

Andex 773

Operating manual

Translation of original operating manual

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Identifying the implement

In order for your dealer to assist you as efficiently as possible, you will need to provide some information about your machine. Please enter the details here.

Designation Andex 773

Operating width 7,70 m

Weight 2220 kg

Implement number

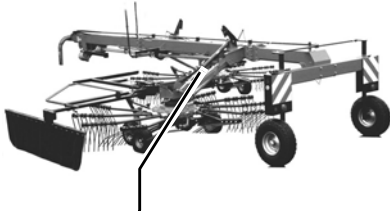
Accessories

Address of supplier

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EC Conformity Declaration

**in conformity with
EC Directive
98/37/EC and
2006/42/EC***



Type plate and CE marking

We

**Kverneland Group Gottmadingen N.V.
Industriepark 312
78244 Gottmadingen
Germany**

declares on its own responsibility that the product

**SwatMaster 7751
Anex 773
9177 S
and accessories**

to which this declaration relates, comply with the relevant essential health and safety requirements of the EC Directives 98/37/EC and 2006/42/EC*.

The following standards have been invoked for proper implementation of the health and safety requirements quoted in the EC Directive:

- DIN EN ISO 12 100-1/A 1:2009
- DIN EN ISO 12 100-2/A 1:2009
- DIN EN ISO 4254-1:2009
- DIN 11001-3:1998

Uwe Kellermeier
Kverneland Group Gottmadingen N. V.
Gottmadingen, 15.03.2009

Uwe Kellermeier

Kverneland Group Gottmadingen N.V. Executive Board
EC authorised representative**

* The implement fulfils the material requirements of both Directives. Directive 98/37/EC shall apply until 28.12.2009. The Directive 2006/42/EC is valid from 29.12.2009.

** Applicable to EC Directive 2006/42/EC only

Foreword

These operating instructions provide you with detailed information concerning system set up and maintenance of your new Helipede Rotary Windrower. In addition, the instructions also include safety instructions which ensure safe employment of the implement. The operating instructions contain descriptions of all the available equipment, the various models and all of the special and additional pieces of equipment which are not included in the normal scope of delivery.

These operating instructions are intended to enable you in getting the best possible use out of your new Kverneland Helipede Rotary Windrower.

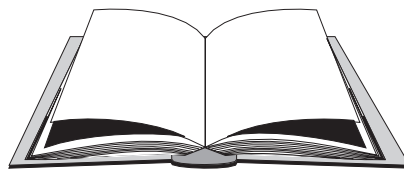
The performance of your Helipede Rotary Windrower depends to a great extent on correct use and careful maintenance. For this reason, read the instructions carefully before the first system start up and always keep them near at hand. By doing so, you will avoid accidents, preserve the manufacturer's warranty and always enjoy the advantages of an efficient and reliable Helipede Rotary Windrower.

KVERNELAND is continuously making every effort to improve their products. The company reserves the right to make any alternations or improvements to the implement considered necessary. This, however, does not obligate the company to modify implements which have already been supplied.

If you have any questions which are not covered by the operating instructions, please contact your nearest dealer.

We hope you reap a bountiful harvest with the help of the Helipede Rotary Windrower!

Read and observe the operating and safety instructions before system start up!



Fill in your implement details here:

Implement type :.....

Serial number :.....

Initial start-up on :.....

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1 Safety

1.1 For your safety

On delivery, your dealer gave you an explanation of the operation and maintenance of the implement. Please read these operating instructions before operating the implement for the first time and do not fail to observe the safety instructions. Parts of the text which are of particular importance are marked with a pictogram.



This symbol can be found where ever important safety instructions appear in these operating instructions. Follow these instructions strictly and take special care in these cases.

This Helipede Rotary Windrower is equipped with safety devices and has been tested by the German "Landwirtschaftliche Berufsgenossenschaft" (Agricultural Trade Association) in terms of safety and accident protection. However, incorrect use or mishandling of the implement can endanger:

- life and limb of the operator or other persons or animals who are standing within the vicinity of the implement,
- the implement and other material assets of the owner or third persons,
- the performance of the implement.

Anyone who is involved in installation, system start up, operation or maintenance of the implement must have read the following safety instructions very carefully before starting work with the implement, and must observe them at all times.

It's a question of your safety!

1.2 Safety instructions contained in this manual

Safety alert signs:



Danger!

This sign signalizes the danger of accidents or injury leading to death. If you see this safety alert sign in the operating instructions, make sure you employ every necessary and prescribed safety precaution.



Attention!

This alert sign is a warning about the possibility of material damage or of financial and penal disadvantages (e.g. loss of guarantee rights, liability etc.).



Note:

Instructions and important information.

1.3 Nameplate

The nameplate with implement type and serial number is secured to the front left side of the main frame.

**Note:**

Enter the data from the nameplate in the box provided on the third page of these operating instructions.

1.4 Application as stipulated

The Helipede Rotary Windrower is built solely for use in the field of agricultural work and is intended and suitable for the processing of stems which have been mown and are lying on the ground.

Any other use is considered as not conforming to the applications stipulated. The manufacturer is not liable for any damage resulting hereof. The negligent person bears all risks.

The stipulated use of the implement also includes adhering to the manufacturer's instructions pertaining to operation, maintenance and repair work conditions at all times. The Helipede Rotary Windrower may only be operated, serviced and repaired by personnel who have read and understood these conditions and who have been thoroughly informed of the inherent dangers.

All relevant accident prevention regulations, as well as all generally recognized safety, health and traffic regulations, must be complied with.

**Attention!**

Never carry out changes to the Helipede Rotary Windrower yourself; otherwise no warranty will be assumed for any resulting damage.

1.5 Liability and warranty

These operating instructions must be read and observed by all personnel who work on or with this Helipede Rotary Windrower. In addition, this Helipede Rotary Windrower is to be used solely for the purpose stipulated (see chapter 1.4).

1. You may only work with this Helipede Rotary Windrower according to the instructions in the relevant documentation.

This documentation can be made up of the following instruction manuals:

- Mounting instructions
- Operating instructions
- Supplement sheets

2. The following regulations and instructions must be observed:
 - all applicable local accident prevention regulations,
 - all recognized traffic, safety and health regulations,
 - the system limits and safety instructions listed in the technical manual.
3. Any work on the Helipede Rotary Windrower should be carried out using suitable tools and apparatus in perfect condition.
4. You may not use any parts (spares, accessories, lubricants etc.) other than those complying with or exceeding the manufacturer's requirements and you must use them according to the instructions (including the torque values indicated).

A part complies with the manufacturer's requirements when either genuine or approved by the manufacturer.
5. Never carry out changes to the Helipede Rotary Windrower yourself; otherwise no warranty will be assumed for any resulting damage.

**Attention!**

Anyone who disregards the regulations mentioned above is acting with gross negligence. In this case the manufacturer's liability and warranty no longer applies for any resulting damage. The negligent person bears all risks.

1.6 Safety stickers and warning signs



Attention!

Real safety means that you know all safety stickers. This means the type and place of danger, and in particular the relevant safety measures. Always remain alert and be aware of the danger(s).

This Helipede Rotary Windrower is equipped with warning signs (safety stickers). The stickers with the corresponding explanations are listed below and illustrated in the main drawing:

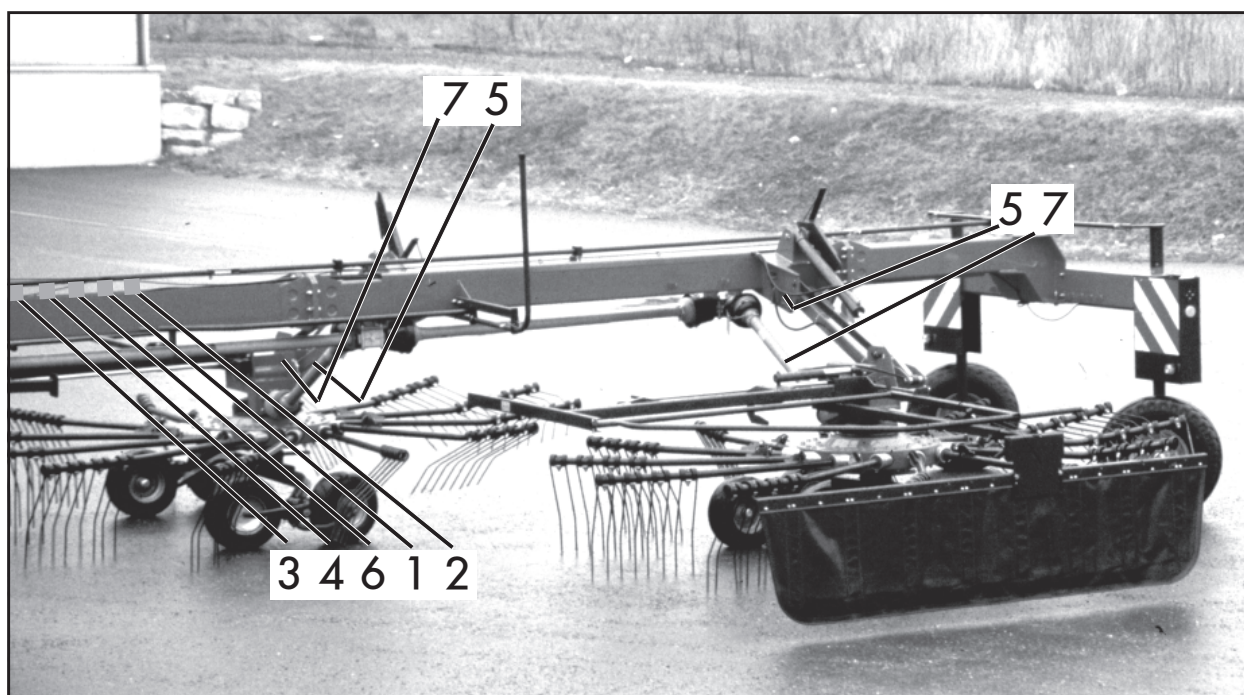
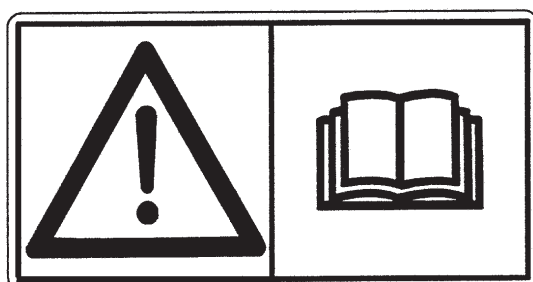
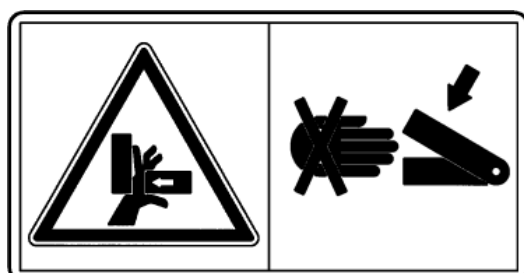


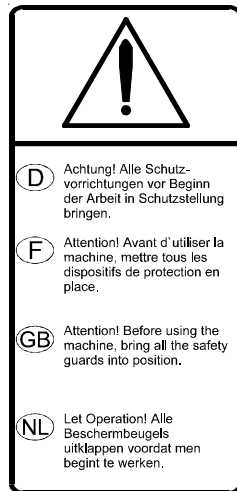
Fig. 1-1



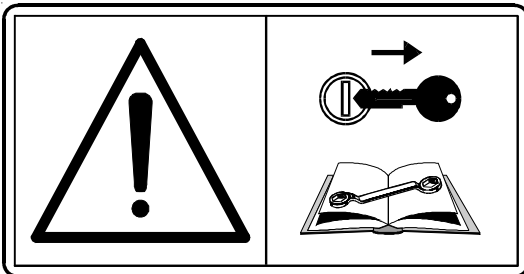
1. Read and observe the instruction manual and the safety instructions before start-up.



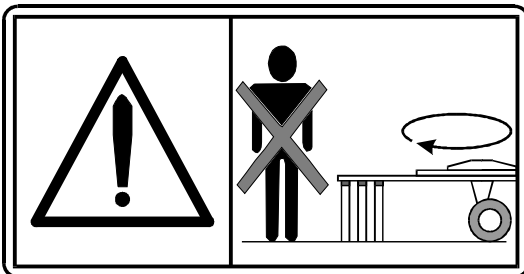
2. Caution when parking the Helipede Rotary Windrower! Keep away from the support foot - risk of being crushed!



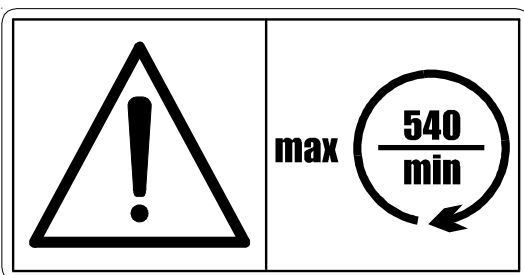
3. Attention! Before using the machine, bring all the safety guides into position.



4. Before proceeding with any maintenance and repair work, you must read the related instructions. All maintenance, repair and adjustment work may only be carried out with the Helipede Rotary Windrower at a standstill. Shut down the engine and remove the ignition key!



5. Keep away from the rotating unit. No-one may be in the immediate vicinity of the Helipede Rotary Windrower when the Helipede Rotary Windrower is running! Before switching on the p.t.o shaft, make sure that no-one can be hit by the rotating unit!



6. The prescribed p.t.o. shaft speed $n_{max} = 540$ rpm must not be exceeded.



7. When actuating the power lift, stay out of the lifting area of the three-point suspension! Keep out of the range of the lifted outer rotating unit!

1.7 Authorized operators

Young people under the age of 16 may not operate the Helipede Rotary Windrower.

The owner of the Helipede Rotary Windrower must provide the operator with the operating instructions and make sure that he has read and understood them. Only then may the Helipede Rotary Windrower be put into operation. The allocation of responsibility for the various tasks on the Helipede Rotary Windrower must be clearly defined and complied with. There may be no uncertainties regarding authority, as these could endanger the safety of the operator.

The owner must ensure that only authorized persons work on the Helipede Rotary Windrower. He is responsible for any third persons within the working area of the Helipede Rotary Windrower.

1.8 General safety and accident prevention regulations

Fundamental rule:

Before every system start up, check the Helipede Rotary Windrower and the tractor for operational safety and road safety. In addition to the instructions in these operating instructions, observe the general safety and accident prevention regulations.

1.8.1 General

1. The warning and safety alert signs provide important advice to ensure the safe operation of the implement. Observe these instructions at all times, for your own safety!
2. Before operation, make yourself familiar with all elements and controls of the implement, as well as with their function. Make sure that all protective equipment is correctly mounted!
3. The operator's clothing should be close fitting. Avoid any loose fitting clothing! Always wear robust footwear!
4. Keep the Helipede Rotary Windrower clean at all times! Fire risk!
5. When travelling on public roads, observe the following:
 - all traffic regulations in force in your country,
 - the permissible axle loads and total weights and
 - the permissible transport dimensions,
 - that the prescribed maximum transport speed in your country for mounted implements is adhered to! (Please note that the maximum transport speed for this mounted implement is 40 km/h)
 Never leave the driver's seat during the journey!
6. Before any transport on public roads, make sure the Helipede Rotary Windrower is in the condition prescribed and secure it in accordance with the manufacturer's instructions!
7. Inspect and install all equipment required for transportation such as lighting, warning and protective devices!
8. All operating devices such as ropes, chains, rods, etc. which act on remote-controlled implement elements, have to be installed in such a way that no unintentional movement is possible in any transport or working positions!
9. Couple the Helipede Rotary Windrower to the tractor as prescribed and fix it to the points as described in the instructions and secure! Proceed with special care when coupling or uncoupling the Helipede Rotary Windrower to/from the tractor!

10. When attaching or removing it, make sure that the support devices are in the appropriate prescribed position in order to ensure stability! Only park the Helipede Rotary Windrower on level and firm ground.
11. Ballast weights, if necessary, are only to be attached to the points designed for this purpose!
12. Do not leave the engine on within closed spaces!
13. Make sure that no-one, (especially children!) is in the danger area! Before start up and operation, inspect the area around you. Good visibility is essential!
14. No-one (other than the driver) is allowed on the Helipede Rotary Windrower during transport! If work has to be carried out while the Helipede Rotary Windrower is in operation, the person responsible may then only use the designated place of work and carry out the work intended!
15. Always select the speed according to conditions. Avoid sudden turns when travelling up-hill, down-hill or across a slope!
16. Trailed implements and ballast weights influence driving, as well as the steering and braking performance! Make sure there is sufficient steering and braking capacity!
17. When going round bends, take into account the overhang and the flywheel mass of the Helipede Rotary Windrower!
18. Make sure all protective devices are installed and in position before operating the Helipede Rotary Windrower!
19. Keep clear of the working and danger area of the implement!
20. Keep clear of the turning/swivel area of the Helipede Rotary Windrower!
21. Caution when working on implement elements operated by additional driving systems (e.g. hydraulics). Risk of squeezing and shearing!
22. Secure the Helipede Rotary Windrower prior to leaving the tractor! The Helipede Rotary Windrower has to be lowered completely to the ground. Stop the engine and remove the ignition key!
23. No-one is allowed to step between the tractor and the Helipede Rotary Windrower until the vehicle is secured against unintentional movement by means of the parking brake and/or wheel chocks!
24. Observe the permissible axle load and total weight of the implement, as well as the permissible transport dimensions!

1.8.2 Mounted implements

1. Prior to coupling or uncoupling implements to/from the tow bar, all controls of the tractor hydraulics have to be positioned in such a way that any unintentional lifting or lowering of the implement is ruled out!
2. It is essential that the hitch category of the Helipede Rotary Windrower matches that of the tractor for the three-point linkage!
3. There is danger of squeezing or shearing in the vicinity of the tow bar!
4. Do not step between tractor and Helipede Rotary Windrower when operating the outer controls of the three-point linkage!
5. When the Helipede Rotary Windrower is in transport position, always make sure that there is a sufficient lateral limitation of the tractor three-point linkage!
6. When travelling on public roads with the Helipede Rotary Windrower lifted, make sure the control lever is secured against lowering!

1.8.3 Power take-off operation

Only valid for p.t.o.-driven implements.

1. Do not use cardan shafts other than those specified by the manufacturer!
Make sure that the cardan shaft is always properly installed and secured!
The protecting tube as well as the cardan shaft guard must be installed. All guards must be in perfect condition! Secure the cardan shaft against rotation by fastening the chains to the tractor and the implement!
Observe the overlap prescribed for cardan shaft tubes, both in transport and working position!
2. When working with the cardan shaft, no-one is allowed to be in the vicinity of the rotating cardan shaft!
3. If p.t.o. shafts with overload or slip clutches are used, these clutches have to be installed on the implement side!
4. Before installing or removing the p.t.o. shaft, disengage the p.t.o., stop the engine and remove the ignition key!
Place the detached p.t.o. shaft onto its support!
After the p.t.o. shaft is detached, slide the protective caps over the p.t.o. stub!
5. The p.t.o. shaft guard must be positioned correctly and in perfect condition! Before engaging the p.t.o. shaft, make sure the selected speed and direction of rotation of the tractor p.t.o. shaft corresponds with the permissible speed and direction of rotation of the implement! Before engaging the p.t.o. shaft, make sure that no-one is in the danger area of the implement!
6. Never engage the p.t.o. shaft when the engine is off!
7. Always disengage the p.t.o. shaft if the angle becomes too wide or if the p.t.o. shaft is not needed!
8. Attention! Working elements continue to rotate after the p.t.o. shaft is disengaged. Do not approach the implement for the duration. Make sure the Helipede Rotary Windrower has completely stopped rotating before carrying out any work on it!
9. Before cleaning, lubricating or adjusting the p.t.o.-driven Helipede Rotary Windrower or the cardan shaft, disengage the p.t.o. shaft, stop the engine and remove the ignition key!
10. Repair any damage prior to working with the Helipede Rotary Windrower!

1.8.4 Hydraulics

1. Attention! The hydraulic system is under high pressure!
2. Check the hydraulic hoses at regular intervals and renew them when damaged, at the latest, however, every 6 years! The spare hoses must comply with the technical requirements laid down by the manufacturer of the implement! Only use genuine parts!
3. Before working on the hydraulics, lower the Helipede Rotary Windrowers and aggregates. Then release pressure from the system and stop the engine.
4. When tracing leakages, use suitable tools. Danger of injury!
5. When connecting hydraulic cylinders, make sure the hydraulic hoses are coupled as prescribed! Pressure should be released from the system both on the tractor and implement side prior to coupling hydraulic hoses to the tractor hydraulics!
6. In the case of hydraulic connections between tractor and Helipede Rotary Windrower, it is advisable to mark the coupling sleeves and plugs to avoid any incorrect connections!
Should the connections be confused, the function is reversed (e.g. raising/lowering). Danger of accidents!
7. Hydraulic oil forced out under high pressure can break the skin and cause severe damage! In the case of injury, report to a doctor immediately as there is a risk of infection!

1.8.5 Tyres

1. Prior to working on the tyres, make sure the Helipede Rotary Windrower is standing safely and secured against rolling away! Wheel chocks!
2. The fitting of tyres and wheels presupposes sufficient knowledge as well as the availability of all necessary tools!
3. Only skilled workers using appropriate tools may repair or mount tyres and wheels!
4. Check the inflation pressure at regular intervals. Observe the prescribed inflation pressure!

1.9 Safety when implement is not in use or is in storage

1. Store the Helipede Rotary Windrower in a safe place.
2. Make sure that no children play on or around the Helipede Rotary Windrower.
3. Only couple or uncouple the Helipede Rotary Windrower on firm, dry and level ground. This minimizes the danger of the implement tipping, or sinking into the soft ground or mud.
4. Place the detached cardan shaft onto its support!
5. Use wheel chocks to prevent the Helipede Rotary Windrower from rolling away.
6. Only park the Helipede Rotary Windrower with the rotary unit lowered (danger of tipping, injury from tines)!

1.10 Maintenance

Directions quoted ("right", "left", "in front", "behind") are always taken as being in the direction of travel.

The direction of rotation is defined as follows:

- Direction of rotation right = clockwise,
- Direction of rotation left = anticlockwise,
- Rotations around a vertical axis, taken from top to bottom,
- Rotations around a horizontal axis, at a right angle to the direction of travel, taken from left to right,
- Rotations of nuts, bolts etc. are always taken from the side from which they are operated.

1. As a rule, disengage the driving system, secure the tractor and stop the engine prior to carrying out any maintenance, servicing, cleaning or repair work! Always remove the ignition key!
2. Check all nuts and bolts at regular intervals and retighten as required! Comply with prescribed torques!
3. If the Helipede Rotary Windrower is raised, prop up the implement with suitable supports before carrying out maintenance!
4. When changing working elements, use appropriate tools and protective gloves!
5. Dispose of used oil, grease and filters according to regulations!
6. Always disconnect the power supply before carrying out any work on the electrical system!
7. The protection devices which are subject to wear and tear must be inspected frequently and be exchanged in good time.
8. The generator and battery cables should be disconnected before any electrical welding is carried out on the tractor or the mounted Helipede Rotary Windrower!
9. Do not clean the Helipede Rotary Windrower with aggressive cleaning agents. This can cause corrosion to polished metal surfaces, e.g. hydraulic cylinders.

1.11 Safety instructions for the Helipede Rotary Windrower

1. General safety instructions are contained in the documentation VSG 1.1 of the German "Landwirtschaftliche Berufsgenossenschaft" (Agricultural Trade Association).
2. Check the cardan shaft before the first operation and adjust it to your tractor, if necessary (see chapter "Adjusting the cardan shaft")!
3. Check the tyre pressure (1.5 bar) at regular intervals.
4. Before each transport:
 - disengage p.t.o shaft,
 - wait until rotary units come to a complete standstill,
 - place the Helipede Rotary Windrower in transport position,
 - check that it is correctly secured,
 - close the hydraulic stop valve.
5. Make sure that no-one is within reach of the Helipede Rotary Windrower when raising, lowering, and swivelling in the rotary unit.
6. Repair work on pre-tensioned energy storers (springs, accumulators etc.) may only be carried out by specialists using the correct tools which comply with all prescribed standards. All such repairs may only be carried out in specialist workshops!
7. Before proceeding with any maintenance and repair work, you must read the corresponding instructions! All maintenance, repair and adjustment work may only be carried out with the Helipede Rotary Windrower at a standstill! Shut down the engine and remove the ignition key!
8. Keep away from the rotating unit. No-one may be in the immediate vicinity of the Helipede Rotary Windrower when the implement is running! Before switching on the p.t.o shaft, ensure that no-one can be hit by the rotating unit!
9. The prescribed p.t.o. shaft speed $n_{\max} = 540 \text{ rpm}$ must not be exceeded!
10. Do not step between the tractor and the Helipede Rotary Windrower. Risk of being squeezed and crushed!
11. When actuating the power lift, stay out of the lifting area of the three-point linkage.
12. Check all bolted joints and, if necessary, tighten them after approx. 5 operating hours. Observe torque!
13. Before each start-up, check that all tine bars are securely locked.
14. When parking the Helipede Rotary Windrower, place the cardan shaft into the support (arrow left)!

1.12 Regulations for travelling on public roads

Only valid for the Federal Republic of Germany!

The German road traffic licensing regulations (Straßenverkehrs-Zulassungs-Ordnung - StVZO) specify that all mounted and trailed implements have to be equipped with rear reflectors and electric lighting. In order to draw attention to the sharp corners and edges, mark the outer edges on the front and rear of the implement with red and white striped warning boards so that they are clearly visible from the front and the rear.

When using public roads, the legal provisions on width marking, lighting etc. are to be observed. If the implement exceeds the prescribed maximum width, special permission is to be applied for.

Also observe the legal provisions in the Instructions for Mounted Implements (Merkblatt für Anbaugeräte). These instructions stipulate for example that for each type of load the front axle load must be at least 20 % of the tractor tare weight.

2 Technical specifications

2.1 General

Type	6585
Mounting type	
Lower link Cat. I+II	standard
Dimensions / weights	
Working width	7.7 m
Transport length	8.9 m
Transport width	2.82 m
Transport height with arms mounted	4.08 m
Transport height with arms removed	3.20 m
Weight	approx. 2160 kg
Swath deposition	
Lateral swath left	standard
Rotary units / arms / tines	
No. of rotary units	2
No. of arms per rotary unit	12
No. of tines per arm	4 (5)
Bent tine arms	standard
Removable tine arms	standard
Height adjustment, rotary unit	mechanical
Hydraulic individual lift	option
Tine loss safeguard	option
Wheels under rotary units	
TerraLink undercarriage	16 x 6.50-8 Imp., 6PR
Chassis	
Steered wheels - standard	10.0/75 - 15.3
Safety features	
Lights	standard
Warning plates	standard

2.2 Noise metering

The emission sound level was measured in accordance with EN 11 201 and EN 11 204.

A-evaluated equivalent sound level

	Tractor	Tractor and Helipede Rotary Windrower
Cab window open	76.6 dB(A)	83.5 dB(A)
Cab window closed	74.2 dB(A)	75.0 dB(A)

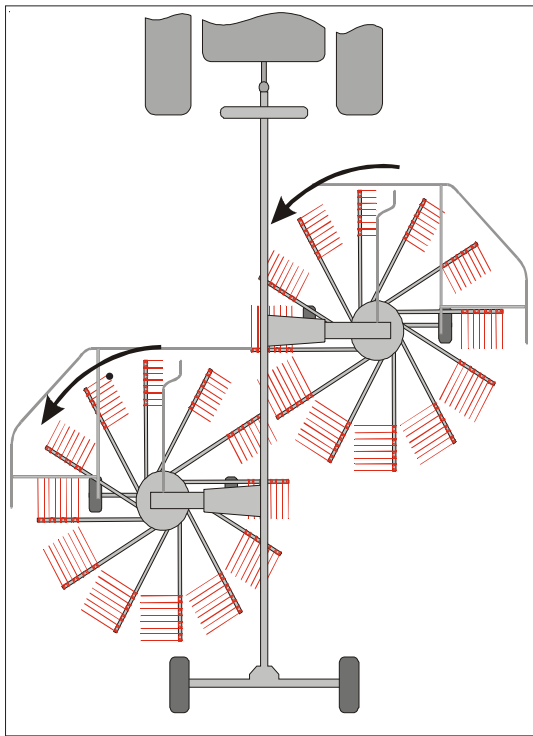


Fig. 3-1

3 Operation

3.1 Important information

A tractor with a single-action control unit is required for operating the rotary swather (double-action control unit required only with hydraulic swathe cloth).

For transport the rotary swather should be lowered to the deepest possible position using the lower links.

When moving the machine to working position lift lower links until the main carrier arm is tilted forward approx. 1°.

In this configuration the front end of the arm is 150 mm deeper than the rear end. That will improve the contour following characteristics of the rotors.

A minimum oil quantity of 20 liters/min. and a minimum oil pressure of 150 bar are necessary to lift the rotator.

The tine bars are either included separately or ready mounted, depending on the transport conditions. When mounting the tine bars, please note that there are left and right tine arms.



Attention!

The left hand tine arms have thicker spring tines than the right hand ones.

Taarup rakes have identical tine arms for the RH and LH rotor.

Left tine carriers are identified with stickers.

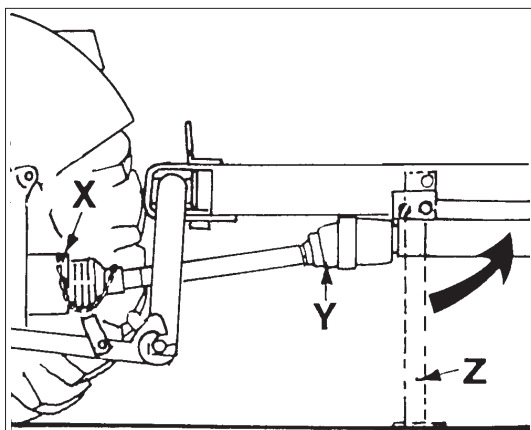


Fig. 3-2

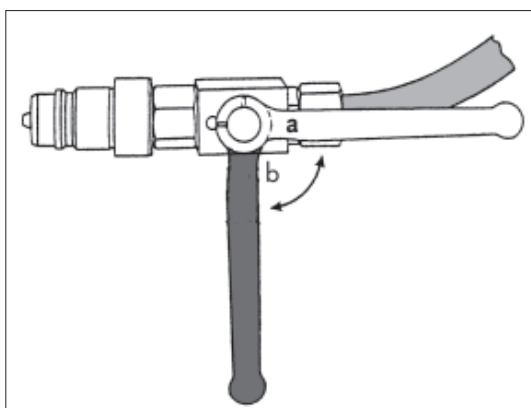


Fig. 3-3

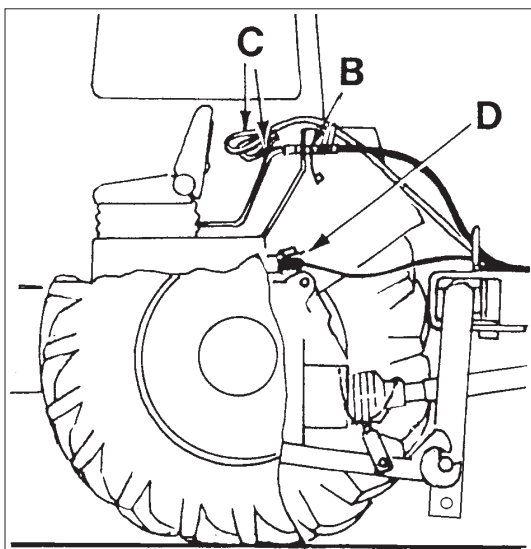


Fig. 3-4

3.2 Mounting to the tractor



Danger!

Work may only be carried out with the machine at a standstill! Shut down the engine and remove the ignition key!

- Couple the Helipede Rotary Windrower onto the tractor lower links (fig. 3-2).
Ensure that it is locked properly!
- Fix the lower links laterally.
- Connect the cardan shaft to the tractor p.t.o shaft.
- Lock safety pipe (X) with chain to prevent it turning.
- The wide-angle joint (Y) must be on the machine side. Make sure the cardan shaft engages in the shaft ends.
- Raise the support foot (Z) and lock in position.
- Remove the wheel chocks, place them in the parking pockets between the warning plates and secure.

Tractor connections:



Attention!

When connecting and disconnecting the hydraulic line, close the stop valve and adjust the tractor hydraulic system to "free float" (fig. 3-3)

a = open
b = closed

- Connect the hydraulic system (B). Connect the hose pipes to **a single-acting control unit** (fig. 3-4). (With hydraulic swathe cloths, a double-action control unit is also required)
- Route the unlocking cables (C) for the lateral machines in the tractor cab.
- Connect up the electric system (D).



Attention!

Connect up all hydraulic and electric lines in such a way as to avoid crushing or stretching the lines!

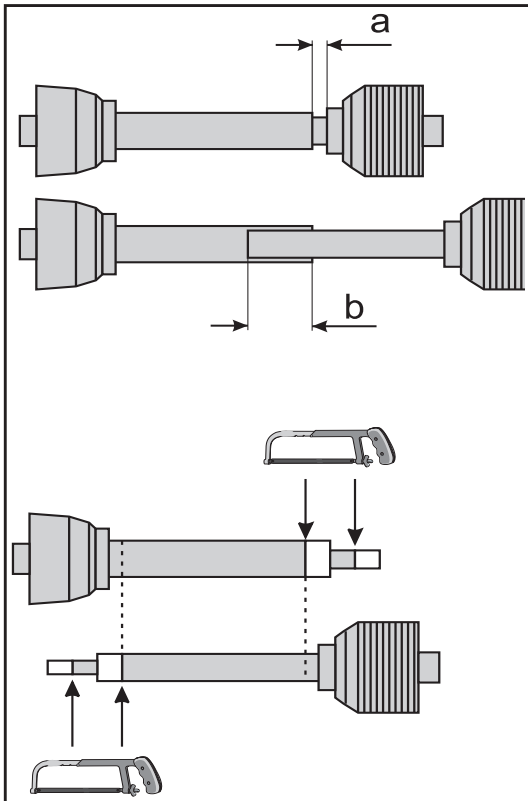


Fig. 3-5

3.3 Adjusting the cardan shaft

The length of the cardan shaft has been rated in the factory to fit practically all tractors. It will only need to be adjusted in exceptional cases for individual tractors. Check the length of the cardan shaft as follows before using for the first time (fig. 3-5):



Danger!

Work may only be carried out with the machine at a standstill! Shut down the engine and remove the ignition key!

- Pull the cardan shaft apart and push both halves on the p.t.o. shaft (slip clutch on the machine side).
- Hold the two shaft halves next to each other and check that when the Helipede Rotary Windrower is raised and lowered, or when going round bends,
 - there is an overlap of at least 250 mm (b) and
 - the cardan shaft does not sit on the block (minimum clearance (a) = 20 mm).
- If the cardan shaft has to be shortened, cut off the sliding and safety pipes by the same amount.
- Deburr the tube ends, remove any loose chips, grease the contact points well.
- After shortening the cardan shaft, the minimum overlap and the minimum clearance have to be verified if a different tractor is used.

3.4 Changing over from transport to working position

1. Fold guard yoke (G) upwards, push it to the center of the vehicle and secure it with fixation dowel (H) (fig. 3-6).

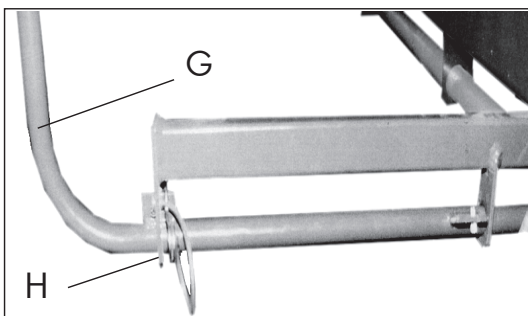


Fig. 3-6

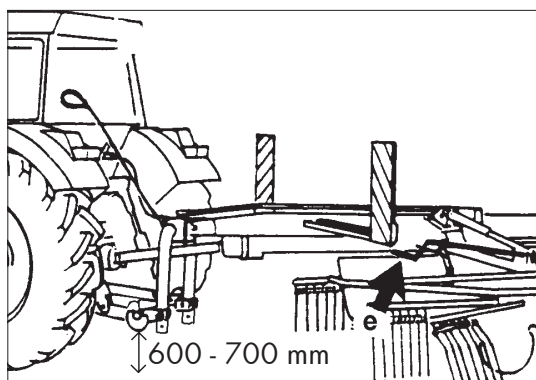


Fig. 3-7



Fig. 3-8

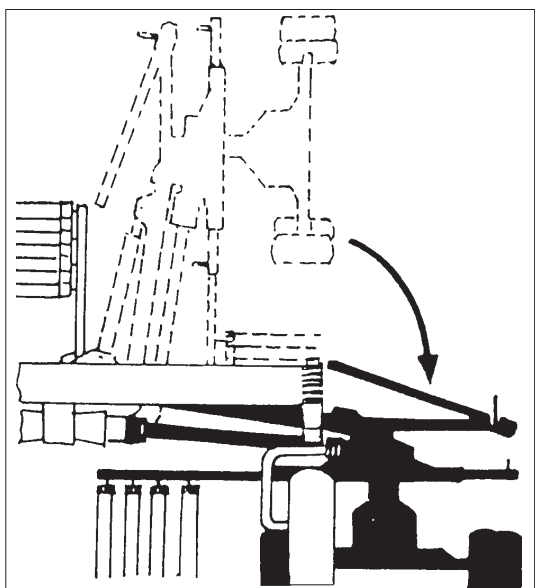


Fig. 3-9

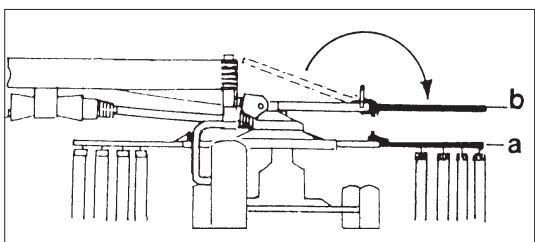


Fig. 3-10

2. Lift lower links 600 to 700 mm (fig. 3-7) so that the rotary swather is slightly tilted forward.

3. Fold the swath cloth out to the end position hydraulically (option fig. 3-8).

**Attention!**

Fold the swath cloth upwards as it will otherwise collide with the front rotary unit!

4. Open stop valves and lower lateral machines hydraulically: to do so, release the lift limit lock with the black unlocking cable (provide hydraulic relief for the lifting arms where necessary).

**Danger!**

Before lowering the lateral machines, ensure that there is no-one in the swivel range of the machine (fig. 3-9)!

**Danger!**

Work may only be carried out with the machine at a standstill! Shut down the engine and remove the ignition key!

5. If necessary, remove the tine bars from the frame and insert into the rotary unit arms and secure with hinged pins; beware of left-hand (short) and right-hand (long) design (a) (fig. 3-10)!

**Caution**

Left tine carriers are identified with stickers.

6. Unfold lateral protective yokes (b). To do so, pull bars forwards and swivel until it engages (fig. 3-10).

7. Adjust the height of the rotary units with the cranks (e) until the tines just touch the ground (fig. 3-7).

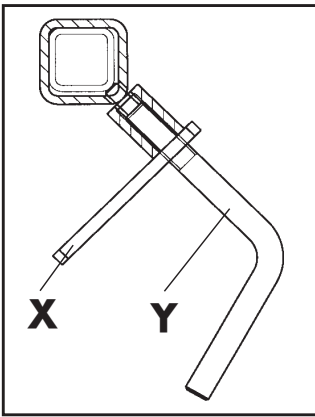


Fig. 3-11

8. Adjust the swath cloth

- Put the swath cloth into desired position
- When fixing the swath cloth, ensure that there is no play. Tighten toggle screw "Y" by simultaneously swivelling the swath sheet and lock it with yoke "X" (fig. 3-11).

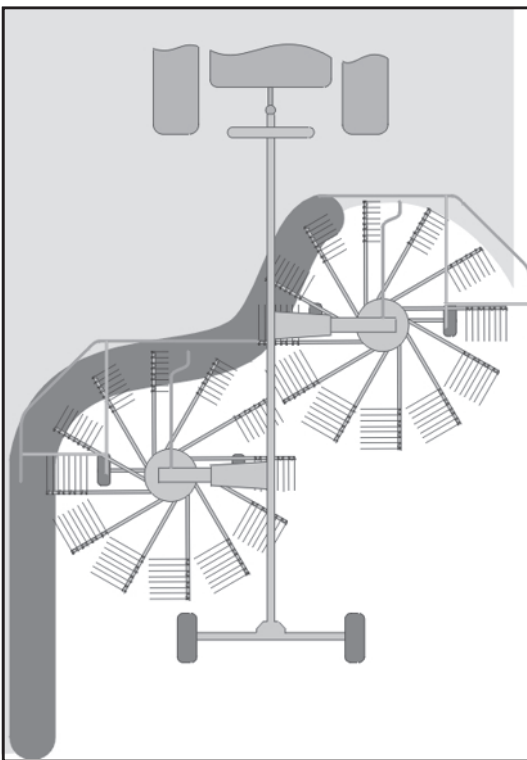


Fig. 3-12

3.5 Operating the Helipede Rotary Windrower

- Before starting operations, bring the safeguards into the safety position. Ensure that there is no-one in the operating range of the machine!
- Select speed so that all the harvest can be picked up cleanly.
- Do not use the slip clutch for longer than 10 seconds.
- Adjust the p.t.o. speed to the state of the fodder (400-460 rpm = ideal p.t.o. speed).
- Reduce gear or correct height setting of lower links when machine subject to overload.
- Switch off p.t.o. shaft when cardan shaft at large angle.
- Switch tractor control unit to "float" position. This allows the lateral machines to adjust to unevenness in the ground.

**Note:**

The maximum time range is approx. 420 mm.

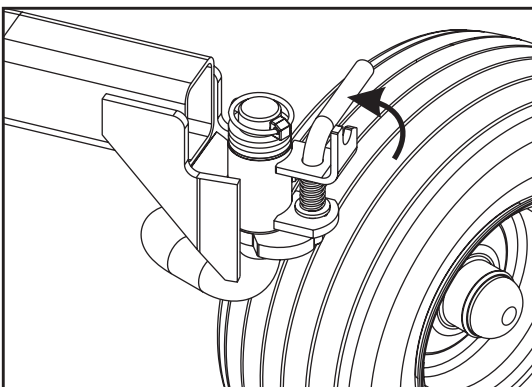


Fig 3-12 a

- The wheels left hand rotor can be locked to prevent the machine drifting off on slopes (Fig. 3-12a).

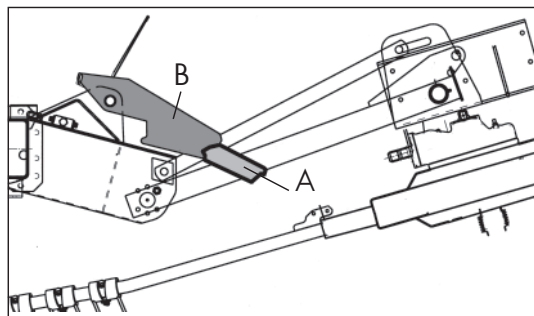


Fig. 3-13

3.5.1 Lifting the lateral machines with lift limit

When crossing swaths which have already been treated, the lateral machines can be lifted to a middle position (fig. 3-13).

- Lift lateral machines hydraulically without pulling the unlocking cable, until the segments (A) on the lifting arms run into the lift limits (B).
- The higher the lower links are lifted, the higher the spring-mounted tines rise over the swath (see chap. 4.3).
- After crossing the swaths, the lateral machines can be lowered.

3.5.2 Operation with only one lateral machine

- Pull up the lateral machines. Unlock only the required lateral machine with the unlocking cable and lower hydraulically.



Danger!
Work may only be carried out with the machine at a standstill!
Shut down the engine and remove the ignition key!

- In order to prevent accidents and avoid damage to the cardan shaft, pull the cardan shaft of the raised rotary unit from the shaft stump of the angled gear, and place it in the parking pocket on the frame (ensure it engages properly) (fig. 3-14).

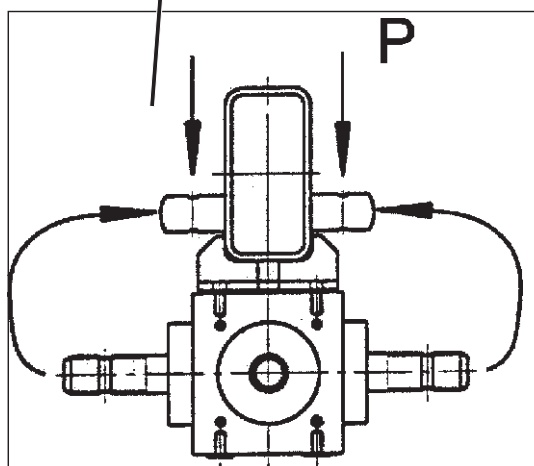
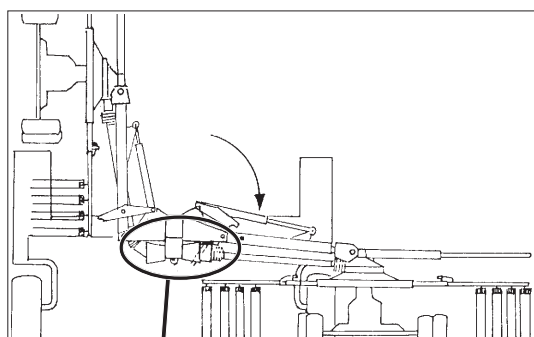


Fig. 3-14

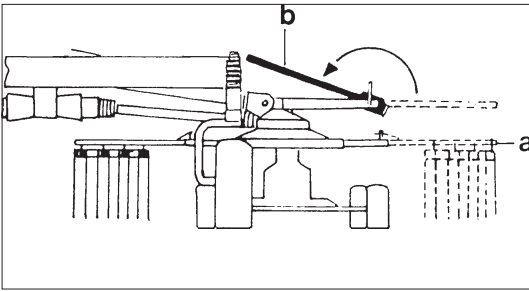


Fig. 3-15

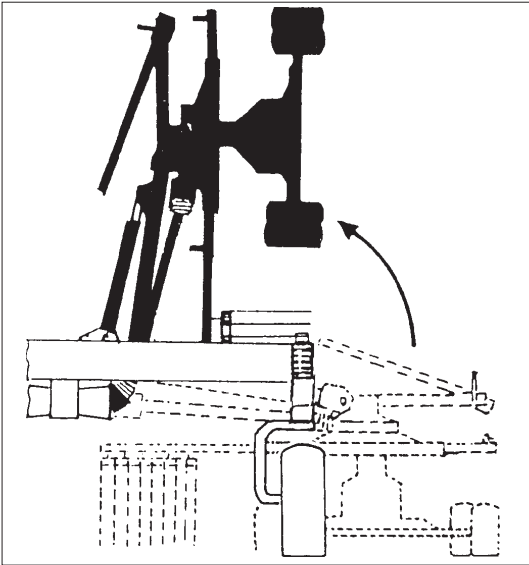


Fig. 3-16

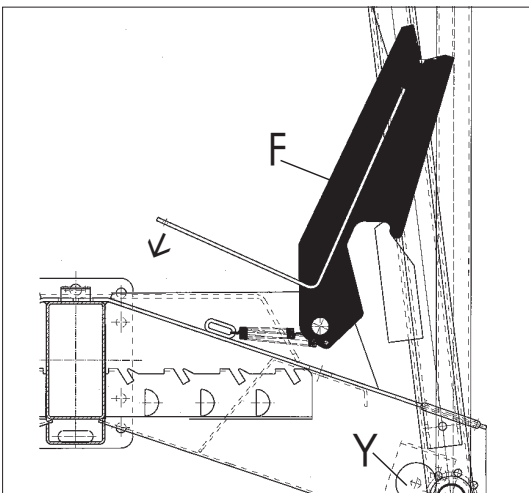
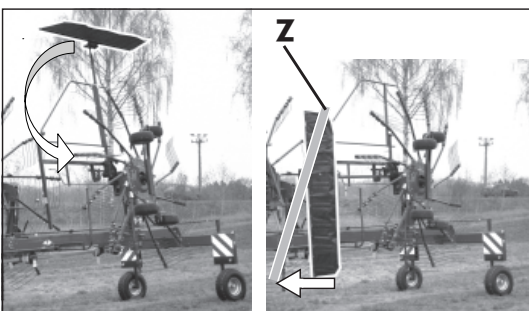


Fig. 3-17



3.6 Changing over from working to transport position

1. Remove the 4 outer tine bars on both sides, insert and secure them on the rear and front of the frame in order to achieve minimum transport height.
2. Swivel the lateral protective yokes (b) inwards until the locking device engages (fig. 3-15).
3. Push in rigid swathe former. (Not necessary with hydraulic swathe former option)
4. Open the hydraulic stop valve, raise the lateral machines with the tractor hydraulic system (fig. 3-16), releasing the lift limits with the black unlocking cable until the segments engage on the lift arms in the lift limit (F) (fig. 3-17) and both hydraulic cylinders are completely retracted. Then close the hydraulic stop valve again (fig. 3-4), so that it is not possible for the lateral machines to be lowered during road transport by unlocking the lift limits by mistake.



Attention!

Before swivelling in the lateral machines, switch off the p.t.o. shaft and wait for the rotary units to come to a standstill!



Attention!

With a TerraLink chassis, the hoop guards must press onto the rubber buffers of the transport support (adjust if necessary).

5. Lower the swath cloth hydraulically (fig. 3-18).



Attention!

Lower the swath cloth, as the maximum transport height of 4.08 mm will otherwise be exceeded!
 Risk of collision when additional swath deflector fitted (option).
 First move swathing deflector manually to position (Z) and then fold down using hydraulic power.

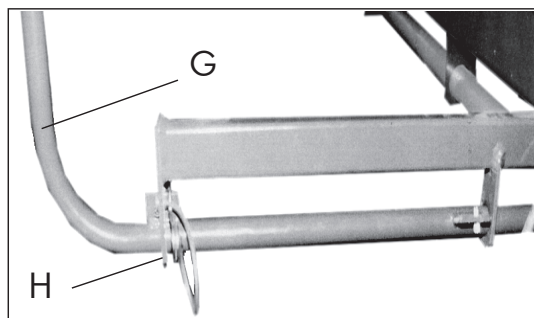


Fig. 3-19

6. For road travel and parking position, pull the guard yoke (G) outwards, lower it and lock it with spring pin (H) (fig. 3-19).
7. Lower the lower links to 250 - 200 mm in order to ensure that a transport height of 4 m with mounted tine bars and protective yokes is not exceeded during transport. If more ground clearance is needed due to unevenness, the lower links must be raised temporarily.

3.7 Parking the Helipede Rotary Windrower

- Swivel support foot (a) downwards until the locking device engages (fig. 3-20).



Danger!
Ensure that there is sufficient stability!
Only park the machine on flat, solid ground!

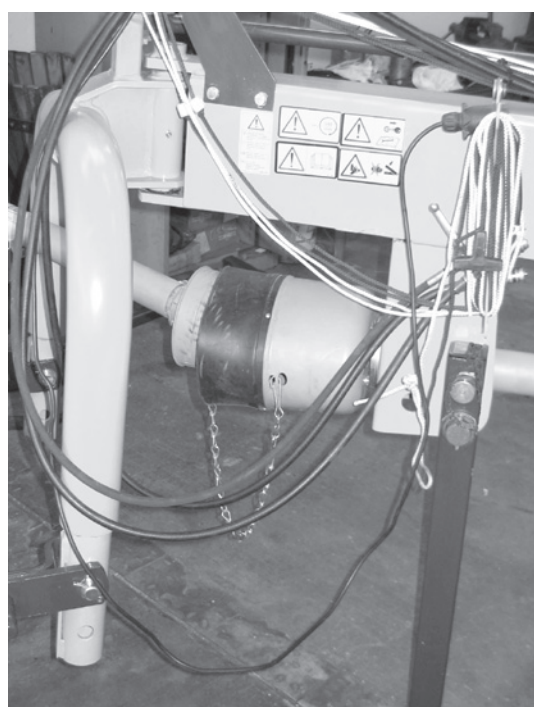


Fig. 3-20

- Place wheel chocks under the Helipede Rotary Windrower to prevent it rolling away!
- Remove the cardan shaft (b) from the tractor and place in the storage bar (fig. 3-20).
- Switch the tractor control valve to "float" mode, close the stop valves and disconnect the hydraulic hoses, place the coupling connectors in the parking position.
- Disconnect the electric connectors and place in the parking position.
- Wind the traction ropes on the longitudinal support up onto the 2 hooks.
- Move lower link down until the support foot is correctly positioned, then uncouple the machine.

4 Settings

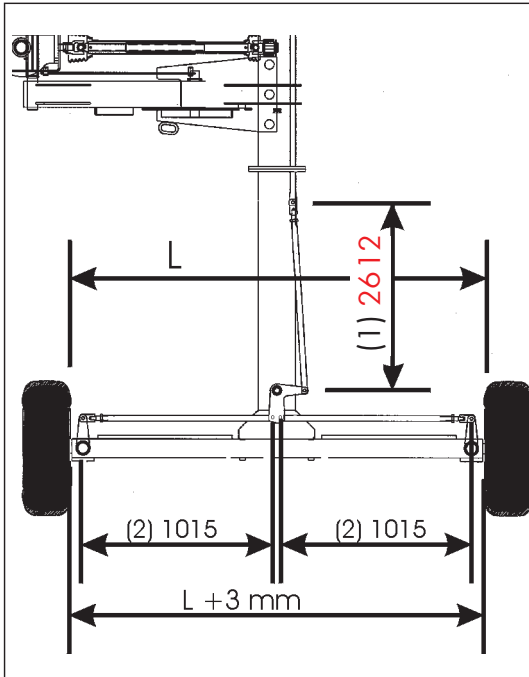


Fig. 4-1

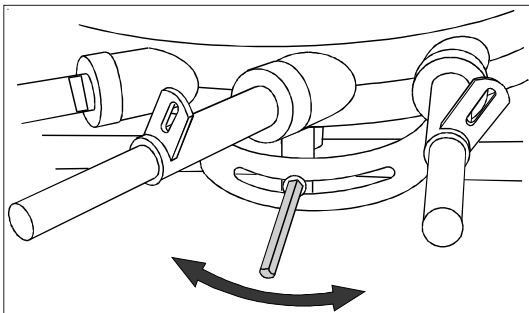


Fig. 4-2



Danger!

All setting, repair and installation work may only be carried out with the machine at a standstill!
Shut down the engine and remove the ignition key!

4.1 Adjusting the track width

Control dimensions: (fig. 4-1)

- Control rod "1": middle clearance between the two articulated heads = $2042 \text{ mm} \pm 1 \text{ mm}$
- Control rods "2": middle clearance between the two articulated heads = $1015 \text{ mm} \pm 1 \text{ mm}$
- Check that it does not swerve when using roads.
- For smoother run, set the toe-in to approx. 3 mm.

4.2 Adjusting the disk cam

The disk cam is fully variable. For this purpose there is an adjusting lever at the back of the machine over the chassis. This lever also acts as locking screw to prevent unintentional adjustment (fig. 4-2).

The point at which the tines are lifted (earlier or later) can be adjusted depending on the type of fodder.

Adjustment:



Caution!

Never step under the lifted machine.
 To adjust the cam track remove two tine arms from the area of the adjusting device.
 Danger of injury!

- Place the Helipede Rotary Windrower in working position
- Move the adjusting lever *in* the direction of rotation of the rotary unit: the tines are lifted later
- Move the adjusting lever *in the opposite* direction of rotation of the rotary unit: the tines are lifted earlier

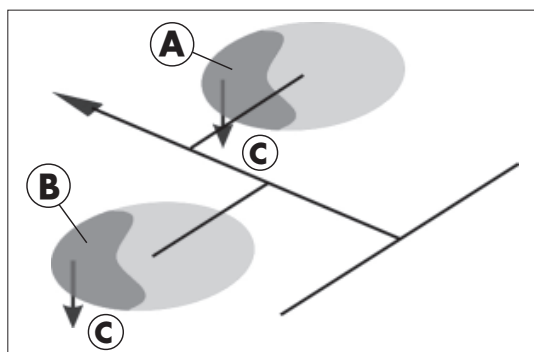


Fig. 4-3

4.3 Rotor pitch / fine adjustment

If uneven raking becomes a problem, the rotor pitch should be readjusted.

Functional description (fig. 4-3):

- In the sectors A (rh rotor) and B (lh rotor) of the rotor periphery, tines are raking more crop than in the remaining area (raking speed is reduced in the sectors A and B due to ground speed and rotor rotation).
- Tilting the rotors downward (C) will increase the crop volume in each of the two sectors. This can be done by adjusting the wheel axles.
- Best results are obtained by tilting the rotors abt. 20 mm downward in both sectors concerned.

Adjusting procedure (fig. 4-4):



Danger!

Work may only be carried out with the machine at a standstill. Remove the ignition key. Secure the tractor in order to prevent it from rolling away!



Lifting the front / rear rotor

Front rotor: Lift the front rotor 20 cm clear of the ground and close the shut-off tap.

Rear rotor: Lift the front rotor completely and lock; lower the rear rotor until it is 20 cm clear of the ground.

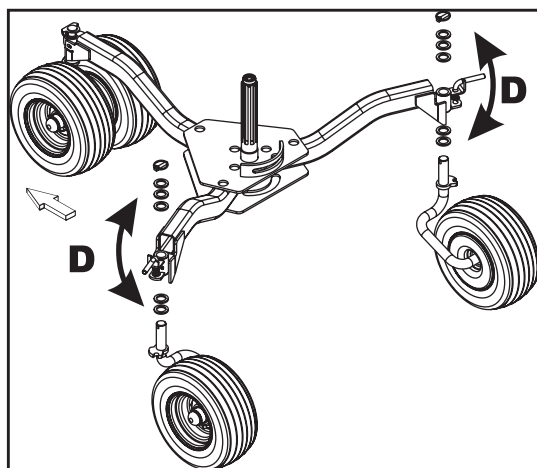


Fig. 4-4

- Before starting work check tyre pressure (1.5 bar), remove tine arms and lock rotors by closing the ball cock on the hydraulic line (see fig. 3-4).
- Adjust rotor pitch by installing 5 mm shims (D) as required at the top or lower side of the axle support (fig. 4-4).
- Position axle stubs so as to obtain the following ground clearance of the tine tips:
left hand rotor: tines slightly touching the ground when delivering the crop; right hand rotor: abt. 20 mm.

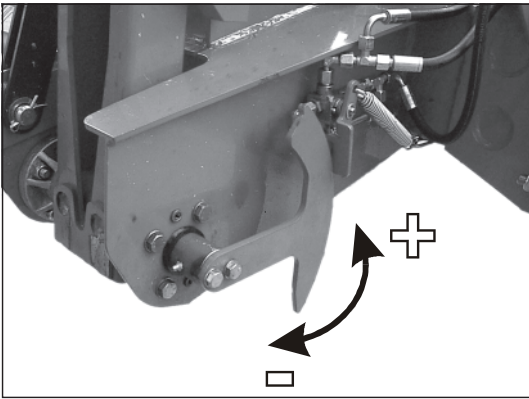


Fig. 4-5

4.4 Excavation delay

The excavation delay of the rear rotator can be adjusted via the control segment on the right lifting arm. To perform adjustment, loosen both screws and twist segment in the slots (illustration 4-5)

+ = later excavation

- = earlier excavation



Danger!

Work may only be carried out with the machine at a standstill. Remove the ignition key. Secure the tractor in order to prevent it from rolling away!

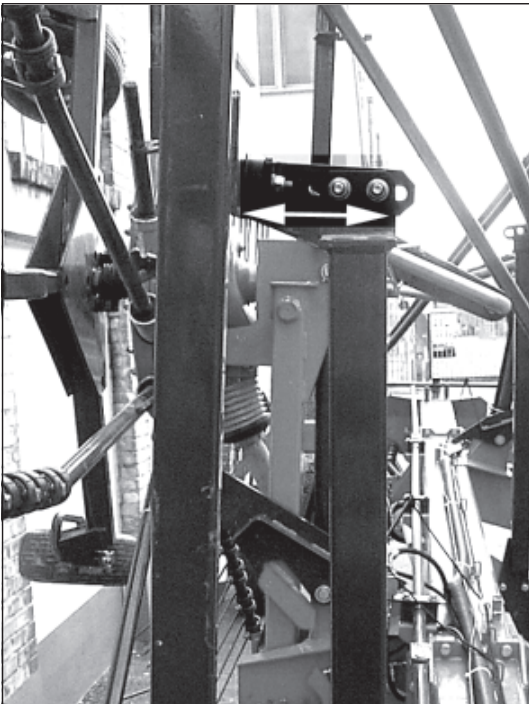


Fig. 4-6

4.5 Adjustment of the transport support

Adjust rubber buffers so that the hoop guards are securely in the transportation position.

This prevents the rotors „hunting“ and ensures a safe road transport.

5 Maintenance of the machine



Danger!

All setting, repair and installation work may only be carried out with the machine at a standstill!

Shut down the engine and remove the ignition key!

5.1 General maintenance and checks

Regularly remove fodder that has accumulated on the swath sheet, on the wheels and on the cross bar, in order to ensure correct functioning.

After approx. 5 operating hours, check the Helipede Rotary Windrower thoroughly. All screws, particularly those fastening the spring-mounted tines, rotary unit arms and axles, must be checked and tightened where necessary.

Torque for

Spring-mounted tines	= 90 Nm
Rotary unit arm attachment	= 90 Nm

5.2 Tine attachment

Check that the tines are firmly attached every time before starting work. When replacing or renewing the tines, only use original parts.

Always ensure that the tyres have the prescribed air pressure:

Tyres	10.0/75 - 15.3	= 2,0 bar
Tyres	10.0/80 - 12	= 2,0 bar
Tyres	16 x 6,50-8	= 1,5 bar

When changing the wheels, the wheel nuts M12 may only be **tightened** with **20 Nm** to prevent damage to the plastic rings.

5.3 Caring for the cardan shaft

Regular maintenance results in a long service life. Check proper functioning of the cardan shaft every time before use.

Place the cardan shaft in the storage bar when parking the machine.

At the end of the season, clean the cardan shaft thoroughly in all parts, and oil or grease all parts.

5.4 Winter storage

The following jobs are to be completed before putting the machine into winter storage:

- Clean the machine thoroughly
- Tighten or check all screws
- Repair or replace damaged parts
- Repair any damaged paintwork
- Lubricate all bearings according to the lubrication diagram
- Check tyre pressure
- Check steering, exchange parts in case of wear or too much play.

5.5 Lubrication diagram and quantities

The lubrication diagram indicates all lubrication points as points or arrows. You can achieve a long service life for your machine by observing all maintenance and lubrication intervals stated in these instructions.

*Lubricate the shafts and hinged points every **50 hours**, but at least before and after every season (to prevent penetration of moisture and to remove any dirt) (fig. 5-2 / fig. 5-3).*

Use lubricating grease K 2k in acc. with DIN 51825, e.g. "Deutzer Öl", "HFL 300 W" or "Shell Retinax A". Clean the lubrication nipples and application nipples of the grease gun before applying the grease gun.

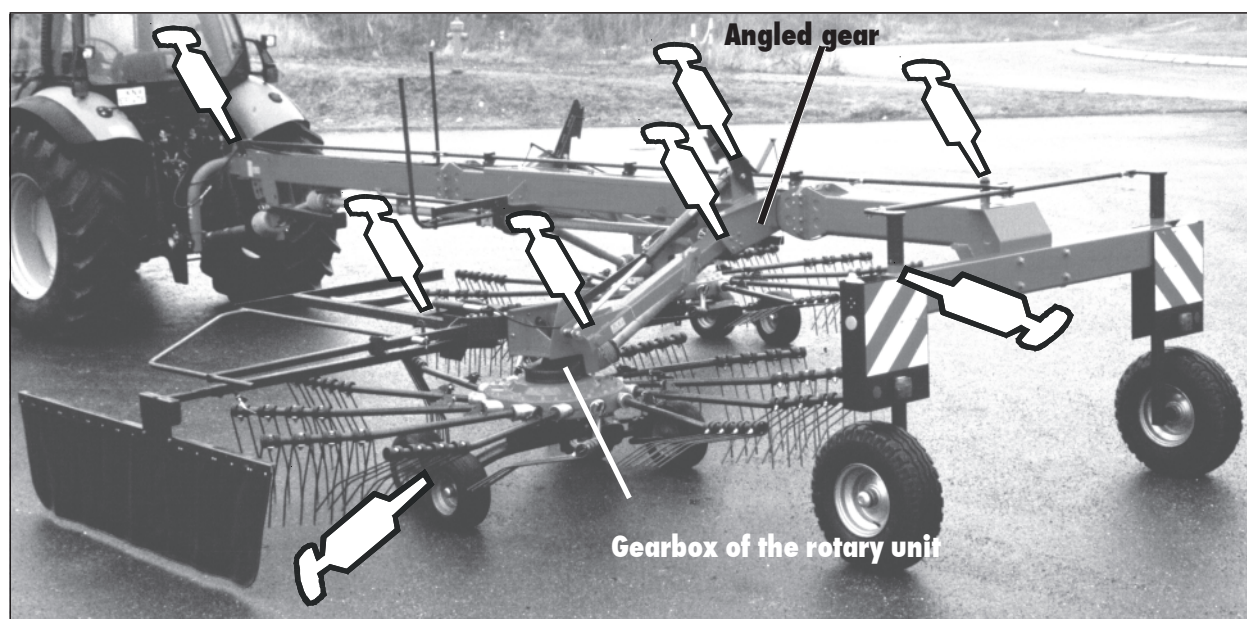


Fig. 5-1

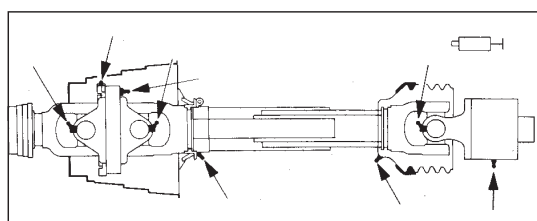


Fig. 5-2

Lubricate the cardan shafts with brand-name grease (see above) before system start up and every **8 operating hours** (fig. 5-2).

Before any greater idle period, clean and lubricate the cardan shafts (fig. 5-3).

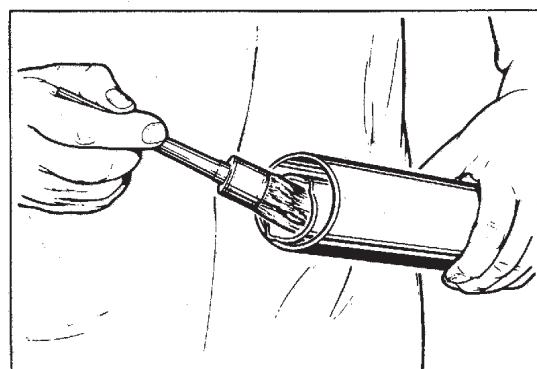


Fig. 5-3

Oil quantities and designation:

Gearbox of the rotary unit: 0.6 l. SAE 90 API-GL-4

Angled gear:
(with aluminium housing) 0.5 l. SAE 90 API-GL-4

Angled gear:
(i=1:1) 1.0 l. SAE 90 API-GL-4

6 Special and additional equipment



Danger!

Work may only be carried out with the machine at a standstill!

Shut down the engine and remove the ignition key!

6.1 Tine loss safeguard

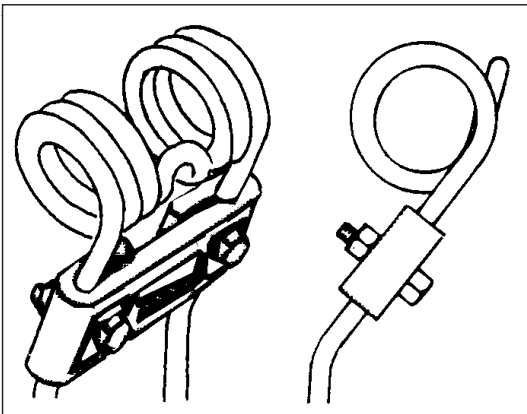


Fig. 6-1

The flexible plastic holders can be easily clamped in position and released again. If a tine now breaks, it is held by its neighbouring tine. It cannot be lost and cause any damage to following machines e.g. shredder. The screws are correctly tightened when the screw thread protrudes approx. 6 mm out of the hexagonal nut (fig. 6-1).

Both tine limbs must run parallel to each other to create a good swath. This must still be guaranteed after the tine loss safeguard has been mounted.

6.2 Hydraulic swathe cloth

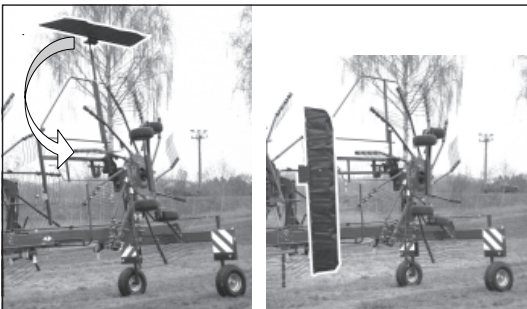


Fig. 6-2

To reach transportation height from the tractor seat, a hydraulically-folding swathe cloth can be used. A double-action control unit is required for this (illustration 6-2)

6.3 Hydraulic individual lift

The hydraulic individual lift makes it possible to work with just one rotary unit in float position. The other rotary unit is operated in a slightly raised position in the turn space position.

A valve for the left rotator is activated by means of a traction cable.

Single lift (right rotator operating)

- With the control unit, lift both rotators into the pre-rotation position
- Close the rotator valve by pulling the appropriate traction cable once
- Lower the right rotator with the control unit
- If the second rotator is to be lowered again, pull on the cable to reopen the valve. The rotator will then descend to its working position.

Single lift (left rotator operating)

- Close the rotator valve by pulling on the appropriate traction cable once.
- Lift right rotator
- If the right rotator is to operate again, lower the rotator and reopen the valve.

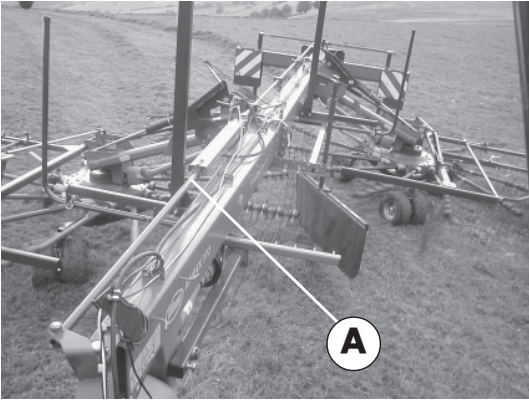


Fig. 6-3

6.4 Single swath equipment

Laying the crop into two single swath is possible by adjusting steering rod (A) hydraulically and by positioning the swathing cloth.

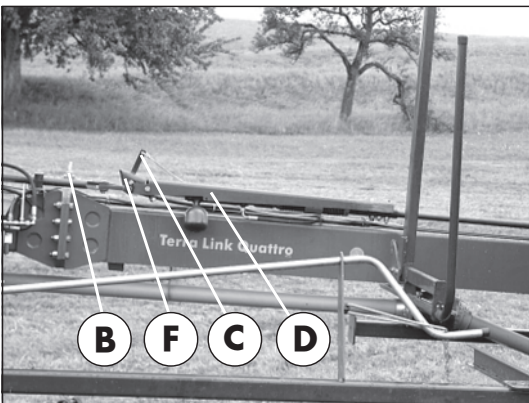


Fig. 6-4

Operation:

- Once in the field, unfold the rotors, stop the tractor and secure. Open ball cock (B).
- Release lock (C) by operating the pull rope from the tractor driver's seat and run steering cylinder (D) out.
- Stop the tractor and secure. Close ball cock (B).

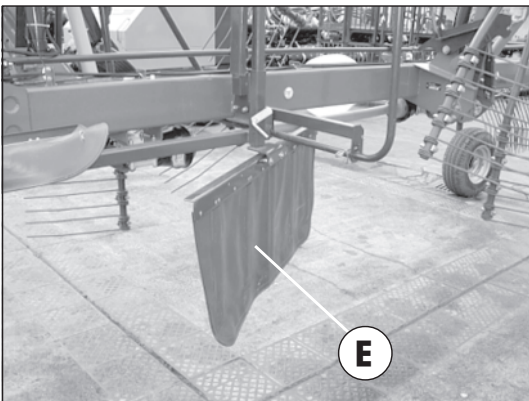


Fig. 6-5

- Lower additional swathing cloth (E) and secure. Make sure that the tine arms cannot scrape against the swathing cloth.

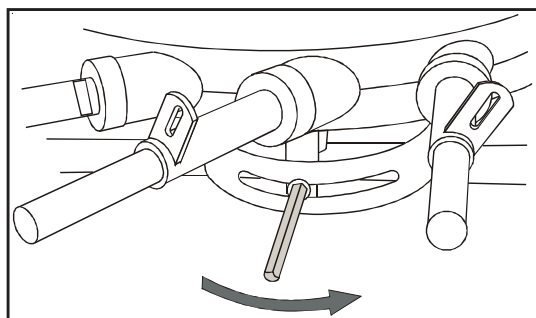


Fig. 6-6

- Move cam track in the sense of rotation of the rotor to final position (arms are lifted „late“) (section 4.2).
- Transporting the machine is only permissible in the locked position (lock „F“ engaged). Ball cock (B) must always be closed.

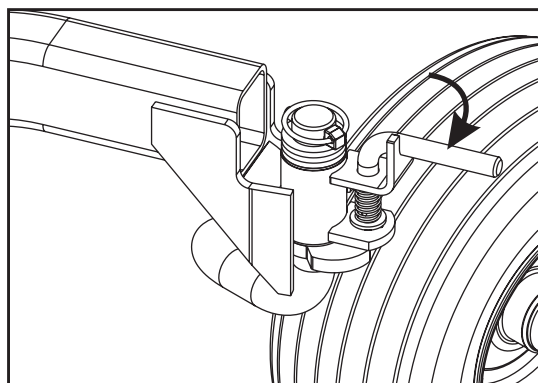


Fig 6-7



Note

The wheels of the rotary windrowers must always be unlocked when working with the single swath unit.

7 Troubleshooting

Faults	Causes	Remedies
Inadequate raking across the whole width of the rotary unit	The tines are too far from the ground	<ul style="list-style-type: none"> Adjust tine height by adjusting the cranks, see chapter 3.4 / point 7 Reduce speed Change to a lower gear Check whether the control valve for the lifting cylinder is in float position / free float
Inadequate raking on one side	Different heights of the wheels on both sides of the machine	Adjust the wheels, see chapter 4.3
Inadequate raking on both sides	Rotary units tilted too far forwards	Raise three point linkage somewhat
Fodder is not picked up correctly	Bad adjustment to the ground	Tractor hydraulic system to float position
Inadequate raking in the middle of the rotary unit	Rotary units tilted backwards	Lower three point linkage somewhat
Fodder is not correctly transferred from front to rear rotary unit	Front rotary unit incorrectly adjusted	Tilt the front chassis to the left (chapter 4.3); adjust disk cam to "late" in the direction of rotation (chapter 4.2).
	Machine runs in oblique position behind the tractor	adjust steering mechanism to straight forward movement, see "Steering" section
	Machine slips away sideways on slopes.	Lock the wheels of the rotary windrowers. Chapter 3.5
Fodder is pulled along at the back of the rotary unit	Swath formation between tine and swath sheet too narrow	Adjust disk cam and travel speed, see chapter 4.2
	Earth on the ends of the tines	Adjust tine height by adjusting the cranks
	Rotary unit turns too fast	Reduce engine speed; possibly change to a higher gear
Fodder thrown out in front of the swath sheet	Swath sheet too far back	Mount swath sheet further to the front; possibly reduce engine speed
Slip clutch triggered too often	Tine arms under too much load	<ul style="list-style-type: none"> Adjust wheel height Change slant Change to a lower gear
Unusual vibrations in rotary unit	Rotary unit speed too high	Keep to p.t.o. speed of 540 rpm

Faults	Causes	Remedies
Rotary unit arms scrape along the ground during transport	Large bump in the ground	Lift the add-on support with lower link
Tine arms and protective yokes make contact when travelling under obstacles	Transport height too great	<ul style="list-style-type: none"> • Lower the add-on supports completely • Remove the tine arms • Fold in the protective yokes
Rotating units do not flap down from the transport position	The air cushion in the traction cylinder has escaped after a long period of standing idle	<ul style="list-style-type: none"> • Fold the machine out into the working position • Let in the environmental air pressure at each cylinder via valve A (fig. 7-1) • Check that valves seal tight at the base
Fodder is picked up at the turn space when travelling over the swaths	Too little clearance between the tines and the ground	<ul style="list-style-type: none"> • Lift the add-on support
Implement runs unevenly behind tractor during transport	Add-on support swings to the right and left	Fix lower link laterally

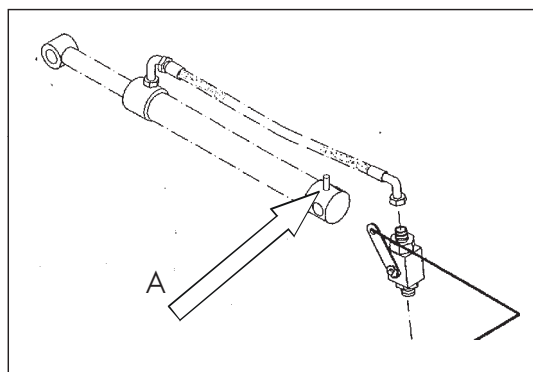


Fig. 7-1

A Appendix

A.1 Torque values for international metric thread joints

All bolted joints must be torqued in accordance with the values given in this table unless otherwise indicated. On this machine "8.8" is both the standard and minimum quality used.



Attention!

When lock bolts or lock nuts are used, the given value must be increased by 10%.

Thread	Torque value for material quality codes in acc. with DIN ISO 898 (dry)						size of jaw		Remarks
	8.8		10.9		12.9		mm	inch	
	Nm	lbf-ft*	Nm	lbf-ft*	Nm	lbf-ft*			
M3	1,9	(11,5)	1,8	(16,0)	2,1	(18,6)	6	1/4	*value in bracket- s =lbf-in.
M4	2,9	(25,5)	4,1	(36,5)	4,9	(43,5)	8	5/16	
M5	5,7	(50,5)	8,1	(71,5)	9,7	(86,0)	9	23/64	
M6	9,9	7,3	14	10,3	17	12,5	10	13/32	
M8	24	17,7	34	25,0	41	30,3	14	9/16	
M10	48	35,4	68	50,2	81	59,8	17	11/16	
M12	85	62,7	120	88,6	145	107	19	3/4	
M14	135	99,6	190	140	225	166	22	7/8	
M16	210	155	290	214	350	258	24	121/128	
M18	290	214	400	295	480	354	27	1 9/128	
M20	400	295	570	421	680	502	30	1 3/16	
M20x1,5			640	473			30	1 3/16	
M22	550	406	770	568	920	679	32	1 17/64	
M24	700	517	980	723	1180	871	36	1 27/64	
M27	1040	767	1460	1077	1750	1291	41	1 79/128	
M30	1410	1041	1980	1461	2350	1734	46	1 13/16	
M33	1910	1410	2700	1996	3200	2362	50	1 31/32	
M36	2450	1808	3450	2546	4150	3063	55	2 11/64	
M39	3200	2362	4500	3321	5400	3985	60	2 3/8	
Tensile strength	8.8		10.9	12.9					
	≤ M16	≥ M16							
N/mm ²	808	830	1040	1220					
lbf/sq.in.	117,222	120,414	150,880	176,994					