

BC 1300 - 1600 Pro

Operator's manual

Translated from the original operator's manual

Revision	03
Date printed	03.2021
Language	EN-EU
Machine number	UKGFE2 / KT111956
Document number	A132644140
Index	2018-02

Machine identification

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	BC 1300 - 1600 Pro
Capacity	1300: 3 m ³ (106 ft ³) 1600: 6 m ³ (212 ft ³)
Weight	1300 Std. model: 1709 kg (3770 lb) 1300 Swivel chute model: 1814 kg (4000 lb) 1600 Std. model: 2218 kg (4891 lb) 1600 Swivel chute model: 2243 kg (4946 lb)
Machine number	
Accessories	
Address of supplier	
Address of manufacturer	Kverneland Group Kerteminde AS Taarpstrandvej 25 DK -5300 Kerteminde - Denmark Tel./fax: +45 65 19 19 00 / +45 65 19 19 99 web: www.kvernelandgroup.com

Table of contents

Contents	4	Parking and Storage	84
Target group	4	Before storage	84
The meaning of the symbols	5	Parking/disconnection of the machine	84
Blank page	6	Locking and securing	87
Safety	7	Storage	88
For your own safety	7	Maintenance	90
Lights and reflective equipment	12	For your own safety	90
Who can operate the machine?	15	General instructions	91
Connecting	15	Checking the PTO shaft	93
Load capacity	16	Protecting the drive line	94
Transport on public roads	17	Transmission for shredding drum	95
Use	19	Lubrication	96
Disconnection	21	Service - check	99
Maintenance	22	Replacement	114
Further safety instructions	24	Optional equipment	128
About the machine	25	Jack	128
The machine application area	25	Lights and reflectors	128
Machine characteristics	26	Wheel guards	128
Synopsis	28	Knives	129
Technical data	30	Knife	129
Tractor requirements	33	P.T.O shaft	129
Preparation	34	Big bale	130
Preparing the machine	34	Closed centre hydraulic system	130
PTO shaft length	35	Troubleshooting	131
Assembly - attachment	37	Electric and hydraulic system	131
Connecting	37	Flywheel housing	132
Hydraulic	40	Bale chamber	133
Connection	42	P.T.O shaft	133
First start-up of machine	45	Guarantee	134
Transport on public roads	46	Guidelines for guarantee	134
Safety	46	Disposal	135
Before travelling on public roads	46	Metal parts	135
Checking the machine	48	Rubber parts	135
Travelling on public roads	48	Plastic	135
Setting	49	Hydraulic oil and lubricants	135
Knives on shredding drum	49	Electronic parts	135
Mounting/removing knives	51	Original EC Conformity Declaration	136
Operation	52	Notes	137
Safety	52	Technical information	138
Before operating	54	Conversion table	138
Loading the machine	60	Lubricants	138
Machine start-up	65	Torque moment	139
Flywheel speed	79	Index	140
Cleaning the shredding drum	81		
Cleaning	82		
Before cleaning	82		
Cleaning	83		
After cleaning	83		

Contents

Target group



Simplified illustrations to improve understanding

Illustrations of the machine in this instruction manual may in some cases not show guards or protective equipment open to aid understanding.

Ensure that the safety instructions are complied with and the instructions in the instruction manual are followed.

Failure to do so can endanger lives.

This manual is intended for trained farmers and others who are qualified to work in agriculture and who are familiar with assembling equipment.

Minimum age

Children under the age of 16 are not permitted to operate the machine.

For your own safety

Read this instruction manual thoroughly before use and mounting. By doing this you have optimal working conditions and you can work in safety.

For the employer

Every employee must be trained how to use this machinery at regular intervals (at least once a year) in accordance with the employer's insurance guidelines. Untrained or unauthorised persons must not use this machine.

Instructions

Your dealer will assist with instructions on how to use and maintain this machinery.

The meaning of the symbols

We have used different symbols to make the text clear. An explanation follows:

- A dot symbol marks a list of instructions or information.
- ▶ A triangle marks an action you must carry out.
- An arrow refers you to other parts of the text.

We also use pictograms to help you find relevant places in the text.



Denotes tips or instructions on use.



Denotes information that requires particular attention.



A spanner indicates tips for assembling and settings.



Warning

A warning triangle indicates important safety instructions. If these are not adhered to, it may result in:

- Serious errors in the machine function.
- Damage on the machine.
- Personal injury or an accident.



This pictogram indicates that the tractor can be started.



This pictogram indicates that the tractor engine must be stopped, the handbrake applied and the ignition key removed.

- Serious errors in the machine function.
- Damage on the machine.



For your own safety

Know your equipment and its limits. Read the manual through before attempting to start up and operate the unit.

This chapter includes general safety instructions. Furthermore, each chapter in the instruction manual includes specific safety instructions that are not described here. The safety instructions must be complied with

- In terms of your own safety.
- In terms of others safety.
- To assure the safety of the machine.

When working with agricultural machines wrong handling can result in various dangers. Therefore, you should always be very thorough and never work under pressure.

The operator must be informed regularly

Inform the persons working with the machine about these safety instructions regularly.

The safety instructions should be complied with according to local law for agricultural machines.



The meaning of the symbols



Read and comply with the instruction manual

Be attentive! Read and understand the instruction manual before the machine is put into service.



Stop the tractor before working on the machine

Be attentive! Always let the tractor come to a stop and remove the ignition key before you repair, rinse, lubricate or carry out any maintenance work on the machine.



Guards must not be removed

Be attentive! Hands and arms can get caught in the chain drive! The guard must not be removed or opened until the machine has stopped rotating. The tractor engine must be stopped, the ignition key removed and the handbrake applied.



Ensure no body parts get caught in the P.T.O shaft

Guards must not be removed or opened until the machine has stopped rotating. The tractor engine must be stopped, the ignition key removed and the handbrake applied.



Risk of injury to fingers and hands

There is a high risk of injury to fingers and hands. Guards must not be removed or opened until the machine has stopped rotating. The tractor engine must be stopped, the ignition key removed and the handbrake applied.



Risk of trapping fingers or hands

Be careful as there is a risk that hands or fingers may be trapped when the machine is used.



Never step into the machine bale chamber during operation

Never step into the machine bale chamber when the machine is operating.

The moving floor conveyor and rotating shredding drums could cause severe injuries or death.

Never step into the machine bale chamber until the machine has stopped rotating. The tractor engine must be stopped, the ignition key removed and the handbrake applied.



Be aware of discharge material

Discharge material! People must not stand in the discharge path or walk through it at any time.



Be aware of swinging rear door

Be aware of out swinging rear door! When in use, no persons should be behind the machine.



Danger of crushing

Danger of crushing! Always keep a safe distance to the rear door.

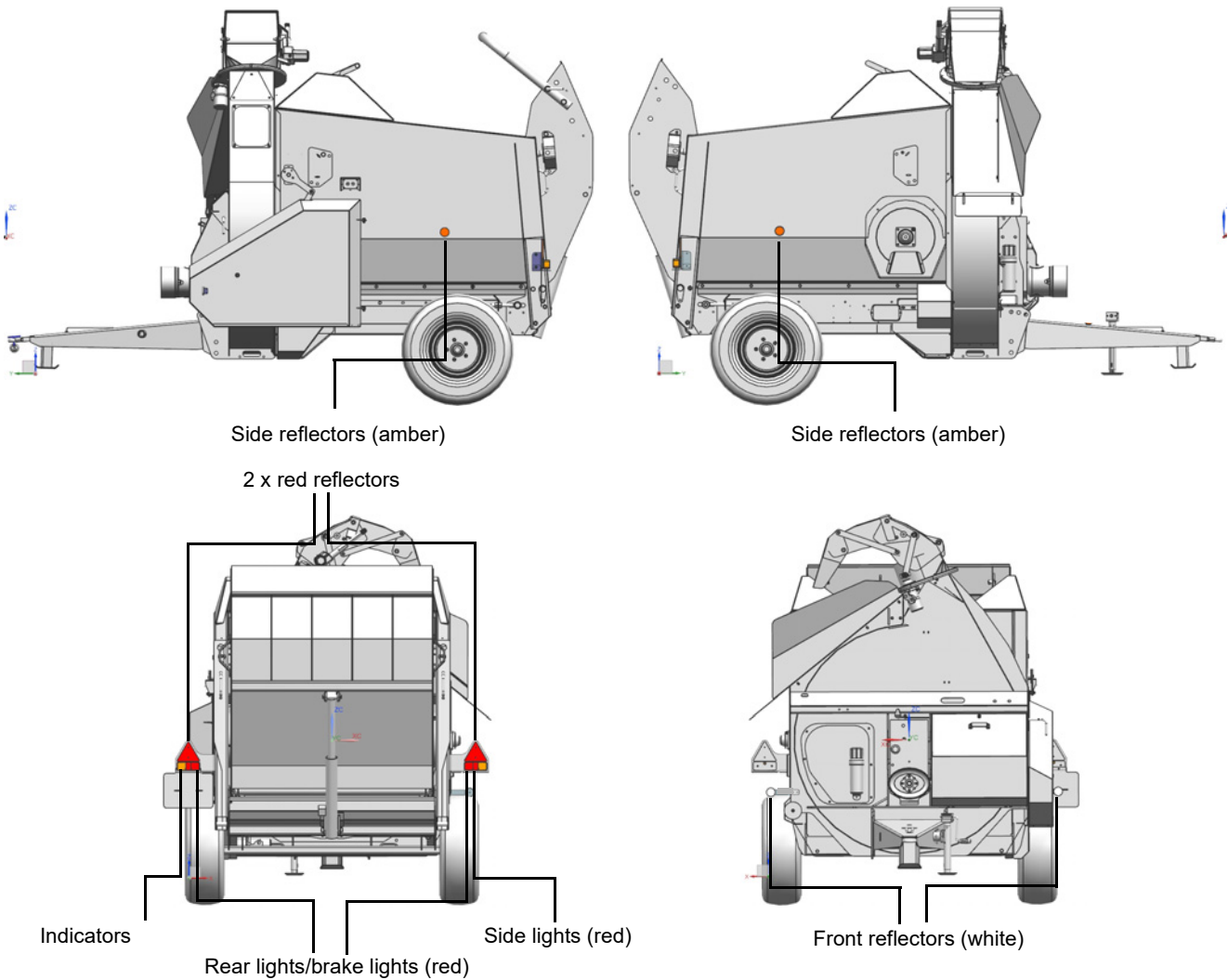


Lights and reflective equipment

The machine has lights and reflective equipment fitted as standard, used to ensure its safety on roads.
The lights and reflective equipment must be in good working order at all times. Lights and labels must not be removed from the machine.
Any illegible or missing labels must be replaced. New labels can be ordered as spare parts from your dealer.

Model with EU type-approval only

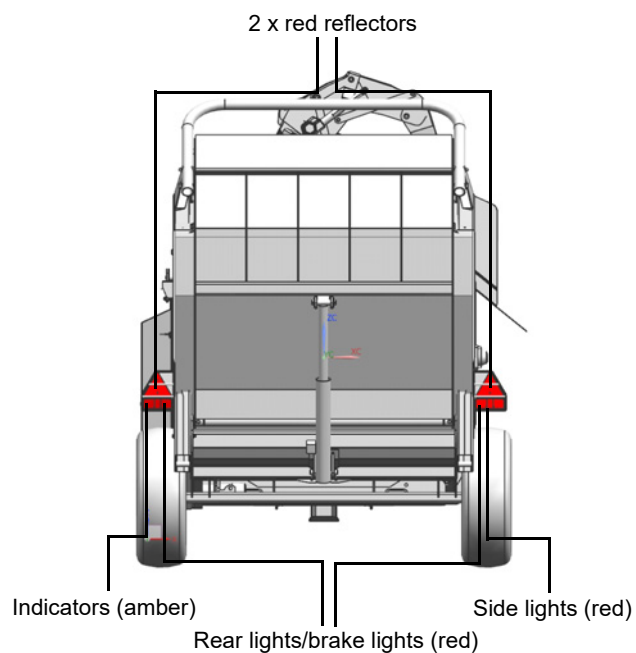
1300 only





Model without EU type-approval

All models
Only as extra equipment





Checking the electric cable

Check the electric cable. The insulation of the electric leads must not be unduly worn, and the cables must not be hanging loose. Electric cables with cable insulation that is missing or worn through must be replaced. Otherwise, this will damage the machine.

- ▶ Connect the cable provided to the tractor:
- ▶ Connect the 12 V power supply plug to the tractor's 7-pin connector.

Connection



7-pin connector



Observe the local regulations concerning lights and markings for road transport. Contact your dealer if the lights do not work as stated.



Observe the local laws and regulations concerning lighting equipment when travelling on public roads. Contact your dealer if the light equipment does not work as stated.

Transport on public roads



This machine must be transported on public roads **at speeds of less than 40 km/h (25 mph) only.**

→ »Speed when driving on public roads« Page 48



Who can operate the machine?

Operators of this machine should only be educated farmers and persons who in other ways are qualified to perform agricultural work and who have knowledge on installing the equipment. Untrained or unauthorised members of staff may not use this machine.

Connecting



Correct attachment of the machine

The connection must be carried out properly and according to the instructions.

The machine can be detached from the tractor if the connection is not carried out properly.

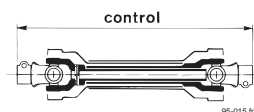
Improper connection can lead to an accident.

Therefore, when connecting the machine to the tractor:

- Make sure the tractor can not move.
- Make sure that the tractor and the machine belong to the same category.
- Never stand between the machine and the tractor when connecting.
- Operate the hydraulic three-point lift slowly and carefully.

Attention to the above instruction points will protect you and others from injury.

Failure to follow the above instruction points could lead to serious injury.



Checking the PTO shaft

Refer to the manufacturer's maintenance and safety instructions delivered with the PTO shaft.

Make electrical connection after attachment

When you fit the lighting kit, the power to the tractor must not be connected.

This will prevent short circuiting and damage to the electrical circuit.

There is a risk of burns and other serious injuries if the electrical systems short circuit.



Only connect hydraulics when the system is depressurised

You should only connect the hydraulic hoses to the hydraulic of the tractor, when the hydraulic system on both tractor and machine is without pressure.

There is a risk that the machine will move unintentionally.

Unintentional movement of the machine may result in serious injury.



The hydraulic system should be checked regularly

All hoses and fittings should be checked regularly for visual damage. Hydraulic hoses also age without visual damage.

Defect hydraulic hoses can result in personal injury or fire.

Colour marking of the hydraulic connections

The hydraulic connections between the tractor and the machine must be colour marked.

By colour marking the hydraulic connections you avoid wrong operation of the machine.

Incorrect operation or unintentional movement of the machine may result in serious injuries.

Load capacity

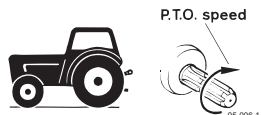


Comply with the total weight, the shaft pressure, the wheel load capacity and the minimum load

On front and rear mounted machines, the tractor total weight, the shaft pressure and the wheel load capacity should not be exceeded.

To ensure the manoeuvrability of the tractor, the load on the front axle must be at least 20% of the tractor's weight.

Exceeding this can result in uncontrolled driving and accidents.

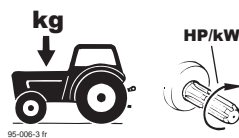


Be careful when working around the P.T.O shaft

When working on the PTO shaft, the tractor PTO outlet must be disconnected, the tractor must be stopped and the ignition key should be removed.

This prevents the PTO shaft from suddenly starting to rotate.

If the tractor and the P.T.O shaft have not been disconnected in accordance with the instructions, serious accidents causing damage to limbs can occur.



Weight/power ratio between machine and tractor

The machine is only to be connected to a tractor with proper size and power.

The tractor's size and P.T.O outlet must correspond to the power consumption of the machine and its weight.

Wrong weight/power ratio can result in damages on both machine and tractor.



Transport on public roads



95-012 fr

Ensure that the machine meets the Road Traffic Act's requirements concerning its condition

When driving on public road the machine must fulfil the demands put forth in the Road Traffic Act.

This assures road safety for you and other drivers.

If the demands are not fulfilled it can result in an accident.

Fulfilling the Road Traffic Act demands includes:

- Mounting of lights, warning and safety equipment.
- Complying with the legal transport width and weight, shaft pressure, tire load capacity and total weight.

No vehicle brakes fitted on model 1300

When driving on public roads, the machine must meet the requirements of the Road Traffic Act.

It is dangerous to drive on public roads with a laden model 1300 as the machine is not equipped with vehicle brakes.

Driving on roads without vehicle brakes can lead to serious accidents.

Transportation of persons in the machine is prohibited

It is dangerous and illegal to transport persons in the machine.

The machine is not approved for personal transportation.

Transporting persons in the machine could lead to serious injuries or death.



95-011 fr

Mounted machines will change the driving and braking abilities of the tractor

Be aware of changed driving and braking abilities when driving with mounted machines.

Especially when driving in curves and turns you should be aware of the machine's width and swing length.

If no attention is paid it will result in uncontrolled driving and serious accidents.



95-006-2 fr

Pay due attention to the tractor's braking ability

The braking ability must not be exceeded with either a front-mounted or rear-mounted machine.

At least 50% of the vehicle's total weight must rest on the braked wheel to ensure the tractor's braking ability.

A lower proportion may result in uncontrolled driving and accidents.



Adjust the speed according to the road conditions

Adjust the road speed according to the conditions.

Bad road conditions and high speeds can lead to an overloading of the tractor and machine parts.

Driving with high speed can result in accidents and damages on both machine and tractor.

Keep away from overhead power lines

If the machine exceeds a height of 4 metres, there is a high risk that it may come to close to, or into direct contact with, overhead power lines.

Keep a sufficient distance from overhead power lines!

Failure to keep a sufficient distance from overhead power lines can result in serious injuries and death.

Keep away from thunder and lightning.

Avoid driving with the machine or working on the machine in a thunder and/or lightning storm.

There is a high risk of being struck by lightning.

Lightning can cause serious injuries or death.

Risk of instability when heavy hitched implements are used in the raised position.

Drive carefully when heavy hitched implements are used in the raised position.

There is a high risk of the machine overturning.

This can result in serious injuries or death.



Use

Keep away from the machine

No unauthorised persons should be close to the machine during operation.

This ensures you work safely and securely.

There is a high risk of crushing, severe injury and death if persons are close to the machine during operation.

The tractor must be fitted with mirrors

The tractor should be fitted with mirrors which are kept clean and in good condition.

This ensures the tractor driver has a good view to both sides of the machine.

A restricted view to the sides of the machine can lead to persons being crushed, severely injured or killed.



95-002-1 fr

The operator should be instructed carefully before the machine is put into use

Only use the machine when the operator has been given thorough instructions.

Thorough machine instruction results in safe usage.

Insufficient instructions can result in wrong usage of the machine and accidents.



Check that the machine is free of technical errors

Only use the machine if it is free of technical errors.

It assures that the machine works properly and its safety condition is OK.

A machine with technical errors and defects can be dangerous.



95-003 fr

Do not remove the protection guards

Check that all protection guards are in place before use.

This assures that the machine will give maximum protection to the operator.

If the safety guards are removed or not used it may result in serious injuries and accidents.

Transportation of persons in the machine is prohibited

It is dangerous and illegal to transport persons in the machine.

The machine is not approved for personal transportation.

Transporting persons in the machine could lead to serious injuries or death.

Keep away from thunder and lightning.

Avoid driving with the machine or working on the machine in a thunder and/or lightning storm.

There is a high risk of being struck by lightning.

Lightning can cause serious injuries or death.



Risk of instability when heavy hitched implements are used in the raised position.

Drive carefully when heavy hitched implements are used in the raised position.

There is a high risk of the machine overturning.

This can result in serious injuries or death.

Risk of overturning when driving on sloping or uneven ground.

Never drive at high speeds on sloping or uneven ground.

There is a high risk of the machine overturning.

This can result in serious injuries or death.

Check the surrounding area before taking machine into use

Before driving and using the machine the surrounding area should be checked.

This prevents persons and animals around the machine from being exposed to danger.

If the surrounding area is not checked it can lead to serious injuries to persons or animals.

Child safety

Never assume that children are still where you last saw them.

Take care to ensure your machine is secured if children are in the working area.

Never allow children to play on or operate the machine.



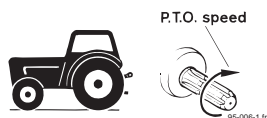
95-018 fr

Checking bolts on moving parts

Check that all bolts on moving parts are properly tightened.

Tightened parts prevent jarring sounds from moving parts.

Non-tightened parts can shake loose and result in damage on the machine.



P.T.O. speed

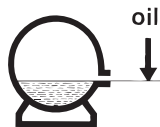
95-006-1 fr

Maintain the rotational speed on the tractor PTO outlet

It is dangerous to connect a tractor with a PTO of 1000 rpm to a machine intended for a PTO of 540 rpm.

The machine is not designed for this speed.

It can result in damage on the machine and be a danger for persons nearby.



oil

95-017 fr

Check the transmission oil level regularly

Check that the transmission is filled with oil and that the oil level is correct.

A correct oil level assures the transmission a long and fault-free service life.

Incorrect oil level will result in damage on the transmission.



Stop the machine immediately in case of malfunction

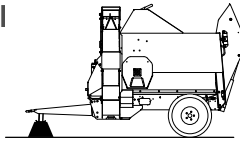
In case of malfunction the machine should be stopped immediately.

Malfunction on the machine can bring surrounding persons and animals in danger.

Machines with a malfunction can result in dangerous situations.



Disconnection



Increased risk of injury when disengaging

When disconnecting the machine from the tractor there is an enhanced risk of personal injury.

Attention to the above instruction points will protect you and others from injury.

Failure to follow the above instruction points may result in serious injury.

Therefore, when disconnecting:

- Make sure the tractor can not move.
- Never stand between the machine and the tractor when disconnecting.
- Operate the hydraulic three-point lift slowly and carefully.
- Make sure the machine is situated on an even and safe surface.
- Only disconnect the hydraulic hoses, when the hydraulic system is without pressure on both the tractor and the machine.

No parking brake fitted on model 1300

There is an increased risk of injury when parking model 1300.

It is not permitted to park model 1300 on steep slopes or hillsides, as the machine is not equipped with a parking brake.

Parking model 1300 on particularly steep slopes or hillsides can cause serious accidents.



Maintenance

The minimum stopping time for the flywheel is two minutes

Wait at least two minutes before starting any kind of work on the machine.

It takes the machine's flywheel at least two minutes to come to a complete standstill.

If work is started on the machine before the machine's flywheel has stopped rotating, this can lead to serious injury or accidents.

Comply with the service and maintenance intervals given in the instructions

Comply with the intervals for service and maintenance as given in the instructions.

By complying with the maintenance intervals you assure that the machine will operate without malfunctions and give maximum protection to the surroundings.

A non-maintained machine is a danger to the surroundings.

Always use original spare parts on the machine

Always use original spare parts.

The manufacture warranty becomes void if non-original spare parts are being used.

The manufacturer takes on no warranty responsibility in cases where non-original spare parts are used.



High risk when performing service and maintenance work

When performing service or maintenance work there is a higher risk of personal injury.

Attention to the above instruction points will protect you and others from injury.

Failure to follow the above instruction points may result in serious injury.

Therefore, when you perform maintenance work:

- Disconnect the PTO shaft.
- Make the hydraulic system free of pressure.
- Stop or disconnect the tractor.
- Check that the machine is parked safely, support it if necessary.
- Make sure the machine is correctly supported.
- Do not use parts on the machine to climb the machine, but employ the proper units for climbing.
- Ensure that the machine cannot move.



Disconnect the power source when working on the electric systems

Always disconnect the power source before you start working on the electric system.

This will prevent short circuiting and damage to the electrical circuit. There is a risk of burns and other serious injuries if the electrical systems short circuit.



Replacing the hydraulic hoses

Replace the hydraulic hoses at least every 6 years.

Hydraulic hoses also age without visual damage.

Only use hydraulic hoses with the same technical specifications.

The relevant data is printed on the hydraulic hose.

Defective hydraulic hoses may cause serious or fatal injury.

Be careful when cleaning with high pressure cleaner

Do only clean bearings, hydraulic hoses, plastic components, electrical control boxes and electrical equipment with low water pressure.

By cleaning with low water pressure you will protect sensitive equipment on the machine.

Cleaning with high water pressure could damage vital parts of the machine.

Disconnect the battery, engine control unit and alternator before welding

The tractor battery and alternator should be disconnected before performing welding work on the machine.

This will protect the tractor alternator when performing welding work.

The tractor alternator could be damaged or destroyed if the electric connections are not disconnected before performing welding work.

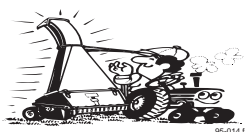


Tighten all fittings on moving parts

Check that bolts on moving parts are tightened after performing maintenance work.

Tightened parts prevent jarring sounds from moving parts.

Parts which are not correctly tightened can shake loose and can cause damage to the machine.



Do not alter the machine construction

The technical construction of the machine should not be altered and machine maintenance should be performed.

A well maintained machine will offer maximum protection.

A poorly maintained machine will not offer proper protection and could be dangerous.

Connect control box to the correct power source

The control box should only be connected to a 12 V electric system.

A connection to a proper power source prevents overloading the system.

An incorrect power source could lead to short circuiting and damage to the electrical circuit.



Further safety instructions



95-005 fr



95-013 fr

Follow the instructions when working on the machine

The machine safety instructions should always be complied with.

It will protect you and others from personal injury.

Failure to follow the safety instructions may result in serious injuries.

Apart from the safety instructions the following should be complied with:

- Environmental regulations.
- The general technical, medical and road act regulations.
- Instructions in this instruction manual.
- Instructions for use, maintenance and service.

This chapter includes general information about your machine. Furthermore, following information are included:

- The machine application area.
- The machine characteristics.
- View of the machine.
- Technical data.

The machine application area

The 1300 & 1600 are bale choppers intended for harvesting and chopping common grass and corn crops used for animal bedding and feed. The instructions for use are given in the following chapters.

Proper usage of the machine

The machine can be used for the following crops:

- Straw from common corn crops
- Hay from common grass crops
- Silage* from common grass and corn crops

* Only with extra equipment fitted.

Incorrect use of the machine

The machine must not, under any circumstances, be used for the following:

- harvesting/chopping beet or potato crops
- transporting earth, gravel or stone materials

Similar use is outside the intended applications of the machine.

The manufacture does not stand responsible for any damages cause by improper application of the machine. The user is fully responsible for the machine.

About the machine

Machine characteristics

Description of the machine

The 1300 & 1600 is a bale chopper intended for harvesting and chopping most common grass and corn crops and can either be coupled to the tractor's hitch or the tractor's lift arms. The machine's drawbar is connected to the main frame of the machine which carries the whole machine on 2 powerful wheels.

The machine is built around a large bale chamber and a strong flywheel housing on which is mounted a powerful shredding drum.

Inside the bale chamber is a powerful floor conveyor with variable speed control. The floor conveyor transports the crop to the shredding drum where the crop is guided into the flywheel housing.

The shredding drum shreds the crop and guides it into the flywheel housing where the shredded crop is transferred through a chute and thrown out at high speed. The chute is hydraulically controlled and throws the crop out in the direction determined by the user.

- On standard models, the chute can be controlled vertically (up/down).
- On machines with a swivel chute, the chute can be controlled both vertically (up/down) and horizontally (from side to side).

The machine's hydraulic functions are electrically controlled using an electric control box.

The machine is fitted with a guard, which protects it against moving objects. The guard, or parts of the guard, must never be removed from the machine and must always be kept in good condition.

Solid construction

Thanks to a solid construction and a flexible build up the machine is both strong and reliable.

Fast switch between spreading of hay and feeding

The change from spreading hay in the animals' stall to feeding of silage or hay to the animals' feeding trough is achieved using tools.

Machine connection possibilities

There is a choice between several different possible combinations. You can connect the machine to the tractor with:

- Hydraulic hitch.
- Spreader bar which is used in combination with a crossbar on the tractor's lift arm.
- Tractor clevis drawbar.

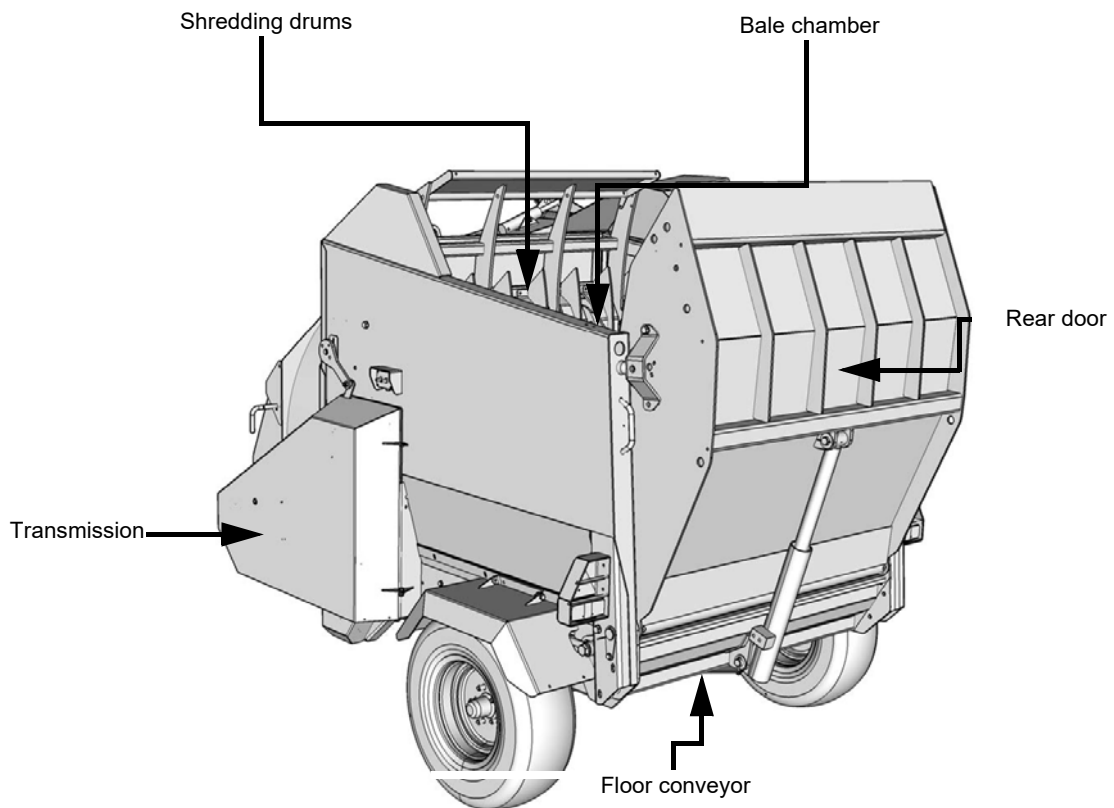
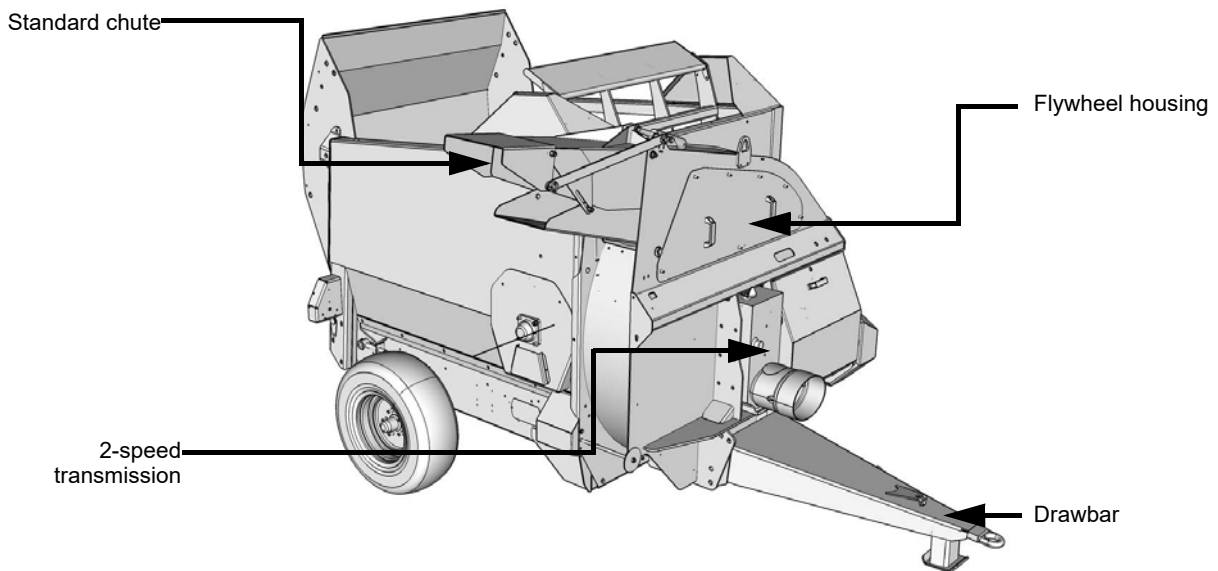
Your safety when using the machine

To make working with the machine as safe as possible the machine complies with the EC regulations. The machine is CE marked.

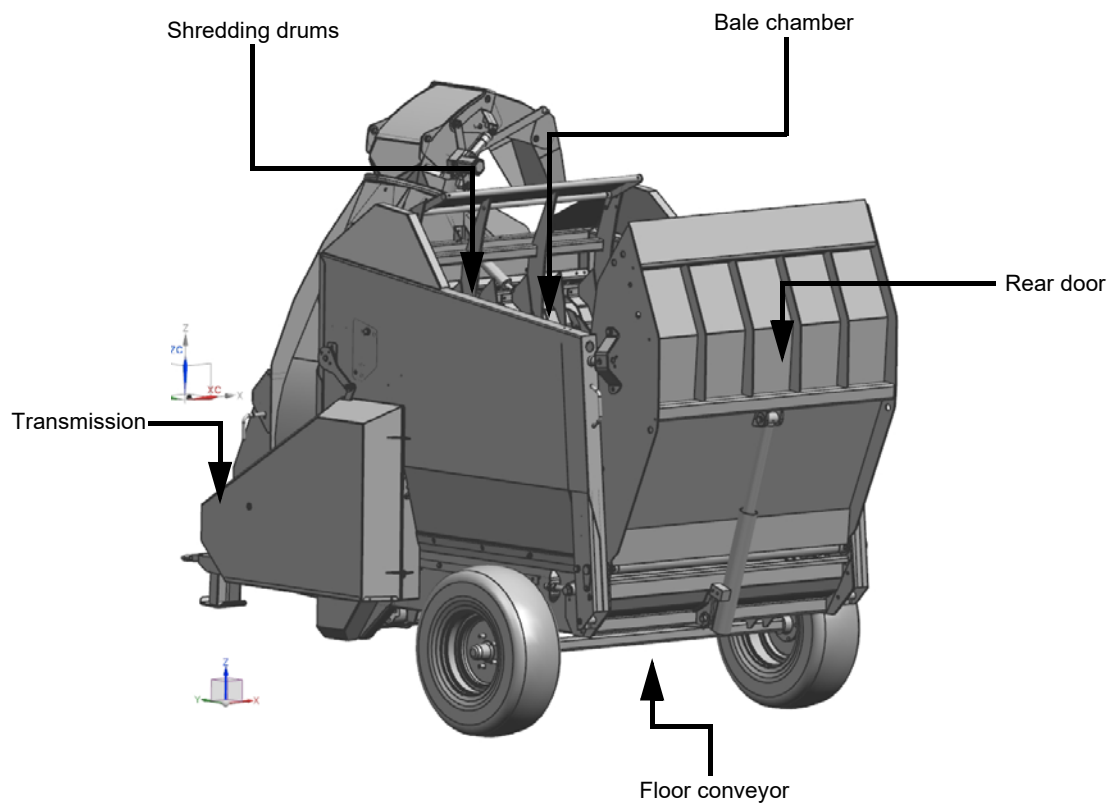
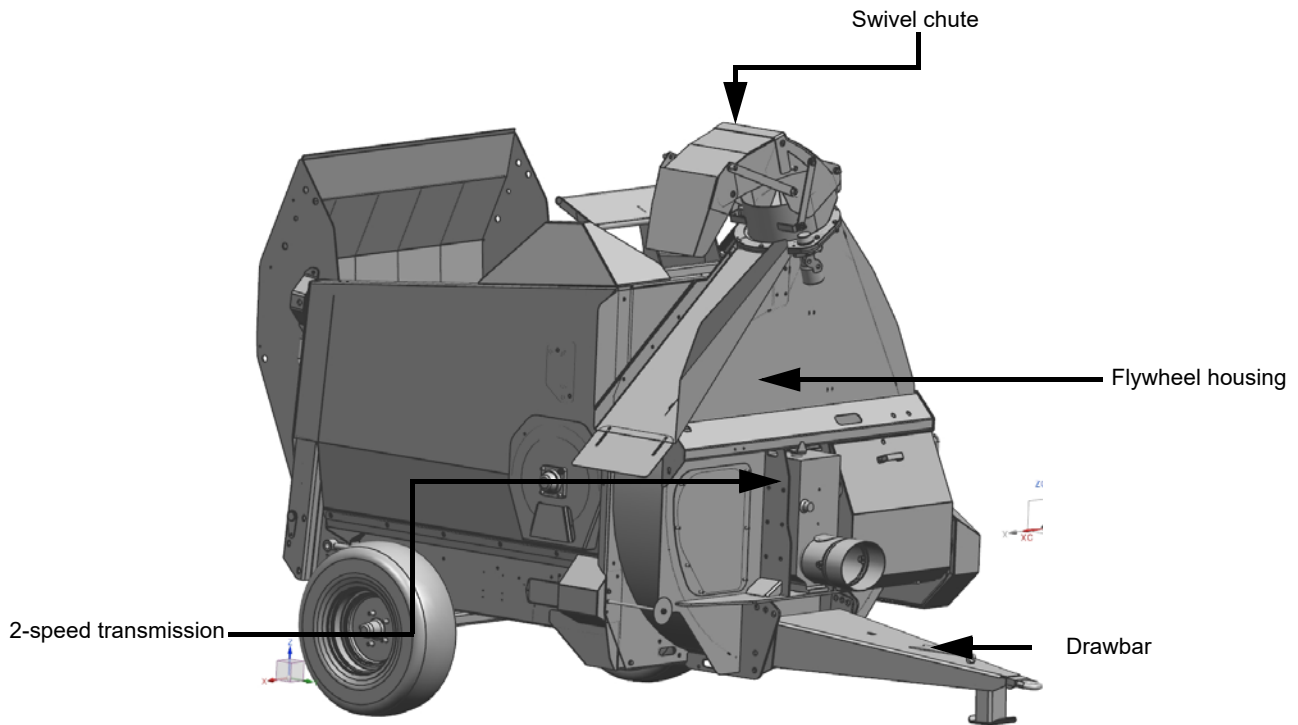
About the machine

Synopsis

Standard model



Swivel chute model

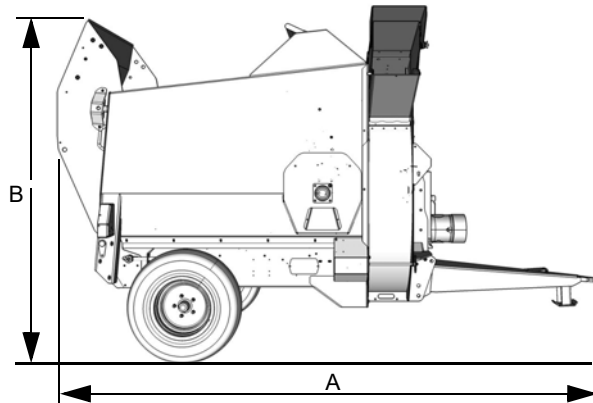
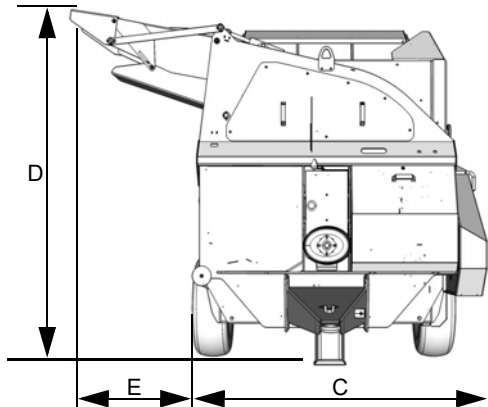


About the machine

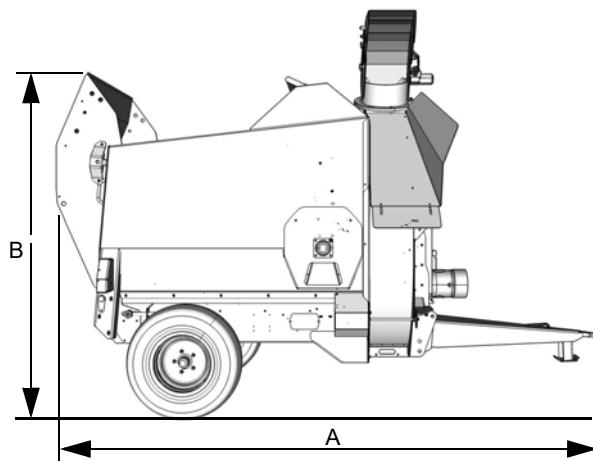
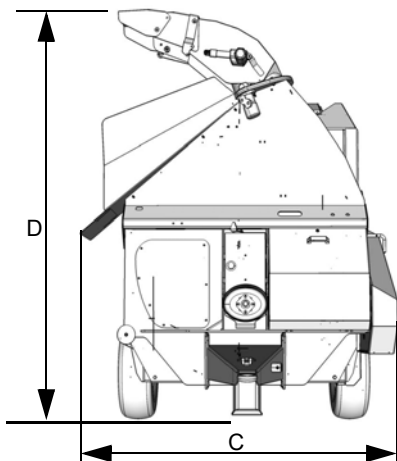
Technical data

The dimensions of the machine

Standard model



Swivel chute model

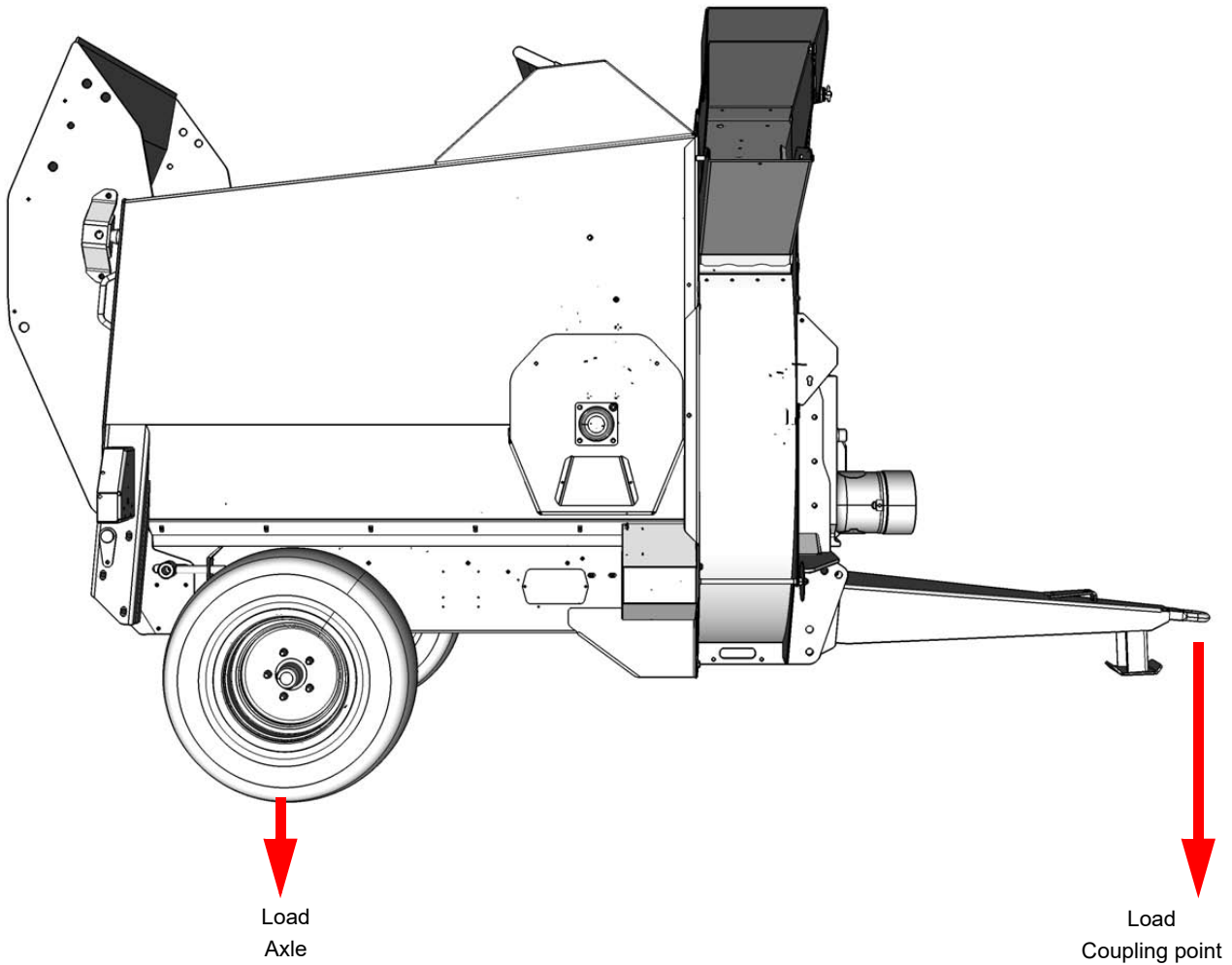


Dimension	1300		1600*	
	mm	inch (")	mm	inch (")
A	3950	155,5	5075	200
B	2310	91	2340	92
C	2020	79,5	2140	84
D	2250 / 2950	88,5 / 116	2250 / 2950	88,5 / 116
E	630	25	570	22,5

* Model without EU type-approval

Weight of the machine

Load capacity



Model	Load Axle		Load Coupling point		Total weight	
	KG	lb	KG	lb	KG	lb
1300	2500	5512,5	500	1102,5	3000	6615
1600*	4350	9592	750	1653,5	5100	11245,5

* Model without EU type-approval

About the machine

Machine specifications

	Unit	1300	1600*
Unladen weight	KG	1814	2243
	lb	4000	4946
Load capacity	KG	1186	2857
	lb	2615	6300
Bulk density	m ³	3	6
	ft ³	106	212
P.T.O. Power take-off	rpm	540	
Power requirement, minimum	kW	48	56
	HP	65	75
Max. hydraulic flow (electrical hydraulics)	L/min	70	
	Gal/min (US)	18,5	
	Gal/min (imp.)	15,4	
Hydraulic pressure	bar	150	
	psi	2175	
Control box: power/fuse	V	12	
	amp	25	
Wheel	dimension	10 x15.3 - 10	11.5 x 15.3 - 14
Tyre pressure	bar	4,25	6,5
	psi	63	94

* Model without EU type-approval

Tractor requirements



Tractor weight and size

The tractor must in terms of weight have a proper size. Local regulations governing this relationship must be observed.

A correct ratio between tractor and machine assures proper braking and manoeuvring abilities.

An incorrect ratio between tractor and machine can be dangerous.

Preparation

Preparing the machine

For transporting the user the machine is divided into main components. The machine is assembled according to the specific assembly instructions delivered with each machine.



Do not try to assemble the machine yourself

Trained staff are required to assemble the machine. Do not carry out assembly work yourself. The following must be observed to ensure that the machine is in good working order:

- Adhering to the sequence of the work steps.
- Adhering to the tolerances and tightening torques of bolts, screws and component parts of the machine.
- Knowledge of occupational safety when assembling the machine.

Incorrect assembly can cause accidents or damage to the machine.



If parts are missing and/or are damaged during transport, please inform the dealer, importer or manufacturer immediately.

Check list of component parts	Quantity
P.T.O shaft	1
Operator's Manual	1
Spare parts manual	1
Additional parts	See delivery note

Operator's Manual

The instruction manual belongs with the machine and must always be kept on or by the machine.

PTO shaft length

The length of the PTO shaft is factory-set, and is suitable for virtually all types of tractor. The PTO will only need to be corrected in a few exceptional cases, to achieve the correct length for certain tractors. Check the length of the PTO shaft on every tractor before using for the first time.

A user manual is supplied with the PTO shaft. The user manual contains information on the version of the PTO shaft in question and details the correct PTO shaft length for the tractor. The description and information in the user manual must be observed.

Safety



Stop the tractor and secure it

Before uncoupling:

- ▶ Disconnect the tractor's PTO outlet.
- ▶ Lower the machine to the ground.
- ▶ Neutralise all hydraulics.
- ▶ Stop the tractor.
- ▶ Remove the ignition key.
- ▶ Apply the handbrake.
- ▶ Secure the tractor to prevent it from rolling.

Failure to secure the tractor to prevent it from rolling could endanger lives.

Checking the angle of the lock

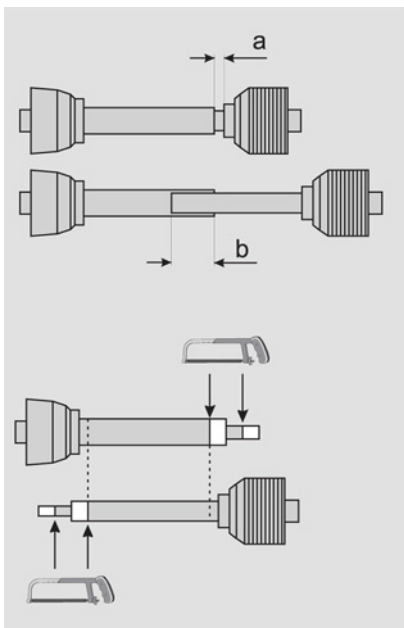
The PTO shaft has a wide hinged joint which gives the tractor a steering angle of up to 80°. Ensure that the PTO shaft is not damaged when performing sharp turns. This can result in damage to the machine.

Correct length

If the PTO shaft is too long, it must not be used. It will damage the tractor and the machine.

Preparation

Shortening the PTO shaft



- ▶ Pull the PTO shaft apart.
- ▶ Fit one half on the tractor's PTO outlet.
- ▶ Fit the other half on the machine's PTO input shaft.
- ▶ Position the two halves of the shaft side by side and:
 - Check that the halves of the shaft have a minimum overlap of 200 mm (8") [b].
 - Check that the PTO shaft has a minimum clearance of 20 mm (0.8") [a].
- ▶ Shorten both profile tubes and the protective tube by the same amount.
- ▶ Deburr the ends of both profile tubes.
- ▶ Clean any metal shavings or similar from the profile tubes.
- ▶ Grease the sliding surfaces of the profile tubes thoroughly.
- ▶ Fit and connect the two halves of the shaft.

Fitting the PTO shaft



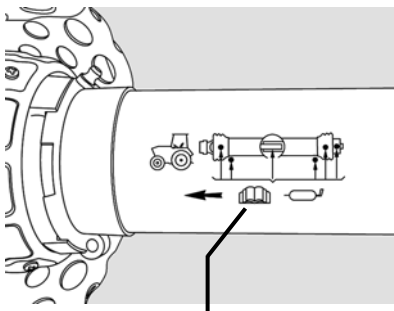
Initial connection of the machine

Exercise caution when a new machine is connected for the first time. Make sure that all safety instructions are complied with. Attention to the safety instructions will increase your personal safety. Failure to follow the safety instructions may result in serious injuries and accidents.

Ensure that the PTO shaft is fitted in the correct position. This is indicated by a marking on the PTO shaft's protective tube.

- ▶ Fit the PTO shaft on the machine's PTO input shaft.
- ▶ Fit the PTO shaft on the tractor's PTO outlet.

Secure the PTO shaft with a locking pin and safety chain.



Marking on protective tube

Connecting

Different drawbars

The machine can be supplied with various drawbars for connection to the tractor. There are different possible combinations when the machine is to be connected to the tractor:

- Connection to tractor's hydraulic hitch.
- Connection to tractor's clevis drawbar.
- Connection to tractor's lift arm.
- Connection to tractor's single hook.



Connection between machine and tractor

When connecting the machine and the tractor there is an increased risk of personal injury.

Attention to the safety instructions assures your and others personal safety.

Failure to follow the safety instructions may result in serious injuries.

Therefore, when connecting the machine and the tractor you should:

- Make sure the tractor can not move.
- Make sure that the tractor and the machine belong to the same category.
- Never stand between the machine and the tractor when connecting.

Connecting the machine

When connecting the machine on the tractor there is an increased risk of personal injuries.

Attention will assure yours and others safety.

Failure to follow the safety instructions may result in serious injuries.

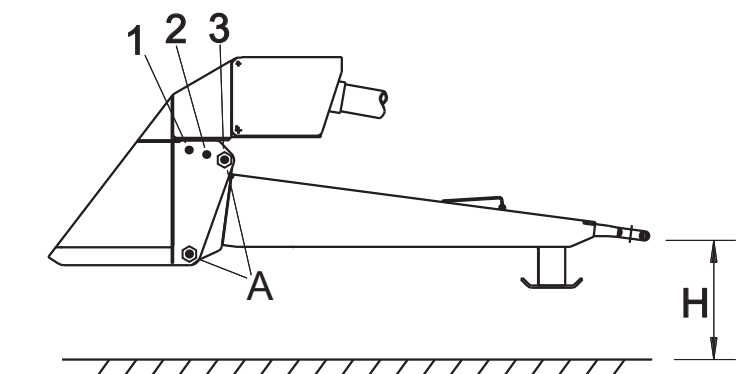
On connection, ensure that:

- The machine is standing on even ground with the wheels locked.
- Lift the front of the machine using a suitable lifting device.
- The machine must be secured with a fixed support.
- Remove the transport support leg and attach the drawbar.
- The drawbar should be connected in the correct position, then secure the machine in the horizontal working position.

Check and connect the drawbar at the right height.

Assembly - attachment

Hydraulic hitch



Pos.	Height "H"		Torque Bolt "A"	
1	485 mm	19"	840 Nm	620 ft/lb
2	430 mm	17"	840 Nm	620 ft/lb
3	375 mm	15"	840 Nm	620 ft/lb



Connecting the machine

When connecting the machine on the tractor there is an increased risk of personal injuries.

Attention to the safety instructions assures your and others personal safety.

Failure to follow the safety instructions may result in serious injuries.

Therefore, when connecting the machine you should:

- Always ensure there is no way the machine can become detached from the tractor, whichever type of connection is used.
- The drawbar will move both upwards and downwards when used to self-load round or large bales at the machine's rear door.
- The tractor P.T.O shaft should be 1" 3/8, with 6 splines and able to run at 540 rpm.

Make sure the tractor is equipped with a 3-pin 12V plug.

Safety chain

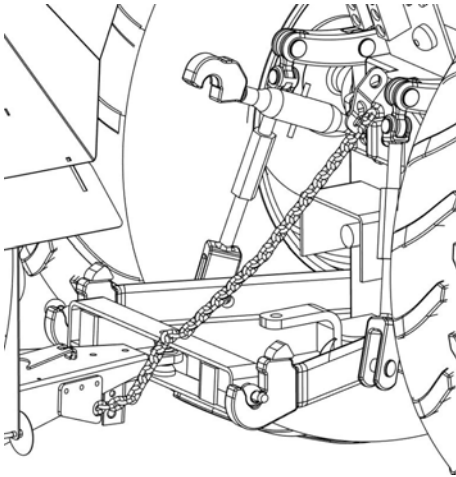
Model with EU type-approval only



Safety chain

When driving on public roads, the machine must always be secured with a safety chain between the tractor and the machine. Use a safety chain with a reinforcement suited to at least the total weight of the machine.

If the machine should accidentally become detached, this could cause serious injury or death.



- ▶ Secure the safety chain between the tractor and machine.



Choose a suitable length of chain, so that it does not impede movement of the drawbar and does not hang down too low.



Ensure that national regulations concerning the length and fitting of safety chains are observed.

Assembly - attachment

Hydraulic

Safety



Only connect hydraulics when the system is depressurised

You should only connect the hydraulic hoses to the hydraulic of the tractor, when the hydraulic system on both tractor and machine is without pressure.

There is a risk that the machine will move unintentionally.

Unintentional movement of the machine may result in serious injury.

Avoid mixing oil

Avoid using different tractors for the same machine.

It can lead to illegal mixing of various oil types.

Illegal mixing of various oil types can damage the hydraulic system of the tractor.

The hydraulic system should be checked regularly

All hoses and fittings should be checked regularly for visual damage.

Hydraulic hoses also age without visual damage.

Defect hydraulic hoses can result in personal injury or fire.



Colour marking of hydraulic connections

The hydraulic connections between the tractor and the machine must be colour marked.

By colour marking the hydraulic connections you avoid wrong operation of the machine.

Incorrect operation or unintentional movement of the machine may result in serious injuries.

Connecting hydraulics

When connecting the hydraulics there is an increased risk of personal injuries. Adherence to the above instructions will ensure your own safety and that of others.

Failure to follow the above instructions may result in serious injuries.

Therefore, when connecting the hydraulics you should check that:

- The tractor should be equipped with a double hydraulic outlet.
- The tractor must have a minimum capacity of:
 - 45 l/min at 150 bar
 - 11.9 gallons (US) at 2175 psi.
 - 9.9 gallons (imp) at 2175 psi.

Securing the hydraulics in transport position

The tractor hydraulic system must not be activated unintentionally in transport position.

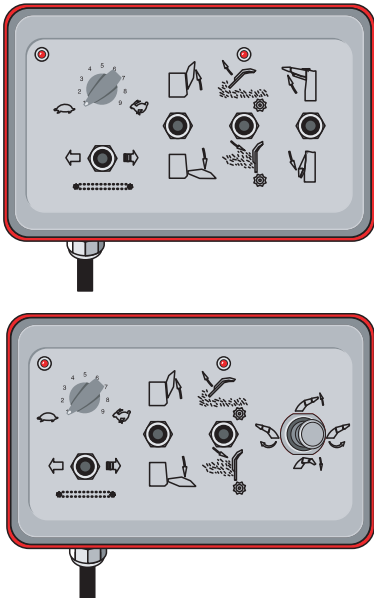
Accidental activation of the tractor hydraulic system can result in unexpected movement.

Unexpected movement can cause injuries.

Assembly - attachment

Connection

Electric connection



Correct connection of electric control box

The electrical system must be connected correctly:

- The tractor power supply must be 12 V.
- The tractor power supply terminals must be turned in the right direction.
- The tractor must be equipped with a 3-pin DIN plug.

Connect the power correctly

Connect the power correctly.

A correct power connection prevents short circuit and damages on the electrical circuit.

A wrong power connection could result in short circuit and damages on the electrical circuit.

Drilling and welding on the tractor safety frame

It is recommended that you do not drill or weld in the tractor safety frame.

Drilling and welding on the tractor safety frame can cause fatigue in the construction.

A fatigue of the tractor safety frame can cause an insufficient protection of the driver if the tractor tilts.



The control box bracket must be dismantled in the tractor cab.

Hydraulic connection



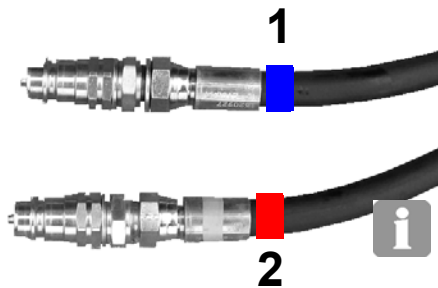
Checking that the hydraulic system is correctly connected

Ensure that the hydraulic system is correctly connected. Otherwise, this can cause injuries, as well as damage to the machine.

- ▶ Stop the tractor and remove the ignition key.

- The manual and electric hydraulic system is factory mounted with open centre hydraulics.
- To convert the hydraulic block from open centre hydraulic to closed centre hydraulic, please consult your local dealer.

The tractor must be equipped with 1 pair of double acting hydraulic outlets:



- The hydraulic hose with a red marking is fitted to the tractor's hydraulic pressure outlet (usually marked "P").
- The hydraulic hose with a blue marking is fitted to the tractor's hydraulic outlet when the oil returns to the oil tank (usually marked "T").

Ensure that this return outlet has zero pressure; as some spool valves can create a back pressure that may damage the hydraulic motor seals.

No.	Colour marking
1	Blue
2	Red

Control valves

The function of the control valves is as follows:

Function	Valve
Standard chute-swivel chute left/right/up/down	Double acting
Floor conveyor forward/back	Double acting
Rear door open/close	Double acting

Hydraulic system with closed centre

Operating manually

Refer to Kverneland Technical Service Information No. 04-0001

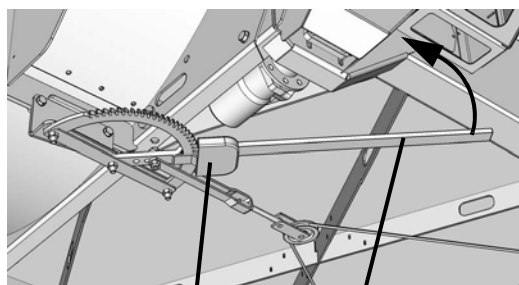
Electrical hydraulic controls

Refer to Kverneland Technical Service Information No. 04-0003

Assembly - attachment

Brakes 1600* only

* Model without EU type-approval



Lock

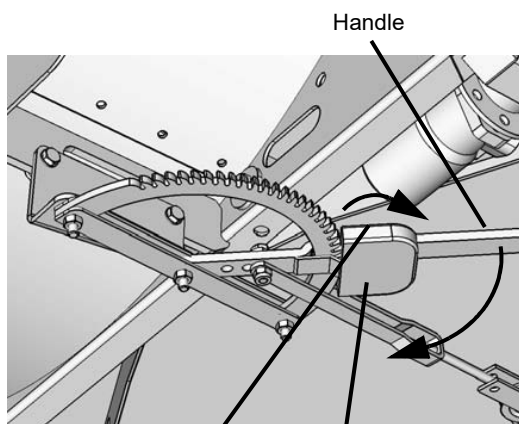
Handle

Parking brake

The 1600 is fitted with a parking brake which must always be engaged when the machine is parked.

When connecting the machine, the parking brake must be deactivated:

- ▶ Pull the lever forwards a little.



Handle

Pawl

Lock

- ▶ Turn the pawl on the lock as shown and guide the lever back.
- The parking brake is now deactivated.



Brake

Hydraulic brakes

The 1600 is fitted with hydraulic brakes and must be connected to the tractor's hydraulic system.

Most types of tractor are fitted with a hydraulic outlet especially for hydraulic brakes.

First start-up of machine



The initial test drive of the machine is important

When the machine is connected to the tractor for the first time it must be test driven without any materials.

Attention to the safety instructions assures your and others personal safety.

Failure to follow the safety instructions may result in serious injuries.

Do not remove the protection guards

Check that all protective guards are in place before use.

This assures that the machine will offer maximum protection to the operator.

If the safety guards are removed or not used it may result in serious injuries and accidents.

Keep away from the machine

No unauthorised persons should be close to the machine during operation.

This ensures you work safely and securely.

There is a high risk of crushing, severe injury and death if persons are close to the machine during operation.

The tractor must be fitted with mirrors

The tractor should be fitted with mirrors which are kept clean and in good condition.

This ensures the tractor driver has a good view to both sides of the machine.

A restricted view to the sides of the machine can lead to persons being crushed, severely injured or killed.



- ▶ Start the tractor.
- ▶ Carefully connect the tractor's PTO outlet.
- ▶ Carefully increase the speed of the PTO outlet to 540 rpm.
- ▶ Check that the machine runs even without any vibrations.
- ▶ Return the PTO outlet to idle speed.
- ▶ Activate all the hydraulic functions of the machine, one by one.
- ▶ Disconnect the tractor's PTO outlet.

Transport on public roads

Safety



Read the safety instructions carefully before driving on public road

Before driving on public roads, you must read the safety instructions carefully:

→ »Transport on public roads« Page 17

This assures that you avoid dangerous situations and accidents. Lack of information can lead to an accident.

No vehicle brakes fitted on model 1300

When driving on public roads, the machine must meet the requirements of the Road Traffic Act.

It is dangerous to drive on public roads with a laden model 1300 as the machine is not equipped with vehicle brakes.

Driving on roads without vehicle brakes can lead to serious accidents.

General

- Comply with the local law concerning lights, warning and safety units.
- The driver and/or owner of the machine is responsible for ensuring local requirements are observed when driving on public roads.
- The manoeuvring ability of the tractor should not be reduced. The tractor's steering shaft should bear at least 20% of the tractor's net weight.
- The tractor's braking distance should not be reduced. At least 50% of the vehicle's total weight must rest on the braked wheel.
- Carrying passengers on the machine is strictly prohibited.

Before travelling on public roads

- All of the hydraulic functions of the machine should be placed in neutral and in locked position.
- Make sure there are no children or unauthorised persons in the machine's hazard area.
- Check the surrounding area before starting the machine.

Safety chain

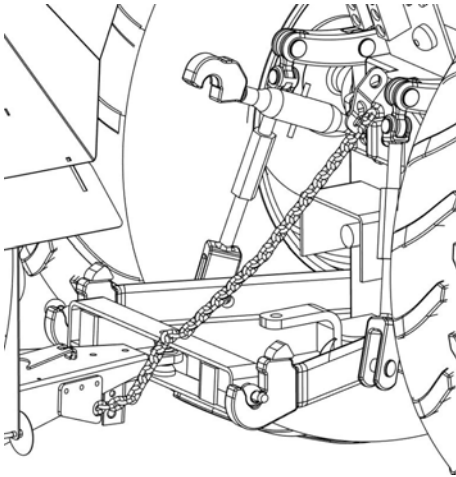
Model with EU type-approval only



Safety chain

When driving on public roads, the machine must always be secured with a safety chain between the tractor and the machine. Use a safety chain with a reinforcement suited to at least the total weight of the machine.

If the machine should accidentally become detached, this could cause serious injury or death.



- ▶ Secure the safety chain between the tractor and machine.



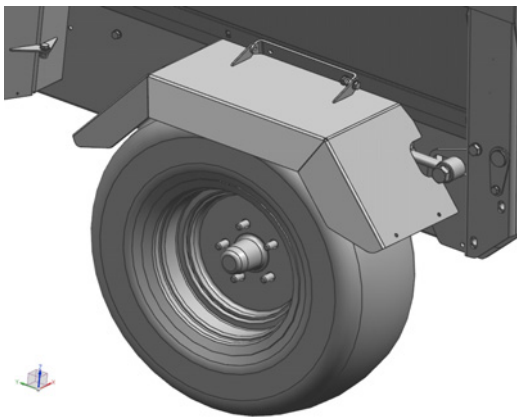
Choose a suitable length of chain, so that it does not impede movement of the drawbar and does not hang down too low.



Ensure that national regulations concerning the length and fitting of safety chains are observed.

→ »Safety chain« Page 39

Only as accessory



- Check the machine tyre pressure.

→ »Technical data« Page 30

- In certain countries, wheel guards are compulsory.

→ »Wheel guards« Page 128

Transport on public roads

Checking the machine

Before travelling on the road the machine should be checked according to this check list:

- All hydraulic and electric functions of the machine should be neutral and in locked position.
- The machine's coupling must be secured with a pin.
- The bale chamber of the machine should be emptied and cleaned.
- If materials are transported in the machine the bale chamber should be covered.
- The machine's tyre pressure must be checked.
- Check the nearest area before operating the machine.

Travelling on public roads



Read the safety instructions carefully before driving on public road

Before driving on public road, you must read the safety instructions carefully.

This assures that you avoid dangerous situations and accidents. Lack of information can lead to an accident.

No vehicle brakes fitted on model 1300

When driving on public roads, the machine must meet the requirements of the Road Traffic Act.

It is dangerous to drive on public roads with a laden model 1300 as the machine is not equipped with vehicle brakes.

Driving on roads without vehicle brakes can lead to serious accidents.

- Check the nearest area around the machine before you start. Make sure there are no children or unauthorised persons in the machine's hazard area.
- Do not exceed the maximum permitted speed.
- Adjust the speed according to the road conditions.
- Avoid sudden sideways movement with the machine.
- Make sure that steering and braking ability is sufficient.

Speed when driving on public roads



When driving on public roads with this machine, the speed must be less than 40 km/h (25 mph).

Knives on shredding drum

1300

Standard model

The 1300 is equipped with 1 shredding drum and a floor conveyor with variable speeds.

To optimise the chopping of the materials, the setting can vary according to the type of material, its length and condition.



The diagram below is only for guidance.

Material		Condition	Length	Number of knives		
				14	28	56
Straw:	Round bale	Dry	Short			
	Large bale		Long	X		
Hay:	Round bale	Dry	Short	X		
	Large bale		Long	X		
Silage:	Round bale	Dry	Short		X	
			Long			X
	Large bale	Medium	Short	X		
			Long		X	
		Wet	Short	X		
			Long		X	
Silage:	Cut	Dry	Short	X		
		Wet	Long		X	

Swivel chute model



The diagram below is only for guidance.

Material		Condition	Length	Number of knives		
				14	28	56
Straw:	Round bale	Dry	Short			
	Large bale		Long	X		
Hay:	Round bale	Dry	Short	X		
	Large bale		Long	X		
Silage:	Round bale	Dry	Short		X	
			Long			X
	Large bale	Medium	Short	X		
			Long		X	
		Wet	Short	X		
			Long		X	
Silage:	Cut	Dry	Short	X		
		Wet	Long		X	

Setting

1600

Standard model

1600 is equipped with 2 shredding drums and a floor conveyor with variable speeds.

To optimise the chopping of the materials, the setting can vary according to the type of material, its length and condition.



The diagram below is only for guidance.

Material		Condition	Length	Number of knives Lower drum			Number of knives Upper drum		
				14	28	56	14	28	56
Straw:	Round bale	Dry	Short						
	Large bale		Long	X			X		
Hay:	Round bale	Dry	Short	X			X		
	Large bale		Long	X				X	
Silage:	Round bale	Dry	Short		X			X	
			Long			X			X
	Large bale	Medium	Short	X			X		
			Long		X			X	
		Wet	Short	X			X		
			Long		X			X	
Silage:	Cut	Dry	Short	X			X		
		Wet	Long		X			X	

Swivel chute model



The diagram below is only for guidance.

Material		Condition	Length	Number of knives Lower drum			Number of knives Upper drum		
				14	28	56	14	28	56
Straw:	Round bale	Dry	Short						
	Large bale		Long	X			X		
Hay:	Round bale	Dry	Short	X			X		
	Large bale		Long	X				X	
Silage:	Round bale	Dry	Short		X			X	
			Long			X			X
	Large bale	Medium	Short	X			X		
			Long		X			X	
		Wet	Short	X			X		
			Long		X			X	
Silage:	Cut	Dry	Short	X			X		
		Wet	Long		X			X	

Mounting/ removing knives



Be very careful when replacing the knives

Use protective gloves when replacing the knives on the shredding drum.

The knives on the shredding drum are very sharp.

Replacing the knives without protective gloves can result in severe hand injuries.

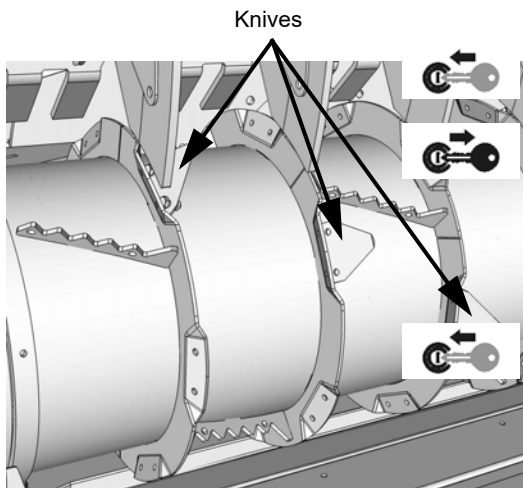
The minimum stopping time for the flywheel is two minutes

Wait at least two minutes before starting any kind of work on the machine.

It takes the machine's flywheel at least two minutes to come to a complete standstill.

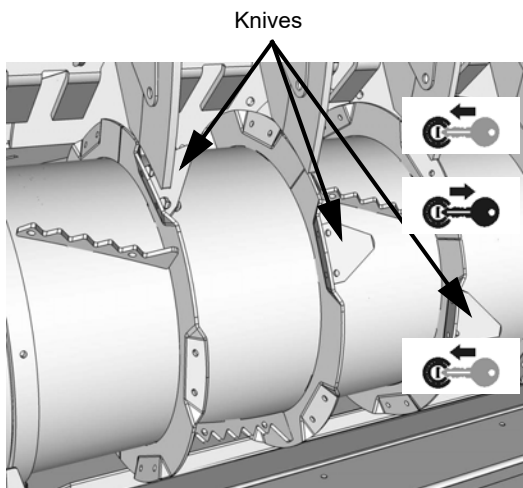
If work is started on the machine before the machine's flywheel has stopped rotating, this can lead to serious injury or accidents.

Mounting the knives



- ▶ Start the tractor.
- ▶ Open the machine rear door all the way up.
- ▶ Stop the tractor.
- ▶ Enter the machine bale chamber.
- ▶ Mount the knife and bolt.
- ▶ Mount the nut and tighten the knife.
- ▶ Exit the machine bale chamber.
- ▶ Start the tractor.
- ▶ Close the rear door of the machine.

Removing the knives



- ▶ Start the tractor.
- ▶ Open the machine rear door all the way up.
- ▶ Stop the tractor.
- ▶ Enter the machine bale chamber.
- ▶ Remove the knife and bolt.
- ▶ Exit the machine bale chamber.
- ▶ Start the tractor.
- ▶ Close the rear door of the machine.

Safety



Keep away from the machine

No unauthorised persons should be close to the machine during operation.

This ensures you work safely and securely.

There is a high risk of crushing, severe injury and death if persons are close to the machine during operation.

The minimum stopping time for the flywheel is two minutes

Wait at least two minutes before starting any kind of work on the machine.

It takes the machine's flywheel at least two minutes to come to a complete standstill.

If work is started on the machine before the machine's flywheel has stopped rotating, this can lead to serious injury or accidents.

The tractor must be fitted with mirrors

The tractor should be fitted with mirrors which are kept clean and in good condition.

This ensures the tractor driver has a good view to both sides of the machine.

A restricted view to the sides of the machine can lead to persons being crushed, severely injured or killed.

The operator should be instructed carefully before the machine is put into use

The machine should only be used if the operator has been given thorough instructions; this instruction manual must be read and understood.

Thorough machine instruction results in safe usage.

Insufficient instructions can result in wrong usage of the machine and accidents.

**Read the safety instructions before using the machine**

Before using and loading the machine the operator should read the safety instructions carefully.

→ »Safety« Page 7

Attention to the safety instructions assures your and others personal safety.

Failure to follow the instructions may result in serious injuries.

Work on the machine should only be carried out by persons who have been thoroughly instructed

The machine should only be operated when the operator has been given thorough instructions.

Thorough machine instruction results in safe usage.

Insufficient instructions can result in wrong usage of the machine and accidents.

Do not remove the protection guards

Check that all protective guards are in place before use.

This assures that the machine will offer maximum protection to the operator.

If the safety guards are removed or not used it may result in serious injuries and accidents.

Before operating



Make sure that the initial start of the machine is unhindered

Make sure the area around the machine is checked and cleared before start-up.

Paying attention to the area around the machine will prevent injuring persons or animals.

Insufficient attention to the area around the machine can result in serious injuries.

Child safety

Never assume that children are still where you last saw them.

Take care to ensure your machine is secured if children are in the working area.

Never allow children to play on or operate the machine.

Limitation of the hydraulic flow of the tractor

Limit the hydraulic flow of the tractor.

Hereby you will avoid overheating and overloading the hydraulic system.

Overloading the hydraulic system may result in serious injuries.

The hydraulic flow of the tractor should therefore be limited to:

- During manual hydraulic operation:
 - 65 l/min
 - 17.2 gal./min. (US)
 - 14.3 gal./min (imp.)

- During electrical hydraulic operation:
 - 70 l/min
 - 18.5 gal./min. (US)
 - 15.4 gal./min (imp.)



Following instructions should be complied with:

- Check all points mentioned in the section "maintenance".
 - »Specific safety information« Page 90
 - »Lubrication safety and use of oil« Page 90
- Check knives are not worn down. The knives can be turned so that they rotate in the opposite direction.
 - »Knives« Page 109

Electrical hydraulic controls

Standard model

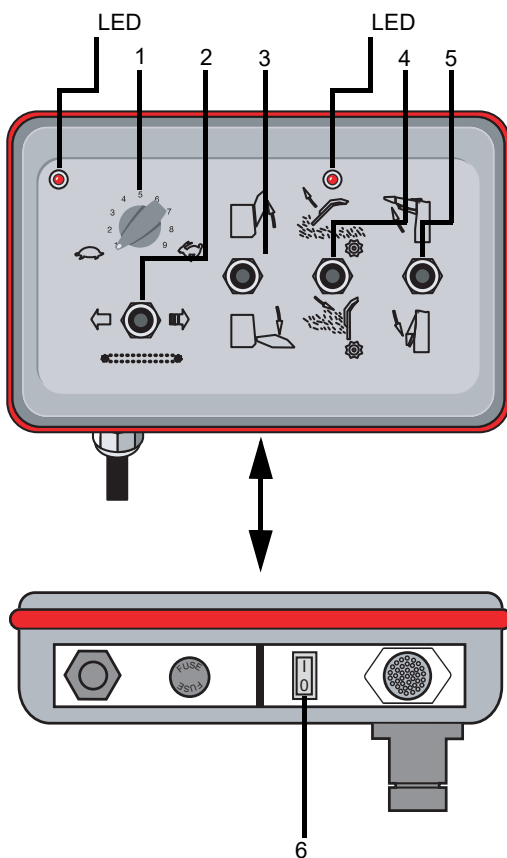


Connect the control box power source properly

The control box must be connected to a 12 V electrical system. A proper connection of the power source prevents a short-circuit. Incorrect connection can result in short circuiting and burns to the skin.

The electric valve block is located behind the protection on the front of the cutting case. The valves are operated from the control box which is mounted in the tractor's cab with the brackets supplied.

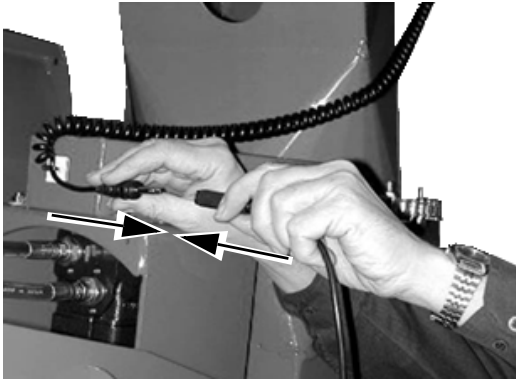
Operation of the control box functions are described below.



Contact	Action	Function
1	Variable Position 1 - 9	Floor conveyor speed
2	Switch in left position	Floor conveyor forward
	Switch in middle position	Floor conveyor stopped
	Switch in right position	Floor conveyor reverse
3	Switch up	Rear door up
	Switch in middle position	No movement
	Switch in down position	Rear door down
4	Switch up	Comb disengaged (LED off)
	Switch in down position	Comb engaged (LED on)
5	Switch up	Standard chute up
	Switch in middle position	Standard chute stop
	Switch in down position	Standard chute down
6	Switch in position "1"	Control box on (LED on)
	Switch in position "0"	Control box off (LED off)

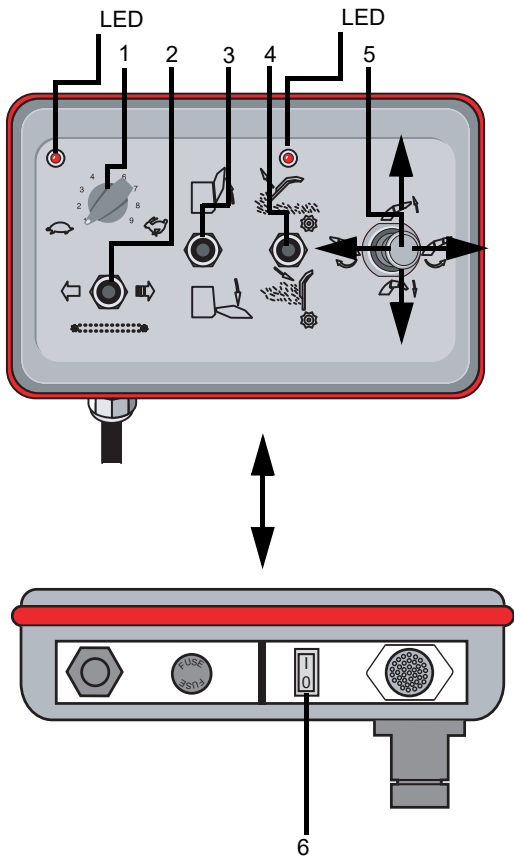
Operation

Swivel chute model



The swivel chute is connected to the joystick in the following way:

- ▶ Make sure the tractor motor is stopped.
- ▶ Mount the control box in the tractor cab.
- ▶ Connect the joystick to the machine swivel chute.
- ▶ Connect the lead to the swivel chute flap as shown
- ▶ Connect the control box to the electrical system of the tractor.

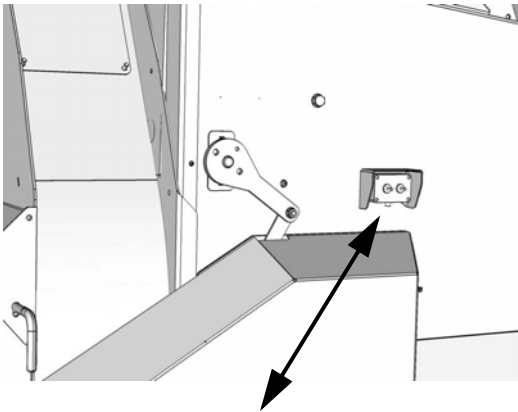


Operation of the control box joystick functions are described below.

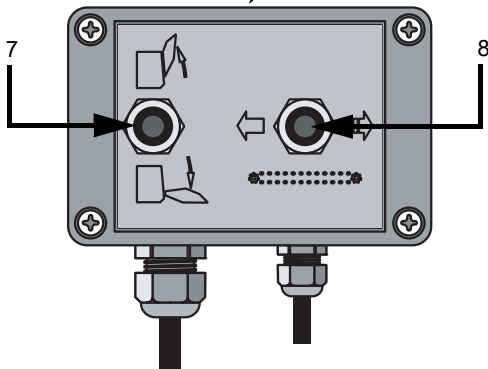
Contact	Action	Function
1	Variable Position 1 - 9	Floor conveyor speed
2	Switch in left position	Floor conveyor forward
	Switch in middle position	Floor conveyor stopped
	Switch in right position	Floor conveyor reverse
3	Switch up	Rear door up
	Switch in middle position	No movement
	Switch in down position	Rear door down
4	Switch up	Comb disengaged (LED off)
	Switch in down position	Comb engaged (LED on)
5	Joystick up	Swivel chute up
	Joystick down	Swivel chute down
	Joystick to left	The swivel chute turns to the right
	Joystick to right	The swivel chute turns to the left
6	Switch in position "1"	Control box on (LED on)
	Switch in position "0"	Control box off (LED off)

Remote control

A remote control is mounted on the machine's left-hand side to facilitate loading of the machine. The operation of the remote control functions is described below.

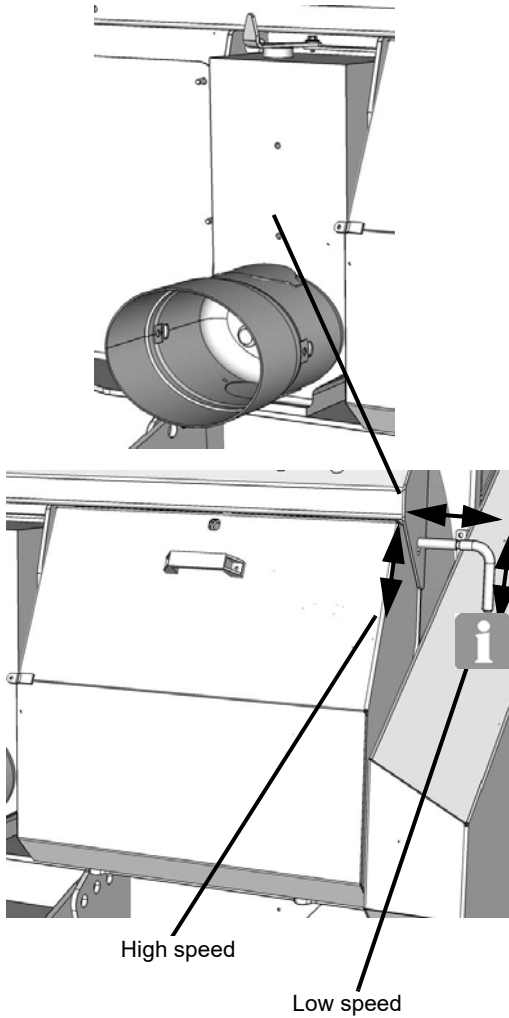


Contact	Action	Function
7	Switch up	Rear door up
	Switch in middle	No movement
	Switch in down position	Rear door down
8	Switch left	Floor conveyor forward
	Switch in middle	Floor conveyor stopped
	Switch right	Floor conveyor back



Operation

2-speed transmission



The machine is fitted with a 2-speed transmission to allow adjustment of the flywheel rotation speed depending on material type, length and condition.

To select the transmission, do the following:

- ▶ Raise the handle from the lock.
- ▶ Select transmission.

Material		Condition	Length	Transmission	
				Low	High
Straw:	Round bale	Dry	Short		
	Large bale		Long		X
Hay:	Round bale	Dry	Short	X	
	Large bale		Long		X
Silage:	Round bale	Dry	Short		X
			Long		X
	Large bale	Medium	Short		X
			Long		X
		Wet	Short		X
			Long		X
Silage:	Cut	Dry	Short	X	
		Wet	Long		X

The table is only a guide.

- ▶ Press the handle down in the lock.



The machine is operated in the following way:

- ▶ Make sure that no bypassing persons are in the surrounding area.
- ▶ Use the machine handle and open the rear door.
- ▶ Fasten all the guards on the machine.
- ▶ Remove any foreign objects from the machine's bale chamber.
- ▶ Use the machine handle and close the rear door again.
- ▶ Position the tractor and the machine in a straight line.
- ▶ Carefully connect the tractor's PTO shaft.
- ▶ Carefully increase the speed of the PTO shaft to 540 rpm.
- ▶ Use the machine handle to operate the hydraulic functions.



In case there is no function on the machine:

- ▶ Stop the tractor's forward drive.
- ▶ Stop the tractor.
- ▶ Disconnect the PTO shaft immediately.



→ »Troubleshooting« Page 131



If the machine is too noisy or vibrates too much, stop the machine immediately.

→ »Troubleshooting« Page 131

Operation

Loading the machine



Keep away from the machine

No unauthorised persons should be close to the machine during operation.

This ensures you work safely and securely.

There is a high risk of crushing, severe injury and death if persons are close to the machine during operation.

The tractor must be fitted with mirrors

The tractor should be fitted with mirrors which are kept clean and in good condition.

This ensures the tractor driver has a good view to both sides of the machine.

A restricted view to the sides of the machine can lead to persons being crushed, severely injured or killed.



The machine can be used for self loading of round or large bales. The bale to be loaded should be put on the ground in front of a wall or a pile of bales. Round bales must be loaded on their side so that the bale will revolve easily in the bale chamber.

Hay and straw

Model 1300 only

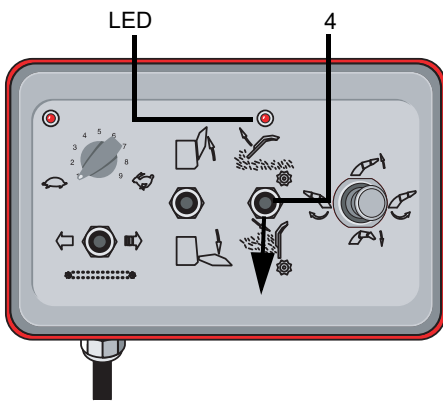
Do the following:

- ▶ Push switch 4 down to engage the machine's comb.
- The LED comes on.

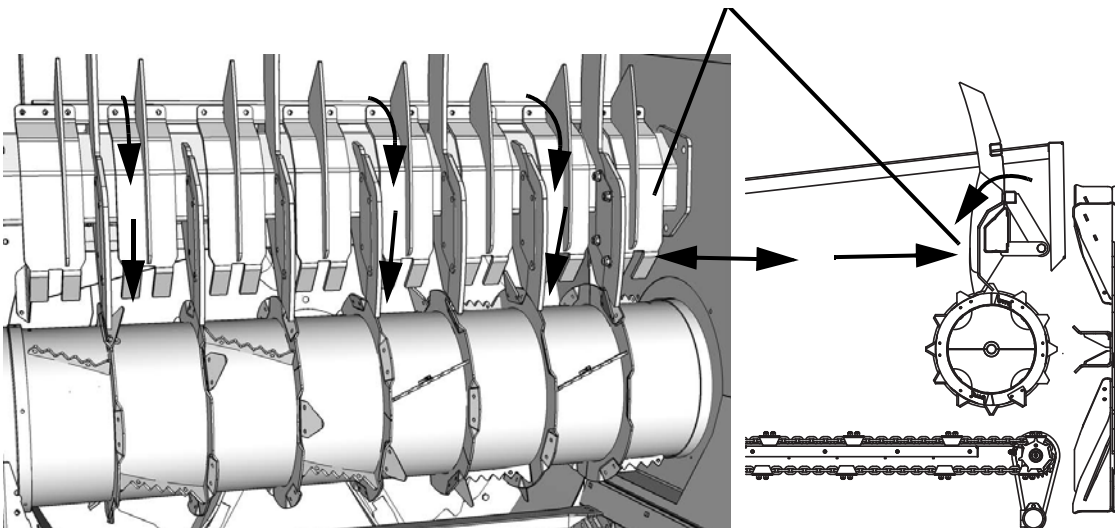


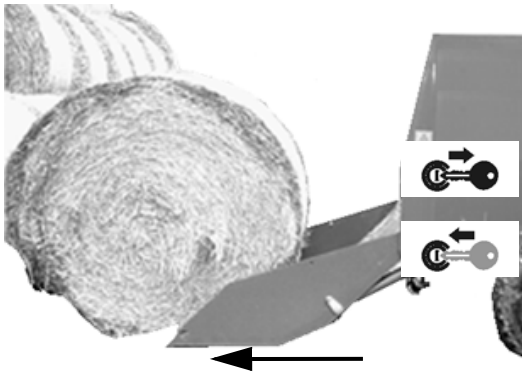
It is recommended that the comb is engaged each time the machine is loaded with new crop. The comb should be engaged before starting to load the machine.

Engaging the comb prevents crop from entering over the shredding drum and into the flywheel housing, where it can cause the flywheel housing to become blocked when the machine is started.



Engaging the comb prevents the flywheel housing being accidentally blocked when loading or starting the machine





- ▶ Lower the rear door to ground position.
- ▶ Reverse the machine towards the bale and push the bale onto the rear door.
- ▶ Lift the rear door to horizontal.
- ▶ Stop the tractor and remove the ignition key.
- ▶ Remove net and all strings around the bale.
- ▶ Start the tractor.

Operation

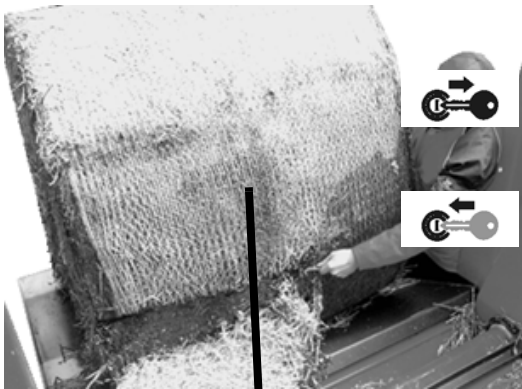


Remove the packing properly

Remove net and other packing material properly. This ensures you work safely and securely. Failure to follow the safety instructions may result in severe injuries or death.



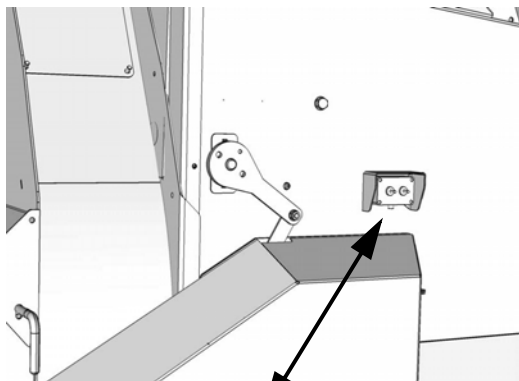
The machine can also be loaded by a loader tractor, bobcat or the like. Round bales must be loaded on their side so that the bale will revolve easily in the bale chamber.



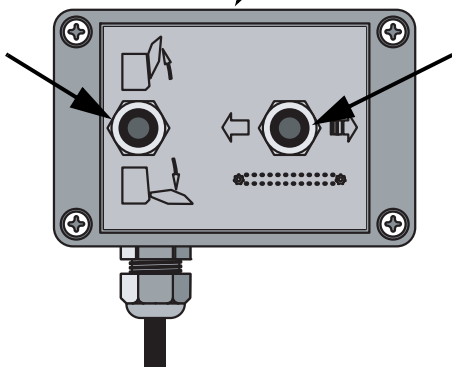
Remove net and all strings around the bale

Do the following:

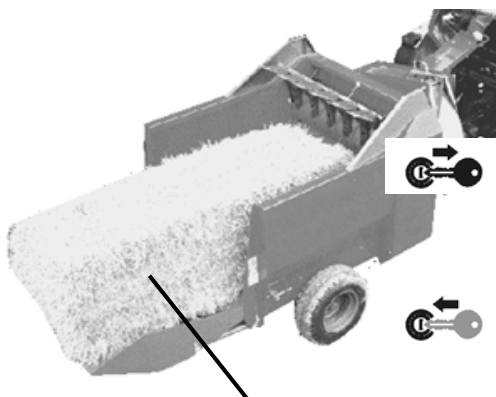
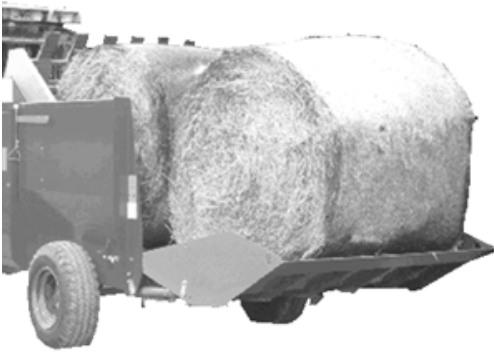
- ▶ Lower the rear door to horizontal position.
- ▶ Stop the tractor and remove the ignition key.
- ▶ Use a loader tractor or a bob cat to place the bale on the rear door.
- ▶ Remove net and all strings around the bale.
- ▶ Start the tractor.
- ▶ Raise and close the rear door completely.



- ▶ Operate the machine's remote control on the left-hand side.
- ▶ Raise the rear door and operate the machine's floor conveyor until the bale is pulled into the machine's chamber.



A new bale can now be placed on the rear door for transportation as described earlier.



The bale should be placed on the side so the strings are easier to remove

Large bales are loaded so that part of the bale is inside the bale chamber, and part of the bale is on the rear door in its level position. Do the following:

- ▶ Lower the rear door to horizontal position.
- ▶ Stop the tractor and remove the ignition key.
- ▶ Use a loader tractor or a bobcat to place the bale on the side on the rear door.
- ▶ Remove net and all strings around the bale.
- ▶ Start the tractor.

i When chopping large bales, the machine should be operated with the rear door level so that the first part of the bale is chopped, and then the door is raised to its closed position, placing the remaining half of the bale in the chamber for further chopping.

Operation

Silage



Do not use the rear door for loading

The machine rear door must never be used to load cut silage. The machine is not designed for loading cut silage with the rear door. The construction of the machine may be damaged.

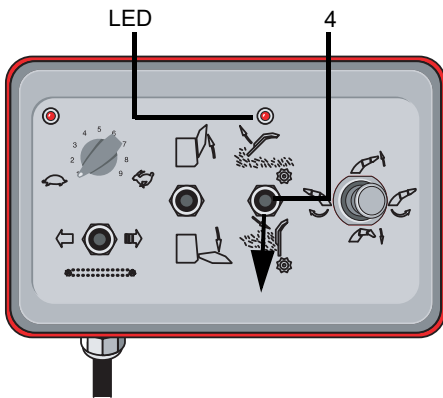
Silage is loaded as follows:

- ▶ The machine rear door must be completely closed.
- ▶ Load the cut silage into the machine with a tractor fitted with a front loader or similar.



Cut silage must not be loaded higher than the top of the bale chamber side panels.

Model 1300 only



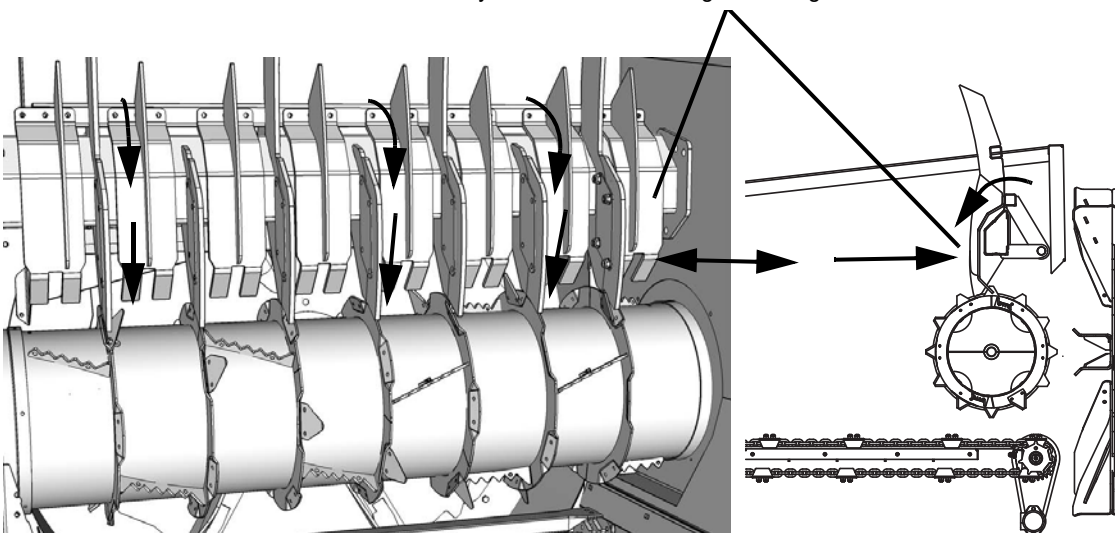
Do the following:

- ▶ Push switch 4 down to engage the machine's comb.
- The LED comes on.

It is recommended that the comb is engaged each time the machine is loaded with new crop. The comb should be engaged before starting to load the machine.

Engaging the comb prevents crop from entering over the shredding drum and into the flywheel housing, where it can cause the flywheel housing to become blocked when the machine is started.

Engaging the comb prevents the flywheel housing being accidentally blocked when loading or starting the machine



- ▶ Load the silage into the machine with a tractor fitted with a front loader or similar.



Silage must not be loaded higher than the top of the bale chamber side panels.

Machine start-up



Keep away from the machine

No unauthorised persons should be close to the machine during operation.

This ensures you work safely and securely.

There is a high risk of crushing, severe injury and death if persons are close to the machine during operation.

The tractor must be fitted with mirrors

The tractor should be fitted with mirrors which are kept clean and in good condition.

This ensures the tractor driver has a good view to both sides of the machine.

A restricted view to the sides of the machine can lead to persons being crushed, severely injured or killed.

The rear door on the machine should not force material into the shredding drum

Never use the rear door to force material into the machine shredding drum.

This could result in blocking the machine - especially when starting up.

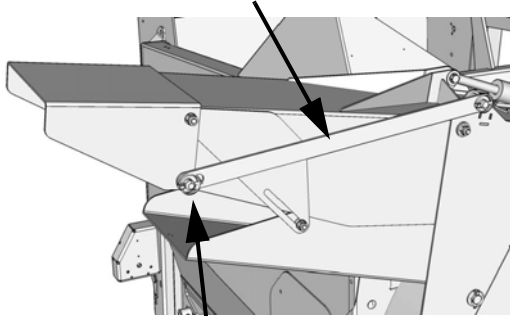
Blocking of the machine can result in damages on the vital machine parts.

Operation

Standard machine

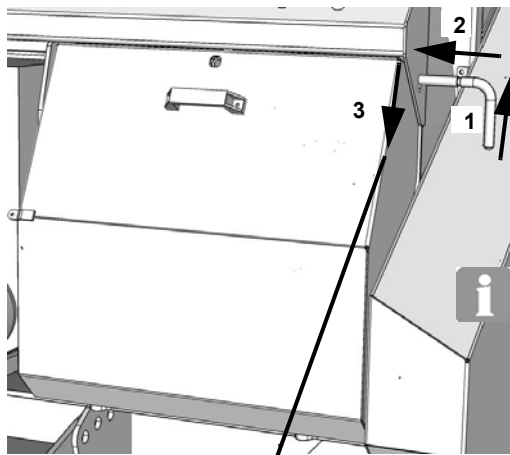
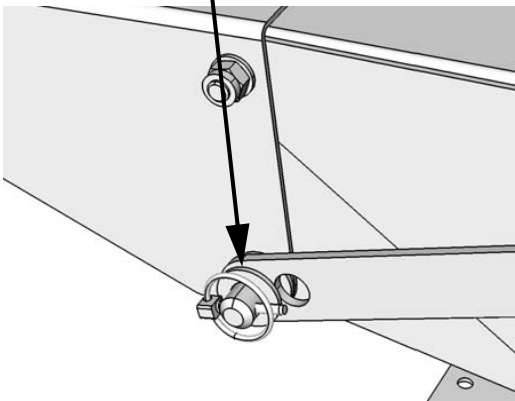
Hay and straw

Connection rod



To spread straw, do the following:

- ▶ Extend the standard chute completely using the machine control lever or control box.
- ▶ Adjust the connecting rods to the standard chute as shown.

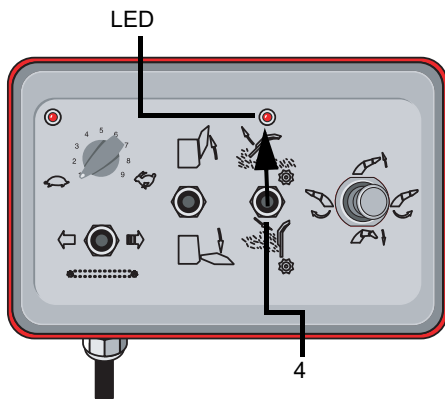


- ▶ Set the transmission to high speed:
- ▶ Raise the handle from the lock [1].
- ▶ Push the handle into the machine [2].
- ▶ Press the handle down in the lock [3].
- ▶ Carefully connect the tractor's PTO outlet.
- ▶ Increase the speed of the tractor's PTO outlet to 540 rpm.



It is recommended to bring the PTO outlet up to 540 rpm as quickly as possible.

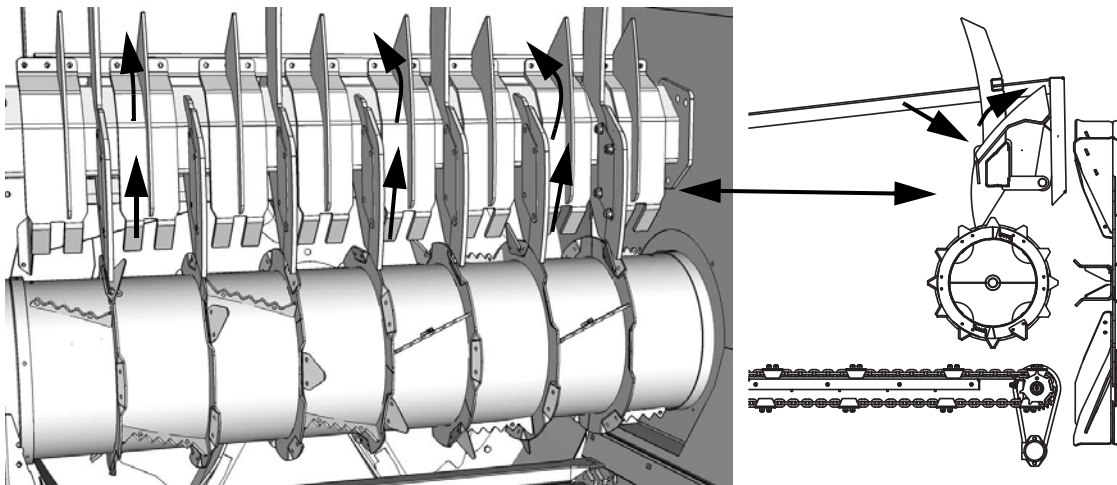
Model 1300 only



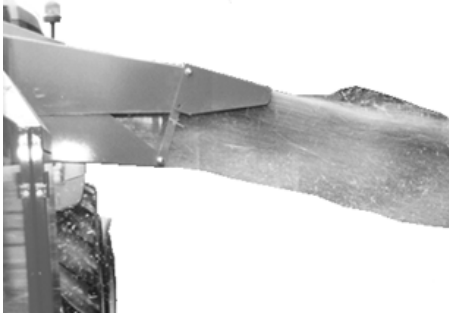
- ▶ Push switch 4 up to uncouple the machine's comb.
- The LED goes out.



It is recommended that the comb is disengaged once the tractor's PTO outlet has been brought up to 540 rpm. When the comb is disengaged, the crop can freely enter over the shredding drum and into the flywheel housing.



Operation



- ▶ Start the machine floor conveyor with the handle or control box and the bale is brought to the front of the machine.
- ▶ Set the speed of the floor conveyor to give the required discharge rate.
- ▶ Select an appropriate tractor forward speed for the desired amount to be chopped.
- ▶ Hydraulically adjust the standard chute to place material in desired area.



The machine can throw material up to 18 metres (60').



If a shorter throwing distance is desired, the rpm on the tractor PTO outlet should be reduced.

Silage



Do not use the rear door for loading

The machine rear door must never be used to load cut silage. The machine is not designed for loading cut silage with the rear door. The construction of the machine may be damaged.

Silage is loaded as follows:

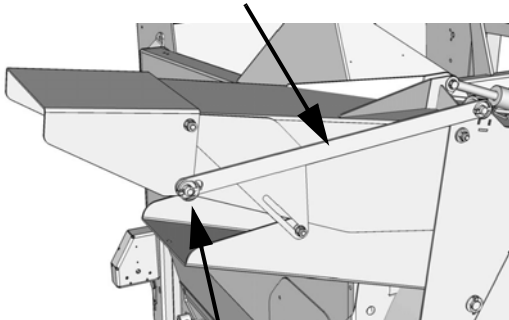
- ▶ The machine rear door must be completely closed.
- ▶ Load the silage into the machine with a tractor fitted with a front loader or similar.



Silage must not be loaded higher than the top of the bale chamber side panels.

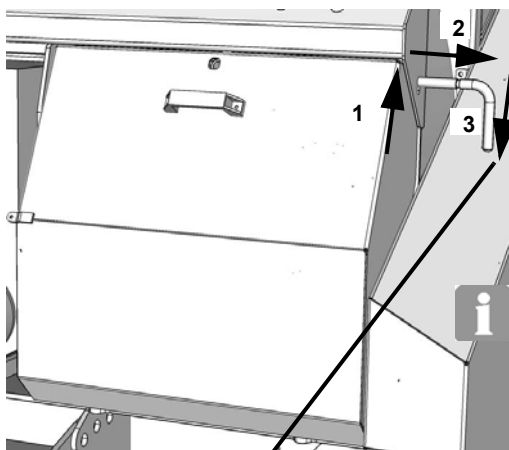
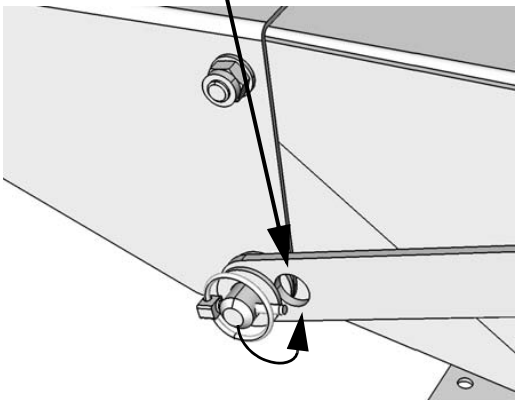
The machine can be used to feed silage and pressed materials.

Connection rod



To feed hay and silage, do the following:

- ▶ Extend the standard chute completely using the machine control lever or control box.
- ▶ Adjust the connecting rods to the standard chute as shown.



Low speed

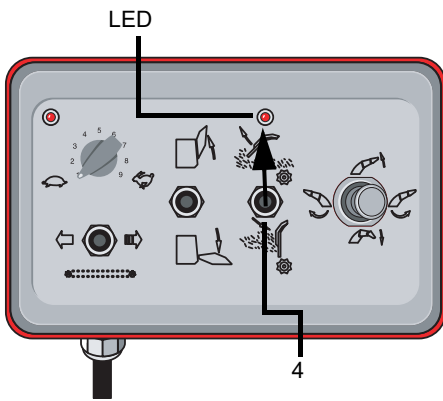
- ▶ Set the transmission to low speed:
- ▶ Raise the handle from the lock [1].
- ▶ Pull out the handle [2].
- ▶ Press the handle down in the lock [3].
- ▶ Carefully connect the tractor's PTO outlet.
- ▶ Increase the speed of the tractor's PTO outlet to 540 rpm.



It is recommended to bring the PTO outlet up to 540 rpm as quickly as possible.

Operation

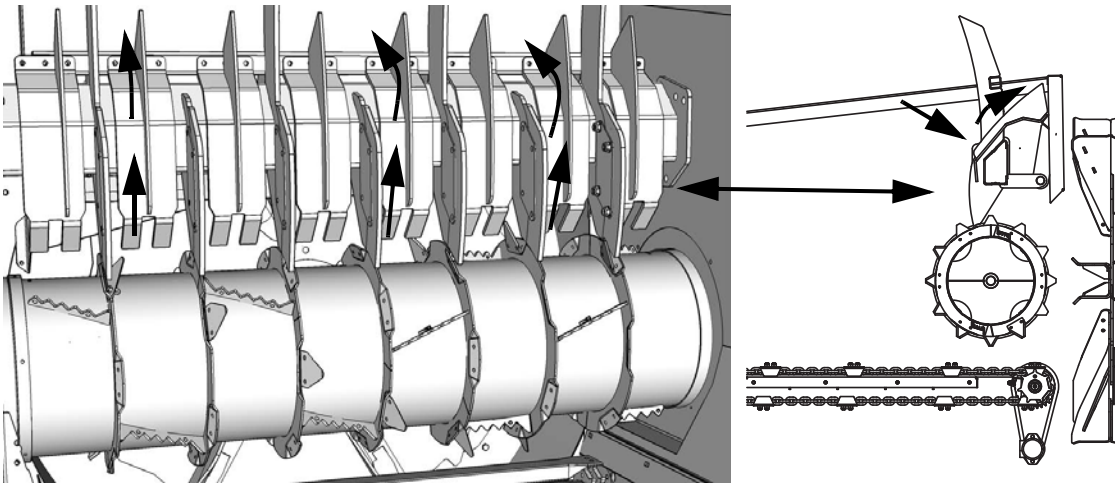
Model 1300 only

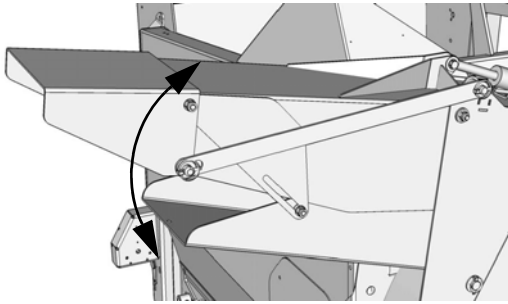


- ▶ Push switch 4 up to uncouple the machine's comb.
- The LED goes out.



It is recommended that the comb is disengaged once the tractor's PTO outlet has been brought up to 540 rpm. When the comb is disengaged, the crop can freely enter over the shredding drum and into the flywheel housing.



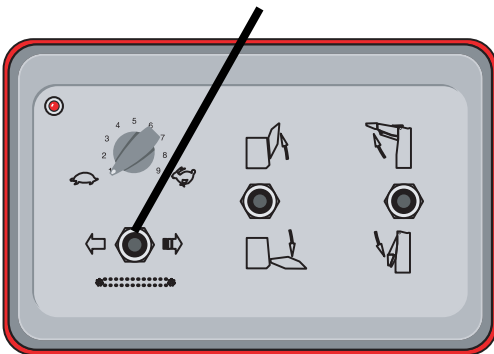


- ▶ Engage the floor conveyor to pull the silage to the front of the machine.
- ▶ Adjust the speed of the floor conveyor to the lowest possible speed.
- ▶ Select an appropriate tractor forward speed for the desired amount to be processed.
- ▶ Hydraulically adjust the standard chute to place the crop in the desired area.

The low speed on the flywheel will keep the material loss to a minimum.

Electrical hydraulic controls

Stop the floor conveyor



by following the stopping procedure:

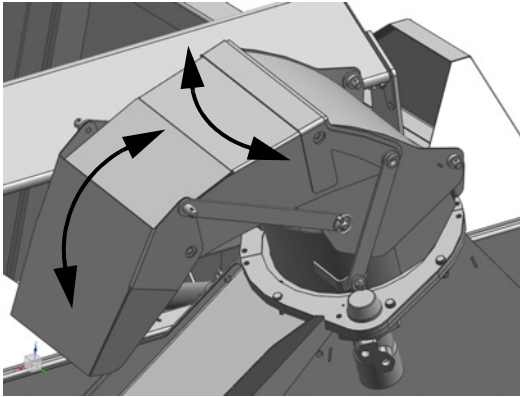
- ▶ Operate the switch shown on the control box to stop the floor conveyor.
- ▶ Wait until no more material is discharged from the standard chute.
- ▶ Run down PTO speed to engine idle.
- ▶ Disconnect the PTO outlet on the tractor.
- ▶ Wait until the machine flywheel has come to a complete stop.

If the above procedure is followed, the flywheel will not contain any excess material that may cause blockages when the machine is started again.

Operation

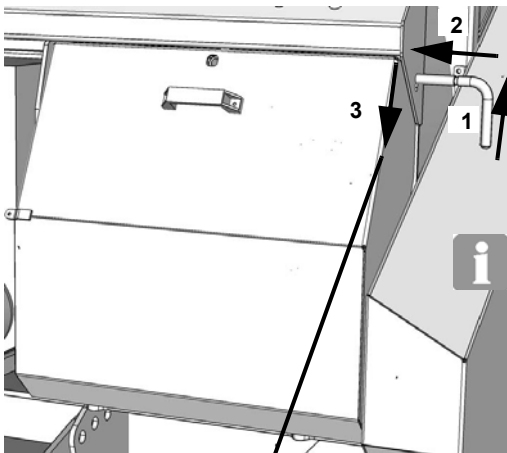
Swivel chute model

Hay and straw



To spread hay with the swivel chute, do the following:

- ▶ Raise the swivel chute with the machine control handle or control box.



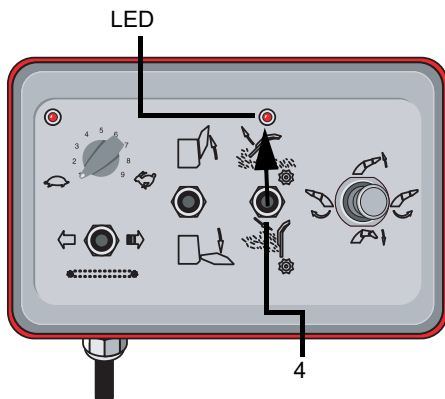
Set the transmission to high speed:

- ▶ Raise the handle from the lock [1].
- ▶ Push the handle into the machine [2].
- ▶ Press the handle down in the lock [3].
- ▶ Carefully connect the tractor's PTO outlet.
- ▶ Increase the speed of the tractor's PTO outlet to 540 rpm.

It is recommended to bring the PTO outlet up to 540 rpm as quickly as possible.

High speed

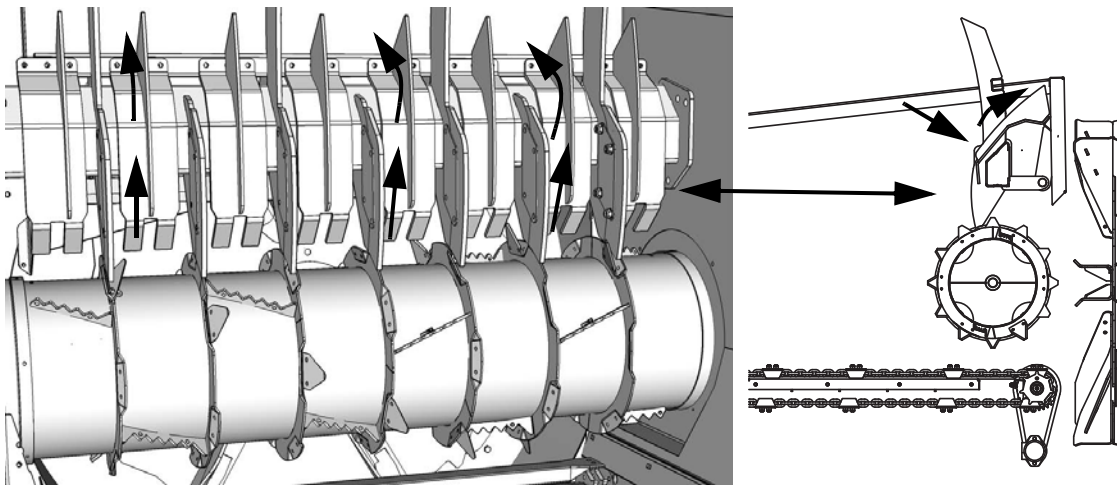
Model 1300 only



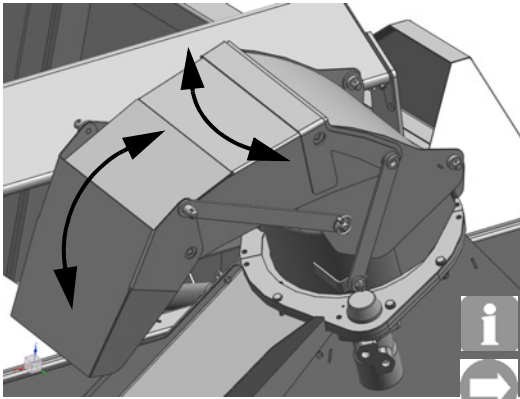
- ▶ Push switch 4 up to uncouple the machine's comb.
- The LED goes out.



It is recommended that the comb is disengaged once the tractor's PTO outlet has been brought up to 540 rpm. When the comb is disengaged, the crop can freely enter over the shredding drum and into the flywheel housing.



Operation



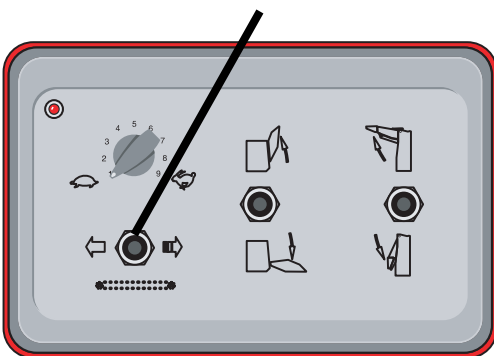
- ▶ Start the machine floor conveyor with the control box to pull the bale to the front of the machine.
- ▶ Set the speed of the floor conveyor to give the required discharge rate.
- ▶ Select an appropriate tractor forward speed for the desired amount to be processed.
- ▶ Adjust the swivel chute with the machine's control box to bring the crop to the desired point.

The machine can throw material up to 18 metres (60').

If a shorter throwing distance is desired, the rpm on the tractor PTO outlet should be reduced.

Electrical hydraulic controls

Stop the floor conveyor



by following the stopping procedure:

- ▶ Operate the switch shown on the control box to stop the floor conveyor.
- ▶ Wait until no more material is discharged from the standard chute.
- ▶ Run down PTO speed to engine idle.
- ▶ Disconnect the PTO outlet on the tractor.
- ▶ Wait until the machine flywheel has come to a complete stop.

If the above procedure is followed, the flywheel will not contain any excess material that may cause blockages when the machine is started again.

Silage



Do not use the rear door for loading

The machine rear door must never be used to load cut silage. The machine is not designed for loading cut silage with the rear door. The construction of the machine may be damaged.

Silage is loaded as follows:

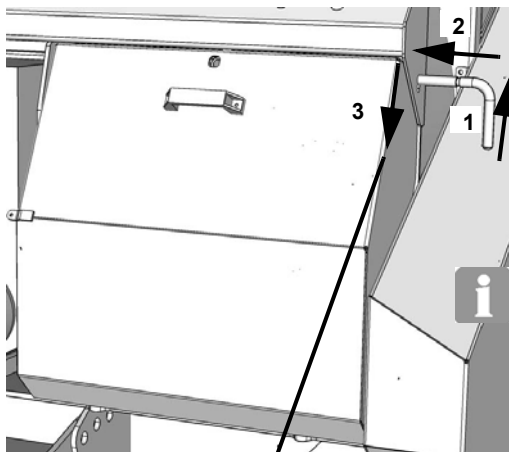
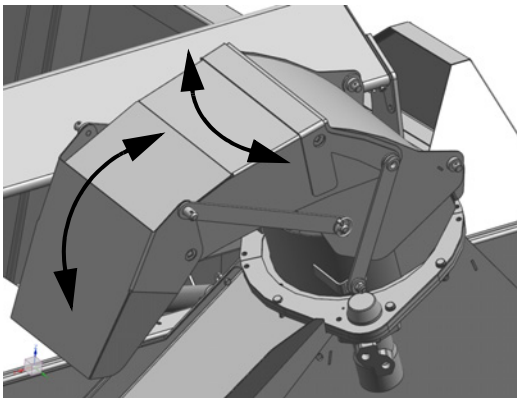
- ▶ The machine rear door must be completely closed.
- ▶ Load the silage into the machine with a tractor fitted with a front loader or similar.



Silage must not be loaded higher than the top of the bale chamber side panels.

To spread silage with the swivel chute, carry out the following:

- ▶ Raise the swivel chute with the machine control handle or control box.



High speed

Set the transmission to high speed:

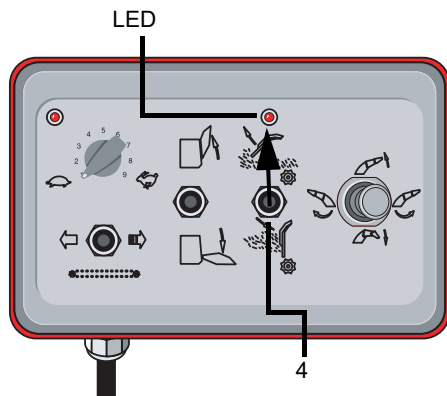
- ▶ Raise the handle from the lock [1].
- ▶ Push the handle into the machine [2].
- ▶ Press the handle down in the lock [3].
- ▶ Carefully connect the tractor's PTO outlet.
- ▶ Increase the speed of the tractor's PTO outlet to 540 rpm.



It is recommended to bring the PTO outlet up to 540 rpm as quickly as possible.

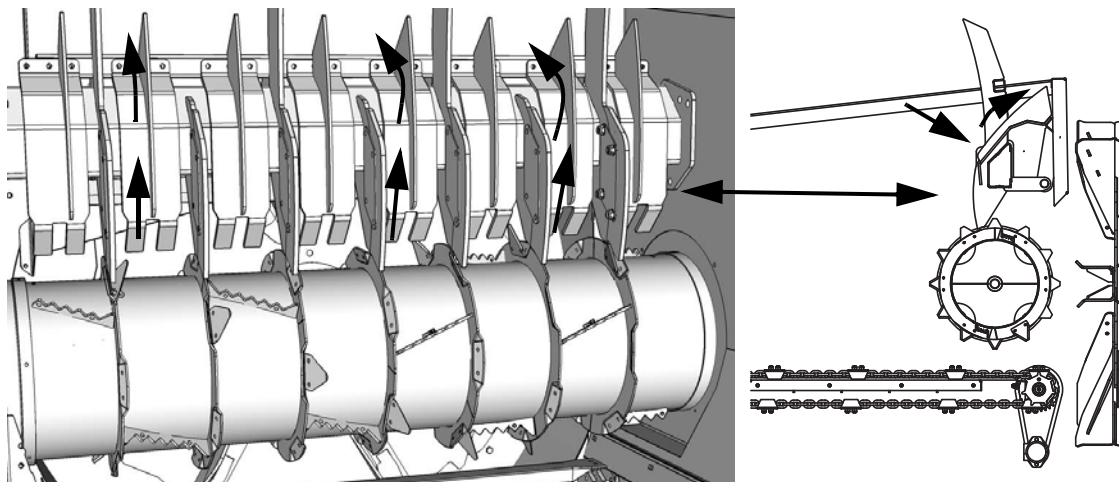
Operation

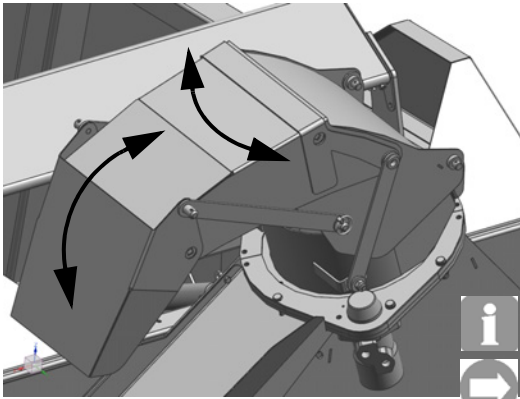
Model 1300 only



- ▶ Push switch 4 up to uncouple the machine's comb.
- The LED goes out.

It is recommended that the comb is disengaged once the tractor's PTO outlet has been brought up to 540 rpm. When the comb is disengaged, the crop can freely enter over the shredding drum and into the flywheel housing.





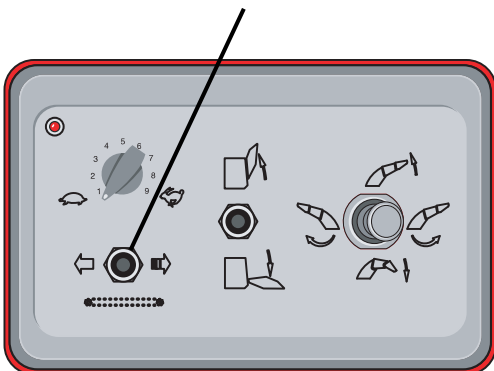
- ▶ Start the machine floor conveyor with the control box to pull the bale to the front of the machine.
- ▶ Set the speed of the floor conveyor to give the required discharge rate.
- ▶ Select an appropriate tractor forward speed for the desired amount to be processed.
- ▶ Adjust the swivel chute with the machine's control box to bring the crop to the desired point.

The machine can throw material up to 18 metres (60').

If a shorter throwing distance is desired, the rpm on the tractor PTO outlet should be reduced.

Electrical hydraulic controls

Stop the floor conveyor



by following the stopping procedure:

- ▶ Operate the switch shown on the control box to stop the floor conveyor.
- ▶ Wait until no more material is discharged from the swivel chute.
- ▶ Run down PTO speed to engine idle.
- ▶ Disconnect the PTO outlet on the tractor.
- ▶ Wait until the machine flywheel has come to a complete stop.

By following the above procedure, the flywheel will not contain any excess material that may cause blockages when the machine is started again.

Operation


Setting the floor conveyor speed and flywheel

Standard model

 The diagram below is only for guidance.

Material		Condition	Length	Flywheel speed		Floor conveyor speed		
				Low	High	Fast	Medium	Slow
Straw:	Round bale	Dry	Short					
	Large bale		Long		X	X		
Hay:	Round bale	Dry	Short	X			X	
	Large bale		Long		X		X	
Silage:	Round bale	Dry	Short	X			X	
			Long	X			X	
	Large bale	Medium	Short	X			X	
			Long	X			X	
		Wet	Short	X			X	
			Long	X			X	
Silage:	Cut	Dry	Short	X				X
		Wet	Long	X				X

Swivel chute model

 The diagram below is only for guidance.

Material		Condition	Length	Flywheel speed		Floor conveyor speed		
				Low	High	Fast	Medium	Slow
Straw:	Round bale	Dry	Short					
	Large bale		Long		X	X		
Hay:	Round bale	Dry	Short	X			X	
	Large bale		Long		X		X	
Silage:	Round bale	Dry	Short		X		X	
			Long		X		X	
	Large bale	Medium	Short		X		X	
			Long		X		X	
		Wet	Short		X		X	
			Long		X		X	
Silage:	Cut	Dry	Short	X				X
		Wet	Long		X			X

Flywheel speed



Avoid a rotational speed on the PTO outlet that is too low

The rpm speed on the PTO shaft should not drop below 400 rpm. If the rpm is too low, it can result in the swivel chute becoming blocked.

If the swivel chute is blocked, this can in turn result in damage to the machine.

The minimum stopping time for the flywheel is two minutes

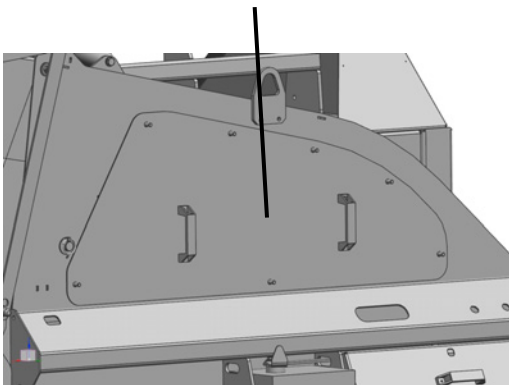
Wait at least two minutes before starting any kind of work on the machine.

It takes the machine's flywheel at least two minutes to come to a complete standstill.

If work is started on the machine before the machine's flywheel has stopped rotating, this can lead to serious injury or accidents.

Standard machine

Remove the access panel flywheel housing



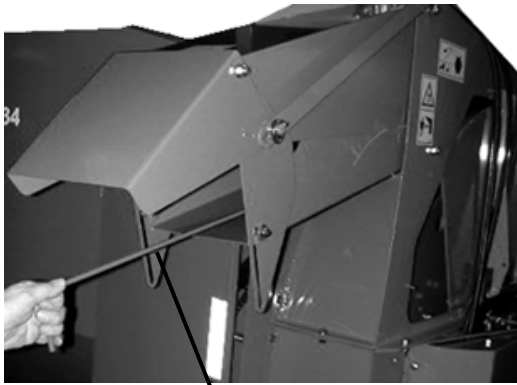
In case of blocking:

- ▶ Stop the tractor.
- ▶ Disconnect the PTO outlet on the tractor.
- ▶ Allow the flywheel to come to a stop - wait for at least 2 minutes.
- ▶ Disconnect the PTO shaft.
- ▶ Remove the access panel from the fan housing.



Tool for cleaning the standard chute

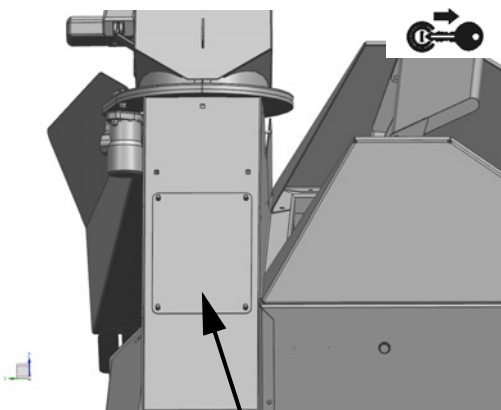
Operation



Tool for cleaning the standard chute

- ▶ Remove the cause of the blocking by using the delivered tool.

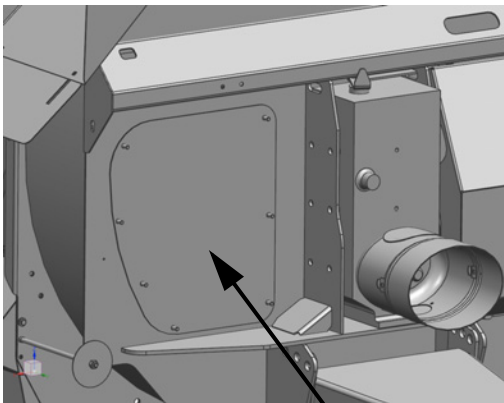
Machine with swivel chute



Remove the access panel from the flywheel housing

In case of blocking:

- ▶ Stop the tractor.
- ▶ Disconnect the PTO outlet on the tractor.
- ▶ Allow the flywheel to come to a stop - wait for at least 2 minutes.
- ▶ Disconnect the PTO outlet on the tractor.
- ▶ Remove the access panel from the flywheel housing.
- ▶ Remove the cause of the blockage.



Remove the access panel flywheel housing

Cleaning the shredding drum



Be aware of the shredding drum knives

Use protection gloves when working on the shredding drum.

The knives on the shredding drum are very sharp.

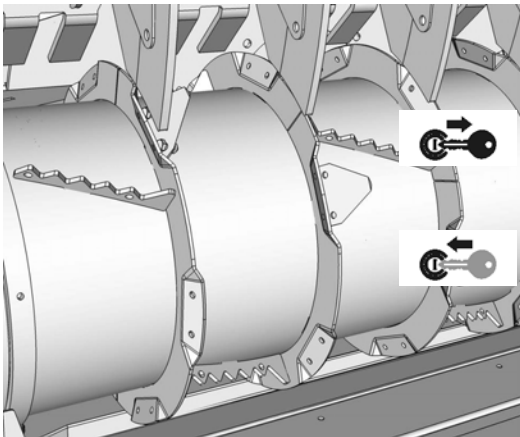
Working on the shredding drum without protective gloves can lead to severe hand injuries.

The minimum stopping time for the flywheel is two minutes

Wait at least two minutes before starting any kind of work on the machine.

It takes the machine's flywheel at least two minutes to come to a complete standstill.

If work is started on the machine before the machine's flywheel has stopped rotating, this can lead to serious injury or accidents.



When removing accumulation of string/net/packing follow this procedure:

- ▶ Open the rear door on the machine.
- ▶ Stop the tractor and remove the ignition key.
- ▶ Put on the protective gloves.
- ▶ Remove the accumulated material carefully.
- ▶ Start the tractor and close the rear door on the machine.

Cleaning

Before cleaning



Higher risk when performing cleaning work

When carrying out cleaning work there is a higher risk of personal injury.

Attention when carrying out cleaning work protects your own and others safety.

Failure to follow the safety instructions may result in serious injuries.

Therefore, before cleaning do the following:

- ▶ Disconnect the tractor's PTO outlet.
- ▶ Ensure that the machine's flywheel has come to a complete stop.
- ▶ Neutralise all hydraulics.
- ▶ Stop the tractor.
- ▶ Remove the ignition key.
- ▶ Apply the handbrake.
- ▶ Secure the tractor to prevent it from rolling.



Failure to secure the tractor to prevent it from rolling could endanger lives.

The minimum stopping time for the flywheel is two minutes

Wait at least two minutes before starting any kind of work on the machine.

It takes the machine's flywheel at least two minutes to come to a complete standstill.

If work is started on the machine before the machine's flywheel has stopped rotating, this can lead to serious injury or accidents.

Disconnect the power when cleaning the machine

Always disconnect the power before you start cleaning the machine.

This will prevent short circuiting and damage to the electrical circuit.

There is a risk of burns and other serious injuries if the electrical systems short circuit.

Protect your body and face when cleaning the machine

Wear proper protection gear on body and face when cleaning the machine.

It will protect your body and face from dirt and oil splashes.

Insufficient protection of body and face can lead to severe skin and eye injuries.

Before starting cleaning the machine do the following:

- Open the guard around the cutting unit.
- Remove all loose material from the machine.

Only electrical hydraulics



- Disconnect the electric circuit to the machine.
- Disconnect the electric control box and remove it from the machine.

Cleaning



Use the proper cleaning agents

Use only PH neutral cleaning agents when cleaning the machine. PH neutral cleaning agents give your machine a maximum protection.

Cleaning agents with either high or low PH value can corrode plastic, rubber and varnished surfaces.

- The cleaning procedure can be performed by a high pressure cleaner, however cleaning around all bearings should be carried out with soft squirts of water.
- Hydraulic components should only be cleaned with soft squirts of water to protect the packing.

After cleaning

- The machine should be positioned so water can run to the draining holes at the front of the machine.
- Let the remaining water run off for about 1 hour.
- Remove the collected water behind all guards.

Parking and Storage

Before storage

When the season has come to an end the machine should be prepared for storage:

- ▶ Check and tighten all bolts.
→ »Torque moment« Page 139
- ▶ Repair all damaged components.
- ▶ Replace all defect components.
- ▶ Repair varnish damages.
- ▶ Reduce the air pressure in the tyres.
- ▶ Lubricate the machine according to the lubrication scheme.
→ »Lubrication« Page 96

Parking/ disconnection of the machine



Disconnecting the machine from the tractor

There is an increased risk of injury (crushing) when disconnecting the machine from the tractor.

Attention when disconnecting protects your own and others safety. Failure to follow the safety instructions may result in serious injuries.

Therefore, when disconnecting make sure that:

- the machine is placed on an even and stable surface.
- The tractor's PTO outlet is disconnected.
- All hydraulics are neutralised.
- The tractor is stopped.
- The ignition key is removed.
- The handbrake is activated.
- The tractor is prevented from rolling.
- Children and unauthorised persons must never be allowed near the machine.



Failure to secure the tractor to prevent it from rolling could endanger lives.

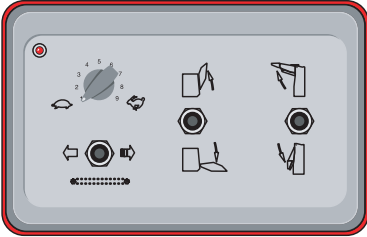
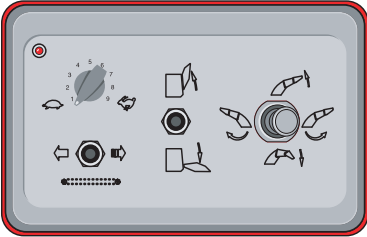
No parking brake fitted on model 1300

There is an increased risk of injury when parking model 1300.

It is not permitted to park model 1300 on steep slopes or hillsides, as the machine is not equipped with a parking brake.

Parking model 1300 on particularly steep slopes or hillsides can cause serious accidents.

Electrical hydraulic controls



When the control box has been removed from the tractor cab it should be stored in a dry environment.

Parking and Storage

Hydraulic



Only disconnect the hydraulics when system is depressurised

The hydraulic hoses must only be disconnected from the tractor's hydraulics when the hydraulic system on both the tractor and the machine is depressurised.

There is a risk that the machine will move unintentionally.

Unintentional movement of the machine may result in serious injury.

Avoid physical contact with hydraulic oil

Hydraulic oil contains additives that under certain circumstances can have serious consequences on your health. Therefore, when handling hydraulic oil be aware of the following:

- Avoid direct contact with hydraulic oil. It can cause injuries to your skin.
- Protect your skin with barrier cream or protective gloves.
- Never use oil or lubricants for cleaning your hands.
- Clothes contaminated with oil should be changed immediately.
- Oily cloths should not be kept in your pockets.
- Seek medical attention for skin injuries after contact with pressurised hydraulic oil, as this can cause cold burns.

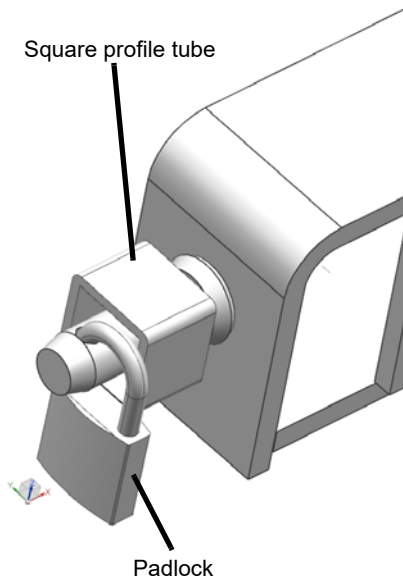
Locking and securing

Model with EU type-approval only

To secure the machine to prevent unauthorised use, anti-theft protection, as illustrated here, is included.

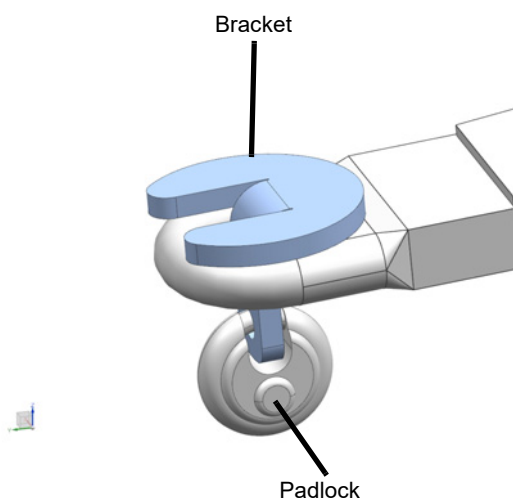
Crossbar

- ▶ Fit the profile tube over one of the linkage pins and secure with the padlock as shown.



Ring hitch

- ▶ Fit the bracket in the towing eye and secure with the padlock as shown.



Parking and Storage

Storage

When the season is over, the machine must be made ready for storage. Do the following:

- Clean the machine thoroughly..
- »Cleaning« Page 82
- Change the transmission oil.
- »Lubricants« Page 138
- The hydraulic quick couplings should be mounted with dust caps or be placed in a little plastic bag.
- The P.T.O shaft should be cleaned, oiled and stored somewhere dry so as to avoid damage or corrosion.
- Chain transmission should be checked for wear and tear.
- Make sure that the machine safety equipment is not worn or damaged.
- Release the excess hydraulic pressure in the cylinders and hoses as much as you can.
- Store the machine in a ventilated engine house.
- The electric control box must be stored in a dry environment.
- If stored outside, place the machine so rain and moisture will drain towards the front, where the drain holes are located.
- The machine axle is supported on blocks so the wheels are clear of the ground.

Safety



The machine should be secured when parked

When stored the machine must be properly secured in parking position.

Properly secured machines prevent serious accidents.

If the machine is not properly secured when parked it can result in serious injuries and death.

Therefore, when parking the machine make sure that:

- the machine is placed on an even and stable surface.
- The machine is prevented from rolling.
- The tractor's PTO outlet is disconnected.
- All hydraulics are neutralised.
- The tractor is stopped.
- The ignition key is removed.
- The handbrake is activated.
- The tractor is prevented from rolling.
- Children and unauthorised persons must never be allowed near the machine.



Failure to secure the tractor to prevent it from rolling could endanger lives.

No parking brake fitted on model 1300

There is an increased risk of injury when parking model 1300.

It is not permitted to park model 1300 on steep slopes or hillsides, as the machine is not equipped with a parking brake.

Parking model 1300 on particularly steep slopes or hillsides can cause serious accidents.

Maintenance

For your own safety



Comply with the service and maintenance intervals given in the instructions

Comply with the intervals for service and maintenance as given in the instructions.

Complying with the maintenance intervals will ensure that the machine operates without malfunctions, preventing injury and offering maximum protection of the surroundings.

An incorrectly maintained machine is a danger to people and to the environment.

Specific safety information



- Repair and maintenance work should only be performed if you have the necessary professional knowledge and the proper tools.
- The PTO outlet on the tractor should be disconnected, and the engine should be stopped.
- Make sure that the handbrake is applied and the ignition key has been removed from the tractor.
- Ensure that the machine is secured with chocks under the wheels before starting work.
- No one should be in between the tractor and the machine if the machine has not been secured.
- Always use original spare parts on the machine.
- Never use an air pressure lubrication spray to lubricate the machine bearings.

Lubrication safety and use of oil



Oils and lubricants contain additives that under certain circumstances can have serious consequences on your health. Therefore, when using oil and lubricants, be aware of the following:

- Avoid direct contact with these agents. It can cause injuries to your skin.
- Protect your skin with barrier cream or protective gloves.
- Never use oil or lubricants for cleaning your hands.
- Clothes contaminated with oil should be changed immediately.
- Oily cloths should not be kept in your pockets.
- Used oil must be collected and be delivered to a disposal company, where the oil will be processed according to the governing regulations.
- Contact medical help in case of skin injuries caused by oil or lubricants.



General instructions

These instructions concern general maintenance work. Specific maintenance work procedures for each machine will be described later. When performing all maintenance work the machine must be secured in the transport position. If the work position is necessary for performing maintenance work, you will find appropriate instructions concerning this work.



Working with lubricant spray

Lubrication is performed by one or two pumps on the lubricant spray. If you feel resistance after just one pump with the grease gun do not apply more grease to the bearings. Too much grease will drive the bearings apart. In this case dust and dirt can enter the bearings and cause an early wear and tear.

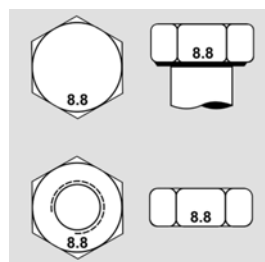
Basic

This table contains explanations of the most important terms related to maintenance.

Work	Performance
Lubricating with oil can	Add oil from the can to the moving parts. Use only authorised products. → »Technical information« Page 138
Lubricating with lubricant spray	1-2 pumps with the grease gun is sufficient unless otherwise stated. Only use authorised products. → »Technical information« Page 138
Oil change	Use only authorised oil products. Using used oil is dangerous for your health and is strictly prohibited. → »Technical information« Page 138
Replace	Replace the appropriate part following the instructions given in the "Replacement" chapter → »Replacement« Page 114
Check	Check the appropriate part following the instructions given in the "Service - check" chapter The check is sometimes related to replacing the part in question → »Service - check« Page 99
Complying with the maintenance intervals	All specifications have as starting point an average use of the machine. If heavily loaded, e.g. contractor, the maintenance intervals should be performed on a more regular basis. In work conditions producing high levels of dust, maintenance should also be carried out on a more regular basis

Tightening torque for screw connections

→ »Torque moment« Page 139



Maintenance

Maintenance intervals

		After 2 working hours	Every day	Every week	After 50 working hours	Every month	Every season	As required	Oil change	Lubrication	Check	Replacement	Page
General	Hydraulic hoses every 6 years										•	•	22
	Bearing/universal joint					•				•			96
	Floor conveyor	•									•		105
						•					•		105
	P.T.O shaft										•		93
	Friction clutch										•		94
	Friction disc							•				•	94
	Main drive line			•							•		101
								•			•	119	
Knives		•								•		109	
								•			•	122	
Transmission	Main gear				•				•				114
						•					•		100
							•		•				114
	Drive line for floor conveyor	•									•		104
						•					•		105
						•				•			96
								•				•	116
Floor conveyor	•									•		105	
		•								•		105	
Transmission for shredding drum*				•					•			118	
							•				•	118	
Other	Wheel bolts	•									•		107
				•							•		107
	Changing the wheel							•				•	126
	Bolts on the transmission	•									•		113
						•					•		113
Wings on the flywheel						•				•		111	
							•				•	124	

* Model 1600 only.



Safety in connection with maintenance work on the machine

When working on the machine the tractor must be stopped and secured.

This prevents the PTO shaft from suddenly starting to rotate.

Failure to follow the safety instructions may result in serious injuries.

When working on the machine:

- The tractor's PTO outlet must be disconnected.
- All hydraulics must be neutralised.
- The tractor engine must be stopped.
- The ignition key must be removed.
- The hand brake should be activated.
- The tractor must be prevented from rolling.



Failure to secure the tractor to prevent it from rolling could endanger lives.

The minimum stopping time for the flywheel is two minutes

Wait at least two minutes before starting any kind of work on the machine.

It takes the machine's flywheel at least two minutes to come to a complete standstill.

If work is started on the machine before the machine's flywheel has stopped rotating, this can lead to serious injury or accidents.

Always use original spare parts on the machine

Always use original spare parts.

Original spare parts should be used for safety reasons.

The manufacture warranty becomes void if non-original spare parts are being used.

Make sure that all guard protection is in place

Check that all protection guards are in place.

This assures that the machine will offer maximum protection to the operator.

If the safety guards are removed or not used it may result in serious injuries and accidents.

Checking the PTO shaft



Refer to the manufacturer's maintenance and safety instructions delivered with the PTO shaft.

→ »PTO shaft length« Page 35

Protecting the drive line



Replacing the friction discs on the P.T.O shaft

Replace the friction discs on the PTO shaft when they become worn.

Optimal friction discs offer the transmission the proper protection. Worn friction discs can cause the machine performance to be under normal standard.

As required

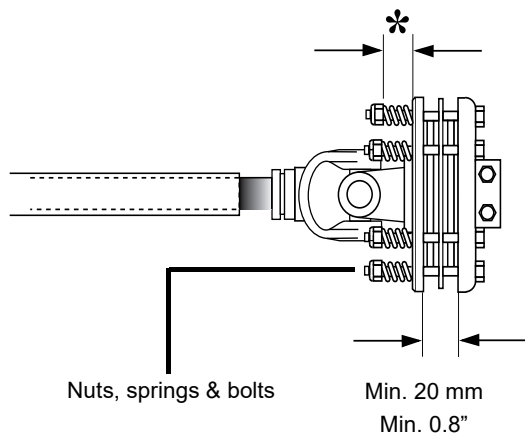
The length of the friction springs should be as follows:

Shaft type	Dimension *
COMER	34 mm
	1,3"

When the measurement between the friction discs is 20 mm (0.8") or less, the discs should be replaced.

The friction discs are replaced in the following way:

- ▶ Remove all nuts, springs and bolts on the clutch.
- ▶ Separate the friction clutch.
- ▶ Replace the friction discs.
- ▶ Assemble the friction clutch and mount the bolts, springs and nuts.
- ▶ Tighten all springs to the correct measure, see the above table.



Transmission for shredding drum



Safety concerning maintenance work with the transmission
When working on the transmission the tractor must be stopped and secured.
This prevents the machine from suddenly starting to rotate.
Failure to follow the safety instructions may result in serious injuries.

When working on the transmission:

- The tractor's PTO outlet must be disconnected.
- All hydraulics must be neutralised.
- The tractor engine must be stopped.
- The ignition key must be removed.
- The hand brake should be activated.
- The tractor must be prevented from rolling.

Failure to secure the tractor to prevent it from rolling could endanger lives.

The minimum stopping time for the flywheel is two minutes
Wait at least two minutes before starting any kind of work on the machine.

It takes the machine's flywheel at least two minutes to come to a complete standstill.

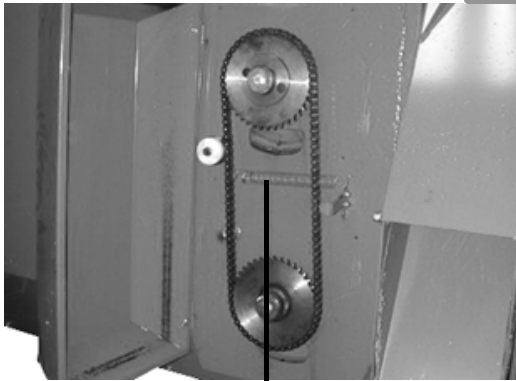
If work is started on the machine before the machine's flywheel has stopped rotating, this can lead to serious injury or accidents.



Model 1600 only



The chain for the cutting drum is behind the protection.
On this transmission, the chain is tensioned automatically via a spring and should not therefore be adjusted.

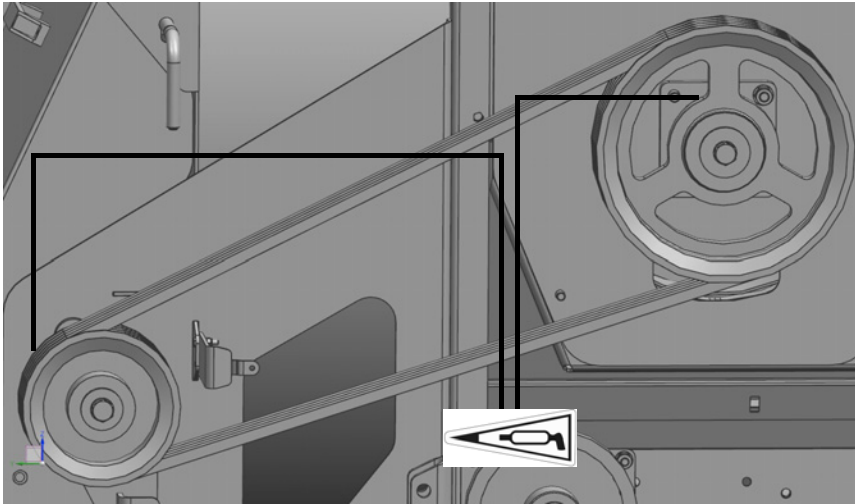


Springs

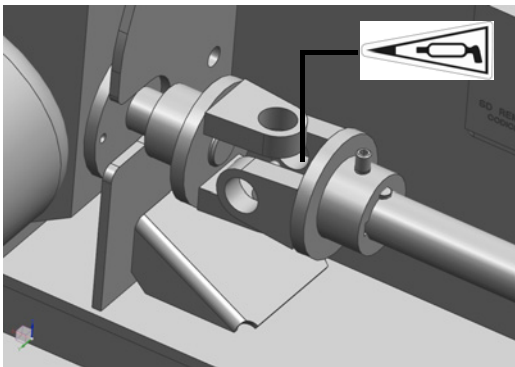
Maintenance

Lubrication

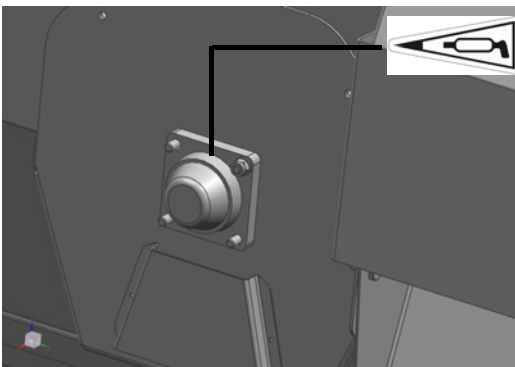
Every month



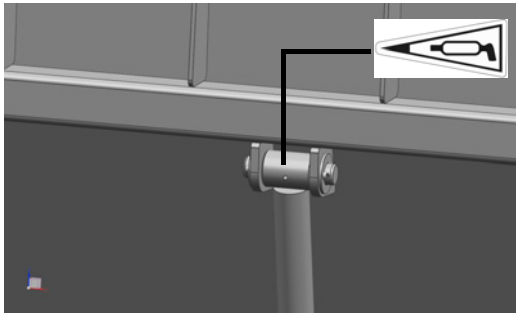
- ▶ Press the nozzle on the lubricant spray over the grease nipple.
- ▶ Pump 1, max. 2 times with the lubricant spray.
- »Maintenance intervals« Page 92
- »Lubricants« Page 138



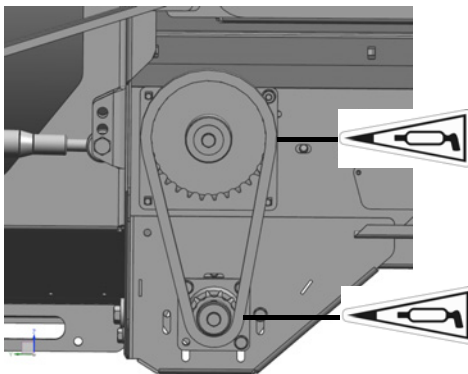
- ▶ Press the nozzle on the lubricant spray over the grease nipple.
- ▶ Pump 1, max. 2 times with the lubricant spray.
- »Maintenance intervals« Page 92
- »Lubricants« Page 138



- ▶ Press the nozzle on the lubricant spray over the grease nipple.
- ▶ Pump 1, max. 2 times with the lubricant spray.
- »Maintenance intervals« Page 92
- »Lubricants« Page 138



- ▶ Press the nozzle on the lubricant spray over the grease nipple.
 - ▶ Pump 1, max. 2 times with the lubricant spray.
- »Maintenance intervals« Page 92
→ »Lubricants« Page 138

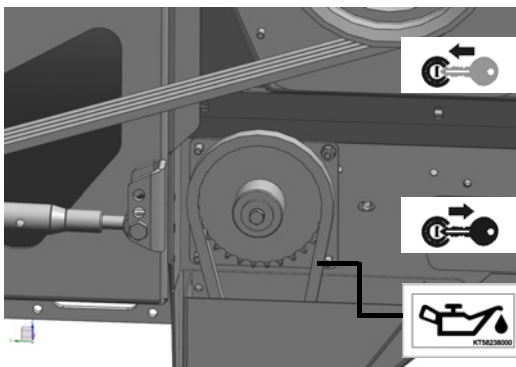


- ▶ Remove the protection on the chain transmission.
 - ▶ Press the nozzle on the lubricant spray over the grease nipple.
 - ▶ Pump 1, max. 2 times with the lubricant spray.
 - ▶ Fit the protection on the chain transmission.
- »Maintenance intervals« Page 92
→ »Lubricants« Page 138



Only on rotating parts

Take great care when lubricating rotating parts. There is a high risk that loose clothing, etc. may be caught in the rotating parts. This may result in serious injuries or death.



- ▶ Remove the protection on the chain transmission.
 - ▶ Start the tractor.
 - ▶ Connect the PTO and allow the machine to idle.
 - ▶ Use an oil can and pump sufficient oil over the chain.
 - ▶ Disconnect the tractor's PTO.
 - ▶ Stop the tractor.
 - ▶ Fit the protection on the chain transmission.
- »Maintenance intervals« Page 92
→ »Lubricants« Page 138

Maintenance

As required



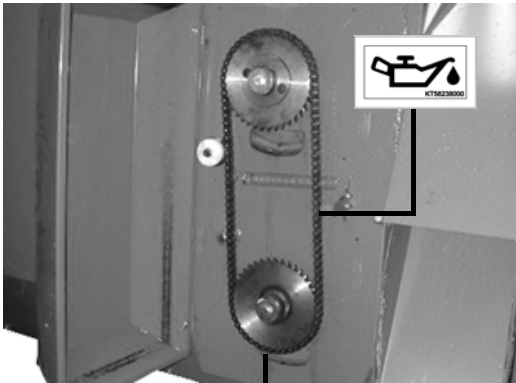
Only on rotating parts

Take great care when lubricating rotating parts.

There is a high risk that loose clothing, etc. may be caught in the rotating parts.

This may result in serious injuries or death.

Model 1600 only



Chain

- ▶ Use a suitable screwdriver to open the protection on the chain transmission.
- ▶ Start the tractor, connect the PTO and allow the machine to idle.
- ▶ Use an oil can and pump sufficient oil over the chain and close the protection again.
- ▶ Disconnect the tractor's PTO and stop the tractor.
- ▶ Close the protection on the chain transmission.

→ »Maintenance intervals« Page 92

→ »Lubricants« Page 138

Service - check



Safety concerning maintenance work with the transmission

When working on the transmission the tractor must be stopped and secured.

This prevents the machine from suddenly starting to rotate.

Failure to follow the safety instructions may result in serious injuries.

When working on the machine:

- The tractor's PTO outlet must be disconnected.
- All hydraulics must be neutralised.
- The tractor engine must be stopped.
- The ignition key must be removed.
- The hand brake should be activated.
- The tractor must be prevented from rolling.

Failure to secure the tractor to prevent it from rolling could endanger lives.

The minimum stopping time for the flywheel is two minutes

Wait at least two minutes before starting any kind of work on the machine.

It takes the machine's flywheel at least two minutes to come to a complete standstill.

If work is started on the machine before the machine's flywheel has stopped rotating, this can lead to serious injury or accidents.

Pay attention when performing oil change

Use barrier cream or protective gloves when changing oil.

It will protect your hands against skin injuries.

Direct contact with the oil could lead to serious skin injuries.

Use the correct oil type

Always use the correct oil type for the transmission.

This will ensure the transmission has a long service life.

Using the incorrect oil type may damage the transmission.

Maintain correct oil level

The max. and min. oil level indicators on the transmission must not be exceeded.

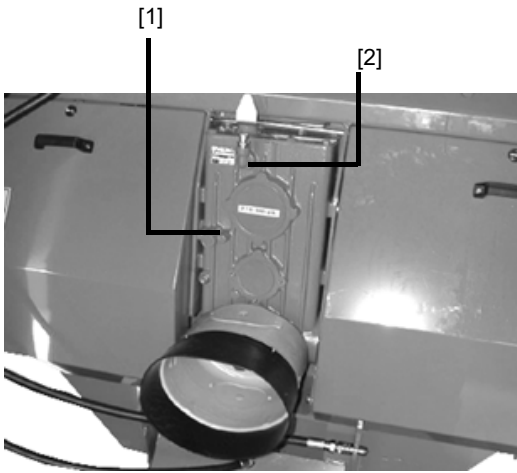
Correct transmission oil level will ensure a long service life.

Incorrect oil levels can cause the transmission to overheat, resulting in serious damage.

Maintenance

Main gear

Every month



- ▶ Remove oilplug [1].
 - ▶ Check that the oil stands all the way to the hole.
 - ▶ When topping up, remove oilplug [2].
 - ▶ Fill oil to the correct level.
 - ▶ Fit oilplugs [1] and [2] and tighten them.
- »Maintenance intervals« Page 92
→ »Lubricants« Page 138

Main drive line



Safety concerning maintenance work with the transmission
When working on the transmission the tractor must be stopped and secured.
This prevents the machine from suddenly starting to rotate.
Failure to follow the safety instructions may result in serious injuries.

When working on the machine:

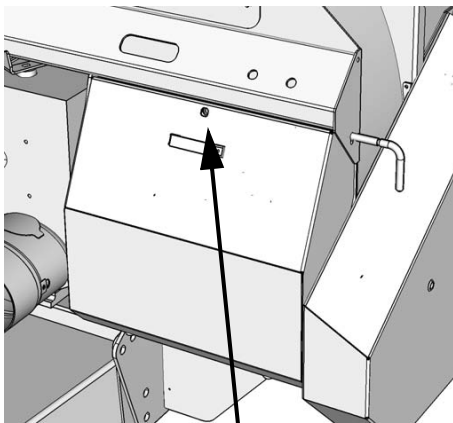
- The tractor's PTO outlet must be disconnected.
- All hydraulics must be neutralised.
- The tractor engine must be stopped.
- The ignition key must be removed.
- The hand brake should be activated.
- The tractor must be prevented from rolling.

Failure to secure the tractor to prevent it from rolling could endanger lives.

The minimum stopping time for the flywheel is two minutes
Wait at least two minutes before starting any kind of work on the machine.

It takes the machine's flywheel at least two minutes to come to a complete standstill.

If work is started on the machine before the machine's flywheel has stopped rotating, this can lead to serious injury or accidents.



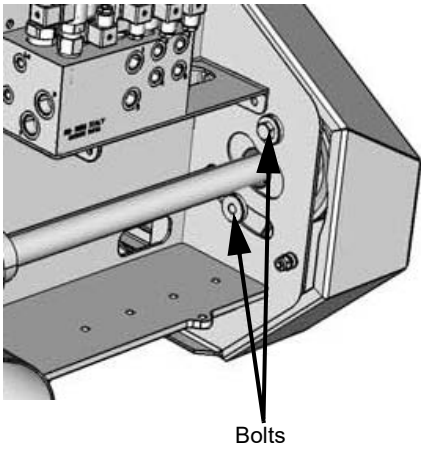
Guard

When tightening the belts, the following procedure must be carried out:

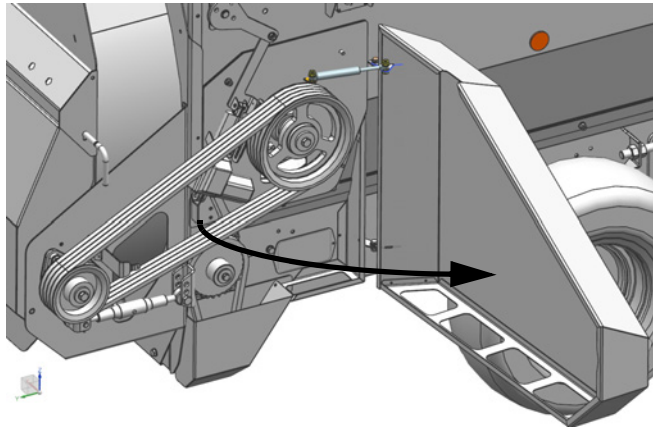
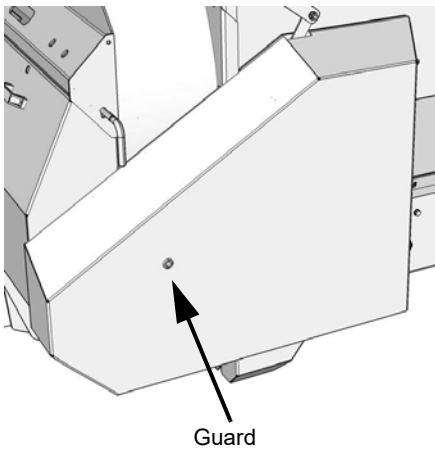
- ▶ Use a screwdriver or similar tool to open the guard.

Maintenance

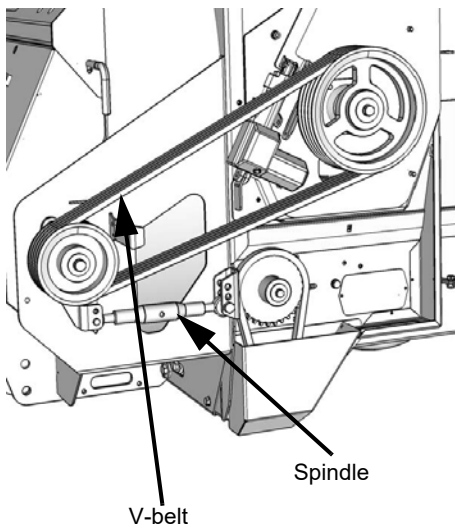
- ▶ Undo the bolts shown.



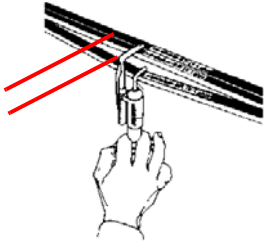
- ▶ Use a screwdriver or similar tool to open the guard.



- ▶ Catch the cross bar on the spindle and rotate it.
- ▶ Then tighten the V-belts appropriately with the spindle.



Approx.
16 mm
(0.6")



- ▶ If the belt tension is correct, you should be able to press each belt down approx. 16 mm (0.6") by hand.
 - ▶ Retighten all bolts.
 - ▶ Close all guards again.
- »Maintenance intervals« Page 92

Maintenance

Drive line for floor conveyor



Safety concerning maintenance work with the transmission
When working on the transmission the tractor must be stopped and secured.
This prevents the machine from suddenly starting to rotate.
Failure to follow the safety instructions may result in serious injuries.

When working on the machine:

- The tractor's PTO outlet must be disconnected.
- All hydraulics must be neutralised.
- The tractor engine must be stopped.
- The ignition key must be removed.
- The hand brake should be activated.
- The tractor must be prevented from rolling.

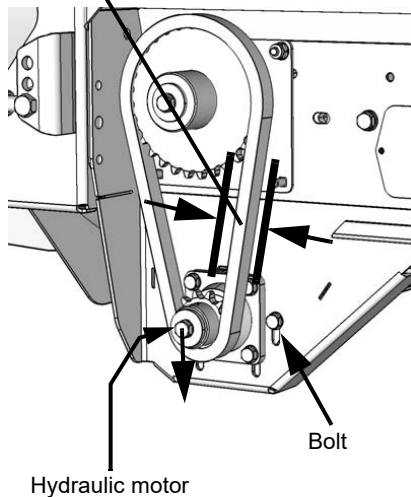
Failure to secure the tractor to prevent it from rolling could endanger lives.

The minimum stopping time for the flywheel is two minutes
Wait at least two minutes before starting any kind of work on the machine.
It takes the machine's flywheel at least two minutes to come to a complete standstill.
If work is started on the machine before the machine's flywheel has stopped rotating, this can lead to serious injury or accidents.

After 2 working hours

Thereafter, every month

Approx. 12 mm (0.5")



- ▶ Remove the guard.
- ▶ Undo the bolt shown.
- ▶ Push the hydraulic motor down until the chain has a total clearance of around 12 mm (0.5") as shown.
- ▶ Tighten the bolt.
- ▶ Fit the guard.

Floor conveyor



Safety concerning maintenance work with the transmission
When working on the transmission the tractor must be stopped and secured. This prevents the machine from suddenly starting to rotate. Failure to follow the safety instructions may result in serious injuries.

When working on the machine:

- The tractor's PTO outlet must be disconnected.
- The machine must be lowered to the ground.
- All hydraulics must be neutralised.
- The tractor engine must be stopped.
- The ignition key must be removed.
- The hand brake should be activated.
- The tractor must be prevented from rolling.



The minimum stopping time for the flywheel is two minutes
Wait at least two minutes before starting any kind of work on the machine.

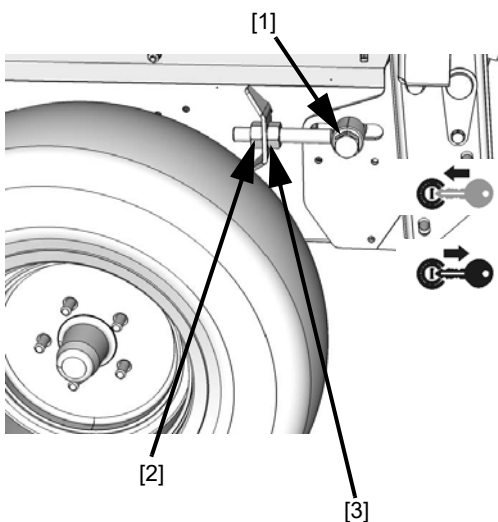
It takes the machine's flywheel at least two minutes to come to a complete standstill.

If work is started on the machine before the machine's flywheel has stopped rotating, this can lead to serious injury or accidents.

Failure to secure the tractor to prevent it from rolling could endanger lives.

After 2 working hours

Thereafter, every month

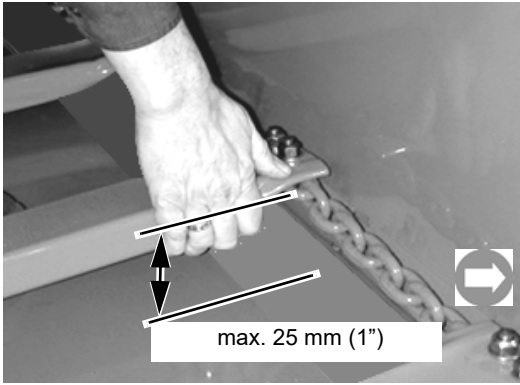


The floor conveyor tension is adjusted by 2 screw tensioners on either side of the rear of the machine.

The following must be done to adjust the floor conveyor tension:

- ▶ Start the tractor.
- ▶ Open the machine rear door.
- ▶ Stop the tractor and remove the ignition key.
- ▶ Undo bolt [1] on both sides of the machine.
- ▶ Undo nut [2] on both sides of the machine.
- ▶ Turn nut [3] half a turn clockwise to tighten the floor conveyor or anticlockwise to loosen it.
- ▶ Carry out this operation to both left and right side of machine.

Maintenance

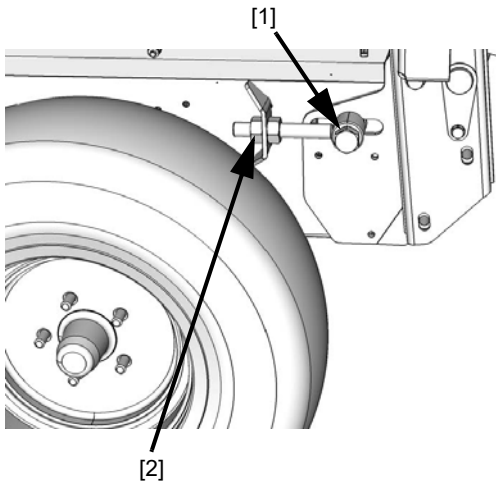


To measure the correct tension, lift the conveyor in the bale chamber that is closest to the centre.

- ▶ Step into the machine bale chamber.
- ▶ Lift the chain by hand and check the tension of the floor conveyor and adjust the tension if necessary.
- When the correct setting has been reached, tighten bolt 1.
- ▶ Tighten nut 1 on both sides of the machine.

When the floor conveyor is correctly tensioned, you should not be able to raise the carrier more than 25 mm (1") from the base by hand.

→ »Maintenance intervals« Page 92



- ▶ Tighten and secure bolt [1] on both sides of the machine.
- Tighten and secure nut [2] on both sides of the machine.

Bolts



Safety concerning maintenance work with the machine

When working on the machine, the tractor must be stopped and secured.

This will prevent the machine from starting to move without warning.

Failure to follow the safety instructions may result in serious injuries.

When working on the machine:

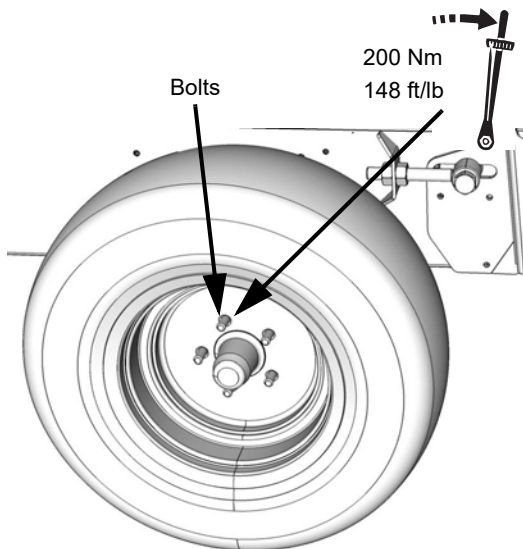
- The tractor's PTO outlet must be disconnected.
- The machine must be lowered to the ground.
- All hydraulics must be neutralised.
- The tractor engine must be stopped.
- The ignition key must be removed.
- The hand brake should be activated.
- The tractor must be prevented from rolling.



Failure to secure the tractor to prevent it from rolling could endanger lives.

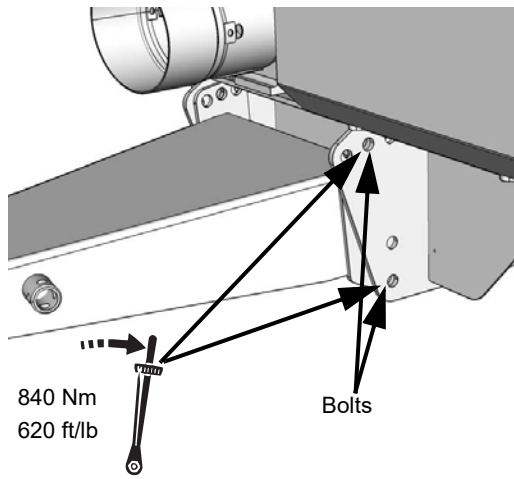
After 2 working hours

Thereafter, every week



► Check that all the wheel nuts are tightened to the given torque

Maintenance



- ▶ Check all wheel nuts and tighten to a torque of 840 Nm (620 ft/lb) once more.

Knives



Be very careful when replacing the knives

Use protective gloves when replacing the knives on the shredding drum.

The knives on the shredding drum are very sharp.

Replacing the knives without protective gloves can result in severe hand injuries.

When working on the machine:

- The tractor's PTO outlet must be disconnected.
- All hydraulics must be neutralised.
- The tractor engine must be stopped.
- The ignition key must be removed.
- The hand brake should be activated.
- The tractor must be prevented from rolling.



Failure to secure the tractor to prevent it from rolling could endanger lives.

Stop the tractor

Under no circumstances may anyone enter the machine's bale chamber when the tractor is running.

There is a danger that the machine will start to rotate unintentionally.

This can result in serious injuries or death.

The minimum stopping time for the flywheel is two minutes

Wait at least two minutes before starting any kind of work on the machine.

It takes the machine's flywheel at least two minutes to come to a complete standstill.

If work is started on the machine before the machine's flywheel has stopped rotating, this can lead to serious injury or accidents.

Check the machine knives on a regular basis

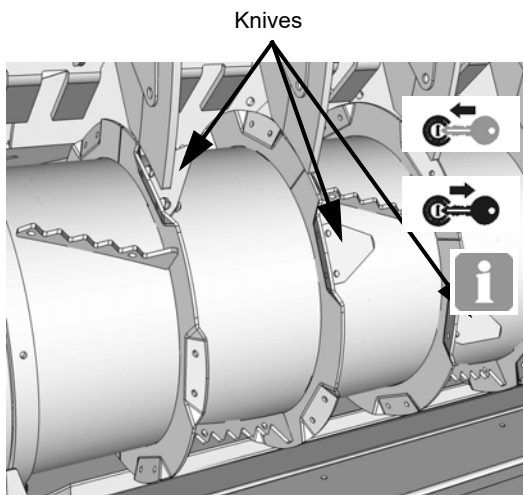
Machine knives should be checked on a regular basis.

Worn or damaged knives can result in imbalance in the rotating parts.

Vibrations can cause damage on the machine.

Maintenance

Every day



→ »Maintenance intervals« Page 92

The knives are checked in the following way:

- ▶ Start the tractor.
- ▶ Open the machine rear door.
- ▶ Stop the tractor and remove the ignition key.
- ▶ Carefully turn the shredding drum round.

The knives can be very sharp - use protective gloves!

- ▶ Inspect the bolts and knives for wear.
- ▶ If the knives are loose, they must be tightened completely.
- ▶ Tighten the bolts on the knives.

→ »Torque moment« Page 139

- ▶ If knives are damaged or deformed, they must be replaced.

→ »Knives« Page 122

Wings on the flywheel



Higher risk when performing maintenance work

When carrying out maintenance work there is a higher risk of personal injury.

Attention when carrying out cleaning work protects your own and others safety.

Failure to follow the safety instructions may result in serious injuries.

When working on the machine:

- The tractor's PTO outlet must be disconnected.
- All hydraulics must be neutralised.
- The tractor engine must be stopped.
- The ignition key must be removed.
- The hand brake should be activated.
- ▶ The tractor must be prevented from rolling.
- ▶ Only the equipment specifically provided must be used for climbing onto the machine.



Failure to secure the tractor to prevent it from rolling could endanger lives.

The minimum stopping time for the flywheel is two minutes

Wait at least two minutes before starting any kind of work on the machine.

It takes the machine's flywheel at least two minutes to come to a complete standstill.

If work is started on the machine before the machine's flywheel has stopped rotating, this can lead to serious injury or accidents.

Maintenance

Every season

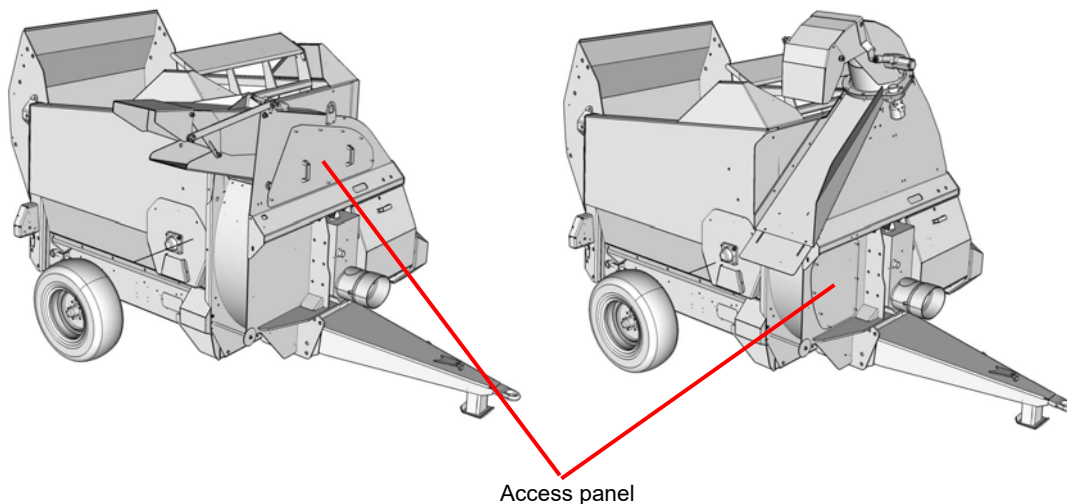
→ »Maintenance intervals« Page 92

The throwing wings are checked in the following way:

- ▶ Remove the access panel.
- ▶ Turn the flywheel by hand and find the throwing wing.
- ▶ If the throwing wings are loose, they must be tightened completely.
- ▶ If the throwing wings are damaged or deformed, they must be replaced.

→ »Wings on the flywheel« Page 124

- ▶ Fit the access panel.



Main gear



Higher risk when performing maintenance work

When carrying out maintenance work there is a higher risk of personal injury.

Attention when carrying out cleaning work protects your own and others safety.

Failure to follow the safety instructions may result in serious injuries.

When working on the machine:

- The tractor's PTO outlet must be disconnected.
- The machine must be lowered to the ground.
- All hydraulics must be neutralised.
- The tractor engine must be stopped.
- The ignition key must be removed.
- The hand brake should be activated.
- ▶ The tractor must be prevented from rolling.
- ▶ Only the equipment specifically provided must be used for climbing onto the machine.

Failure to secure the tractor to prevent it from rolling could endanger lives.

The minimum stopping time for the flywheel is two minutes

Wait at least two minutes before starting any kind of work on the machine.

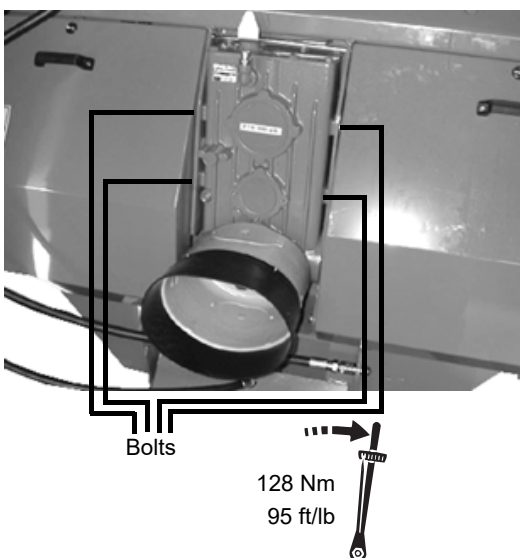
It takes the machine's flywheel at least two minutes to come to a complete standstill.

If work is started on the machine before the machine's flywheel has stopped rotating, this can lead to serious injury or accidents.



After 2 working hours

Thereafter, every month



- ▶ Check and tighten all bolts on the gear to the given torque.

Replacement



Safety concerning maintenance work with the transmission
When working on the transmission the tractor must be stopped and secured.
This prevents the machine from suddenly starting to rotate.
Failure to follow the safety instructions may result in serious injuries.



When working on the transmission:

- The tractor's PTO outlet must be disconnected.
- All hydraulics must be neutralised.
- The tractor engine must be stopped.
- The ignition key must be removed.
- The hand brake should be activated.
- The tractor must be prevented from rolling.

Failure to secure the tractor to prevent it from rolling could endanger lives.

The minimum stopping time for the flywheel is two minutes
Wait at least two minutes before starting any kind of work on the machine.
It takes the machine's flywheel at least two minutes to come to a complete standstill.
If work is started on the machine before the machine's flywheel has stopped rotating, this can lead to serious injury or accidents.

Main gear



Pay attention when performing oil change
Use barrier cream or protective gloves when changing oil.
It will protect your hands against skin injuries.
Direct contact with the oil could lead to serious skin injuries

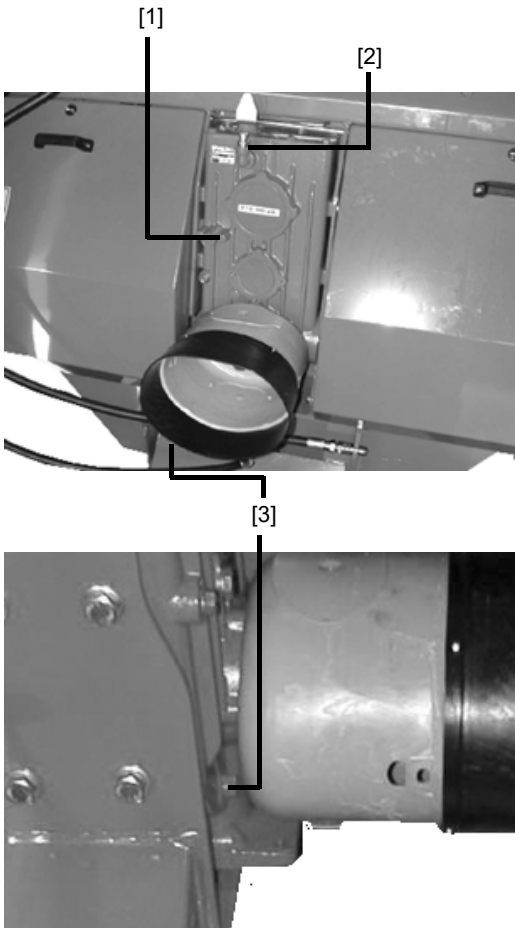
Use the correct oil type
Always use the correct oil type for the transmission.
This will ensure the transmission has a long service life.
Using the incorrect oil type may damage the transmission.

Maintain correct oil level
The maximum and minimum oil level indicators on the transmission must not be exceeded.
Correct transmission oil level will ensure a long service life.
Incorrect oil levels can cause the transmission to overheat, resulting in serious damage.

Changing oil Every season

→ »Maintenance intervals« Page 92

1300 - 1600		
Litres (approx.)	pints (US) (approx.)	pints (imp.) (approx.)
5.6	11.8	9.9



The oil is changed as follows:

- ▶ Remove oilplug [3].
- ▶ Let the oil run into an appropriate reception container.
- ▶ Allow the last of the oil to drip out of the transmission for approx. 10 - 15 minutes.
- ▶ Fit oilplug [3] and tighten it.
- ▶ Remove oilplugs [1] and [2].
- ▶ Fill up with new oil until the oil level reaches the hole [1].
- ▶ Fit oilplugs [1] and [2] and tighten them.

Maintenance

Drive line for floor conveyor



Safety concerning maintenance work with the transmission
When working on the transmission the tractor must be stopped and secured.
This prevents the machine from suddenly starting to rotate.
Failure to follow the safety instructions may result in serious injuries.

When working on the transmission:

- The tractor's PTO outlet must be disconnected.
- All hydraulics must be neutralised.
- The tractor engine must be stopped.
- The ignition key must be removed.
- The hand brake should be activated.
- The tractor must be prevented from rolling.

Failure to secure the tractor to prevent it from rolling could endanger lives.

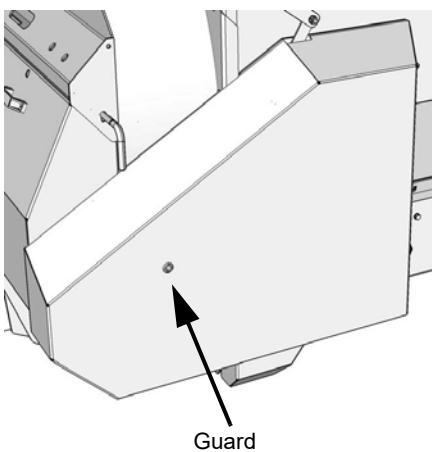
The minimum stopping time for the flywheel is two minutes
Wait at least two minutes before starting any kind of work on the machine.

It takes the machine's flywheel at least two minutes to come to a complete standstill.

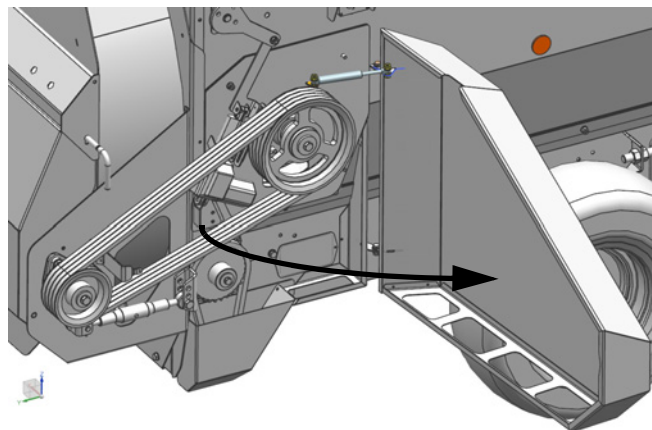
If work is started on the machine before the machine's flywheel has stopped rotating, this can lead to serious injury or accidents.

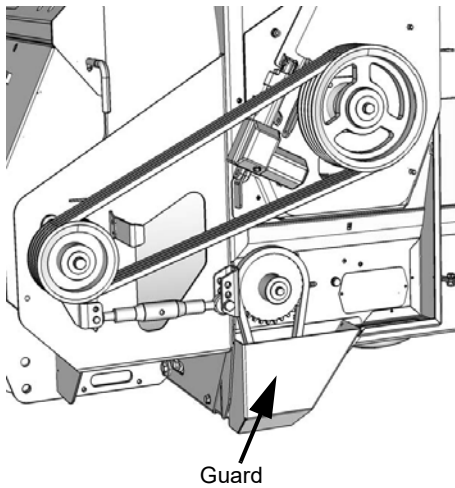


As required



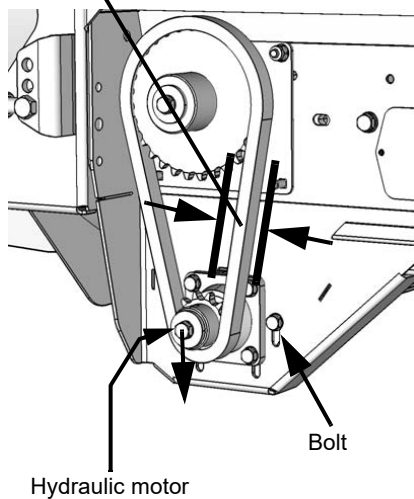
► Use a screwdriver or similar tool to open the guard.





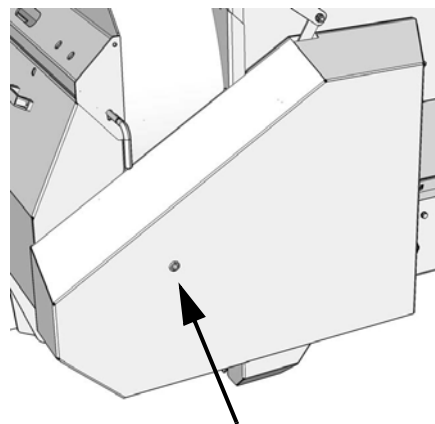
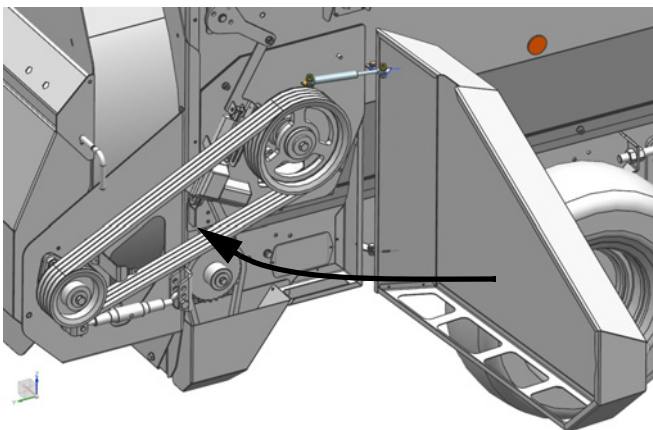
- ▶ Remove the guard.

Approx. 12 mm (0.5")



- ▶ Undo the bolt shown.
- ▶ Push the hydraulic motor up as far as possible.
- ▶ Separate the chain joint link.
- ▶ Replace the chain.
- ▶ Fit the joint link to the chain.
- ▶ Push the hydraulic motor down until the chain has a total clearance of around 12 mm (0.5") as shown.
- ▶ Tighten the bolt.
- ▶ Fit the guard.

- ▶ Close the guard.



Maintenance

Transmission for shredding drum



Safety concerning maintenance work with the transmission
When working on the transmission the tractor must be stopped and secured.

This prevents the machine from suddenly starting to rotate. Failure to follow the safety instructions may result in serious injuries.

When working on the transmission:

- The tractor's PTO outlet must be disconnected.
- The machine must be lowered to the ground.
- All hydraulics must be neutralised.
- The tractor engine must be stopped.
- The ignition key must be removed.
- The hand brake should be activated.
- The tractor must be prevented from rolling.

Failure to secure the tractor to prevent it from rolling could endanger lives.

The minimum stopping time for the flywheel is two minutes

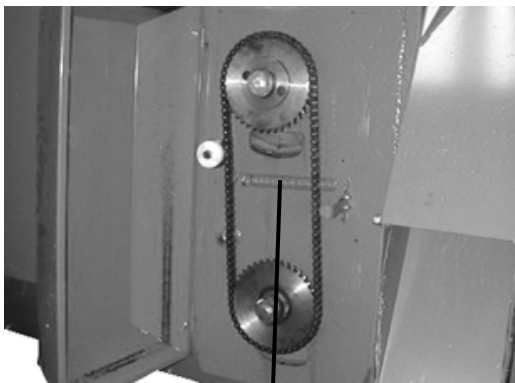
Wait at least two minutes before starting any kind of work on the machine.

It takes the machine's flywheel at least two minutes to come to a complete standstill.

If work is started on the machine before the machine's flywheel has stopped rotating, this can lead to serious injury or accidents.



1600 only As required



Springs

- ▶ Use a screwdriver or similar tool to open the guard.
- ▶ Remove the spring from the jockey roller.
- ▶ Separate the chain joint link.
- ▶ Replace the chain.
- ▶ Fit the joint link to the chain.
- ▶ Fit the spring to the jockey roller.
- ▶ Close the guard.

Main drive line



Safety concerning maintenance work with the transmission
When working on the transmission the tractor must be stopped and secured.
This prevents the machine from suddenly starting to rotate.
Failure to follow the safety instructions may result in serious injuries.

When working on the transmission:

- The tractor's PTO outlet must be disconnected.
- All hydraulics must be neutralised.
- The tractor engine must be stopped.
- The ignition key must be removed.
- The hand brake should be activated.
- The tractor must be prevented from rolling.

Failure to secure the tractor to prevent it from rolling could endanger lives.

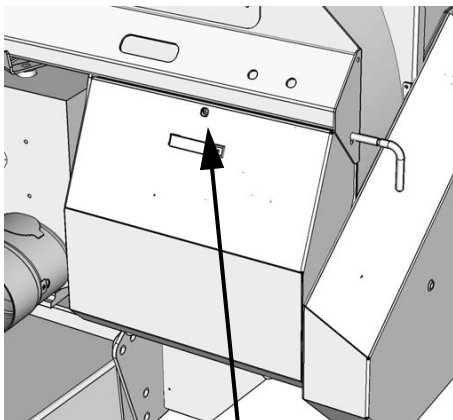
The minimum stopping time for the flywheel is two minutes
Wait at least two minutes before starting any kind of work on the machine.

It takes the machine's flywheel at least two minutes to come to a complete standstill.

If work is started on the machine before the machine's flywheel has stopped rotating, this can lead to serious injury or accidents.



As required

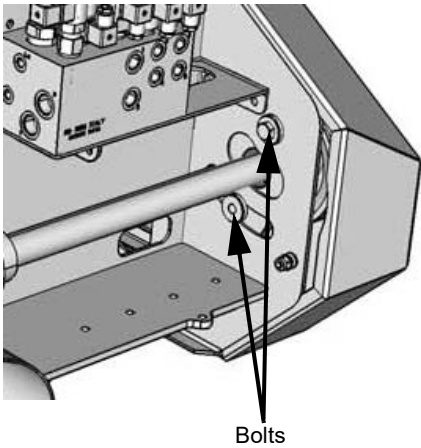


Guard

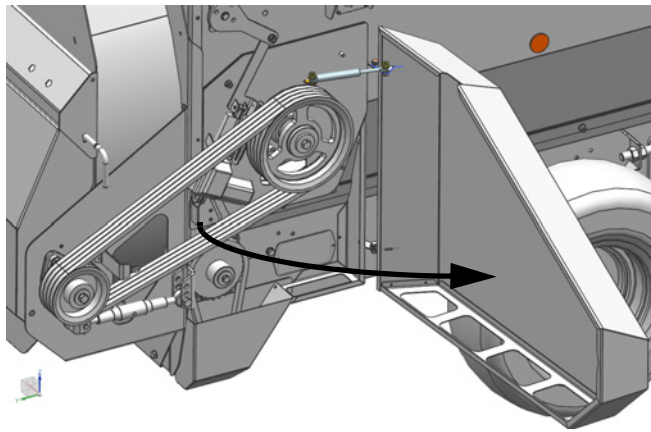
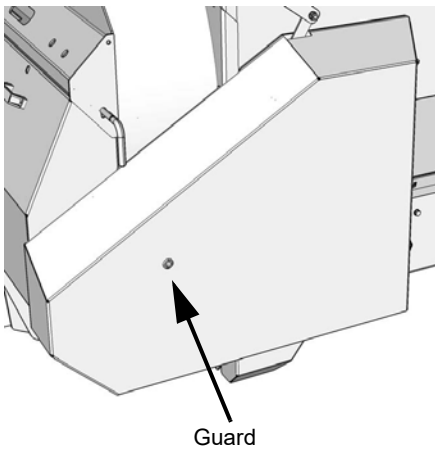
- ▶ Use a screwdriver or similar tool to open the guard.

Maintenance

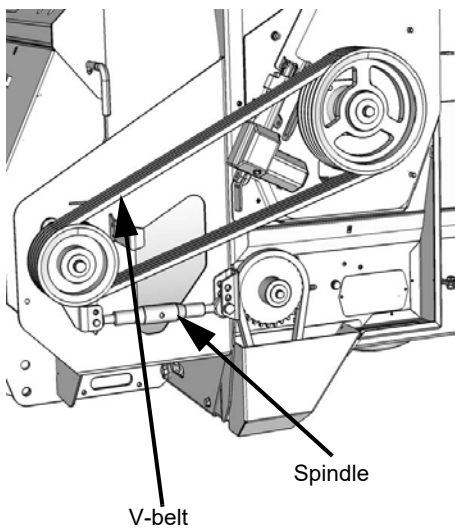
- ▶ Undo the bolts.



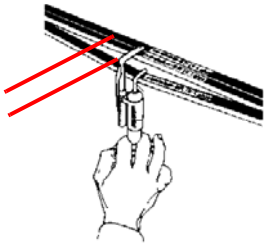
- ▶ Open the guard.



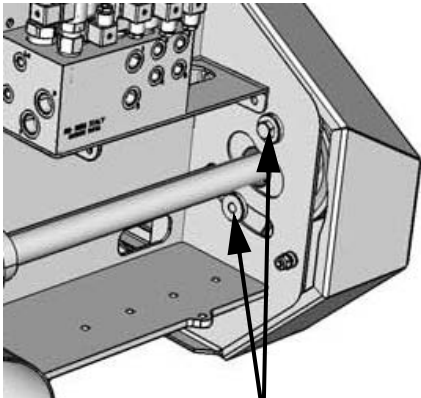
- ▶ Catch the cross bar on the spindle and rotate, and remove the V-belts with the spindle.
- ▶ Replace the V-belts.
- ▶ Tighten the V-belts to the correct tension with the spindle.



Approx.
16 mm
(0.6")

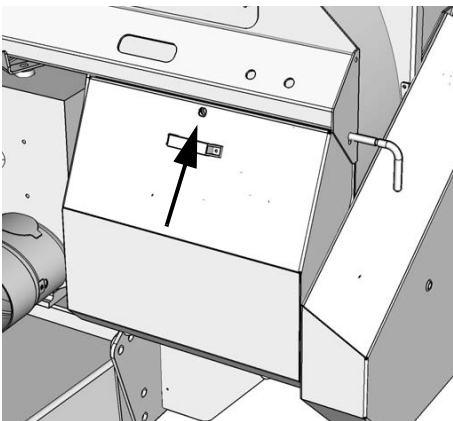


- ▶ If the belt tension is correct, you should be able to press each belt down approx. 16 mm (0.6") by hand.

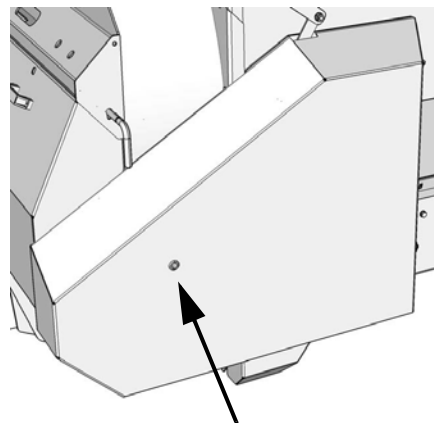
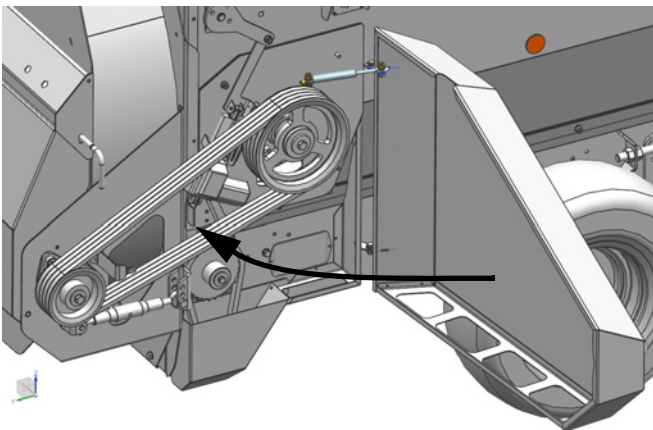


Bolts

- ▶ Tighten all the bolts.



- ▶ Close the guards.



Knives



Be very careful when replacing the knives

Use protective gloves when replacing the knives on the shredding drum.

The knives on the shredding drum are very sharp.

Replacing the knives without protective gloves can result in severe hand injuries.

When working on the machine:

- The tractor's PTO outlet must be disconnected.
- All hydraulics must be neutralised.
- The tractor engine must be stopped.
- The ignition key must be removed.
- The hand brake should be activated.
- The tractor must be prevented from rolling.



Failure to secure the tractor to prevent it from rolling could endanger lives.

Stop the tractor

Under no circumstances may anyone enter the machine's bale chamber when the tractor is running.

There is a danger that the machine will start to rotate unintentionally.

This can result in serious injuries or death.

The minimum stopping time for the flywheel is two minutes

Wait at least two minutes before starting any kind of work on the machine.

It takes the machine's flywheel at least two minutes to come to a complete standstill.

If work is started on the machine before the machine's flywheel has stopped rotating, this can lead to serious injury or accidents.

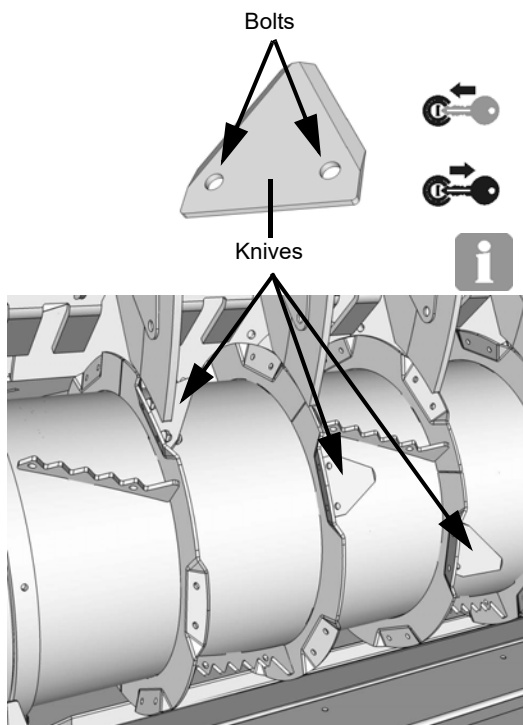
Check the machine knives on a regular basis

Machine knives should be checked on a regular basis.

Worn or damaged knives can result in imbalance in the rotating parts.

Vibrations can cause damage on the machine.

As required



→ »Maintenance intervals« Page 92

Replace the knives as follows:

- ▶ Start the tractor.
- ▶ Open the machine rear door.
- ▶ Stop the tractor and remove the ignition key.
- ▶ Carefully turn the shredding drum round.



The knives can be very sharp - use protective gloves!

- ▶ Undo and remove the bolts on the knife.
- ▶ Replace the knife.
- ▶ Mount the knife and bolt.
- ▶ Tighten the bolts.

→ »Torque moment« Page 139

Wings on the flywheel



Higher risk when performing maintenance work

When carrying out maintenance work there is a higher risk of personal injury.

Attention when carrying out cleaning work protects your own and others safety.

Failure to follow the safety instructions may result in serious injuries.

When working on the machine:

- The tractor's PTO outlet must be disconnected.
- All hydraulics must be neutralised.
- The tractor engine must be stopped.
- The ignition key must be removed.
- The hand brake should be activated.
- ▶ The tractor must be prevented from rolling.
- ▶ Only the equipment specifically provided must be used for climbing onto the machine.

Failure to secure the tractor to prevent it from rolling could endanger lives.

The minimum stopping time for the flywheel is two minutes

Wait at least two minutes before starting any kind of work on the machine.

It takes the machine's flywheel at least two minutes to come to a complete standstill.

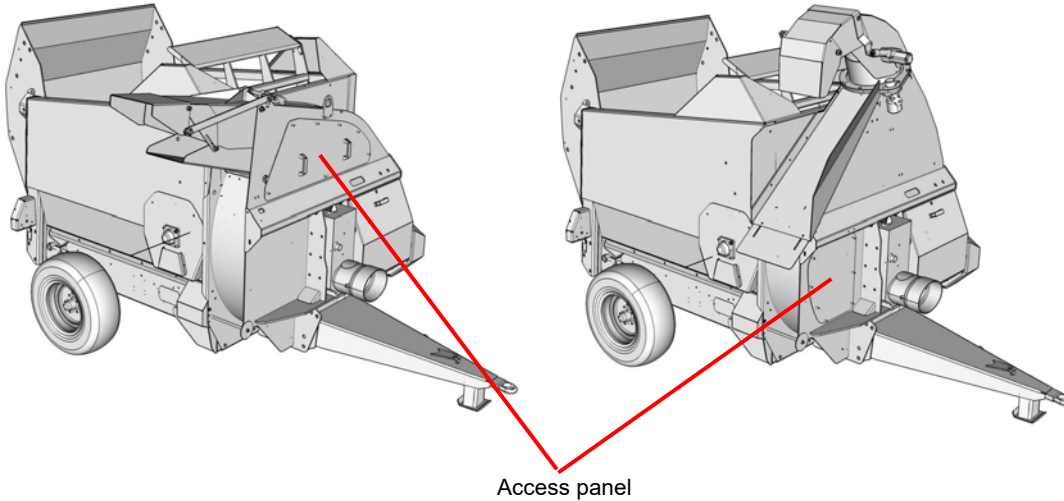
If work is started on the machine before the machine's flywheel has stopped rotating, this can lead to serious injury or accidents.

As required

When replacing bent/defective throwing wings, carry out the following:

- ▶ Remove both access panels.
- ▶ Turn the flywheel by hand and find the damaged throwing wing.
- ▶ Remove both bolts on the damaged throwing wing.
- ▶ Replace the throwing wing and bolts.
- ▶ Tighten the bolts.

→ »Torque moment« Page 139



Access panel

Maintenance

Wheel



Higher risk when performing maintenance work

When carrying out maintenance work there is a higher risk of personal injury.

Attention when carrying out cleaning work protects your own and others safety.

Failure to follow the safety instructions may result in serious injuries.

Do not drive on tyres which are punctured, worn, or damaged

Do not drive on tyres which are punctured, worn, or damaged.

Replace punctured, worn, or damaged tyres with tyres with the same specifications.

There is an increased risk of accidents when driving on public roads with tyres in this condition.

When working on the machine:

- The tractor's PTO outlet must be disconnected.
- All hydraulics must be neutralised.
- The tractor engine must be stopped.
- The ignition key must be removed.
- The hand brake should be activated.
- ▶ The tractor must be prevented from rolling.
- ▶ Only the equipment specifically provided must be used for climbing onto the machine.

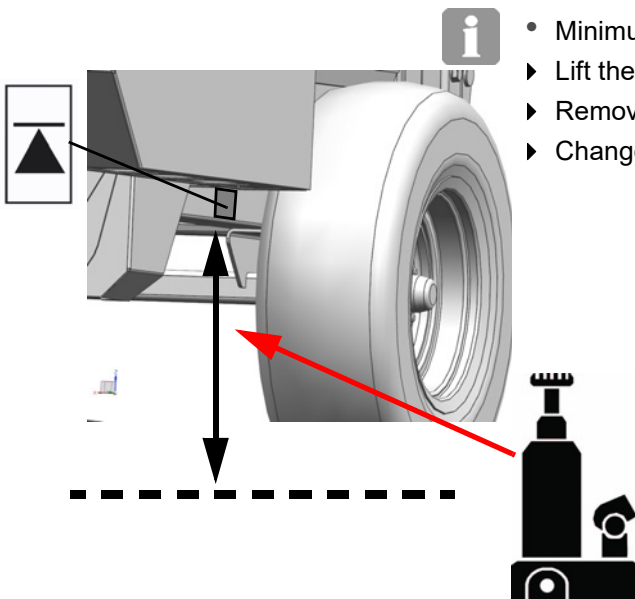
Failure to secure the tractor to prevent it from rolling could endanger lives.

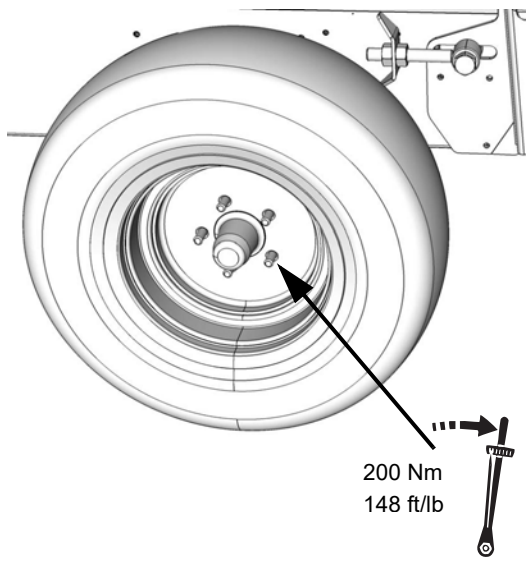


If tyres are worn or punctured, then the machine's wheel will need to be changed.

The wheel is changed as follows:

- ▶ Place a jack on the machine's wheel as shown.
- Minimum jack lifting capacity: 2000 kg / 4410 lb
- ▶ Lift the wheel clear of the ground.
- ▶ Remove all the bolts from the wheel.
- ▶ Change the wheel.





- ▶ Fit all bolts to the wheel and tighten to the given torque.
 - ▶ Check the tyre pressure and, if necessary, inflate to the correct pressure.
- »Machine specifications« Page 32

Optional equipment

Jack

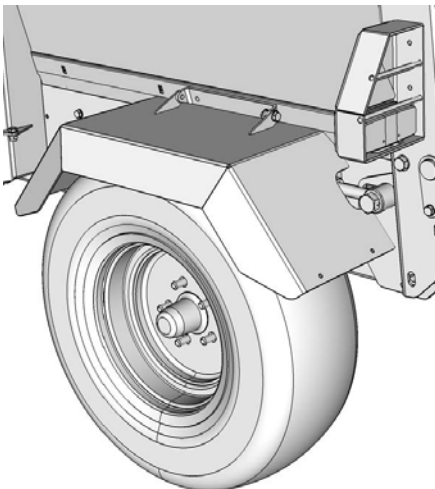


The jack can raise and lower the coupling eye or crossbar so that coupling to the tractor is more precise and comfortable for the operator.

Lights and reflectors

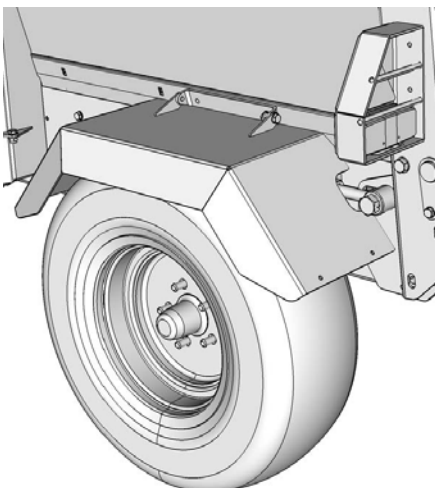
1600* only

* Model without EU type-approval



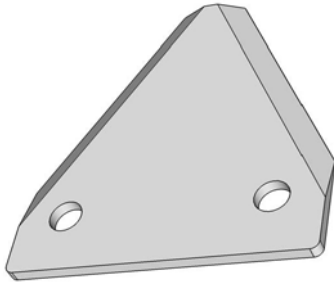
The machine can also be equipped with a lighting and reflection kit. The lighting kit should be fitted as shown.

Wheel guards



Wheel guards prevent accidental spray from the wheels. The kit is mounted as shown.

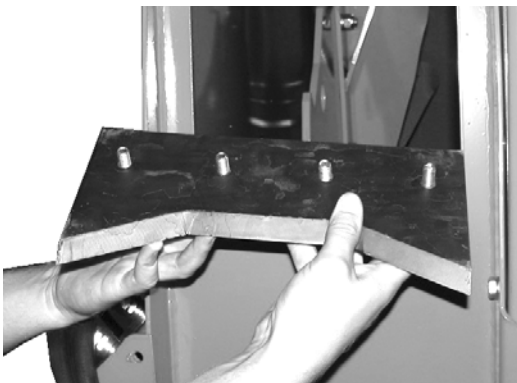
Knives



An extra set of knives consists of 14 knives (3 mm) for replacement of worn or damaged knives on the shredding drum.

Knife

Only for machines with a swivel chute



A haylage knife is available as extra equipment. The knife is used for processing haylage and reducing blocking and accumulation of crop in the flywheel housing and swivel chute.

P.T.O shaft

8-spline universal joint

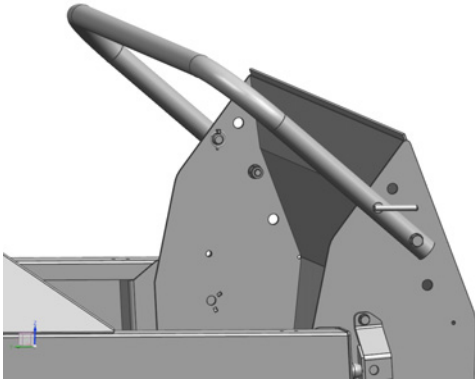


8-spline universal joint

The PTO shaft can be fitted with an 8-spline universal joint as extra equipment.

Optional equipment

Big bale



A large bale retention kit is available as optional equipment to fit onto the rear door.

The equipment will prevent sections of the bale from falling of the rear door.

The equipment can be placed in 2 positions.

Closed centre hydraulic system

Electrical hydraulic controls

For tractors fitted with closed centre hydraulics, the machine can be equipped with and set for electrically operated closed centre hydraulics.

Electric and hydraulic system

Fault	Possible cause	Remedy	Page
Electrical circuit	No response	Check that the machine control box is closed	55
		Check the fuse in the control box	55
		Check the tractor's 12 V current supply	
		Check that the cables from the power supply is correctly pole reversed	42
Hydraulic circuit	The hydraulic functions do not work	Check that the hydraulic hoses are correctly connected to the tractor's outlet	42
	The standard chute cylinder does not operate when the floor conveyor is running	Insufficient amount of oil from the tractor	32
	The swivel chute is slow to respond	The floor conveyor is moving quickly - reduce the speed of the floor conveyor	78
		Insufficient amount of oil from the tractor	32
	Hydraulic oil overheats or there is cavitation	Make sure that the hydraulic circuit is set to closed centre ¹	43
	Tractor spool valve overloaded	Make sure that the hydraulic circuit is set to open centre	43
Blockage of discharge	The floor conveyor is not running	Check that the tractor hydraulic supply is connected	42
		The machine hydraulic pressure relief valve must be checked, contact service	
The comb does not work	Possible comb blockage (LED does not come on or go out during operation)	Check the comb for foreign objects, open the rear door, stop the tractor and investigate the fault	59

Troubleshooting

Flywheel housing

Fault	Possible cause	Remedy	Page
Blocking of standard/swivel chute	Material left in flywheel housing from previous bale	Make sure that the flywheel is up to the correct speed before the floor conveyor is started	79
	The rear gate forces the bales into the shredding drum	Slightly lower rear door	65
	Floor conveyor speed too high	The floor conveyor is moving quickly - reduce the speed of the floor conveyor	78
Blocking of swivel chute	Material cannot pass through swivel chute	Fit the haylage knife ¹	129
Hay escape from standard/swivel chute	Floor conveyor speed too high	The floor conveyor is moving quickly - reduce the speed of the floor conveyor	78
Wet and heavy material stuck in standard chute	Too much material is guided into the flywheel	The floor conveyor is moving quickly - reduce the speed of the floor conveyor	78
	Flywheel speed too low	Adjust the speed of the PTO drive shaft (max 540 rpm)	79
		Check correct speed for gearbox	69
Blockage of discharge	The floor conveyor is not running	Possible blockage - stop tractor engine and investigate	79
	V belt drive line for shredding drums is slipping	Check the V-belts	101
Excessive machine vibrations	Imbalance in machine	Check the flywheel for damaged or bent thrower paddles	124
The comb does not work	Possible comb blockage (LED does not come on or go out during operation)	Check the comb for foreign objects, open the rear door, stop the tractor and investigate the fault	59

Bale chamber

Fault	Possible cause	Remedy	Page
Machine will not start	The rear door presses the materials against the shredding drums	Open rear door slightly to the pressure against the shredding drum	65
	Material from earlier use in the flywheel housing	The flywheel housing should be cleared of material after use	71,77
Blockage of discharge	V belt drive line for shredding drums is slipping	Check the bale chamber for foreign objects, open the rear door - stop the tractor and investigate the fault	55
Excessive machine vibrations	Imbalance in machine	Adjust the coupling of the PTO shaft	15
		Check the shredding drum for damage or missing knives	109
		Remove any accumulation of string/net/packing on the shredding drum	81
Rear door does not lower to ground level	The drawbar position is wrong	Readjust drawbar position	38
The comb does not work	Possible comb blockage (LED does not come on or go out during operation)	Check the comb for foreign objects, open the rear door, stop the tractor and investigate the fault	59

P.T.O shaft

Fault	Possible cause	Remedy	Page
Blockage of discharge	The friction clutch on the PTO shaft is slipping	Check the condition of the friction plates and springs	94
Excessive machine vibrations	Imbalance in machine	Adjust the coupling of the PTO shaft	15

- ¹ Extra equipment - Page 128.

Guarantee

Guidelines for guarantee

The guarantee period for our product is 12 months from the date of purchase. The guarantee does not include the wearing parts.

Warranty claims can be made with the Kverneland warranty application which must be filled out by your local Kverneland dealer where your machine/equipment was purchased.

No liability is accepted for consequential damage

We are not liable for compensation of any damage that has not been sustained to the machine/equipment. This also includes consequential damage as a result of wrongful use of the machine/equipment.

Therefore, read this instruction manual before taking the machine/equipment into use. Furthermore, do always check that the machine/equipment works properly before and during use.

When the machine is worn out, it must be scrapped in a proper way. Observe the following:

Metal parts

Send usable parts to an authorised recycling station. The larger scrap parts must be taken to an authorised breaker's yard where they can be processed in accordance with current regulations.

Rubber parts

Send usable parts to an authorised recycling plant where they can be processed in accordance with current regulations.

Plastic

Send usable parts to an authorised recycling plant where they can be processed in accordance with current regulations.

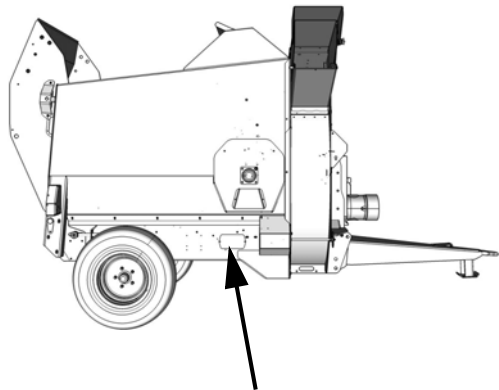
Hydraulic oil and lubricants

The machine must be emptied of all oil and lubricants. The used oil and lubricants must be sent to a breaker's yard where it can be processed in accordance with current regulations.

Electronic parts

Take the usable parts to an authorised recycling plant where they can be processed in accordance with current regulations.

Original EC Conformity Declaration



Type plate and CE marking

Kverneland Group Kerteminde AS
Taarupstrandvej 25
DK - 5300 Kerteminde
Denmark

declare with sole responsibility that the product

Kubota BC
in all variants and it's accessories

Type: 1300 - 1600 Pro

Valid from serial number:
1300-Pro: UKGFE2BC1JB*00101 / UKGFE2CC1JB*00101
1600-Pro: KT111956

*** internal code**

complies with the following relevant EU regulations:

- Directive 2006/42/EC
- Directive 2014/30/EU

The following harmonized standards have been consulted for proper compliance:

- EN ISO 4254-1:2015
- EN 703+A1:2009

Kverneland Group Kerteminde AS
Kerteminde - Denmark
Date: 01.12.2020

A handwritten signature in black ink, appearing to read 'Claus Udengaard Thomsen'.

Claus Udengaard Thomsen

Managing Director and authorised representative*

*person who is responsible for compiling the technical file and resides in the European Community. See address above.

Technical information

Conversion table

Basic unit:	SI - unit	Conversion figures:
Length	1 m	39.4 in = 3.3 ft = 1.1 yrd = 0.00062 miles (US)
Area	1 m ²	1.2 yd ² = 10.8 ft ² = 0.00025 acre = 0.0001 ha
Volume	1 dm ³ (1 l)	61 in ³ = 0.035 ft ³ = 0.22 gallons (Imp) = 0.26 gallons (US)
Speed	1 m/sec	3.6 km/h = 2.24 mph = 3.28 ft/sec
Power	1 N	0.10 kp = 0.22 lbf
Effect	1 kW	1.36 hp = 102 kpm/sec
Mass	1 kg	2.2 lb = 0.0197 cwt = 35 oz
Torque moment	1 Nm	0.102 kpm = 8.8 lb-in = 0.74 ft. lbs.
Pressure	1 bar	0.01 atm. (kp/cm ²) = 0.14 psi
R.P.M.	min ⁻¹ = revolutions / min = rpm	

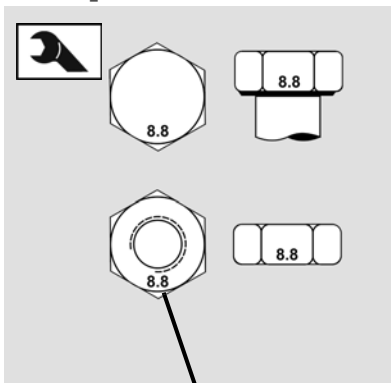
Lubricants

Only check the oil level when there is visible oil loss, while the machine is horizontal.

The transmission oil and grease must meet the following requirements:

Specifications			
Transmission oil		Grease	
SAE J-2360	80W-90	NLGI GC/LB	2
API	GL-4		

Torque moment



Grade class specification



Use the correct tightening torque

Tighten screws, nuts and bolts to the given torque.
Failure to do so can cause damage to the machine or serious or fatal injuries.

Note the grade class for screws, nuts and bolts.

Note the size of the screw, nut or bolt and find the correct tightening torque in the table.

Tighten the screws, nuts and bolts to the given values, provided that no other value is given.

Torque moment for bolts of quality 8.8 black and/or galvanised and not greased when tightened on a smooth surface or a plain washer									
Thread dia. mm	5	6	8	10	12	14	16	20	22
Nm	5.5	10	24	47	81	128	197	385	518
ft/lb	4	7,5	18	35	60	94,5	145,5	284	382,5

The above tables are valid unless otherwise indicated in the instruction manual for this machine.

Index

A			
Adjusting the floor conveyor	105	Mounting the knives	51
Anti-theft protection	87		
C		N	
Cleaning	82	Notes	137
Conversion table	138		
D		O	
Disposal		Operation	
Electronic parts	135	Electrical hydraulic controls	55
Hydraulic oil and lubricants	135	Optional equipment	
Metal parts	135	Big bale	130
Plastic	135	Closed centre hydraulic system	130
Rubber parts	135	Jack	128
		Knife	129
		Knives	129
		Lights and reflectors	128
		P.T.O shaft	129
		Wheel guards	128
E		P	
EU Directive 2006/42/EC	136	P.T.O.	16
		Parking/disconnection of the machine	84
		Preparing the machine	34
F		R	
First start-up of machine	45	Removing the knives	51
Flywheel speed	79	Replacement	
		Drive line for floor conveyor	116
		Hydraulic hoses	23
		Knives	122
		Main drive line	119
		Oil, main gear	114
		Transmission for shredding drum	118
		V-belt	119
		Wings on the flywheel	124
G		S	
Guarantee	134	Safety	
		Safety symbols	8
		The meaning of the symbols	10
H		Service - check	
Hydraulic connection	42	Bolts	107
Hydraulic hitch	38	Bolts, main gear	113
Hydraulic system with closed centre	43	Drive line for floor conveyor	104
		Floor conveyor	105
		Knives	109
		Main drive line	101
		Main gear	100
		P.T.O shaft	15
		Wings on the flywheel	111
		Setting of floor conveyor speed	78
L			
Loading the machine			
Hay and straw	60		
Silage	64		
Lubricants	138		
M			
Machine start-up			
Hay and straw	66, 72		
Silage	69		
Maintenance			
Lubrication	96		
Maintenance intervals	92		
Replacement	114		
Service - check	99		

Spare parts	22
Storage	88
Synopsis	28

T

Target group	4
Technical data	30
Technical information	138
Torque moment	139
Tractor requirements	33
Travelling on public roads	46
Troubleshooting	131