frame with opening towards slope conveyor of combine harvester
2 Hinged joint, left and right
3 Left foldable unit
4 Right foldable unit
5 Centre frame support
6 Hydraulic cylinder for the folding mechanism
7 Drive for the right side picking units
8 Drive for the right side picking units and the transverse auger
9 Outer left crop separator
10 Outer right crop separator
11 Height adjustable torpedo crop separators
12 Picking unit
13 Canopy for picking unit
14 Distributor rotor
15 Transverse auger
16 Conveyor roller
17 Left picking roller
18 Right picking roller
19 Flush mounted forage/combine harvester
20 Spur angle gear drive
21 Return blade at picking roller
22 Centre bearing of the transverse auger
23 Forage harvester blade (chopper)
24 Spur gear angle drive
25 Safety clutch in transmission
26 Flush mounted forage harvester deactivation
27 Dumb-bell shaft
28 Adjustable picking plate
29 Intake width
30 Planetary gears

Basic Hydraulics - Basic Electronics

31 Valve

4 interfaces

A Pressure line for flap cylinder – crop separator shifter and latch
DW control valve required
B Pressure line for folding cylinder – crop separator adjustment and latch
C Pressure line for the picking plate adjustment
EW control valve required
D 12-volt socket for flashing indicators and position lamps at roadway transport guard
The 23-pole socket for is suitable for additional connections such as ultrasound sensor - tilt sensor stubble lights - steering signal etc.



Function of Picking Unit Fig. 15

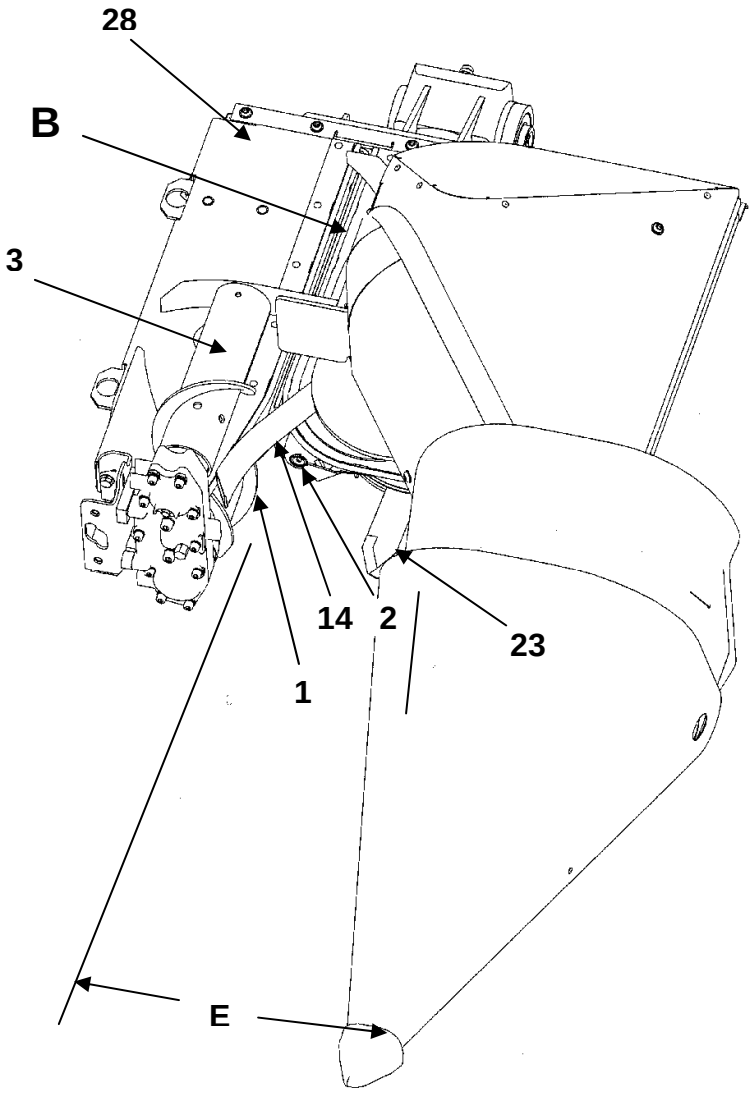
The new maize picking unit header 206 or 208 is the first version with rotational intake. In contrast to conventional picking units, the 206 and the 208 do not feature any intake chains. The simple and compact construction has a wide intake width E.

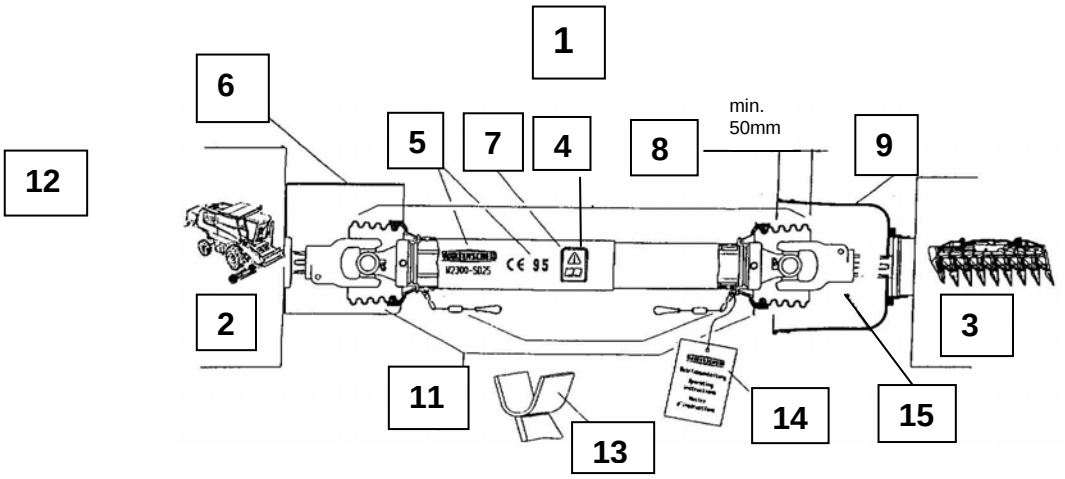
Regardless of the row spacing, the distributor rotor 14 pulls the maize plant across a certain bandwidth to the picking roller 1. Here, the plant is mowed off with the forage harvester blade 23 and supported in its upright position by the top conveyor roller 3 so that the augers of the picking roller 1 and the conveyor roller 3 transport the plant into the adjustable picking gap B and between the counteracting picking rollers 1 and 2.

The picking rollers pull the maize stalk towards the bottom while the maize cob is being separated from the stalk. The remaining plant is simultaneously chopped into evenly sized, easily decomposed pieces and evenly deposited on the ground by the flush mounted forage harvester.

An additional function of the distributor rotor consists of transporting the scraped off maize cobs safely to the transverse auger. Here, the maize cobs are directed towards the centre of the header. The cobs are then moved to the slope conveyor of the combine harvester.

This new construction has significantly fewer movable parts and thus fewer parts subject to wear and tear than conventional picking units do.





	Deutsch	Englisch	Französisch	Italienisch	Spanisch	Niederländisch	Portugiesisch
1	Sicherheits - technische Merkmale an der Hauptantriebs-Gelenkwelle. Gelenkwelle zwischen Schlepperzapf - welle und Geräteantrieb (z.B. Standar-Gelenkwelle)	Safety Engimeering Features of the Main PTO Drive Schaft. PTO drive shaft between tractor PTO and implement PIC (e. g. standart PTO drive shaft)	Caratéristiques techniques de sécurité de la transmission principale Transmission entre la p.d.f. côté tracteur et l´arbre mené côté machine (p.ex. transmission standard)	Caratteristiche tecniche di sicurezza sull'albero cardanico della trasmissione principale Albero cardanico tra la presa di forza del trattore e la trasmissione dell'attrezzo (per es. albero cardanico standard)	Características de seguridad técnica del eje de transmisión del accionamiento principal Eje de transmisión entre eje de toma de fuerza del tractor y accionamiento del aparato (p.ej. eje de transmisión estándar)	Veiligheidstechnische kenmerken van de cardanas van de hoofdaandrijving Cardanas tussen de aftakas op de trekker en de aandrijving van het apparaat (bijv. standaard cardanas)	Características técnicas de segurança no veio articulado do accionamento principal Veios articulados entre o eixo de tomada de força e accionamento do aparelho (p. ex. veio articulado padrão)
2	Schlepper	Tractor	Tracteur	Trattore	Tractor	Trekker	Tractor
3	Gerät	Implement	Machine	Attrezzo	Aparato	Apparaat	Aparelho
4	SD G. W. - Schutz	PTO drive shaft guard transmission	Protecteur SD pour transmission	Protezione albero cardanico SD	Protección SD del eje de transmisión	SD cardanas - afscherming	Protecção do veio articulado do SD
5	Kennzeich - nung	Identification marking	Marquage	Contrassegno	Identificación	Identificatie - markering	Identificação
6	Schlepper - seitiges Master shield	Tractor – side master shield	Bouclier côté tracteur	Protezione principale lato trattore	Escudo básico del tractor	Master shield op de trekker	Master shield do lado do tractor
7	Aufkleber Betriebsan - leitung lesen	Label read Operating Instruktions	Autocollant <<Lire la notice d´instructions>>	Etichetta, leggere le istruzioni per l'uso	Adhesivo: "Lea las instrucciones de funcionamiento"	Sticker "Lees de gebruiksaanwijzing"	Autocolante Ler manual de instruções
8	Mindest - Überdeckung in gestreckter Lage	Min. overlap in straight position	Recouvrement mini en position droite	Copertura minima in posizione allungata	Revestimiento mín. en posición extendida	Minimale overdekking in rechte stand	Cobertura mín. em posição esticada
9	Geräteseitiger, rundum geschlossener Schutztopf	implement side safety shield full cover	Bol protecteur intégral côté machine	Schermo protettivo lato attrezzo tutto chiuso	Tapa protectora totalmente cubierta en el aparato.	Aan de apparaatzijde geplaatste, rondom gesloten veiligheidskap	Tampa de protecção integral do lado do aparelho
10	2 Halteketten	2 safety chains	2 chaînelles de sécurité	2 catene di sicurezza	2 cadenas de apoyo	2 veiligheids - kettingen	2 correntes de segurança
11	Trichterlänge Min. bis Ende der Rillengabel	Cone lenght at least to end of inboard yoke	Longueur du cône au moins jusqu´au bout de la mâchoire à gorge	Lunghezza copertura imbutiforme almeno fino alla fine della forcella scanalata	Longitud mín. del cono hasta el final de la horquilla ranurada.	Trechterlengte minimaal tot aan het einde van het juk	Comprimento mín. do cone até ao final da forquilha estriada
12	Hinweise: EG-Richtlinie 89/392 EWG Norm EN 1152 CEN/TC 144 N 194	Further details: Directive 89 / 392 CEE Standart EN 1152 CEN/TC 144 N 194	Renseignements: Directive 89/392 CEE Norme EN 1152 CEN/TC 144 N 194	Indicazioni: Direttiva CE 89/392 CEE Nora EN 1152 CEN/TC 144 N 194	Nota: Directiva CE 89/392 CEE Norma EN 1152 CEN/TC 144 N 194	Verdere Info CE 89/392 CEE Norm EN 1152 CEN/ TC 144 N 194	Indicações: Directiva da EU 89/392 CEE Norma EN 1152 CEN/TC 144 N 194
13	Geräteseitige G.W. - Halterung	implement – side PTO drive shaft support	Support pour transmission côté machine	Supporto albero cardanico lato attrezzo	Soporte para el eje de transmisión en el aparato	Cardanashouder aan apparaatzijde	Suporte do veio articulado do lado do aparelho
14	Betriebsan - leitung incl.EG Konformitäts - erklärung	Oprating instruktion incl. EG declaration of conformity	Notice d´instructions, declaration de conformité CE incluse	Istruzioni per l'uso compresa la dichiarazione di conformità	Instrucciones de funcionamiento incl. Declaración de conformidad CE	Gebruiksaanwijzing incl. EG-conformiteits - verklaring	Manual de instruções, incl. Declaração de Conformidade da UE
15	Kupplung nur Geräteseitig	Clutch onlyat the implement side	Llimiteur seulement côté machine	Giunto solo lato attrezzo	Acoplamiento sólo en el aparato	Koppeling alleen aan apparaatzijde	Embraiagem apenas do lado do aparelho

Jointed Shafts at the John Deere Hillmaster Combine Harvester

Main Drive

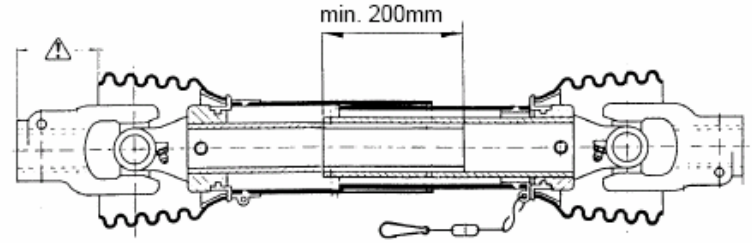
Jointed shafts at the John Deere Hillmaster are used as the main drive. (206 = one-sided, 208 = dual-sided) The jointed shafts have to be connected securely and firmly and the protective guard must be secured against rotating.

Standard EN 1152

Attaching the jointed shaft to the combine harvester has to comply with the safety specifications of the standard EN 1152.
On the equipment side, the jointed shaft connections are covered with a Walterscheid protection tube.
The connection side of the combine harvester can be quite different depending on make and model year. The EN 1152 standard specifies a minimum coverage of 50 mm between jointed shaft protection tube and cover at the combine harvester!

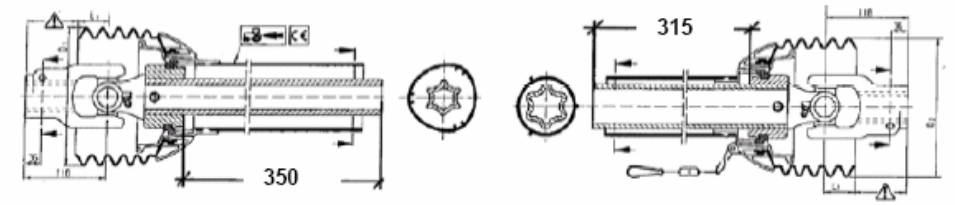
Length Adjustment

The jointed shafts of the maize picking units 206 and 208 are of different lengths. The spare parts lists takes this into consideration.
However, if a jointed shaft has to be shortened, follow these steps:
To adjust length, position jointed shafts next to each other at their shortest operating position and mark. Length adjustments due to the movement of the swinging sign have to be considered as well. Plan for the greatest coverage of the tubes possible. Shorten inner and outer protection tube evenly.
Shorten inner and outer slider profile same as the protection tube.
Remove burrs on cut edges and carefully remove any chips and shavings.
Lubricate sections.



A second option is to measure the distance of the drive stub from the header equipment and the harvester.

If a Cornstar 206 is used in conjunction with a John Deer 96XX Hillmaster, the shortest distance is measured at about 630 mm. This means that the length of the outer half of the jointed shaft has to measure 315 mm and the length of the inner half 350 mm.



Comply with the manufacturer's operating instructions.
Different combine harvesters usually have different jointed shaft lengths in the left and on the right. We recommend marking the shortened pieces with L and R.

Transport Position

With the Hillmaster, the jointed shafts at the combine harvester have to be detached and attached at the picking unit in park position before positioning the picking unit in the transport position.

Drive Shafts of the John Deere Combine Harvesters

Main Drive

The main drive of the JD basic machine is based on drive shafts.
(206 = one-sided, 208 = dual-sided)

Installing the Drive Shafts

When installing the drive shafts, make sure the linking points are aligned properly.

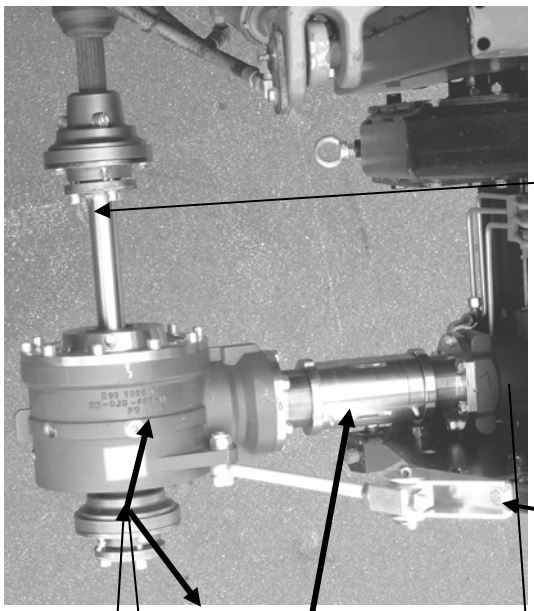
Installation Sequence

Attach drive shaft to combine harvester.
Check alignment of drive shaft with input shaft of gear.
Readjust if gears are not aligned properly.
-- Use the setscrew at the gearbox to set the axle base.
-- Correct angle error at gear fitting (use the slotted holes provided for this purpose)

Attaching Picking Header to Thresher/ Harvester with Swinging Sign

The picking header is equipped with exterior double angular gears and a drive using jointed shafts in order to fit a harvester or thresher with swinging sign.

If a picking header with inside double angular gears and a drive based on drive shafts is to be installed on a thresher or harvester with swinging sign, this sign has to be repositioned towards the harvester and blocked because a drive shaft cannot compensate the swinging movement!



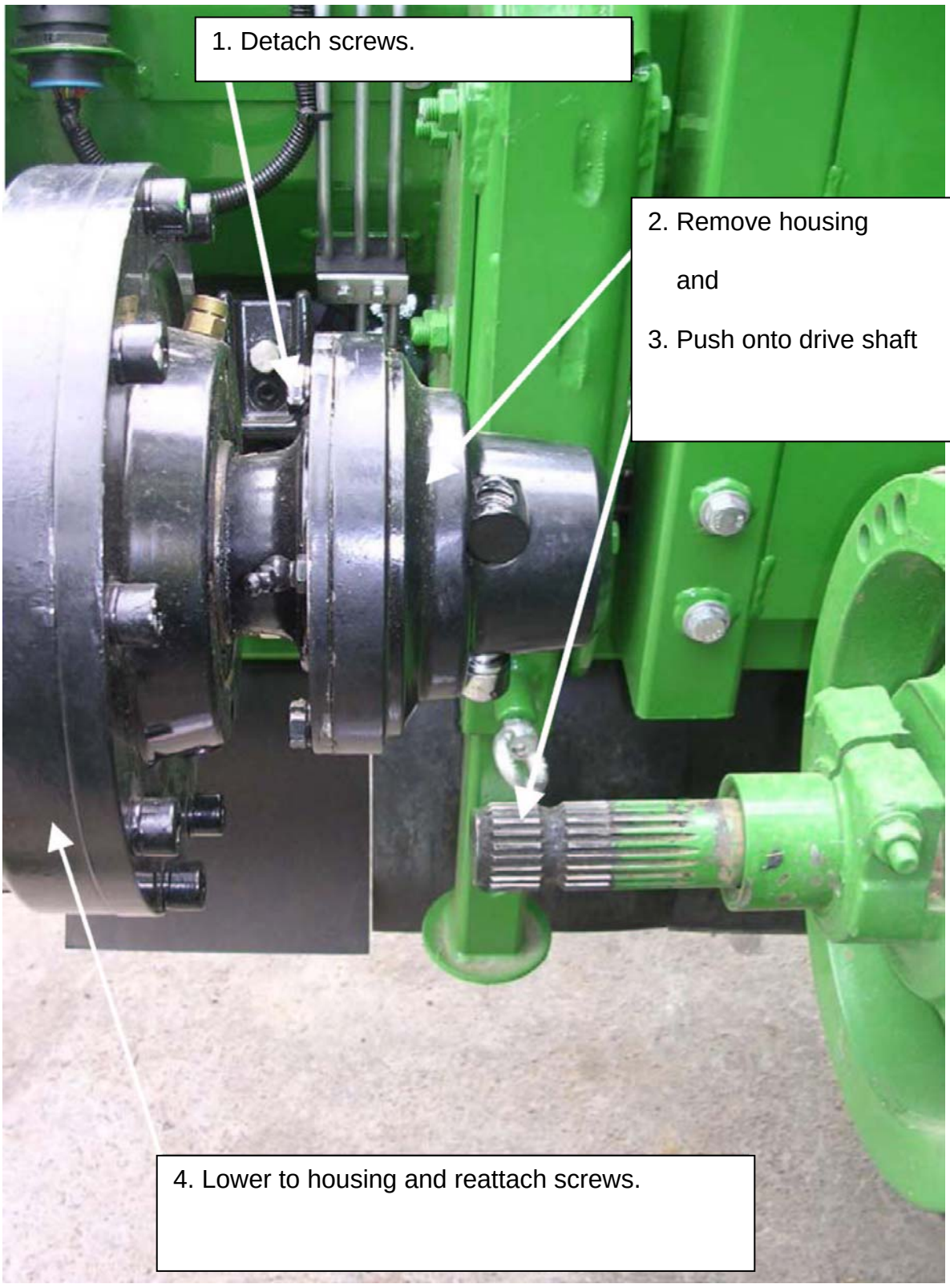
Drive shaft

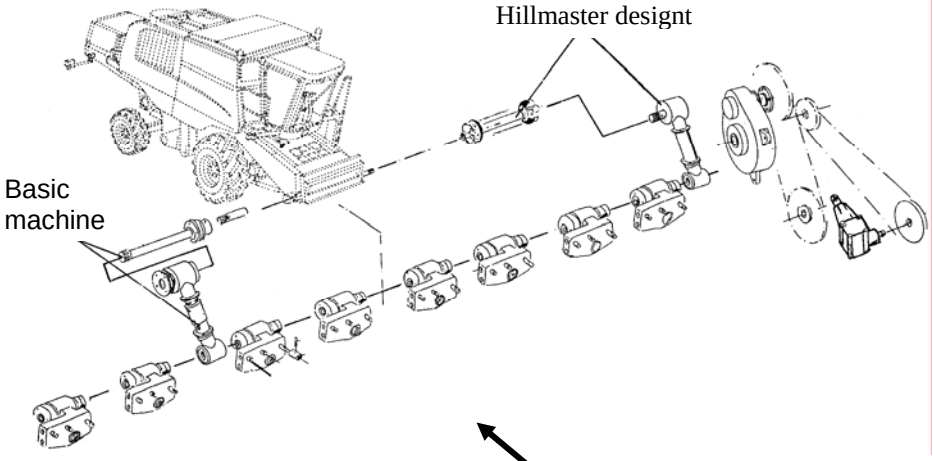
Slotted holes in frame

Adjusting the axle base using the bushing

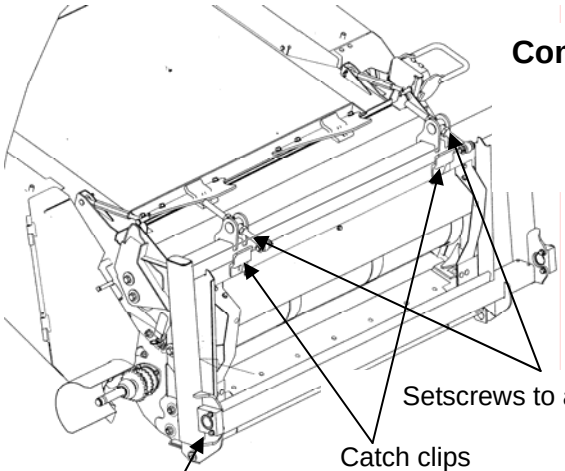
Eliminating angle errors:
Raise and lower gear within slotted holes

Notes for mounting the drive shafts of the maize picker 206 / 208





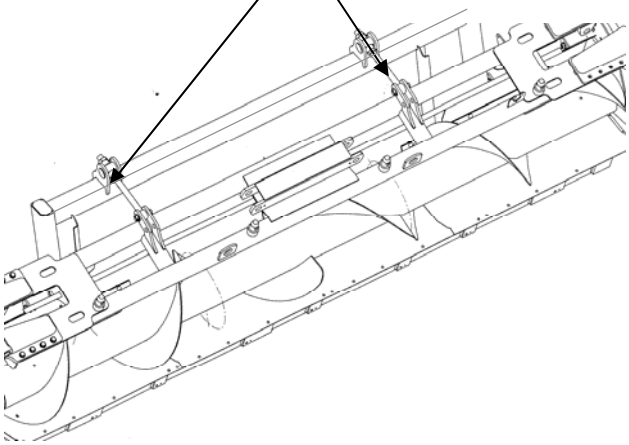
Combine harvester



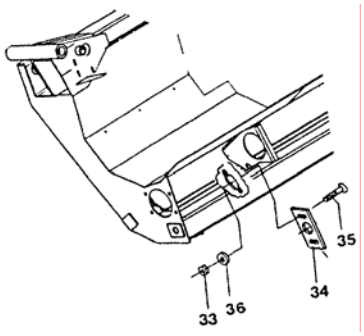
Picking unit header

Setscrews to align floor

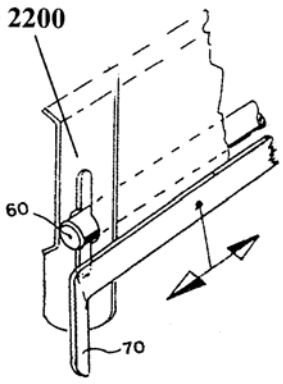
Catch clips



Lower fastener

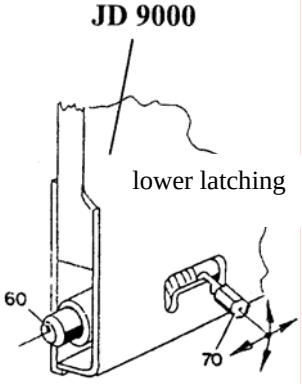


JD 2200



JD 9000

lower latching



Attachment of Header to the Combine Harvester John Deere, Series 2020 = A / 9000 = B

The hitch points and the drive system of this picking header are designed to match the following John Deere combine harvesters:

Maize Picking Unit Header	**206A**	2254, 2256, 2258, 2264, 2266, 2266 Extra
Maize Picking Unit Header	**208A**	2254, 2256, 2258, 2264, 2266, 2266 Extra (also Hillmaster design)
Maize Picking Unit Header	**206B**	9540*, 9560*, 9580*, 9640, 9660, 9680, 9780 (starting with model year 2002)
Maize Picking Unit Header	**208B**	9540, 9560, 9580, 9640, 9660, 9680, 9780 (starting with model year 2002) (also Hillmaster design)
Maize Picking Unit Header	**206C**	9680 (up to model year 2001) only in Hillmaster design!
Maize Picking Unit Header	**208C**	9680 (up to model year 2001) only in Hillmaster design!

* = Report issued by TÜV (sample report) can be requested.

Main Drive The main drive uses drive or jointed shafts of the left or right side drive unit at the slope conveyor of the combine harvester.
The drive shafts have to be securely and firmly connected and the protecting guard must be secured against rotating.
206: one-sided drive, 208: dual-sided drive,
Basic machine: Powered via drive shafts.
Hillmaster: Powered via jointed shafts (cardan drive)

Attaching Equipment Drive the combine harvester up to the picking header close enough so that the catch clips at the slope conveyor extend under the pipe of the header equipment. (Make sure the combine harvester is aligned centred with the header.)
Lift maize harvesting header with the combine harvester hydraulics and lock the lifting cylinder of the slope conveyor.
Attach picking header in lower area. Then unlock the lifting cylinder.
Set angle of picking header to ground with the setscrews of the header equipment; set to working position (alignment with lever attached to frame).

Warning: ⚠ The equipment has to be realigned if the tilt of the header is changed with a drive over the drive shafts. (See page 13 A)

Comb. Harvester Model 2200 Note: Use lever 70 to move the locking pins 60 completely towards the inside. If the bolts 60 are left in this outside position, the slope conveyor will be damaged when attaching the picking header!

Comb. Harvester Model 9000 Note: The locking pin 70 has to be set to the inside position before attaching the harvester header. If the pins are left in this outside position, the slope conveyor will be damaged when attaching the picking header!

Latching Clip The picking header can become detached from the combine harvester if the lower latching clip 34 is not installed. The latching bolt 60 has to extend through the latching clip. If not, reverse the plate. Tolerances might require that the latching clip 34 is attached differently to the left and the right side. Different combine harvesters offer different technical solutions for the lower fastener. Make sure all equipment is always securely fastened and locked in place.

Speed Test For all possible power transmission conditions, the only significant factor is that the speed at the drive shaft under load amounts to 480 rpm/min at the drive shaft at the combine harvester (idle speed approx 8% higher). This corresponds with a speed of 39 to 41 rpm/min at the distributor rotors.

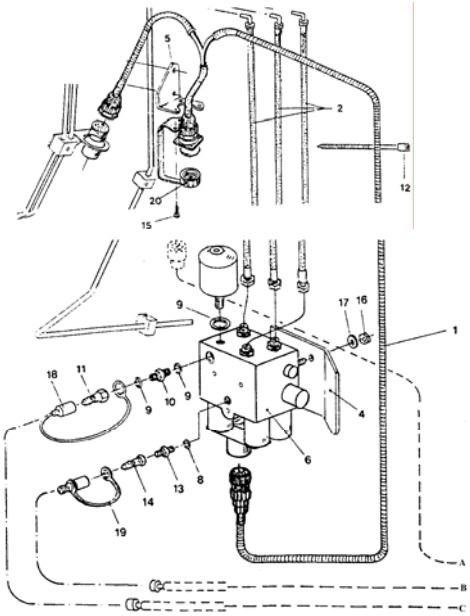
Speed Adjustment The rpm of the picking and conveyor unit can be adjusted to meet different requirements of different crops by changing the bevel gear sets in the double angular gears.

Speed	No. of the bevel gear set
- 5 %	LCA86761
- 10 %	LCA86762
+ 10 %	LCA86763

Adapter JD 2200 A control valve "6" is used for control.

Hydraul. Connection A double acting control valve is required on the combine harvester.

Electr. Connection 12 volt connection
Combine harvester socket: 37-pole
Connection for control valve 6: 16-pole
Connection for picking unit: 23-pole
The 23-pole plug is suitable for flashing indicators and position lights as well as additional connections such as ultrasound sensor, tilt sensor, stubble light, steering signal, etc.



Pinbelegung Steckdose 37-Polig

Pin	Kabel	Kabelnummer	37-Pol. von Pin	23-Pol nach Pin	16-Pol. nach Pin
A	310,33	1	A		B, E, H, L
B	128	2	B	D	
C	118	3	C	C	
D	125	4	D	B	
E	115	5	E	A	
F	330	6	F	E	
G					
H	99	7	H	X	
J					
K	106	8	K		A
L	105	9	L		K
M	108	10	M		D
N	107	11	N		G
P					
R					
S	327	12	S	H	
T					
U	426	13	U	K	
V	421,421c	14	V	M	
W	427	15	W	L	
X	335	16	X	F	
Z	337	17	Z	G	
a	423	18	a	S	
b					
c					
d					
e					
f					
g					
h					
j					
k					
m					
n	050B	19	n	Q	
p	050C	20	p	O	
r	135	21	r	N	
s	050W	22	s	P	

Pinbelegung Stecker 16-Polig

Pin	Kabel	Kabelnummer	16-Pol. von Pin	37-Pol. nach Pin
A	106	8	A	K
B	310A	1	B	A
C				
D	108	10	D	N
E	310B	1	E	A
F				
G	107	11	G	M
H	310C	1	H	A
J				
K	105	9	K	L
L	310D	1	L	A
M				
N				
O				
P				
R				

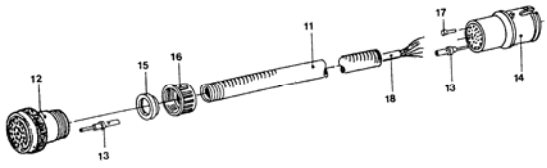
Pinbelegung Stecker 23-Polig

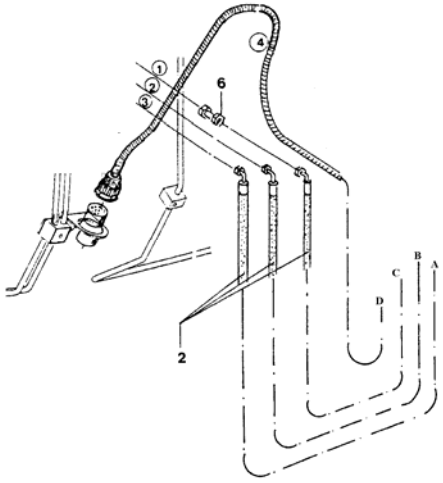
Pin	Funktion	Kabel	Kabelnummer	23-Pol von Pin	37-Pol. nach Pin
A	Blinker rechts	115	5	A	E
B	Blinker links	125	4	B	D
C	Standlicht rechts	118	3	C	C
D	Standlicht links	128	2	D	B
E	12V Masse	330	19	Q	n
F	Ultraschallsensor links	335	16	F	X
G	Ultraschallsensor rechts	337	17	G	Z
H	12 Volt Plus	327	12	H	S
J	Sensor				
K	Neigungssensor links	426	13	K	U
L	Neigungssensor rechts	427	15	L	W
M	5V Masse	421,421c	14	M	V
N	Stoppelbeleuchtung	135	21	N	r
O	Header Select	050C	20	O	p
P	Header Select	050W	22	P	s
Q	Header Select	050B	6	Q	F
R	Überdruckventil				
S	5V Bezugsspannung	423	18	S	a
T	Lenksignal links				
U	Lenksignal rechts				
V	Header Select				
W	Haspelposition				
X	Pflücklattenverstellung	99	7	X	H

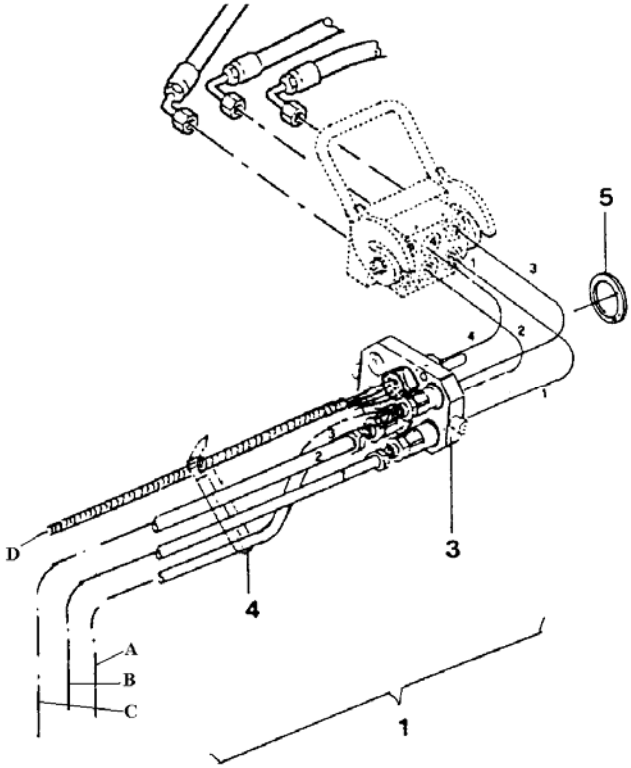
Adapter JD 9000 A multi-coupler with integrated hydraulic and electric connector is used for control.

Hydraul. Connection A double acting and single acting control valve is required on the combine harvester.

Electr. Connection 12-volt connection
Combine harvester socket: 31-pole
Connection for picking unit: 23-pole
The 23-pole plug is suitable for flashing indicators and position lights as well as additional connections such as ultrasound sensor, tilt sensor, stubble light, steering signal, etc.





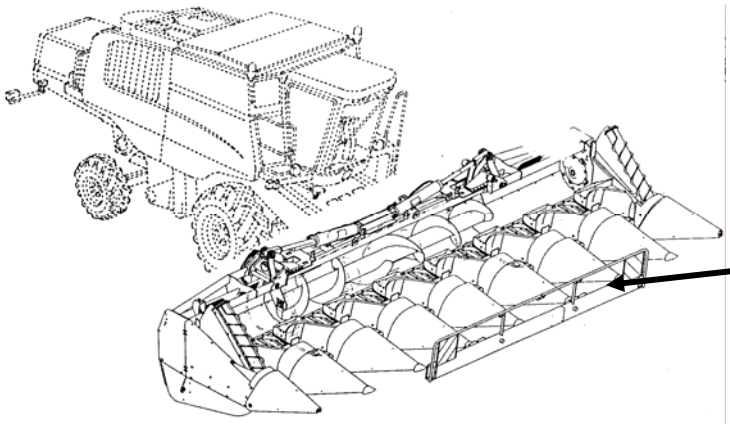


Pinbelegung Stecker 31-Polig

Pin	Kabelnummer	Kabelkennzeichnung Nummer	Kabelkennzeichnung Farbe	31-Pol. von Pin	23-Pol. nach Pin
1	416	1	orange	1	6
2	417	2	orange	2	7
3				3	
4	21	3		4	8
5				5	
6	415	4		6	9
7	412	5	grün	7	10
8				8	
9	454	6	grün	9	11
10	480	7	schwarz	10	12
11				11	
12	10	8	schwarz	12	5
13	515	9	braun	13	2
14	514	10	braun	14	1
15	529	11	braun	15	13
16	436	12	grün	16	14
17	488	13		17	15
18	489	14		18	16
19	497	15		19	17
20	481	16	grün	20	18
21				21	
22	552	17		22	3
23	553	18		23	4
24		19		24	19
25		20		25	20
26				26	
27				27	
28	487	21		28	21
29				29	
30	835	22	orange	30	22
31	834	23	orange	31	23

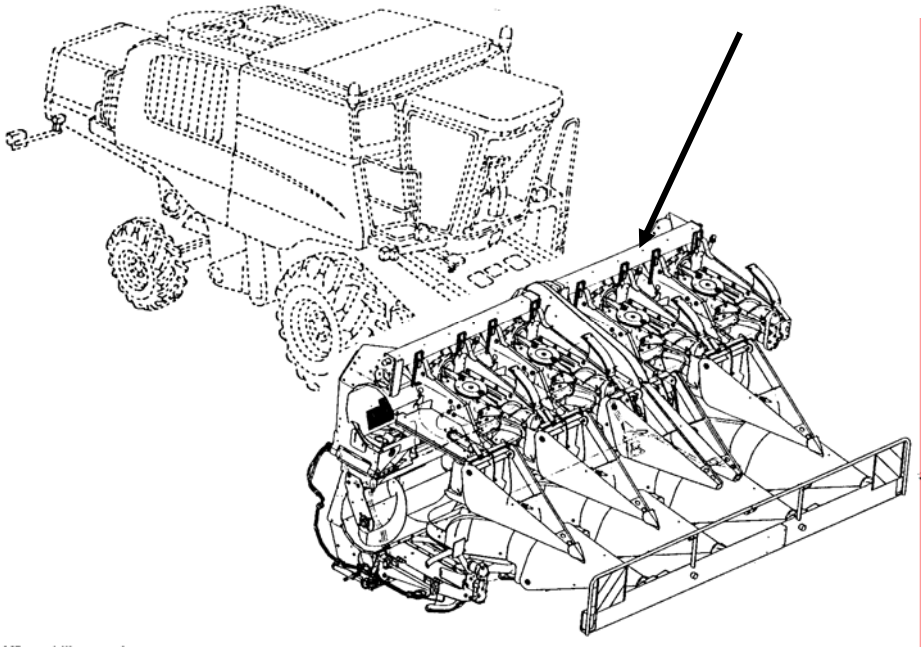
Pinbelegung Stecker 23-Polig

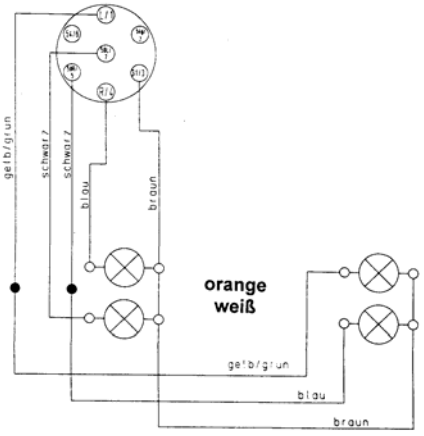
Pin	Funktion	Kabel	Kabelkennzeichnung Kabelnummer	Kabelkennzeichnung Farbe	23-Pol. von Pin	31-Pol. nach Pin
A	Blinker rechts	514	10	braun	A	14
B	Blinker links	515	9	braun	B	13
C	Standlicht rechts	552	17		C	22
D	Standlicht links	553	18		D	23
E	12V Masse	10	8	schwarz	E	12
F	Ultraschallsensor links	416	1	orange	F	1
G	Ultraschallsensor rechts	417	2	orange	G	2
H	12 Volt Plus	21	3		H	4
J	Sensor	415	4		J	6
K	Neigungssensor links	412	5	grün	K	7
L	Neigungssensor rechts	454	6	grün	L	9
M	5V Masse	480	7	schwarz	M	10
N	Stoppelbeleuchtung	529	11	braun	N	15
O	Header Select	436	12	grün	O	16
P	Header Select	488	13		P	17
Q	Header Select	489	14		Q	18
R	Überdruckventil	497	15		R	19
S	5V Bezugsspannung	481	16	grün	S	20
T	Lenksignal links		19		T	24
U	Lenksignal rechts		20		U	25
V	Header Select	487	21		V	28
W	Haspelposition	835	22	orange	W	30
X	Pflücklattenverstellung	834	23	orange	X	31

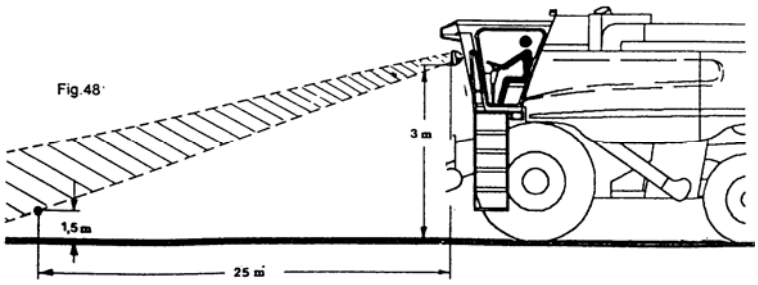


Attach road traffic guard

Then fold up side sections







Transport on Public Roads

Accident Prevention

When travelling on public highways, the entire area around the crop separators must be covered with a folding guard.

Installation sequence:

A While in working position, use the two enclosed bolts to attach the folding guard to the crop separators 2 + 5.

B Then fold up the outer picking units.

C Swivel the outer units by 180° each.

An additional safeguard is not required.

Ground Clearance

When travelling on public highways, the harvesting header must be raised high enough so that the front accident prevention device is approx. 300 mm above the road surface.

Side Lights and Direction Indicators

Since the folded up units usually cover the side lights and direction indicators of the combine harvester, an additional set of side lights/direction indicators is attached to the guard. For the 12 V power supply, a 7-pole plug is located on the right side of the front picking unit.

Dipped Beams

A The dipped beams/low beam headlights at the combine harvesters of the 9000 series comply with all road traffic regulations even when combined with a Kemper picking header.

B The dipped beams/low beam headlights fitted on the harvesters of the 2200 series (not to be confused with working headlamps) must be duplicated at another position on the harvester. This is because the road ahead is not adequately illuminated when the outside units have been raised.

The TÜV suggests the following:

"Additional dipped beams of an approved design “A” (e.g. type Hella 1 AB 004231-001, test certificate HR HC/R E1 02 24461 R20) fitted with two separate switches, for standard lighting when driving without picking unit or with standard picking unit and standard lighting plus additional headlights for driving with Kemper maize picking header.

The headlight mounts are attached on both sides of the vertical pillars on the cab with suitable drilled holes. The lower edge of the headlamp should be approx. 3000 mm above the road surface".

See notes listed in the corresponding government inspection survey regulations.

Moreover, additional side indicators are to be mounted at the front of the harvester on the right and left, in accordance with § 54 of the statutory road traffic regulations (e.g. Hella type 2 BM 006 692 - 011 or - 021).

Obtaining Individual Operating Licenses

Combine harvester and picking header are self-contained, individual products. If they are combined and then driven on public roadways, a supplement or addendum to the individual operating license of the combine harvester has to be obtained. To obtain an individual operating license in accordance with § 21 or § 19 (2) of the German statutory road traffic licensing regulations ('StVZO'), a "sample report" issued by the TÜV concerning the picking header and an “exception permit” issued by the district president are required.

These documents are available for most combine harvesters. To obtain them, please contact your local dealer.

You must then take the individual operating license, the sample report and the exception permit to your local TÜV for registration; you will then be issued a permit from the local road traffic licensing department.

Transport on Public Roads

Steering Capability

To ensure proper steering, counterweights or ballast weights must be attached to the steering axle on the transport vehicle without exceeding the permitted axle loads.
These counterweights have to be taken off when driving on roads without the picking header attached.

Counterweight

The counterweight to be attached depends on the type of combine harvester.

Weights

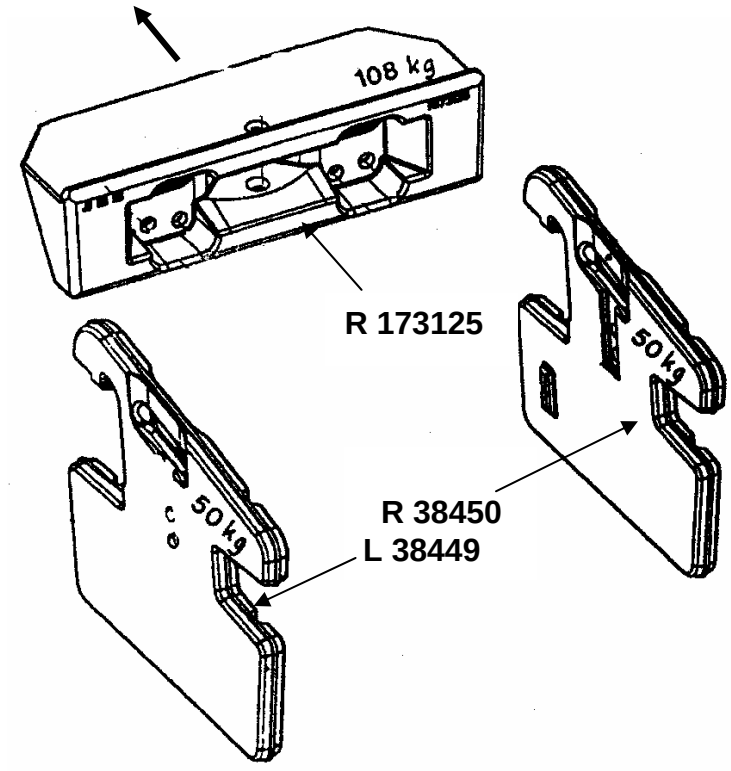
Weights from the John Deere tractor can be used in conjunction with the according support.
These John Deere parts are available as follows:

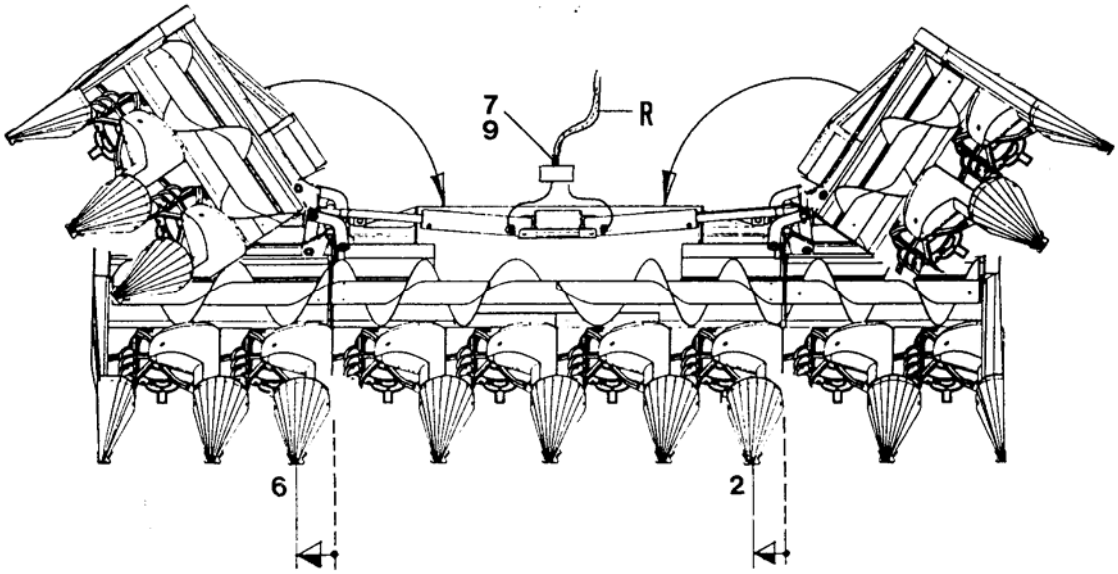
Support:	R173125
Left weight:	L 38450
Right weight:	R 38499

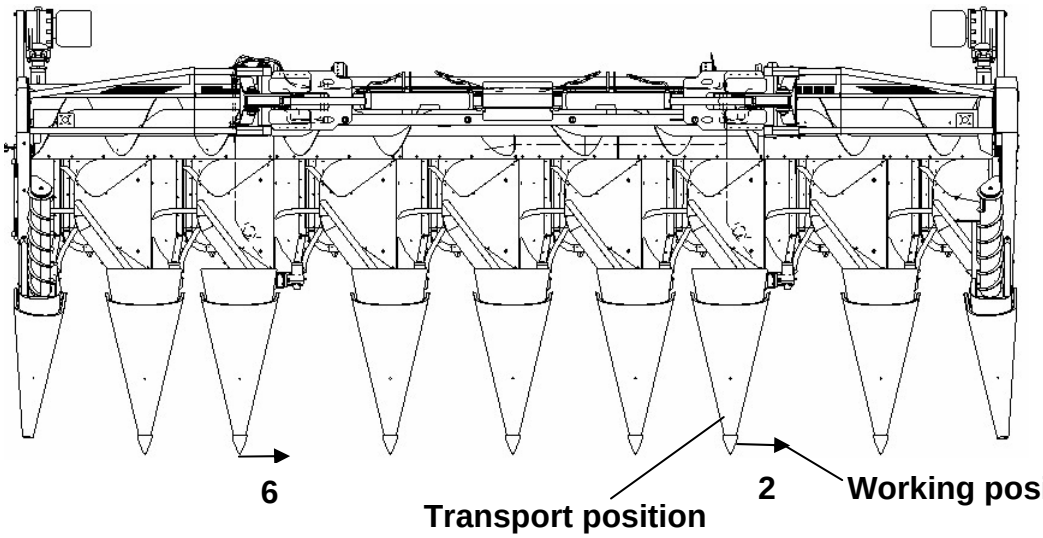
Check to make sure this support can be attached to the existing combine harvester before ordering these parts.

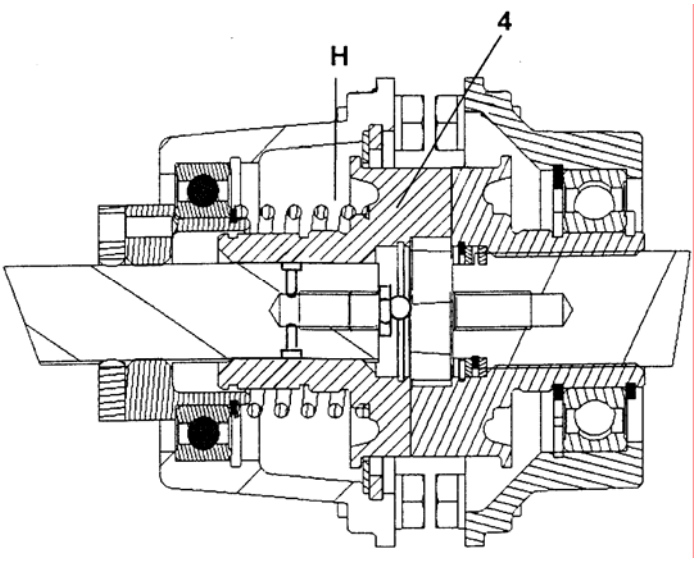
However, other types of weights and mounting modes are possible as well.

Attaching weights / support to combine harvester




7
9
R
6
2


6
Transport position
2
Working position


4
H

Lifting and Lowering of the Lateral Picking Units

Hydraulic Cylinder

The outer picking units are raised and lowered by means of double-acting hydraulic cylinders. A double acting control valve is required on the combine harvester.
Do not stand or walk under external cutting units when in raised position!

Transport Position

The crop separators in the area of the hinges (2 + 6) are hydraulically moved from the operating to the transport position before lifting the outer picking units.

Latching

The outer picking units are automatically latched and locked when changing from the transport to the operating position.

Lowering Speed

In order to prevent accidents, a 1 mm restrictor (9) is built into the union 7 at the return line R. This restrictor reduces the lifting and lowering speed of the lateral parts. A sudden blockage might indicate that dirt from the oil circuit has blocked the restriction opening. (Clean restrictor opening by flushing in opposite direction)

Accident Prevention

The hydraulic system operates under high pressure. All hoses that are porous, broken or damaged must be replaced immediately. All hoses have to be replaced after 6 years or earlier. (Specification acc. to DIN 20066)
The maximum permissible oil pressure is 190 bar.

Accident Prevention

Important: Make sure the system is depressurised before commencing any work on the hydraulics system.
Make sure the lateral parts cannot shift unintentionally or suddenly drop when only partially lifted before depressurising the system.

Hinge Coupling

The coupling claw of the hinge only requires minimum maintenance and consists of two claws protected against corrosion and one pressure spring. The coupling claws are designed to ensure proper gripping and a secure connection at all times. Clean the coupling claw area at regular intervals and check the shifting claw 4 for free movement. The shifting claw 4 should be lubricated once a week.
Cavity H is filled with **AVIATICON XRF** liquid grease or **Gresalit**.

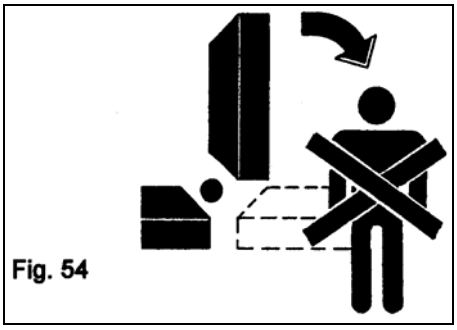
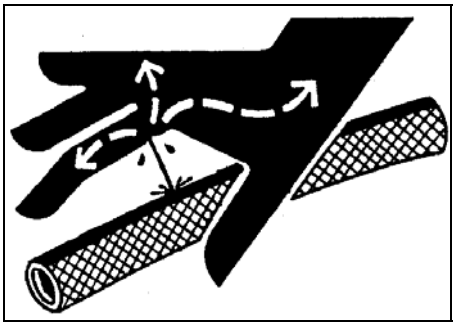
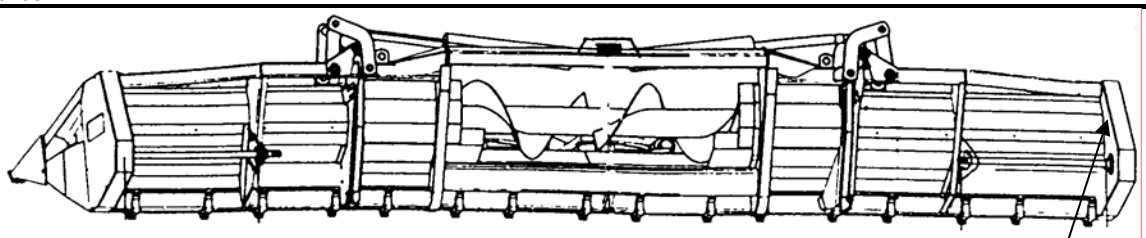
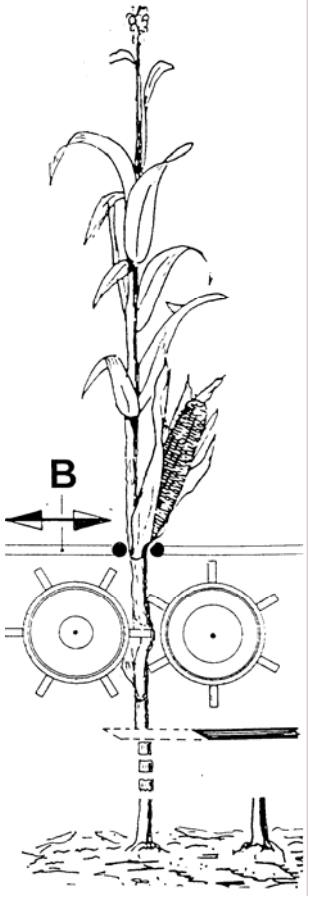


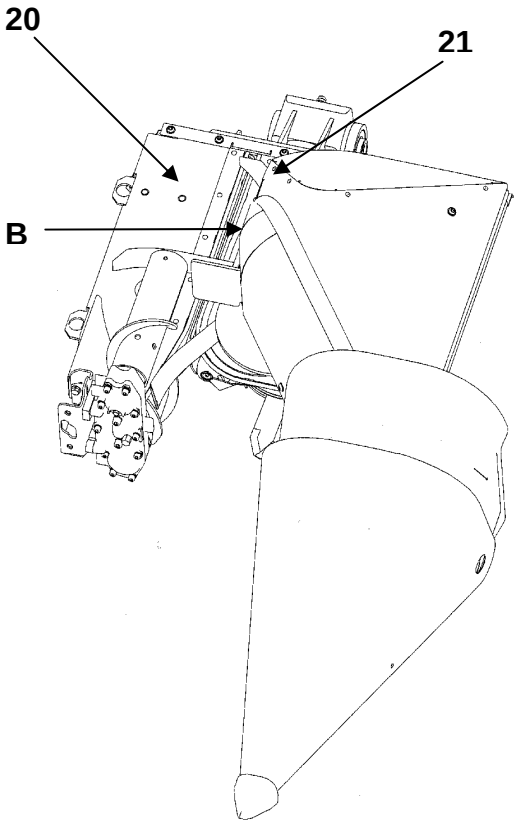
Fig. 54



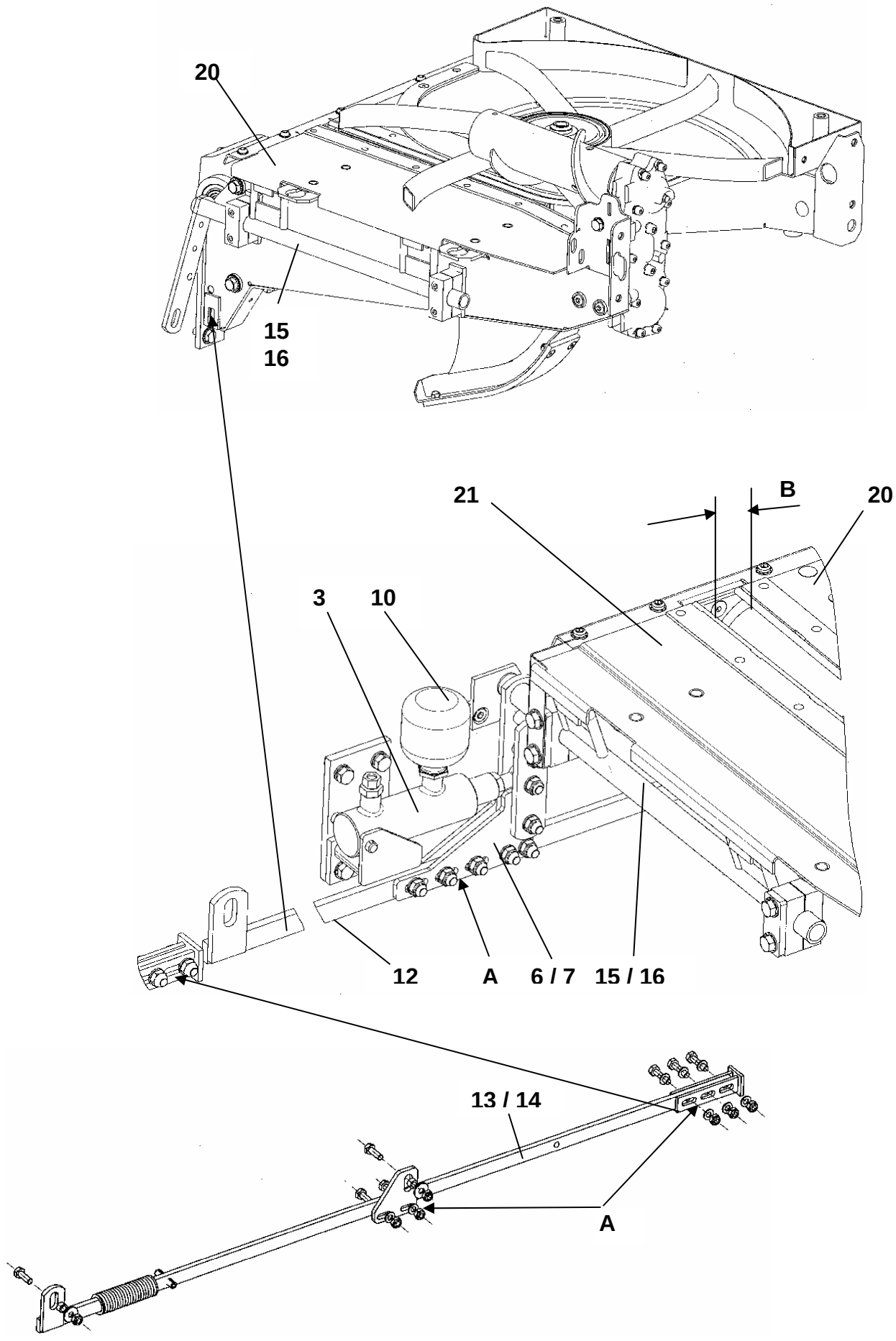


Picking gap indicator "C"





Adjustable	Plant and maize cob pulled are through the picking gap by the picking rollers and separated as indicated by the picking gap setting.						
Picking Gap	Picking gap B is adjustable to 20 to 50 mm using the movable picking plate 20. This corresponds to the values depicted on indicator C (1 to 5). Important: Picking plates are not positioned parallel to one another. The spacing of the plates is approx. 5 mm larger in the rear than in the front. This pitch is permanently set and cannot be changed.						
	Indicator C	0	1	2	3	4	5
	Picking gap width	20	26	32	38	44	50
Picking Plate Adjustment	Due to the many different types of maize and the different working conditions in the field, the picking plates 20 can be hydraulically adjusted from the combine operator cab.						
⚠	Prior to maintenance and repair work, stop engine and remove ignition key.						
Setting the Picking Gap Width	If indicator C and picking gap width B no longer match, readjust the equipment.						


20
15
16
21
B
20
3
10
12
A
6 / 7
15 / 16
13 / 14
A

Readjustment

The left picking plate 20 is rigidly mounted and the right picking plate 21 is adjustable. A single acting hydro cylinder 3 with hydraulic accumulator 10 for the counter-pressure is used to move setting lever 15 + 16, which in turn moves picking plate 21. All setting levers 15 + 16 are connected with a piece of flat steel 13 + 14 via a clamping piece 6 + 7.
Use the slotted holes "A" to readjust the equipment.

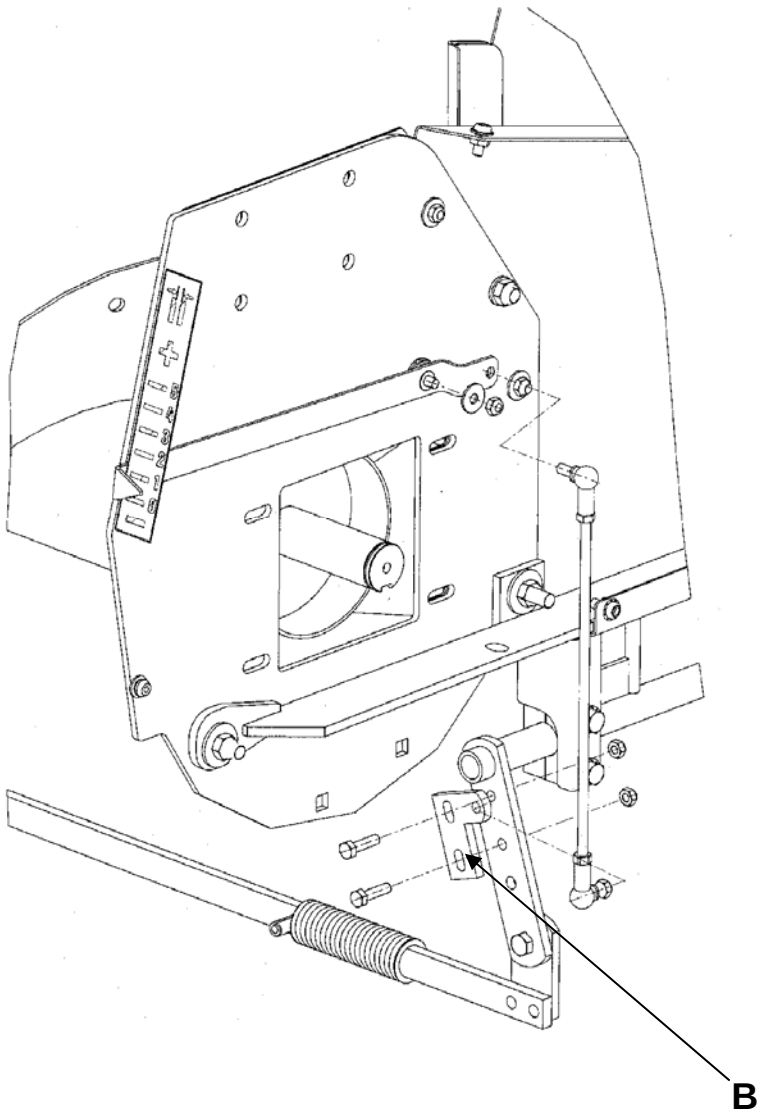
Picking Gap Indicator

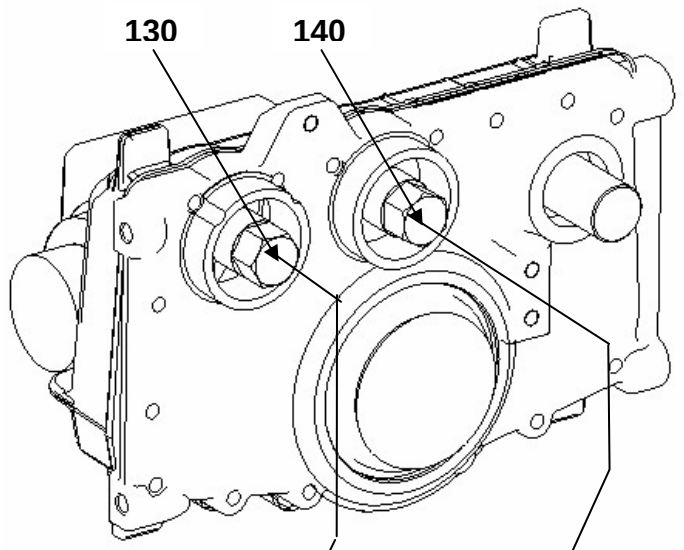
Use the space of the slotted holes of plate B to fine-tune the setting.

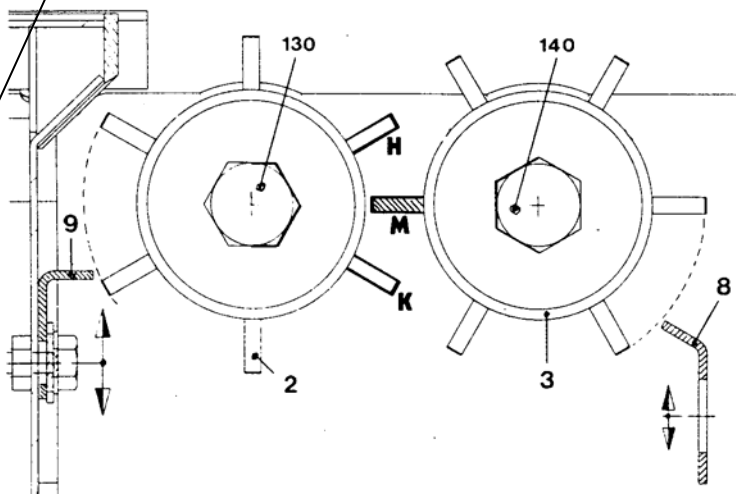
Hydraulic Accumulator 10

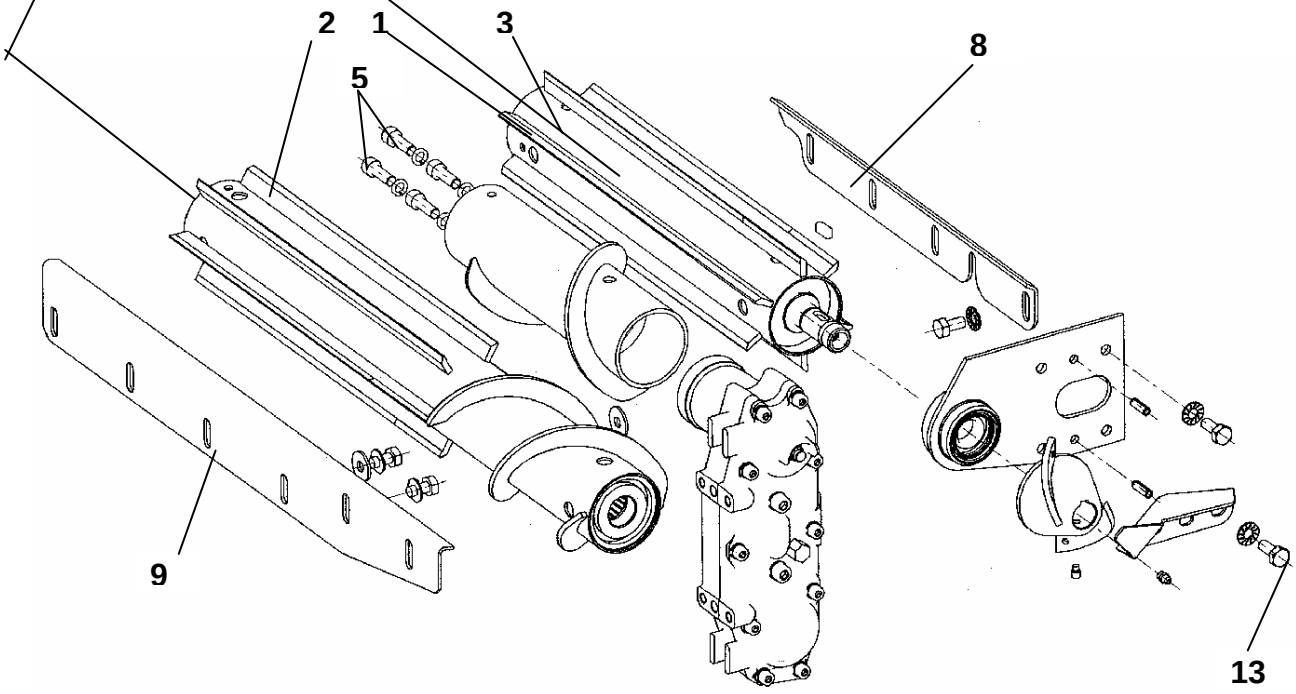
Content = 0.16 l - P max 210 bar - P factory 80 bar

This pressure device may only be detached or operated by hydraulically trained engineers or technicians.
Do not perform any welding, soldering or mechanical work on the hydraulic accumulator 10.




130
140


130
140
H
M
K
9
8
2
3


2
1
3
5
8
9
13

Picking Rollers

The pins 130 + 140 at the spur angle gear drive are mounted in such a way that the wings H, M und K do not collide at the two picking rollers 2 + 3.
Note: When mounting gears, the position of the pins 130 + 140 must be considered.

Strippers

The two strippers 8 + 9 are tightly factory-mounted to the wings H, M und K throughout the whole length.
If winding problems occur at the rollers, the gap width must be set to a smaller value.

Auger

After the first 5 hours of operation, you should check that all screws pos. 5 und 13 fit securely.

Distributor Rotor

Ensure a gap of 2 mm between the rotor arm 1 and the stripper 4.

Flush Mounted Forage Harvester

With blunt blades, the power demand increases. Thus, sharpen the blades in good time. Both sides of the blades can be used!
If the quality is not sufficient when using 2 blades per picking unit, it is possible to retrofit a third blade at any time.

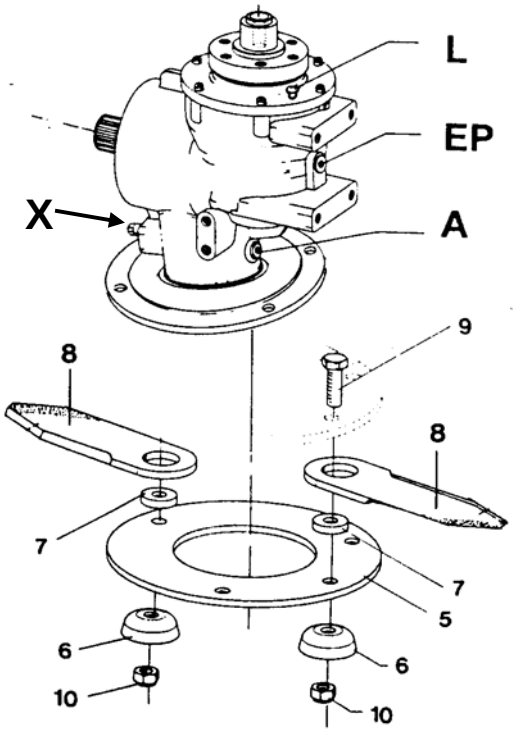
Switching off the Flush Mounted Forage Harvester

The flush mounted forage harvester can be switched off by means of the screw “X“ at the backside of the epicyclical transmission.

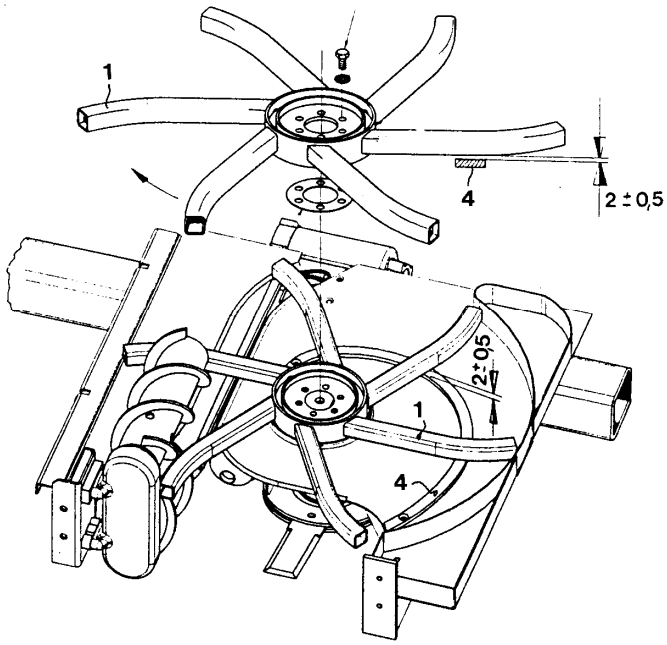
Retrofitting a third Blade

The required parts for a third forage harvester blade can be ordered as a set under the number 86215.
This set consists of the parts pos. 6 to 10.
One set is required per picking unit.

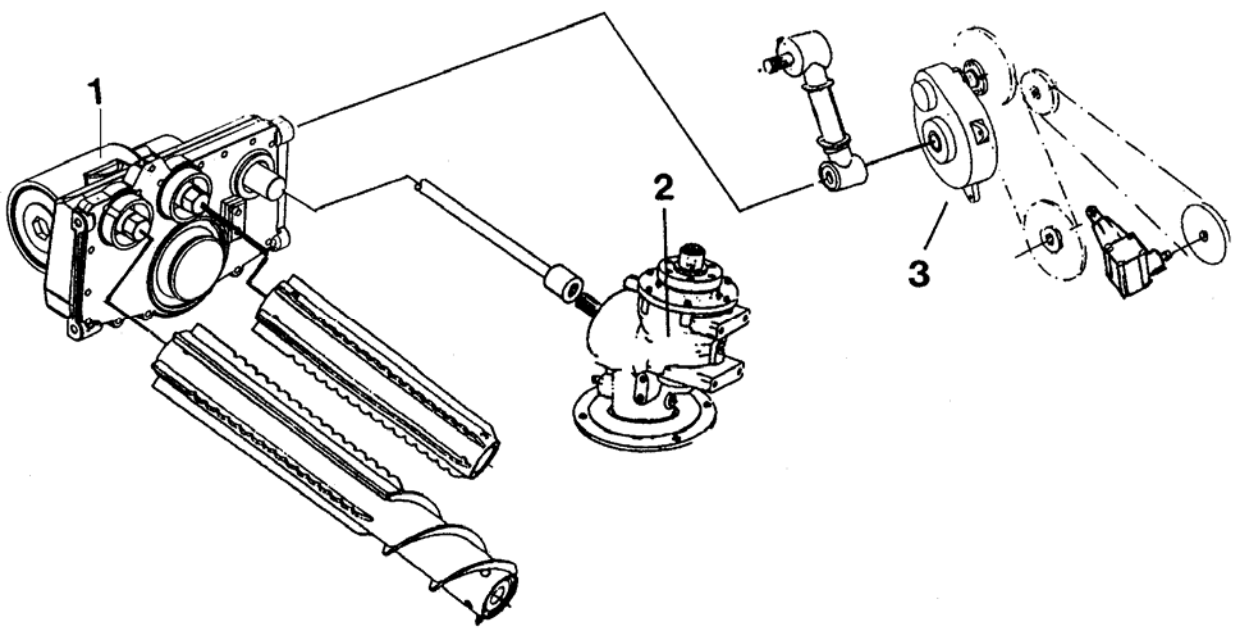
Flush mounted forage harvester

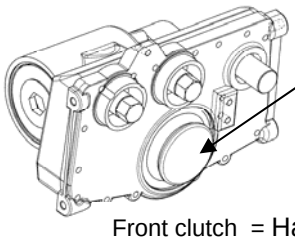
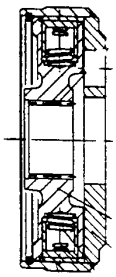
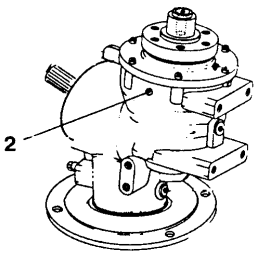
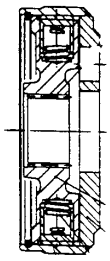
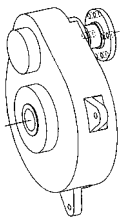
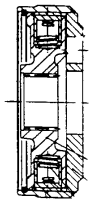


Distributor rotor



Attention! Maximum tightening torque for the unoiled connection
Screw pos. 9 with nut Pos. 10 **= 120 Nm.**



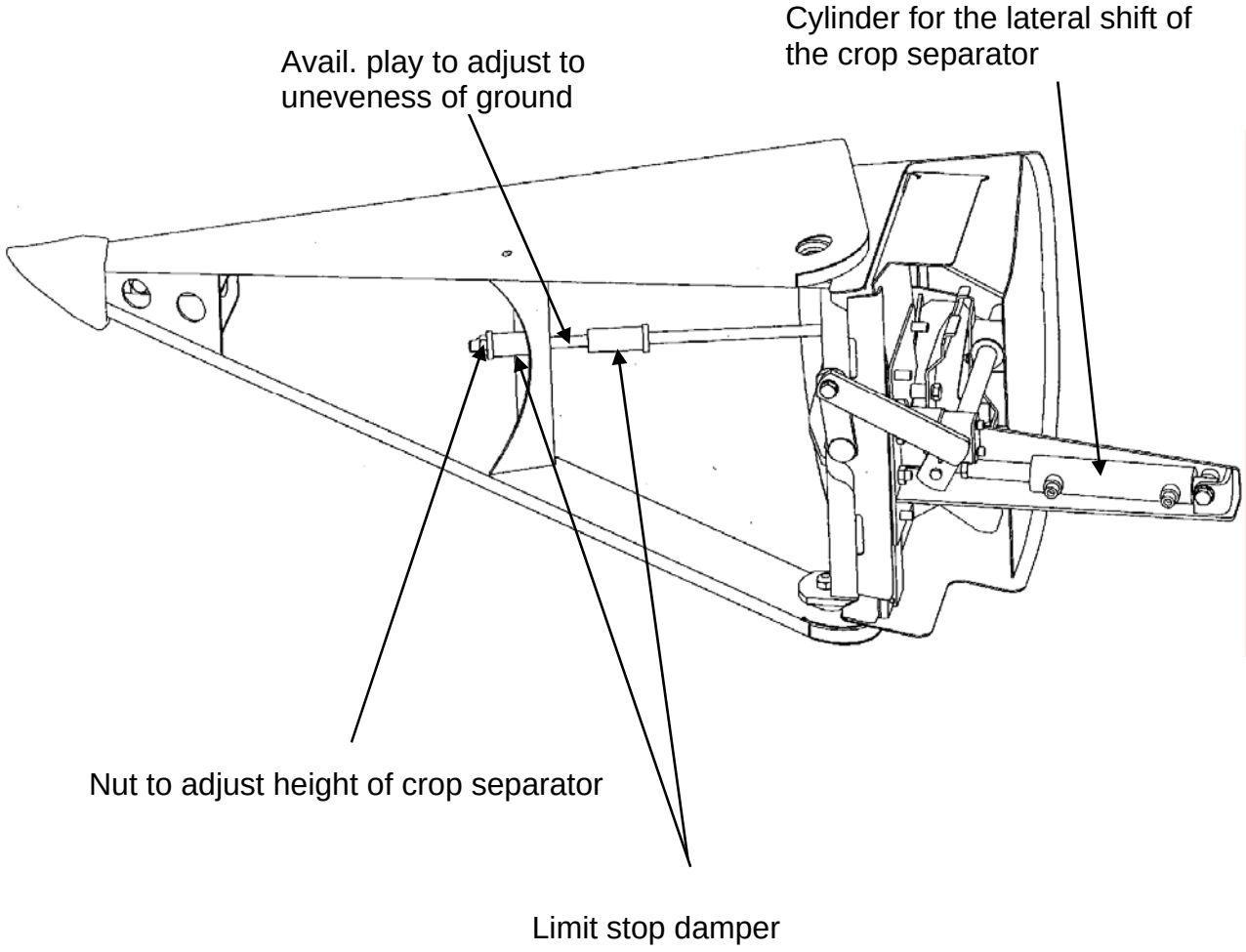
No.	Sub-assembly	Clutch	Torque
	Spur angle gear drive	2 friction clutches	Nm
1	 Clutches are accessible from the outside after removing cover. Front clutch = Harvesting + conveyor unit Rear clutch = Picking unit		Picking roller approx. 400 Rotary flail-type forage crusher approx. 450
	Planetary gears	Friction clutch	Nm
2			approx. 670
	Drive of transverse auger	Friction clutch	Nm
3			approx. 1250

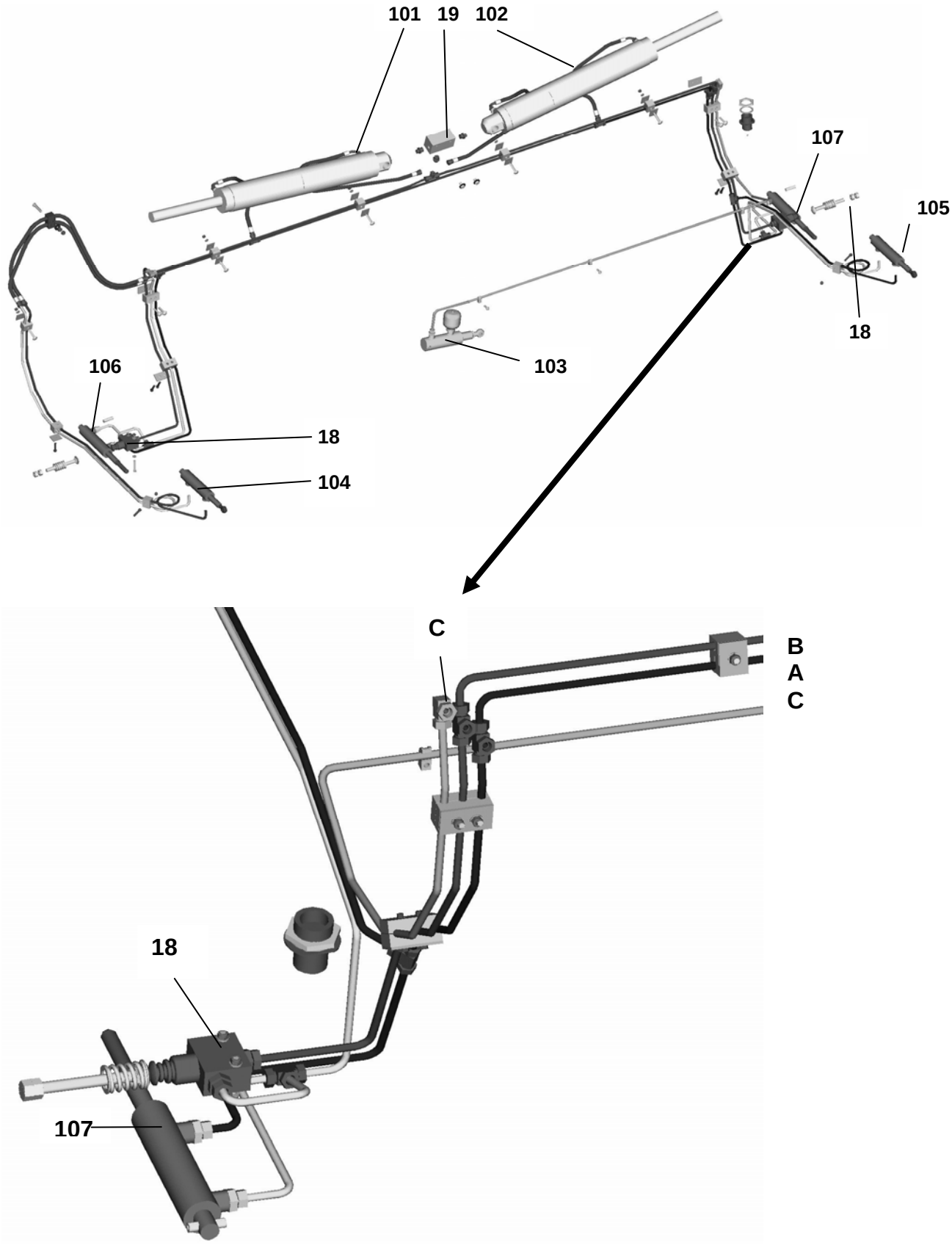
Crop Separators

The crop separators 33 are height adjustable and can adjust to ground conditions (unevenness) to a certain extent as well. The limit stops of this adjustment path are damped. The height adjustment function makes it possible to react to the different working conditions (e.g. maize left on the field).

Lateral Shifting and Latching of Crop Separators

The crop separators in the area of the hinge have to be shifted before folding up the lateral picking units. Shifting and latching/locking is carried out with a hydraulic cylinder controllable from the harvester.




101
19
102
107
105
18
103
106
18
104
C
B
A
C
18
107

Hydraulic/Electric System

The maize picking unit is always equipped with the depicted system.

Interface A B C

These three connections are the interfaces for the hydraulic system.

Interface D

This socket is the electric interface.
The 23-pole plug is suitable for the flashing and position lights as well as as any additional connections (ultrasound sensor, tilt sensor, stubble light, steering signal, etc.).

Hydraulic Cylinder

101 / 102 = Hydraulic cylinder for tilting the outer units.
The screw connection for the lowering restrictor is located at the lower exit.

103 = Hydraulic cylinder for laterally shifting the picking plates.
With integrated nitrogen tank. To be detached only by trained and authorised personnel.

104 / 105 = Hydraulic cylinder for laterally shifting crop separators 2+6.

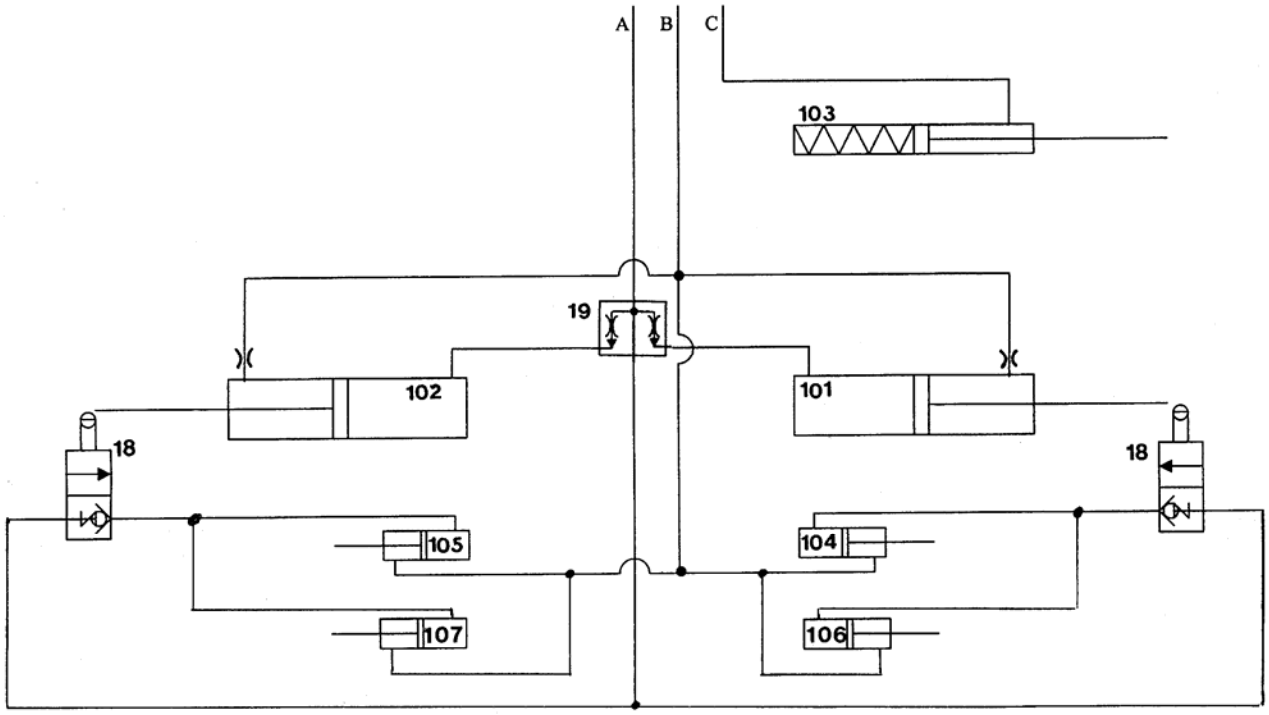
106 / 107 = Hydraulic cylinder for locking the lateral folding units.

18

This valve controls the functions of unlocking, shifting the two crop separators 2+6 as well as the folding of the outer picking units.
Switching sequence:
Connection "A" is pressurised.
Cylinder 101/102 are extended; when reaching final position, they control the "18" valves. Locking and shifting cyl. 104 / 105 / 106 / 107 are extended.

19

This divider coil distributes the oil equally to cylinders 101+102.



Working with the Maize Harvesting Header
Start-up – Turn – Change Forage Wagon - Reverse

The maize harvesting header may only be used, serviced and repaired by persons who are familiar with the operation of this equipment or who have been instructed regarding the hazards involved!
These instructions only serve to make some general recommendations. Together with your own experiences, follow these instructions to help avoid serious problems.

- ***You should be familiar with the machine before you start!***

Start-up

Start the combine harvester, switch on the threshing cylinder and then the maize harvesting header. Start only at idle speed so that the friction clutches in the combine harvester do not slip.

- ***Always start and shift into first at idling speed to save the drive units!***
- ***Reverse only at idling speed.***

Starting Fieldwork

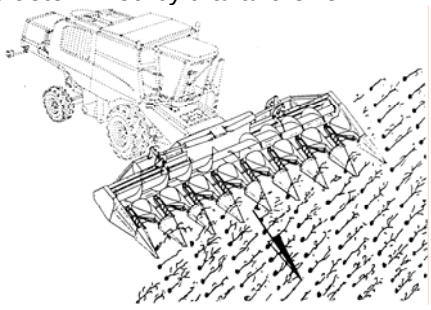
Operate the combine harvester at one of the lower gears until you are familiar with the way the picking header handles.
After having passed over several rows, stop the combine harvester, turn off the engine and remove the ignition key. Check all bearings for overheating. All screws and bolts have to be tight.

- ***Always drive smoothly and steadily into the crop!***

Direction of Travel

The row-independent harvesting technique allows approaching the crop from any direction. In difficult conditions (e.g. downed crops), there is always one direction that provides better results. This must be determined by trial and error.

Take advantage of the possibility to freely choose your driving direction



Driving Speed

The driving speed is determined by the kind and density/volume/mass of the crop and the engine power available. The shorter the crop and the lower the crop density, the faster you should drive to ensure satisfactory operation of the intake elements.
A smooth harvesting sequence depends on the proper material flow, which in turn depends on the driving speed.

- ***The driving speed depends on the kind and density of the crop and the power of the harvester.***

Turning

To protect the header drive, maintain your speed when turning and steadily turn back into the crop when negotiating headlands.

- ***Maintain rpm when turning.***

Emptying Kernel Wagon

Due to the short conveyor distances of the picking unit header, it is not advantageous to actuate the instantaneous stop of the combine harvester when changing the kernel wagon. Stopping and restarting the unit would only cause loss of time and expose the drive units to unnecessary stresses.

- ***When emptying the kernel wagon, continue running all gears!***

Eliminating Problems

To clear blockages in the channel openings caused by weed-infested crops or long and sticky husks, stop the harvester and operate in reverse for a short period (idling speed, repeat if necessary). This technique has been proven successful.

- **The brief reverse operation is the key in case of blockages.**

Should you find it necessary to use your hands to remove any material, be sure to switch off the combine harvester motor and turn the PTO shaft shift lever to "OFF". Wait for all moving parts to come to a complete stop! Remove key!

Harvesting Weakened or Broken Stalks (Downed Maize)

Stalks and maize cobs can be weakened by disease (botrytis/stalk rot) or insects (stalk borer), which causes them to break in close proximity to the ground when coming in contact with the crop separators and covers. These stalks are pressed into clumps cannot come in contact with the picking rollers. This crop is then lost thus causing a drop in harvest volume.

The following list includes possible solutions for these problems:
1. Reduce the driving speed of the combine harvester and increase the rpm of the picking unit with the aid of the transverse conveyor (variable rpm).
2. Set the scraper plates as wide as possible without allowing maize cobs to come in contact with the picking rollers.
3. Replace heavily worn picking rollers. Attach sharp-edged blades.

- Apply your own experiences to harvest downed crops successfully.
- Walk around the field to determine the best possible driving direction.
- In most cases, it is best to approach crops at a crosswise angle to the direction in which the stalks are positioned.
- When starting the harvest, observe exactly how well the machine is handling the crop.
- Drive at a very low rpm of the distributor rotors quickly into the crop so that a material flow is created.
- In case of jams: stop, reverse briefly and repeat the process if necessary.
- Extensive reversing is usually always disadvantageous.

Never use your hands or feet to "help"!

Removing a blockage: Switch off engine and remove key!

Whenever performing any work on the picking unit or header, switch off the engine, remove the ignition key and wait until all moving parts have stopped completely.
Only then is it permissible to enter the hazard area.

Uncoupling - Parking

- Detach and place electr. cables, hydr. connection on a clean surface.
- Set jointed shaft to park position.
- Only park on a firm surface.
- Clean and preserve before a lengthy out of service period. Follow the instructions on the equipment!

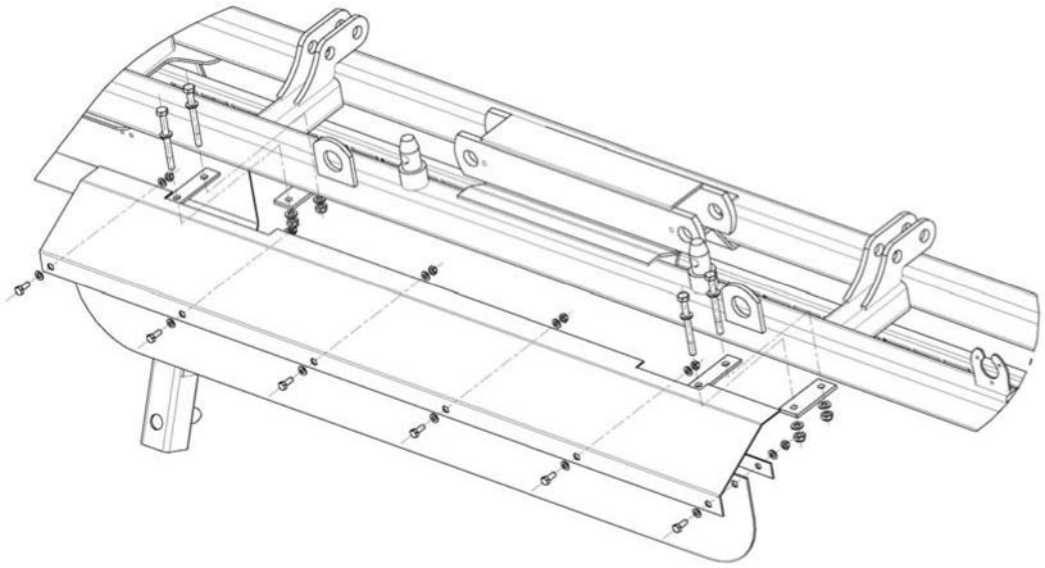
- Touch-up minor paintwork damage immediately.

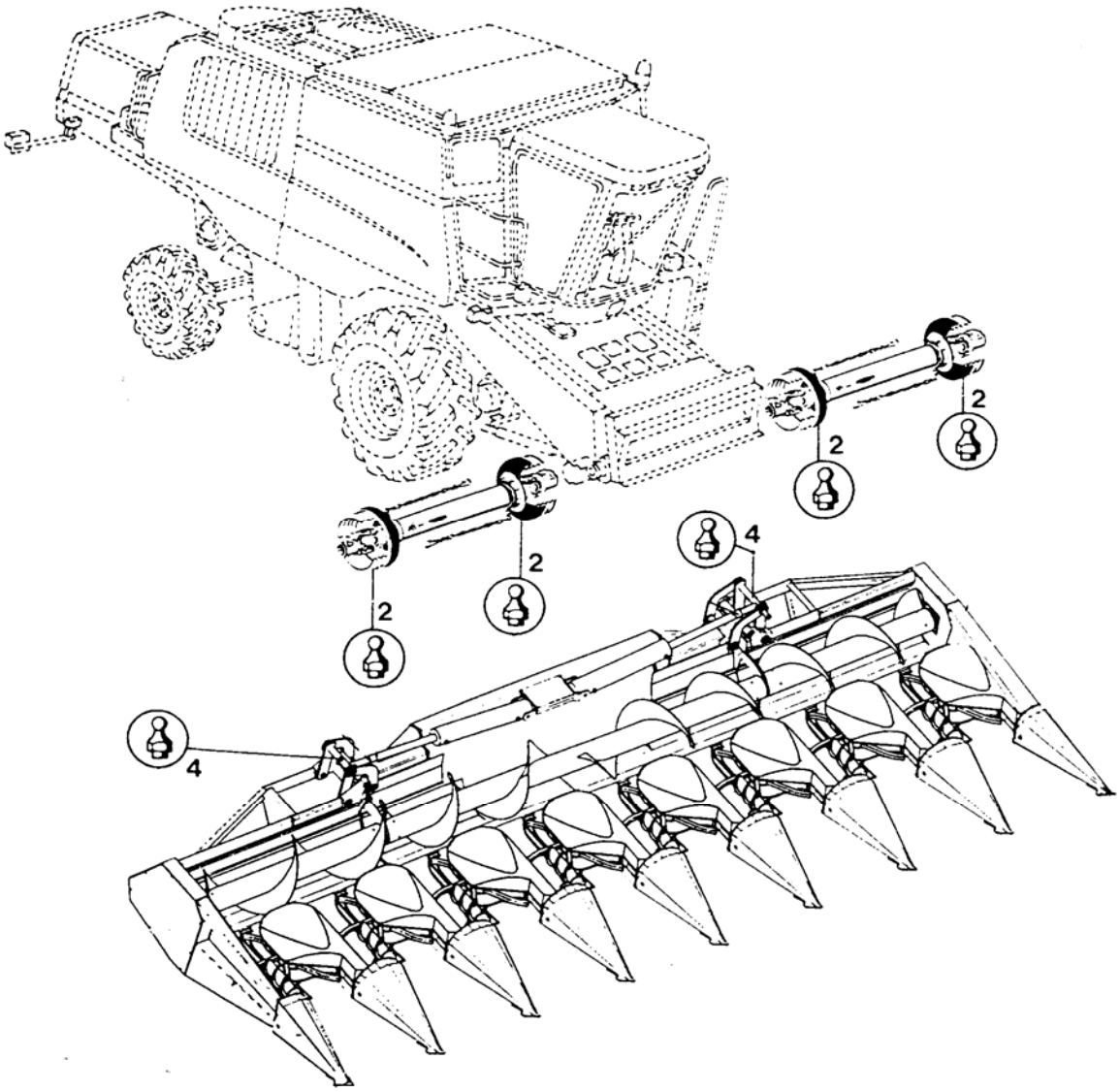
Cleaning the picking unit with the high-presser cleaner:
Water pressure max. 80 bar
Jet spacing min. 25 cm
Water temperature max. 50° C
Important: Do not use jets with circular sections!

.

Under certain operating conditions, primarily once the amount of material fed becomes so great that the combine harvester can no longer accept it without problems, a material jam may occur, which causes increased piston efficiency loss.

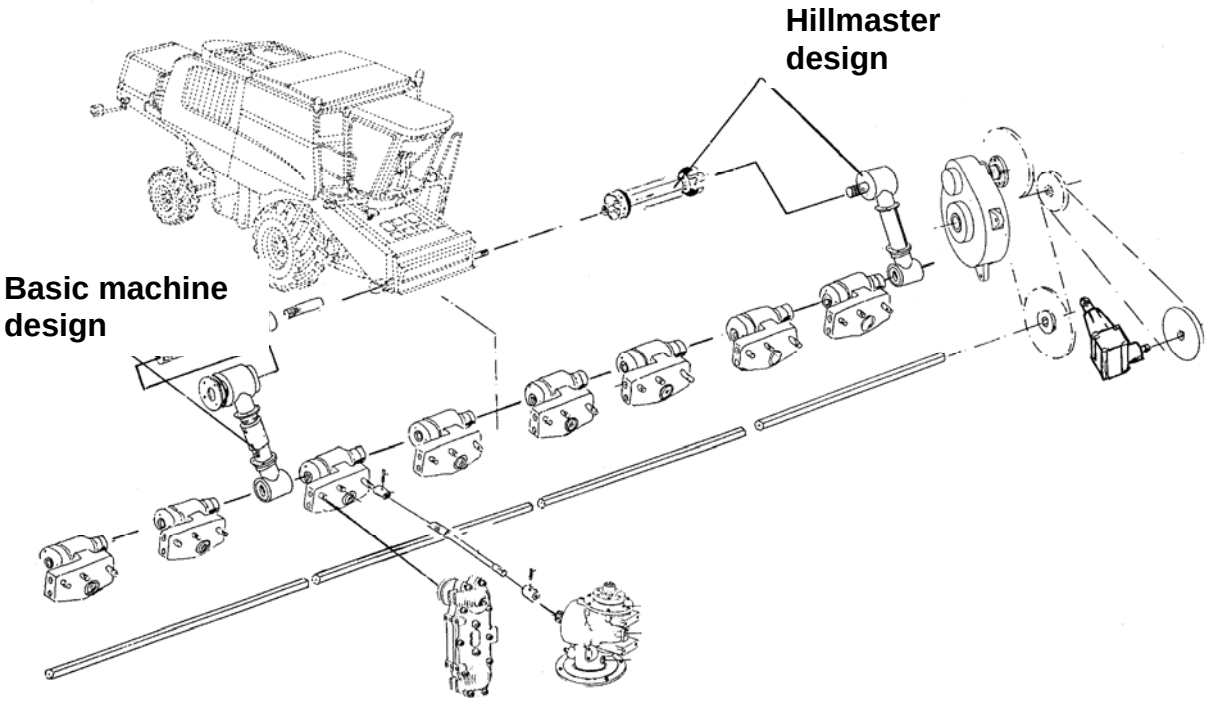
To minimize these efficiency losses, the transverse auger can be equipped with a cover in this area.

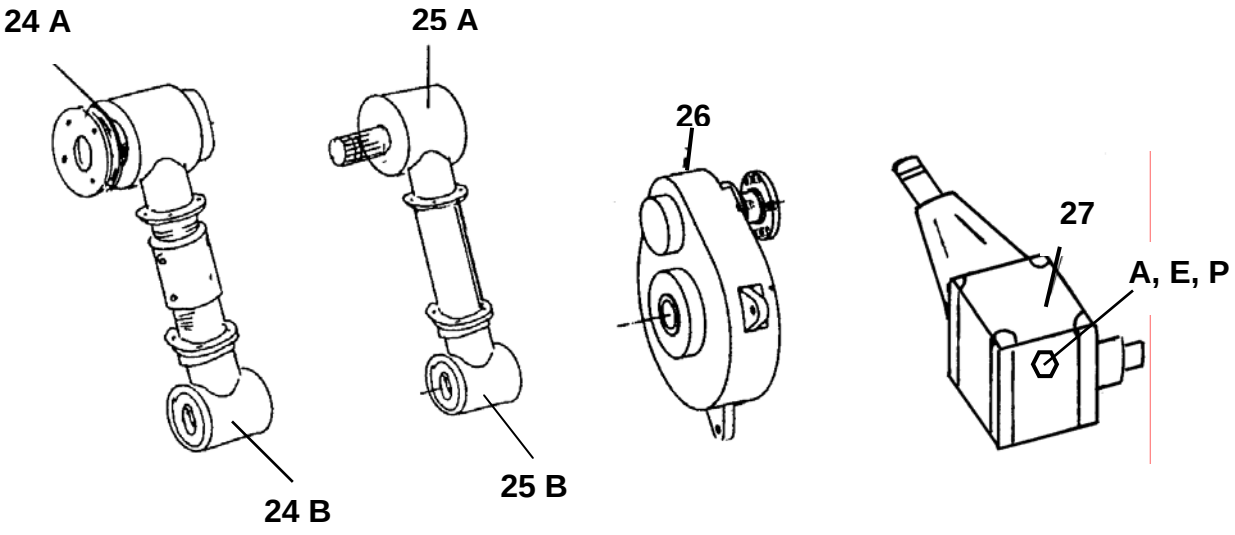


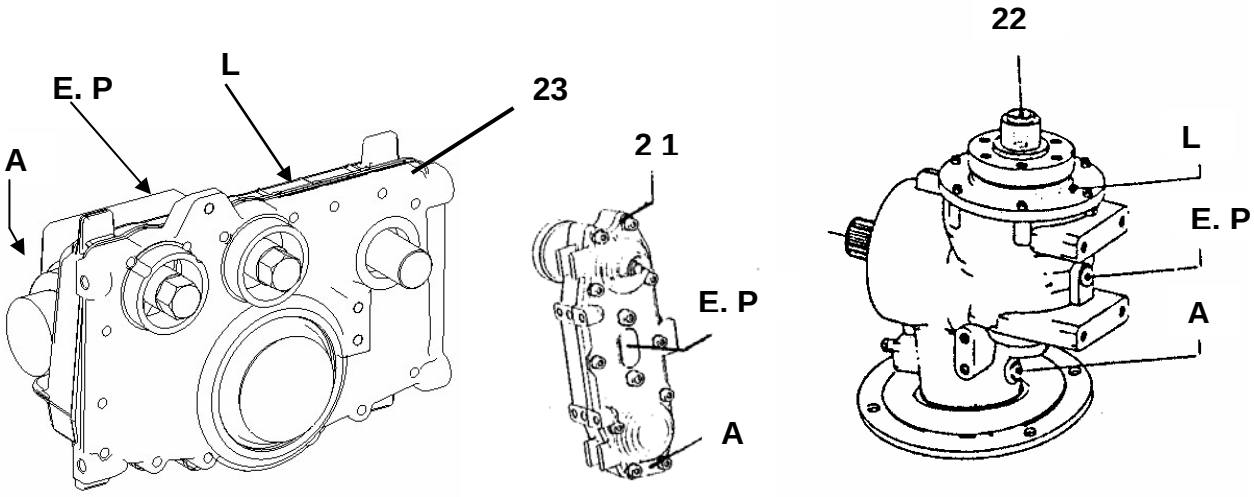


To increase the service life of the equipment, we recommend lubricating the following points at the specified intervals:

Lubricating point	Frequency				
"2"	Once per workday	Basic machine	Drive shafts	206	One side
				208	Both sides
		Hillmaster :	Jointed shafts	206	One side
				208	Both sides
"4"	Once per workweek	Basic mach. + Hillmaster :	Hinge		
			Claw coupling (lubricator nipple in the hexagon shaft)	Warning! Only accessible when folded up	
All	Annual	**At the end of the season, we recommend a general cleaning and lubricating of the points specified above.**			


Hillmaster
design
Basic machine
design


24 A
25 A
26
27
A, E, P
24 B
25 B


E. P
L
23
A
2 1
E. P
A
22
L
E. P
A

	Gear oil:	Quantity (in litres)	Quality	Oil change interval (in operating hours)
Gears with Oil	Point L	0.15	SAE 90	500
	Point 22	0.45	SAE 90	500
	Point 23	1.70	SAE 90	500
	Point 24A + Point 25A	1.5	SAE 90	500
	Point 24B + Point 25B	0.8	Synth. oil	Maintenance-free
	Point 26	0.50	Liquid grease	Maintenance-free
	Point 27	0.35	SAE 90	500

Initial startup

The individual oil levels have to be checked before the initial startup of the device. The header also has to be subjected to a visual inspection

Oil Level Check

Oil is checked in operating position and must reach to the bottom edge of the oil level plughole P.

Check Interval

Daily visual check for oil leaks.

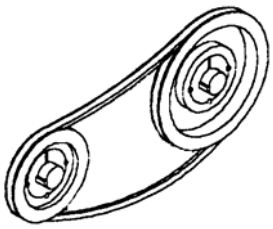
A-E-L-N-P

A = Oil drainage bolt
E = Filler bolt
L = Bleeder
N = Lubricating nipple
P = Oil level check bolt

	Manufacturer	Description	
Alternative Synthetic Oil for Gear Points 24B / 25B	Aral Shell Esso BP Castrol Mobil	Degol Tivela Glycolube Enersyn Alphasyn Glygoyll	GS 220 220 SG 220 – XP220 PG 220 30
Alternative Synthetic Oil for Gear Points 26	Westfalen Aral Shell Esso BP Texaco Antar	Gresanat Aralub Special gear oil Liquid transmission grease Energrease Starfak Liquid transmission grease	X00 FDP 00 H HAT 00 EP E 900 EPEXELF 00

Installing the V-Belts

The V-belt has to slip on without being forced. Forcefully pulling the belt over the edge of the disk or using screwdrivers, tyre levers or similar tools can cause visible and/or invisible damage to the belt thereby significantly reducing the service life of the equipment.



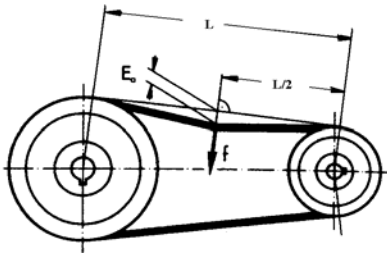
Inspection

A newly installed V-belt should be inspected for proper initial tension after approx. 0.5 to 4 hours.
After 24 hours of operation, the belt should be checked and retightened if necessary, especially if not continuously driving under full load.
The belt drive should be checked for wear and tear every 3 to 6 months.

A newly installed V-belt should be inspected for proper initial tension after approx. 0.5 to 4 hours.
After 24 hours of operation, the belt should be checked and retightened if necessary, especially if not continuously driving under full load.
The belt drive should be checked for wear and tear every 3 to 6 months.

Initial Tension

The V-belt has to be installed in such a way that it can be compressed a distance of 9.5 mm with a force of F = 100 N. If the initial tension is insufficient, power is transferred insufficiently as well and the belt prematurely wears out due to the slippage of the belt. If the initial tension is too high, the belt is stretched and stressed too much. This also places undue stresses on the journal bearings.



Cleaning

Clean a soiled V-belt with a 1:10 mixture of glycerin and spirit. Gasoline, benzol, turpentine or similar fluids should not be used. Furthermore, the V-belt should not be cleaned with sharp-edged objects since this could cause physical damage.

Maintenance and Inspection

Maintenance at Beginning of Season

- The most important step at the beginning of every season, before using the maize picking header, is the "general check" of the picking aggregates, the transverse auger and the drives.
- With the machine running and after the machines comes to a stop, check all bearings for overheating.
- Check all bearings for proper play.

Daily Maintenance

- Make sure blades are intact (2 per rotor) below the distributor rotor; dull blades unnecessarily burden the drive and overload clutches.
- After a few days of use, retighten bolts and screws. Check all cutting blades. Replace or turn heavily worn blades. -- Loose bolts at the cutting blades and crop separators will quickly cause subsequent damage (e.g. worn out borings).
- To check the screw connections underneath the headers, extend the lateral mowing units, lock, lift header, and lock the corresponding cylinder at harvester.
- The entire rotation area of the distributor rotors, cutting blades and picking rollers has to be cleaned off every day to remove plant debris.
- You should carry out a daily visual inspection of all gears and related parts.
- During harvesting use, lubricate both front bearings at the swivel points of the hydraulic draw as well as the gear shaft for certain types.

Weekly Maintenance

- Regularly lubricate the couplings in the hinges of the transverse augers and the main drive of the picking units and check whether the spring-weighted claw slides properly.
- Check the entire cutting area for foreign objects. These cause damage to the distributor rotors.
- Check tightness of all bolts and screws regularly. (See table for torques)

TORQUES FOR METRIC BOLTS in Nm

Size	Grade 4.8				Grade 8.8 or 9.8				Grade 10.9				Grade 12.9			
	Lubricated*		Dry*		Lubricated*		Dry*		Lubricated*		Dry*		Lubricated*		Dry*	
	Nm	lb/ft	Nm	lb/ft	Nm	lb/ft	Nm	lb/ft	Nm	lb/ft	Nm	lb/ft	Nm	lb/ft	Nm	lb/ft
M6	4.8	3.5	6	4.5	9	6.5	11	8.5	13	9.5	17	12	15	11.5	19	14.5
M8	12	8.5	15	11	22	16	28	20	32	24	40	30	37	28	47	35
M10	23	17	29	21	43	32	55	40	63	47	80	60	75	55	95	70
M12	40	29	50	37	75	55	95	70	110	80	140	105	130	95	165	120
M14	63	47	80	60	120	88	150	110	175	130	225	165	205	150	60	190
M16	100	73	125	92	190	140	240	175	275	200	350	255	320	240	400	300
M18	135	100	175	125	260	195	330	250	375	275	475	350	440	325	560	410
M20	190	140	240	180	375	275	475	350	530	400	675	500	625	460	800	580
M22	260	190	330	250	510	375	650	475	725	540	925	675	850	625	1075	800
M24	330	250	425	310	650	475	825	600	925	675	1150	850	1075	800	1350	1000
M27	490	360	625	450	950	700	1200	875	1350	1000	1700	1250	1600	1150	2000	1500
M30	675	490	850	625	1300	950	1650	1200	1850	1350	2300	1700	2150	1600	2700	2000
M33	900	675	1150	850	1750	1300	2200	1650	2500	1850	3150	2350	2900	2150	3700	2750
M36	1150	850	1450	1075	2250	1650	2850	2100	3200	2350	4050	3000	3750	2750	4750	3500

	Toothed safety bolts:
M8	42
M10	85
M12	130

The torques specified in the table are guidelines only and do NOT apply where a different torque specification is given in this manual for certain bolts and nuts.

Shearing bolts are designed to shear off when a specific load is applied to protect other components from damage. Only use the same grade of bolts when replacing shearing bolts.

*"Lubricated" means that the bolts are greased with a lubricant such as engine oil or that phosphorized or oiled bolts are used. "Dry" means that normal or galvanised bolts without any lubrication are used.

When replacing bolts and nuts, ensure that the same grade or better is used for the parts. Make sure that the threads engage properly and the bolts are correctly inserted. Bolts and nuts of a higher grade should be tightened to the same torque as the parts originally used.
Tighten locknuts (not the bolts) with approx. 50% of the 'dry' value given in the above table.

Tighten self-locking nuts, teethed nuts or castellated nuts with the full torque value.

Auger wings

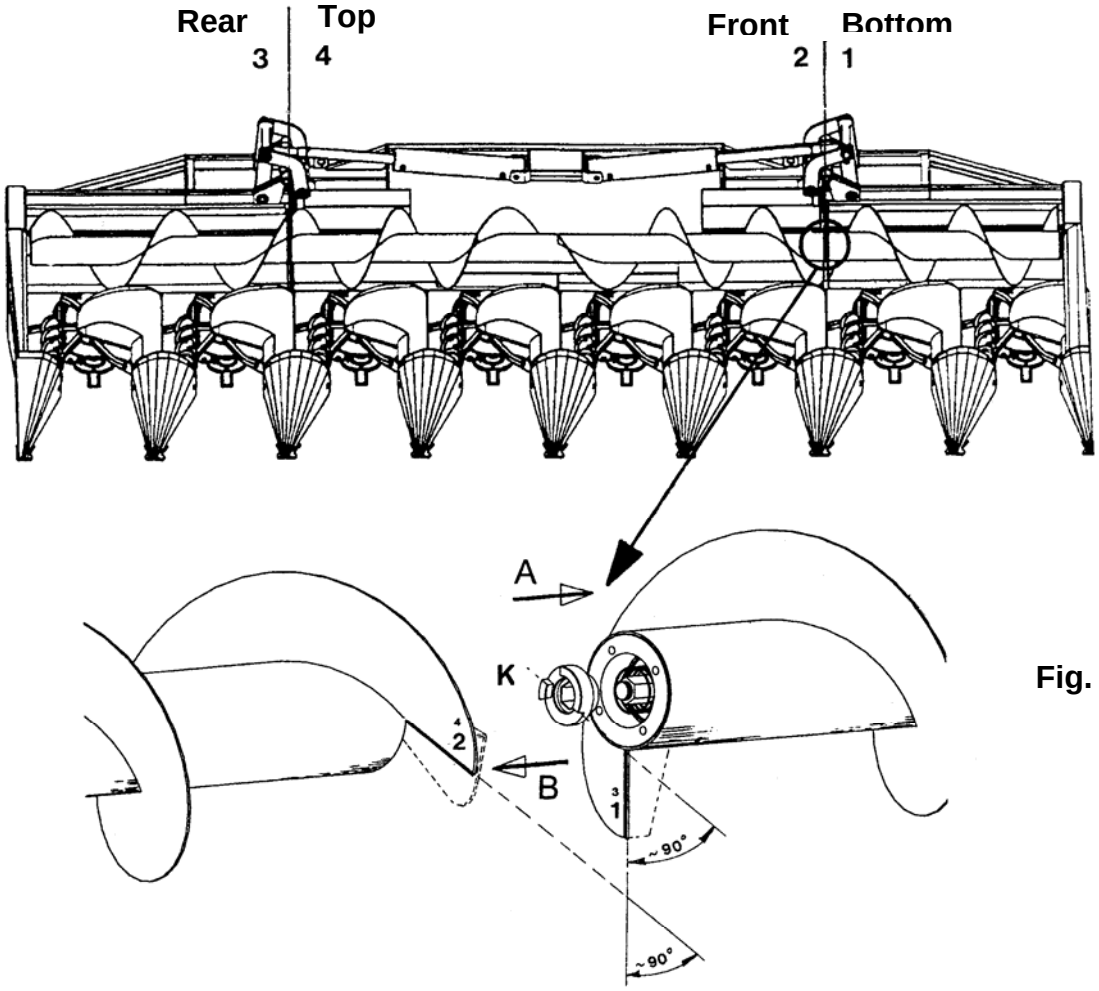


Fig. 2

Fig. 3

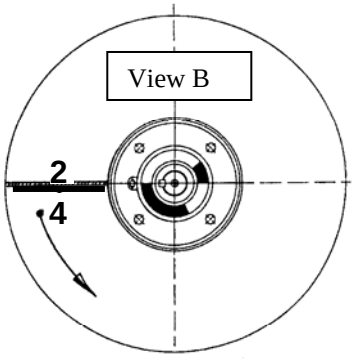
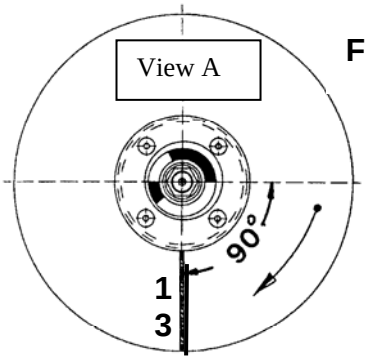


Fig. 4



Assembly on Transverse Auger

Prior to maintenance and repair work, stop engine and remove ignition key.

3-Sectioned Auger

The centre auger freely rotates when lifted. Incorrect assembly or mounting is not possible.
The left and right outer transverse auger requires a permanently defined position so that the lateral transport of the maize cobs is uninterrupted.

(The terms "right" and "left" relate to the forward travel direction of the machine, i.e. sitting in the cab of the harvester and looking into the driving direction.)

Assembly

When installing or assembling equipment, please note that the coupling claw "K" features a profile with 6 edges to be mounted as follows:

	Position of auger wing	Angle of claw to wing
Side auger, left travel direction (1)	Bottom	90°
Centre auger, left connection (2)	Front	0°
Centre auger, right connection (4)	Rear	0°
Side auger, right travel direction (3)	Top	90°

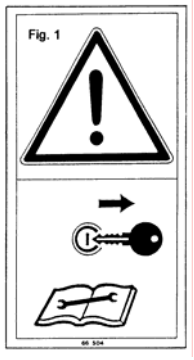
Transverse Auger Inside - Outside

Important: Auger wing 1 + 2 and wing 3 +4 are also at 90° to one another when at coupled working position with applied force.
The entire transverse auger is correctly mounted if the outer left wing 1 is installed towards the bottom and the left centre wing 2 is installed towards the front.
The right side assembly is correct if the outer wing 3 is installed towards the rear and the right centre wing 4 is installed towards the top.

In Case of Problems or Malfunctions

Prior to maintenance and repair work, stop engine and remove ignition key. Do not touch any moving machine parts. Wait until machine comes to a complete stop.

Problem	Possible cause	Remedy
Power requirement increases	Dull blades	Replace blades
		Blades can be turned and reused
Distributor rotors are not running smoothly	Plant deposit underneath rotors	Clean the rotary area daily
	Dirt accumulation rotary area	
	Scraper gap plugged/jammed	Set gap narrower
Height adjustment at the distributor rotors	Loose screw connection	Check screw connection
	Loose scraper underneath rotor	Check screw connection
	Dirt accumulation in rotary area	Clean rotor
	Excessive vertical play at rotor (deformation)	Align - replace if necessary
Accumulation of husks in the area of the scrapers	Scrapers not correctly positioned	See chapter "Maintenance And Inspection of Scrapers"
Elongated stubbles	Dull blades	Sharpen, turn or replace blades
Stubble profile and chopping/cutting quality not ok		
Overheating gears	Oil level ok?	Check oil level
Picking units stop	Rear clutch in spur angle gear drive gears up/down	Remove blockage in area of picking units
Distributor rotor, picking rollers and flush mounted forage harvester stop	Defective clutch in angle gear Clutch gears up/down	Check angle gear Remove any blockage
Distributor rotor stops	Clutch gears up/down, blockage	Reverse a very short distance Clean
(Mowing rotor runs)	Damage to gears	Replace parts
Distribution rotor and mowing rotor stop, picking rollers run	Defective dumb-bell shaft Rear clutch in spur angle gear drive gears up/down	Replace malfunctioning parts Remove blockage in area of mowing and feeder units
Flush mounted forage harvester stops, distributor rotor rotates	On, off on gear defective, damage to gears	Reset locking ball with pressure spring and headless pin
Entire right or left side stops	Damage to gear shaft or spur angle gear drive	Replace malfunctioning parts
Blockage in hydr. system of outer foldable picking units	Foreign object, e.g. grain of sand, lodged in front of restrictor	Clean restrictor: Located in screw connection at upper cylinder input, defective pressure sequence valve
Problems in front of distributor rotors	Incorrect driving speed Picking gap too narrow	Adjust driving speed, see notes on page 30 and 31
Picking rollers winding	Scraper set too coarsely	Set scrapers closer to picking rollers
Lowering control not optimal	Cable bridging not ok	Call customer service



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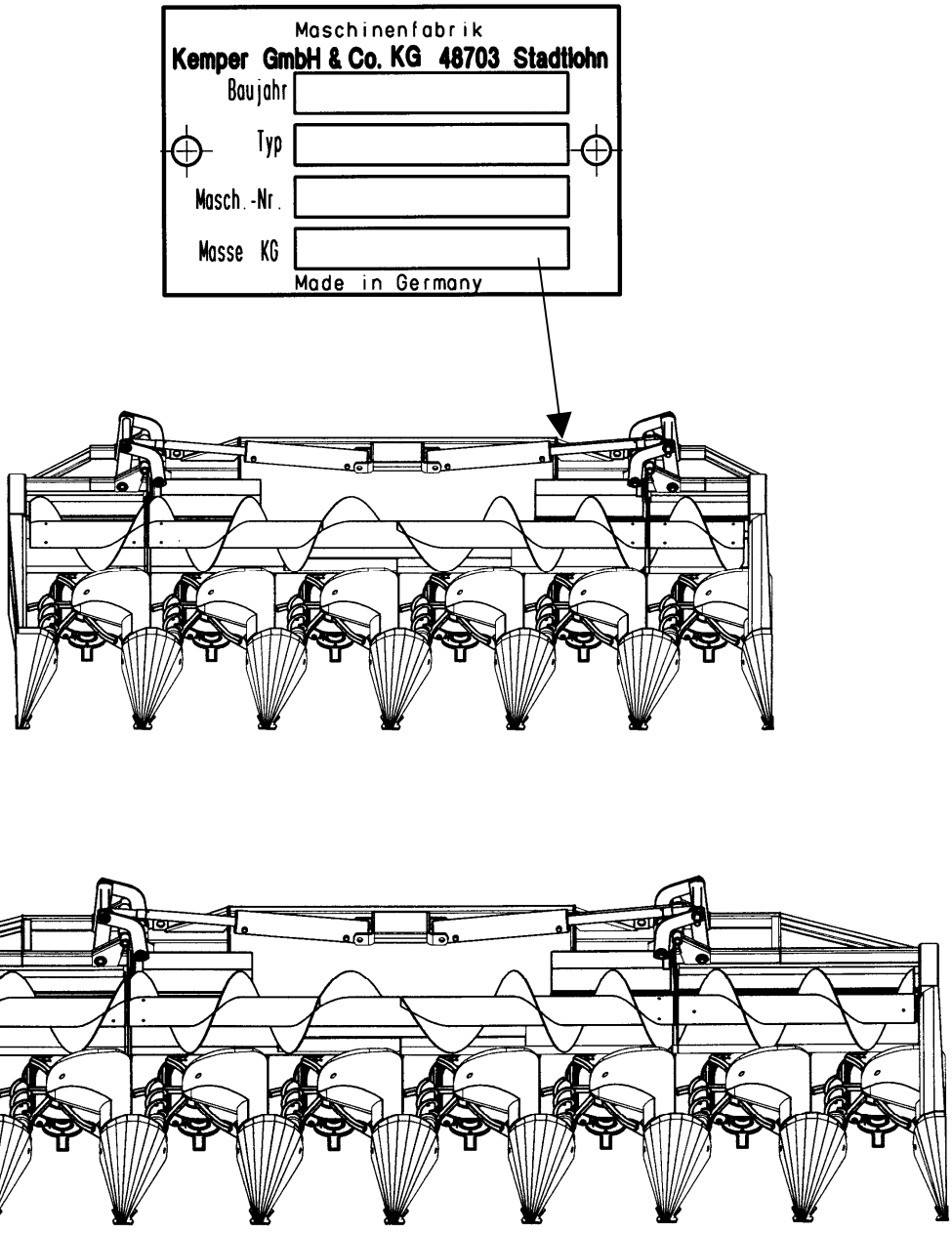

Spare parts can be ordered from your local dealer, our factory representative or directly from the KEMPER Spare Parts Service Dept.

Thank you for your patronage!

Maschinenfabrik KEMPER GmbH & Co. KG ● 48694 Stadtlohn