

Chassis Nr.



Pöttinger - trust creates proximity - since 1871

"Quality pays for itself" Therefore we apply the highest quality standards to our products; these standards are constantly monitored by our quality management system and our management. Because the safety, perfect function, top quality and absolute reliability of our machines in use are the core competencies we stand for.

There may be deviations between these Instructions and the product because we constantly develop our products. Therefore no claims may be derived from the data, illustrations and descriptions. Please request binding information on the specific properties of your machine from your service authorised dealer.

We would ask for your understanding for the fact that changes to the scope of supply in form, equipment and technology are possible at any time.

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Product liability, information obligation

Product liability obliges manufacturers and dealers to issue operating instructions with the sale of machinery and to instruct the customer at the machine pointing out the operating, safety and maintenance regulations.

A confirmation is required to verify that the machine and operating instructions have been handed over correctly.

For this purpose

- **Document A** is to be signed and returned to Pöttinger
- **Document B** remains with the specialist company handing over the machine.
- **The customer receives document C.**

Every farmer is an entrepreneur within the meaning of the product liability law.

Damage to property within the meaning of the product liability law is any damage arising due to the machine; however not that to the machine - a damage excess (euro 500) is provided for this liability.

Corporate damage to property within the meaning of the product liability law is ruled out of this liability.

Be advised! The operating instructions must also be passed on with any subsequent transfer of the machine and the transferee of the machine must be instructed with regard to the regulations stated.

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INSTRUCTIONS FOR PRODUCT DELIVERY



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Telefax 07248 / 600-2511

According to the product liability please check the above mentioned items.

Please check.



- | | |
|---|--|
| ☐ Machine checked according to delivery note. All attached parts removed. All safety equipment, drive shaft and operating devices at hand. | ☐ Function of electrical installation checked and explained. |
| ☐ Operation and maintenance of machine and/or implement according to operating instructions explained to the customer. | ☐ Hydraulic connection to tractor established and checked re. correct supply. |
| ☐ Tyres checked re. correct pressure. | ☐ Hydraulic functions (drawbar, opening of rear gate, etc.) demonstrated and explained. |
| ☐ Wheel nuts checked re. tightness. | ☐ Handbrake and operating brake tested re. function. |
| ☐ Drive shaft cut to correct length. | ☐ Trial run carried out and no defects found. |
| ☐ Correct power-take-off speed indicated. | ☐ Functions explained during trial run. |
| ☐ Mechanical functions (opening of rear gate, pivoting of cutting mechanism out/in, etc.) demonstrated and explained. | ☐ Automatic on/off switch of loading mechanism checked. |
| ☐ Removing and mounting of knives explained. | ☐ Pivoting in transporting and operating position explained. |
| ☐ Electrical connection to tractor established and checked re. correct supply (54 g connected). Note references in operating manual. | ☐ Information given re. optional extras. |
| ☐ Fitting to tractor carried out: height of drawbar adjusted, brake cable installed, hand brake lever assembled in tractor cabin. | ☐ Absolute need to read the operating manual indicated. |

In order to prove that the machine and the operating manual have been properly delivered, a confirmation is necessary. For this purpose please do the following:

- sign the **document A** and send it to the company Pöttinger or via the internet to www.poettinger.at
- **document B** stays with the specialist factory delivering the machine.
- **document C** stays with the customer.

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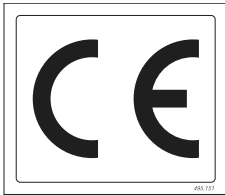


**Recommendations
for work safety**

**All points referring
to safety in this
manual are
indicated by this
sign.**

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CE sign



The CE sign, which is affixed by the manufacturer, indicates outwardly that this machine conforms to the engineering guideline regulations and the other relevant EU guidelines.

EU Declaration of Conformity (see Supplement).

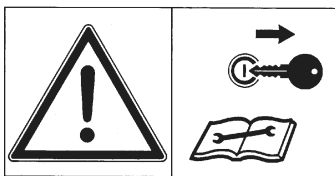
By signing the EU Declaration of Conformity, the manufacturer declares that the machine being brought into service complies with all relevant safety and health requirements.



Recommendations for work safety!

All points referring to safety in this manual are indicated by this sign.

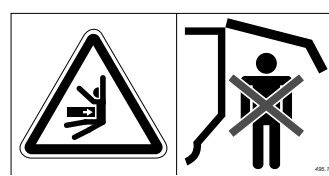
Meaning of warning signs



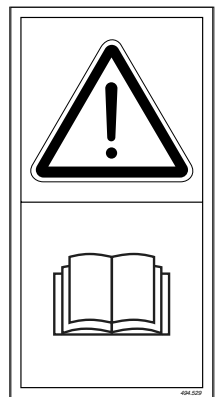
Turn engine off when adjustment, service and repair work is to be done.



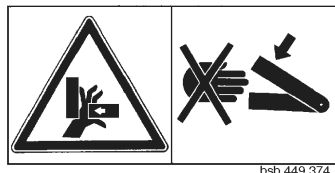
Don't step on loading platform if PTO is connected to tractor and Engine is running.



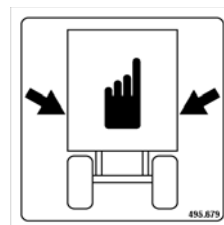
Stay clear of gate swinging area while tractor engine is running. Access only allowed when safety lock is applied.



Wait until all machine components have stopped completely before touching them.

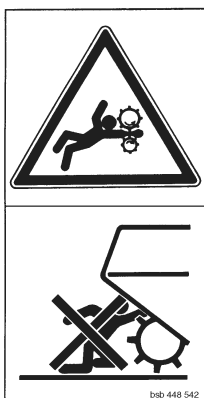


Never reach into the crushing danger area as long as parts may move.



Warning against damage

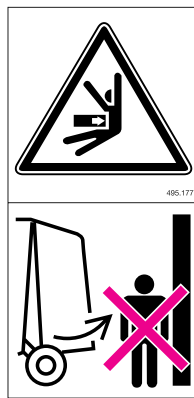
- the bolts on the left and right hand trailer sides must always be equally positioned otherwise the tailgate and swivel sections will be damaged;
- therefore
- always check before opening the tailgate hydraulically



Never reach into the pick-up area as long as tractor engine is running with PTO connected.



Danger - stay clear of rotating machine parts.



Keep clear of the tailgate's swivelling range during operation.

General safety tips for using the trailer

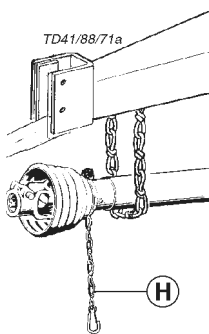


Tips for coupling and uncoupling the trailer

- Danger of injury exists when coupling the implement to the tractor!
- As long as the tractor is moving backwards, do not step between it and the trailer when coupling.
- Nobody is to stand between the tractor and trailer without the vehicles being secured against rolling with the parking brake and/or wheel chocks.
- Drive shaft connection or disconnection is only to be undertaken when the motor has stopped.
- When connecting cardan shaft ensure it is properly locked into place

Parking the implement

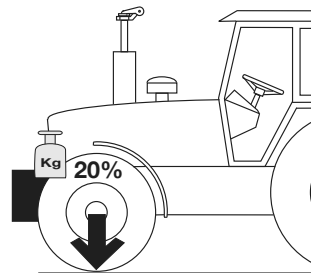
- When the implement is parked, either remove the driveshaft and store it, or secure it with a chain. Do not use retaining chain (H) for this.



Tips for travelling with the trailer

The handling of the tractor is influenced by the trailer coupled to it.

- Danger of tipping exists when working on slopes.
- The driving must be adapted to the corresponding terrain and ground conditions.
- Maximum speeds must be observed (depending on implement's equipment)
- The towing vehicle is to be sufficiently equipped with weights at the front or at the rear in order to guarantee the steering and braking capacity (a minimum of 20% of the vehicle's tare weight on the front axle).



- Be aware of implement's height (especially with low thoroughfares, bridges, overhead lines, etc.)
- Loading of the trailer affects the performance of the tractor.



Take note!

Observe also the tips in the respective chapters and in the supplement to this operating manual.

Only use the trailer according to regulations!

Regulations for Use: See chapter "Technical Data".

- The trailer's load limits (permitted axle load, support load, total weight) may not be exceeded. The relevant details are located on the right side of the trailer.
- In addition, observe the power limits of the tractor being used.
- The trailer may not be used to transport people, animals or objects.

Travelling on roads

- Observe the road rules.
- Travelling on public roads is only permitted with the back closed, the steps folded up and the cutting unit folded in at the side. In this case the lighting equipment must be mounted perpendicular to the carriageway.
- Lock trailer's self-steering axle when travelling for longer periods.

Road travel tips for a Jumbo 10010

This trailer is over-length and therefore only permitted restricted road travel.

Before taking the machine on the road, ensure that trailer does not exceed the legal length for this country/state.

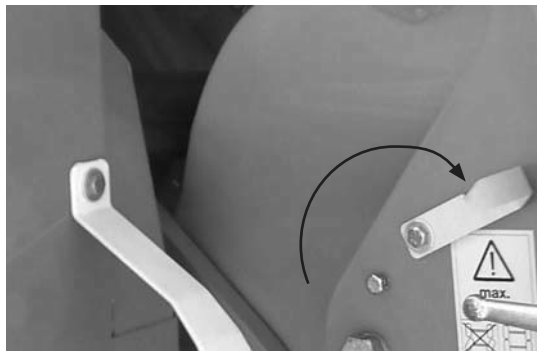
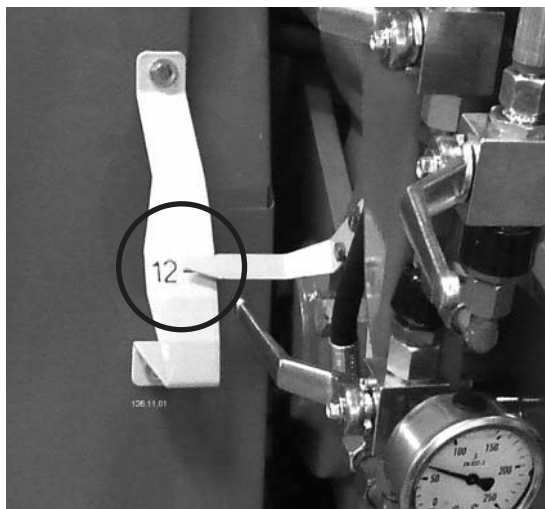


Tip:

If opening front safeguard cover, swivel length indicator pointer back so that it won't be damaged.

Prepare for road travel:

1. Alter trailer length by lifting and lowering drawbar.
2. Position drawbar so that transport length indicator arrow points to the 12m mark or below (> 12m). Transport length indicator is mounted on front safeguard cover.



Tip:

Indicator is only effective when pointer has been moved to limit stop beforehand. Do this by pushing pointer against hex. screw (see illustration).



Before starting work

- a. Before commencing work, the operator must be aware of all operating devices and functions. The learning of these is too late after having already commenced operation!
- b. The vehicle is to be tested for traffic and operating safety before each operation.
- c. The danger of being crushed or cut exists in the Pick-up, cutting unit, tailgate and upper extension areas. All persons must be shown out of these areas before activating hydraulic equipment and turning on the drive.
- d. Before driving the vehicle, the driver must ensure that nobody will be endangered and that no obstructions are present. If the driver is unable to see and have an overall view of the roadway directly behind the trailer, he must be guided by somebody while reversing.
- e. Observe the safety tips which are attached to the trailer. An explanation of what the individual graphic warning symbols mean can be found on page 5.
- f. Observe also the tips in the respective chapters and in the supplement to this operating manual.

Checking before operation

1. Check that all safety equipment (coverings, casings, etc.) are in proper order and fitted in position on the trailer.
2. Grease the trailer in accordance with the lubrication chart. Check the gearing for tightness and the oil level.
3. Check that tyres have the correct air pressure.
4. Check that wheel nuts are sitting firmly.
5. Ensure the correct p.t.o.-r.p.m..
6. Make the electrical connections to the tractor and check that they are correct. Take note of the tips in the operating manual!
7. Carry out the following adaptations:
 - Drawbar height
 - Laying of brake cable ^{*)}
 - Install hand brake lever in the tractor cabin ^{*)}
8. Secure trailer using only the fixtures provided.
9. Cut drive shaft to the correct length and check the function of the overload safety (see supplement).
10. Check the electronic unit function.
11. Connect hydraulic lines to tractor.
 - Check hydraulic hoses for damage and wear.
 - Ensure the correct connection.
12. All swivelling parts (tailgate, adjusting lever, etc.) must be secured against dangerous position changes.
13. Check parking brake and service brake functions.



Instruction!

The following tips should make the trailer's operation easier for you. Detailed information for individual points can be found in the respective chapters in this operating manual.

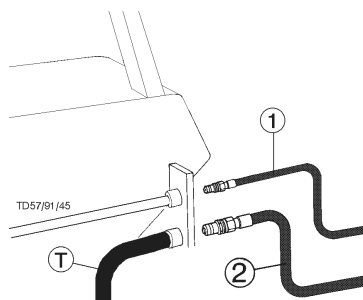
^{*)} if present

Hydraulic connection

Single-action control unit

Should the tractor only have a single-action servo-valve, then it is absolutely necessary to have an oil-return pipe (T) fitted by a specialist.

- Connect pressure hose (1) to the single-action control unit. Couple the oil-return hose (2) (with the greater diameter) to the tractor's oil-return system.



Double-action control unit

- Connect pressure line (1) and oil-return pipe (2) (pipe with the greater diameter is the oil-return pipe).

LS Line (Optional extra)

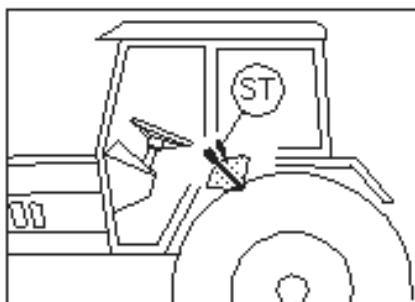
- Connect load sensing line to LS connection on the tractor.

Take care with tractors with a closed hydraulic and LS system

JOHN-DEERE, CASE - MAXXUM, CASE - MAGNUM, FORD SERIE 40 SLE

Before coupling, the screw (7) on the hydraulic block is to be screwed completely in (7b).

Connecting hydraulic lines



- Turn p.t.o. off before connecting
- Put lever (ST) on the control unit into the floating position (neutral position).
- Take care that snap-lock couplers are clean.
- Maximum hydraulic pressure: 200 bar
- Maximum flow rate: 60 l/min

(Exception:

Jumbo 7210 Combiline: 130 l/min)

Jumbo 10010 Combiline: 130 l/min)



Note!

If oil should become warm during operation then a single-action control unit should be connected (see above).



Note!

An unpressurized oil return must be guaranteed on the tractor.



Note!

The tractor's hydraulic pressure must not exceed maximum 200 bar.

Maximum flow rate: 60 l/min!

(Exception: Jumbo 7210 Combiline: 130 l/min)

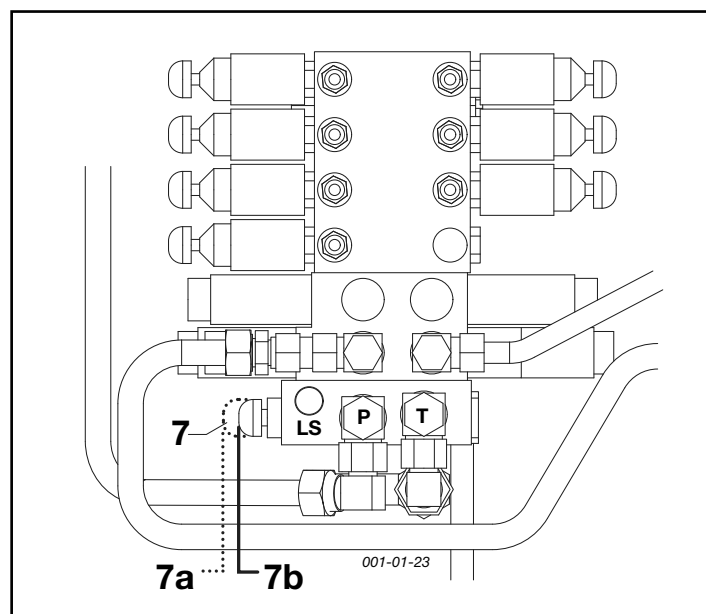
Jumbo 10010 Combiline: 130 l/min)

Standard position with an open hydraulic system

The position of the screw (7) is set in the factory (7a).

Warning!

If this is not done then the overload valve on the tractor's hydraulics is continually in use and excessive warming of the oil will occur!



7a

Standard position with an open hydraulic system

7b

Take care with tractors with a closed hydraulic and LS system

LS = Load sensing

To make the connection to the tractor

Operation:

- Connect the 2-channel plug to the DIN 9680 socket on the tractor

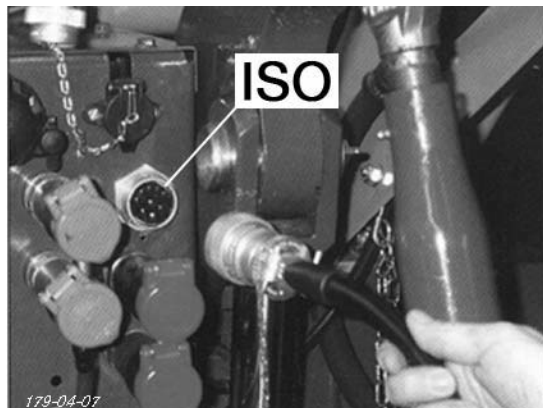


Lighting:

- Connect 7-channel plug to tractor
- Check that lighting is functioning on wagon

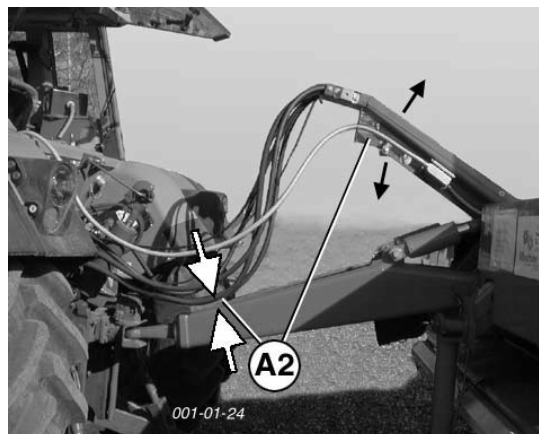
For tractors with ISO Bus control

- Connect 9-channel ISO plug to ISO Bus socket on the tractor



Adjusting the hose container

- Adjust the hose container in such a way that there is sufficient distance between the hydraulic lines and the drawbar (A2).



Important!

Before putting the tractor into operation check vehicle safety (lights, brake unit, protective covering,).

PTO Drive Shaft

Correct adjustment, installation and maintenance of the PTO drive shaft is the requirement for a long service life.

The details for this are described in the section "PTO Drive Shaft" and it is imperative to adhere to them.

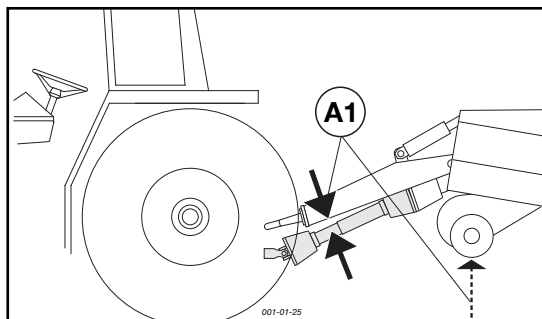
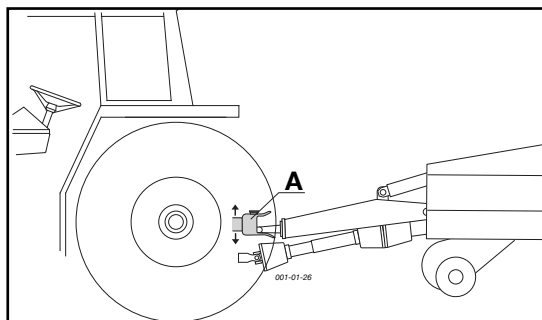


Important!

The PTO drive shaft must be adapted to the trailer in accordance with the section "PTO Drive Shaft" before first-time connection.

Adjusting the trailer coupling

- Extend the drawbar coupling (A) so that there is sufficient gap between drive shaft and drawbar of attached trailer, especially in the event of pivoting (A1).

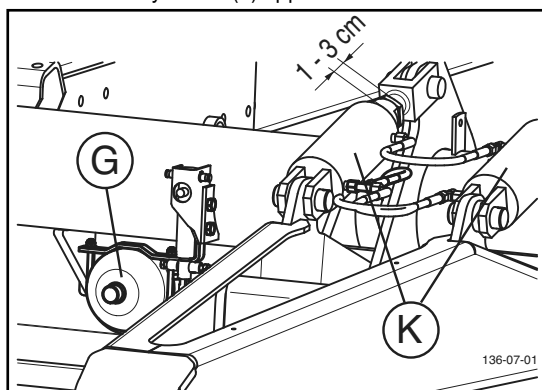


Vibration absorption ¹⁾

Important!

To ensure that vibration absorption functions properly:

- cylinders (K) must not be completely inserted when driving on roads
- extend cylinders (K) approx. 1 – 3 cm.



Pressure in the gas container (G):

Type	Fill pressure
PRIMO, FARO	50 bar
EUROPROFI	70 bar
TORRO	80 bar
JUMBO (2 to-mounting)	100 bar
JUMBO (3, 4 to-mounting)	90 bar

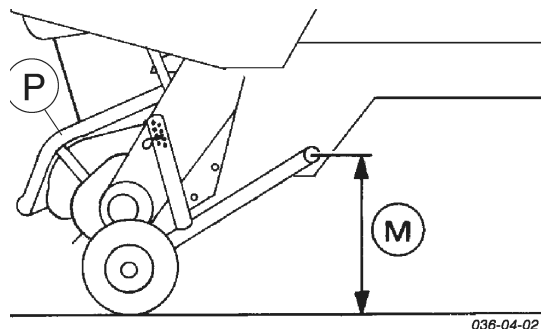
- To alter pressure – see chapter “MAINTENANCE”

¹⁾ Series factory fitting for JUMBO, TORRO
Optional extra for EUROPROFI, FARO, PRIMO

Setting the pivoting drawbar

To allow pick-up to work properly, the height (H) of coupled trailer must be correctly set (pick-up pivoting area).

- Setting measurement (M) see chapter “Pick-up”



Starting position:

- Couple trailer to tractor
- Both hydraulic cylinder pistons must be completely inserted.

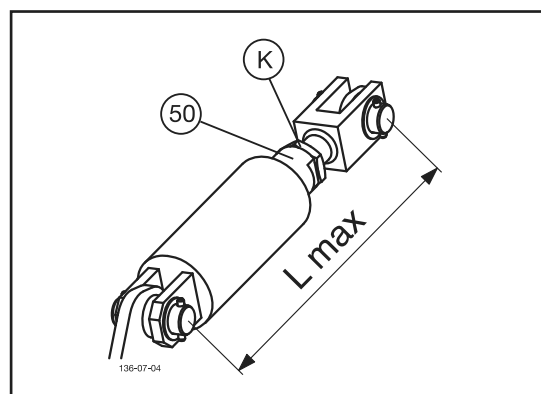
Adjustment process:

- Loosen lock nut (K) on the threaded spindle
- By twisting the cylinder piston (50), screw the threaded spindle in or out until the height (M) is achieved.
- Do not exceed maximum regulating limits (see table below for L max)
- Adjustment of both hydraulic cylinders must take place alternately
- Both hydraulic cylinders must be set at the same length
- Retighten lock nut (K)



Note!

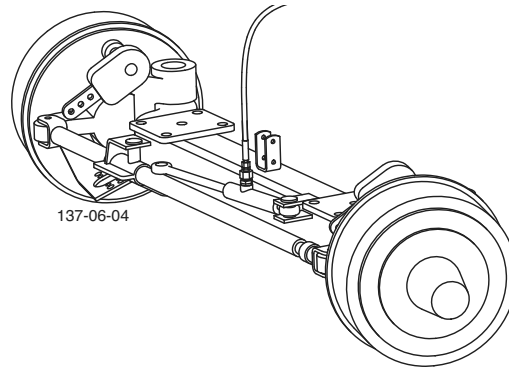
Damage can occur if threaded spindle is unscrewed too far. Observe maximum measurement according to table!



Type	Parts number	L max
PRIMO, FARO EUROPROFI, TORRO, JUMBO (2 to-mounting)	442.240	555 mm
JUMBO 3, 4t (3, 4 to-mounting)	442.460	500 mm

Locking the trailing front axle

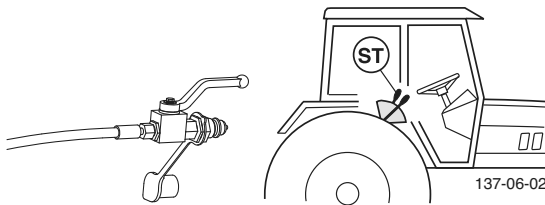
- The trailing front axle is operated differently depending on tractor and wagon equipment



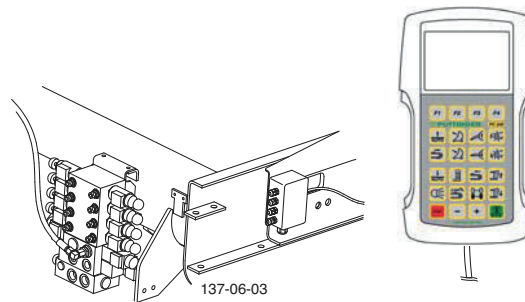
Attention!

The trailing front axle must always be locked during fast road travel with a full wagon!!!

Variant 1



Variant 2



- For tractors **without Load sensing** system:
 - connect additional hydraulic line to tractor
 - open or close the trailing front axle using control (ST)

For tractors **with Load sensing** system:

- hydraulic line is connected to hydraulic block
- operation takes place using "POWER CONTROL" unit or "Isobus terminal" (see description of Control)



Attention!

The trailing front axle must be locked

- when travelling straight ahead quickly at 30 km/h or more
- with unpaved surfaces
- in sloped areas
- with load on the front axle through pivoting drawbar usage
- when travelling over a drive-in silo
- when lateral traction of the unguided axle is no longer sufficient

Mounting the forked drawbar

The permissible load on the coupling point should be taken from the vehicle type plate.
The permissible DC value should be taken from the drawbar type plate or tow eye type plate.

The tightening torque of the fastening bolts of the trailer coupling rings:

- M16x1.5 10.9 250Nm
- M20x1.5 10.9 460Nm

The fastening bolts must be checked at regular intervals and be retightened where necessary.

Only short distances on even stretches in a tipping situation (to unload) are permitted. Tipping slightly (during travel) is permitted without reservation.

When travelling in a angled situation, take particular care that the upward angular movements of the towing rings/ traction coupling ball are limited.



Note!

Fabrication and assembly take place predominantly in the factory. With self-assembly it is necessary to consult with the manufacturer.

Traction coupling ball

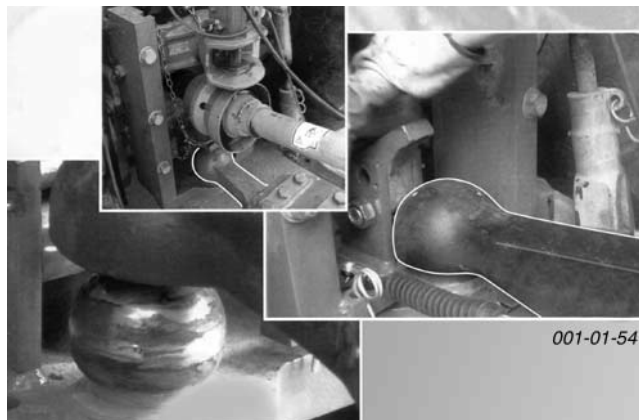
Tip

- The traction-coupling ball may only be connected with coupling ball type 80, as produced by Scharmüller GmbH or other approved coupling balls (80mm ball diameter).



Attention!

Repairs to the traction-coupling ball are not permitted.



Maintenance of the traction coupling ball

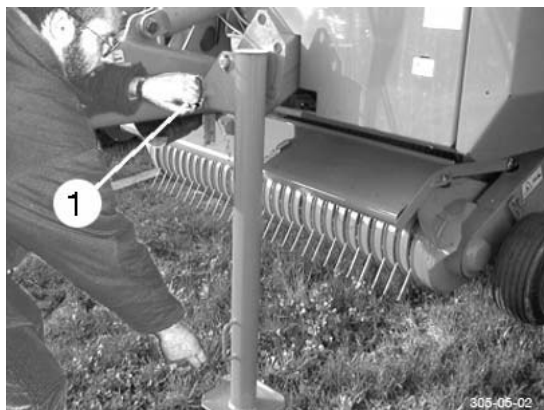


In addition to the general vehicle maintenance

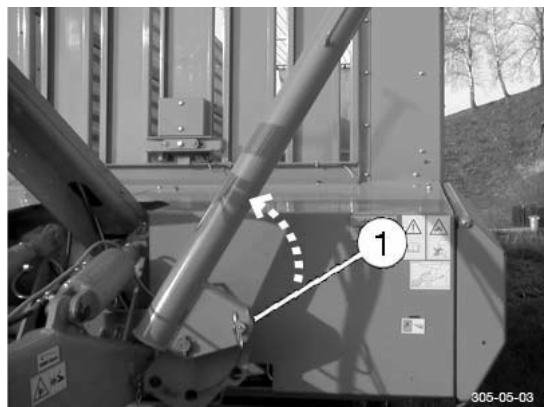
- grease the contact surfaces at the point of coupling
- inspect the fixing bolts of the traction coupling ball on a firm seating
- renew damaged, malformed or worn traction coupling balls
 - Only allow exchanges to be carried out by specialists!

Raising the jack stand by hand

- Couple the trailer to tractor
- Take load off jackstand by using pivoting drawbar.



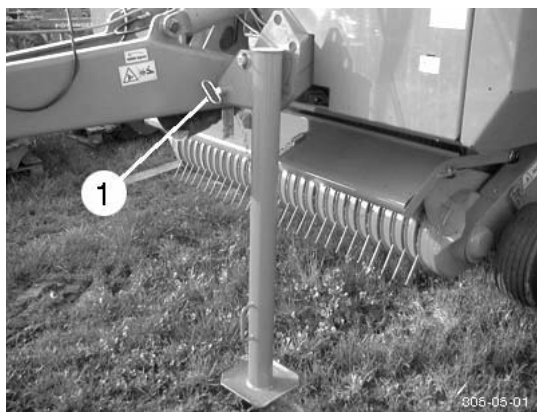
- Pull out locking bolt (1), swing jack stand up and lock again.
- Make sure bolt is properly locked in (1).



Garaging the trailer

- Park the trailer on firm, level ground.

If the ground is soft then the area where the jack stand is to stand must be appropriately increased using a suitable aid (e.g. wooden board).



- Raise the trailer a little using the pivoting drawbar.
- Pull out locking bolt (1), swing jack stand down and lock again.
- Make sure bolt (1) is properly locked in!
- Lower the trailer using the pivoting drawbar.
- Uncouple hydraulic- and electric lines and detach trailer.



Attention!

Only garage an empty trailer on the jack stand and chock the wheels to prevent rolling.

Setting of Pick-up pivoting area

To allow pick-up to work properly, the height (H) of coupled trailer must be correctly set (pick-up pivoting area).

- Setting procedure see chapter "First-time connection to Tractor"



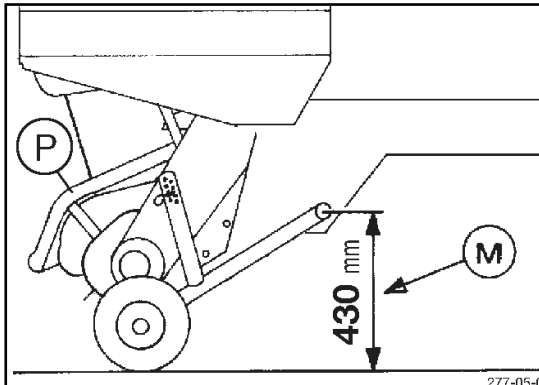
Take care!

Be aware of crushing points when moving the Pick-up down or up!

Setting for 5-rowed Pick-up

(up to 2006 model)

Height (M) = 430 mm

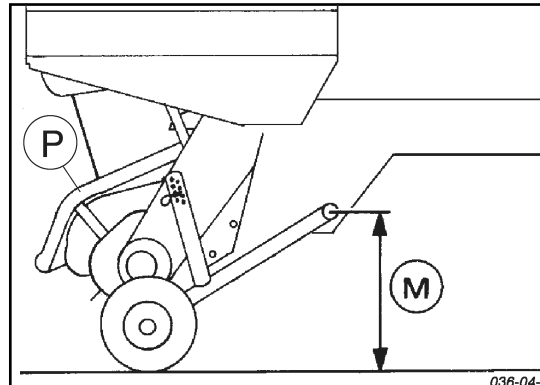


Note: Where the floor is uneven, reduce the measurement by 1 cm (M = 420 mm)

Setting for 6-rowed Pick-up

(from 2006 model)

Height (M) = 480 mm



Note: Where the floor is uneven, reduce the measurement by 2 cm (M = 470 mm)



Take care!

The deflector (P) also serves as accident protection and must not be removed during operation.

Setting the Pick-up load alleviation

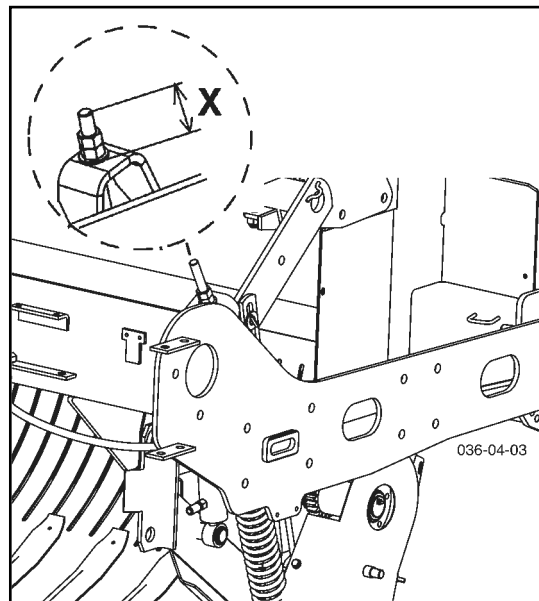
The spring tension can be altered for optimum Pick-up conditions.

Pick-up rides to lightly (skips)

- reduce dimension (X)

Pick-up rides to heavily

- increase dimension (X)

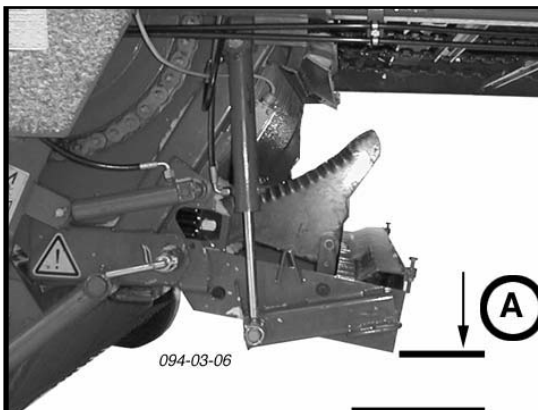
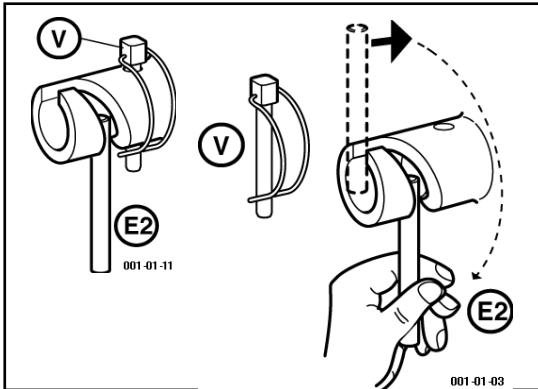


Cutting Unit



Important checks to be carried out on the cutter beam before each operation

- left and right hand pins locked (E2)
- for wear on the cutters
- for dirt on the cutter overload fuse
- for adequate ground clearance (A)



General information

To facilitate maintenance work on the cutting unit, the cutter beam can be swung on to the left-hand side of the vehicle.

All cutters are then accessible:

- for grinding the cutters
- for installing or removing the cutters
- for cleaning

Important!

Lock the cutting beam with bolts

- Position E2
 - on the left and right side of the vehicle
 - secure both bolts with forelock (V)



Attention!

Before any operation check that the pins left and right are locked!!

External cutting unit buttons

For maintenance work on the cutting unit, the cutter beam can be swung in or out using both buttons (57).

Use these buttons only when the loading channel is empty and the press drive is turned off!

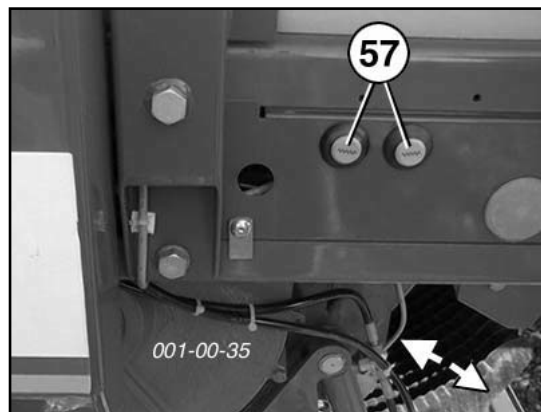
Attention!

Take care that the cutting unit is in proper working order before swivelling it in (damaged cutters, warped components, etc).



Attention!

Increased chances of injury with all work carried out on cutter bar, particularly with swinging cutter bar in from the side or when swivelling it up!



Advice in case of press channel blockage

Warning! When a blockage in the press channel occurs, DO NOT use the button (on the right) to swivel the cutter bar out as this will occur under hydraulic pressure.

Remedy



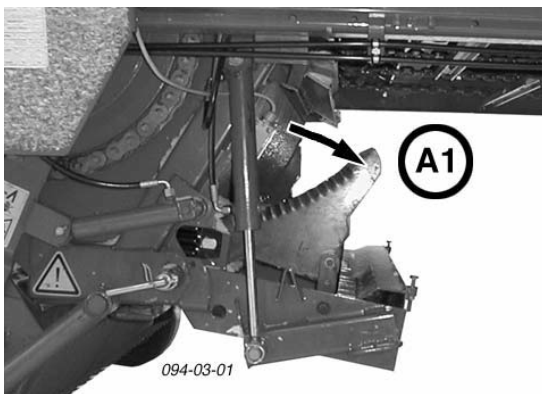
- Press and hold the button on the operating device, and at the same time switch on the p.t.o.drive.
The feed pressure of the load while cardan shaft is running will swing the cutter beam out.
- After removing the blockage swing the cutter beam in again.

Swinging the cutter beam

Swinging the cutter beam onto the left hand side of the vehicle.

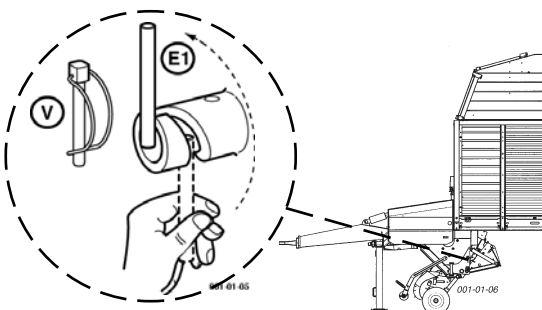


1. Swinging out the cutter beam (A1)



2. Unlock the bolt on the left side of the vehicle (E1)

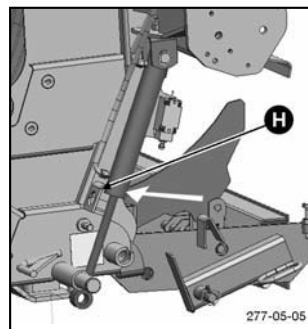
- Remove the forelock (V) and unlock the bolt
- Re-lock the bolt using the forelock



3. Loosen plunger from cylinder (left and right)



4. Swivel the left cylinder forward and catch in the holder (H)



5. Swing cutter beam.



6. Lock cutter beam in swing-out position with linch pin (V)



Attention!

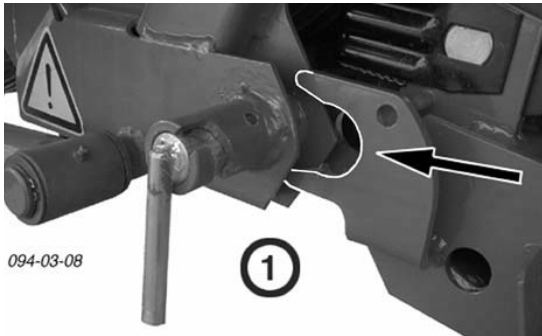
Vehicle must not be driven whilst cutter beam is in fully extended position

Swinging the cutter beam back in

Swinging cutter beam back in takes place in reverse sequence

Adjusting the cutter beam

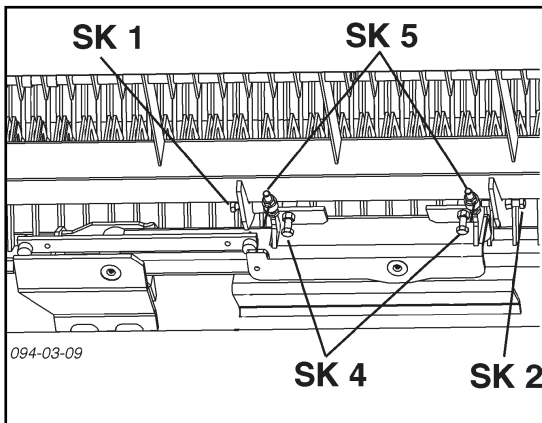
- When the cutter frame is swung back in, the setting should be such, that it enables the frame tubing to fit into the opening on the moulded frame without any difficulty (1)



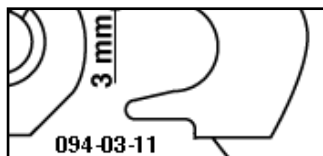
Adjustment on the swivel axis of the cutter beam by means of a screw (SK-4)

Setting

- Loosen locking nut (K)
- Turn screw (SK-4) accordingly.



When the cutter frame is swung back in, the setting should be such, that it enables the frame tubing to be pushed over the slide.

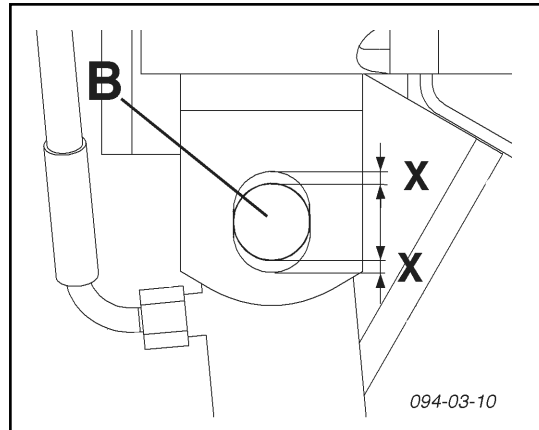


- The frame tubing should slide on approximately 3mm under the highest point (see sketch).

- Secure screw (SK-4) with locking nut (K)

Setting for cutter beam in swing-out position

Setting should be so that when cutter beam is swung out, the pins (B) should be approx. in the centre of the slot. ($x = x$)



- Set using bolt (SK-5) on underside of cutter beam

Adjusting the cutters

- The setting should be such, that the cutters are centred between the dovetail prongs of the press rotor.

Centring the cutters between the dovetail prongs

- Loosen locking nut (K)
 - on the left and right-hand side of the vehicle
- Unscrew the bolts (SK-1, SK-2) a little, on one side of the vehicle.

If the cutter frame has to be moved to the left:

- first of all loosen the bolt (SK-1) on the left-hand side of the vehicle
- then tighten the bolt (SK-2) on the right-hand side of the vehicle. By loosening this bolt, the cutter frame can be moved as far as necessary to centrally position the cutters between the dovetail prongs of the press rotor.

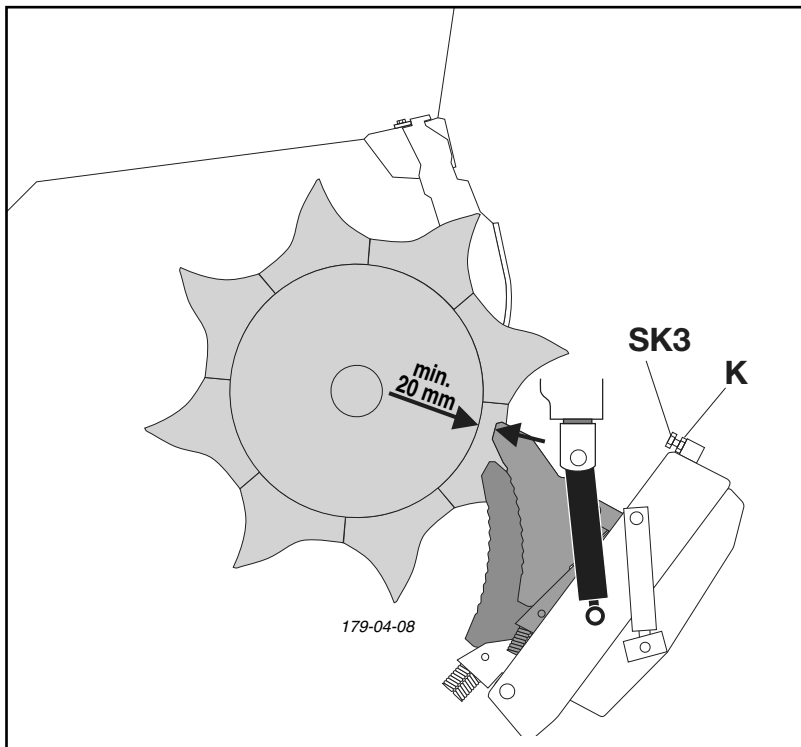
If the cutter frame has to be moved to the right:

- first loosen the bolt (SK-2) on the right-hand side of the vehicle
- then tighten the bolt (SK-1) on the left-hand side of the vehicle.

- Tighten both bolts (SK-1 and SK-2) as far as they will go.
 - Do not tighten bolts excessively
- Secure both bolts (SK-1 and SK-2) with locking nuts (K).

Checking the clearance from the blades to the press rotor

- The clearance between the blades and the press rotor should be at least 20mm.
- adjust the stop screw (SK-3) accordingly.



Checking

1. Swing in the cutter beam (working position)
2. Carry out a visual inspection

The clearance between the blades and the press rotor should be at least 20mm.

Altering the clearance

1. Loosen the locking nut (K)

- on the left and right hand side of the cutting beam

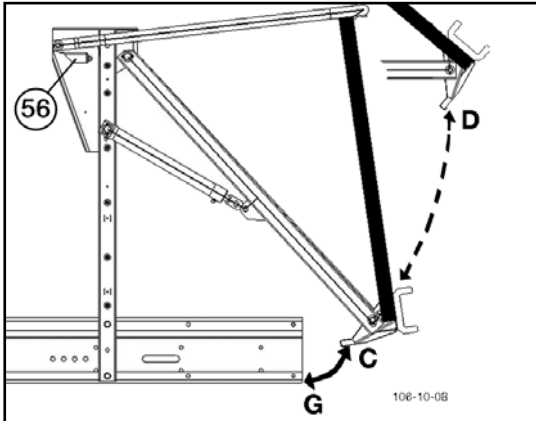
2. Turn the screws (SK-3) until the correct clearance is obtained (20-30mm)

- Adjust both stop screws in such a way that the cutting beam is not obstructed when swung into its working position.

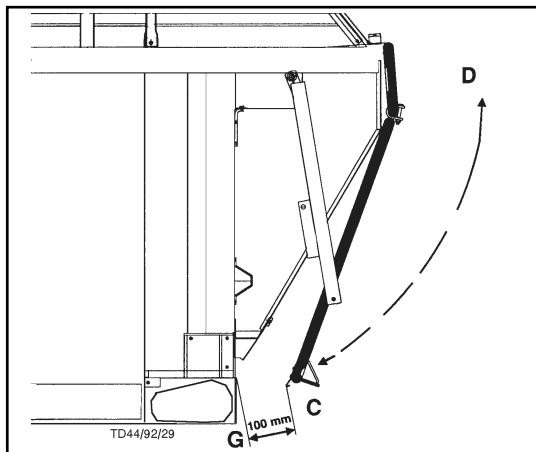
3. Secure the stop screws with locking nuts (K)

Safety mechanism

The tailgate's own weight is used to lower it to position C. No other pressure is used.



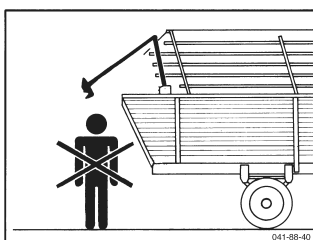
Only when in this position (C) is the hydraulic function activated through switch (56) and the tailgate is closed under pressure.



With all of these switching procedures, be alert to the danger distances!

An example:

Danger of injury arises if a person stands at the rear of the trailer and somebody in the tractor cabin activates a switching function (opening the tailgate, switch on the driving gear, ...).

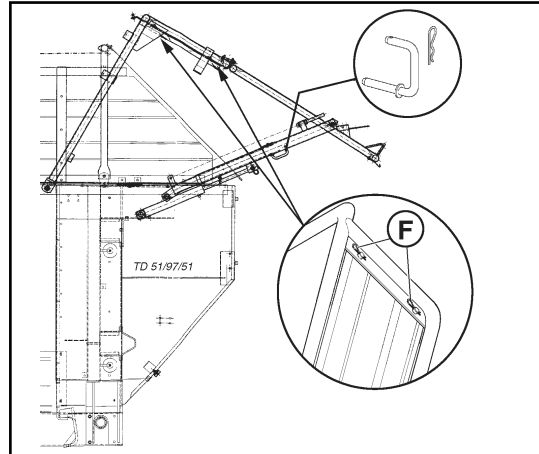


Unloading using dispensing rollers

Variations

1. Standard dispensing

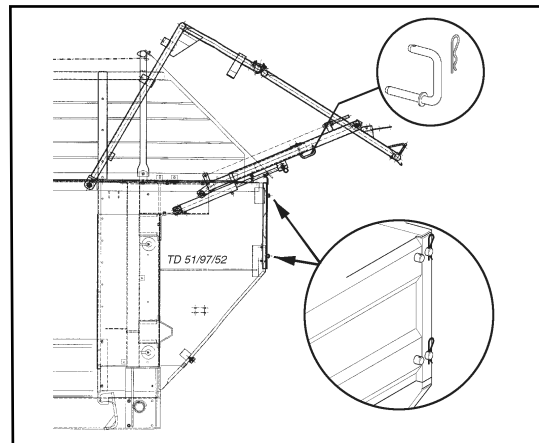
- Rear steel section fixed to swivel frame
 - secure with linch pin (F) (left and right)



2. Fine dispensing

- Rear steel section fixed to side walls
 - secure with spring pin (F) (left and right)

The forage falls evenly distributed to the ground as with standard dispensing



Attention!

Nobody should be within the swinging range of the tail gate when opening and closing!

Do not stand underneath the raised tail gate!

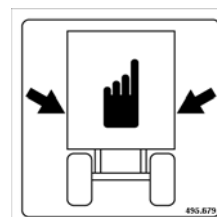
Travelling on public roads must only be undertaken with the tailgate closed!

Warning against damage

- The bolts on the left and right hand trailer sides must always be equally positioned otherwise the tailgate and swivel sections will be damaged

therefore

- always check before opening the tailgate hydraulically



Removal of regulating rollers

1. Open trailer tailgate.

2. Relax chain tension (58) and take off drive chain (1).

3. Remove metal plates (2) left and right.

Take care! Do not after the torque pre-tensioning (X)

4. Dismantling Upper Regulating Roller

remove the following screws, left and right:

- three screws (SK-3) on the flange bearing
- two screws (SK-2) on the guard ring

5. Dismantling the Lower Regulating Roller

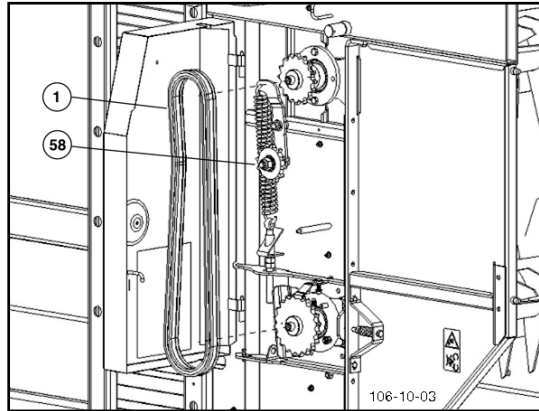
remove two screws (SK-2) on the guard ring, left and right

6. Slide regulating rollers backwards.

7. Re-fit metal plates (2) left and right again.

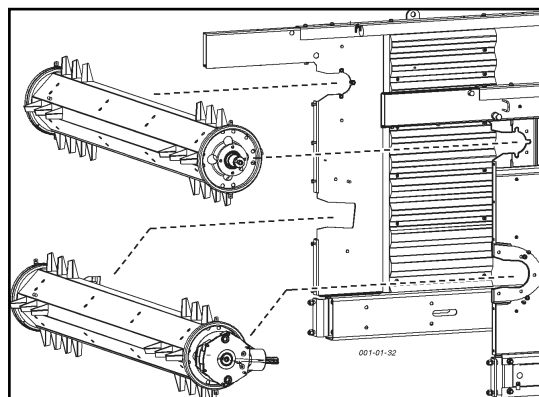
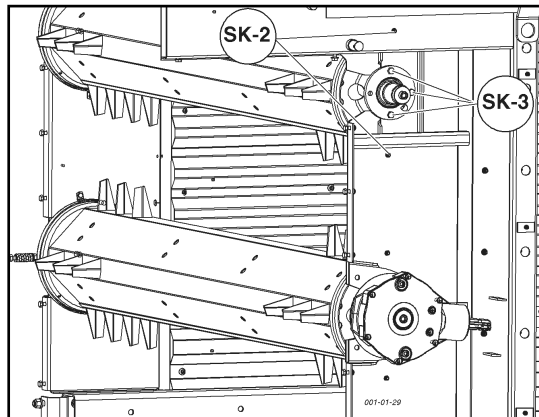
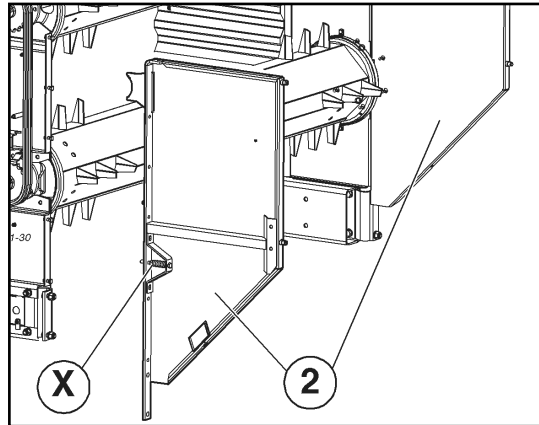
8. Adjusting the switch

- see next page



Take care!

Do not reach into regulating rollers area while drive motor is still running.



Scraper floor switch

General

The screw (SK-5) is positioned behind the sensor and has no function when regulating rollers are installed.

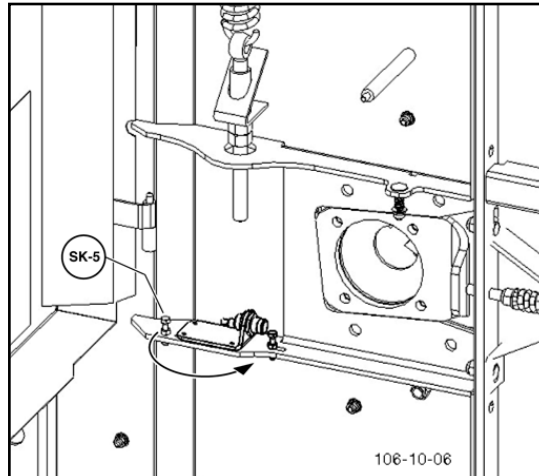
The scraper floor is switched on and off by a component of the regulating roller by means of the sensor (90).

The scraper floor drive can only be switched on

- by the automatic loading mechanism
- or
- by operating the scraper floor switch on the control panel

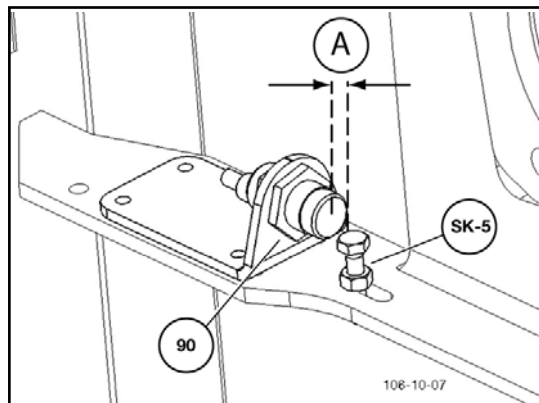
The sensor (90) and therefore the scraper floor also would always be switched off if operating without regulating rollers. However, this is not desirable during the loading and unloading process.

Therefore, the sensor (90) must be switched on using the screw (SK-5) when operating without regulating rollers. The switching gap (A) is 3...5 mm and may be adjusted at the slot.



Note!

A greater injury danger exists when working behind opened protective covers.



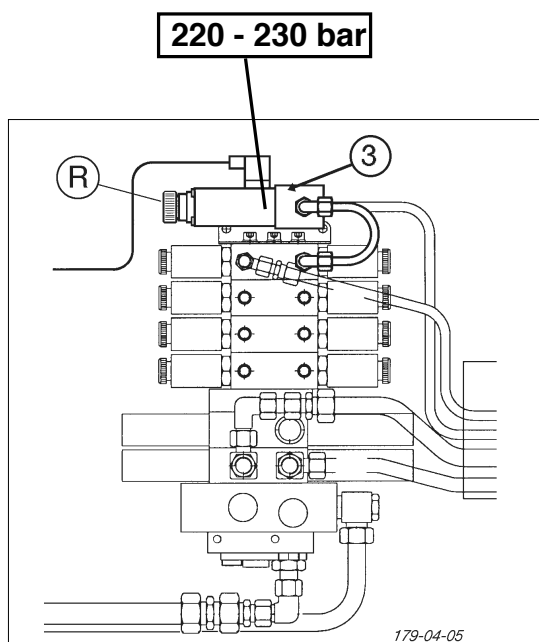
Installing an oil pressure switch

It is recommended that an oil pressure switch (3) be installed when operating without regulating rollers.

When the load presses against the tailgate, the scraper floor drive is automatically switched off by means of the oil pressure switch.

The oil pressure switch has no function when regulating rollers are installed.

- Electro-connection see spare parts list, circuit diagram see supplement.
- For setting see chapter "MAINTENANCE"



Assembling the top frame section

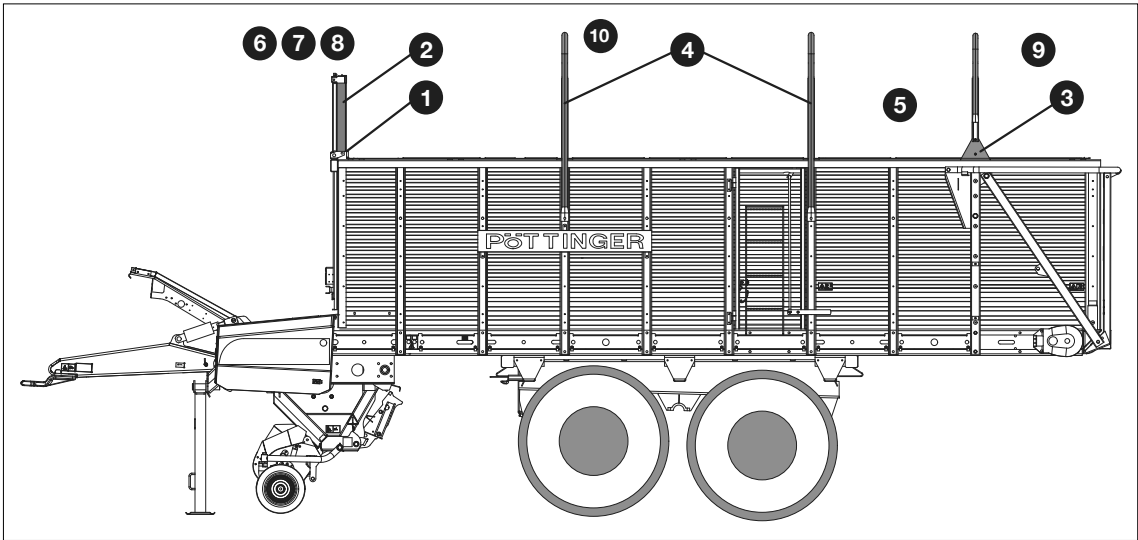
Disassembly occurs in the reverse order.



Attention!

- It is imperative that the machine stand horizontally and that two people carry out this modification.

• **Danger of injury!**

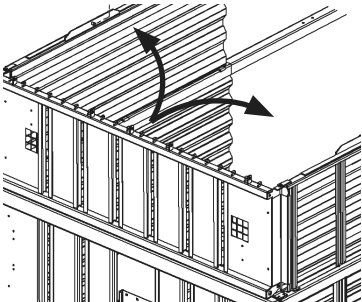
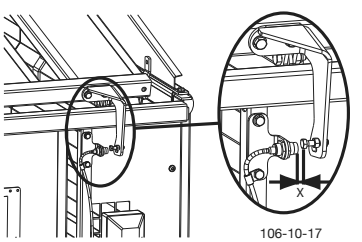


Step	Detail	Remark
1		Install corners for mounting front wall according to detail 1. Pay attention to position of the corner.
2		Position front wall and screw to the corners.
3		Install corner for mounting rear bracket according to detail 3. Pay attention to position of the corner. Attach the bracket to the corner.
4		Install centre bracket. Pay attention to the order of the assembly parts! (See detail) On side wall rail, brackets in top position are movable. Screw tight only when step 5 is completed.



Caution!

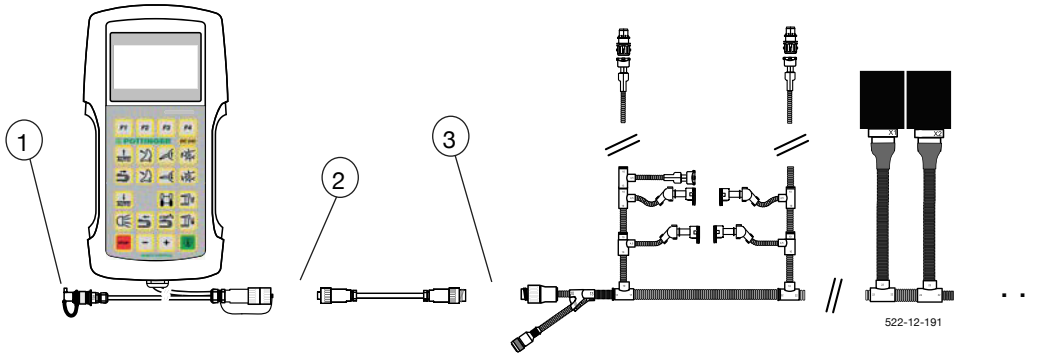
Do not exceed the installation height of 4 m!

5		Unfold side walls and screw to brackets. 
6		Automatic loading Install automatic loading flap on to front wall and secure with linch pin.
7		Install automatic loading to side wall bracket and secure with linch pin.
8		Attach the sensor (incl. cable) and switching bracket of the top automatic loading mechanism. Adjust the desired switching release using the screw in the slot of the switching bracket. Top slot: max. load Bottom slot: min. load Switching gap (X): 3 ... 5 mm
9		Install tarpaulin between rear bracket and back wall and secure with linch pin.
10		Install rope. Tip: If rope is placed in water before installation, it becomes more tensile. OPTION: Top profile For automatic loading to function it is important that screws between the top profile and automatic loading flap are not too tight.

Setup

The following plug connections must be checked to ensure proper function of the control unit:

1. Supply voltage 12 Volt from tractor
2. Connection - control panel to extension cable
3. Connection - extension cable to cable harness with CAN I/O Modules



Safety information!

Special care is required if several persons can operate the switching elements of the implement and the tractor at the same time. Scrupulous consultation between those involved must take place in advance.

One example:

There is danger of injury if a person is located at the trailer rear and a person in the tractor cab triggers a switching function (open rear wall, switch on drive, ..).

Control console



Meaning of keys

Function keys:

F1, F2, F3, F4 - context-sensitive functions

Keys for loading functions:

- 1 - Automatic loading
- 2 - Swing in cutting unit
- 3 - Raise pivoting drawbar
- 4 - Raise pick-up
- 5 - Scraper floor back push
- 6 - Swing out cutting unit
- 7 - Lower pivoting drawbar
- 8 - Lower pick-up

Keys for unloading functions:

- 9 - Automatic unloading
- 10 - Steering axle control
- 11 - Open rear wall
- 12 - Working and loading space floodlight
- 13 - Scraper floor forward speed
- 14 - Scraper floor start and scraper floor speed
- 15 - Close rear wall
- 16 - STOP
- 17 - Scraper floor speed -1
- 17 - Scraper floor speed +1
- 19 - On/Off

The software version of the control panel (V x.xx) is shown after voltage supply and switch-on of the control panel.

Taking the Direct Control into service

Switch on the control panel by

- briefly pressing the I/O key 

The start screen appears briefly.

Display in the start screen:

- Software version



The start menu is then accessed:

Display in start menu:

- Implement type set (in this case: Europrofi)
- Function keys



Function keys



Press (F1) briefly to access the Work menu.



Press (F2) briefly to access the Set menu.
Press (F2) for 10s to access the Configuration menu.



Press (F3) briefly to access the Test menu.



Press (F4) briefly to access the Data menu.

Acknowledging errors:

If an error message appears instead of the Start menu (see Diagnosis menu):

1. Remedy the malfunction
2. Press F4 until "Ack" appears in the display to acknowledge the error.

Ignoring errors:

If you cannot remedy the malfunction in situ, you can ignore the error until the next restart of the control system.

1. Press the F4 key until "OFF" appears



Note!

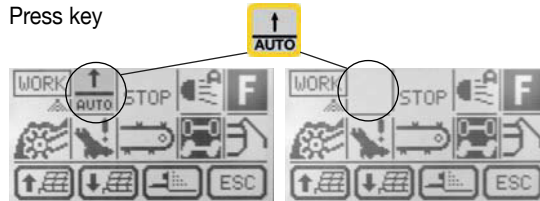
Contact our customer service before you continue work since we cannot assume any guarantee of function for the operation of implements with ignored malfunction messages.

WORK menu loading function

- Press the  in the Start menu to access the Work menu.
- Press the key  in the Work menu to return to the Start menu.

1. Automatic loading (on request)

Press key



- Automatic loading is switched on or off
- Active automatic loading is shown in the display

The automatic loading can only be switched on or off with the rear wall closed!

Control of automatic loading via

- Level flap bottom
- Level flap top
- Scraper floor drive is switched on automatically
- Load material is moved back slightly
- Procedure is repeated until the load space is full

A full message is sent when the forage

- presses against the rear wall



When the trailer is full,

- Full appears in the display.
- Counter for the number of loads increases by one.



Note!

The automatic loading only needs to be switched on once.

- When the trailer is full
 - Automatic loading is automatically deactivated
- After unloading
 - Automatic loading is reactivated automatically

Setting remains the same after switching the system on and off.



Note!

The following operating instructions refer to wagons with all additional equipment.



Note!

Automatic loading is not possible with trailers with folding forage top assembly.



Note!

The haul count is effected either by the Full message (FULL) or by the status sequence "Rear wall closed --> rear wall open--> Scraper floor back run 10 seconds"

2. Load scraper floor



As long as the key remains depressed

- The scraper floor moves at maximum speed from the pick-up to the rear wall.

The scraper floor no longer moves (STOP display):

- as soon as the wagon full message **F** appears.
- as soon as the key is released

(can also be used for brief switching to maximum speed during unloading.)

3. Activating/folding in cutting unit

(equipment on request)



As long as the key is kept depressed

- the knives move into the conveyor duct

Shown in display:

Cutting unit folded out



Cutting unit folded out completely/active



4. Cutting unit folded out

As long as the key is kept depressed



- the knives move out of the conveyor duct
- this occurs pressureless in Europrofi and Faro: . If pressureless folding out is not possible, use external cutting unit key.
- With regard to Euroboss and Primo: the knives move out of the conveyor duct with pressure.

Shown in display: (See activating/folding in cutting unit)



Note:

The symbol "Cutting unit swung out" starts to flash and an acoustic signal (five bleeps) sounds when the pick-up is lowered with the cutting unit folded out.

5. Lower pivoting drawbar



As long as the key is kept depressed

- The front section of the wagon is lowered
- Scraper floor is not switched off during lowering of the pivoting drawbar
- No display in Work menu

6. Raising pivoting drawbar



As long as the key is kept depressed

- Front section of the wagon is raised
- No display in Work menu

7. Raising pick-up



As long as the key is kept depressed

- Pick-up moves up

8. Lowering pick-up



Briefly press key

- Pick-up moves down and remains in float position
- Shown in display

Pick-up raised



Pick-up lowered



Function keys:



Raise forage top assembly - only if nothing in display when Configuration menu activated (equipment on request)



Lower forage top assembly - only if nothing in display when Configuration menu activated (equipment on request)



Dosing auxiliary unit on/off - switches a 12-V output to control a dosing pump or a valve for automatic dosing.

Maximum load of this output 3 A (equipment on request)



Display:



one menu level up (in this case: Start menu)

WORK menu unload functions

- Press the key  in the Start menu to access the Work menu.
- Press key  in the Work menu to return to the Start menu.

1. Automatic unloading

Press key for 1 second



- Automatic unloading is switched on or off automatically
The automatic unloading system is also switched off using the key "Close rear wall".
- Active automatic unloading system is shown in the display

Function sequence of automatic unloading system



Be advised! The function "Start automatic unloading" is only active after a delay of 0.8 seconds (safety precaution for road transport).

1. Opening the rear wall



Note!

The rear wall must be opened completely

If the rear wall is not completely open after activation of the key, adjust the parameter "Rear wall opening time" at the hydraulic system of your tractor. The parameter "Rear wall opening time" is found in the Set menu.

2. Scraper floor starts with the last speed saved.

If the key "Close rear wall"  is pressed briefly during unloading:

- The scraper floor stops.
- Symbol flashes on display
- Opened rear wall is slowly lowered.
- Hydraulic system to close rear wall is activated under pressure. 
- The rear wall is only closed after the exclamation mark has disappeared from the display. 

2. Unloading scraper floor / 2-stage motor

Briefly press key



- Scraper floor is switched on or over
- Shown in display
- slow or fast

In the slow stage - tortoise 

- Adjustment of speed is possible by pressing the "+"  or "-"  key.

In the fast stage - hare (equipment on request two-stage motor)

- Scraper floor runs at maximum speed
- No change to speed is possible

Stopping the scraper floor with the "Stop" key, 

or "Scraper floor forward run" 

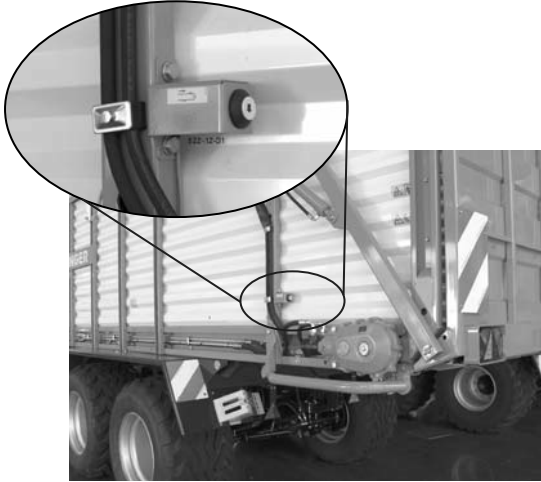
Brief raising of scraper floor back run on

- Raising the pick-up
- Opening the rear wall
- Folding the knives in
- Lowering or uprighting the forage top assembly
- Blocking the jockey steering axle

The scraper floor only starts if there are no other hydraulic functions running and the rear wall is open.

Scraper floor rear key: (equipment on request)

Alternatively to the Direct Control system, the scraper floor can be controlled from the rear of the wagon.



Press once - starts scraper floor

Press again - switches scraper floor off again.

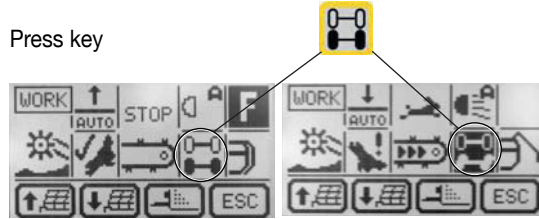
Keep depressed for 3 sec - switches to maximum speed (with 2-stage motor at hare stage)



Note: The scraper floor can only be operated using the rear key when the rear wall is open.

3. Jockey steering axle

Press key



- Jockey steering axle is released or blocked.
- Shown in display:

Released



Blocked



Note:

The hydraulic blocking process takes some time. The "Released symbol" flashes on the display during this time. The "Blocked symbol" appears when sufficient pressure has built up. The blocking process may be interrupted by pressing key  again.

Be advised!

The keypad is blocked for other hydraulic functions during the hydraulic blocking of the jockey steering axle.



Safety information!

The function of the automatic jockey steering axle is to be checked prior to road transport. The steering axle must be blocked while reversing.





Be advised!

The steering axle must be blocked:

- for fast, straight driving of more than 30 km/h
- on earth roads
- on inclines
- on relief of the front axle by pivoting drawbar operation
- on overrunning of the horizontal silo
- when the side guide of the non-steered axle is no longer sufficient

4. Opening the rear wall

As long as the key is kept depressed



- Rear wall opens
- unclosed rear wall is shown in display



Be advised! The function "Open rear wall" is only active after a delay of 0.8 seconds (safety precaution for road transport).

5. Closing rear wall

Briefly press key



- Scraper floor drive stops.
- Rear wall is lowered slowly. (without shed feeding rear wall) or
Rear wall is lowered with 40 bar pressure (with shed feeding rear wall)
- When the rear wall reaches the lower section (opening approx. 10 cm)
 - the tractor hydraulic system is switched to
 - rear wall is closed with the pressure of the tractor hydraulic system.



Be advised! Automatic closing process

The "Close rear wall" symbol flashes in the display during the closing process.

The automatic rear wall closing is stopped using one of

the keys , , or

6. Stop

One brief press of the key



- Stops all drives and functions controlled by the Direct Control system.
- Switches off the automatic functions active at that moment.

7. Reducing scraper floor speed

Use to execute the preselected function



- Reduce value

8. Increasing scraper floor speed

Use to execute the preselected function



- Increase the value

9. Working and loading space floodlight

(equipment on request)



Switches between the following functions

OFF	Floodlight switched off	
ON	Floodlight switched on continuously	
AUTOMATIC	Floodlight is switched on automatically with open rear wall.	

Function keys:



Raise forage top assembly - only if activated in Configuration menu (equipment on request)



Lower forage top assembly - only if activated in Configuration menu (equipment on request)



Dosing auxiliary unit on/off - switches the automatic dosing of additives. Additives only dosed when pick-up lowered. Display: (equipment on request)



one menu level up (in this case: S



SET menu

- Press key  in the Start menu to access the Set menu.

Press key  in the Set menu to return to the Start menu.



Display

1. Display lighting shown in per cent increments 

2. Keypad lighting on/off 

The keypad lighting is switched off automatically on restart of the control system

3. Adjustment of the rear wall opening time on automatic unloading (from 5s - 10s) 

Function keys:

-  Edit menu entry
-  Scroll down
-  Scroll up
-  one menu level up (in this case: Start menu)

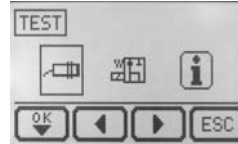
The function of the function keys changes when a menu entry is edited.

-  save the current value of the parameter (and jumps within the row one parameter on.
-  changes the value of the parameter
-  changes the value of the parameter
-  one menu level back (in this case: Set menu)

Test menü

- Press key  in the Start menu to access the Test menu.

- Press key  in the Test menu to return to the Start menu.



Display:

Sensor test menu 

Valve test menu 

Information menu 

Function keys:

-  Confirm the selection and menu change
-  Scroll left
-  Scroll right
-  one menu level up (in this case: Start menu)



Note!

Only the functions activated in the CONFIG menu appear in the display

1. Sensor test menu

- Press key  in the Test menu to access the Sensor test menu.
- Press key  in the Sensor test menu to return to the Test menu.



2. Valve test menu

- Press key  in the Test menu to access the Valve test menu.
- Press key  in the Valve test menu to return to the Test menu.



Display:

All sensors divided into rows

List of all possible sensors:

B1...	Speed sensor	
B2...	Cutting unit sensor	
B3...	Sensor automatic loading up	
B4...	Sensor automatic loading down	
S1...	External key swing in cutting unit	
S2...	External key swing out cutting unit	
B7...	Sensor load space door	
B6...	Sensor Full message (either oil pressure switch OR Sensor Euroboss)	
B5...	Sensor rear wall	
S3...	Scraper floor rear key	

Function keys

	one row down
	one row up
	one menu level up (in this case: Start menu)

Display:

All valves divided into rows

List of all possible valves:

Y3...	Lowering directional control valve	
Y4...	Raising directional control valve	
Y7+Y8...	Poppet valve pivoting drawbar	
Y5...	Poppet valve pick-up	
Y11+Y12...	Poppet valve cutting unit	
Y16...	Poppet valve steering axle	
Y17+Y18...	Poppet valve forage top assembly	
Y1...	Directional control valve scraper floor forward run	
Y2	Directional control valve scraper floor back run	
	Speed is adjustable in per cent	
Y15...	Poppet valve two-stage motor	
Y20...	Poppet valve rear wall dbv 40bar	
Y13+Y14...	Poppet valve rear wall	



Note: All outputs are switched off again when the menu is left.

1. Select the row in which the sensor you wish to test is located.
2. Activated sensors, keys or switches have a black background.

Function keys:

-  Selects the current row shown
-  one row down
-  one row up
-  one menu level up (in this case: Test menu)

The function keys have different meanings in the row.

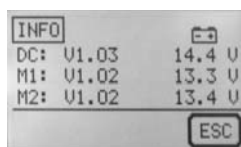
-  saves the current status of the valve (energised/deenergised) and jumps within the row one valve on.
-  changes the status of the valve
-  changes the status of the valve
-  one menu level back (in this case: Valve test menu)

1. Select the row in which the valve you wish to test is located.
2. Change the status of the valve you wish to change
3. Save the current status of the valve.

3. Information menu

- Press key  in the Test menu to access the Info menu.
- Press key  in the Info menu to return to the Test menu.

The Info menu provides information on the software version installed and the current voltage



Display:

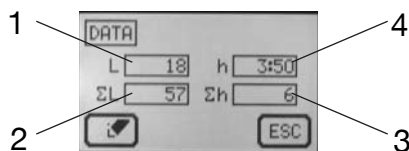
DC... Direct Control
M1... CAN I/O Module 1
M2... CAN I/O Module 2

Function keys:

-  one menu level back (in this case: Test menu)

Data menu

- Press key  in the Start menu to access the Work menu.
- Press key  in the Data menu to return to the Start menu.



Display:

1. Part counter load (L)
2. Total counter Load (ΣL)
3. Total counter hours (Σh)
4. Part counter hours (h)

Function keys:

-  Delete the part counter for hours and load
Press (F1) for 3s to delete both part counters.
A single bleep signals completed deletion.
-  one menu level up (in this case: Start menu)

The hour counter counts as soon as and as long as the cardan shaft is running

The load counter counts one load, if:

- the Full message occurs on the following sequences:
Rear wall open and 10s scraper floor back run active

Configuration menu

- Press key  in the Start menu for 10 seconds to access the Configuration menu.
- Press key  in the Configuration menu to return to the Start menu.



Display:

All the possible equipment elements are shown in the Configuration menu. You can add the new equipment element you have bought to the control system here.

The equipment element is active when a tick is shown next to it.

The equipment element is inactive and thus unavailable to the control system when a cross is shown next to it.



Note: You cannot control a new equipment element if it is not activated in the Configuration menu.

The function keys allow you to add new equipment elements to the wagon control system or to delete equipment elements no longer present.

Function keys:



selects the row currently shown



one row down



one row down



one menu level back (in this case: Start menu)

The function keys have different meanings in the row.



saves the activation status of the current equipment element and jumps within the row to the next equipment element.



activates or deactivates the equipment element



activates or deactivates the equipment element



one menu level back (in this case: Configuration menu)

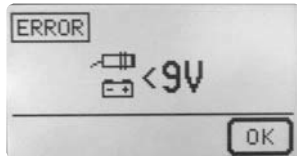
Equipment elements:

Machine type	Faro, Primo, Europrof1, Euroboss,
Automatic loading system	
2-stage motor	
Dosing auxiliary unit	
Steering axle	
Lighting system	
Forage top assembly	
internal use only	

Diagnostic function

On detecting an error

- An alarm mask appears
- An alarm is heard
- the corresponding symbol is shown



Acknowledging errors:

If an error message appears instead of the Start menu (see Diagnostic menu):

1. Remedy the malfunction
2. Press F4 until "Ack" appears on the display to acknowledge the error.

Ignoring errors:

If you cannot remedy the malfunction in situ, you can ignore the error until the next restart of the control system.

1. Press F4 until "OFF" appears.



Note!

Contact our customer service before you continue work since we cannot assume any guarantee of function for the operation of implements with ignored malfunction messages.

Cutting unit monitoring

is activated when the "Lower pick-up" key is pressed with the cutting unit swung out

Indicated by:

- acoustic signal
- symbol flashes five times



Rear wall monitoring

is activated when the scraper floor back run is in operation and the rear wall opens during this operation without any Full message.

Indicated by:

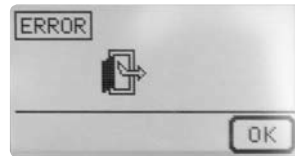
- acoustic signal
- symbol flashes five times



Check the setting of the Full message sensor

Entrance door monitoring

All hydraulic functions stop and the following diagnostic message appears as soon as the entrance door is opened:



This message is acknowledged by closing the door.



Note: Before closing the door check the load space and ensure that there is nobody in it.



Safety information

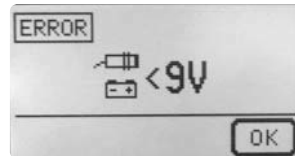
The load space may only be entered if the tractor is switched off and the key removed.

Sensor voltage

Malfunction at sensor power supply

Causes:

- voltage too low at CAN I/O Module
- CAN I/O Module defective



Note!

Check the voltage supply in the Test menu if there are problems with the power supply.

CAN I/O defect

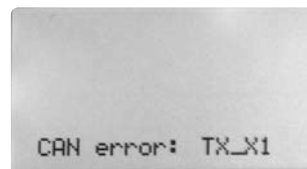
The connection to the CAN I/O Module has been interrupted. The following diagnostic message appears:

Causes:

- Connection to the CAN Module interrupted.
- Fuse defective.



Note: This malfunction message cannot be ignored!



Terminal performance features

Connection to power

The power for the entire electronic system (job calculator and terminal) is supplied by the 12V power system of the tractor via a plug in compliance with DIN 9680. Instead of the three-pole plugs, two-pole versions may be used as only two main wires (+12 V, ground) are required.



Caution!

Other plug and socket types are not permitted as, otherwise, the functional reliability cannot be ensured.

Technical data

Operating voltage	+10V ...+15V
Operating temperature range	-20°C ... +60°C
Bearing temperature	-30°C ... +70°C
Degree of protection	IP65
Fuse	10 A multi-fuse in the operating voltage plug

Function

All functions of your add-on unit can be directly controlled through the Power Control Terminal. In addition, the Power Control Terminal has a large display to indicate the current operating condition, various menus and alarm messages. Precondition is a single-acting hydraulic circuit with pressureless return or load sensing.

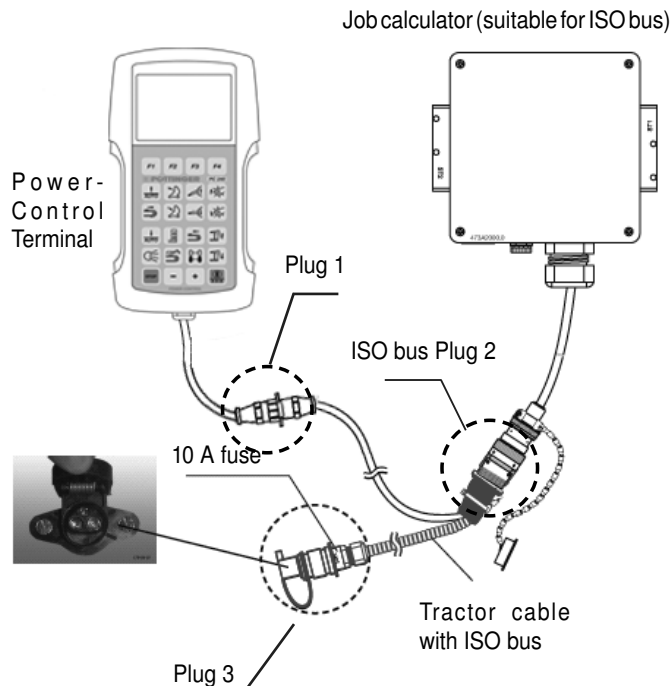
Commissioning

Power Control Terminal Operation

1. Arrange the Power Control Terminal clearly inside the tractor cab (use the bracket on the back of the terminal).
2. Connect the terminal to the tractor cable via plug 1.
3. Arrange the job calculator cable from the add-on unit to the tractor cab and connect to the tractor cable via Isobus plug (2). Make sure that the cables are properly arranged.
4. Connect plug (3) of the tractor cable to the 12 V power supply system of the tractor.

To activate the terminal, press the key "I/O" .

To deactivate the terminal, press the key "I/O"  for three seconds.



Safety tips!

Please take particular care when the operating elements on the trailer and the tractor are to be used simultaneously by more than one person. A conscientious arrangement should be made by those concerned before operation.

An example:

Danger of injury arises if a person stands at the rear of the trailer and somebody in the tractor cabin activates a switching function.



Note:

Do not expose the terminal to the weather.



Note:

The Power Control will switch off automatically after 1 hour, without pressing keys!

Key assignment

Function keys

- a** Function key 1*
- b** Function key 2*
- c** Function key 3*
- d** Function key 4*

Loading keys

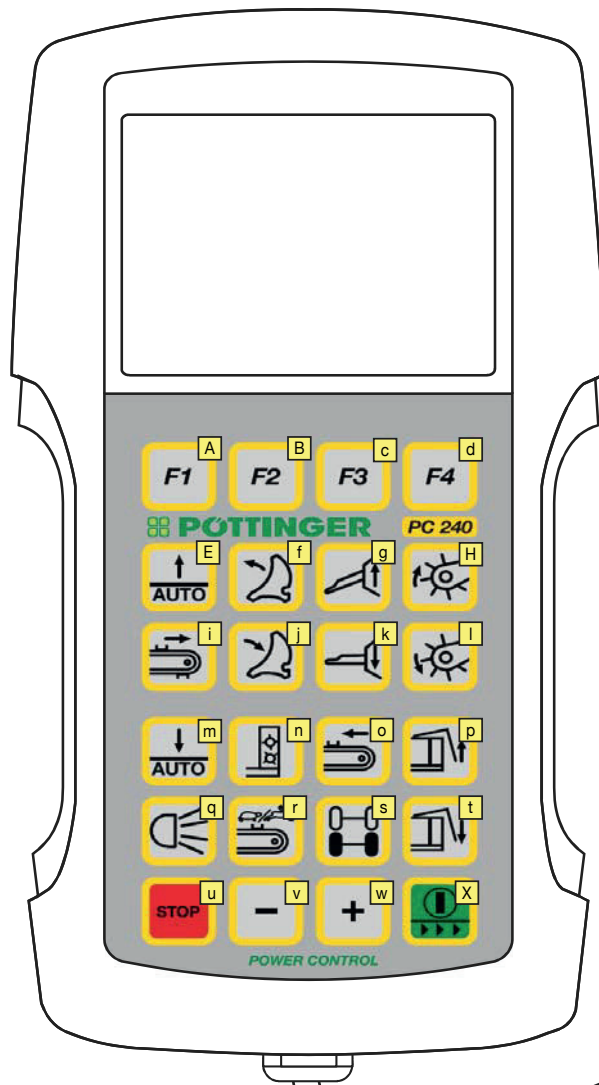
- e** Automatic loading
- f** Fold in the cutting unit
- g** Extend the pivoting drawbar - lift wagon
- h** Lift the pick-up
- i** Reversing / loading of scraper floor
- j** Fold out the cutting unit
- k** Retract the pivoting drawbar - lower wagon
- l** Lower the pick-up

Unloading keys

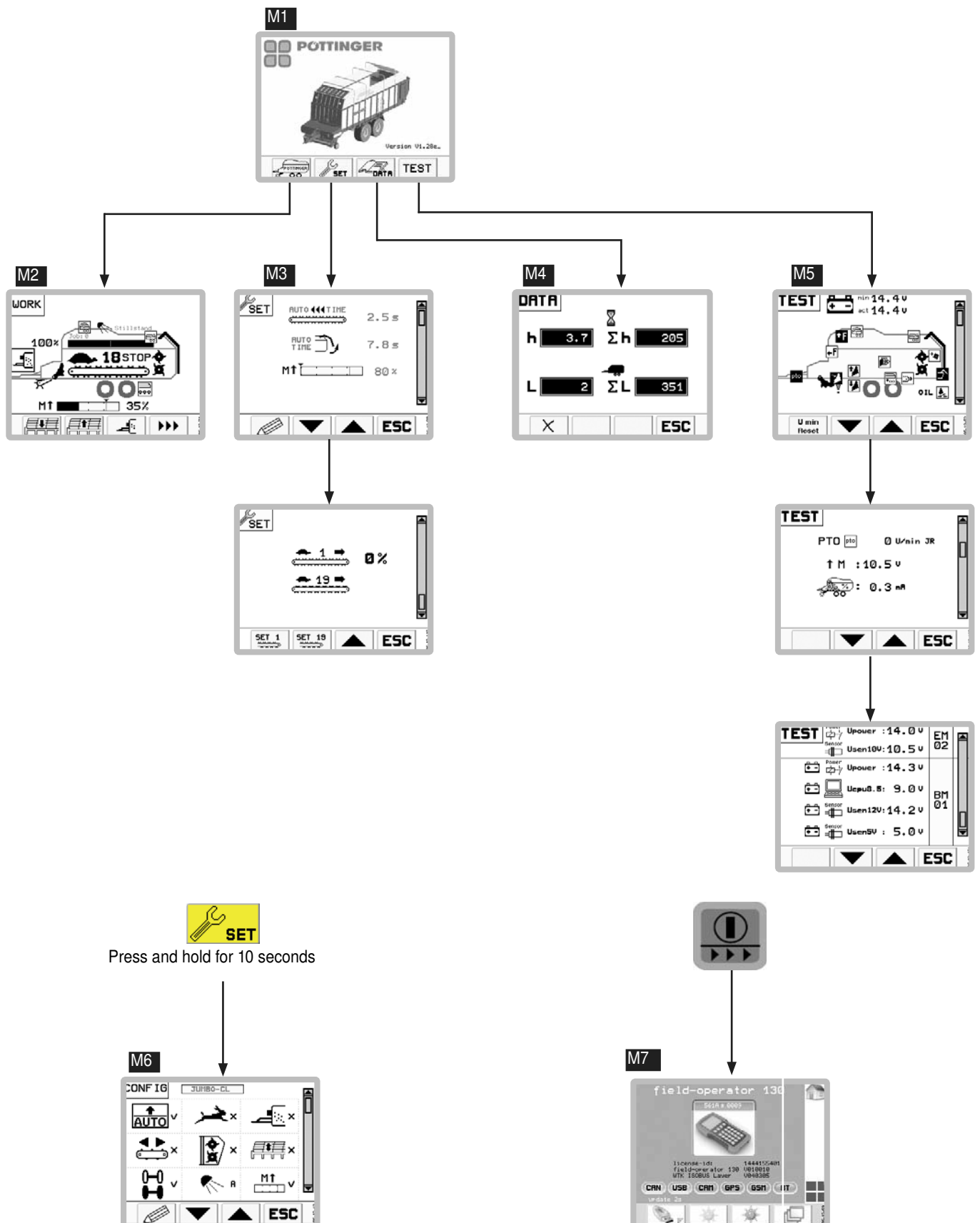
- m** Automatic unloading
- n** Regulating rollers - on/off
- o** Scraper floor - forward motion
- p** Open tailgate
- q** Lighting
- r** unload scraper floor
- Optional: 2-stage motor (slow/fast)
- s** 1) Lock/unlock trailing steering axle
2) Electronic positive steering (optional) lock - release
- t** Close tailgate
- u** Stop
- v** Reduce value / reduce scraper floor speed
- w** Increase value / increase scraper floor speed
- x** On/off - changing the menu

Press the On/Off key to switch on the Power Control Terminal. Press the On/Off key to call up the System Menu.

Press and hold the On/Off key for a longer time to turn off the Power Control Terminal.



Menu tree



Menus

Start Menu

M1

After having switched on the Power Control Terminal, the Start Menu is displayed.

Display:

- 1.... Software version
- 2.... Function keys

Function keys:



... Work Menu **M2**



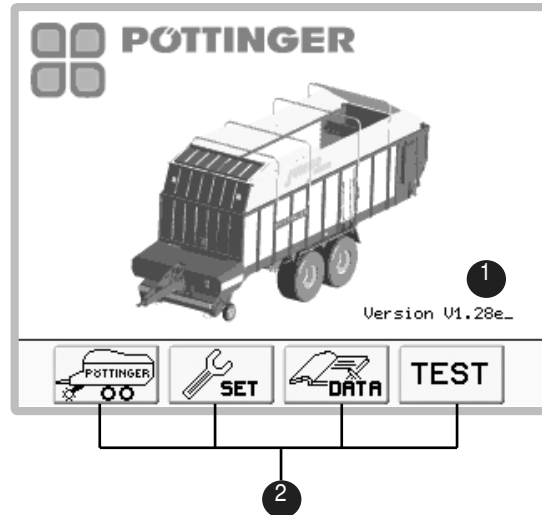
... Set Menu **M3** /pressed for a longer period:
Configuration Menu **M6**



... Data Menu **M5**



... Sensor Test Menu



Work Menu

M2

Call up the Start Menu and Press function key F1, to call up the Work Menu.

Press function key F4, to return to the Start Menu.

Display:

- Automatic loading activated*/deactivated

When this symbol is displayed automatic loading has been activated.

- Lighting

	Light on*		Light off
	Automatic on Light on		Automatic off Light off

- Tailgate

	open		closed*
	close		lock
	Rear wall securing active		

- Regulating roller not existing / off* / on

	Regulating roller off		Regulating roller on
--	--------------------------	--	-------------------------

- Trailing steering axle locked / open*

	locked*		open
--	---------	--	------

When the "locked" symbol flashes the trailing steering axle is being locked.

- 5A Electronic positive steering (EZL, optional)

	Axles centred and locked in centre position		Road operation active
--	---	--	--------------------------

- Loading moment sensor status:

(Only indicated with the pick-up in lowered position.)
Shows the current degree of utilization of the rotor.

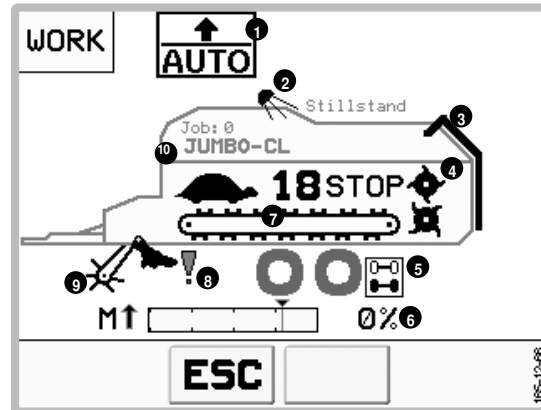
M↑		35%
----	--	-----

- Scraper floor status



Stop* / forward / reverse

STOP	stopped	◀◀	Reverse
▶	Forward slow	▶▶▶	Forward fast



7	speed
---	-------

Speed stage

	slow		fast
--	------	--	------

Note:

During loading, the scraper floor always runs at maximum speed.

8. Cutting unit position - swung out / swung in

	swung in		swung out*
--	----------	--	------------

Note:

When the symbol flashes the cutting unit cannot be swung, which is a result of the position of the automatic blade sharpening device (only when an automatic blade sharpening device has been installed).

9. Pick-up position lowered* / lifted

	lifted		lowered
--	--------	--	---------

- 9A Pick-up Super Large 2360: Jockey wheel position

	Position for road transport		Intermediate position or sensor error
--	-----------------------------------	--	---

There is also an acoustic warning signal on intermediate position or sensor error.



Note:

Any optional equipment influencing the control needs to be configured in the Configuration Menu (M6).

10. Level indication (optional)



11. Automatic unloading activated* / not activated

When this symbol is displayed automatic loading has been activated.

12. Load cover system front / rear / central position*

	front		rear
	When the symbols are flashing either the load cover system is at central position or is being moved forward or backward.		



Note:

With the load cover system arm at central position, the maximum transport height might have been exceeded.

13. Cross conveyor status

	Cross conveyor preselection (not with mechanical cross conveyor))
	Hydraulic cross conveyor direction right
	Hydraulic cross conveyor direction left
	Mechanical cross conveyor runs in direction set

14. Lifting axle lowered / lifted*

	Lifting axle lowered		Lifting axle lifted
--	----------------------	--	---------------------



Note:

When the supported load is too high the lifting axle cannot be lifted. When the supported load is increased exceeding the critical level with the lifting axle in lifted position the lifting axle will be lowered automatically.

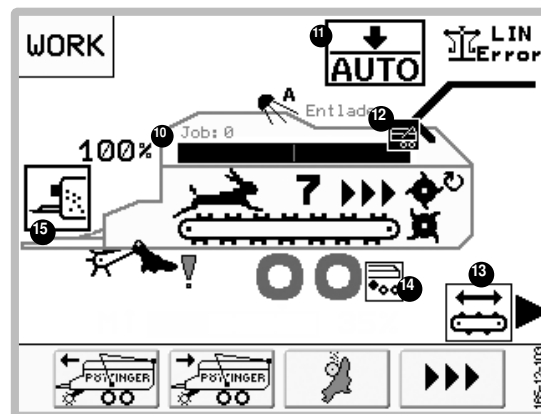
15. Additive supply system activated* / not activated

	activated - additive being added
	not activated - additive not being added



Note:

When the symbol is not displayed the additive supply system has either not been activated or not configured.



Function keys:



Blade sharpening device setting menu
- see Autocut instructions



Lift dry forage extension - only after having been activated in the configuration menu



Lower dry forage extension - only after having been activated in the configuration menu



Additive supply system on/off - controls the automatic additive supply system. Additive will only be supplied when the pick-up has been lowered.



Close load cover system*



Open load cover system*



Fold front gates** forward



Fold front gates** upward



Fold upper front gates downward. The gates will move downward as long as the key is being pressed.



1. Fold upper front gates** upward. The gates will move upward as long as the key is being pressed.

2. Other function keys - press key briefly



Other function keys



Next higher level (here: Start Menu)



Swivel jockey wheels into working position (hold depressed until process is completed).



Swivel jockey wheels into road position (hold depressed until process is completed).

* Load securing device can only be controlled when the rear wall is closed.

** Lower front flaps can only be operated with the load securing device open. Front flaps are only available for Jumbo CombiLine.



Automatic unloading with cross conveyor / left-hand rotation



Automatic unloading with cross conveyor / right-hand rotation



Preselection of cross conveyor



Direction selection - left



Direction selection - right



Cross conveyor - stop

Hydraulically controlled cross conveyor

1. Automatic unloading with cross conveyor

1. Press key , , to start automatic unloading with the cross conveyor.

For functional sequence see "Hard keys - automatic unloading".

2. Manual control of the cross conveyor



Note: The tailgate has to be open to start the cross conveyor manually.

1. Press the key to call up the cross conveyor menu.



Note: The direction has to be selected within 3 seconds. Otherwise, the preselection display will disappear.

2. When pressing the key the cross conveyor will start immediately without any delay.
3. Press the key to discontinue the cross conveyor function at any time.

Mechanical cross conveyor

(only Euroboss)

1. Automatic unloading with cross conveyor.

1. Press key to start automatic unloading with cross conveyor.



Note! The cross conveyor direction cannot be changed via the control system. Reconnect PTO to change the direction of the cross conveyor.

2. Manual operation of cross conveyor.



Note! The rear wall must be open to permit manual start of the cross conveyor.

1. Press key to set the cross conveyor in motion.
2. Use key to stop the cross conveyor function at any time.

Automatic unloader functional procedure

1. Open the tailgate ¹⁾
2. Switch on cross conveyor ²⁾
3. Scraper floor is briefly switched to forward run ³⁾
 - Forage pressure on regulating roller is reduced
4. Switch on regulating rollers ³⁾
5. The scraper floor is unloaded at the speed programmed previously.

To interrupt automatic unloading:



Press the [Close tailgate] key briefly to interrupt the automatic unloading:

1. symbol blinks on display
2. opened tailgate will slowly close
3. Unloading is interrupted



Reenergizing of:

- scraper floor drive
- regulating rollers
- cross conveyor

4. The hydraulic function to lock the tailgate is released.
Only when the symbol is not displayed any more, the tailgate has actually closed and locked.

Attention!

The "Start automatic unloader" function is activated only after a 0.8 sec delay (safety precaution for road transportation).

¹⁾ Only for wagons without cross conveyor or with standing cross conveyor
²⁾ Only for wagons with cross conveyor
³⁾ Only for wagons with regulating rollers

Hard keys: Loading

	Automatic loading	Press the key [Automatic loading] to either start or stop automatic loading. Switching automatic loader on and off is possible only when tailgate is closed! Control of the automatic loader through - level flap underneath - level flap on top - scraper floor drive is switched on automatically - forage is conveyed back a short distance - procedure is repeated until the loading space is full The wagon is full when the forage - presses against the lower regulating roller, or - presses against the tailgate (wagons without regulating rollers) When the wagon is full - full indicator (Full) appears on the display - the counter for the number of loads increases by one  Note! The automatic loader needs to be switched on only once. Automatic loading is automatically switched off by the "full" signal and is automatically switched on after unloading. Setting is maintained even after switching the system on and off.
	Scraper floor - reverse	Press the [Scraper floor - reverse] key to move the scraper floor at maximum speed in loading direction (i.e. towards the tailgate). The scraper floor is moving as long as the key is pressed, unless the loader wagon is fully loaded.
	Fold in cutting unit	Press the [Fold in cutting unit] key to fold in the cutting unit. The cutting unit moves toward the conveyor channel up to the final position as long as the key is pressed (same function as external cutting unit keys). As long as the final position has not been reached, the cutting unit is displayed.
	Fold out cutting unit	Press the [Fold out cutting unit] key to fold out the cutting unit. The cutting unit moves away from the conveyor channel up to the final position as long as the key is pressed (same function as external cutting unit keys). As long as the final position has not been reached, the cutting unit is displayed.
	Lift pivoting drawbar	Press the [Lift pivoting drawbar] key to lift the front section of the loader wagon. The front section of the loader wagon is lifted as long as the key is pressed.
	Lower pivoting drawbar	Press the [Lower pivoting drawbar] key to lower the front section of the loader wagon. The front section of the loader wagon lowers as long as the key is pressed.
	Raise pick-up	Press the [Raise pick-up] key to raise the pick-up of the loader wagon. The pick-up is lifted as long as the key is pressed.
	Lower pick-up	Press the [Lower pick-up] key to lower the pick-up of the loader wagon until the final position is reached. Thereupon, the pick-up remains in floating position.
	Stop	- Stops all hydraulic functions and uncouples the regulating roller - Stops all activated automatic functions



Note!

The following operating manual applies to trailers fitted with all additional equipment.



Note!

An automatic loader is not possible on machines with a collapsible top frame.



Take note!

Load counting takes place either through the full indicator (FULL) or through the status sequence "Tailgate to tailgate on scraper floor – reverse run 10 seconds"



Note:

You may leave any menu by pressing the ESC key

ESC



Note:

When the cutting unit has been folded out and the pick-up is being lowered an acoustic alarm sounds and the symbol on the display flashes three times.

Hard keys: Unloading



Automatic unloading

Press the [Automatic unloading] key until a signal tone can be heard. Thereupon, the

- automatic unloader is switched on or off
- activated automatic unloader appears on display

Automatic unloader functional procedure

1. Open the tailgate
2. Scraper floor is briefly switched to forward run ¹⁾
 - Forage pressure on regulating roller is reduced
3. Switch on regulating rollers ¹⁾
4. The scraper floor is unloaded at the speed programmed previously.

To interrupt automatic unloading:

Press the  [Close tailgate] key briefly to interrupt the automatic unloading:

1. symbol blinks on display
2. opened tailgate will slowly close
3. Unloading is interrupted

Deenergizing of:

- scraper floor drive
- regulating rollers

4. The hydraulic function to lock the tailgate is released.

Only when the symbol is not displayed any more, the tailgate has actually closed and locked.



Attention!

The “Start automatic unloader” function is activated only after a 0.8 sec delay (safety precaution for road transportation).



Note!

AUTOMATIC UNLOADER: The current scraper floor speed is automatically stored after running for 10 seconds and used again for the unloading procedure which follows!



Regulating rollers on/off

Press the [Regulating rollers on/off] key briefly to switch the rollers either on or off. Activated regulating rollers are displayed as such.

- The regulating rollers can only be switched on when the tailgate is open.
- When the tailgate is closed the regulating rollers are automatically switched off.

¹⁾ Only for wagons without cross conveyor or with standing cross conveyor

	Scrapper floor - forward	Press the [Scrapper floor - forward] key to move the scrapper floor at maximum speed in the direction opposite the loading direction (i.e. towards the pick-up). The scrapper floor is moving as long as the key is pressed or the signal that the loader wagon is fully loaded is received. The reverse movement of the scrapper floor is stopped by this function.
	Open tailgate	Press the [Open tailgate] key to open the tailgate. The tailgate opens as long as the key is pressed. - An opened tailgate or a tailgate being opened is displayed. - Caution: The function "Open tailgate" is activated only after a delay of 0.8 sec. This is a safety function for road transport.
	Close tailgate	Press the [Close tailgate] key briefly to close the tailgate automatically. The tailgate is slowly lowered without pressure and closed and locked under pressure shortly before having reached its final position. Activated scrapper floors, regulating rollers and cross conveyors are shut down.  Note: As long as the tailgate closes without being under pressure, the symbol "Close tailgate" is displayed. As soon as pressure is applied and the tailgate is being locked, the symbol does not flash anymore but an arrow is displayed showing that the tailgate is being locked.

Hard keys: General functions

	Light on/off	Press the [Light on/off] key once to switch on the light. Press the [Light on/off] key twice to activate the automatic lighting of the unit. Thereupon, the light will switch on automatically when the tailgate opens. Press the [Light on/off] key once again to switch the lighting and the automatic lighting off.
	Scrapper floor unloading / two-speed motor	Press the [Scrapper floor unloading / 2 speeds] key to switch on the scrapper floor. Press the key once again to change from one speed (low) to the other (high). At low speed (tortoise): Change the speed using the [+] and [-] keys At high speed (hare):. - The scrapper floor runs at maximum speed. - The speed indication remains unchanged. - Two-speed motor variant: The two-speed motor valve is activated.



Steering axle on/off

Press the [steering axle on/off] key to unlock or lock the trailing steering axle. The condition of the steering axle is displayed.

Caution: When the steering axle is reversed other hydraulic functions are out of action for a short time.

Caution: Before road transport, the function of the trailing steering axle needs to be checked (blocked for a short distance of reverse driving).

Attention!



The trailing forward axle must be locked:

- when travelling straight ahead quickly at 30 km/h or more
- with unpaved surfaces
- in sloped areas
- with load on the front axle through pivoting drawbar usage
- when travelling over a drive-in silo
- **when lateral traction of the unguided axle is no longer sufficient**



Electronic positive steering (EZL) on/off

To centre and lock the electronic positive steering, depress the [Electronic positive steering on/off] key until the symbol [Axle locked] appears in the display.

The symbol [Axle locked] flashes during straightening.

If the [Electronic positive steering on/off] key is released before the axles are centred, the control automatically jumps to road operation mode.

Briefly depress the [Electronic positive steering on/off] key to change to road operation mode. The symbol in the display changes to road operation.

Set Menu

M3

Several speeds, lead times and operating points can be set in the Set Menu.

Call up the Start Menu and press function key F2, to call up the Set Menu.

Press function key F4, to return to the Start Menu.

Display:

1. Setting the scraper floor lead time

(Only for loader wagons with regulating rollers.)

With automatic unloading having been activated, this lead time serves to relieve the regulating rollers. After opening the tailgate, at first, the scraper floor transports forage away from the regulating rollers for the set time.

Setting range: 0.1 - 3 sec

Steps: 0.1 sec

2. Tailgate opening time

(Automatic unloading activated)

This opening time determines the time the tailgate is opened hydraulically.

Setting range:

Wagon with regulating roller: 1 - 10 sec

Wagon without regulating roller: 5 - 50 sec

3. Loading sensor - Scraper floor operating point:

(Automatic loading activated)

Value of the loading moment sensor. When this value is exceeded, the scraper floor is switched on to transport the forage away from the rotor inlet.

The scraper floor runs until the value is below the threshold again.

Setting range: 1 - 100%

This value has to be matched to the forage condition. The wetter the forage the lower the value. The drier the forage, the higher the value.

4. Rear wall securing device

The rear wall securing device fixes an outlet width during automatic unloading for all wagons regardless of mechanical or hydraulic cross conveyor.

The rear wall cannot be moved using the key "Rear wall open/close" while the rear wall securing device is active. However, automatic unloading can still be stopped with the "Rear wall open/close" key.

The rear wall is not moved even if you press "Automatic unloading".

Adjustment range active / inactive



Function keys:



... Editing the menu item



... Scrolling down



... Scrolling up



... Go to the higher level (here: Start Menu)

5. Rear wall float position

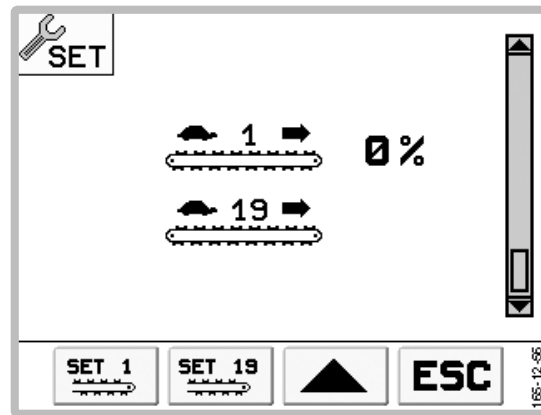


Note: This function is only active as long as you are in the Set menu and the function is switched on with a tick. The function is automatically deactivated when you leave the Set menu.

The function rear wall float position helps you adjust the rear wall securing position since the hydraulic cylinder responsible for opening the rear wall is placed in float position. This means the rear wall can be moved easier manually and is thus easier to bring into the correct position for rear wall securing.

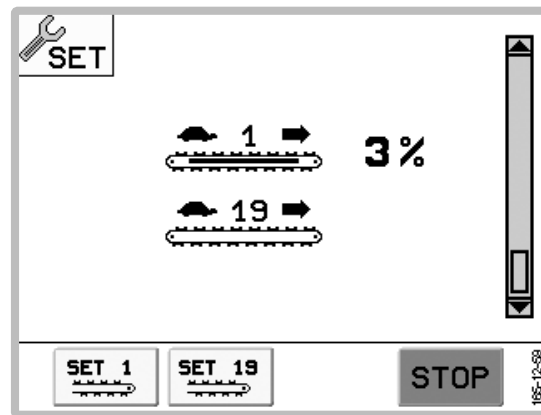
5. Calibrating the scraper floor

1. Press the [Set 1] key to set the lowest speed.
2. To change the speed, press the hard keys [+] or [-] of the terminal. Set to the lowest possible speed.
3. Press the [Set 19] key, to set the highest speed.
4. To change the speed, press the hard keys [+] or [-] of the terminal. Set to the highest possible speed.
5. Press the [Stop] key, to save the values and stop the scraper floor.



Function keys:

- | | |
|--|---|
|  | ... Setting the minimum speed |
|  | ... Setting the maximum speed |
|  | ... Scroll up |
|  | ... Going to the next higher level (here: Start Menu) |



Data Menu

M4

Call up the Start Menu and Press function key F3, to call up the Set Menu.

Press function key F4, to return to the Start Menu.

Display:

- 1 ... Hour counter
- 2 ... Total hour counter
- 3 ... Daily load counter
- 4 ... Total load counter

Function keys:



... Setting back the hour counter and the daily load counter

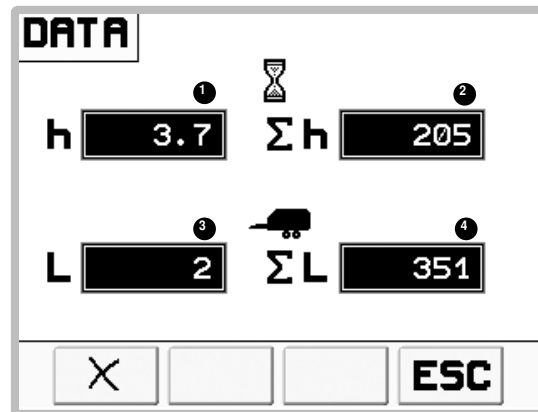


... Going to the next higher level (here: Start Menu)



Note:

It is not possible to set back only one of the counters. You can only set back both the hour counter and the daily load counter.

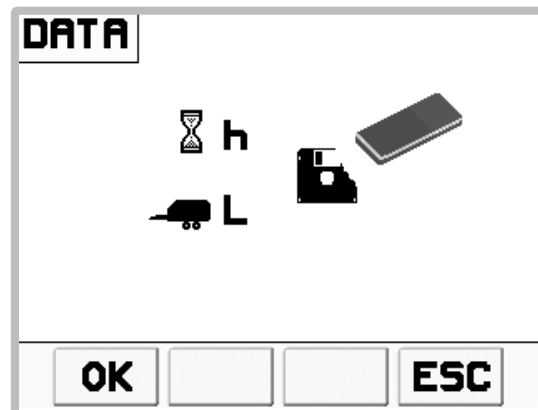


Note

The load is counted either as a function of the "full" signal or the condition sequence:
"Tailgate closed
--> Tailgate open
--> Scraper floor
- reverse for 10 seconds".

Setting back the hour counter/daily load counter:

1. Press function key X to set the current hour/daily load counters back to 0.
A new screen appears.
2. Press function key OK to confirm the process or
Press function key ESC to discontinue the process and return to the previous menu.



Note:

Press the "Stop" key to stop all functions.



Sensor Test Menu

M5

Using the Sensor Test Menu, you can inform yourself on the current condition of the sensors and the displayed values. This might be very useful for troubleshooting.

Call up the Start Menu and Press function key F4, to call up the Set Menu.

Press function key F4, to return to the Start Menu.

Display:

A symbol on a black background shows that

- an inductive sensor has been assigned
- a Hall effect sensor has been assigned
- a mechanical switch / key has been operated



Note:

When the signal of a sensor or switch is changed the symbol is shown inverted.

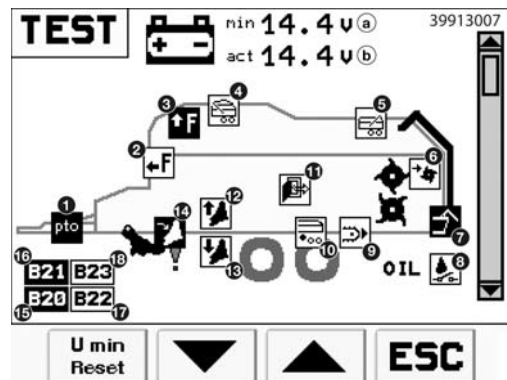
If the frequency of the signal change is suitable, the symbol may flash. Thus, a flashing symbol does not necessarily indicate a fault.

Sensors:

1	Driveshaft speed	B1...
2	Filling flap - bottom	B4...
3	Filling flap - top	B3...
4	Load cover system - front	...B30
5	Load cover system - rear	...B31
6	Pressure on regulating rollers	B6...
7	Tailgate	B5...
8	Oil pressure switch	...S7
9	Scraper floor rear switch	S3...
10	Lifting axle	...B10
11	Loading room door	B7...
12	External cutting unit switch - on	S1...
13	External cutting unit switch - off	S2...
14	Cutting unit status	B2...
15	Jockey wheel sensor working position left	...B20*
16	Jockey wheel sensor working position right	...B21*
17	Jockey wheel sensor road transport left	...B22*
18	Jockey wheel sensor road transport right	...B23*

- | | |
|---|--|
| <p>^a</p> <p>^b</p> | <p>Smallest voltage measured (rpm) since system start</p> <p>Present voltage (V)</p> |
|---|--|

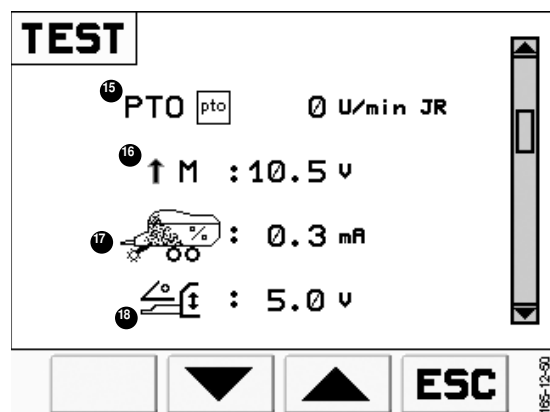
* The position of the sensors is described in the Chapter Pick-up



Function keys:

U min Reset	To set the minimum voltage value (a) to the present value (b)
▼	Scroll down
▲	Scroll up
ESC	Go to the next higher level (here: Start Menu)

- 15 Driveshaft speed B1...
- 16 Loading moment sensor (max. 10 V) ...B9
- 17 Filling level sensor (4-20 mA) ...B11
- 18 Drawbar angle sensor (0-5 V) B8

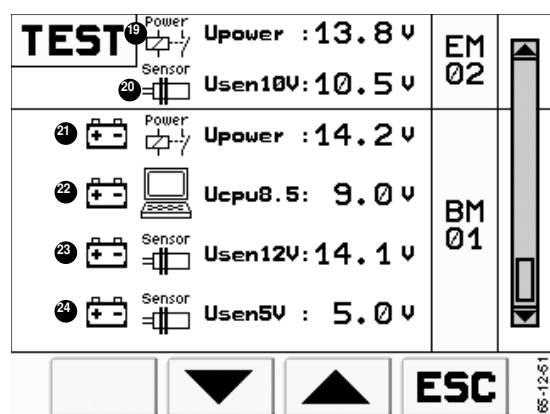


EM02: Job calculator extension module (plug ST2)

- 19 Power supply voltage - extension module
Nominal: 12 V
- 20 Stabilized sensor voltage
Nominal: 10.5 V

BM01: Basic module (plug ST1)

- 21 Supply voltage BM
Nominal: 12 V
- 22 Processor voltage BM
Nominal: 8.5 V
- 23 Not stabilized sensor voltage
Nominal: 12 V
- 24 Stabilized sensor voltage
Nominal: 5.0 V



Configuration Menu

M6

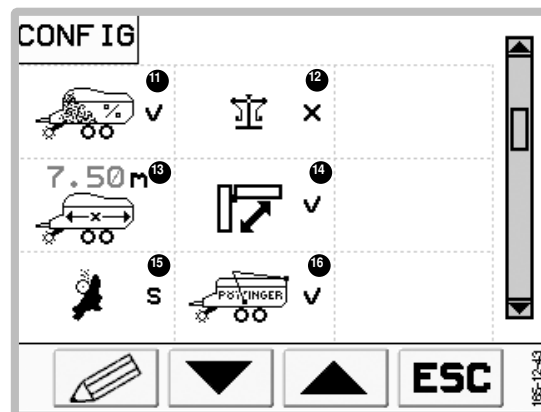
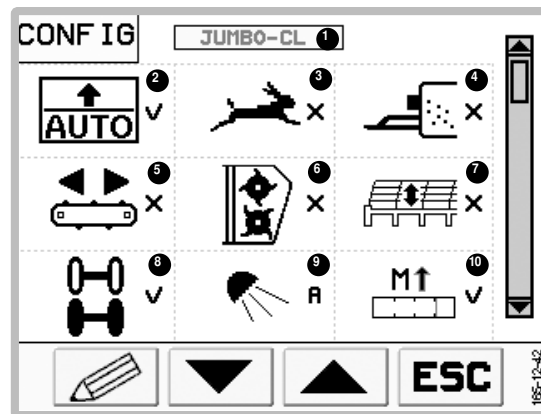
The equipment your loader wagon is provided with is to be configured in the Configuration Menu. You will only use this menu when new equipment is added to your loader wagon or equipment is removed from the loader wagon. Otherwise, the correct configuration has been at the factory.

Call up the Start Menu and Press function key **F2** for 10 seconds to call up the Configuration Menu.

Press function key **F4**, to return to the Start Menu.

Display

- 1... Set machine type
 - 2... Automatic loading
 - 3... Scraper floor, speed 2
 - 4... Forage additive system
 - 5... Cross conveyor:
m...mechanical / h...hydraulic
 6. Regulating rollers
 7. Hydraulic dry forage extension
 8. Trailing steering axle: L...Lifting axle
*...not available / ✓ ...available
 9. Loading space lighting (consisting of the loading space lighting and the reversing lights, if any)
 10. Loading moment sensor
 11. Filling level sensor
 12. Weighing unit
 - 13... Jockey wheel swivel for Pick-up Super large 2360
 14. Wagon length (for filling level sensor)
 15. Front gate (operated via the terminal)
 - 16... Electronic positive steering
 17. Automatic cutting/Autocut
 18. Load cover system
 - 19... Electric brake system
- (✓ = activated / * = not activated, not existing)



Screen 3 to be used by service personnel only

Function keys:



... Editing the menu item



... Scroll down



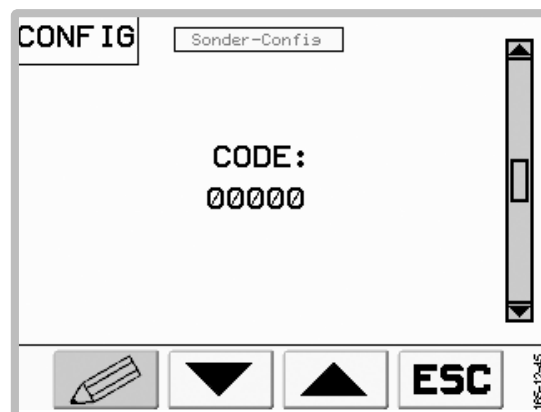
... Scroll up



... Go to the next higher level (here: Start Menu)

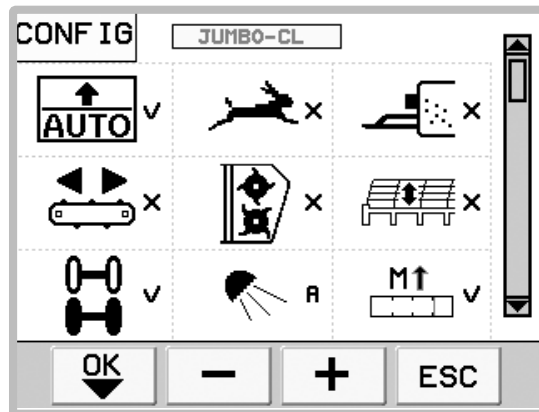


... Saves the changed equipment and restarts the software. This symbol only appears when the equipment has been changed.



Changing the equipment

1. Press function key  to change the equipment.
2. Press function key  until the cursor has reached the value to be changed.
3. Press keys  or  until the desired value has been reached.
4. Press function key  to save the value and select the next one.
5. Press  to leave the change function.



Function keys

-  ... to save the current value and change over to the next value
-  ... to change the value of the current variable downwards
-  ... to change the value of the current variable upwards
-  ... to go to the next higher level (here: Configuration Menu)



After having changed the equipment, the function of the [ESC] key of the Configuration Menu is changed to that of a [Restart] key. Only when the terminal has been restarted with the [Restart] key, the new settings will be effective.



To cancel the changes you have to change the equipment once again. Thereupon, press the [Restart] key of the Configuration Menu.

System Menu

M7

To change the brightness of the display, call up the System Menu. All other functions are for the service personnel only.

Press the key , briefly to call up the System Menu.

Press the key  once again to return to the previous menu.

Function keys:

-  ... Function keys
-  ... Brighter screen
-  ... Darker screen
-  ... For service personnel only



Note

The display lighting of the Power Control Terminal is automatically turned on when a display brightness of less than 60% is selected.

Diagnostic function

In the event of a malfunction, an alarm message is displayed and an acoustic alarm sounds.

Function keys:



... The alarm is suppressed until the system is started up again.



... Acknowledgement of a fault. When the fault is still present another alarm will be set off.

Alarm messages:

Switching output fault

Beispiel: Seat valve of the regulating roller)

- Reasons:
- Short circuit
 - Low current
 - Valve not attached



Note!

In the event of a malfunction, any function can be controlled manually employing the emergency procedure (see chapter "Electro-hydraulic system").



Note!

A fault has to be acknowledged by pressing the [ACK] key



Note!

The diagnostic function can be turned off for each individual sensor up to the next system start using function key F1 [Switching off].



Voltage supply alarms cannot be turned off.

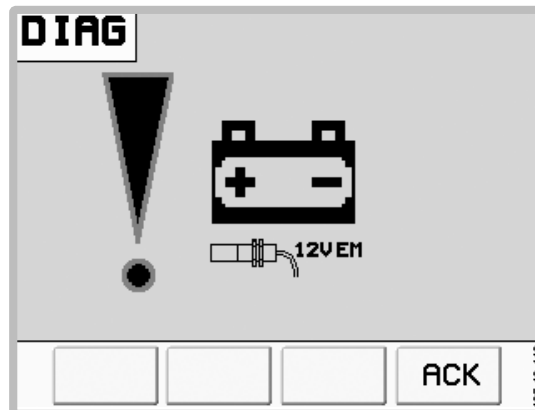
Faulty power supply to the sensor (Example: voltage supply to the sensor <12V)

- Reasons:
- Low voltage at the job calculator
 - Job calculator defective



Caution:

In the event of power supply problems, check the power supply in the Test Menu.



Malfunction of the bus connection to one of the extension modules (LIN error):

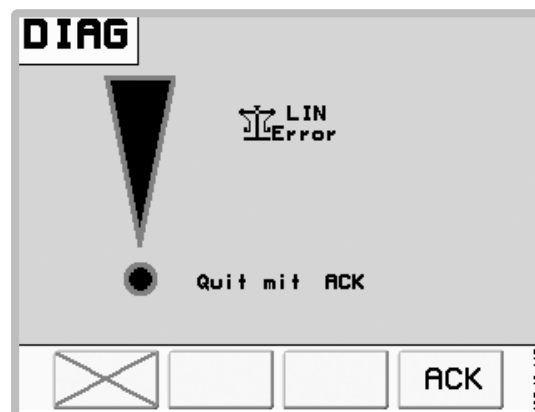
1. Extension module - weighing unit
2. Extension module - load cover system
3. Extension module - roller feeler swinging
4. Job calculator - blade sharpening device

- Reasons:
- Cable fault
 - Extension module or job calculator defective
 - Power supply fault



Note:

A bus connection fault is also displayed on the top right of the Work Menu.



Monitoring alarms

Cutting unit monitoring

Is activated if "lower pick-up" key is pressed when cutting unit is swung out and PTO drive shaft is switched on.

Indication through:

- two peeps and
- the symbol blinks five times

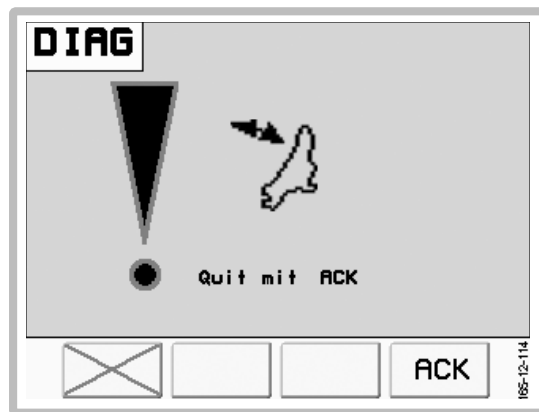


Cleaning reminder:

The alarm "Diagnostic - Swing out cutting unit" appears every 2 hours

The cutting unit must be completely swung out and in once to cancel this alarm.

(Cyclic cleaning of the cutting unit, clogging and crusting is prevented)



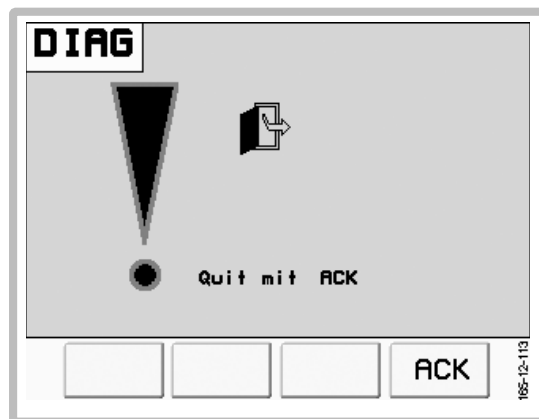
Access door monitoring

All hydraulic functions stop, the regulating rollers disengage and the following diagnostic message appears as soon as the access door is opened:

This alarm is cancelled when the access door is closed.



The loading space must only be accessed when the tractor has been parked and shut down first.

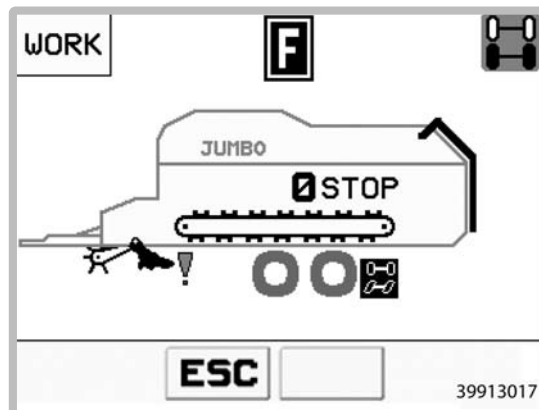


Electronic positive steering (EZL) - error messages

Error at steering computer:

Electronic positive steering symbol  flashes.

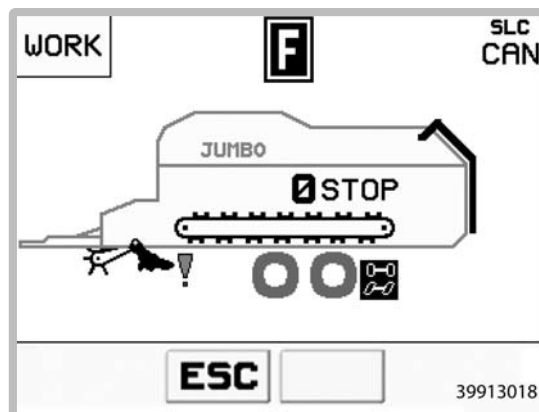
1. Check steering computer and remedy error.
2. Consult a workshop if the error cannot be remedied.
Drive at max. 10 km/h.



Data connection interrupted:

Positive steering symbol  and CAN symbol  flash alternately.

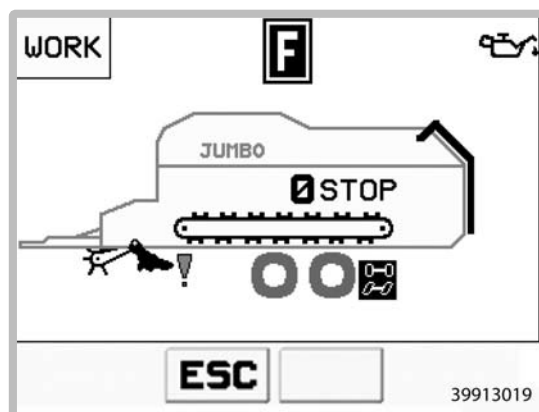
1. Restore data connection.
 - a) Check power supply at steering computer. The steering computer is connected to the main computer via the supply cable
 - b) Check correct wiring of the CAN bus connection in the distributor box of the harness of the wagon.
2. Consult a workshop if the error cannot be remedied.
Drive at max. 10 km/h.



Missing hydraulic supply:

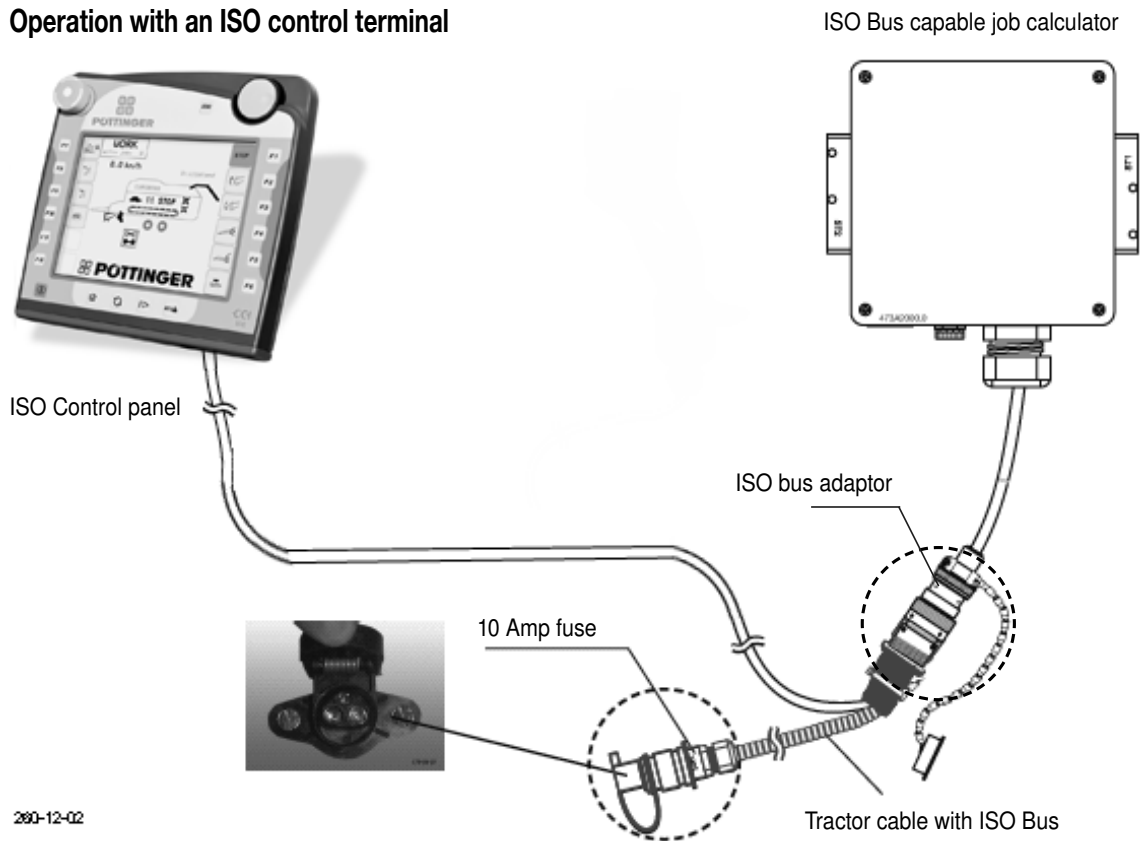
Positive steering error symbol  and oil can symbol  flash alternately.

1. Check hydraulic supply. The tractor has to be running for this.
2. If the error is still shown, drive to a workshop at max. 10 km/h.



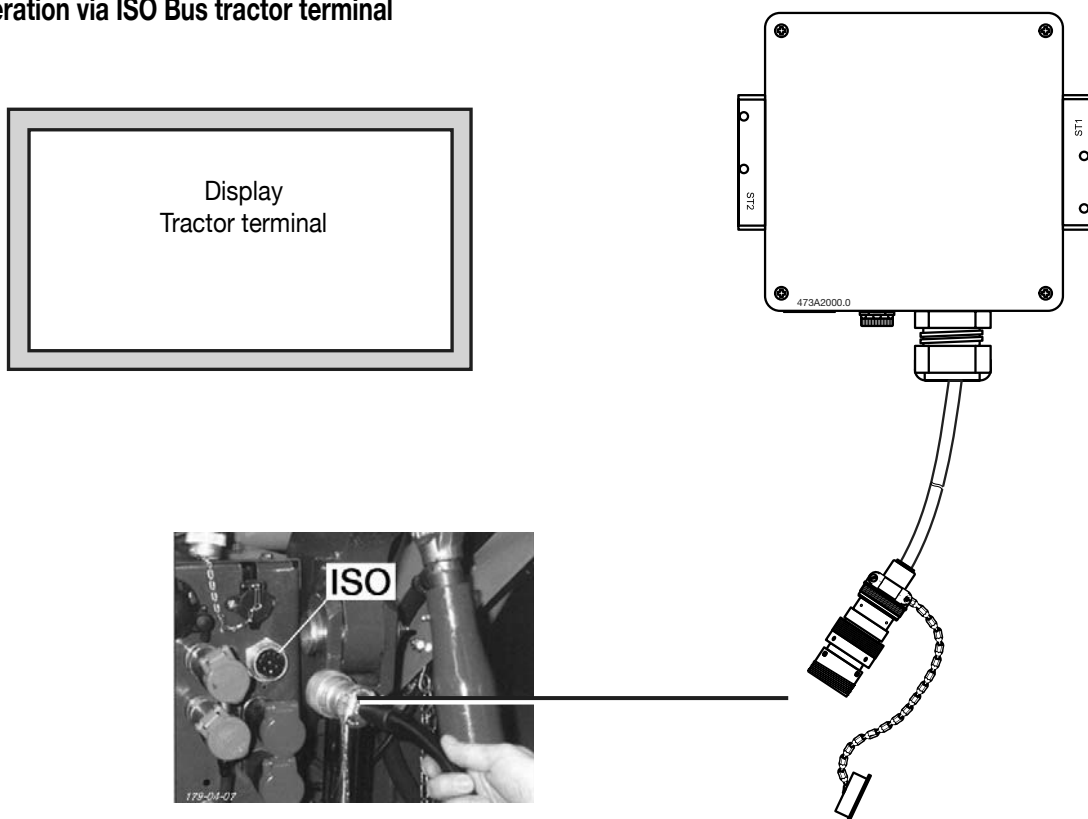
Variant

Operation with an ISO control terminal

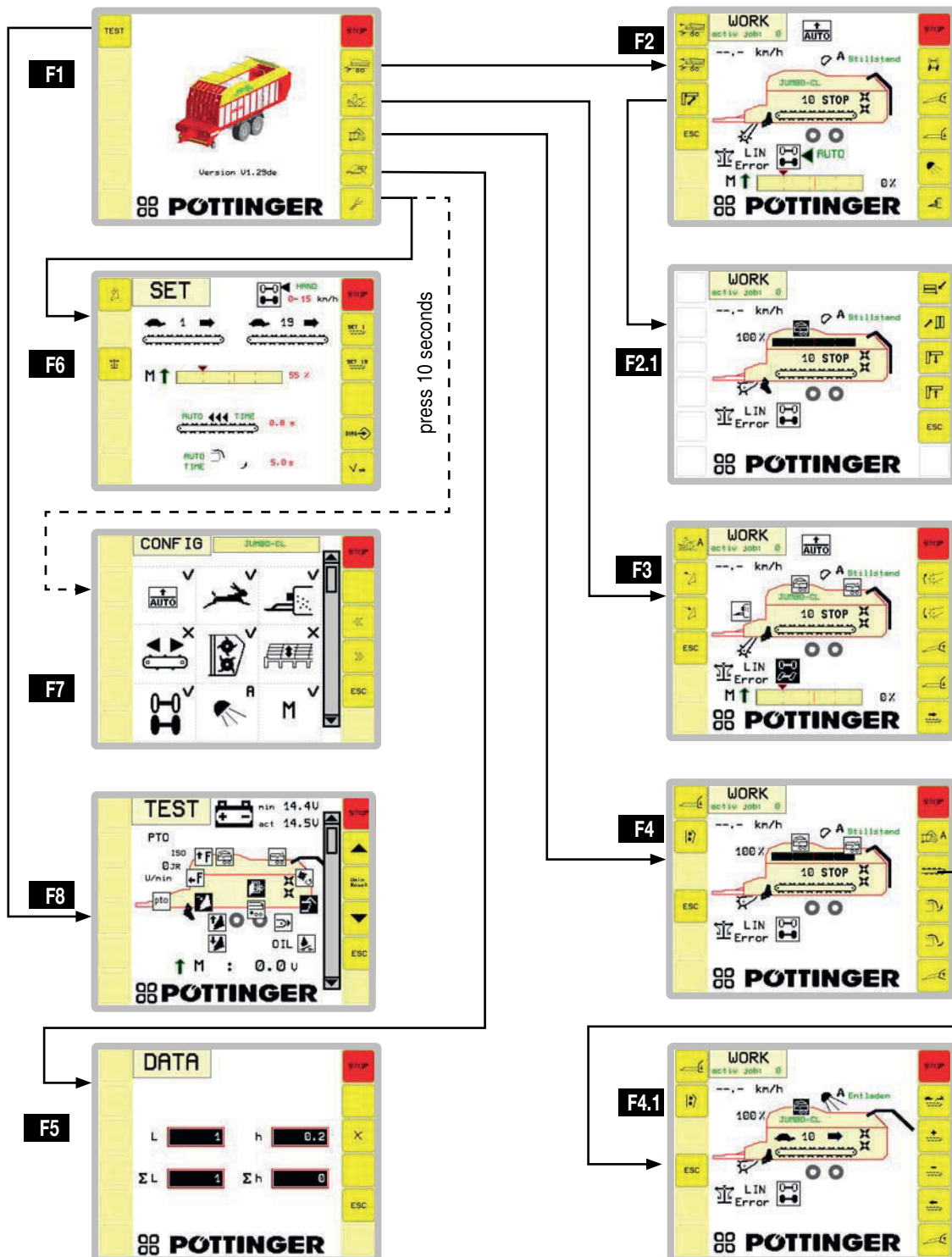


Variant

Operation via ISO Bus tractor terminal



Operation ISO-terminal



Note!

The settings in the SET menu must be checked and changed if necessary prior to starting up the machine for the first time.



Note!

The **STOP** key stops all hydraulic functions and switches off the regulating rollers.



Note!

The following instructions refer to a loader wagon provided with a complete set of additional equipment.

Abbreviations:

F = Display menu

T = Key numbering

Start menu



Key indication:

- T1 STOP
- T2 Basic settings
- T3 Loading functions
- T4 Unloading functions
- T5 Data menu
- T6 Set menu
- T7 Sensor Test Menu



Note!

A grey soft key means that it cannot be actuated at this moment.

Pressing on such a key will cause a window to appear which indicates the cause of the block.

Basic setting menu

Call up the Start Menu and Press function key , to call up the Basic Setting Menu.

Press function key , to return to the Start Menu.

Display:

The display is identical for all loader wagons and solely depends on the configuration.

1. Automatic loading activated*/not activated

When this symbol is displayed automatic loading has been activated.

2. Lighting

	Light on*		Light off
	Automatic on Light on		Automatic off Light off

3. Tailgate

	open		closed*
	close		lock
	Rear wall securing active		

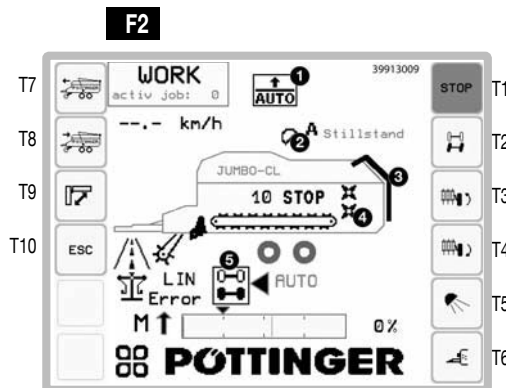
4. Regulating rollers not existing / off* / on

	Regulating roller on		Regulating roller off
---	-------------------------	---	--------------------------

5. Trailing axle locked / open*

	Automatic mode activated		
	Steering axle permanently open		
	Steering axle being locked		
	Steering axle locked		

When the "locked" symbol flashes the steering axle is being locked.



Note!

Any optional equipment influencing the control has to be configured in the Configuration Menu (M6).

Key functions (when equipped with the load cover system):

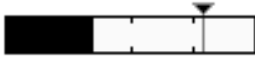
- T1 Stop
- T2 Steering axle AUTO / ON / OFF
AUTO is only possible when "Automatic" has been preselected in the Set Menu. For the "Lifting axle" variant, T2 does not have any function)
- T3 Swivel jockey wheels to working position (keep depressed until procedure is complete)
- T4 Swivel jockey wheels to road position (keep depressed until procedure is complete).
- T5 Preselect lamp
(Display: )
- T6 Forage additive system
(Display: )
- T7 Load cover system - close
- T8 Load cover system - open
- T9 Combined gate menu - open
- T10 Back to the higher menu level

5A Electronic positive steering (EZL)

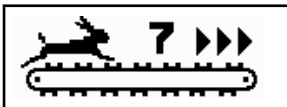
	Axles centred and locked in middle position		Road operation active
---	---	---	-----------------------

6. Loading moment sensor status:

(only displayed when the pick-up has been lowered)
Shows the current degree of utilization of the rotor.

M ↑		35%
-----	---	-----

7. Scraper floor status



Stop* / forward / reverse

STOP	stopped	◀◀	reverse
▶	Forward slow	▶▶▶	Forward fast

7	Speed
---	-------

Speed stage

	slow		fast
---	------	---	------



Note:

During loading, the scraper floor always operates at maximum speed.

8. Cutting unit position - folded out / folded in

	folded in		folded out
---	-----------	---	------------



Note:

When the symbol flashes the cutting unit cannot be swung, which is a result of the position of the automatic blade sharpening device (only when an automatic blade sharpening device has been installed).

9. Pick-up position - lowered* / lifted

	lifted		lowered
---	--------	---	---------

9A Pick-up Super Large 2360: Jockey wheel position

	Position for road operation		Intermediate position or sensor error
---	-----------------------------	---	---------------------------------------

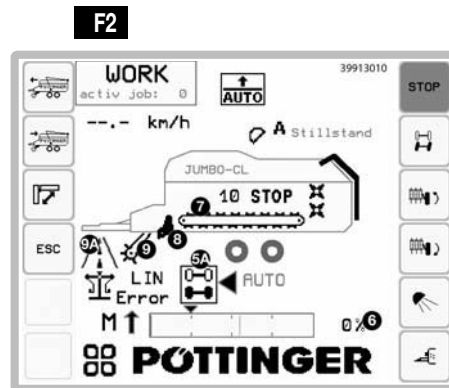
There is also an acoustic warning with "Intermediate position or sensor error".



Attention!

The steering axle must be locked:

- when travelling straight ahead quickly at 30 km/h or more
- on unpaved surfaces
- in sloped areas
- when the load on the front axle is relieved due to drawbar operation
- when travelling over a drive-in silo
- when lateral guidance of the unsteered axle is no longer adequate



10. Filling level indication (optional)



Note

When closing the tailgate the filling level indication is set back to the currently measured value. Until the tailgate is opened, only the maximum measured value is indicated.



11. Automatic unloading activated* / not activated

When this symbol is displayed automatic unloading has been activated.

12. Isobus speed indication

13. Load cover system front / rear / central position*

	front		rear
	When both symbols are flashing the load cover system is at central position or is being moved backward or forward.		



Note: When the arm of the load cover system is at central position the maximum transport height might have been exceeded.



Note! The load securing device can only be operated with the rear wall closed.

14. Cross conveyor status:

	Cross conveyor preselection (not with mechanical cross conveyor)
	Hydraulic cross conveyor direction right
	Hydraulic cross conveyor direction left
	Mechanical cross conveyor runs in direction set

15. Lifting axle lowered / lifted*

	Lifting axle lowered		Lifting axle lifted
--	----------------------	--	---------------------



Note:

When the supported load is too high the lifting axle cannot be lifted. When the supported load is increased exceeding the critical level with the lifting axle in lifted position the lifting axle will be lowered automatically.

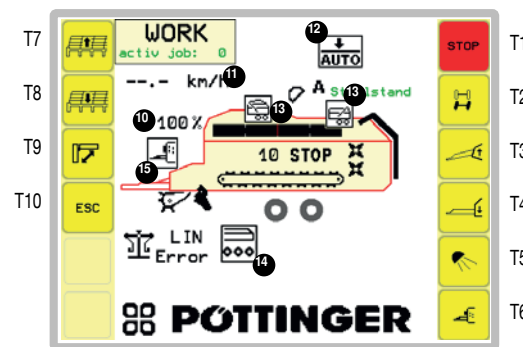
16. Additive supply system activated* / not activated

	activated - additive being added
	not activated - additive not being added



Note:

When the symbol is not displayed the automatic additive supply system has either not been activated or not configured.



Key functions (when equipped with the load cover system):

- T1 Stop
- T2 Steering axle AUTO / ON / OFF
AUTO is only possible when "Automatic" has been preselected in the Set Menu. For the "Lifting axle" variant, T2 does not have any function)
- T3 Swivel jockey wheels to working position (keep depressed until procedure is complete)
- T4 Swivel jockey wheels to position for road operation (keep depressed until procedure is complete).
- T5 Preselect lamp
(Display:)
- T6 Forage additive system
(Display:)
- T7 Load cover system - close
- T8 Load cover system - open
- T9 Combined gate menu - open
- T10 Back to the higher menu level

Combined Gate Menu

Call up the Start Menu and Press function key , to call up the Combined Gate Menu.

Press function key , to return to the Start Menu.

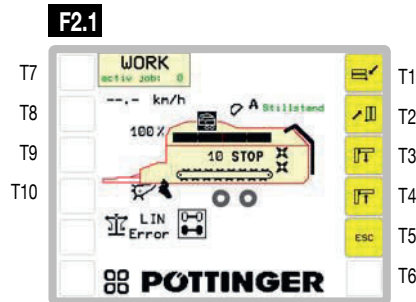
Key indication:

- T1 Front gates*- fold forward
- T2 Front gates*- fold upwards
- T3 Upper front gates*- fold downward
- T4 Upper front gates*- fold upwards
- T5 Next higher menu level
(here: Start Menu)

* The front gate moves as long as the key is pressed



Note! Keys T1 and T2 are locked as long as the load securing device is closed.



Note:

You may leave any menu by pressing the ESC key

ESC

Loading menu

Call up the Start Menu and Press function key , to call up the Loading Menu.

Press function key , to return to the Start Menu.



Note!

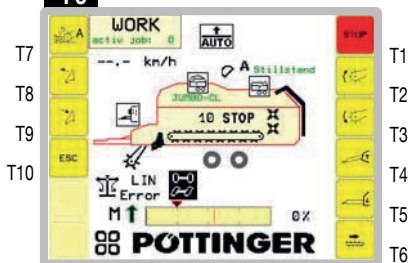
Machines equipped with a foldable dry forage extension cannot be provided with an automatic loader.



Note!

The load is counted either as a function of the "full" signal or the condition sequence: "Tailgate closed --> Tailgate open --> Scraper floor - reverse for 10 seconds".

F3



Key indication:

- T1 STOP
- T2 Raise pick-up
(display indicator )
- T3 Lower pick-up
(display indicator )
- T4 Pivoting drawbar – lift wagon
- T5 Pivoting drawbar – lower wagon
- T6 Scraper floor back run
(display indicator )
- T7 Automatic loading
(display indicator )
- T8 Fold cutting unit in
(display indicator )
- T9 Fold cutting unit out
(display indicator )
- T10 Back a level

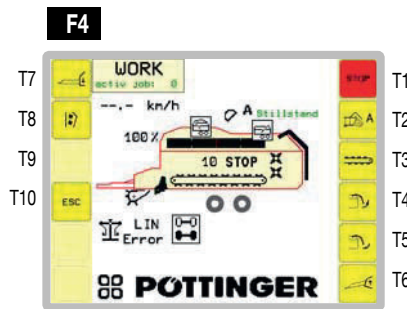
¹⁾ Only for wagons with regulating rollers

Unloading menu

Call up the Start Menu and Press function key , to call up the Unloading Menu.

Press function key , to return to the Start Menu.

Unloading Menu without cross conveyor



Meaning of keys:

- | | | | |
|-----------|--|------------|--|
| T1 | STOP | T3 | Switch to menu F4.1 |
| T2 | Automatic unloading | T4 | Open tailgate - time delay
(display indication ) |
| - | Open tailgate
(display indication ) | T5 | Close tailgate
(display indication ) |
| - | Scraper floor forward motion ¹⁾ | T6 | Pivoting drawbar - lift wagon |
| - | Regulating rollers on ¹⁾ | T7 | Pivoting drawbar - lower wagon |
| - | Scraper floor unloading | T8 | Regulating rollers on/off
(display indication ) |
| | | T10 | Back a level |

Automatic unloader functional procedure without cross conveyor

1. Open the tailgate
2. Scraper floor is briefly switched to forward run (The time can be adjusted in the Set menu under "Scraper floor forward run time") ²⁾
 - Forage pressure on regulating roller is reduced
3. Switch on regulating rollers ¹⁾
4. The scraper floor is unloaded at the speed programmed previously.

To interrupt automatic unloading:

Press the  [Close tailgate] key briefly to interrupt the automatic unloading:

1. symbol blinks on display
2. opened tailgate will slowly close
3. Unloading is interrupted
Deenergizing of:
 - scraper floor drive
 - regulating rollers
4. The hydraulic function to lock the tailgate is released.
Only when the symbol is not displayed any more, the tailgate has actually closed and locked.



Note!

Automatic loading:
The prevailing scraper floor speed is automatically saved after running for 10 seconds. The speed saved will then be the same for the next unloading.



Note!

Automatic unloading can, as for all hydraulic functions, be interrupted using the STOP key; this interrupts all other controllable hydraulic functions and the rear wall does not close.



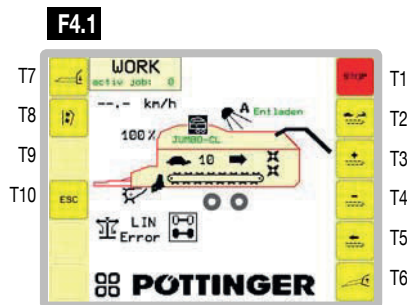
Attention!

The "Start automatic unloader" function is activated only after a 0.8 sec delay (safety precaution for road transportation).

¹⁾ Only for wagons with regulating rollers

²⁾ Only for wagons without cross conveyor or with standing cross conveyor

Scraper Floor Menu



Meaning of keys:

T1 STOP

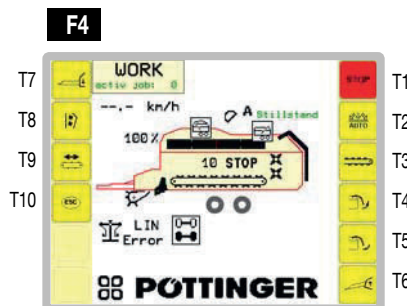
- T2 Scraper floor changeover (slow/fast)
(display indication )
- T3 Increase speed (level 0-20)
- T4 Decrease speed (level 0-20)
- T5 Scraper floor forward motion
(display indication )
- T6 Pivoting drawbar - lift wagon
- T7 Pivoting drawbar - lower wagon
- T8 Regulating rollers on/off
(display indication )
- T10 Back a level



Take note!

If you switch key [T2] to "fast" and hold the optional 2-stage motor, then the 2-stage motor is automatically activated.

Unloading Menu with cross conveyor



Meaning of keys:

- T1 STOP
- T2 Go to Menu **F4.2**
- Automatic unloading
- T3 Switch to menu **F4.1**

- T4 Open tailgate - time delay (display indication )
- T5 Close tailgate (display indication )
- T6 Pivoting drawbar - lift wagon
- T7 Pivoting drawbar - lower wagon
- T8 Regulating rollers on/off (display indication )
- T9 Manual selection of the direction of operation of the cross conveyor.

Pressing key T9 changes keys T8 and T9 to direction selection keys for the cross conveyor for



a period of 3 seconds. Now press T8 or T9 for required direction. After selecting the direction or the 3 second period has expired, keys revert to their normal function.



Note! Manual selection of direction using keys T8/T9 is not possible with a mechanical cross conveyor. Reset the PTO to change the direction.

T10 Back a level



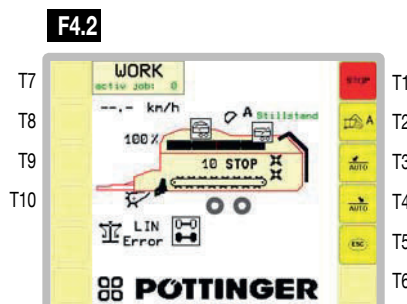
Note!

Press the "Stop" key to stop all functions.

STOP

Automatic Unloading Menu

(only hydraulic cross conveyor)



Meaning of keys:

- T1 STOP
- T2 Automatic unloading with cross conveyor
- T3 Automatic unloading with cross conveyor, left-hand rotation
- T4 Automatic unloading with cross conveyor, right-hand rotation
- T5 Back a level

Automatic unloader functional procedure with cross conveyor

1. Open the tailgate ¹⁾
2. Switch on cross conveyor ²⁾
3. Scraper floor is briefly switched to forward run ³⁾ (the time is adjusted in the Set menu under "Scraper floor forward run time").
 - Forage pressure on regulating roller is reduced
4. Switch on regulating rollers ³⁾
5. The scraper floor is unloaded at the speed programmed previously.

To interrupt automatic unloading:

Press the  [Close tailgate] key briefly to interrupt the automatic unloading:

1. symbol blinks on display
2. opened tailgate will slowly close
3. Unloading is interrupted
 - Deenergizing of:
 - scraper floor drive
 - regulating rollers
 - cross conveyor
4. The hydraulic function to lock the tailgate is released.

Only when the symbol is not displayed any more, the tailgate has actually closed and locked.

Note!

Automatic unloading can, as with all hydraulic functions, be interrupted with the STOP key; this interrupts all other controllable hydraulic functions and the rear wall does not close.



Attention!

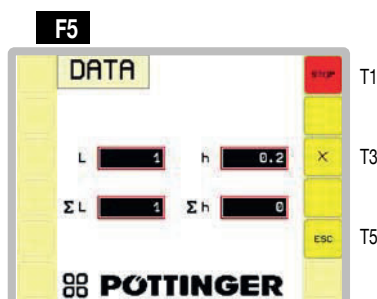
The "Start automatic unloader" function is activated only after a 0.8 sec delay (safety precaution for road transportation).

- ¹⁾ only for wagons without cross conveyor or with stationary cross conveyor
- ²⁾ only for wagons with cross conveyor
- ³⁾ only for wagons with dosing rollers

Data menu

Call up the Start Menu and Press function key , to call up the Data Menu.

Press function key , to return to the Start Menu



Key indication:

- T1 STOP
- T3 Erase part counter
- T5 Back a level



Note!

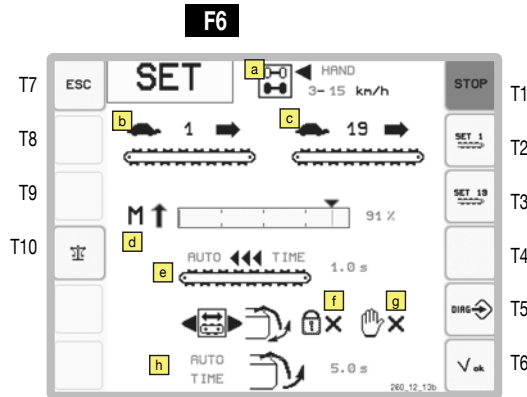
The load is counted either as a function of the "full" signal or the condition sequence: "Tailgate closed --> Tailgate open --> Scraper floor - reverse for 10 seconds".

Set menu

Several speeds, lead times and operating points can be set in the Set Menu.

Call up the Start Menu and press function key , to call up the Set Menu.

Press function key , to return to the Start Menu.



Meaning of keys:

- T1 STOP
- T2 Scraper floor setting Level 1
Switch to different screen
- T3 Scraper floor setting Level 19
Switch to different screen
- T5 Switch to menu **F8** DIAGNOSE menu
- T6 OK key
For confirming changed settings
- T7 Blade sharpening device Autocut - see separate Operator's Manual for the Autocut
- T10 For the weighing unit, see the separate Operator's Manual for the weighing unit

Note!

Before initial use of the control several adjustments must be made to enable proper functioning.

Note!

An altered setting must be confirmed with the OK key.

Meaning of Symbols:

Further settings may be made in the SET menu:

Trailing steering axle operating mode

Manual operation: (MANUAL)

(opportunities for adjustment in the WORK menu)

-  ON = steering axle permanently open
-  OFF = steering axle being locked
-  OFF = steering axle locked

Automatic operation: (AUTO)

(additional opportunities for adjustment in the WORK menu)

-  AUTO = automatic mode active

The steering axle is steered automatically dependent on the speed.

Adjusting range - lower limit: 0 - 3 km/h

Adjusting range - upper limit: 10 - 25 km/h

Speed	Condition of steering axle
less than 3 km/h	locked
minimum lower limit	locked
between lower and upper limit	open
maximum upper limit	locked

Scraper floor speed, stage 1

Scraper floor speed, stage 19

Loading moment

Setting the load limit for automatic operation of the scraper floor.

- Only active during automatic loading
- "Load scraper floor" function is activated automatically if the current capacity usage level exceeds the set value.
- Adjustable values: 1 - 100 (standard value 55)



Note!

The value may be increased for dry forage.
The value may be decreased for wet forage.

Tailgate opening time with automatic unloading¹⁾

- Adjustable values:
0-10 seconds for loader wagons with regulating rollers
5-10 seconds for loader wagons without regulating rollers

rear wall securing active/inactive

(with active automatic unloading)

The rear wall securing device fixes an outlet width during automatic unloading for all wagons regardless of mechanical or hydraulic cross conveyor.

While the rear wall securing device is in function, the rear wall cannot be moved via the key Open/close rear wall, however you can still stop automatic loading with this key.

Adjustment range active / inactive.

¹⁾ Only for wagons with regulating rollers

g Rear wall float position

Note: This function is only active as long as you are in the Set menu and the function is switched on with a tick. The function is automatically deactivated when you quit the Set menu.

The rear wall float position function helps you adjust the rear wall securing position since the hydraulic cylinders responsible for opening the rear wall are placed in float position. This makes it easier to move the rear wall manually and thus easier to place it in the correct position for securing.

e Scraper floor lead time for automatic unloading mechanism ¹⁾

- Adjustable lead time: 0.1 ... 3 seconds
(standard value 0.7 seconds)
- relieves the pressure on the regulating rollers

Config-menu

The equipment your loader wagon is provided with is to be configured in the Configuration Menu. You will only use this menu when new equipment is added to your loader wagon or equipment is removed from the loader wagon. Otherwise, the correct configuration has been at the factory.

Call up the Start Menu and Press function key  for 10 seconds to call up the Configuration Menu.

Press function key , to return to the Start Menu.

Meaning of keys:

- T1 STOP
- T3 Changing from one screen to the other, back
- T4 Changing from one screen to the other, forward
- T5 [Restart] Saves the changed equipment and restarts the software. This symbol only appears when the equipment has been changed.

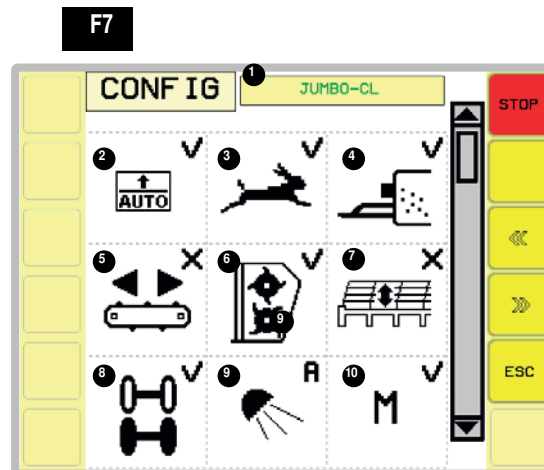
Meaning of symbols:

- 1... Set machine type
- 2... Automatic loading
- 3... Scraper floor, speed 2
- 4... Forage additive system
- 5... Cross conveyor: * ... no cross conveyor
m...mechanical / h...hydraulic
- 6. Regulating rollers
- 7. Hydraulic dry forage extension
- 8. Trailing steering axle: L...Lifting axle
*...not available / ✓ ...available
- 9. Loading space lighting (consisting of the loading space lighting and the reversing lights, if any)
- 10. Loading moment sensor
- 11. Filling level sensor
- 12. Weighing unit
- 13. Jockey wheel swivel for pick-up Super Large 2360
- 14. Wagon length (for filling level sensor)
- 15. Front gate (operated via the terminal)
- 16. Electronic positive steering
- 17... Automatic cutting/Autocut
- 18... Load cover system
- 19... Electric brake system

(✓ = activated , existing / * = not activated, not existing)



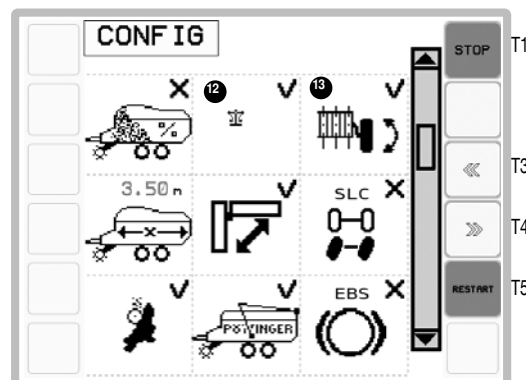
Screen 3 to be used by service personnel only



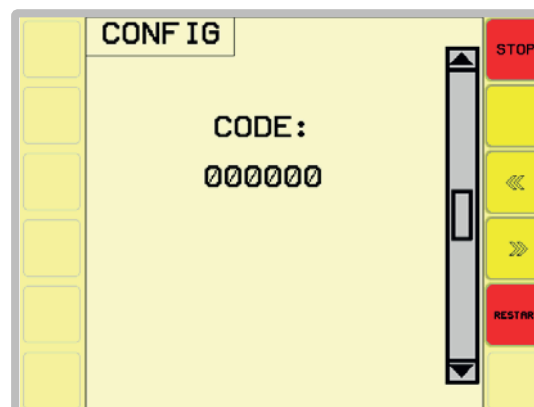
Operating note for the ISOBUS terminal:

Stepping to the individual functions using the "down ▼" or "up ▲" keys

The function can be switched on or off using the "+ (YES)" and "- (NO)" keys.



*) Take note! A relay switch is necessary for additional lighting e.g. on the axle.



Sensor Test Menu

Using the Sensor Test Menu, you can inform yourself on the current condition of the sensors and the displayed values. This might be very useful for troubleshooting.

Call up the Start Menu and Press function key **TEST**, to call up the Set Menu.

Press function key **ESC**, to return to the Start Menu.

Display:

A symbol on a black background shows that

- an inductive sensor has been assigned
- a Hall effect sensor has been assigned
- a mechanical switch / key has been operated

Note:

When the signal of a sensor or switch is changed the symbol is shown inverted.

If the frequency of the signal change is suitable, the symbol may flash. Thus, a flashing symbol does not necessarily indicate a fault.



Note!

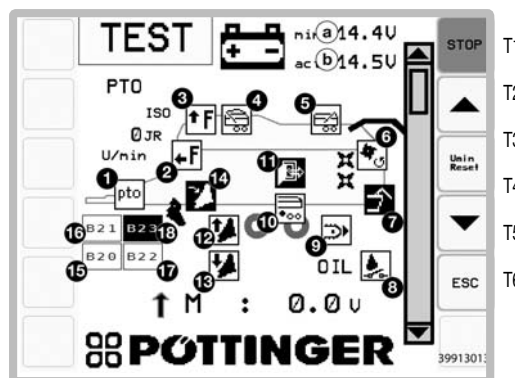
The alarms for voltage supply cannot be switched off.

Sensors:

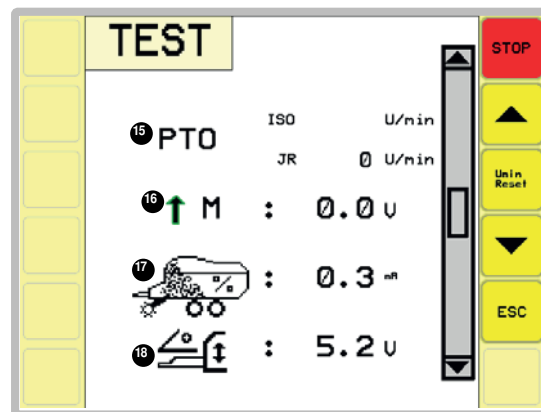
- | | | |
|----|--|---------|
| 1 | Driveshaft speed | ...B1 |
| 2 | Filling flap - bottom | ...B4 |
| 3 | Filling flap - top | ...B3 |
| 4 | Load cover system - front | ...B30 |
| 5 | Load cover system - rear | ...B31 |
| 6 | Pressure on regulating rollers | ...B6 |
| 7 | Tailgate | ...B5 |
| 8 | Oil pressure switch | ...S7 |
| 9 | Scraper floor rear switch | ...S3 |
| 10 | Lifting axle | ...B10 |
| 11 | Loading room door | ...B7 |
| 12 | External cutting unit switch - on | ...S1 |
| 13 | External cutting unit switch - off | ...S2 |
| 14 | Cutting unit status | ...B2 |
| 15 | Jockey wheel sensor working position left | ...B20* |
| 16 | Jockey wheel sensor working position right | ...B21* |
| 17 | Jockey wheel sensor road transport left | ...B22* |
| 18 | Jockey wheel sensor road transport right | ...B23* |
-
- | | |
|---|--|
| a | Smallest voltage measured (rpm) since system start |
| b | Present voltage (V) |

* The position of the sensors is described in the Chapter Pick-up.

F8



- 15 Driveshaft speed ...B1
- 16 Loading moment sensor (max. 10 V) ...B9
- 17 Filling level sensor (4-20 mA) ...B11
- 18 Drawbar angle sensor (0-5 V) ...B8

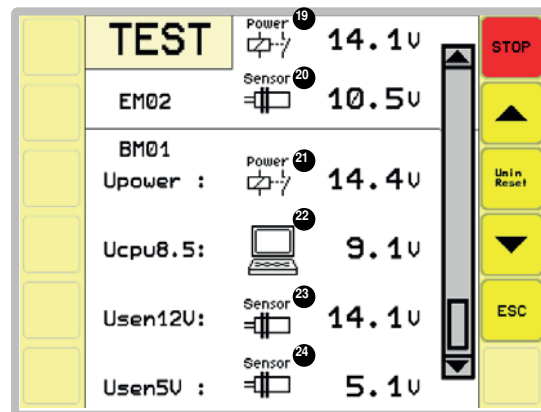


EM02: Job calculator extension module (plug ST2)

- 19 Power supply voltage, extension module
Nominal: >12 V
- 20 Stabilized sensor voltage
Nominal: 10.5 V

BM01: Basic module (plug ST1)

- 21 Supply voltage BM
Nominal: >12 V
- 22 Processor voltage BM
Nominal: >8.5 V
- 23 Not stabilized sensor voltage
Nominal: >12 V
- 24 Stabilized sensor voltage
Nominal: >5.0 V



Diagnostic menu

With fault recognition

- alarm mask is superimposed
- alarm signal is audible

Function keys:

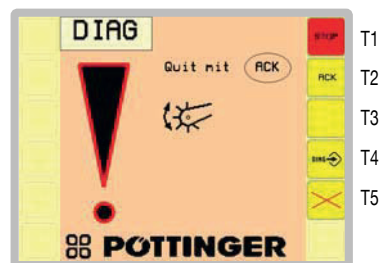
- T1 Stop
- T2 Acknowledgement of a fault. When the fault is still present another alarm will be set off.
- T5 The alarm is suppressed until the system is started up again.

Alarm messages:

Switching output fault

(Example: Pick-up)

- Reasons:
- Short circuit
 - Low current
 - Valve not attached



Note!

In the event of a malfunction, any function can be controlled manually employing the emergency procedure (see chapter "Electro-hydraulic system").



Note!

A fault has to be acknowledged by pressing the [ACK] key

ACK

Note!

The diagnostic function can be turned off for each individual sensor up to the next system start using function key F1 [Switching off].



The alarms for the power supply cannot be switched off.

Malfunction of the bus connection to one of the extension modules (LIN error):

1. Extension module - weighing unit
2. Extension module - load cover system
3. Extension module - roller feeler swinging
4. Job calculator - blade sharpening device

- Reasons:
- Cable fault
 - Extension module or job calculator defective
 - Power supply fault



Note:

A bus connection fault is also displayed on the top right of the Work Menu.

Monitoring alarms

Cutting unit monitor

is activated if "lower pick-up" key is pressed when cutting unit is swung out and PTO drive shaft is switched on.

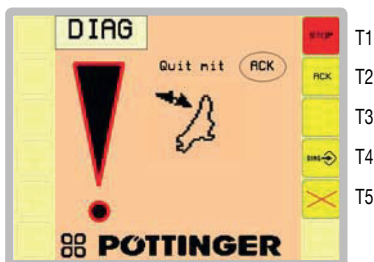
Indicated by:

- two beeps and
- the symbol flashes five times



Cleaning reminder:

The alarm "Diagnostic - Swing out cutting unit" appears every 2 hours



The cutting unit must be completely swung out and in once to cancel this alarm.

(Cyclic cleaning of the cutting unit, clogging and crusting is prevented)

Access door monitor

All hydraulic functions stop, the regulating rollers disengage and the following diagnostic message appears as soon as the access door is opened:

This alarm is cancelled when the access door is closed.



The loading space must only be accessed when the tractor has been parked and shut down first.

Isobus - Stop - Alarm

(only Pöttinger CCI Terminal)
from software version 2.10

The following screen appears when Stop key (1) is pressed.



All hydraulic functions and the operating console are blocked.

To continue work, first release the Stop key. (1)

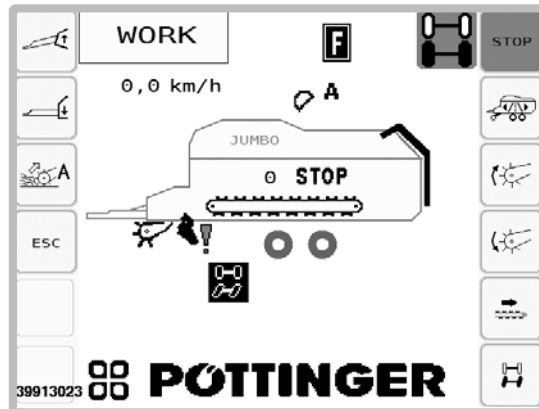


Electronic positive steering (EZL) - error messages

Error at steering computer:

Electronic positive steering symbol  flashes.

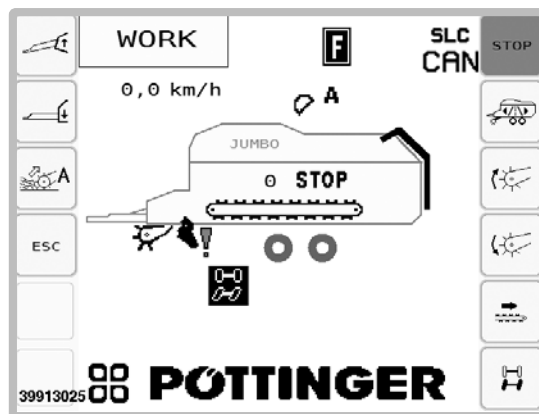
1. Check at steering computer and eliminate error.
2. Go to a workshop if the error cannot be eliminated.
Drive at maximum 10 km/h.



Data link interrupted:

Electronic positive steering symbol  and CAN symbol  flash alternately.

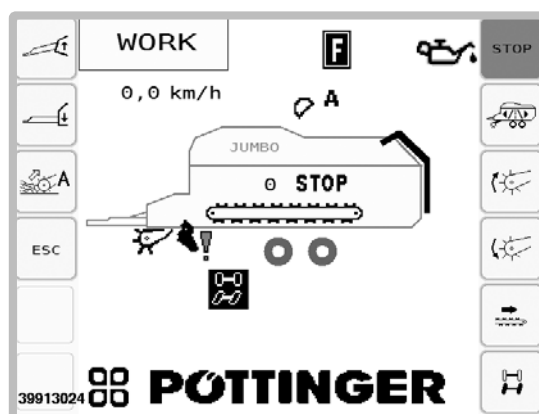
1. Restore data link.
 - a) Check power supply of steering computer. The steering computer is connected to the main computer via the supply cable.
 - b) Check CAN bus connection in distribution box of cable harness at wagon for correct cable connection.
2. If the error cannot be eliminated, go to a workshop.
Drive at maximum 10 km/h.



Lack of hydraulic supply:

Positive steering symbol  and oil can symbol  flash alternately.

1. Check hydraulic supply. The tractor has to be started to do so.
2. If the error is still shown, drive to workshop at maximum 10 km/h.



Loading process in general

Important tips:

- A transfer, which is located on the drawbar, tells which p.t.o.-r.p.m. (540 rpm/1000 rpm) your trailer is equipped for.
- Therefore take care that a drive shaft with the correct overload safety is used (see spare parts list), so that no unnecessary damage is caused to the trailer through overloading.
See chapter "Technical Data" for drive shaft overload safety.
- The driving speed must always take into account the surrounding conditions.
- Sudden curves must be avoided when travelling up or downhill or traversing slopes (danger of tipping over).
- Short sections with low r.p.m., higher speed and bigger loads of feed (swaths).

Loading green fodder

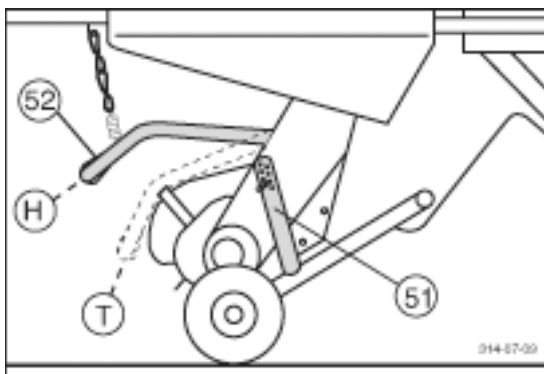
- As a rule green fodder is collected in swaths.
- Cut swaths collected are always stalk heads.
- Set deflector (52) low position (T).

Loading dry fodder

- Correct dry fodder collection is in swaths.
- Set deflector (52) in the position (H).

Adjusting the pick-up

1. Raise pick-up slightly and secure with adjusting struts (51), left and right sides in same position.



2. Secure with linch pin.

High adjustment:

with tall stubble and extremely uneven ground.

Low Adjustment:

with short green fodder and even ground.

Impact deflector adjustment (52)

- In low position (T) for small swaths and short fodder.
- In high position (H) for high swaths.

Starting the loading process

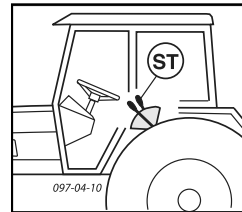
1. Switch on tractor's p.t.o.

2. Lower pick-up.

Take care! Doing this automatically switches on the Pick-up and press drive.

3. Move lever (ST) to "ON" position and secure.

In so doing the trailer's control block is supplied with oil.

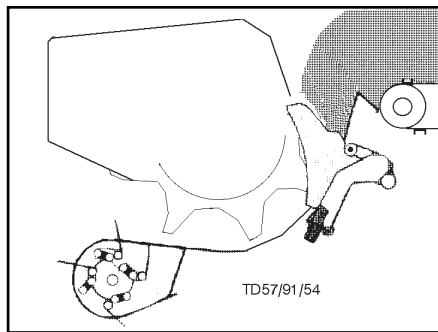


4. Observe p.t.o.-r.p.m.

- Load using average p.t.o.-r.p.m. (400-450 rpm / 780-850 rpm) and high running speed.

To observe during the loading process!

- Only raise pick-up when loading channel is empty.



- When driving through curves reduce motor r.p.m.
- When driving through sharp curves switch off p.t.o. and raise pick-up.
- Avoid uneven loads!
Important because of possible drawbar overloading (see details on the drawbar concerning permitted support load).
- To ensure optimal filling of load space switch on scraper floor briefly or activate the automatic loader (see chapter "POWER CONTROL").
- Watch the trailer fill indicator (FULL).



Warning!

Observe the permitted axle load and total weight!

Exceeding permitted axle load and total weight can cause damage to the running gear, frame, drawbar and also tyres.

Be aware of increased specific weights for fodder with high moisture content.



Safety tips:

- Turn off the drive motor and take off the drive shaft when carrying out all adjustment work.
- Faults in the Pick-up area are to be eliminated only when the drive motor has been stopped.

Unloading the trailer

Unloading with regulating fittings

- Open tailgate
 - Switch on p.t.o. drive
 - release regulating rollers
 - switch on automatic unloading
- or
- Switch on regulating rollers drive
 - Switch on scraper floor drive
 - Adjust scraper floor speed (see chapter „POWER CONTROL“)

Unloading without regulating fittings

- Open tailgate
- Switch on scraper floor drive

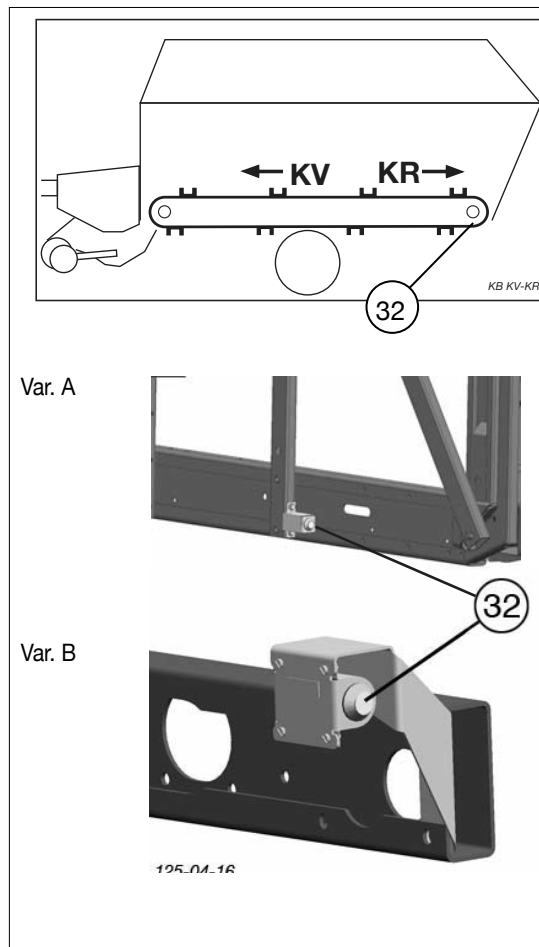
Push-button rear (32)

- Scraper floor drive push-button
 - The push-button (32) is tentative when loading.
 - The push-button is locking when unloading (tailgate open, scraper floor running).
- Pressing once again will turn the scraper floor off.



General hints

Selecting another function in addition to the moving floor feed will automatically interrupt the moving floor feed.



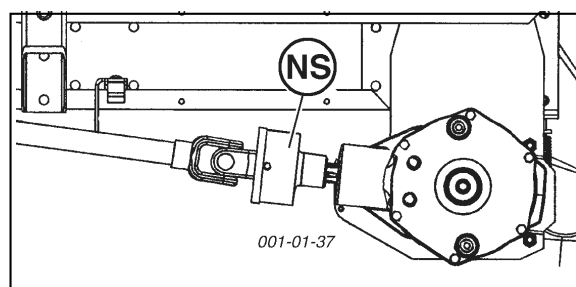
Regulating equipment shut-off clutch (NS)

When regulating rollers are overloaded, e.g. when scraper floor speed is too fast, the shut-off clutch cuts off the torque (= 1200 Nm).

- Switch off p.t.o. drive.
- Briefly switch on scraper floor forward run.

The scraper floor runs forward (KV). In so doing, the pressure on the regulating roller is decreased.

- Switch on p.t.o. drive again.
- Adjust scraper floor speed (see chapter „POWER CONTROL“)



Finishing the unloading process

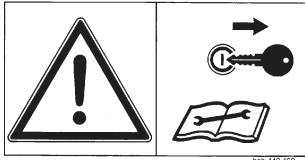
- Switch off scraper floor drive.
- Close tailgate.

Road travel

Note! Only travel on roads with the tailgate closed.

Safety point

- Turn engine off when adjustment, service and repair work is to be done.



General maintenance hints

In order to keep the implement in good condition after long periods of operation, please observe the following points:

- Tighten all screws after the first hours of operation.

In particular check:

- blade screws on the mowers
- tine screws on the swather and tedder.



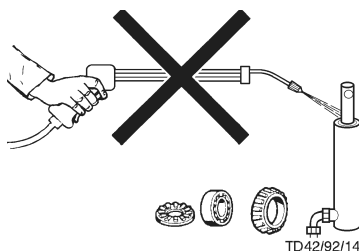
Spare part

- The original components and accessories have been designed especially for these machines and appliances.
- We want to make it quite clear that components and accessories that have not been supplied by us have not been tested by us.
- The installation and/or use of such products can, therefore, negatively change or influence the construction characteristics of the appliance. We are not liable for damages caused by the use of components and accessories that have not been supplied by us.
- Alterations and the use of auxiliary parts that are not permitted by the manufacturer render all liability invalid.

Cleaning of machine parts

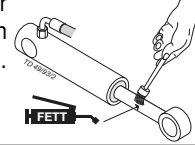
Attention! Do not use high-pressure washers for the cleaning of bearing- and hydraulic parts.

- Danger of rust!
- After cleaning, grease the machine according to the lubrication chart and carry out a short test run.
- Cleaning with too high pressure may do damage to varnish.



Parking in the open

When parking in the open for long periods of time, clean piston rods and then coat with grease.



Winter storage

- Thoroughly clean machine before storage.
- Put up protection against weather.
- Change or replenish gear oil.
- Protect exposed parts from rust.
- Lubricate all greasing points according to lubrication chart.

Drive shafts

- see notes in the supplement

For maintenance please note!

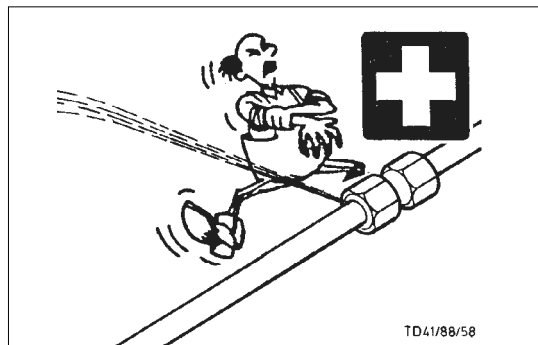
The instructions in this operating manual are always valid.

In case there are no special instructions available, then the notes in the accompanying drive shaft manufacturer' instructions are valid.

Hydraulic unit

Caution! Danger of injury or infection!

Under high pressure, escaping fluids can penetrate the skin. Therefore seek immediate medical help!



Make sure that the hydraulic system is suitable for the tractor before connecting the hydraulic lines.

After the first 10 operating hours and then every consecutive 50 operating hours

- Check the hydraulic unit and lines for tightness and retighten screw connections if necessary.

Before operation

- Check hydraulic hoses for wear.

Replace worn or damaged hydraulic hoses immediately. The replacement hoses must meet the manufacturer's technical requirements.

Hose lines are subject to natural ageing. The period of use should not exceed 5 – 6 years.



Safety points!

- Turn engine off when adjustment, service and repair work is to be done.

- Do not work under the machine without safe support.

- Retighten all screws after the first hours of operation.

- Only place the machine on an even, firm ground.



Repair Instructions

Please refer to repair instructions in supplement (if available)



Safety points!

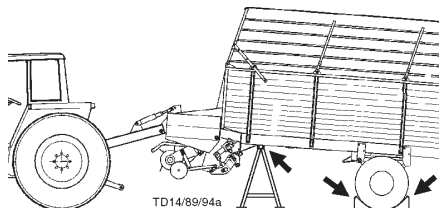
Clean the hydraulic line couplings and the oil connections each time before coupling.

Check for chafing and jamming points.



Safety points

- Do not work under the machine without safe support.

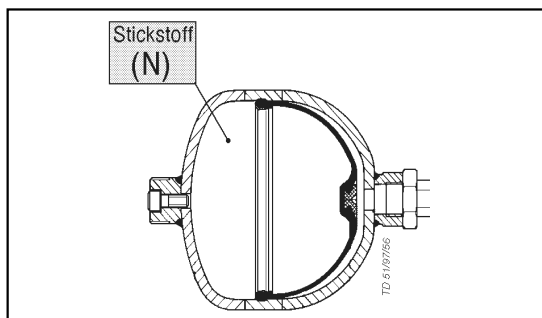


Gas container

Beware!



No welding, soldering or mechanical works of any kind may be carried out on the container.



Note

- According to manufacturer's information all gas containers have a slight pressure drop after a certain amount of time.
- The gas loss (nitrogen) amounts to 2-3 % per year.
- After 4-5 years it is recommended that container pressure be checked and if necessary corrected.



Alteration of gas container pressure

This work may only be carried out by customer service or a specialist.

- In order to reduce or increase the pressure in the gas container a special filling and checking device is necessary.

Overload clutch

Important!

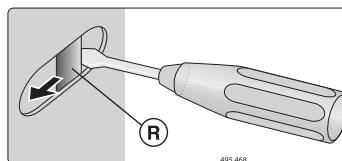
The machine's guarantee becomes invalid if the set overload clutch torque is altered through manipulation

Brake adjustment

See chapter "Brake unit"!

Opening the side protectors

Open the locking bar „R“ with a suitable aid (e.g. screw driver) and simultaneously swing the protector up.



Closing the side protectors

Swing the protector down, the locking bar engages automatically and locks the protector against unintentional opening.



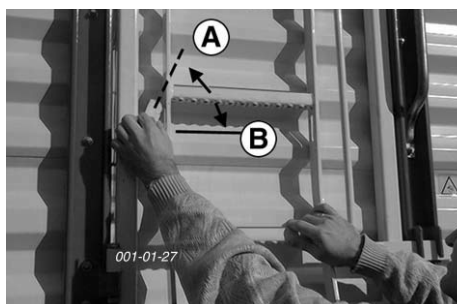
Note!

A greater injury danger exists when working behind opened protective covers.



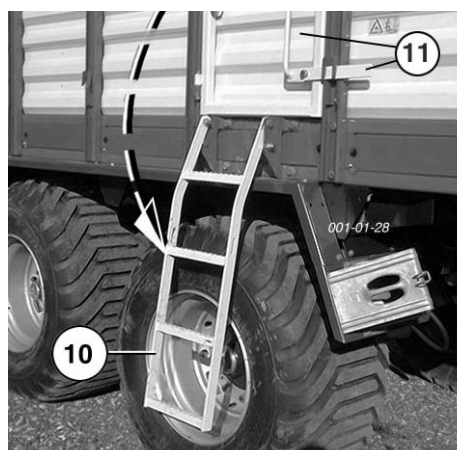
Take care when entering the loading area

- Use steps (10).
 - open the latch (A)
 - swing the steps (10) down



- Access door

The access door in the left side wall must only be opened when the drive motor is stopped (11).



- Do not enter the loading area when the p.t.o. is connected and the drive motor is running.
- Before starting the vehicle
 - raise the steps (10).
 - Secure locking device with linch pin



Note!

When welding on the trailer, disconnect all connections to the tractor and uncouple the trailer.



Note!

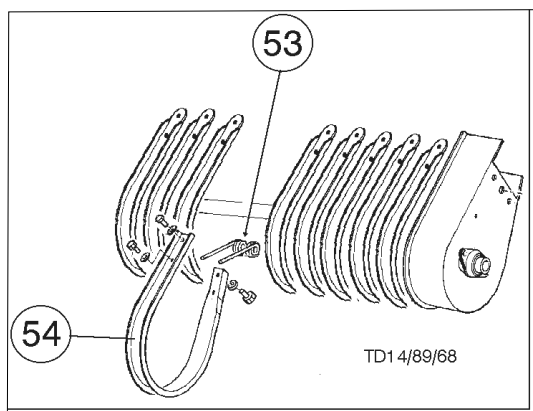
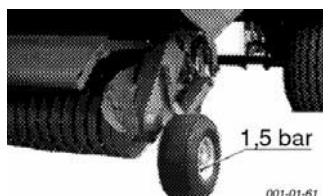
The scraper floor and regulating rollers can only be switched on when the access steps are folded up.



Pick-up

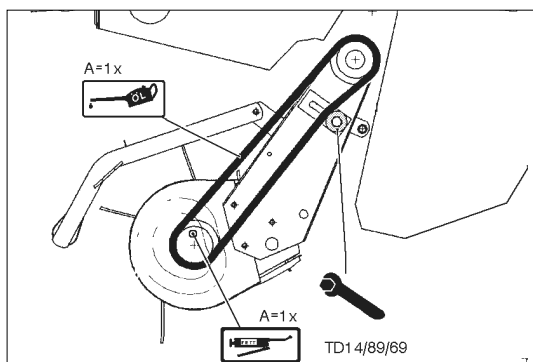
- Broken tines (53) can be replaced after removing the corresponding stripper guard (54) without disassembling the pick-up.

Air pressure



Pick-up drive chain

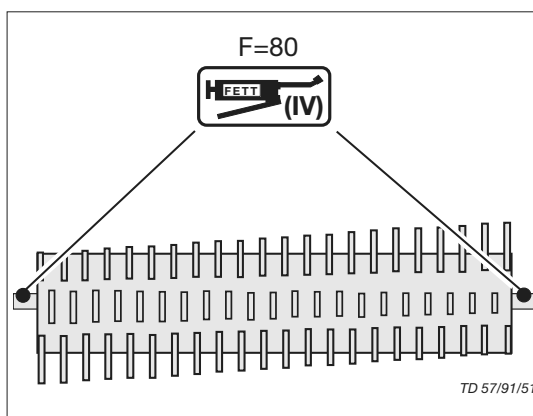
- Once a year remove chain guard, clean and oil chain.



Press

Main bearing

- Both main bearings should be greased every 80 runs.





Cutting unit



Warning!

Do not hold cutter by the cutting edge!



Wear protective gloves.

Cutter installation

- Take care that the support bracket's castor sits in the cutter's notch.

Regrinding of removed cutters

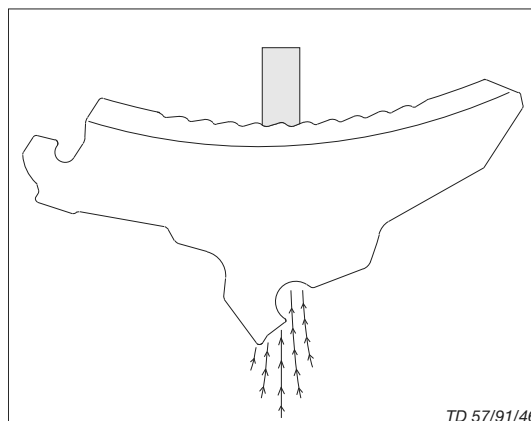
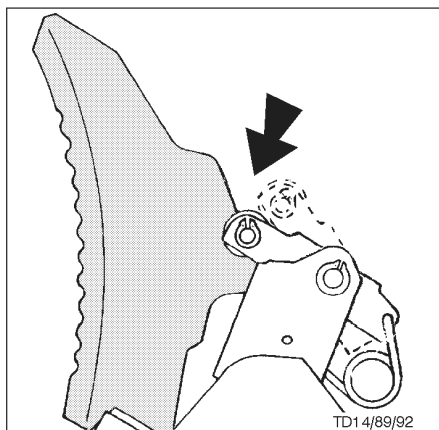
Well ground cutters save energy and provide good quality cutting.

- Remove individual cutters and regrind using a "wet" grinding machine.



Note!

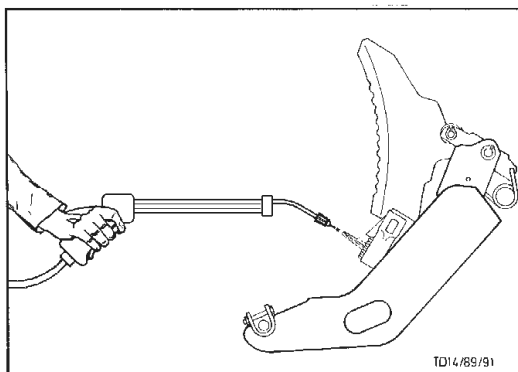
- Only grind cutter on smooth side (put on safety glasses).
- Careful grinding of cutter without heating (tarnishing) guarantees long-lasting durability.



Cutter safety device:

In order to guarantee the perfect function of the cutter safety device, frequent cleaning is recommended.

- Clean pressure springs using high-pressure cleaners.
- Oil cutter and safety device elements before winter garaging.



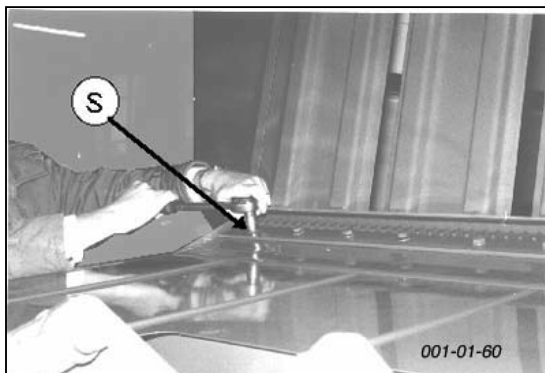
Note!

In order to guarantee the perfect function of the cutter safety device, frequent cleaning is recommended.

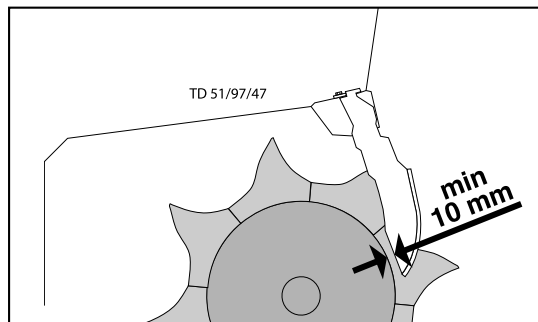


Removing a stripper

- Remove screws (S) and metal sheet.
- From inside the load room pull stripper downward.

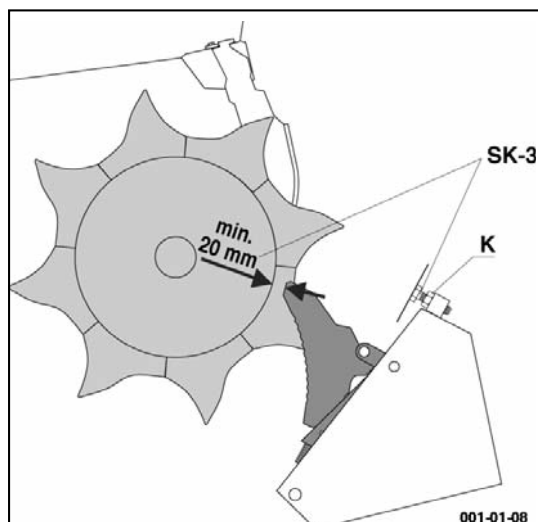


Adjustment



Warning!

Check gap (10 mm) after 200 trips



A removed stripper.





Transmission

Change or at least top-up transmission oil once a year.
Fill in oil according to lubrication chart.

Topping-up oil

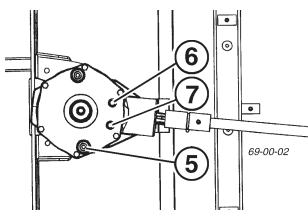
- To pour in oil unscrew the filler screw (6).
- Check oil level at the level screw (7).

Changing oil

- Open oil outlet screw (5).
- Drain old oil and dispose of as allowed by law.

Regulating gears:

1,0 Liter SAE 90



Starting

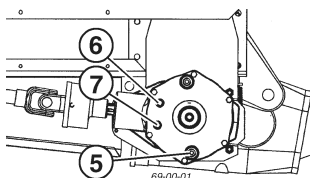
transmission:

5 Liter SAE 90



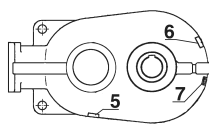
Lateral gears:

1,0 Liter SAE 90



Scraper floor-gears

1,5 Liter SAE 90



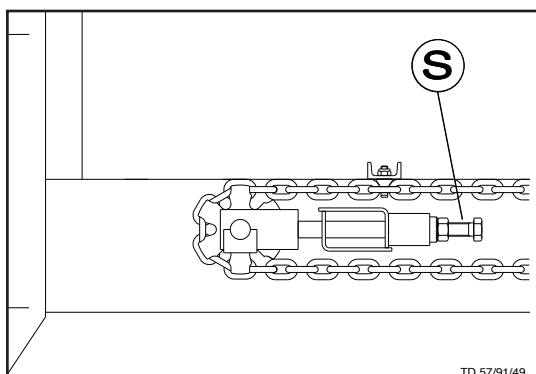
Chains

Scraper floor chains

The four scraper floor chains must be tensioned simultaneously but not strained. They should sag slightly.

Retensioning of scraper floor chains

- The tensioning screw (S) is located under the platform.

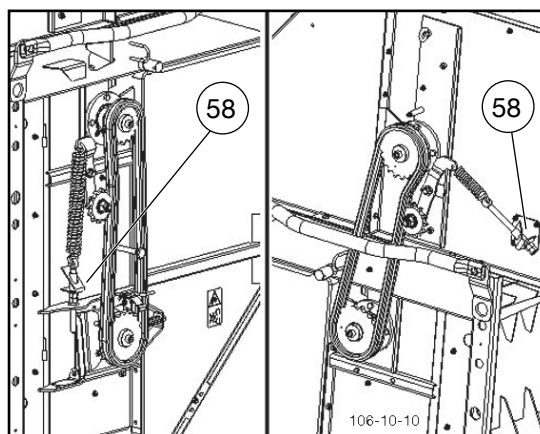


If length of tensioning screw is no longer adequate, then remove chain links.

- Always remove even numbered links (2, 4, ...) from all four chains.

Drive chains for regulating rollers

- Oil chain and check chain tension every 40 runs.
- Retensioning of the drive chain is basically performed with spring tension. It is possible to alter the tension slightly using the tensioning screw (58). Retighten counter nut and locking nut after tensioning the chain.

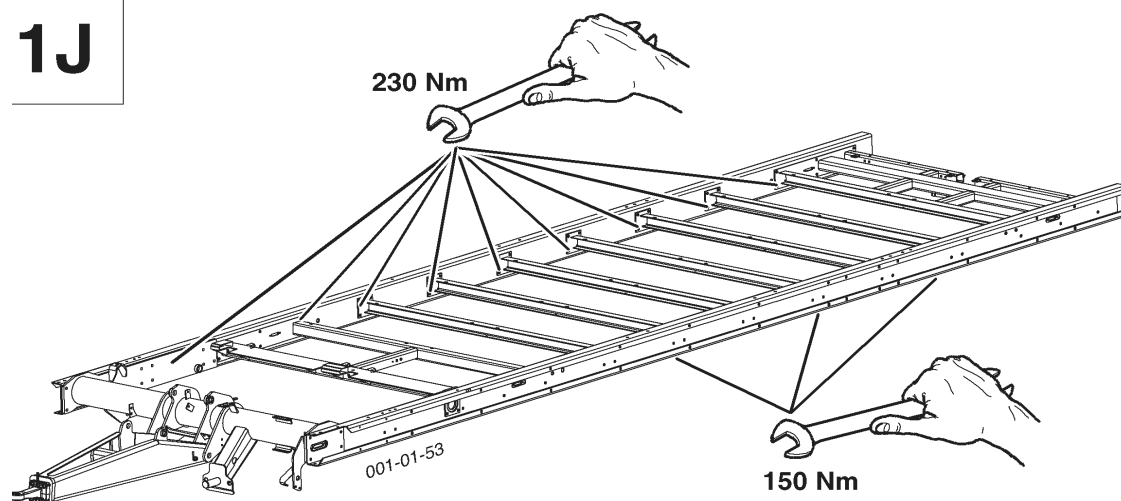


Note!

Retension scraper floor chains with hydraulic lines connected.

**Once a year****Inspect once a year**

- boltings to force fit (first year)
- that the screws are torque tightened

1J

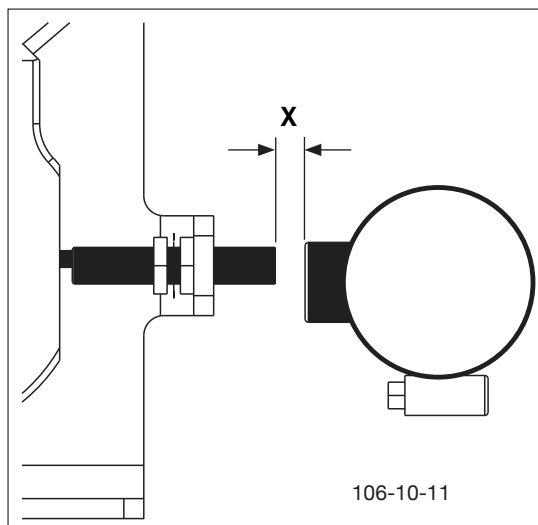


Setting dimensions for sensors

Speed sensor

The speed sensor is mounted on the drive shaft to the left of the input gearbox.

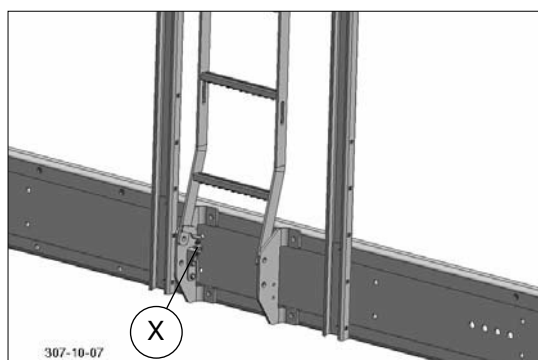
Setting dimension (X): 2 ... 4 mm



Access door

The sensor for monitoring the access door is mounted on the bracket for the access ladder.

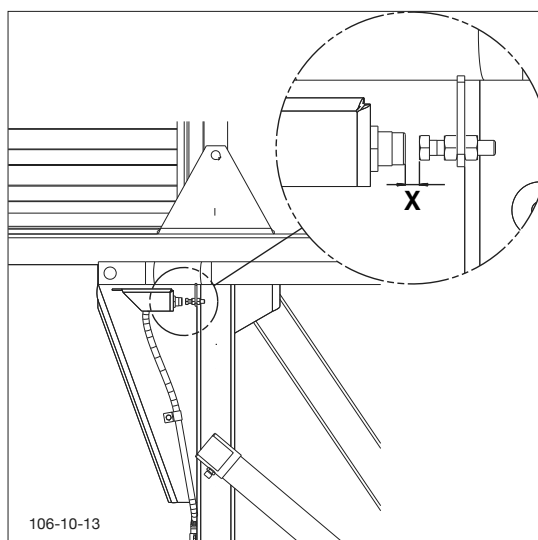
Setting dimension (X): 6 ... 10 mm



Tailgate

The sensor for monitoring the tailgate is mounted on the rear upright on the left.

Setting dimension (X): 6 ... 10 mm

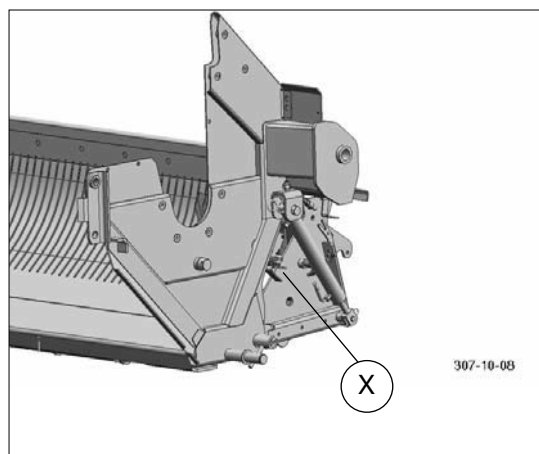




Cutting Unit

The sensor for monitoring the cutting unit is mounted on the press frame on the left.

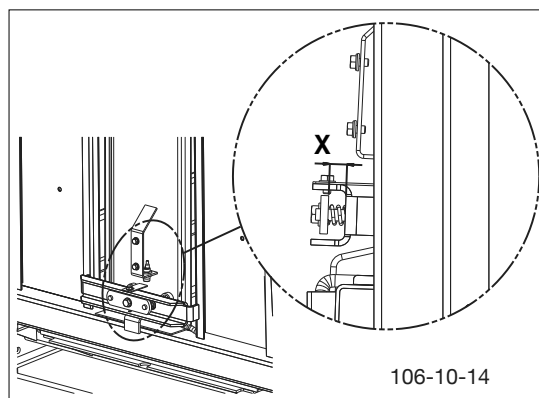
Setting dimension (X): 6 ... 10 mm



Bottom automatic loader

The sensor for monitoring the bottom automatic loader is mounted on the bottom front wall.

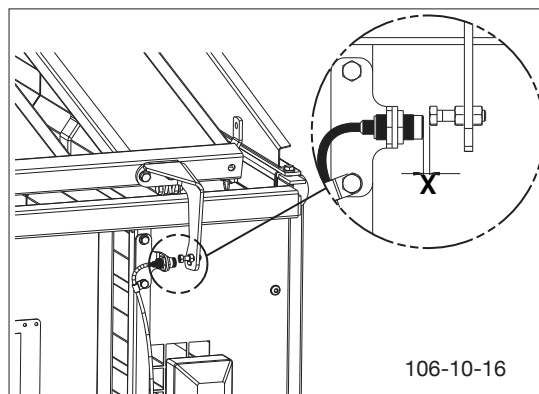
Setting dimension (X): 6 ... 10 mm



Top automatic loader

The sensor for monitoring the top automatic loader is mounted on the top front wall flap.

Setting dimension (X): 6 ... 10 mm

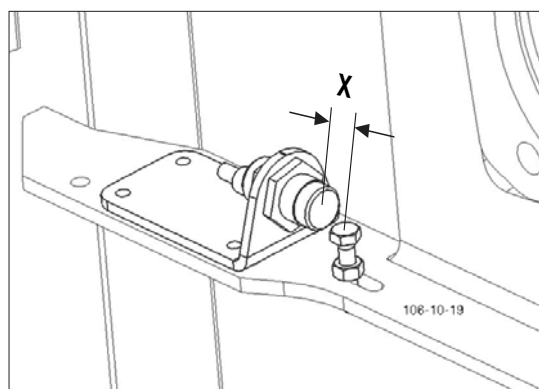


Regulating rollers monitor

The sensor for monitoring the regulating rollers is mounted on the left-hand side wall.

(Details see section on "Regulating rollers")

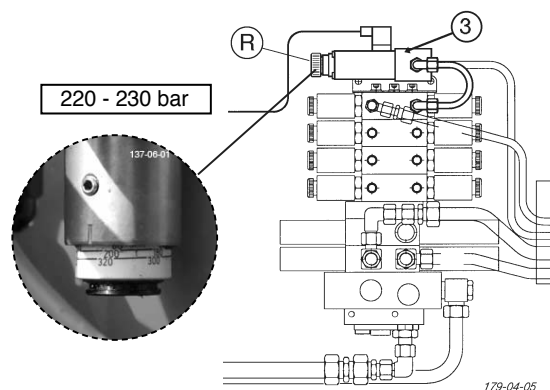
Setting dimension (X): 6 ... 10 mm





Oil pressure switch

Adjustment of oil pressure switch (3): 220-230 bar
(Setting value depends on tractor hydraulics)



Setting procedure:

1. Carry out base setting according to scale (220-230 bar)
2. Load until silage pushes tailgate open approx. 2 – 3 cm
3. When scraper floor is running, screw regulator (R) out until wagon "FULL" indicator appears.

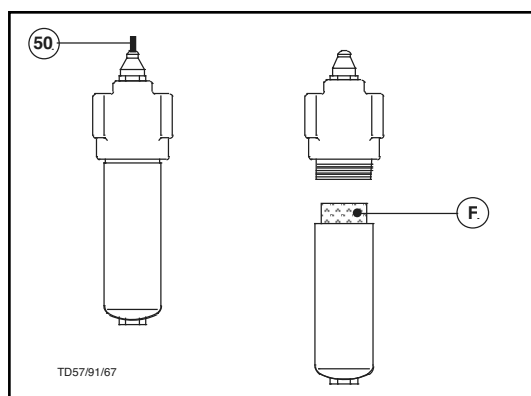
Note! An exact setting can only be carried out using a manometer

Changing the filter

The red tip (50) indicates that the oil filter (F) is soiled.

The distance to which the tip is pushed out depends on how soiled the filter is. When the tip shows maximum soiling, the filter (F) is to be changed.

- Change hydraulic oil in accordance with tractor's operating manual.





Safeguarding the electrical unit

The electrical unit for the operation functions is protected with a 10A fuse.

- The fuse is built into the 3-channel plug in the electricity supply line

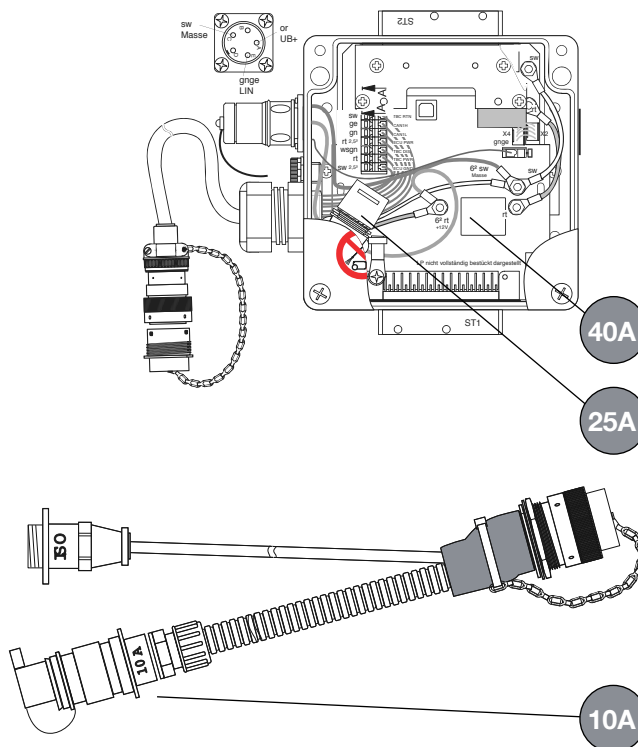
The valve outputs in the job calculator are protected by a 25 A fuse

- The fuse is built into the job calculator.



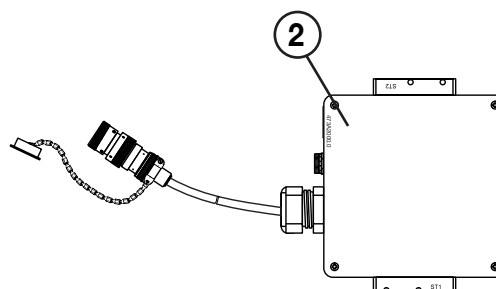
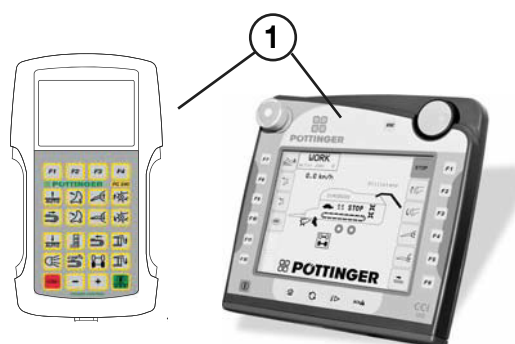
Take note!

Disconnect power supply to operating unit before any installation or repair work. Excess voltage can damage the electronics particularly with welding.



Maintaining electronic parts

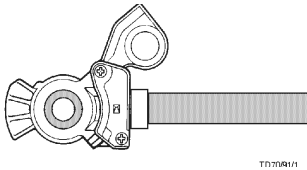
- Protect operating unit (1) from water.
 - Do not leave in the open
 - Store in a dry area when not in use for longer periods
- Cleaning the operating unit (1)
 - Use a soft cloth and mild household cleaner
 - Do not use solvents
 - Do not put operating board into liquid!
- Cleaning the job calculator (2)
 - Do not spray job calculator with a high pressure cleaner



Connecting the brake hoses

When connecting the brake hoses ensure:

- that the hose-coupling sealing ring is clean
- proper sealing
- connection is according to markings
"Compressed air storage" (coloured red) to "Compressed air storage"
"Brakes" (coloured yellow) to "Brakes"
- Replace damaged sealing rings.



TD70/91/1



ABS (Anti Blocking System) power supply ¹⁾

The ABS will not function without power!

Before travel connect the plug (1) to the tractor.

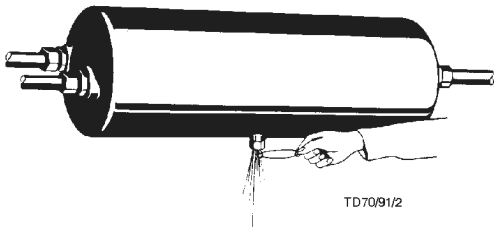


When garaging the wagon connect the plug into the console socket. The plug is secured against coming loose by the swivel clamp (1a).



TD29/94/22

- Drain water from air reservoir before first run of the day.



TD70/91/2

- Only travel when air pressure in the brake-system is 5.0 bar.

Attention!

For the brake unit to function properly:

- observe maintenance intervals
- observe brake setting (stroke max. 30 mm)

Service and maintenance on the air brake unit

Draining water from the air reservoir

The air reservoir is to be drained of water daily.

- **Using a piece of wire turn bolt on drain valve in a sideways direction.**

When dirty

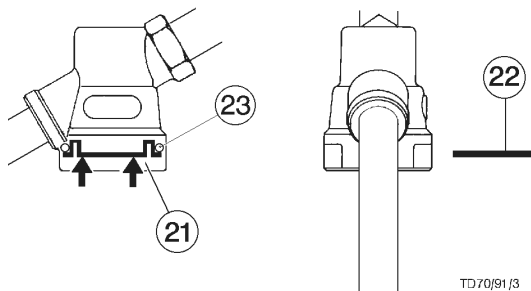
- Screw out drain valve and clean.

Cleaning the line filters

Both line filters are to be cleaned depending on operating conditions, normally about every 3 - 4 months. The sinter filter cartridges are to be removed to be cleaned.

Procedure:

- Depress locking tappet (21) on both brackets and remove slider (22).
- Remove locking tappet with O-ring (23), compression spring and sinter filter cartridge.
- Wash sinter filter cartridge with nitro cleaning agent and blast clean with compressed air. Damaged filter cartridges are to be replaced.
- Reassembly is in reverse order, but ensure that O-ring does not jam guiding slots of slider!



TD70/91/3

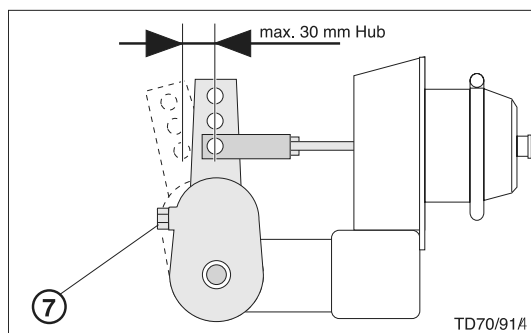
Brake adjustment

The piston stroke in the brake cylinder may not be greater than **30 mm**.

- Therefore check piston stroke occasionally and reset if necessary.

Brake adjustment

- Adjustment is carried out using adjusting screw (7).
- Piston stroke should be 12 - 15 mm when reset.



TD70/91A

¹⁾ Optional extra



Attention!

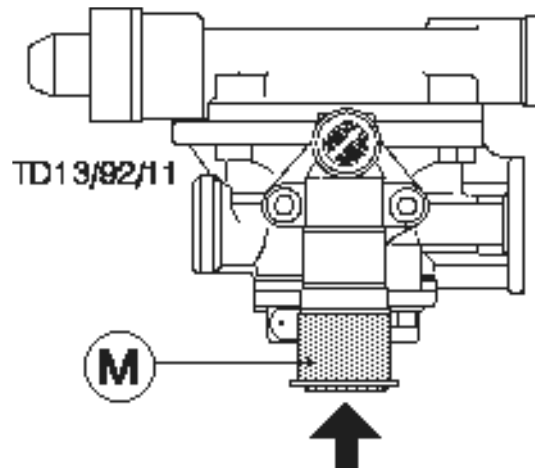
Where applicable have all maintenance and repair work on the brake unit carried out in by a break specialist or our customer service office.

There is a special maintenance manual for the "300 x 200" high-speed axle which can be obtained from our customer service office.

Release position on the brake unit

The release position enables wagon to move (shunt) when brake hoses are not connected to towing vehicle.

- **Depress control button (M) until stop.**
 - Brakes are now released.
- **Pull out control button (M) until stop.**
 - Wagon will brake again using the stored compressed air coming from the air reservoir.
- When connecting brake hoses, control button (M) is automatically pushed out by the stored compressed air coming from the towing vehicle.



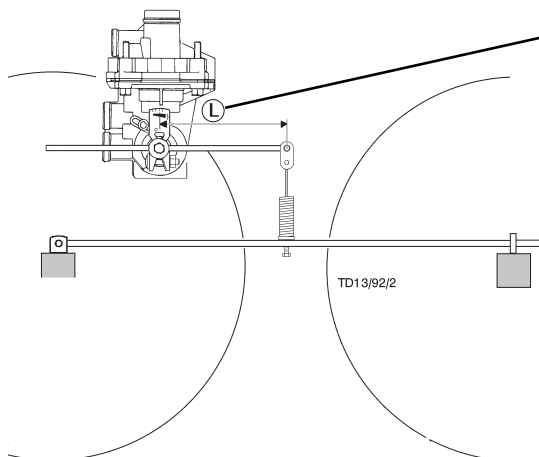
ALB-regulator

(for brake units with an automatic brake pressure regulator)
1)

With an ALB regulator the necessary brake pressure is automatically regulated according to wagon's load condition.

Setting

The setting measurement (L) must not be altered. It must correspond to the found on the WABCO rating plate.

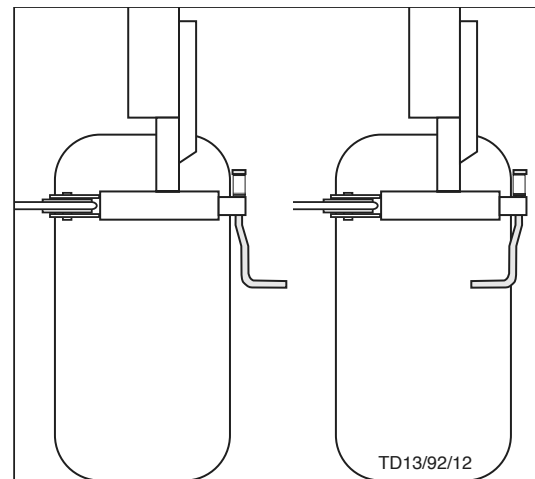


WABCO					
Automatisch - lastabhängige Bremskraftregeneinrichtung (ALB) für Typ: _____					
Load sensing device for type: _____					
Dispositif de correction automatique de freinage pour type: _____					
Achse, Front axle, Essieu avant			Hinterachse, Rear axle, Essieu arrière		
Feder - Nr. Spring No. Resort No.			Ventile - Nr. Valves No. Valves No.		
Eingangsdruck Input pressure Pression d'entrée			Ausgangsdruck Output pressure Pression de sortie		
Nähe s am Hebel Stroke s at lever Course s au levier			Weg s am Hebel Stroke s at lever Course s au levier		
L = _____ mm			L = _____ mm		

Before the first run, release locking break and swing crank handle inward.

Parking the wagon

- Secure wagon using locking break.
- Brake pressure regulator to "release position" and disconnect brake hoses from towing vehicle.

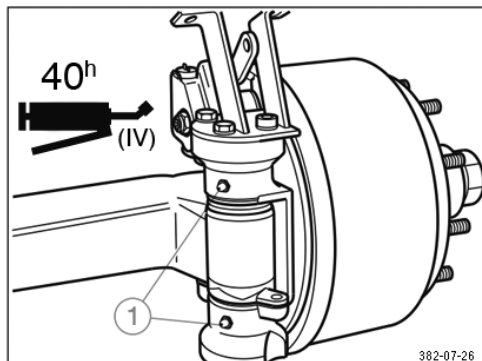


¹⁾ Optional extra

Lubrication points

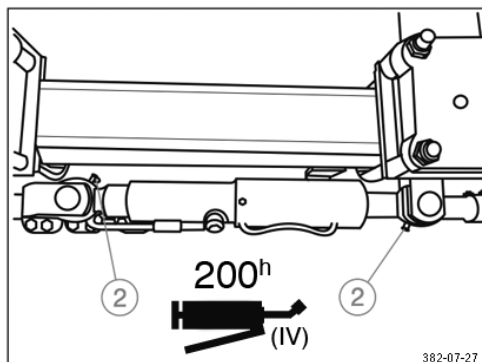
① Steering arm bearing, top and underneath (only with steering axles)

- after 40 operating hours



② Fixings for cylinder heads (only with steering axles)

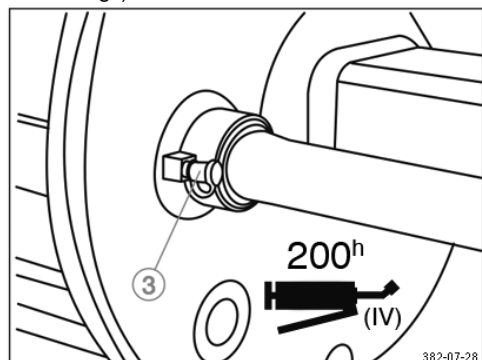
- every 200 operating hours



With that always make sure that is no air in the cylinder and the supply line.

③ Bearings of brake shafts

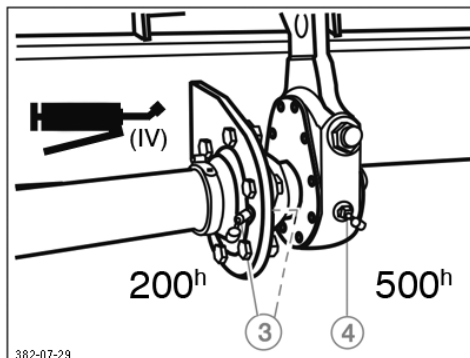
- every 200 operating hours
(and before operating again after a lengthy storage)



Take care that no grease or oil enters the brakes. Bearings for the brakes are not sealed for some makes. Use only lithium saponified grease with a drop point above 190°C

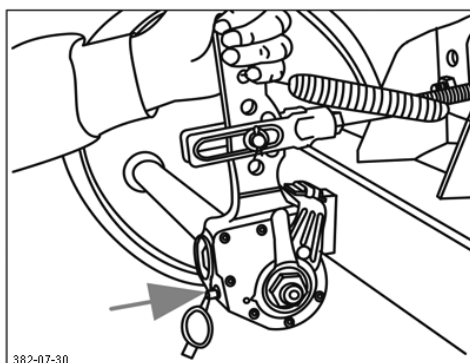
④ Rod adjuster

- every 500 operating hours
- annually at the latest



⑤ Automatic rod adjuster

- with every brake lining change
- every 500 operating hours
- annually at the latest



- Remove rubber sealing cap.
- Grease with Li-Grease (IV) until sufficient fresh grease flows from the regulating screw.
- Unscrew the regulating screw approx. one turn using a ring spanner.
- Actuate the brake lever repeatedly by hand. In so doing automatic adjustment should take place easily. Repeat often if necessary.
- Replace rubber sealing cap.
- Grease with Li-Grease (IV) once again.



Note!

After cleaning the vehicle with a high pressure cleaner, all lubrication points must be greased again.

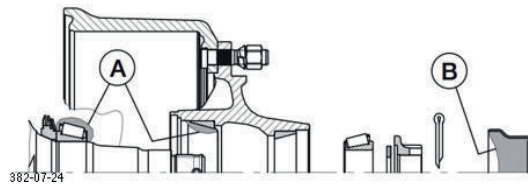
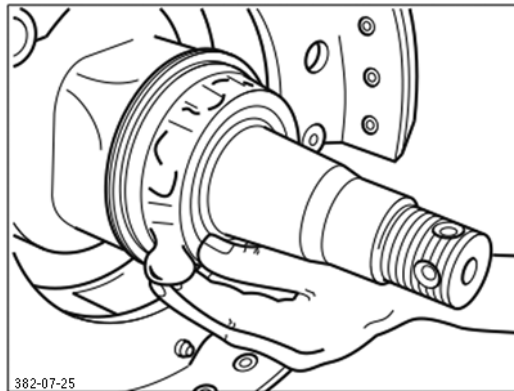


Note!

Grease the grease nipple with Li-Grease (IV) until fresh grease flows from the bearings.

⑥ Changing grease in the wheel hub bearing

- every 1000 operating hours
- annually at the latest
- Jack vehicle up securely and release brakes.
- Remove wheels and dust caps.
- Remove split pin and unscrew the axle nut.
- Using a suitable puller, remove the wheel hub with brake drum, tapered roller bearing as well as seals from the steering knuckle.
- Remove wheel hub and bearing cage markers so that they won't be transposed when assembling.
- Clean the brakes and check for wear, soundness and function, and replace worn parts.
Inside the brake must be kept free of grease and impurities.
- Thoroughly clean the wheel hubs inside and outside. Remove old grease completely. Thoroughly clean bearing and seals (diesel) and check if reusable.
- In assembling the bearing lightly grease the bearing seats and assemble all parts in reverse order. Careful fasten parts to press fit with tubular bearing bushes without jamming or damaging.
- Before assembling, coat the bearing, the wheel hub cavity as well as the dust cap with grease. The amount of grease used should approximately fill a quarter to a third of the free space of the fitted hub.
- Fit the axle nut, and carry out bearing adjustment as well as brake adjustment.
- Finally, check the function and carry out a relevant test run and eliminate possible determined defects.



Amount of grease per tapered roller bearing	
Inside A	Outside B
170 g	300 g
Pack grease into the free space between tapered roller bearing and cage. Put the rest of the grease in the bearing outer ring of the hub.	The grease for the outside tapered roller bearing is pressed into the bearing when the cap filled with grease is screwed in.



Note!

Only Li-Grease (IV) with a drop point above 190° may be used for greasing the wheel hub bearing.

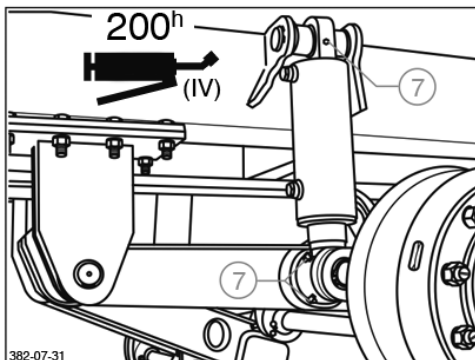
The incorrect grease or too much can lead to damage.

The mixing of lithium saponified grease with sodium saponified grease can lead to damage through incompatibility.

⑦ Damping cylinder, top and underneath

(only with hydraulic running gear)

- every 200 operating hours

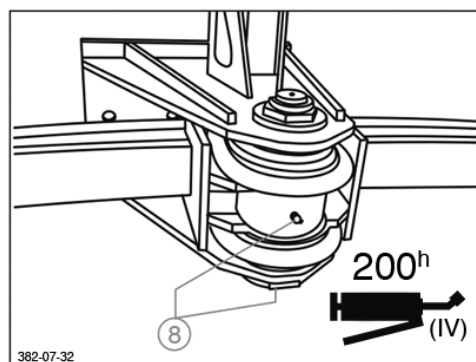


With that always make sure that is no air in the cylinder and the supply line.

⑧ Support axle, underneath and sides

(only with BOOGIE axle)

- every 200 operating hours
- the first time after the first load run



Raise wagon to grease in order to relieve the support axle.



Note!

Grease the grease nipple with Li-Grease (IV) until fresh grease flows from the bearings.

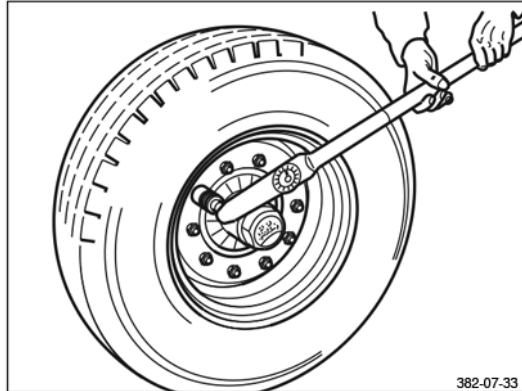
With heavy operation adequately grease the lubricating points frequently.

Maintenance work on wheels and brakes

1 Check wheel nuts for tightness

- after the first load run
- after every wheel change
- every 500 operating hours
- annually

Tighten wheel nuts crosswise with torque wrench.
For tightening moment see chapter "WHEELS AND TYRES".



2 Check wheel hub bearing play

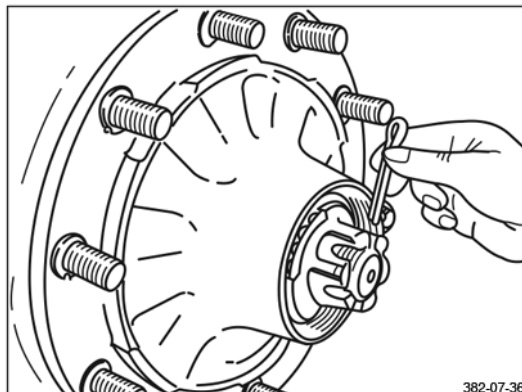
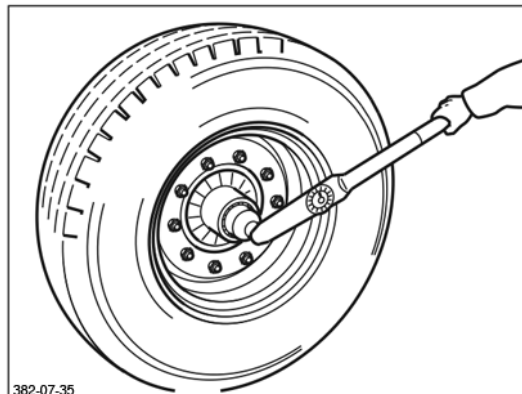
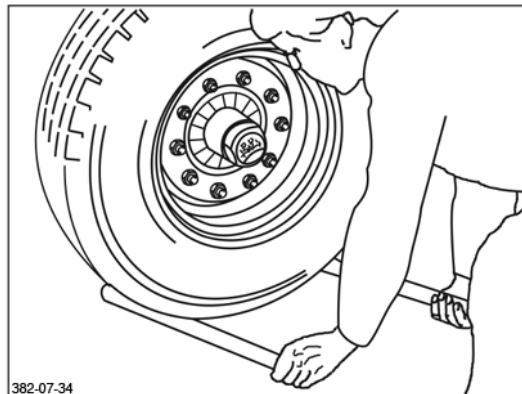
- every 200 operating hours

To check the wheel hub bearing play:

- Raise axles until tyres are clear of ground
- Release brakes
- Place lever between tyre and ground and check the play

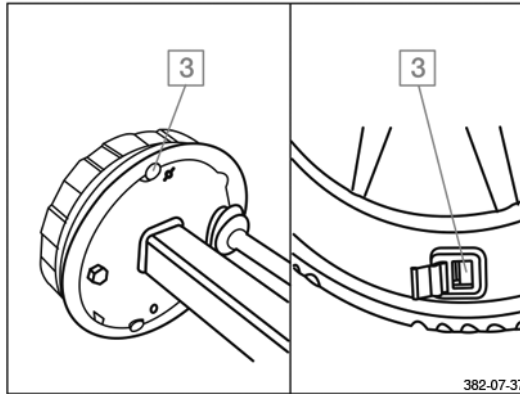
When bearing play can be felt:

1. Unscrew cap.
2. Remove split pin from crown nut
3. Tighten the crown nut with torque wrench with a tightening moment of 150 Nm while simultaneously turning the wheel hub
4. Turn crown nut back to the next possible split pin hole. By congruence back to the next hole (max. 30°)
5. Insert split pin and bend slightly
6. Fill hub cap with some Li-Grease (IV)
7. Smear the cap thread all around with Li-Grease (IV). Screw cap in with a tightening moment of 500 Nm.



3 Brake lining check

- every 200 operating hours
- Open viewing hole by pulling out the rubber stopper (if available).
- The brake lining must be replaced when the residual lining thickness is
 - a) 5 mm with riveted linings
 - b) 2 mm with glued linings
- Insert rubber stopper again.



Note!

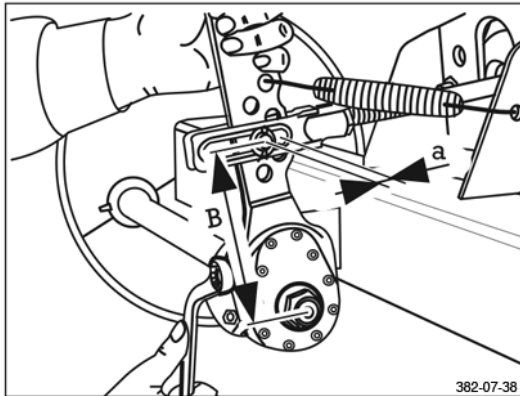
Conditional to the function is to continually check brake wear and function and make adjustments if necessary.

An adjustment is necessary when approx. 2/3 of the maximum cylinder travel is utilized with full braking. To do this jack up the axle and secure against any unintentional movement.

4 Setting the rod adjuster

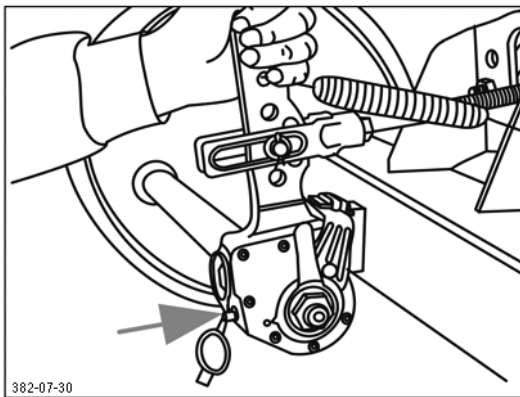
- every 200 operating hours
- Move rod by hand in direction of push.
The wheel brake must be reset with a cylinder rod empty run of 35 mm.
- Adjust reset screw.
Set empty run "a" to 10 – 12% of the connected brake lever length "B".

e.g. Lever length	150 mm
Empty run	15 – 18 mm



5 Setting the automatic rod adjuster

- every 500 operating hours
- annually at the latest
- The base setting takes place similar in some respects to the standard setting.
Resetting takes place automatically at approx. 15° cam turn.
The ideal lever setting is at approx. 15° in front of the right-angle to the direction of actuation (cannot be influenced because of cylinder fixing).



6 Checking the function of the automatic rod adjuster

- with every brake lining change
 - every 500 operating hours
 - annually at the latest
1. Remove rubber sealing cap.
 2. With a ring spanner turn the adjusting screw (arrow) back anticlockwise approx. 3/4 of a turn. An empty run of at least 50 mm with a 150 mm lever length must exist.
 3. Actuate the brake lever repeatedly by hand.
In so doing automatic adjustment should take place easily. The positive clutch catching should be heard and with the return stroke the adjusting screw turns a little clockwise.
 4. Replace rubber sealing cap.
 5. Grease with Li-Grease (IV).

Maintenance work on the hydraulic running gear

7 Check damping cylinder for condition and impermeability

- every 500 operating hours
- annually at the latest

8 Check damping cylinder attachment

- every 500 operating hours
- annually at the latest

Check damping cylinder attachment for tightness and wear.

9 Spring connection

- after the **first** load run
- every 200 operating hours

- Check the spring stirrup lock nuts for tightness.
- If nuts are loose tighten alternately and in several stages.

Nothing is to be welded to the spring!

Tightening moment with torque wrench:

M 24 = 650 Nm

10 Spring bolts

- after the **first** load run
- every 500 operating hours

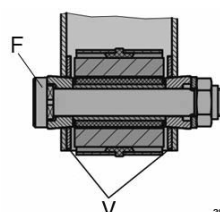
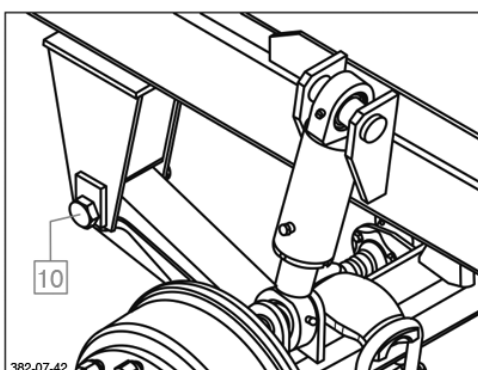
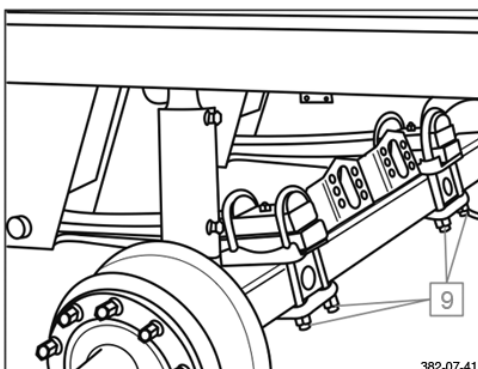
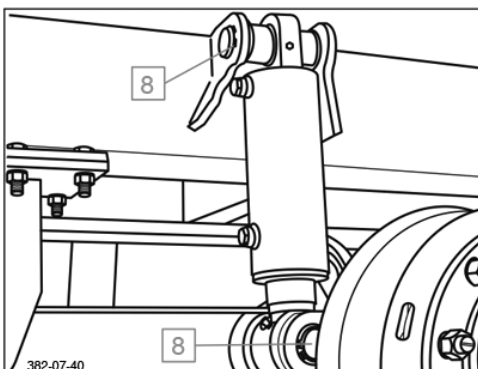
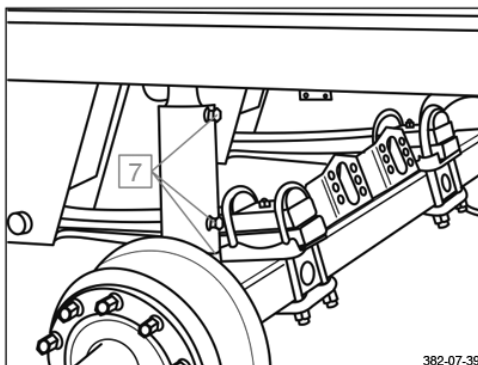
- Check bushings.
- With brakes applied move the wagon back and forth a little or move the rolled end of the springs with an assembly lever. With that there must be no recognizable play in the rolled end of the springs. If not tight the spring bolts can be damaged.
- Check lateral wearing discs (V) in the support.
- Check lock nut M 30 on the spring bolts (F) for tightness.

Tightening moment with torque wrench:

M 30 = 900 Nm



The life of the rubber-steel bushing bearing depends on the tightness of the inner steel bushing.



Attention!

Sight check – every 200 operating hours. Check all components for damage and wear.

Maintenance work on the BOOGIE running gear



Attention!

Sight check - every
500 operating
hours- half yearly
at the latest.

Check all compon-
ents for damage
and wear.

11 Spring bracket and screws on the support axle

- the first time after the **first** load run
- every 500 operating hours
- half yearly at the latest

- Check spring bracket for tightness.

When loose:

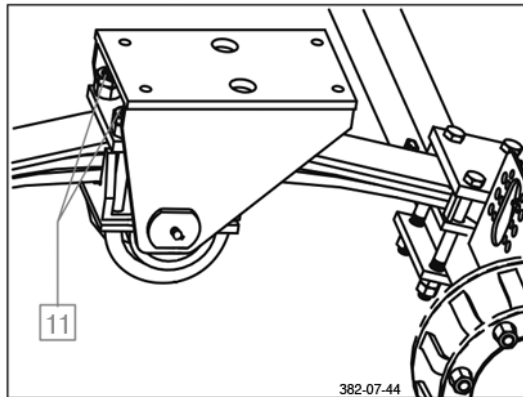
- loosen lock nut
- Tighten nuts alternately and in several stages using the stipulated tightening moment
- Tighten lock nut again

Tightening moment:

Spring bracket: **M 30x2 8.8 = 980 Nm**

M 20 10.9 = 450 Nm

Screws: **M 30 = 1095 Nm**



12 Spring bracket and screws on the spring tension housing

- every 500 operating hours
- half yearly at the latest

- Check spring bracket and screws for tightness.

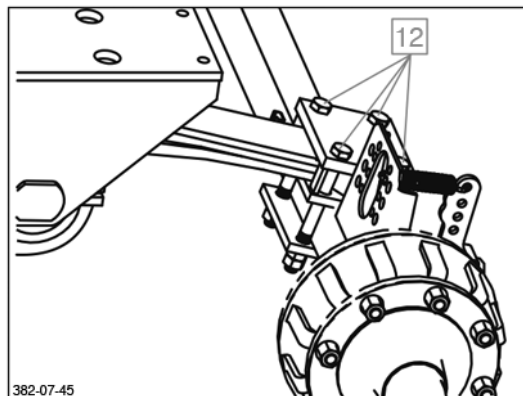
When loose:

- loosen lock nut
- Tighten nuts alternately and in several stages using the stipulated tightening moment
- Tighten lock nut again

Tightening moment:

Spring bracket: **M 24 10.9 = 700 Nm**

Screws: **M 20 8.8 = 320 Nm**



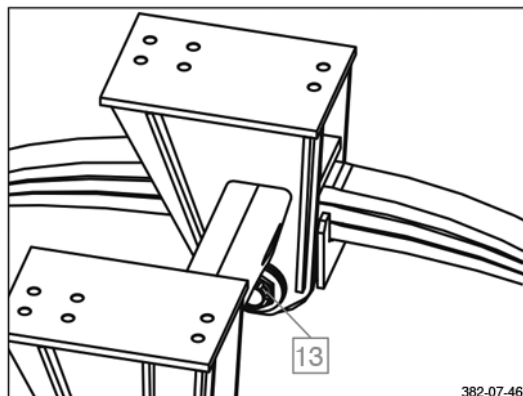
13 Bearing bolts on the spring tension housing

- the first time after the **first** load run
- every 500 operating hours
- half yearly at the latest

- Check crown nut on bearing bolts for tightness.

Tightening moment:

M 52 x 2 = 400 Nm



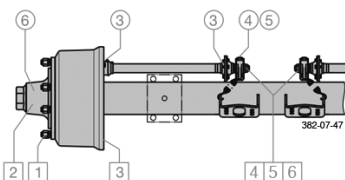
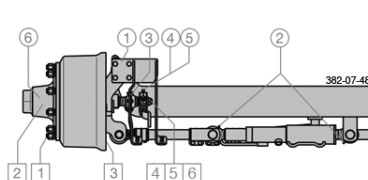
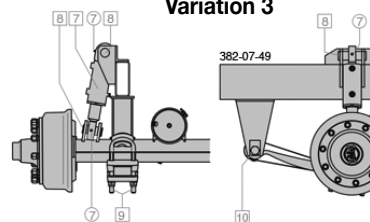
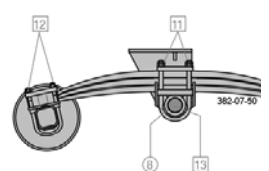
Overview

Lubrication and maintenance work

See previous pages for an extensive description

- ☐ Grease
☐ Maintenance work

	Variation	After the first load run	Every 40 operating hours	Every 200 operating hours	Every 500 operating hours (annually)	Every 1000 operating hours (annually at the latest)
Grease						
with special long-term grease (IV)						
① Steering arm bearing, top and underneath	2		○			
② Fixings for cylinder heads	2			○		
③ Bearings of brake shafts	1, 2, 3, 4			○		
④ Rod adjuster	1, 2, 3, 4				○	
⑤ Automatic rod adjuster	1, 2, 3, 4				○	
⑥ Changing grease in the wheel hub bearing, check tapered roller bearing for damage and wear.	1, 2, 3, 4					○
⑦ Damping cylinder, top and underneath	3			○		
⑧ Support axle, underneath and sides	4	○		○		
Maintenance work						
Sight check						
Check all components for damage and wear						
① Check wheel nuts for tightness	1, 2, 3, 4	□			□	
② Check wheel hub bearing play	1, 2, 3, 4			□		
③ Brake lining check	1, 2, 3, 4			□		
④ Setting the rod adjuster	1, 2, 3, 4			□		
⑤ Setting the automatic rod adjuster	1, 2, 3, 4				□	
⑥ Checking the function of the automatic rod adjuster	1, 2, 3, 4				□	
⑦ Check damping cylinder for condition and impermeability	3				□	
⑧ Check damping cylinder attachment	3				□	
⑨ Check spring connection for tightness	3	□		□		
⑩ Check spring bolts for tightness	3	□			□	
⑪ Check spring bracket and screws on the support axle for tightness	4	□			□	
⑫ Check spring bracket and screws on the spring tension housing	4				□	
⑬ Check bearing bolts on the spring tension housing for tightness	4	□			□	

Variation 1

Variation 2

Variation 3

Variation 4


Troubleshooting

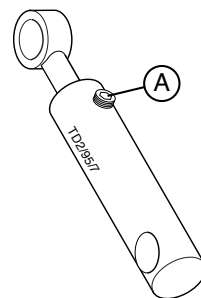
Any machine is liable to develop faults now and again. The list below is intended to make curing them easier. Never delay in finding a remedy.



Safety points!

- Turn engine off when adjustment, service and repair work is to be done.

Faults	Causes	Remedies
Torque limiter on driveshaft triggered.	- too much forage at once - large foreign body - blunt knives	- Declutch and start off again at low revs. - If necessary remove foreign body and sharpen knives. - When pressing channel is blocked release cam type closure on the cutter bar, switch on press (cutter bar swings out automatically), swing cutter bar back in.
A transmission runs hot.	- no lubrication	- Top up or replace oil
Scraperfloor chain runs noisily (ticking over).	- Chain too loose or too taut	- Check chain tension
Noise from transmission chain.	- Chain loose	- Check chain tension regularly (5 to 8 mm play), tighten if necessary.
Forage jams.	- Travel speed too high - trailer hitched up too low	- Set drawbar to correct height.
Poor cutting quality.	- blunt knives - p.t.o. speed too high	- Sharpen knives in time or replace them. - Drive at lower revs, so that larger wads of forage are picked up.
Jockey wheels do not reach ground.	- Pick-up set wrong	- Adjust jockey wheels - Check height setting at hitch
Forage is picked up soiled.	- Jockey wheels set too low	- Check jockey wheel setting.
Hydraulic mechanism move jerkily.	- Air in lines or cylinders	- Loosen bleed screws (A) and bleed lines
Poor braking.	- Brake linings worn	- Adjust or replace linings



Disruptions and remedies to power failure

When there is a disruption in the electrical unit, the required hydraulic function can be carried out by means of an emergency application.



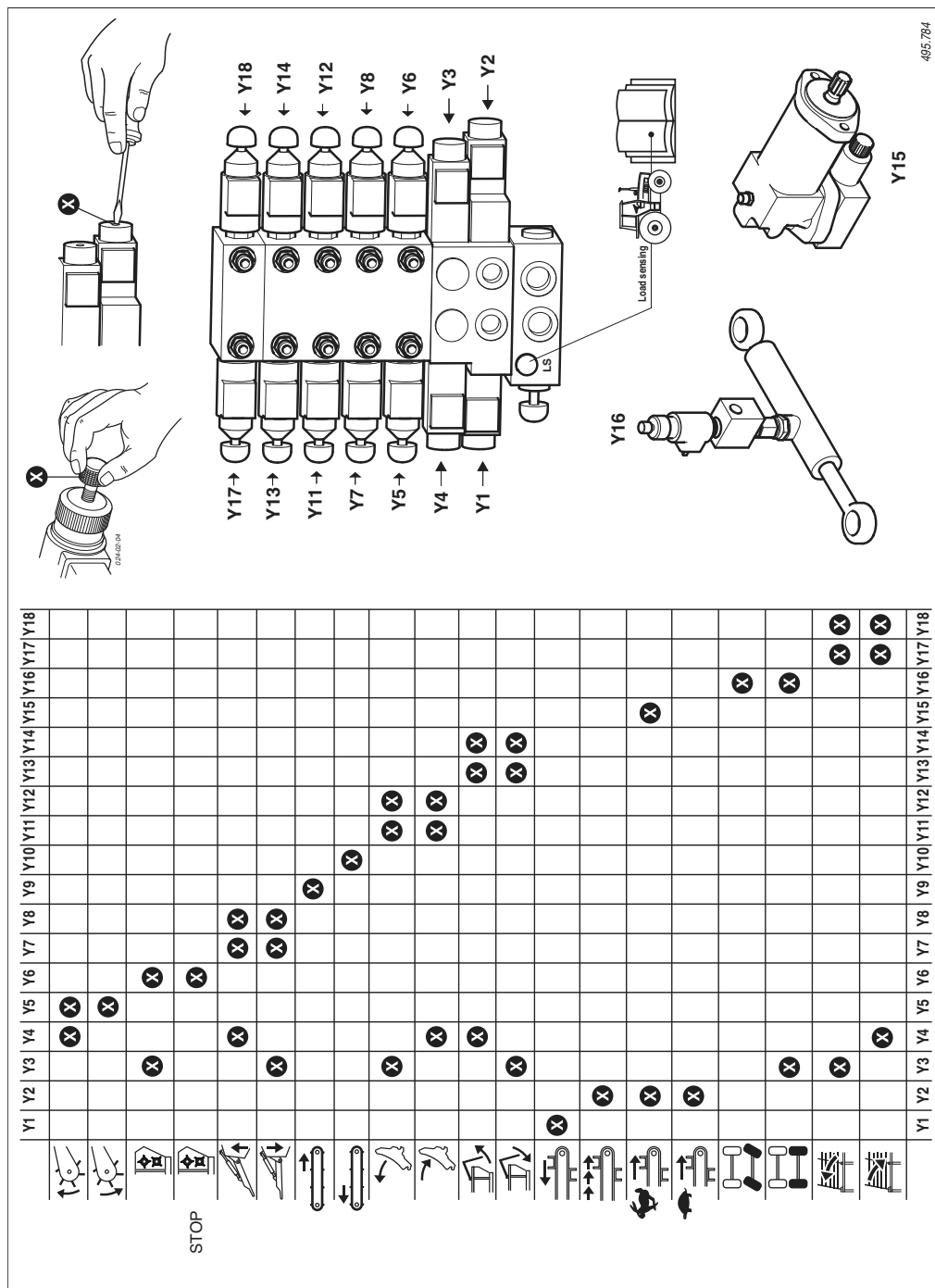
Be alert to the dangers involved with all raising and lowering, and on and off switching activities!

The hydraulic block is located under the left front protective cover.

To carry out the desired hydraulic function

- Screw in the correct valve knob
- Turn on servo-valve on the towing vehicle
- The hydraulic function will be carried out
- Afterwards, unscrew the relevant valve knob again

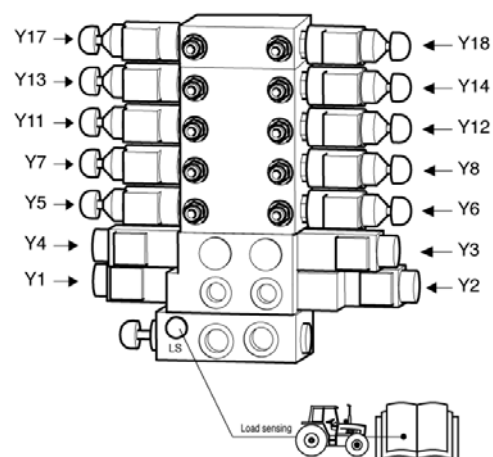
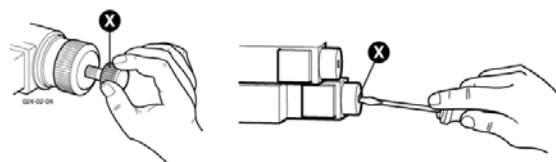
Variant POWER-CONTROL



Variant DIRECT-CONTROL

Up to 2006 model

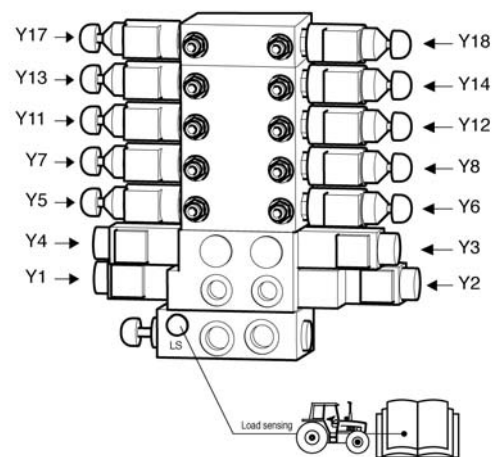
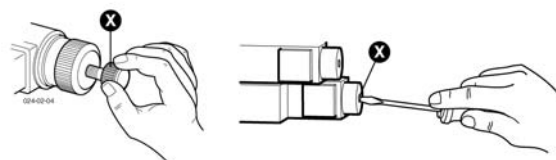
	Remark	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y11	Y12	Y13	Y14	Y17	Y18
				X	X										
					X										
	1,5 s			X		X									
	2 s					X									
				X			X	X							
			X				X	X							
			X						X	X					
				X					X	X					
			X								X	X			
				X							X	X			
		X													
			X												
			X											X	X
				X										X	X
		Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y11	Y12	Y13	Y14	Y17	Y18



495.788

From 2006 model

	Remark	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y11	Y12	Y13	Y14	Y17	Y18
				X	X										
					X										
				X			X	X							
			X				X	X							
			X						X	X					
				X					X	X					
			X								X	X			
				X							X	X			
		X													
			X												
			X											X	X
				X										X	X
		Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y11	Y12	Y13	Y14	Y17	Y18



495.802



Position of Vehicle Identification Plate

The chassis number is engraved on the name plate illustrated on the left. Warranty claims, enquiries and spare parts orders cannot be made without quoting the chassis number.

Please enter the number on the title page of the Operating Instructions immediately on taking delivery of the vehicle/equipment.

Technical data

Description			FARO 3500 Type 1611	FARO 4000 Type 1612	FARO 4500 Type 1613	FARO 6300 Type 1616	FARO 8000 Type 1618
Overall lenght	Type L	[mm]	7780	8460		10500	10790
	Type D	[mm]	8250	8930		--	--
Overall width (Standard tyres)		[mm]	2420				
Height	with top frame up	[mm]	3450	3450		3760	3980
	with top frame down	[mm]	2950	2950		3060	2860
Track width		[mm]	1800			1850	
Platform height		[mm]	1170			1250	
Pick-up width		[mm]	1800				
No. of cutters			27				
Cutter spacing		[mm]	51				
Capacity		[m³]	35	40		63	80
Volume as per DIN 11741	Type L	[m³]	22,0	25,5		38,5	46,0
	Type D	[m³]	21,5	25,0		--	--
Torque limiter of drive shaft			1400 Nm / 1000 min ⁻¹				
Tyres			500 / 50 - 17 14 PR				
Weight (standard)	Type L	[kg]	4850	5000	5150	5800	6000
	Type D	[kg]	5370	5520	--	--	--
Permanent sound emmission level			<70 dB (A)				

Type L = without regulating fittings

Type D = with regulating fittings

All data subject to change without notice

Necessary connections

- 1 double-action hydraulic connection
pressure min.: 120 bar
pressure max.: 200 bar
- 7-pole electric connection for lighting (12 Volt)
- 2-pole electric (12 Volt) connection

The defined use of the trailer

The trailer „**FARO (Type 1611, 1612, 1613, 1616, 1618)**“ is intended solely for normal use in agricultural work.

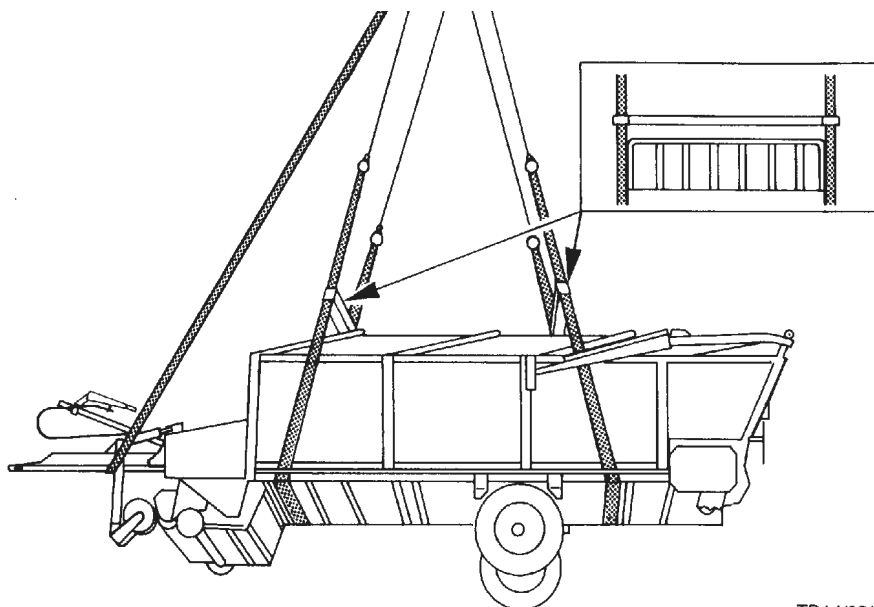
- For the loading, transporting and unloading of roughage, green forage, silage and straw.
- For transporting and unloading chopped green fodder, roughage, silage and straw.

Any use extending beyond this (e.g. transport of wood chips) is deemed to be not in accordance with the intended purpose.

The manufacturer takes no responsibility for any resulting damage which occurs henceforth. The risk is carried by the user alone.

- The keeping of operating, service and maintenance requirements layed down by the manufacturer also come under the heading of „defined use“.

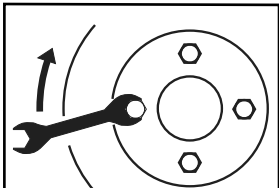
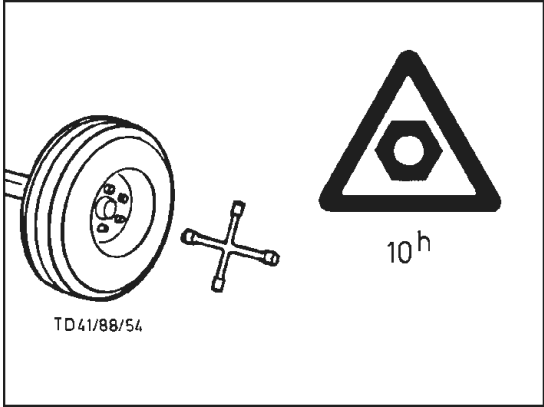
Correct loading



TD14/89/29

Starting torque

Check regularly that wheel nuts are firmly tightened (see table for screw starting torque)!



M 16 x 1,5	200 Nm
M 18 x 1,5	270 Nm
M 20 x 1,5	350 Nm
M 22 x 1,5	500 Nm



ATTENTION!

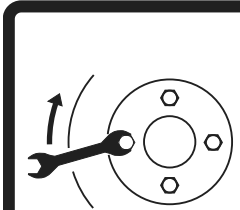
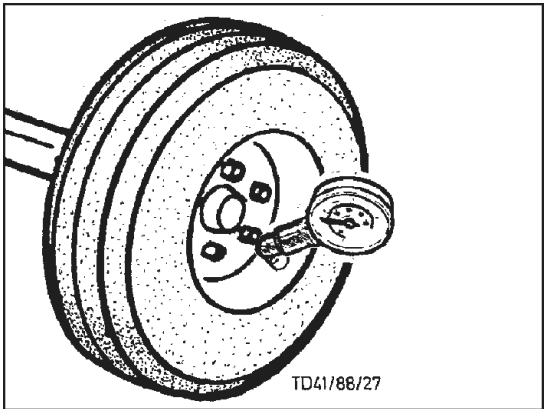
After the first 10 hours of operation retighten wheel nuts.

ATTENTION!

- After the first 10 hours of operation retighten wheel nuts.
- If a wheel has been changed retighten the wheel nuts after 10 hours of operation also.

Air pressure

- Pay attention to correct tyre pressure!
 - Regularly check tyre air pressure according to the chart!
- Danger of bursting exists when pumping up tyres and with high tyre pressure!



			40 km/h		max. km/h	bar
M 16 x 1,5	200 Nm	15 x 6,0 - 6	6 PR	1,5 bar		
M 18 x 1,5	270 Nm	16 x 6,5 - 8	6 PR	1,5 bar		
M 20 x 1,5	350 Nm	11,5 / 80 - 15,3	8 PR	2,8 bar		
M 22 x 1,5	500 Nm	340 / 55 - 16	133 A8	3,0 bar		
		15,0 / 55 - 17	12 PR	3,1 bar		
		380 / 55 - 17	138 A8	3,4 bar		
		19,0 / 45 - 17	14 PR	3,8 bar		
		480 / 45 - 17	146 A8	3,8 bar		
		500 / 50 - 17	14 PR	3,5 bar		
		560 / 45 R 22,5	146 D	2,6 bar	70	3,2 bar
		560 / 45 R 22,5	152 D	3,0 bar	70	4,0 bar
		620 / 40 R 22,5	148 D	2,5 bar	70	3,2 bar
		620 / 40 R 22,5	154 D	3,0 bar	70	4,0 bar
		600 / 50 - 22,5	159 D	1,5 bar		
		710 / 45 - 22,5	165 D	1,5 bar		

494.596 0162-0026

SUPPLEMENT

Things will run better with
genuine Pöttinger parts

Original
inside



- **Quality and precise fitting**
 - Operating safety.
- **Reliable operation**
- **Longer lasting**
 - Economy
- **Guaranteed availability** through your Pöttinger Sales Service.

The decision must be made, "original" or "imitation"? The decision is often governed by price and a "cheap buy" can sometimes be very expensive.

Be sure you purchase the "Original" with the cloverleaf symbol!


PÖTTINGER



Recommendations for work safety

All points referring to safety in this manual are indicated by this sign.

1. Operating instructions

- The operating instructions are important for the correct operation of the machine. Make sure that the operating instructions are always on hand when operating the machine.
- Keep the operating instructions as long as the machine is in your hands.
- Pass the operating instructions on to the buyer when selling the machine.
- Make sure that all safety and warning symbols remain attached on the machine and keep them readable. The hazard warnings provide important information for a safe operation and, thus, your safety.

2. Qualified personnel

- Only persons of legal age, mentally and physically able and having been trained or familiarized accordingly must operate this machine.
- Persons not yet trained or familiarized or under training must only operate this machine under the supervision of an experienced person.
- Inspection, setting and repair work must only be performed by authorized persons.

3. Repair work

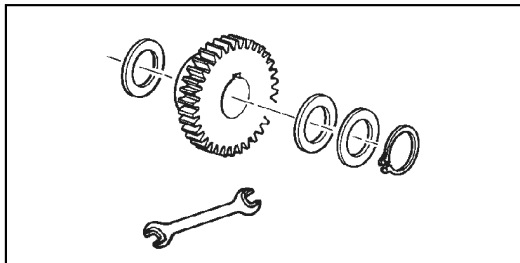
- These instructions only refer to service, maintenance and repair operations the user is able to carry out without assistance. Any work beyond this scope has to be carried out at authorized workshops only.
- Repairs on the electrical and hydraulic system, preloaded springs, pressure accumulators, etc. require sufficient knowledge, correct tools and protective clothing and, thus, must only be performed at authorized workshops.

4.) Defined use

- See "Technical Data".
- The keeping of operating, service and maintenance requirements laid down by the manufacturer also come under the heading of "defined use".

5.) Spare parts

- The **original components and accessories** have been designed especially for these machines and appliances.
- We want to make it quite clear that components and accessories that have not been supplied by us have not been tested by us.



- The installation and/or use of such products can, therefore, negatively change or influence the construction characteristics of the appliance. We are not liable for damages caused by the use of components and accessories that have not been supplied by us.
- Alterations and the use of auxiliary parts that are not permitted by the manufacturer render all liability invalid.

6.) Protection devices

- All protection devices must remain on the machine and be maintained in proper condition. Punctual replacement of worn and damaged covers is essential.

7.) Before starting work

- Before commencing work, the operator must be aware of all operating devices and functions. The learning of these is too late after having already commenced operation!
- The vehicle is to be tested for traffic and operating safety before each operation.

8.) Asbestos

- Certain sub-supplied components of the vehicle may contain asbestos due to technical reasons. Observe the warning on spare parts.



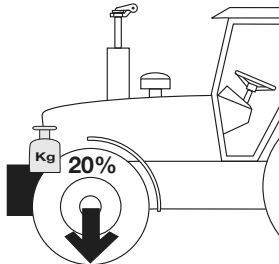


9.) Transport of persons prohibited

- a. The transport of persons on the machine is not permitted.
- b. The machine may only be driven on public roads when in the position stipulated for road transport.

10.) Driving ability with auxiliary equipment

- a. The towing vehicle is to be sufficiently equipped with weights at the front or at the rear in order to guarantee the steering and braking capacity (a minimum of 20% of the vehicle's tare weight on the front axle).
- b. The driving ability is influenced by ground conditions and by the auxiliary equipment. The driving must be adapted to the corresponding terrain and ground conditions.
- c. When driving through curves with a connected appliance, observe the radius and swinging mass of the appliance.
- d. When travelling in a curve with attached or semimounted implements, take into account the working range and swing mass of the implement!



11.) General

- a. Before attaching implement to three-point linkage, move system lever into a position whereby unintentional raising or lowering is ruled out!
- b. Danger of injury exists when coupling implement to tractor!
- c. Danger of injury through crushing and cutting exists in the three-point linkage area!
- d. Do not stand between tractor and implement when using three-point linkage external operation!
- e. Attach and detach drive shaft only when motor has stopped.
- f. When transporting with raised implement, secure operating lever against lowering!
- g. Before leaving tractor, lower attached implement to the ground and remove ignition key!
- h. Nobody is to stand between tractor and implement without tractor being secured against rolling using parking brake and/or wheel chocks!
- i. For all maintenance, service and modification work, turn driving motor off and remove universal drive.

12.) Cleaning the machine

- a. Do not use high-pressure washers for the cleaning of bearing- and hydraulic parts.



General Notes

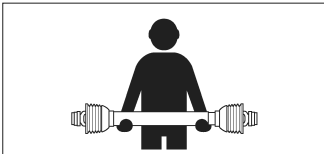


It is prohibited to use the PTO drive shaft without guard device or with damaged guard device or without correct use of the retaining chain.

Check before every job that all guard devices of the PTO drive shaft are installed and functioning properly.

Replace damaged or missing parts with original parts or retrofit in accordance with specifications.

PTO drive shaft parts (particularly clutches) may reach high temperatures. **DO NOT TOUCH!**

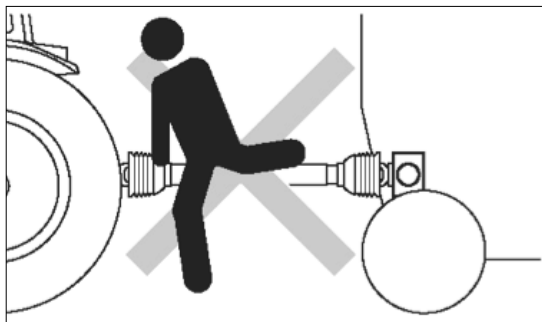


Stay well clear of rotating parts.

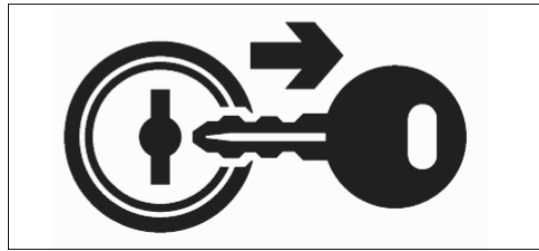
Wear close fitting clothing for safety's sake.

Only transport the PTO drive shaft horizontally.
(Risk of accident if PTO drive shaft comes apart).

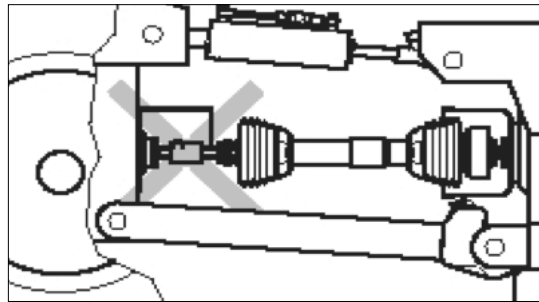
Do not use the PTO drive shaft as a step or support.



Switch off the engine before carrying out maintenance and repair work and remove the ignition key and wait for all moving machine parts to come to a complete stop.



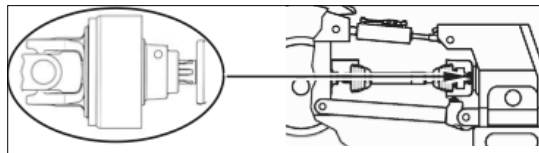
It is not permissible to use profile extensions/adapters on the PTO drive shaft.



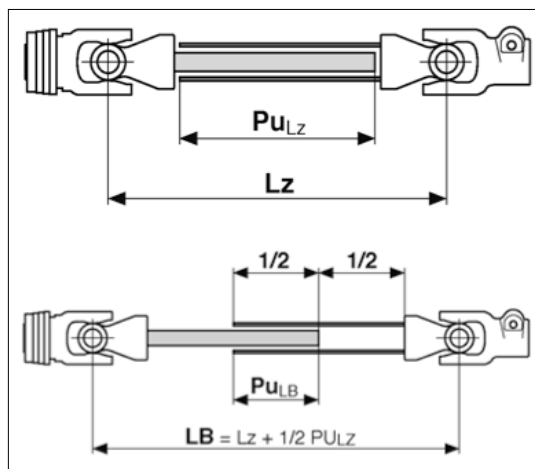
Handling Notes

Ensure that the PTO drive shaft connectors lock securely.

Overload and free-wheel clutches must always be installed on the implement end in the case of PTO drive shafts between tractor and implement.



Pay attention to prescribed overlap of sliding profile in working and transport position.



Comply with implement manufacturer's operating instructions in the case of built-in PTO drive shafts.



ATTENTION:

The manufacturer's original Operating Instructions are included with every PTO drive shaft.



Adjustment of PTO Drive Shaft

Determining the correct length:

Pull the two halves of the shaft apart and hold them next to each other in the shortest operating position of tractor and implement.

1. The shortest cardan shaft distance is obtained at maximum turn and, depending on the trailer and drawbar type, maximum lifted or lowered drawbar.
2. Note that apart from the horizontal angle changes of the drawbar, the terrain can also lead to shortening of the cardan shaft distance. Therefore include another 2-5 cm for driving over hummocks and through hollows.

Shortening:

1. Remove protective tube.
2. Shorten the section tube (8), deburr and clean.



3. Shorten the protective tube (5) by the same length as the corresponding section tube.



Note:

If the cardan shaft has SingleChain, the tubes can only be shortened by a limited amount (normally not more than 70 mm) to prevent also removing the section guide at the outer protective tube.



Note:

If the cardan shaft has SingleChain at the implement and the shortening makes removing the accident protection section guide unavoidable, THEN A RETAINING CHAIN MUST BE ATTACHED AT THE PROTECTIVE SIDE FOR THE TRACTOR.

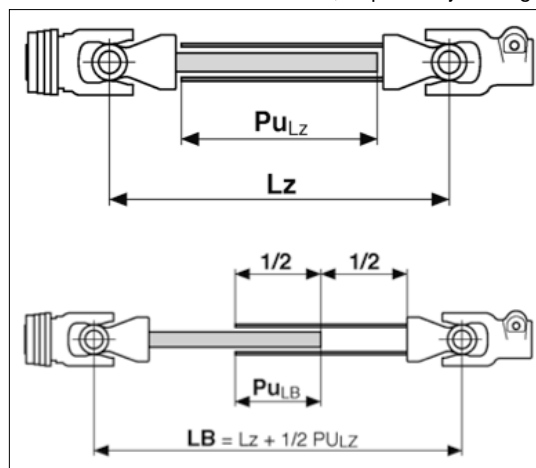


Note:

If the cardan shaft has the GreasingSystem integrated in the inner tube, then the section tubes can also only be shortened by a limited amount to prevent damage to the lubrication system.

5. Push the cardan shaft together and grease after fitting the protective tube.

6. The cardan shaft length is to be checked in the respective shortest and longest position. In normal working position, the tubes must overlap half their length. The section tubes must have a suitable overlap even when the cardan shaft is at standstill, to prevent jamming.



L_Z = PTO drive shaft length pushed together

L_B = PTO drive shaft length in operation

Pu = profile overlap



ATTENTION:

Shortening of the PTO drive shaft only by a specialist workshop!



ATTENTION:

Aim for largest possible profile overlap (PU)! Consult manufacturer where PTO drive shaft is too short!



ATTENTION:

It is imperative to ensure a profile overlap of at least 100 mm for transport and when drive is switched off!



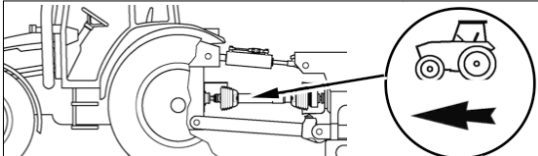
ATTENTION:

Comply with maximum permissible speed as a function of the operating length in accordance with the information provided by the PTO drive shaft's manufacturer.

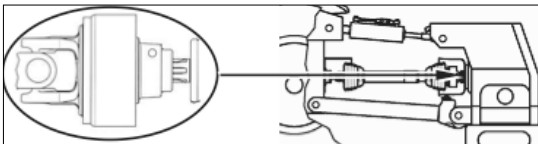


Attachment of the PTO drive shaft

- Comply with safety regulations.
- Clean and grease tractor and implement PTO drive shaft.
- Tractor symbol on guard tube of PTO drive shaft specifies tractor-end connection of the PTO drive shaft.

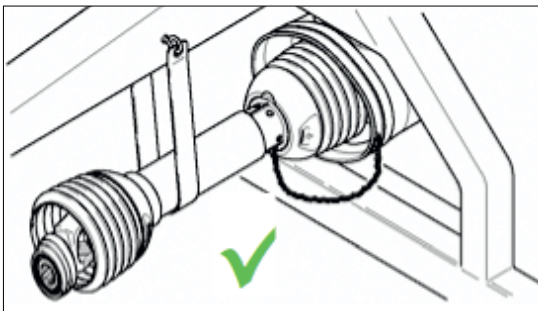


- Overload and free-wheel clutches must always be installed on the implement end.



- The guard cone may be pushed back to make the coupling procedure easier.
- Check PTO drive shaft length in all operating states prior to first use to prevent compression or inadequate profile overlap.
- Attach retaining chain of PTO drive shaft in such a way that there is adequate pivoting range in all operating states.

Attach at right angles to PTO drive shaft as far as possible.



- In full guard version, loosen cone and pull back.
- Attach PTO drive shaft to implement.
- Push up full guard cone on implement-end adapter until both lock engage audibly.

Use of PTO Drive Shaft

Attaching with conical clamp screws:

- Loosen clamp screw
- Push cardan shaft on until the drilled hole of the clamp fork and the coupling are above the annular groove
- Insert clamp screw
- Position shim with nut and tighten

Recommended tightening torques:

- 150 Nm for profile 1 3/8" z6 and z21
- 220 Nm for profile 1 3/4" z6 and z20



CAUTION!

After approx. 1 hour check the force fit and tightening torque and retighten if necessary!



ATTENTION:

Switch off tractor/PTO drive and wait until all movement has ceased when installing the PTO drive shaft.



ATTENTION:

Only work with the drive fully protected.



ATTENTION:

Check tight fit of connections before every use and at regular intervals and screwed connections after 5 hours on first use!

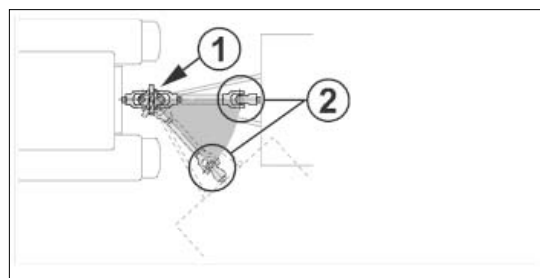
Permissible drive shaft angle

Single cardan joint:

- Work with limited but even angles ($L1 = L2$) The angles in the cardan joint may be very great in curves; however they may not exceed 45° even if they are even. Switch the PTO off if the angles are too great or uneven.

Wide-angle constant velocity joint:

- The wide-angle constant velocity joint can achieve large joint angles briefly e.g. in curves. (80° or 50° depending on cardan shaft type), without generating rotary oscillation.
- If there is a wide-angle constant velocity joint at the tractor and a single joint at the implement, it is urgently recommended that in constant operation an angle difference of 16° at 540 min^{-1} or 9° at 1000 min^{-1} is not exceeded to prevent asymmetric movement.
- Exceeding the permissible joint angle leads to premature wear and damage. Larger joint angles on consultation with the manufacturer.
- In the case of cardan shafts with a wide-angle joint, the pivot point between tractor and implement must be the same as the pivot point of the wide-angle joint.

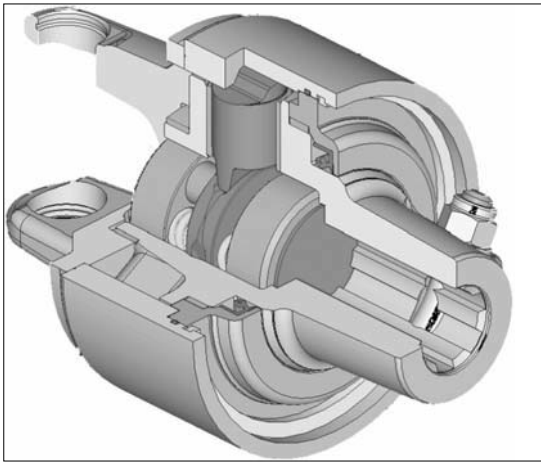


ATTENTION:

Wide-angle joint may not be angled in excess of 80° either during operation or when stopped. Bending in excess of 80° will lead to failure of the drive shaft!



Cam-type cut-out clutch



- The force flux is interrupted if the torque set is exceeded due to overloading.
- Automatic reconnection (torque build-up) by switching off the PTO drive shaft.



Attention!

Reconnection also possible by lowering the PTO drive shaft speed.

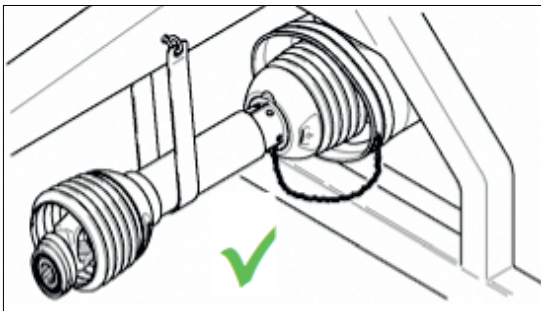
- Avoid switch off times > 10 sec! There may be consequential damage to the clutch or implement at 1000 rpm!

Lubrication interval: maintenance-free

Removal of PTO Drive Shaft

- Remove PTO drive shaft from tractor PTO and place in support provided.

Support point of PTO drive shaft must be in first third of PTO drive shaft.



- Clean and grease the PTO drive shaft if stopped for a longish period.



ATTENTION:

Switch off tractor/
PTO drive shaft
and wait until all
movement has
ceased when
removing the PTO
drive shaft!



ATTENTION:

The retaining chain
on the PTO drive
shaft prevents
the guard from
twisting and may
not be used for
suspending the
PTO drive shaft!



ATTENTION:

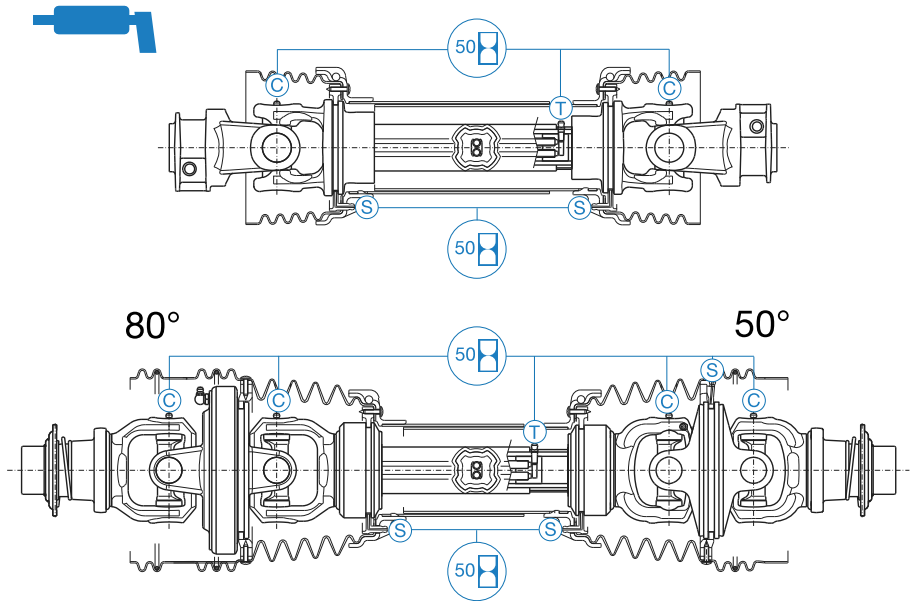
Any unauthorised
modifications to
the PTO drive
shaft will exclude
any and all liability
on the part of the
manufacturer!

Maintenance

 **Note:**
If there is no cover/grease nipple present, pull PTO drive shaft apart, dismantle shaft half with inner profile tube from guard and grease inner profile.

Lubrication

Lubrication intervals in hours and approximate grease amounts



60-13-01

	S1	S2	S4	S5	S6	H7	S8	H8	S9	SH	S0
Cardan joints 	4g	7g	10g	13g	18g	22g	26g	28g	30g		
Slide rings of the protective device 	6g										
Section tube 	12g	20g				32g					
Wide-angle joint 80° 		20g	30g		60g	80g	100g	160g			
Wide-angle joint 50° 			5g		6g	7g	8g				

Lubrication of the section tube (without grease nipple)

Pull the cardan shaft apart into 2 halves and grease it manually unless a corresponding lubrication nipple is available.



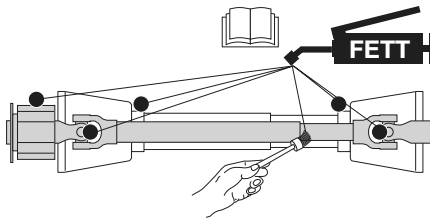
060-13-02

Lubrication of the section tube (using grease nipple)

Lubricate the section tube using the lubrication nipple located near the inner fork at the implement.



060-13-03



D	Schmierplan
X ^h	alle X Betriebsstunden
40 F	alle 40 Fahren
80 F	alle 80 Fahren
1 J	1 x jährlich
100 ha	alle 100 Hektar
FETT	FETT
	= Anzahl der Schmiernippel
	= Anzahl der Schmiernippel
(IV)	Siehe Anhang "Betriebsstoffe"
Liter	Liter
*	Variante
	Siehe Anleitung des Herstellers

F	Plan de graissage
X ^h	Toutes les X heures de service
40 F	Tous les 40 voyages
80 F	Tous les 80 voyages
1 J	1 fois par an
100 ha	tous les 100 hectares
FETT	GRAISSE
	= Nombre de graisseurs
	= Nombre de graisseurs
(IV)	Voir annexe "Lubrifiants"
Litre	Litre
*	Variante
	Voir le guide du constructeur

GB	Lubrication chart
X ^h	after every X hours operation
40 F	all 40 loads
80 F	all 80 loads
1 J	once a year
100 ha	every 100 hectares
FETT	GREASE
	= Number of grease nipples
	= Number of grease nipples
(IV)	see supplement "Lubrifiants"
Liter	Litre
*	Variation
	See manufacturer's instructions

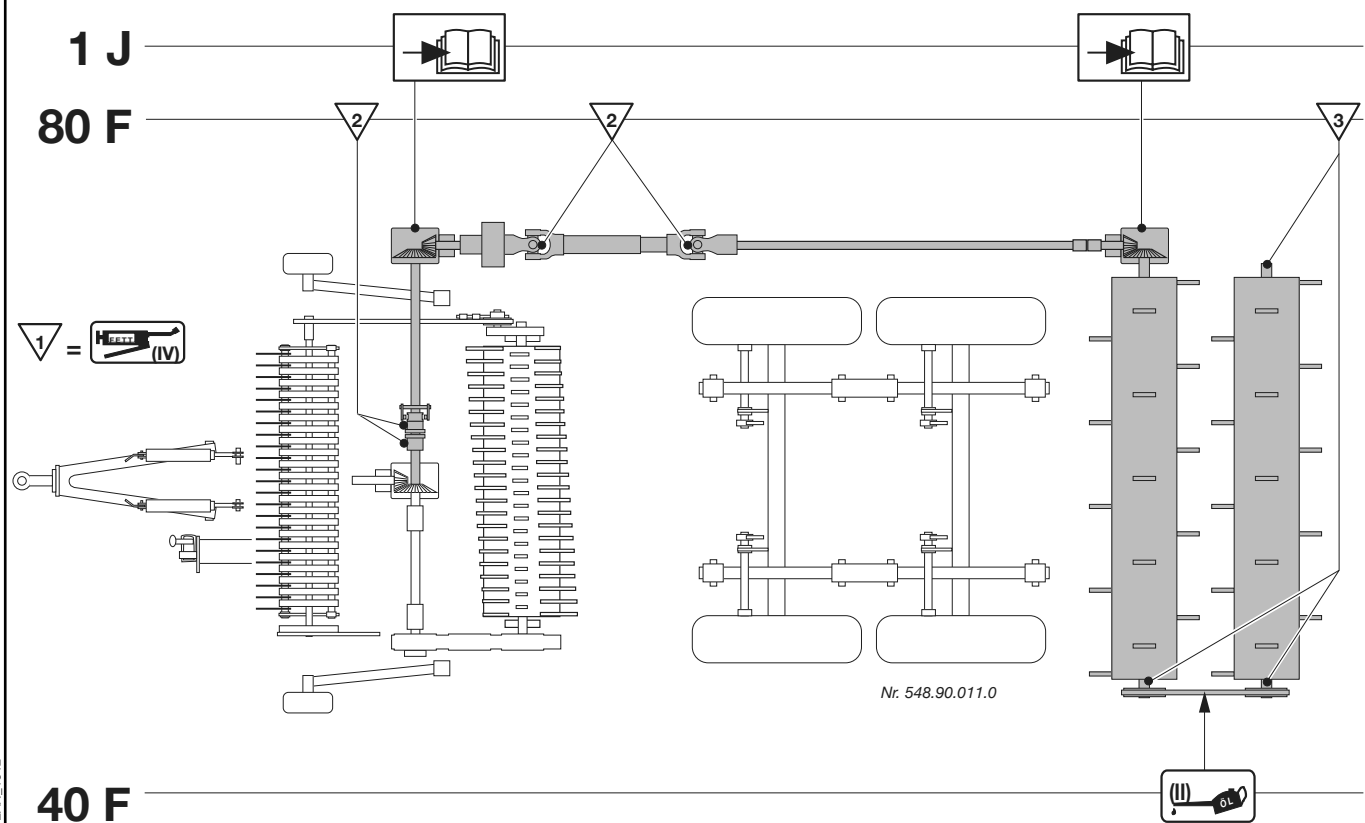
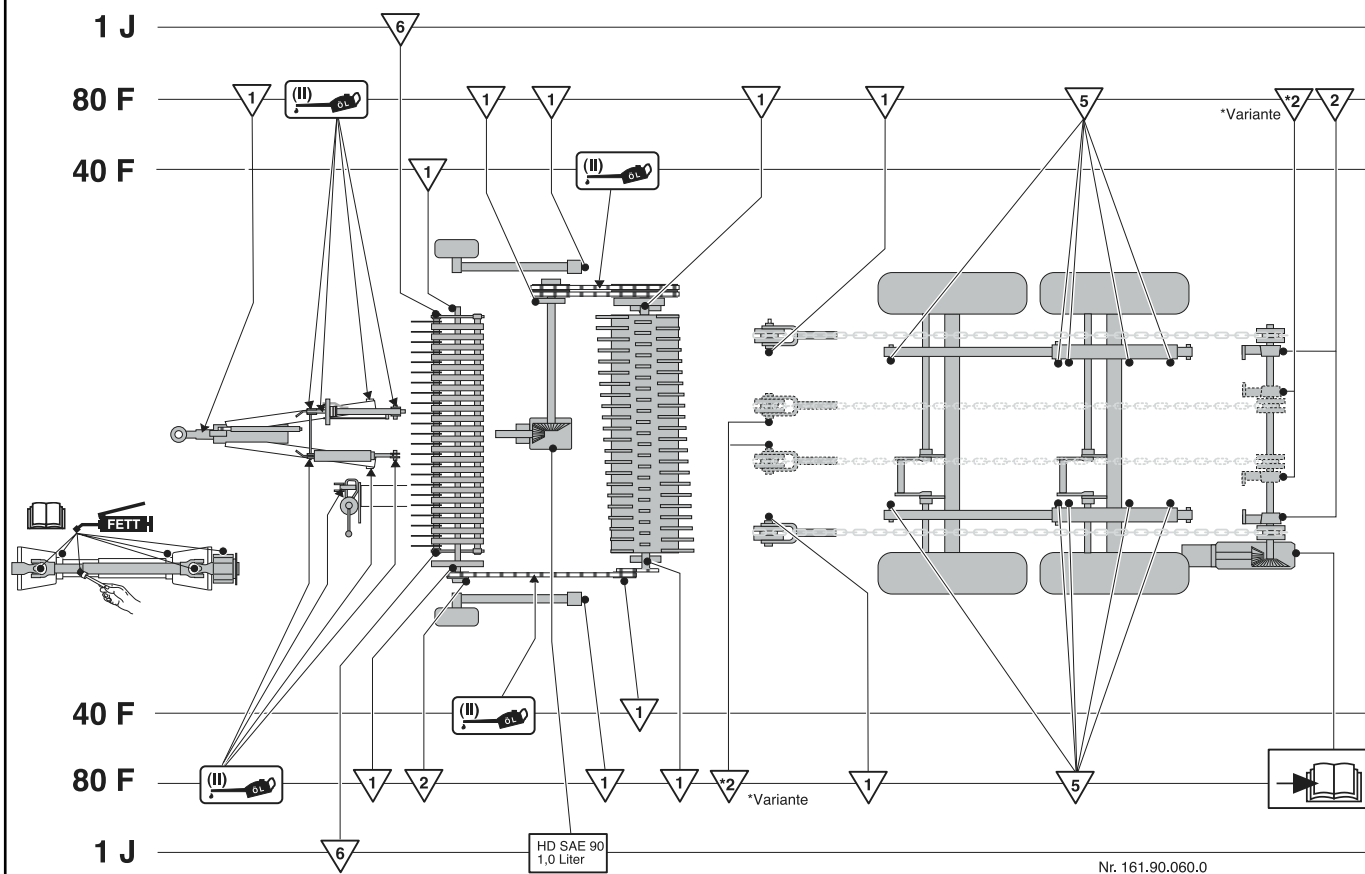
NL	Smeerschema
X ^h	alle X bedrijfsuren
40 F	alle 40 wagenladingen
80 F	alle 80 wagenladingen
1 J	1 x jaarlijks
100 ha	alle 100 hectaren
FETT	VET
	= Aantal smeernippels
	= Aantal smeernippels
(IV)	Zie aanhangsel "Smeermiddelen"
Liter	Liter
*	Varianten
	zie gebruiksaanwijzing van de fabrikant

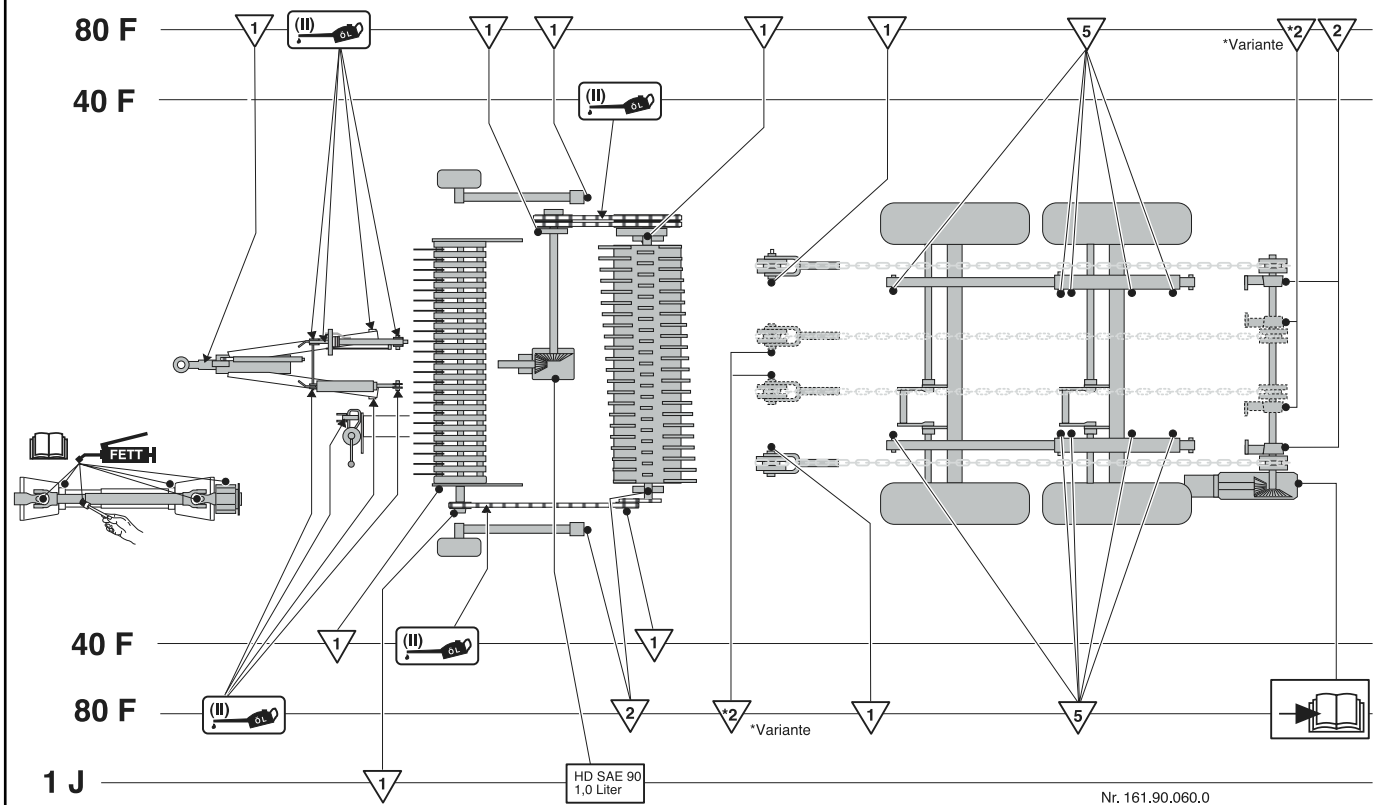
E	Esquema de lubricación
X ^h	Cada X horas de servicio
40 F	Cada 40 viajes
80 F	Cada 80 viajes
1 J	1 vez al año
100 ha	Cada 100 hectáreas
FETT	LUBRICANTE
	= Número de boquillas de engrase
	= Número de boquillas de engrase
(IV)	Véase anexo "Lubrificantes"
Liter	Litros
*	Variante
	Véanse instrucciones del fabricante

I	Schema di lubrificazione
X ^h	ogni X ore di esercizio
40 F	ogni 40 viaggi
80 F	ogni 80 viaggi
1 J	volta all'anno
100 ha	ogni 100 ettari
FETT	GRASSO
	= Numero degli ingrassatori
	= Numero degli ingrassatori
(IV)	vedi capitolo "materiali di esercizio"
Liter	litri
*	variante
	vedi istruzioni del fabbricante

P	Plano de lubrificação
X ^h	Em cada X horas de serviço
40 F	Em cada 40 transportes
80 F	Em cada 80 transportes
1 J	1x por ano
100 ha	Em cada 100 hectares
FETT	Lubrificante
	= Número dos bocais de lubrificação
	= Número dos bocais de lubrificação
(IV)	Ver anexo "Lubrificantes"
Liter	Litro
*	Variante
	Ver instruções do fabricante

+ 2006





Edition 1997

The performance and the lifetime of the farm machines are highly depending on a careful maintenance and application of correct lubricants. our schedule enables an easy selection of selected products.

The applicable lubricants are symbolized (eg. "III"). According to this lubricant product code number the specification, quality and brandname of oil companies may easily be determined. The listing of the oil companies is not said to be complete.

Gear oils according to operating instructions - however at least once a year.

- Take out oil drain plug, let run out and duly dispose waste oil.

Before garaging (winter season) an oil change and greasing of all lubricating points has to be done. Unprotected, blanc metal parts outside (joints, etc.) have to be protected against corrosion with a group "IV" product as indicated on the reverse of this page.

Betriebsstoff-Kennzahl Lubricant indicator Code du lubrifiant Numero caratteristico del lubrificante Smeermiddelen code	I				V	VI	VII
gefordertes Qualitätsmerkmal required quality level niveau de performance demandé caratteristica richiesta di qualità verlangte kwaliteitskenmerken	HYDRAULIKÖL HLP DIN 51524 Teil 2 Siehe Anmerkungen ** ***	Motorenöl SAE 30 gemäß API CD/SF motor oil SAE 30 according to API CD/SF huile moteur SAE 30 niveau API CD/SF olio motore SAE 30 secondo specifiche API CD/SF	Getriebeöl SAE 90 bzw. SAE 85 W-140 gemäß API-GL 4 oder API-GL 5 gear oil, SAE 90 resp. SAE 85 W-140 according to API-GL 4 or API-GL 5 huile transmission SAE 90 ou SAE 85 W-140, niveau API-GL 4 ou API-GL 5 olio per cambi e differenziali SAE 90 o SAE 85W-140 secondo specifiche API-GL 4 o API-GL 5	Li-Fett (DIN 51 502, KP 2K) lithium grease graisse au lithium grasso al litio	Getriebefließfett (DIN 51 502:GOH transmission grease graisse transmission grasso fluido per riduttori e motoriduttori	Komplexfett (DIN 51 502: KP 1R) complex grease graisse complexe grasso a base di saponi comp- lessi	smeerolie SAE 90 of 85 W- 140 volgens API-GL 5 gear oil SAE 90 resp. SAE 85 W-140 according to API-GL 5 huile transmission SA 90 ou SAE 85 W-140, niveau API GL 5 olio per cambi e differenziali SAE 90 o SAE 85 W-140 se- condo specifiche API-GL 5

Firma Company Société Società	I				V	VI	VII	NOTATIONS
AGIP	OSO 32/46/68 ARNICA 22/46	MOTOROIL HD 30 SIGMA MULTI 15W-40 SUPER TRACTOR OIL UNIVERS. 15W-30	ROTRA HY 80W-90/85W-140 ROTRA MP 80W-90/85W-140	GR MU 2	GR SLL GR LFO	-	ROTRA MP 80W-90 ROTRA MP 85W-140	* The international specification J 20 A is necessary for compound operation with wet brake tractors.
ARAL	VITAM GF 32/46/68 VITAM HF 32/46	SUPER KOWAL 30 MULTI TURBORAL SUPER TRACTORAL 15W-30	GETRIEBEÖL EP 90 GE- TRIEBEÖL HYP 85W-90	ARALUB HL 2	ARALUB FDP 00	ARALUB FK 2	GETRIEBEÖL HYP 90	HLP - (D) + HV hydraulic oils
AVIA	AVILUB RL 32/46 AVILUB VG 32/46	MOTOROIL HD 30 MULTIGRADE HDC 15W-40 TRACTAVIA HF SUPER 10 W-30	GETRIEBEÖL MZ 90 M MULTI HYP 85W-140	AVIA MEHRZWECKFETT AVIA ABSCHMIERFETT	AVIA GETRIEBEFLEISSFETT	AVIALUB SPEZIALFETT LD	GETRIEBEÖL HYP 90 EP MULTI HYP 85W-140 EP	** HLP - (D) + HV hydraulic oils
BAYWA	HYDRA LKÖL HLP 32/46/68 SUPER 2000 CD-MC * HYDRA HYDR. FLUID * HYDRA LKÖL MC 530 ** PLANTO HYD 40N ***	SUPER 2000 CD-MC SUPER 2000 CD HD SUPERIOR 20 W-30 HD SUPERIOR SAE 30	SUPER 8000 MC HYPOID 80W-90 HYPOID 85W-140	MULTI FETT 2 SPEZIALFETT FLM PLANTOGEL 2 N	GETRIEBEFLEISSFETT NLGI 0 RENOLIT DURAPLEX EP 00 PLANTOGEL 00N	RENOPLEX EP 1	HYPOID 85W-140	*** HLP + HV hydraulic oils with avegetable oil basis, biodegradable and therefore environmentally friendly.
BP	ENERGOL SHF 32/46/68	VISCO 2000 ENERGOL HD 30 VANELLUS M 30	GEAR OIL 90 EP HYPOGEAR 90 EP	ENERGREASE LS-EP 2	FLIESSFETT NO ENERGREASE HTO	OLEX PR 9142	HYPOGEAR 90 EP HYPOGEAR 85W-140 EP	
CASTROL	HYSPIN AWS 32/46/68 HYSPIN AWH 32/46	PX SUPER DIESEL 15W-40 POWERTRANS	EPX 80W-90 HYPOY C 80W-140	CASTROL GREASE LM	IMPERVIA MMO	CASTROL GREASE LMX	EPX 80W-90 HYPOY C 80W-140	
ELAN	HLP 32/46/68 HLP-M M32/M46	MOTORÖL 100 MS SAE 30 MOTORÖL 104 CM 15W-40 AUSTROTRAC 15W-30	GETRIEBEÖL MP 85W-90 GETRIEBEÖL B 85W-90 GETRIEBEÖL C 85W-90	LORENA 46 LITORA 27	RHENOX 34	-	GETRIEBEÖL B 85W-90 GETRIEBEÖL C 85W-140	
ELF	OLNA 32/46/68 HYDRELF 46/68	PERFORMANCE 2 B SAE 30 8000 TOURS 20W-30 TRACTOHELF ST 15W-30	TRANSSELF TYP B 90 85W-140 TRANSSELF EP 90 85W-140	EPEXA 2 ROLEXA 2 MULTI 2	GA O EP POLY G O	MULTIMOTIVE 1	TRANSSELF TYP B 90 85W-140 TRANSSELF TYP BLS 80 W-90	
ESSO	NUTO H 32/46/68 NUTO HP 32/46/68	PLUS MOTORÖL 20W-30 UNIFARM 15W-30	GEAR OIL GP 80W-90 GEAR OIL GP 85W-140	MULTI PURPOSE GREASE H	FIBRAX EP 370	NEBULA EP 1 GP GREASE	GEAR OIL CX 80W-90 GEAR OIL CX 85W-140	
EVVA	ENAK HLP 32/46/68 ENAK MULTI 46/68	SUPER EVAROL HD/B SAE 30 UNIVERSAL TRACTOR OIL SUPER	HYPOID GA 90 HYPOID GB 90	HOCHDRUCKFETT LT/SC 280	GETRIEBEFETT MO 370	EVVA CA 300	HYPOID GB 90	
FINA	HYDRAN 32/46/68	DELTA PLUS SAE 30 SUPER UNIVERSAL OIL	PONTONIC N 85W-90 PONTONIC MP 85W-90 85W-140 SUPER UNIVERSAL OIL	MARSON EPL 2	NATRAN 00	MARSON AX 2	PONTONIC MP 85W-140	
FUCHS	* TITAN HYD 1030 * AGRI FARM STOU MC 10W-30 * AGRI FARM UTTO MP * PLANTO HYD 40N ***	* AGRI FARM STOU MC 10W-30 * TITAN UNIVERSAL HD	* AGRI FARM GEAR 80W90 * AGRI FARM GEAR 85W-140 * AGRI FARM GEAR LS 90	* AGRI FARM HITEC 2 * AGRI FARM PROTEC 2 * RENOLIT MP * RENOLIT FLM 2 * PLANTOGEL 2-N	* AGRI FARM FLOWTEC 000 * RENOLIT SO-GFO 35 * RENOLIT DURAPLEX EP 00	* RENOLIT DURAPLEX EP 1	* AGRI FARM GEAR 8090 * AGRI FARM GEAR 85W-140 * AGRI FARM GEAR LS90	
GENOL	HYDRA LKÖL HLP 32/46/68 HYDRAMOT 1030 MC HYDRA LKÖL 530 ** PLANTO HYD 40N ***	MULTI 2030 2000 TC HYDRAMOT 15W-30 HYDRAMOT 1030 MC	GETRIEBEÖL MP 90 HYPOID EW 90 HYPOID 85W-140	MEHRZWECKFETT SPEZIALFETT GLM PLANTOGEL 2 N	GETRIEBEFLEISSFETT PLANTOGEL 00N	RENOPLEX EP 1	HYPOID EW 90 HYPOID 85W-140	
MOBIL	DTE 22/24/25 DTE 13/15	HD 20W-20 DELVAC T330 SUPER UNIVERSAL 15W-30	MOBILUBE CX 90 MOBILUBE HD 90 MOBILUBE HD 85W-140	MOBIL GREASE MP	MOBILUX EP 004	MOBILPLEX 47	MOBILUBE HD 90 MOBILUBE HD 85W-140	
RHG	RENOLIN B 10/15/20 RE- NOLIN B 32 HV/46HV1	EXTRA HD 30 SUPER HD 20 W-30	MEHRZWECKGETRIEBEÖL SAE 90 HYPOID EW 90	MEHRZWECKFETT RENOLIT MP DURAPLEX EP	RENOSOD GFO 35	RENOPLEX EP 1	HYPOID EW 90	
SHELL	TELLUS S2/S 46/568 TELLUS T 32/746	AGROMA 15W-30 ROTELLA X 30 RIMULA X 15W-40	SPIRAX 90 EP SPIRAX HD 90 SPIRAX HD 85/140	RETINAX A ALVANIA EP 2	SPEZ. GETRIEBEFETT H SIMINIA GREASE O	AEROSHELL GREASE 22 DOLUM GREASE R	SPIRAX HD 90 SPIRAX HD 85W-140	
TOTAL	AZOLLA ZS 32, 46, 68 EQUIVIS ZS 32, 46, 68	RUBIA H 30 MULTI TAGRI TM 15W-20	TOTAL EP 85W-90 TOTAL EP B 85W-90	MULTIS EP 2	MULTIS EP 200	MULTIS HT 1	TOTAL EP B 85W-90	
VALVOLINE	ULTRAMAX HLP 32/46/68 SUPER TRAC FE 10W-30 ULTRAMAX HLP 32 ** ULTRAPLANT 40 ***	SUPER HPO 30 STOU 15W-30 SUPER TRAC FE 10W-30 ALL FLEET PLUS 15W-40	HP GEAR OIL 90 oder 85W-140 TRANS GEAR OIL 80W-90	MULTI LEX EP 2 VAL-PLX EP 2 PLANTOGEL 2 N	RENOLIT LZR 000 DEGRALUB ZSA 000	DURAPLEX EP 1	HP GEAR OIL 90 oder 85W-140	
VEEDOL	ANDARIN 32/46/68	HD PLUS SAE 30	MULTIGRADE SAE 80/90 MULTIGEAR B 90 MULTIGEAR C SAE 85W-140	MULTIPURPOSE	-	-	MULTIGEAR B 90 MULTI C SAE 85W-140	
WINTERSHALL	WIOLAN HS (HG) 32/46/68 WIOLAN HVG 46 ** WIOLAN HR 32/46 *** HYDROLFLUID *	MULTI REKORD 15W-40 PRIMANO REKORD 30	HYPOID-GETRIEBEÖL 80W-90, 85W-140 MEHRZWECKGETRIEBEÖL 80W-90	WIOLOB LFP 2	WIOLOB GFW	WIOLOB AFK 2	HYPOID-GETRIEBEÖL 80W-90, 85W-140	

Emergency brake valve

Purpose.

The emergency brake valve increases trailer-towing safety. An independent rollaway is prevented e.g. with a broken hitch or other conditions.

Function:

As **rapid-emergency brake**: If the trailer is accidentally separated from the tractor, the hydraulic hose and the electrical plug or the ripping line respectively are torn off. Either as a result of the interrupted voltage supply or the mechanical operation, the emergency brake is released. The break-away coupling at the drawbar serves as predetermined breaking point and avoids the unintentional escape of oil.



Caution: The emergency brake valve does not replace the mechanical locking brakes of the trailer.

Coupling the emergency brake valve to the tractor:

- Install the hydraulic connection of the tractor to the loader wagon.
- Attach the contact breaking cable to the tractor and the loader wagon or attach the electric cable to the loader wagon.
- To be observed before driving off: Floor the brakes for 10 seconds to fully charge the hydraulic accumulator. If equipped with a brake pressure regulator, set the regulator to full load.



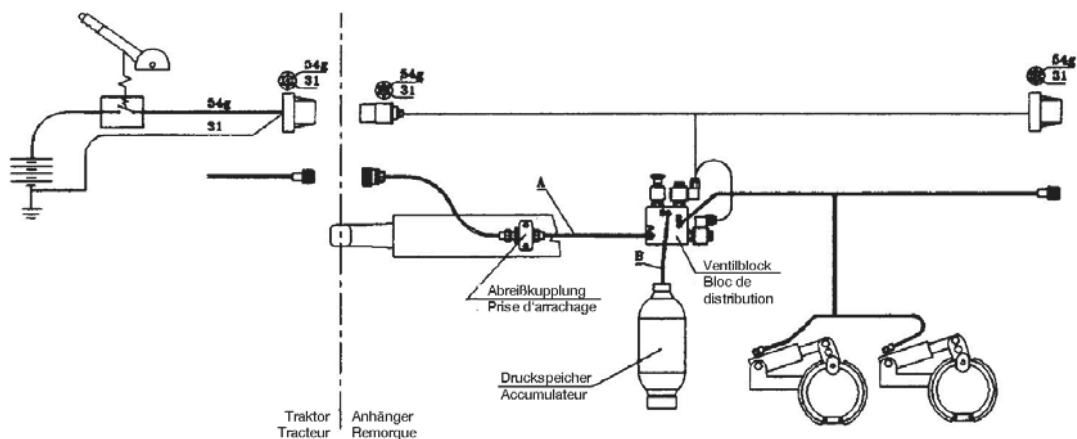
Important:

Electric emergency brake valve: is enabled once supplied with power (switch lighting on)

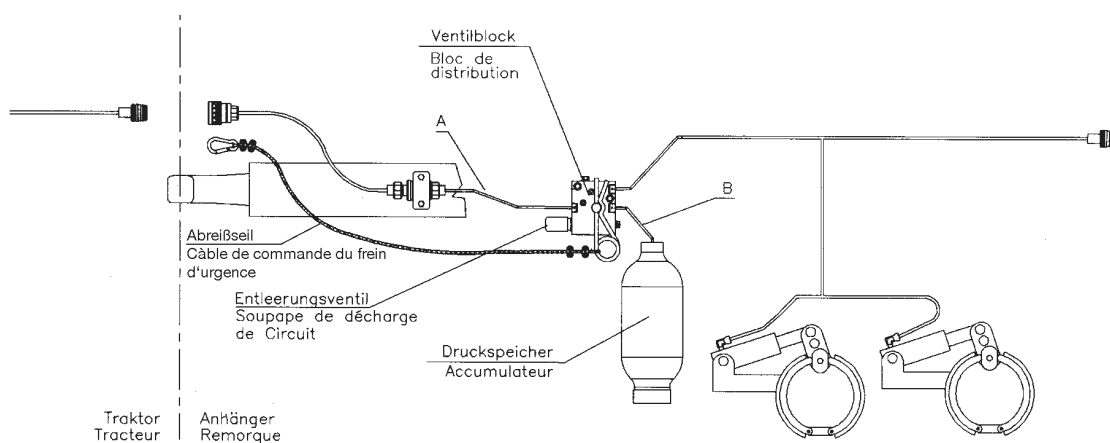
Uncoupling the emergency brake valve from the tractor:

- Apply the parking brake of the loader wagon to make sure that the wagon does not roll away.
- Press the button at the emergency brake valve or operate the emergency brake lever before uncoupling the loader wagon to depressurize the system. Otherwise, due to the existing oil pressure, you might not be able to couple the loader wagon.
- Remove the hydraulic hose from the tractor.
- Remove either the electric cable or the contact breaking cable.

Electrically triggered emergency brake valve for trailer



Mechanically triggered emergency brake valve for trailer





Internal hydraulic supply for cross conveyor belt



For tractors without LS-hydraulics, unloading using the cross conveyor belt is not possible without an internal supply (parallel operation necessary)

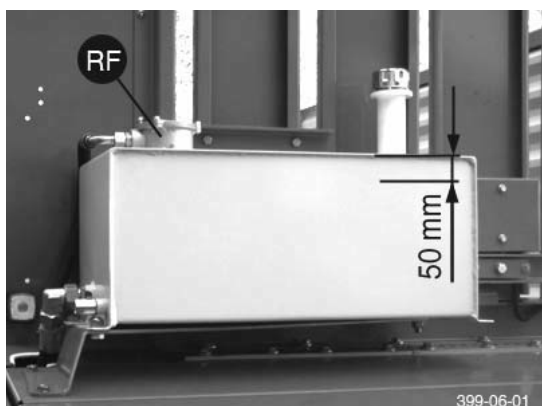
In this case an internal hydraulic supply can be fitted to the wagon for the cross conveyor belt.



Attention!

Run the drive only with full enclosed protection

Oil tank



Oil: Hydraulic oil (See page "Fuels")

Quantity: 50 litres
(Level approx. 50 mm below top of tank)

- Change hydraulic oil as per tractor manual

Change filter

Change runback filter (RF) at regular intervals

Pump



The pump is located under the right side guard



Take note!

When unloading using the cross conveyor belt the cardan shaft should be operating at 1000 r.p.m



Attention!

Switch p.t.o. off and uncouple cardan shaft from tractor

Change V-belts

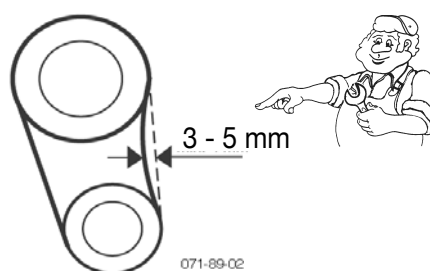
- Uncouple cardan shaft (GW)
- Loosen straining screw (SP)



- Retensioning the V-belts take place with the straining screw (SP) after loosening the lock nut.
- Retighten lock nut after tensioning the V-belts

Correct belt tension

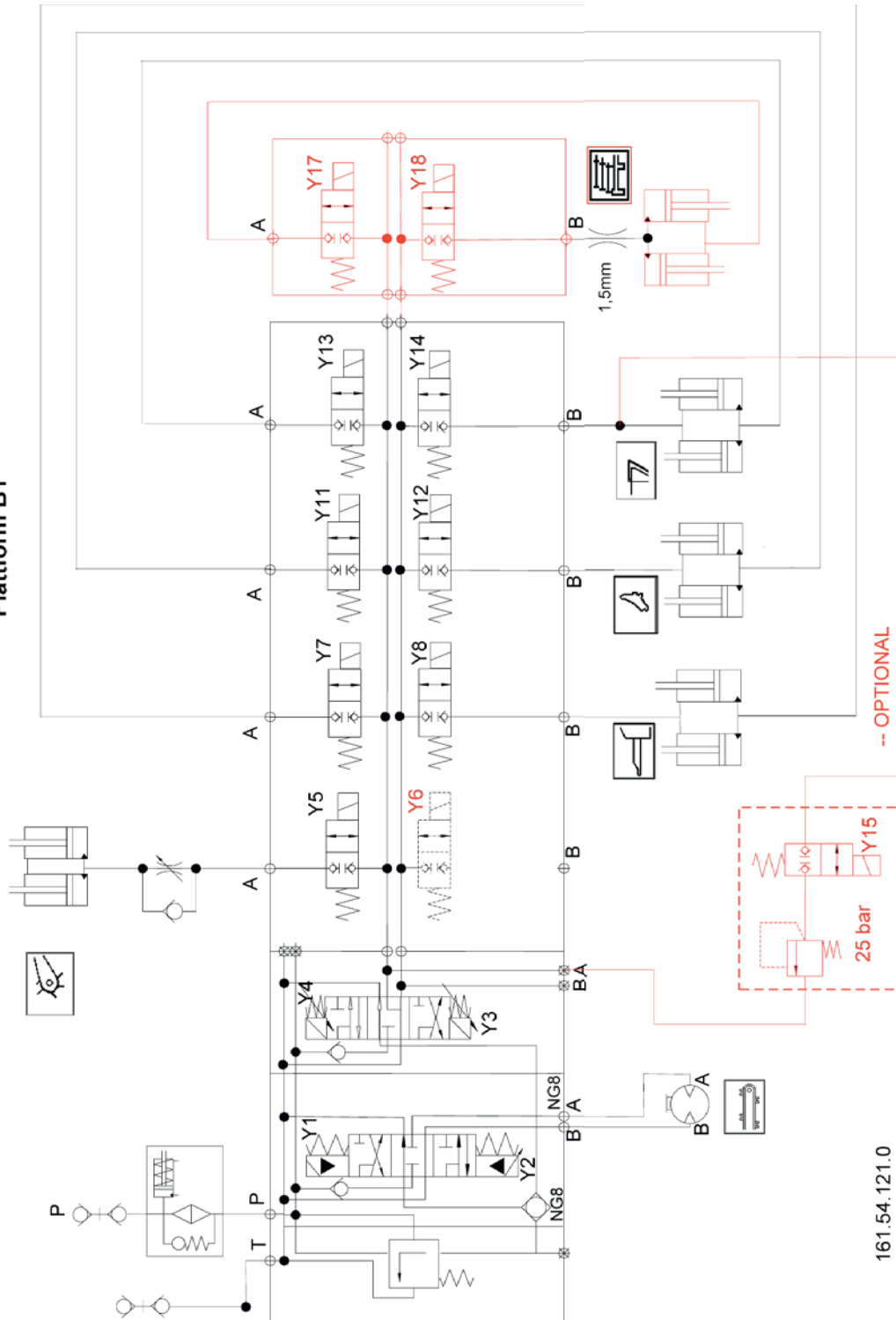
When tensioned the belts for cross conveyor operation must enable a 3-5 mm inward play



071-89-02

Hydraulics plan

Hydraulikplan DIRECTControl Plattform B1



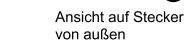
161.54.121.0

Legende:

P / T	Pump / Tank	Y6	Regulating rollers
Y1	Scraper floor forward run	Y7 / Y8	Pivoting drawbar
Y2	Scraper floor back run	Y11 / Y12	Cutting unit
Y3	Distributing valve lowering	Y13 / Y14	Tailgate
Y4	Distributing valve raising	Y17 / Y18	Forage top frame
Y5	Pick-up	Y15	Pressure control valve

All connector diagrams are viewed from outside.

bl	blue
br	brown
gn	green
gnge	green/yellow
gr	grey
rt	red
sw	black
ws	white



Si FK1 15A \

Multifuse

Power

GND

1,5 m

0 m

x2

Ansicht auf 7 pol. Stecker
von außen

LIN

LN
(sw3)

CAN H

(SW4)

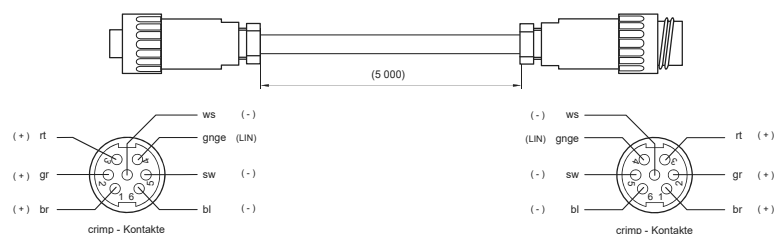
GND

(SW)

gr 1,5

br 1,5

sw 1,5
ange 1.5



GND mss
POWER supply +12V DC

LIN	LIN Bus
CAN H	CAN Bus high
CAN L	CAN Bus low

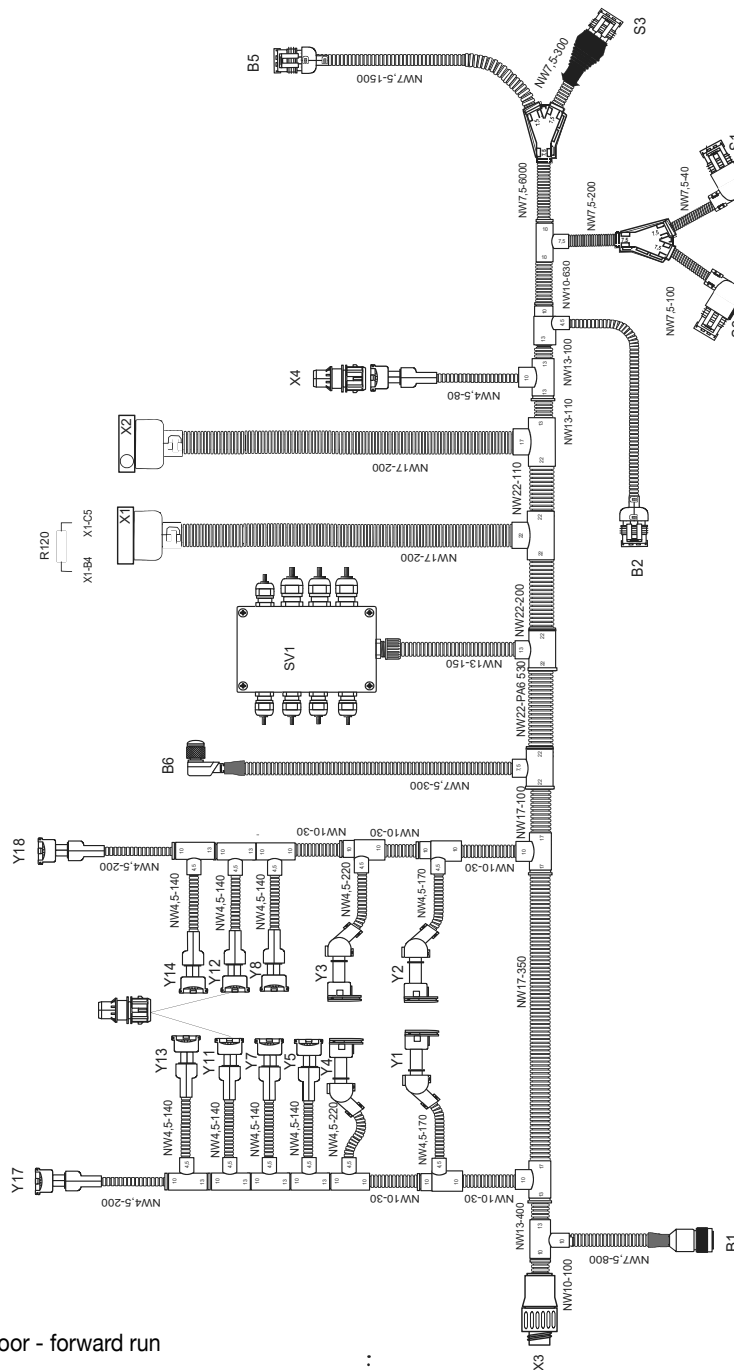
Cable harness PRIMO, FARO, EUROPROFI



All connector diagrams are viewed from outside.

Colour code:

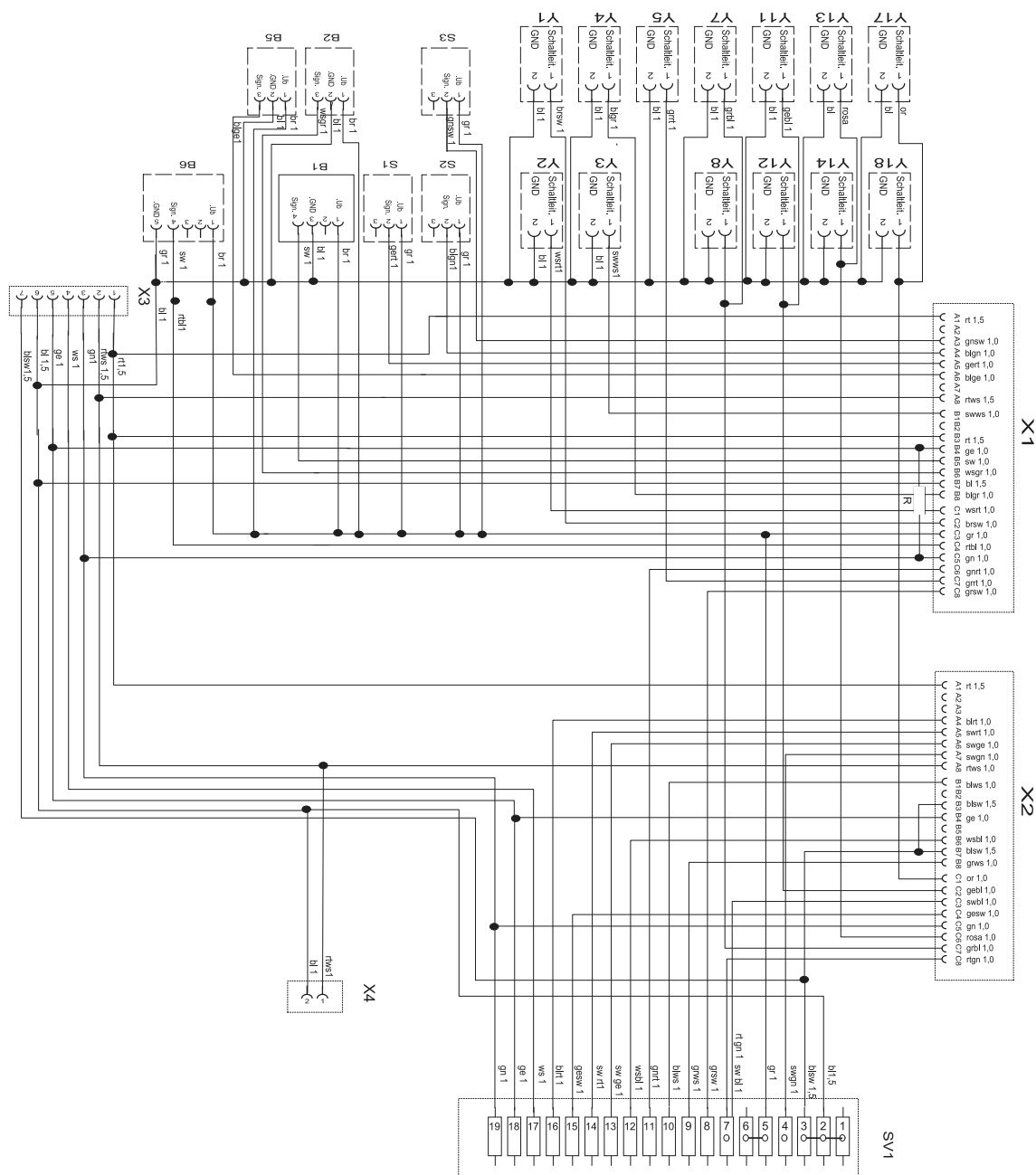
bl	blue
br	brown
gn	green
gnge	green/yellow
gr	grey
rt	red
sw	black
ws	white



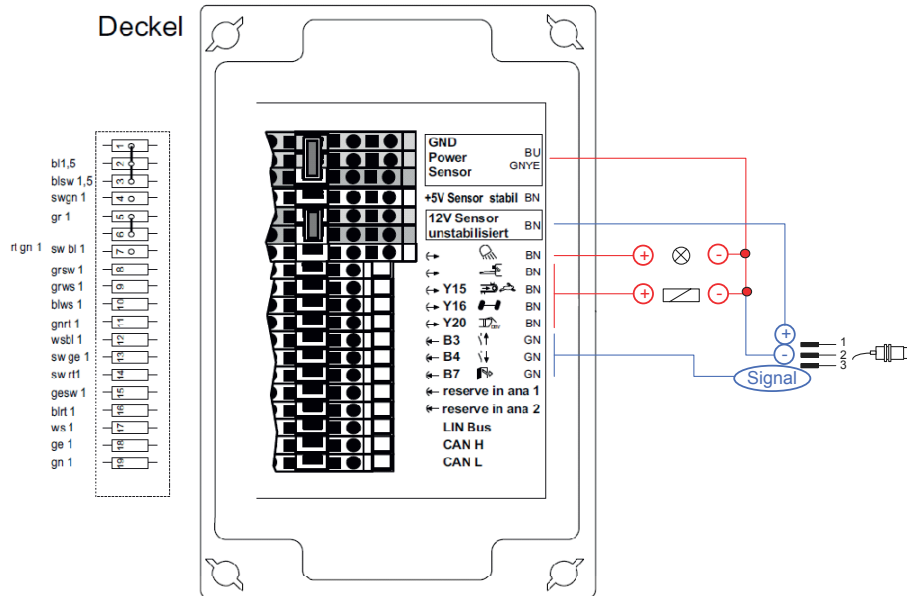
Explanation:

- | | | |
|---------|-----------------------------------|--|
| | | |
| Y1 | Scraper floor - forward run | X3 |
| Y2 | Scraper floor - back run | B5 Sensor rear wall |
| Y3 | Directional control valve - lower | B6 Oil pressure switch |
| Y4 | Directional control valve- raise | S1 External key - swing in cutting unit |
| Y5 | Pick-up | S2 External key - swing out cutting unit |
| Y7/Y8 | Hinged drawbar | S3 Scraper floor tail key |
| Y11/Y12 | Cutting unit | X1 CAN Module 1 |
| Y13/Y14 | Rear wall | X2 CAN Module 2 |
| Y17/Y18 | Forage top assembly | X3 Terminal extension |
| B1 | Speed sensor | X4 Extension plug |
| B2 | Cutting unit sensor | |

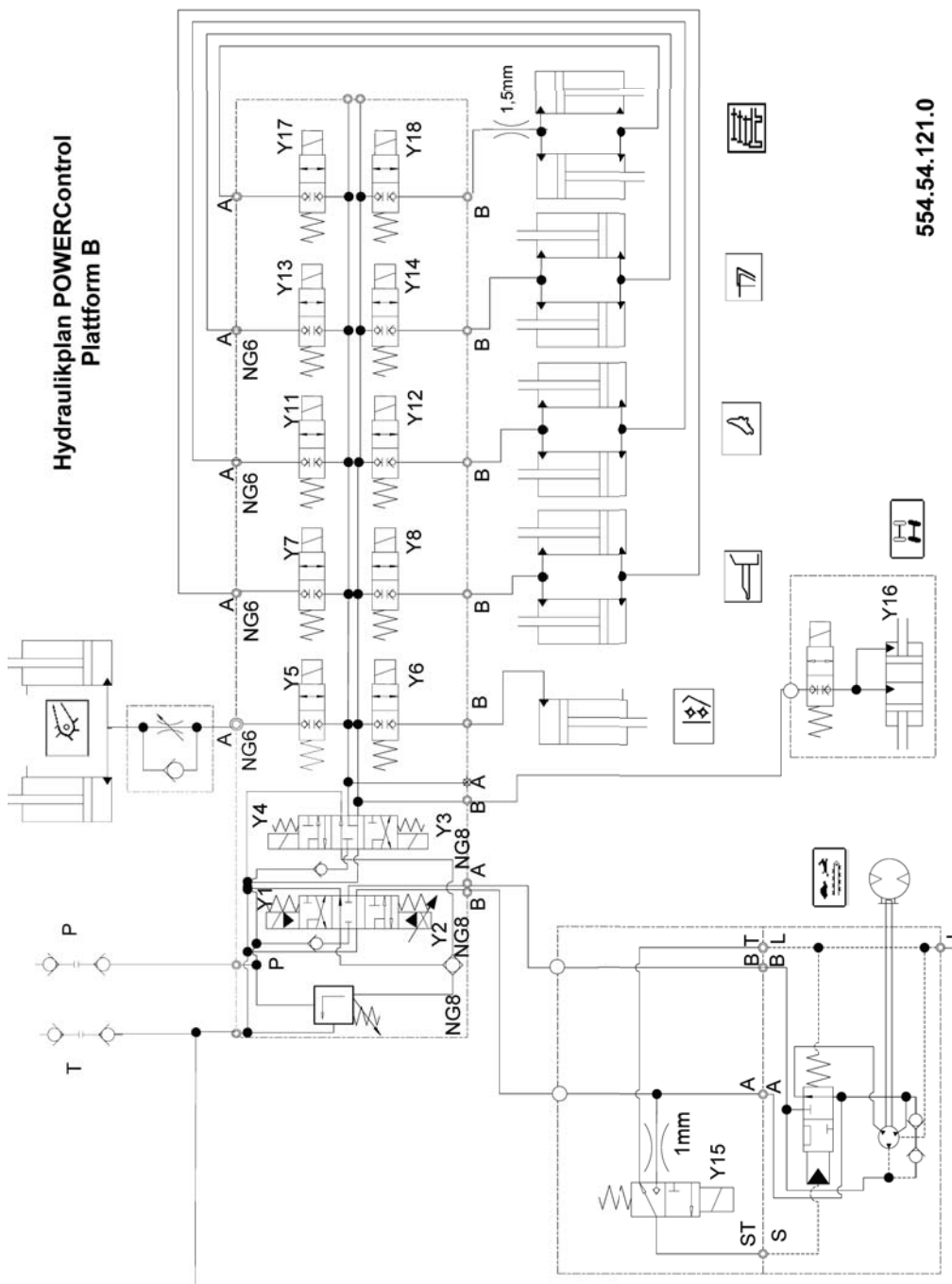
Electronics diagram PRIMO, FARO and EUROPROFI



Distribution box wiring diagram



Hydraulic plan

**Legend:**

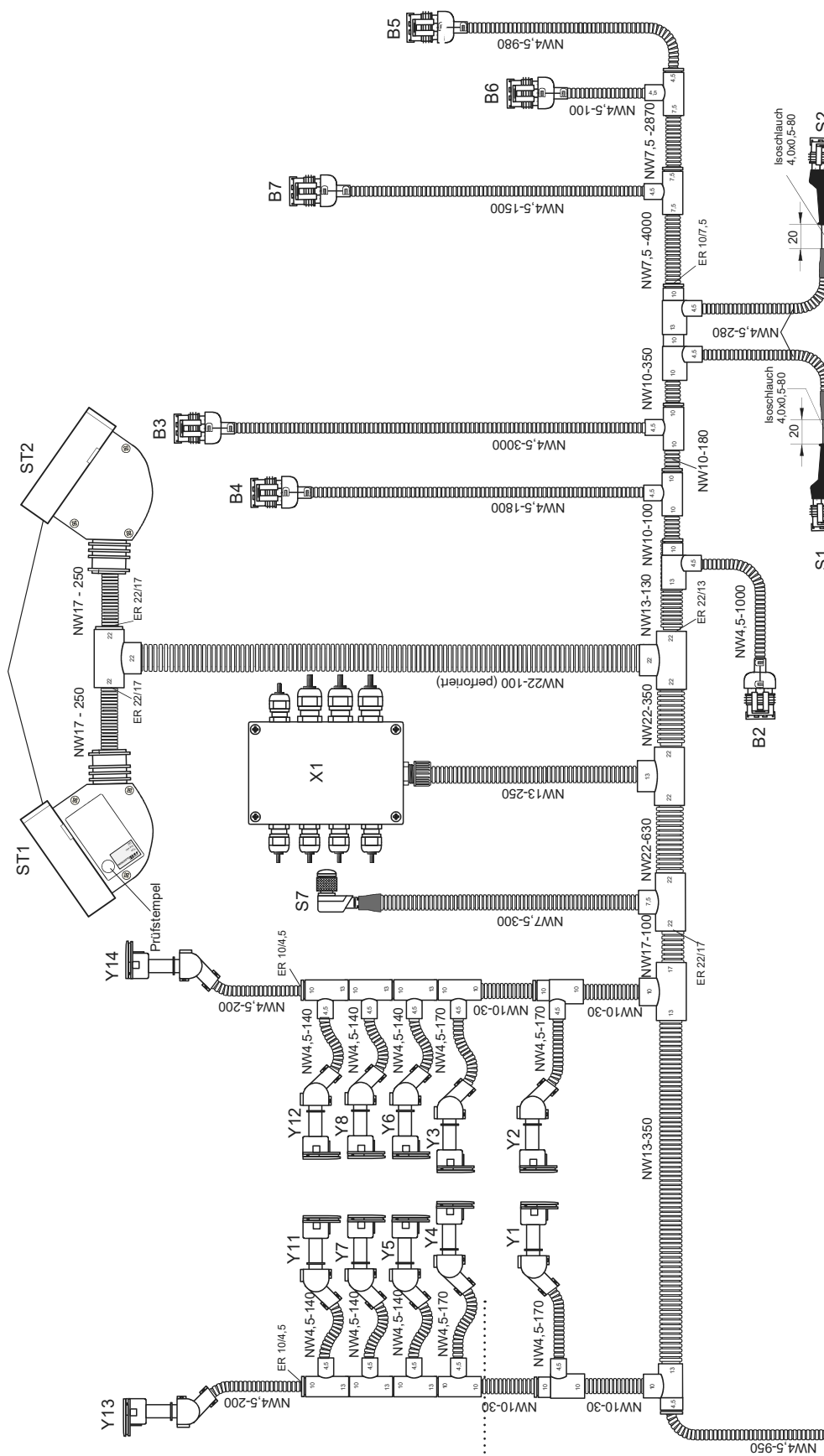
P	Pump	Y7/Y8	Pivoting drawbar
T	Tank	Y11/Y12	Cutting unit
Y1/Y2	Scraper floor - forward run / back run	Y13/Y14	Tailgate
Y3/Y4	Directional control valve - lowering / raising	Y15	Scraper floor 2. stage
Y5	Pick-up	Y16	Trailing front axle
Y6	Regulating rollers	Y17/18	Forage top frame

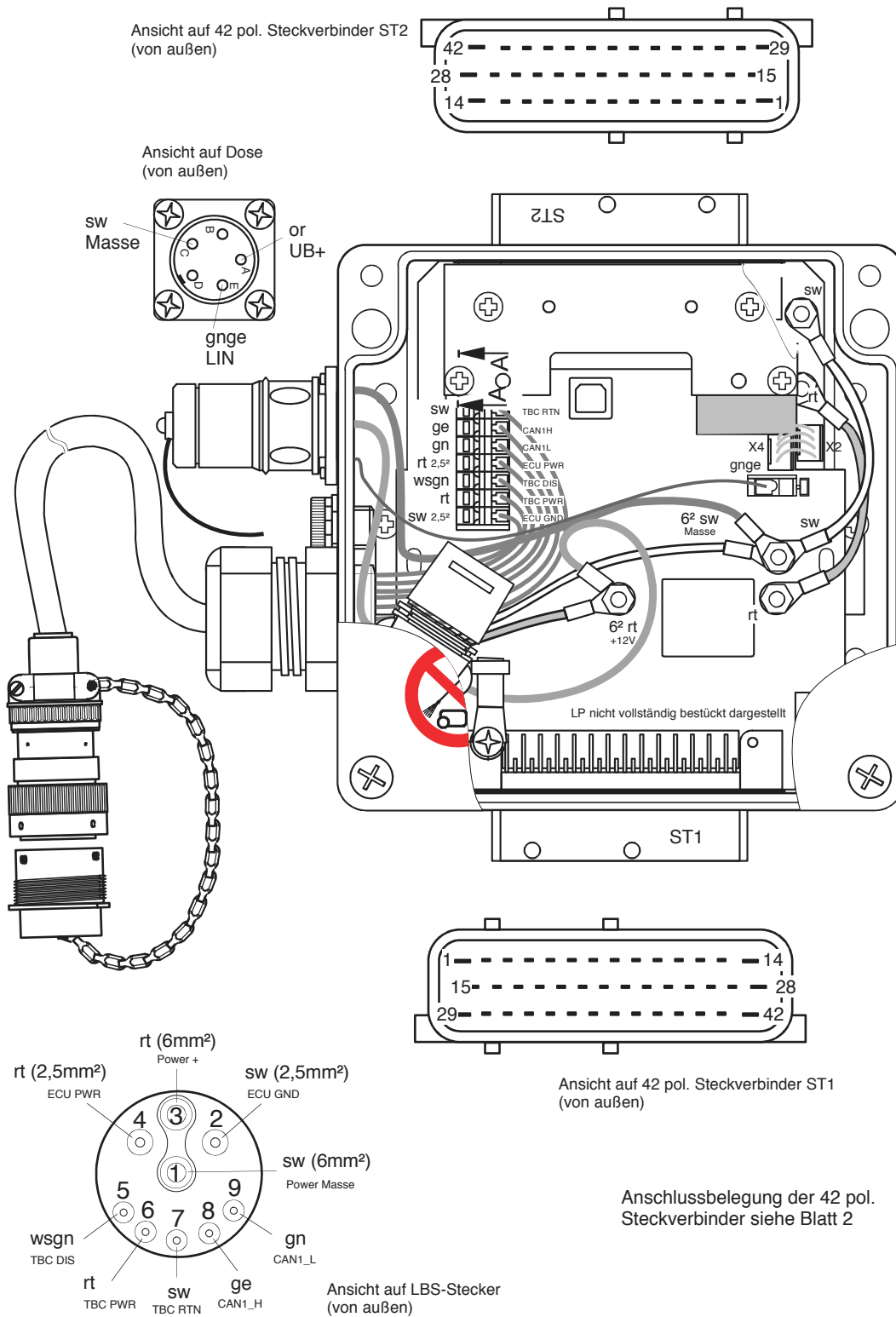
All connector diagrams are viewed from outside.

bl	blue
br	brown
gn	green
gnge	green/yellow
gr	grey
rt	red
sw	black
ws	white

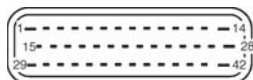
S1	Cutting unit on
S2	Cutting unit off
S7	Oil pressure switch

Y1/Y2	Proportional valves
Y2/Y3	Directional control valve
Y5	Pick-up
Y6	Regulating rollers
Y7/Y8	Pivoting drawbar
Y11/Y12	Cutting unit
Y13/Y14	Tailgate



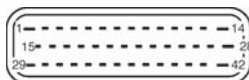






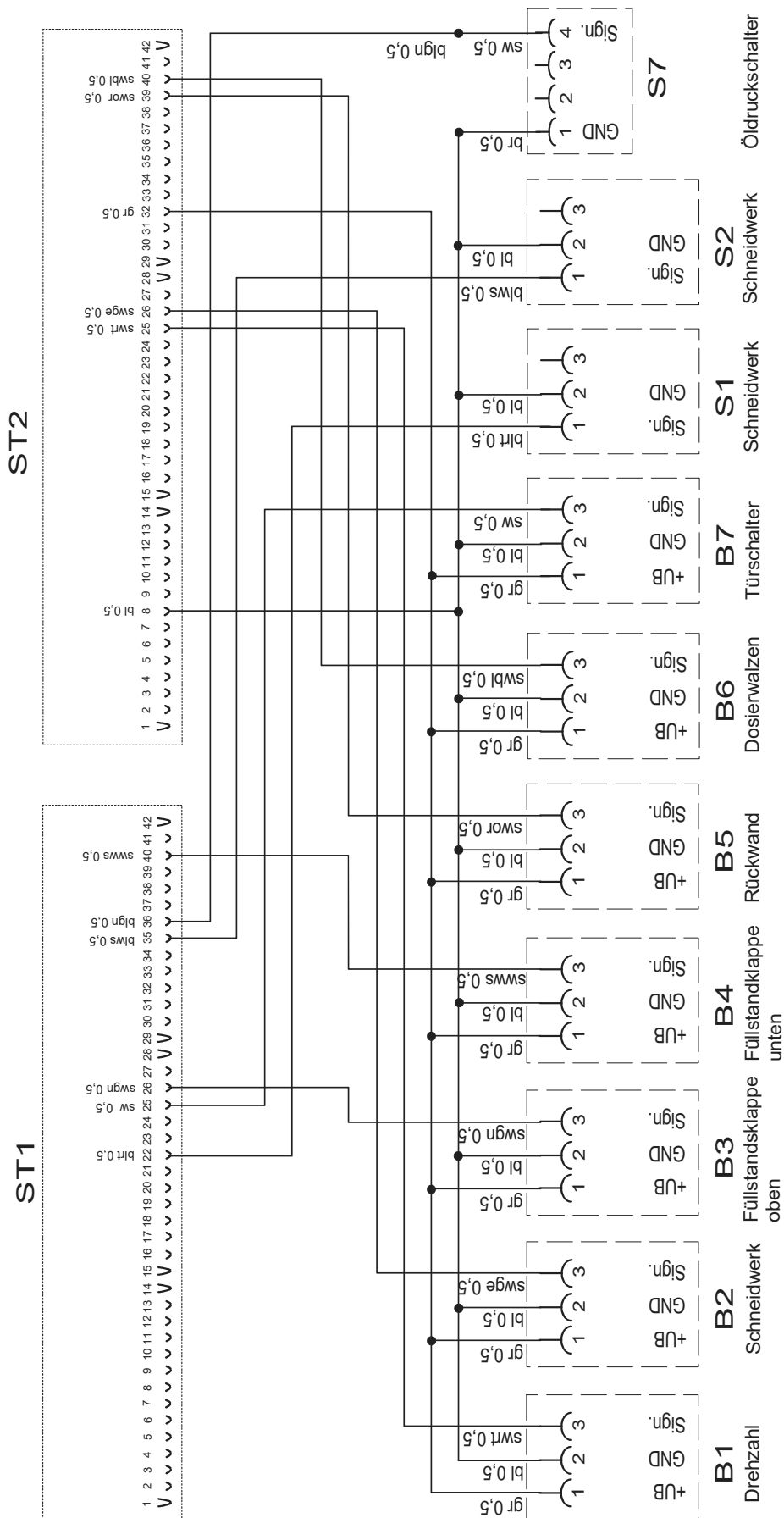
Plug 1 (ST 1)

#	# Addition	Description
37		Loading KMB (divider 3:1) B9
23		OPTION: Fill level sensor 4-20mA B11
24		OPTION: Angle sensor pivoting drawbar
38		Reserve 3 ana-U
40		Initiator fill flap down (pnp) B4
26		Initiator fill flap up (pnp) B3
39		Sensor lifting axle (pnp) B10
25		Initiator loading space door B7
22		Button cutting unit ON (GNG-T) S1
35		Button cutting unit OFF (GNG-T) S2
36		Oil pressure switch RW (GNG-S) S7
21		Unload scraper floor S3
31		non-assignable, current measurement A9
9		non-assignable, current measurement A10
17		non-assignable, current measurement A11
6		non-assignable, current measurement A12
1	10A contact	OPTION: Light 2 / Reserve output (Vk kk)
28	10A contact	WV lower Y3
10		WV raise Y4
7		SV Pick-up Y5
13		SV Dosing roller Y6
29	10A contact	SV Pivoting drawbar Y7 + Y8
14	10A contact	SV Rear wall Y13 + Y14
11		SV Trailing steering axle Y16
2		Scraper floor backward run Y1
8		Scraper floor normal Y2
3		Scraper floor stage 2 (Vk kk)
5		SV Load securing device pivoting cylinder Y30 + Y32
19		CAN2 - HIGH (Vk kk)
33		CAN2 - LOW (Vk kk)
12		Lin - Bus
18		Usen 12V unstabilised (Vk gK)
32		Usen 12V unstabilised (Vk gK)
4		Usen 5V stabilised (Vk gK)
20		Sensor GND
34		Sensor GND
15	10A contact	Power GND
16		Power GND
27		Power GND
30		Power GND
41		Power GND
42	10A contact	Power GND



Plug 2 (ST 2)

#	# addition	Description
25		PTO (npn) B1
39		Initiator rear wall (pnp) B5
24		Initiator cutting unit (pnp) B2
38		Initiator dosing roller (pnp) B6
13		Loading space light
11		QFB left Y10
5		QFB right Y9
28	10A contact	FM additional distributor
29	10A contact	SV cutting unit Y11 + Y12
1	10A contact	SV forage top assembly Y17 + Y18
9		Main valve Autocut Y0
10		SV drawbar damping Y19
12		SV jockey wheel pivoting Y24
14	10A contact	SV drawbar ring side Y8
6		SV combi flap down Y20 + Y21
7		SV combi flap up Y22 + Y23
41		Not available
27		Not available
16		Not available
31		Not available
30		Serial GND
17		10.5 V stabilised
18	10A contact	10.5 V stabilised
32		10.5 V stabilised
33		10.5 V stabilised
2		Sensor GND
3		Sensor GND
4		Sensor GND
8		Sensor GND
24		Free
15	10A contact	Power GND
19		Power GND
20		Power GND
21		Power GND
22		Power GND
23		Power GND
34		Power GND
35		Power GND
36		Power GND
37		Power GND
38		Power GND
42	10A contact	Power GND

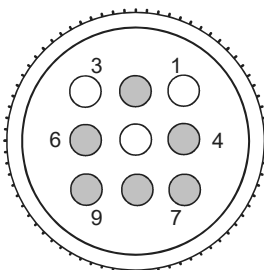


Belegungsschaltplan Sensoren

165-12-123

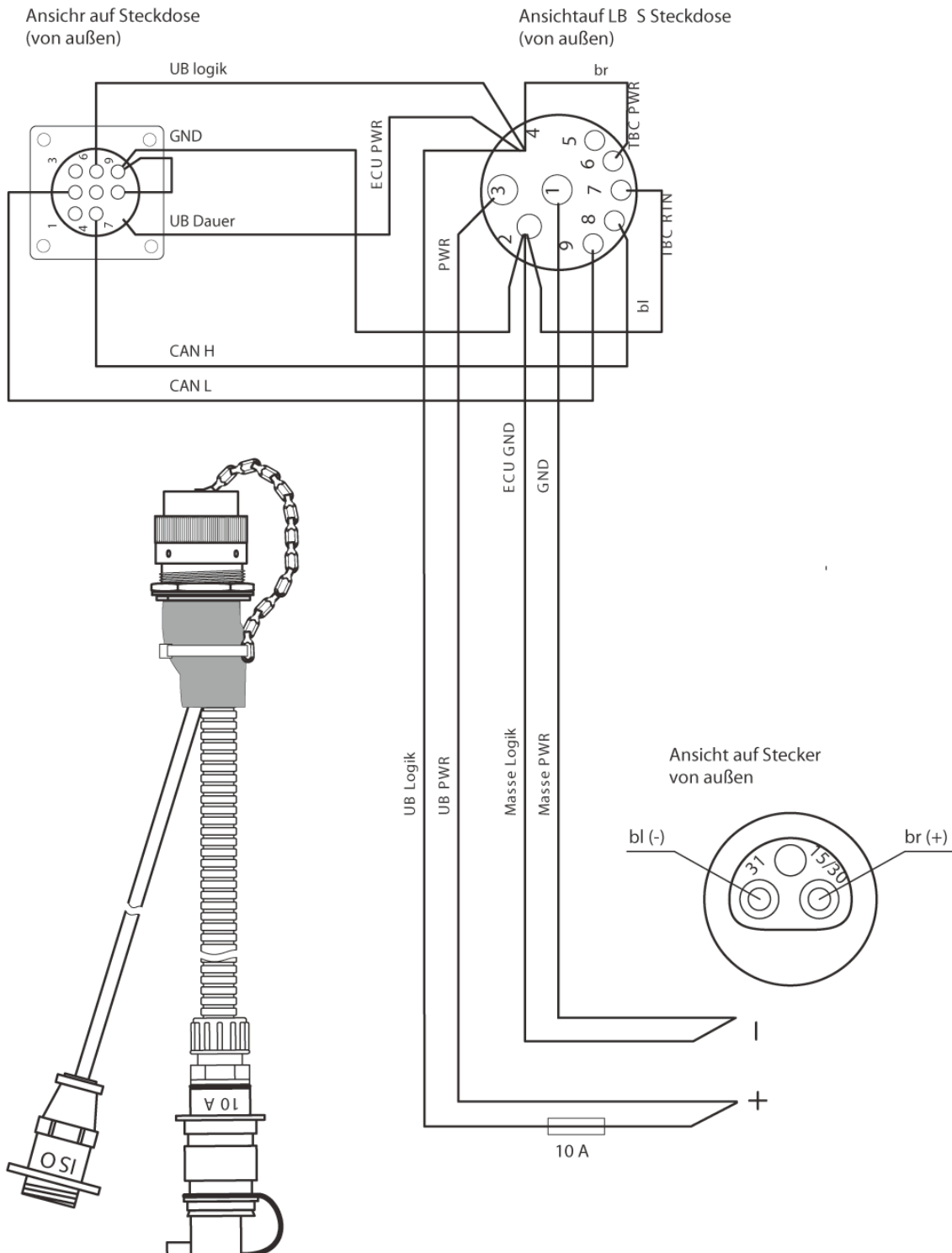


Ansicht auf 9 pol. Buchse
(von außen)

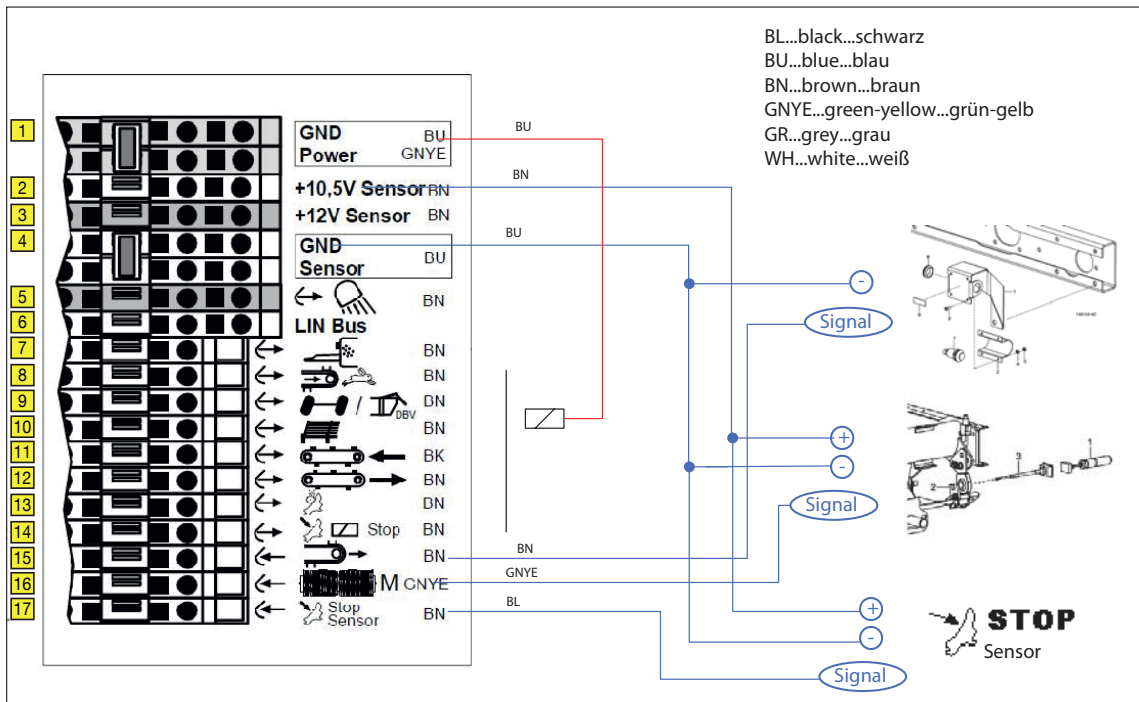


Kontakt	Farbe	Funktion
2	ws	CAN_L
4	gnge	CAN_H
6	sw	TBC PWR
7	gr	ECU PWR
8	br	LIN
9	bl	ECU GND

33 + 537C1000.x

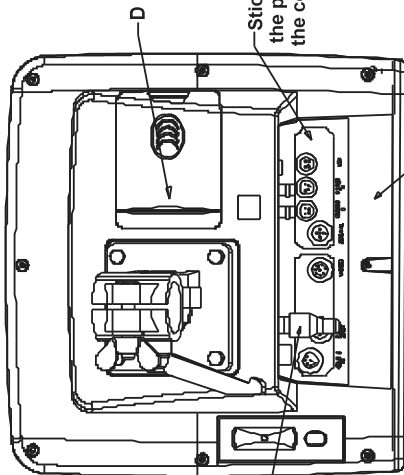
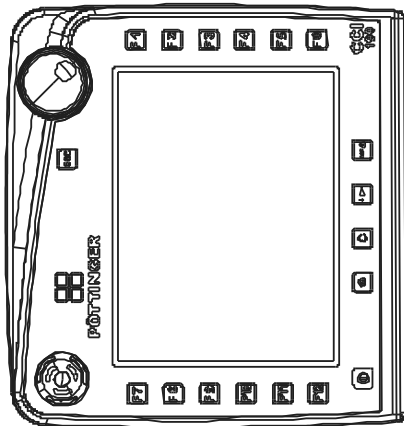


Tag distribution box



- | | |
|---------------------------------------|------------------------------------|
| 1 GND Power | 16 B9 loading |
| 2 +10.5V sensor stabilised | 17 B16 cutting unit limiter |
| 3 +12V sensor unstabilised | |
| 4 GND Sensor | |
| 5 Loading space lighting | |
| 6 LIN bus | |
| 7 Feed additional distributor | |
| 8 Y15 scraper floor 2. Stage | |
| 9 Y16 trailing steering axle | |
| 10 Y17/Y18 forage top assembly | |
| 11 Y10 cross conveyor left | |
| 12 Y9 cross conveyor right | |
| 13 Y0 Autocut | |
| 14 Y25 cutting unit limiter | |
| 15 S3 unload scraper floor | |

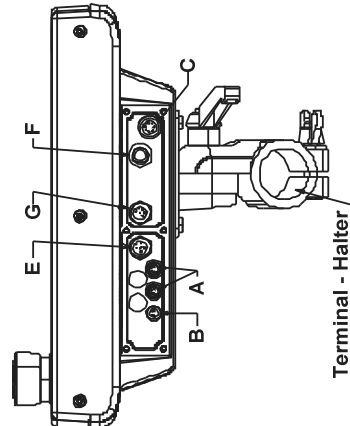
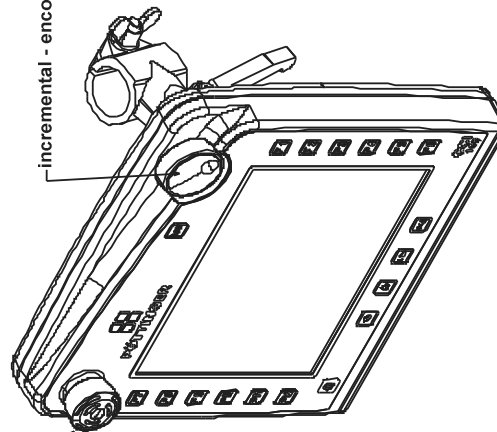
Pos.#	Symbol	PIN	Signal	(Aderfarbe)
A				
RS232-1 & RS232-2 / M8x1 – 4pol – Stecker				
1			+12V / +24V	braun
2			TxD	weiß
3			GND	blau
4			RxD	schwarz
B				
LIN-OUT / M8x1 – 4pol – Buchse				
1			+12V / +24V	braun
2			NC	weiß
3			GND	blau
4			LIN	schwarz
C				
CAN1-IN / M12 x1 – 8pol – Stecker				
1			+12V / +24V	weiß
2			Not-Stop A	braun
3			Einschallsignal	grün
4			Not-Stop Versorgung	gelb
5			CAN1-L	grau
6			GND	rosa
7			CAN1-H	blau
8			Schirm	rot
D				
USB-Hot 2.0 – Buchse				
1			+5V	rot
2			D-	weiß
3			D+	grün
4			GND	schwarz
E				
SIGNAL / M12x1 – 5pol – Buchse				
1			Einschallsignal	braun
2			FO2	weiß
3			GND	blau
4			FO1	schwarz
5			Analog Input	grün/gelb
F				
CAN1-OUT / M12 x1 – 8pol – Buchse / ISOBUS				
1			+12V / +24V	weiß
2			Not-Stop B	braun
3			Einschallsignal	grün
4			Not-Stop Versorgung	gelb
5			CAN1-L	grau
6			GND	rosa
7			CAN1-H	blau
8			Schirm	rot
G				
Video-IN / M12 x1 – 8pol – Buchse				
1			+12V / +24V	weiß
2			RS485B	braun
3			RS485A	grün
4			Einschallsignal	gelb
5			RS485A	grau
6			Einschallsignal	rosa
7			GND	blau
8			Schirm	rot



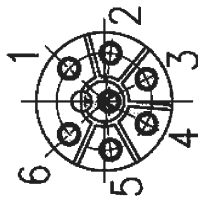
Abschlusswiderstand
CAN1-OUT

customer reference sticker

ISOBUS stop button
color : lightgrey

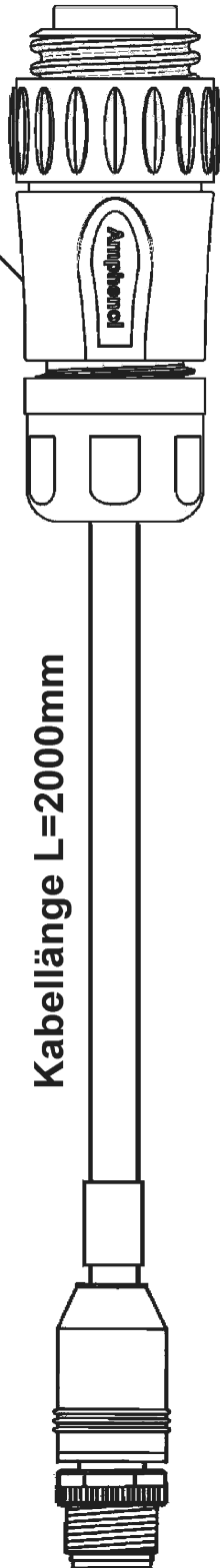


Terminal - Halter

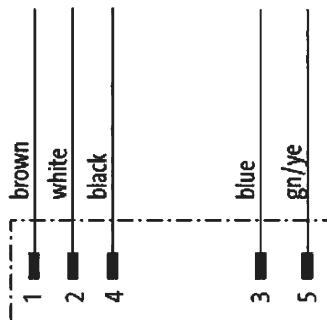


Kippschalter
G / R

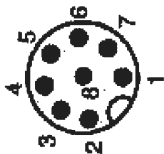
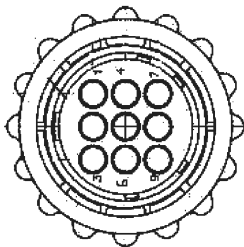
Kabellänge L=2000mm



- 1- strand black - switch position R
- 2- strand black - switch position G
- 3- strand white
- 4- strand yellow/green
- 5- n.c.
- 6- n.c.
- PE- strand blue



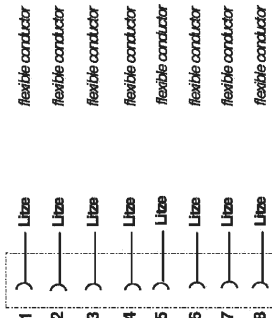
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Kabellänge L=1500mm



STROMLAUFLAN
Schematic diagram



PIN	Kabel 292
1	weiss/white
2	braun/brown
3	grün/green
4	gelb/yellow
5	grau/gray
6	rosa/pink
7	blau/blue
8	rot/red

- 1 - n.c.
- 2 - strand grey
- 3 - connection to 2
- 4 - strand blue
- 5 - connection to 4
- 6 - n.c.
- 7 - strand white
- 8 - n.c.
- 9 - strand pink

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EC Conformity Declaration

Original Conformity Declaration

Name and address of the manufacturer:

**Alois Pöttinger Maschinenfabrik GmbH
Industriegelände 1
AT - 4710 Grieskirchen**

Machine (interchangeable equipment):

self-loading wagon FARO	3500 L/D	4000 L/D	4500 L	6300 L	8000 L
Type	1611	1612	1613	1616	1618
Serial no.					

The manufacturer declares that the machines adhere to all relevant provisions in the following EU directive:

machinery 2006/42/EG

In addition to this, the manufacturer also declares adherence to the other following EU directives and/or relevant provisions

Electromagnetic compatibility 2004/108/EG

Source of applied, harmonised norms:

EN ISO 12100-1 EN ISO 12100-2 EN ISO 4254-1

Source of applied miscellaneous technical norms and / or specifications:

Person responsible for documentation:

Konrad Mallinger
Industriegelände 1
A-4710 Grieskirchen

Klaus Pöttinger,
Corporate management

Grieskirchen, 01.12.2010

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