

Order no. 9900.01.47EN02

Operating instructions

Power harrow Toucan





Operating instructions

Power harrow *Toucan*

Read carefully through these operating instructions and safety precautions ("For your safety") before operating the implement for the first time, and ensure that they are observed at all times. The person operating the machine must be properly qualified to do so, trained in its use and everyday maintenance, and familiar with the potential hazards and accident-prevention regulations involved. Ensure that a copy of the safety precautions is passed on to all subsequent users. Ensure that all relevant accident-prevention regulations are observed, along with generally accepted safety procedures, health and safety regulations and road-traffic legislation.

Observe all warning notices! (DIN 4844-W9)
This symbol is used to identify instructions in this manual that involve danger, and also on warning notices fixed to the implement!



The CAUTION symbol indicates safety precautions that must be observed to prevent danger to the machine or its functions.

The NOTE symbol indicates specific procedures that must be observed to ensure the smooth and trouble-free operation of the machine.

Voiding of warranty

The power harrow is designed exclusively for normal agricultural use. Any use for a purpose other than this shall be regarded as incorrect operation, and no liability will be accepted for resulting loss or damage. The definition of "use for intended purpose" also covers observance of the specified operating, maintenance and servicing instructions, along with the exclusive use of original spare parts.

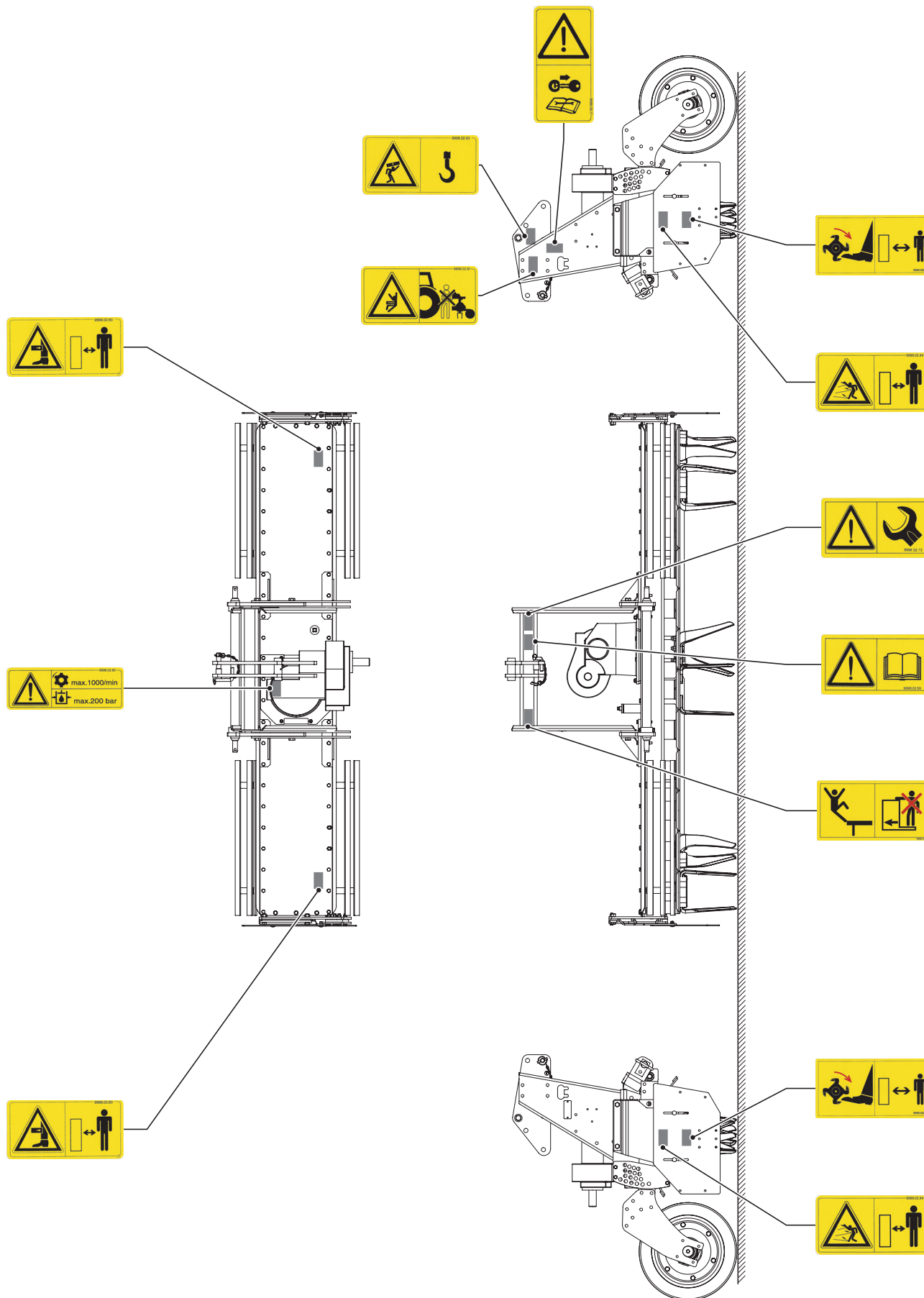
The use of non-original accessories, spares and/or consumables that do not carry specific approval from Rabe shall void all warranty liabilities.

We can accept no liability whatsoever for damage, loss or injury resulting from the carrying out of unauthorised repairs and/or modifications to the implement, or from inadequate monitoring of its operation. Claims for missing or damaged items detected at the moment of delivery (transit damage, missing parts) should be made immediately and in writing. Warranty claim conditions and our liability exclusions are based on our general terms and conditions of delivery.

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Arrangement of warning signs on the implement





Arrangement of warning signs on the implement



Key to warning notices

General points

The warning notices are designed to indicate possible dangers and help ensure the hazard-free operation of the machine.

The warning notices form an integral part of the machine.

The warning notices are to be kept visible and free of dirt at all times, and must be replaced if damaged.

They are available from Rabe [for order numbers, please refer to the list of spare parts].



Please read the operating instructions before proceeding to initial startup

Observe the safety precautions.

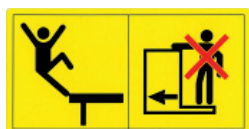
Follow the transport and setup instructions.



Remain at a safe distance from working implements

Do not attempt to reach in behind safety devices, cover panels, etc.

Shut down running implements before carrying out work on the machine or in its immediate area.



Passengers must not ride on the implement while it is being operated or towed

Stand on the step or platform only with the machine stopped, and with it hitched to the tractor or securely supported.



Keep your distance

Machine elements are liable to swing or move out suddenly, with a danger of leg injuries.



Do not stand or walk under or near raised loads

Attach lifting gear at this point.



Retighten all screws and bolts after the initial period of use

Check screws and bolts for correct tightness at regular intervals thereafter.

Refer to the operating instructions and/or list of spare parts for details of special torque settings.

Use a torque wrench.



Operating pressure / turning frequency

The operating pressure of the hydraulic system must not exceed 200 bar.

The turning frequency of the power take-off shaft must not exceed 1000 rpm!



There is a danger of being crushed when standing between the tractor and towed implement

Ensure that no one remains between the tractor and implement when it is being hitched up for towing.

Do not pass between the tractor and implement when using the external controls for the three-point linkage.



Beware of objects being thrown out at high speed

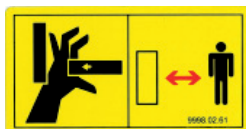
Keep the danger area free of other people.



Read the operating instructions before adjusting any settings or carrying out repairs or maintenance

Observe the safety precautions.

Observe the adjustment and setup instructions.



Danger of crushing

Keep your distance.

For your safety

General points

This section contains general rules on the use of the implement for its intended purpose, and safety and technical instructions, which must be followed in order to ensure safe operation. These instructions are very comprehensive, and may contain items that do not apply only to your specific implement. A summarised version of these instructions is also provided to remind you of the safety rules that are often accidentally overlooked during day-to-day use of machines and implements.

General safety precautions

Do not allow anyone to stand between the tractor and the implement during coupling or uncoupling, even if this is to allow operation of the external hydraulic controls. Danger of injury!

Always set the tractor's hydraulic lifting mechanism to "attitude control" before coupling or uncoupling!

Check the tractor and implement before each startup to ensure that they are in perfect working order for driving and operation. The user is responsible for ensuring safe operation! Take safe steering into account, by attaching an adequate counterweight to the front of the tractor if necessary. Note that there is a danger of crushing and cutting injuries occurring in the area of the three-point linkage and drill-lifting attachment. Before moving or operating the implement, always check to ensure that no one is standing within its turning circle or operating area. Do not stand or ride on the implement or remain within its turning circle or operating area. Beware of flying stones when operating the implement on stony ground. Keep your distance! Keep the rear panel of the cab closed!

Before leaving the tractor unattended, always disengage the power take-off shaft, lower the implement, switch off the engine and remove the ignition key. Always lower implements before carrying out adjustment or maintenance operations of any kind. Handle transmission components with care, as they become hot during operation. Safety devices must be attached and in full working order before operation can begin!

Before engaging the take-off shaft, ensure that:

- ... no one is standing within its turning circle or operating area
- ... the speed selected for the power take-off shaft is within the permitted maximum turning speed of the implement
- ... the propeller shaft operates with the specified tube overlay (and is not too long when raised horizontally or in the shortest distance)!

Take the centre of gravity into account when operating on steep slopes (along the contour line), especially when raising the implement with a seed drill also attached (Drill-Lift).

Disable the tractor's hydraulic control system to prevent accidental operation while the implement is being towed. Before operating for the first time – and after a long period out of use – check the oil level in the transmission and all bearings to ensure that they are sufficiently lubricated (see "Maintenance"), and check all screws and bolts for tightness!

- Maximum length of combination (tractor + implement) 12m
- Width 2.55m, maximum 3m
- Maximum height 4m
- Maximum total weight of combination 16t, of which 20% on front axle.



1. Intended purpose

This implement is designed exclusively for normal agricultural use (intended purpose).

Any use for a purpose other than or exceeding this description shall be regarded as incorrect operation. The manufacturer accepts no liability whatsoever for resulting loss or damage in these circumstances.

The user shall bear sole responsibility in these circumstances. This concept of intended use also covers the full observance of all operating, maintenance and servicing specifications stipulated by the manufacturer.

All persons engaged to operate, service and repair this implement must be appropriately trained and aware of the dangers involved. Ensure that a copy of the safety precautions is passed on to all subsequent users.

Ensure that all relevant accident-prevention regulations are observed, along with generally accepted safety procedures, health and safety regulations and road-traffic legislation. The manufacturer accepts no liability whatsoever for loss or damage caused by the carrying out of unauthorized modifications to the implement.

2. General safety rules and accident-prevention regulations

- Check the tractor and implement before each startup to ensure that they are in perfect working order for driving and operation.
- Please observe the general rules on safety and accident-prevention.
- The warning and indication signs attached to the implement contain important instructions on how to operate it safely. You should observe them at all times.
- Be sure to observe all relevant traffic legislation when using public roads.
- Familiarize yourself with all devices, control elements and their respective functions before starting work. do not wait until the implement is already in operation.
- Machine operators should wear tight-fitting clothing. Do not wear loose or hanging items of any kind.
- Keeping the machine clean will reduce the danger of fire.
- Check the area of operation carefully before starting up or carrying out any manoeuvre. Watch out for children. Ensure that you have an adequate field of vision at all times.
- Passengers must not ride on the tractor or implement while it is being operated or towed.
- Hitch the implement up as instructed, and connect it only to the specified devices.
- Take special care when hitching the implement to or uncoupling it from the tractor.
- Ensure that the supports are in their correct positions when hitching up or uncoupling. (Ensure stable support)
- Always lift loads at the raising points specified and in accordance with the instructions.
- Observe the permitted axle loads, total weights and transport dimensions.
- Ensure that regulation towing equipment, such as lights, warning triangles and additional safety devices, is attached and in full working order.
- The release cables of the quick-action couplings should hang loosely, and must not trip of their own accord when the implement is lowered.
- Never leave the driver's seat while the vehicle is in operation.
- Note that towed implements and the use of ballast weights affect driving performance, steering and braking. You should take this into account when estimating turning circles and braking distances.
- Take into account the overhang dimensions and centrifugal mass of the towed implement when driving into bends.
- Ensure that all safety devices are attached and in full working order before you operate the implement.
- Do not remain within the operating area of the implement.
- Do not remain within the turning or pivoting range of the implement.
- Folding hydraulic elements must only be actuated after ensuring that no one is standing within the pivoting range.
- Beware of the danger of crushing and cutting from components (e.g. hydraulic items) run from external power sources.
- Before leaving the tractor, lower the implement to the ground, switch off the engine and remove the ignition key.
- Do not walk between the tractor and implement without first applying the handbrake and/or chocking the wheels to stop the outfit rolling away.
- Secure the folding frame and raising mechanism in position for transport!



2.1 Attached implements

- Before hitching implements to or uncoupling them from the three-point linkage: Use the operating controls to bring the implement into a position where it cannot be accidentally raised or lowered.
- Before hitching up via the three-point linkage, ensure that the tractor and implement are fully compatible with one another.
- Note that there is a danger of crushing and cutting injuries occurring in the area of the three-point linkage.
- Do not pass between the tractor and implement once the three-point linkage has been connected to the vehicle-mounted controls.
- Always ensure, when the implement is raised for towing, that the tractor's three-point linkage is adequately secured at the sides.
- Before driving the outfit on the road, ensure that the operating lever is secured to stop the implement being lowered by accident.

2.2 Operation from the power take-off shaft

- Use only the propeller shafts specified by the manufacturer.
- The protective tube and cowling attached to the propeller shaft and the guard on the power take-off shaft must be correctly fitted and in full working order at both ends.
- Ensure that propeller shafts are fitted with the specified tube protectors for towing and operation.
- Before attaching or removing the propeller shaft, disengage the power take-off shaft, switch off the engine and remove the ignition key.
- Ensure that the propeller shaft is correctly fitted and secured at all times.
- Attach chains to stop the propeller-shaft guards rotating at the same time.
- Before engaging the power take-off shaft, ensure that the turning speed selected at the tractor is within the maximum permitted turning-speed limit of the shaft.
- When using the power-takeoff shaft, note that its turning speed depends on drive speed, and that it changes direction if the tractor is reversed.
- Clear the danger area of bystanders before engaging the power take-off shaft.
- Never engage the power take-off shaft with the engine stopped.
- Keep away from the rotating power take-off and propeller shafts during operation.
- Always disengage the power take-off shaft if the angle of tilt is excessive, or if it is no longer required.
- Beware of continued running due to remaining momentum after disengaging of the power take-off shaft. Keep away until the mechanism has come to a complete stop. Wait until the machine has come to a standstill before carrying out work on it. Ensure that the engine is stopped and the ignition key removed.
- Always disengage the power take-off shaft, switch off the engine and remove the ignition key before cleaning, lubricating or adjusting any shaft-driven item.
- Place the disconnected propeller shaft in the support rest provided.
- After detaching the propeller shaft, fit the protective cover to the shaft end.
- Deal immediately with any damage that might be detected. Never attempt to work with damaged implements.

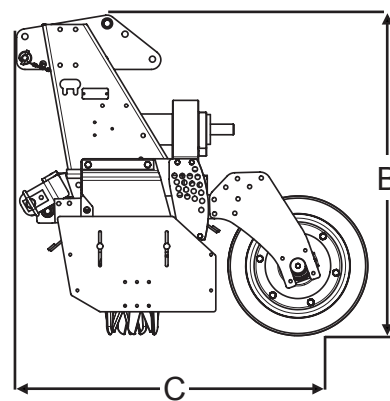
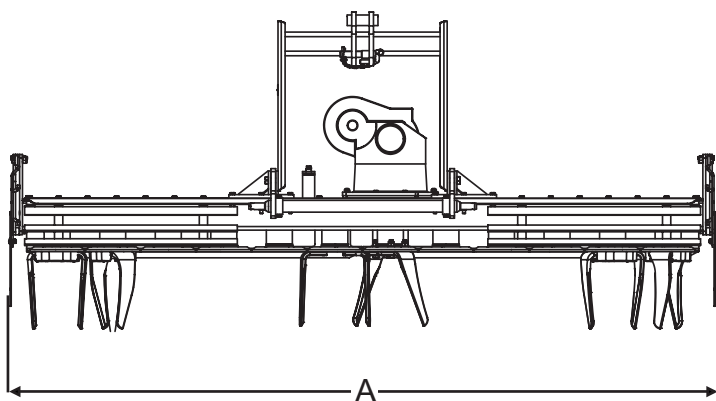
2.3 Hydraulic system

- Note that the hydraulic system operates at high pressure.
- Ensure that the hydraulic hoses are connected as specified before operating the hydraulic cylinders and motors.
- Release pressure at both the tractor and implement end before connecting the hoses to the tractor's hydraulic system.
- The hydraulic-function plugs and sockets used to connect the tractor and implement should be clearly marked to prevent incorrect connection. The unintentional swapping of connections may lead, for example, to the implement being lowered when it should be raised. This can cause accidents.
- Check the hydraulic hoses regularly and replace at the first sign of wear or ageing. Ensure that the replacement hoses conform to the technical requirements of the implement manufacturer.
- Prevent possible injury. Always use appropriate detection equipment when checking for leaks.
- Pressurised fluids (hydraulic oil) are prone to escape without warning, possibly resulting in skin penetration and serious injury. Seek immediate medical help if an injury does occur. Note the danger of infection.
- Before working on the hydraulic system, lower the implement, release the hydraulic pressure, switch off the engine and remove the ignition key.

2.4 Maintenance

- You should normally disengage the drive mechanism and switch off the engine before carrying out maintenance, servicing or cleaning work of any kind, or before attempting repairs. Always remove the ignition key.
- Check all screws and nuts at regular intervals for correct tightness, and retighten as required.
- Insert adequate props and/or axle stands before working on the raised implement.
- Use suitable tools and wear protective gloves when replacing the cutting implements.
- Dispose correctly of waste oil, lubricants and filters.
- Always disconnect the power supply before carrying out work on the electrical system.
- Disconnect the tractor's alternator and battery before carrying out electrical welding work on the tractor or attached implement.
- All spare parts must conform to the implement manufacturer's minimum technical requirements. For your own safety, always use genuine original spare parts.

Machine data



Toucan SL					
Basic type	Weight in kg (approx.), without roller	Tractors up to kW/hp	Lengths in mm (approx.)		
			A	B	C
2500	970	133/180	2500	1312	1300
3000	1085	133/180	3000	1312	1300
3500*	1200	133/180	3500	1312	1300
4000*	1365	133/180	4000	1312	1300

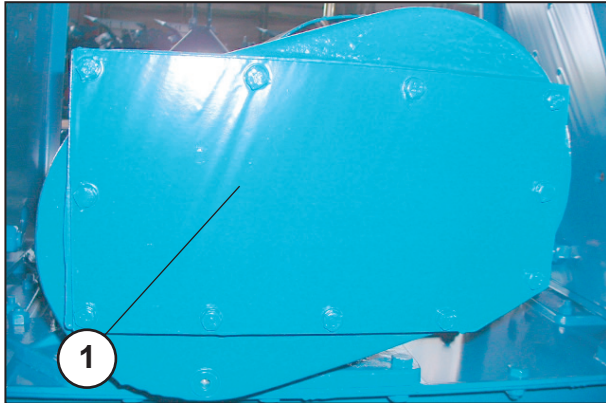
Toucan PL					
Basic type	Weight in kg (approx.), without roller	Tractors up to kW/hp	Lengths in mm (approx.)		
			A	B	C
3000	1195	170/230	3000	1312	1300
3500*	1295	170/230	3500	1312	1300
4000*	1560	170/230	4000	1312	1300
4500*	1678	170/230	4500	1312	1300

Sound level < "70 dB (A) "

*Caution: transport width is greater than 3m.

Implement turning speeds

Implement turning speed and towing speed (**max. approx. 8 km/h**) have a decisive influence on the desired earth-breaking performance. Select the lowest possible speed for a given level of operating performance. Note that higher turning speeds increase the amount of blade wear. Operate only at the turning speeds listed in the table; the maximum towing speeds indicated (in km/h) must be observed.



8



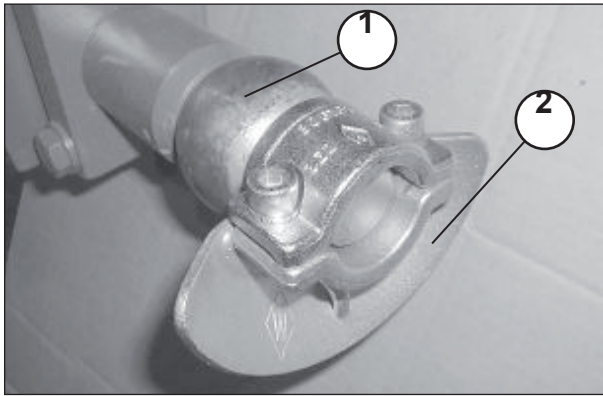
Maintain the correct ratio of towing speed to turning speed in order to prevent damage to the implement (i.e. the higher the towing speed, the lower the turning speed).

Replacement of gear wheels: Tilt the power harrow forwards slightly (with the upper arm) and remove the rear transmission cover (**8/1**), taking care not to damage its sealing gasket. In the case of a live power take-off drive (not illustrated), take additional care with the rotary shaft lip seal. Fit the gear wheels so that the punched number indicating the tooth-count faces towards the rear. Use only gear pairs with the same colour coding.



Caution: Let the transmission cool down before carrying out work on its components.

Kreiseldrehzahlen/Regime des rotors/Rotor r.p.m.									
Zapfw. U/min. P.d.f. tr./mn. PTO r.p.m.	Wechselräder:		Zähne/Farbe		Pignons:Dents/Couleur		Gears.No of teeth/Colour		
	(25)	(43)	(27)	(41)	(30)	(38)	(32)	(36)	(33) (35)
	(43)	(25)	(41)	(27)	(38)	(30)	(36)	(32)	(35) (33)
1000	256	-	290	-	348	-	392	--	415
750	192	-	218	-	261	419	294	372	312 351
540	138	409	156	361	188	301	211	268	225 252
<p>Achtung: Nur Radpaare gleicher Farbe einsetzen; mit Naben- vorsprung zum Lager.</p> <p>Attention: utiliser des pignons de couleur identique; épaulement du moyeu dirigé vers le roulement.</p> <p>Gears should be matched with identical colours and fitted with shoulder facing inwards to the bearing.</p>									



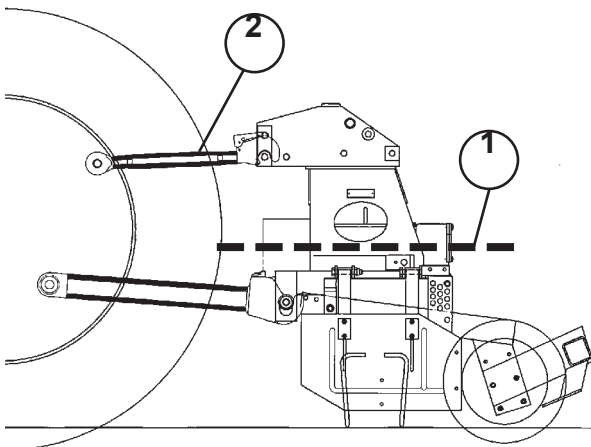
5.1

Attachment

Check both parts of the coupling for compatibility (cat.: tractor/ power harrow).

Raise the lower arms of the tractor to the same height and, after attachment, check for slight lateral play (secure against lateral play entirely when transporting by road).

In order to reduce friction strain on the lower-arm catch hook and help prevent damage to the lower-arm coupling elements, the use of a loose ball sleeve (**5.1/ 1**) with clamp locking profile (**5.1/2**) is recommended. The ball revolves on the greased lower-arm pin.



3

Align the upper arm in operating position, so that it is in only slight contact and as parallel as possible to the lower arms (**3/1**).

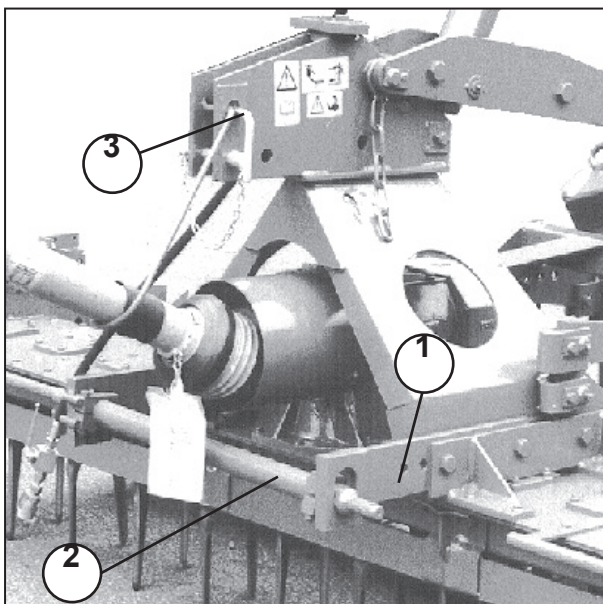
(This helps keep the implement as parallel as possible, thus resulting in quieter running of the propeller shaft when raising the mechanism to just above ground level.)

Align the harrow horizontally with the upper arm (**3/2**).

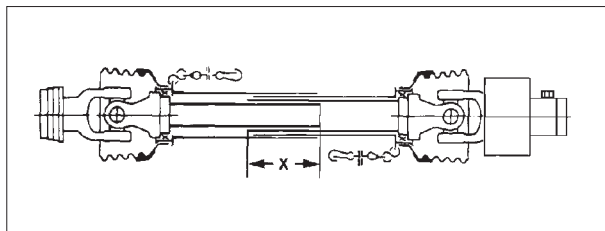
Correctly secure the coupling assembly (three-point linkage). (Secure the upper-arm pins also to prevent slippage – **4/3**)

If you need to adapt the propeller shaft or attach the harrow in a shorter operating position (only if raising the seed drill proves problematic), note that the axle connection components are adjustable (**4/1**) – Retighten all bolts and screws after adjusting (650 Nm).

Attach the harrow as far back as possible. This favours the operating angle of the propeller shaft and increases its service life.



4



5

Propeller shaft

(For details of safety precautions and instructions on the attachment/adjustment/maintenance of the propeller shaft or safety clutch, please refer to the corresponding operating instructions and the appendix to this manual!)

Before attaching or removing the propeller shaft, disengage the power take-off shaft, switch off the engine and remove the ignition key.

Use only the propeller shaft supplied with the implement. Attach the safety clutch on the implement side. In order to ensure correct length alignment, keep the two halves of the attached propeller shaft in a horizontal position (or at the shortest distance), raised and next to one another. The propeller shaft must, when fully pushed-in, be no longer than the shortest distance between the implement and the tractor. In the lowered position (i.e. at greatest operating depth), the section tubes must be inserted into each other to a depth of at least 200 mm (**5/X**).

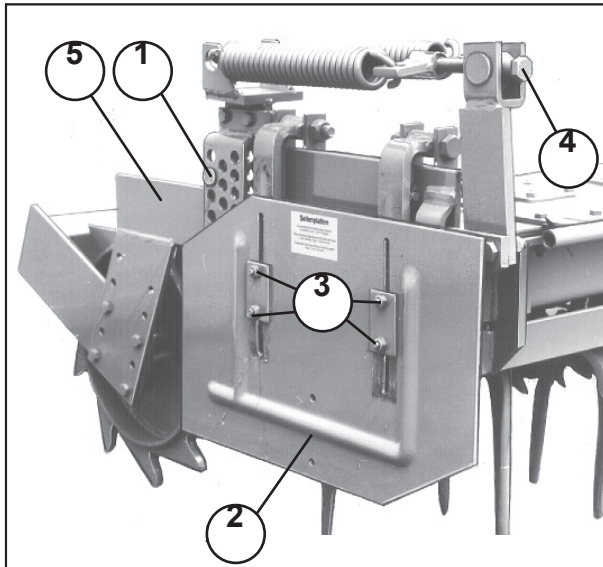
If the propeller shaft needs to be shortened, note that both protective tubes and the section tubes must be shortened by the same amount. File down all rough edges and remove any metal swarf. Grease the push-in profiles. Attach all protective devices before running the drive system. Secure the retaining chains of the protective tubes.

Operation

Power harrows are operated with a **1000x** power take-off shaft (with corresponding gear-change assembly - see blade turning speeds). Engage and disengage the power take-off shaft with the rotating blades just a few cm above ground level. Disengage the power take-off shaft if the harrow is to be raised any further.

The harrow - and with it the transmission input shaft - must remain horizontal during operation **(3/2)**; adjust at upper arm. (Do not use the upper arm for the purposes of depth adjustment)

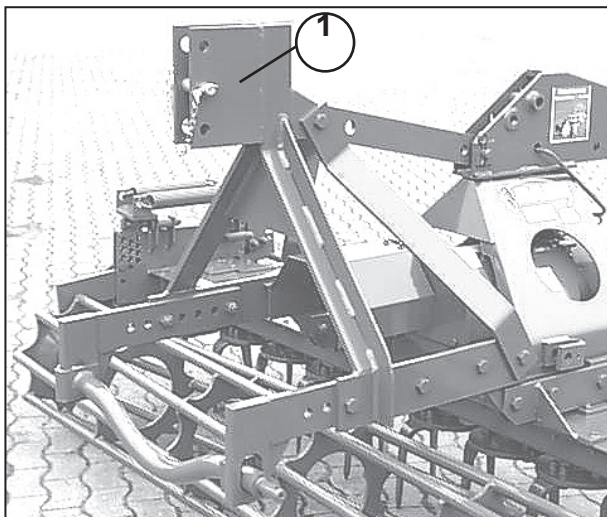
Adjust the operating depth at the slide-in pins **(6/1)**, the same on both sides, raising the harrow slightly when doing so. Set the tractor's hydraulic system to "float"; the operating depth is kept constant by means of the packer roller (and by the height-adjustable carrying axle **4/2**). Loosen the bolts **(6/3)** on the spring-mounted side-plates **(6/2)** and adjust to the corresponding operating depth - for loose earth, this is a maximum of 1 cm between bottom edge and ground. Avoid towing the power harrow into sharp curves during operation, and always raise it before reversing!



6

Spring-loaded packer-roller mounting

The robust spring assembly ensures that the harrow is easily raised to avoid large stones. When working on stony ground, start by tensioning the springs **(6/4)** to a point where the depth-adjustment pins **(6/1)** begin to lift when the packer side-arm **(6/5)** operates. Now carefully release the spring tension on both sides until the pins **(6/1)** are just touching the packer side-arms **(6/5)**. Note that the springs must be kept highly tensioned if the harrow is being operated with a seed drill fitted to the three-point saddle attachment.

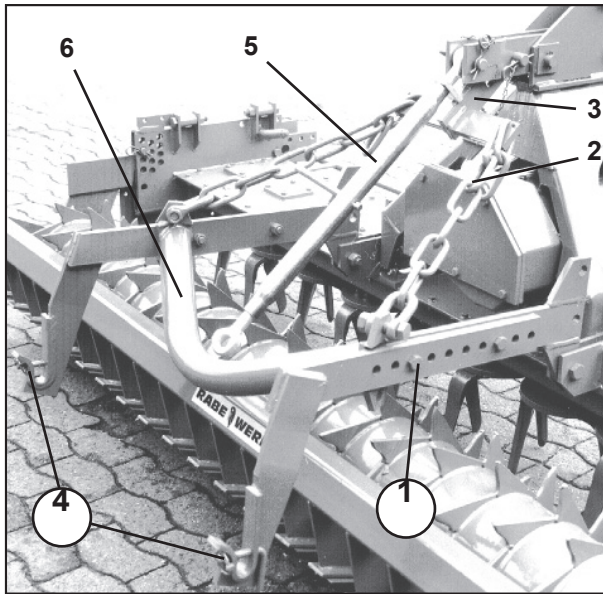


10

Live power take-off drive / front-mounting

The live power take-off drive runs at the same speed as the tractor itself and follows all its fluctuations. Keep the safety guard in place over the implement end of the live power take-off shaft at all times. In the case of front attachment, the power harrow is driven via the live power take-off – $\varnothing 1 \frac{3}{8}$ " or $\varnothing 1 \frac{3}{4}$ " - preferably $1 \frac{3}{4}$ ", as no additional propeller shaft is required.

The front-attachment frame assembly is available as an optional extra (10/1). The front take-off shaft of the tractor must turn clockwise (as seen from driver's seat).



11

Three-point linkage for add-on attachments

In order to allow installation of the add-on attachment in the shortest possible position, the attachment arms are adjustable **(11/1)**. Fit the chains **(11/2)** and perforated rail **(11/3)** in such a way that the catch hooks are low enough to allow coupling - and to allow the implement to be raised sufficiently.

The chains should sag somewhat loosely during operation in order to allow the attached implement (e.g. seed drill) to level itself independently relative to the ground.

Secure the catch hooks with slide-in pins **(11/4)**.

Adjust the position of the attached implement at the turnbuckle **(11/5, upper arm)**. The cat. II

attachment arms can be adapted to clearance cat I – by swapping over left/right; if the towed

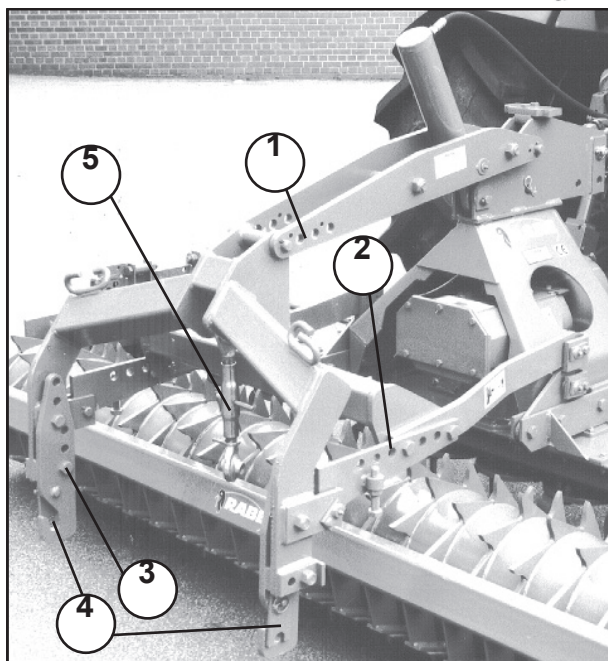
implement is fitted with cat. I lower-arm pins,

bushes are to be fitted to the gudgeons. To adapt

to live power take-off operation, adjust the height

of the support **(11/6)** to prevent collisions with the

propeller shaft.



12

Hydraulic "Drill-Lift" three-point linkage

Use the rows of holes **(12/1+2)** to adjust the attachment clearance, keeping to the "same hole" on each side. The catch hooks can be bolted onto the inside or outside (cat. II or III clearance).

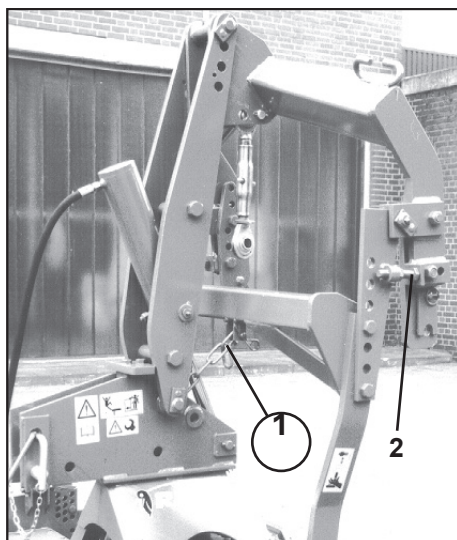
Adjust the catch hooks to the correct position – **(12/3)**. The hooks can also be bolted on in a rearward-sloping position to allow more room for attachment. Attach safety devices once coupling is complete **(12/4)**. Adjust the upper arm to the correct position at the turnbuckle **(12/5)**.

Secure the "front-mounted" implement with chains **(13/1)** for transport by road, close the shutoff valve and ensure that the end-stop bolts **(13/2)** are in place with the implement in this position. A live shaft-driven attached implement can only be "advanced" with the propeller shaft disengaged – see also "Drill-Lift limiter" (optional extra).

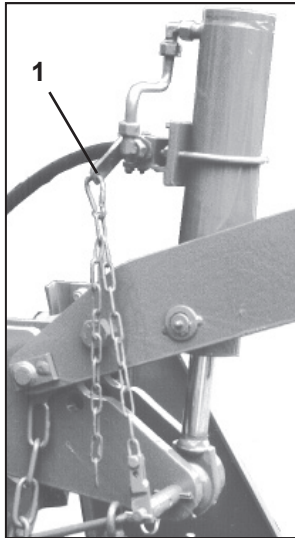
The single-function tractor-mounted control device for the "Drill-Lift" must always be set to "float" during operation. - "Lower" setting; as the attached implement (seed drill) can align itself with the ground independently of the harrow.



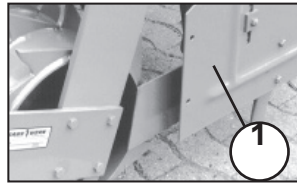
When "advancing" or raising the combination, ensure that nothing collides with any part of the tractor (e.g. the open rear panel of the cab!



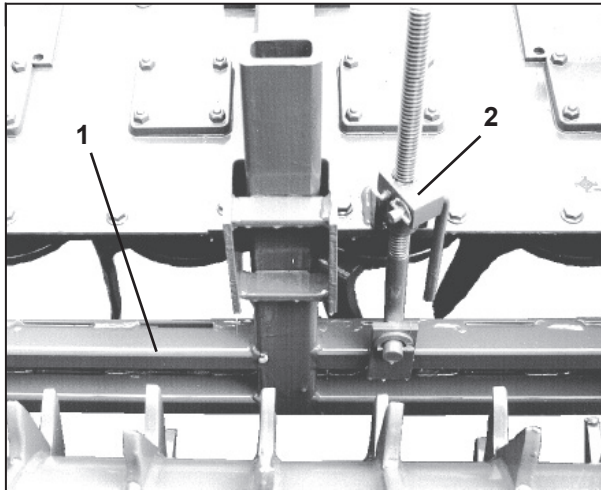
13



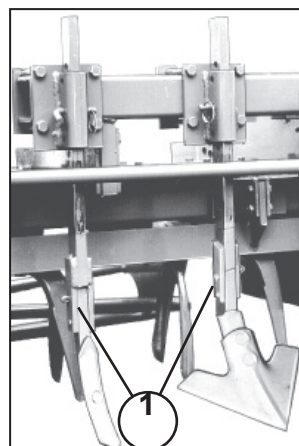
14



15



16



17

Drill-Lift limiter: Operation is made easier if a live power shaft-driven implement can only be raised by a limited amount.

Attach the chain at **(14/1)** in the corresponding position.

Let the chain sag in order to “advance” the attached implement after removal of the propeller shaft.

Ground guide plates (15/1)

They direct earth “inwards” and close off any “gaps” between the side-section and packer roller – they are particularly effective in preventing the build-up of earth walls when running toothed packer rollers over light earth.

Baffle plate (16/1)

“Height” adjustment is carried out at the spindles **(16/2)**; do not set them too low, causing earth to be pushed forwards.

NB: Raise the baffle plate when working on stony ground!

Rut loosener

Adjust to rut-width and depth – do not set too low.

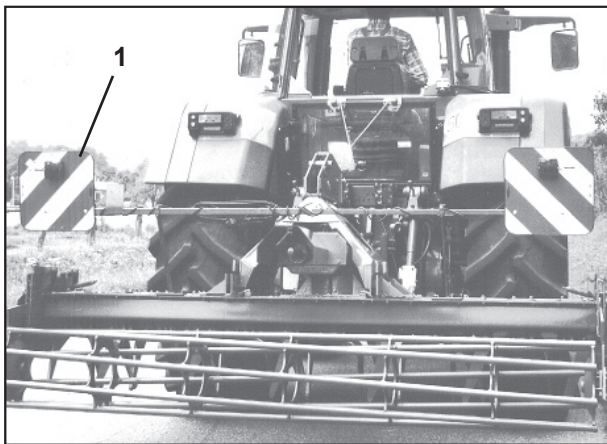
Use rigid or spring-loaded looseners with narrow or duckfoot blades.

Overload protection on rigid looseners **(17/1)**

– Splint 8 x 50 mm.

Residual risks

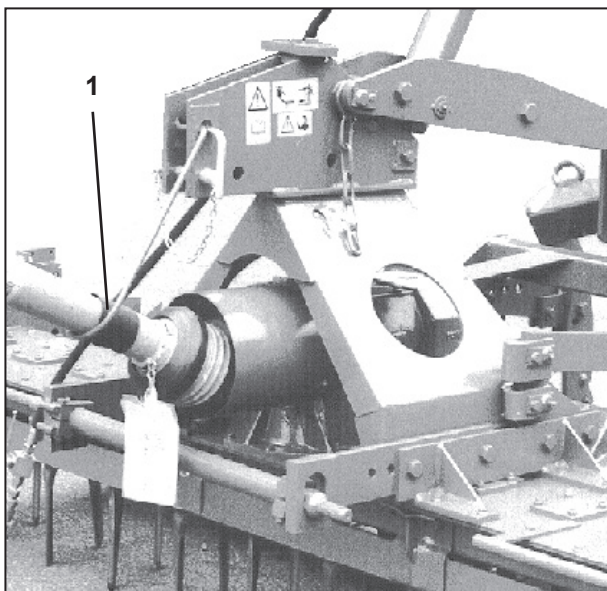
Danger zone	Note
Danger of crushing near side-plates, stone-guard springs, bearing arm of packer roller	Observe the operating instructions
The transmission and oil become hot	Observe the operating instructions



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Before transporting by road

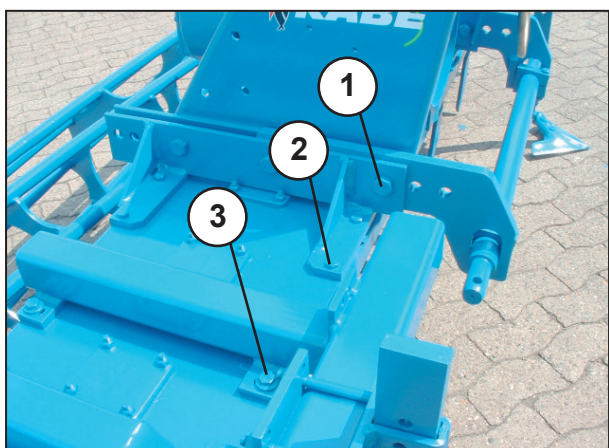
Secure the tractor lower arm at the side.
Secure the "Drill-Lift" linkage with a chain (**13/1**); close the shutoff valve (at the end of the hose).
Fit the lighting unit and indicator panels (**19/1** = optional extra).
Oversized outfits should be transported on a suitable low-loader.
See page 13 for further details of road transport procedures!



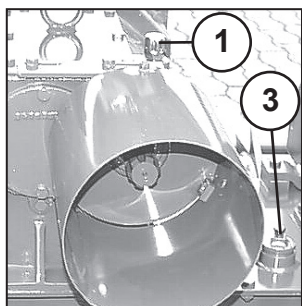
20

Laying up the power harrow

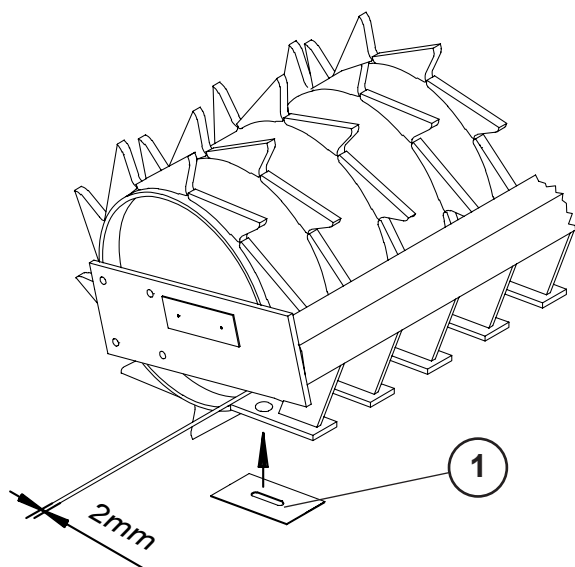
After operation, clean the harrow and apply a corrosion-prevention agent to its underside, blades and packer roller.
Check to ensure correct stability.
Place the propeller shaft in its holder (**20/1**).
If a "Drill-Lift" is fitted to the implement, lower it, close the shutoff valve, and protect the hydraulic plug-in coupling from dirt.



21



22



24

Maintenance

Before working on the attached implement, disengage the power take-off shaft, switch off the engine and remove the ignition key!

Do not work under a raised implement. – Provide the raised device with additional support to prevent accidental dropping!

Use suitable tools and wear protective gloves when handling cutting implements.

Before working on the hydraulic system ("Drill-Lift"), lower the implement completely and release the hydraulic pressure!

Dispose of used oil and lubricants correctly (mineral-based products)!

After about eight hours of initial use, check all screws and bolts for tightness. Repeat this check at regular intervals, using a torque wrench!

The blade attachment bolts should be tightened to, Hitch attachment: (21/1; M 20x1,5) – with 650 Nm, (21/2; M 12 - 12.9) – with 145 Nm, Cover bolts:

(21/3; M 12 - 10.9) – with 120 Nm.

Daily check level of transmission oil by inserting the dipstick (22/1) as far as the thread, but without screwing it in.

Weekly check level of liquid lubricant grease in spur pinion casing at nozzle (22/3; see also sections on oil changes) and propeller shaft (plus push-in profiles). Lubricate the bearings regularly with a grease gun applied to the greasing nipples;

Daily: packer-roller bearings, at "Drill-Lift" three-point linkage. Oil all linkages, ensure free movement of spindles. Touch up any chipped or damaged paintwork.

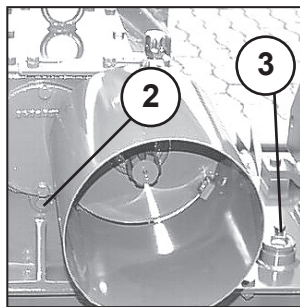
Check the propeller-shaft safety clutch; "air" the friction clutch if the implement has not been in use for a long period. Avoid directing the hose at the bearings for any length of time, especially when cleaning the implement with a high-pressure jet. Check the hydraulic hose (Drill-Lift) regularly for signs of damage or brittleness and replace as required (see list of spare parts). These hoses are subject to a natural ageing process and should in any case be replaced after 5-6 years, regardless of their apparent condition.

Toothed packer roller

The scrapers (24/1) should be readjusted at regular intervals. Push the scrapers into slight contact with the roller. When tightening the nuts, ensure that the scraper lies parallel along its entire length.

Fit hard-coated scrapers (24/1) with the coated surface facing upwards relative to the roller sleeve, at a distance of about 2 mm from the roller.

The toothed packer roller is easy to keep clean if it is washed down after each use and protected from corrosion. Accumulations of dried mud on the casing tend to slow down the roller.



25

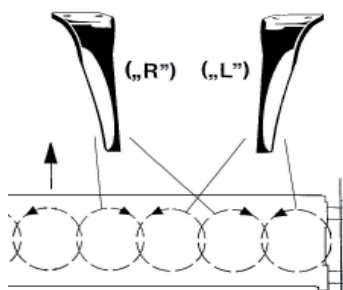
Oil change

Change the oil in the oil-bath transmission after about 50 hours of initial operation; then change every 500 operating hours or every two years. Drain oil at outlet (25/2) when warm and with the implement tilted slightly. To refill with oil, remove the rear transmission cover to access the filler opening (8/1).

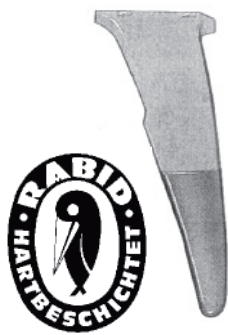
Transmission casing: The spur pinions run in oil (little maintenance required). Check the oil level weekly at the nozzle (25/3). It should be about 2.5 cm above the bottom of the casing. Check with the transmission warm and the implement level. Top up the oil if the level is low (see below for quality specifications).

Lubricants and filling capacities

Transmissi- on oil	Hypoid transmission oil SAE 90 (API- GL-5 / MIL-L- 2105 D)	
	Transmission casing	Gear change box
Toucan 2500	12 l	4,5 l
Toucan 3000	16,5 l	4,5 l
Toucan 3500	20 l	4,5 l
Toucan 4000	22 l	4,5 l
Toucan 4500	25 l	4,5 l



27



28

Blade replacement

Replace worn blades without delay.

Fit the revolving blades in such a way that they drag in the direction of rotation (27 = top view).

Clockwise-rotating blade – 2 right-hand blades ("R")

Anticlockwise-rotating blade – 2 left-hand blades ("L")

Left-handed blades are identified by means of an additional punched letter "L".

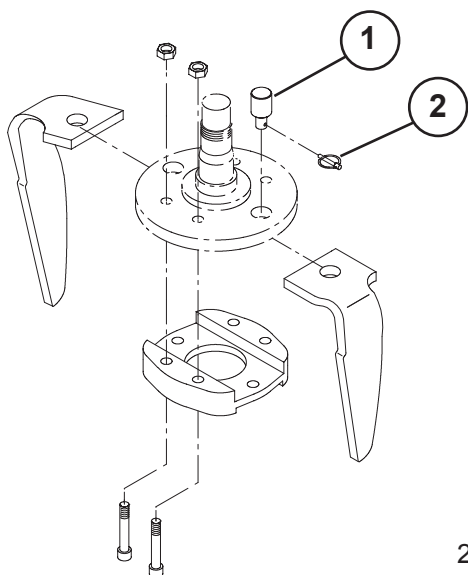
Use original bolts for attaching blades, inserting from below and with the bolt-heads on the same side as the blade.

Tighten with a torque wrench: 380 Nm.

Use RABID hard-coated rotating blades on rough ground for considerably increased service life.



Always switch off the engine and remove the ignition key before replacing blades. Wear protective gloves and safety boots when doing so, and always use suitable tools.



Quick-change system

Loosen the bolt **(29/1)** by folding the linch pin **(29/2)** and pulling it out. Raise the bolt **(29/1)** until the rotating blade can be pulled out of its mounting. Fit the new blade, let the bolt drop and secure with the linch pin.

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