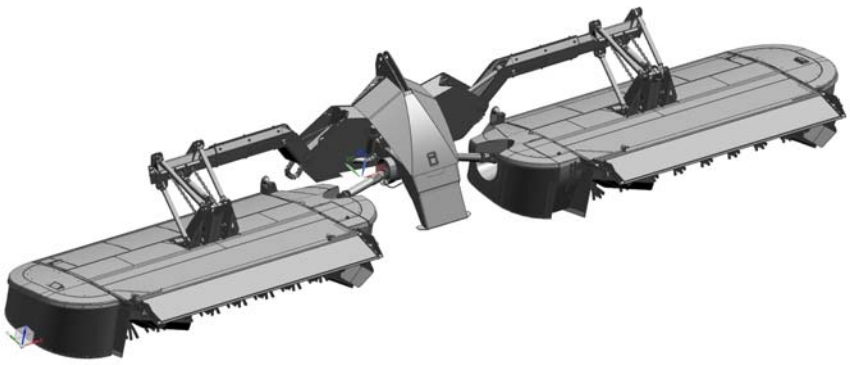


DMC 63100T - 63100R

WARNING: Cancer and Reproductive Harm - www.P65warnings.ca.gov

Operating manual

Translated from the original instruction manual

Revision	01
Date printed	06.2018
Language	EN-US
Machine number	KT478436
Document number	A151625040
Index	2018-04

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	DMC 63100T - 63100R
Operating width	63100: 10.2m (402")
Weight	63100T: 3064 kg (6756 lb) 63100R: 3188 kg (7030 lb)
Machine number	
Accessories	
Address of supplier	
Address of manufacturer	Kverneland Group Kerteminde AS Taarupstrandvej 25 DK -5300 Kerteminde - Denmark Tel./fax: +45 65 19 19 00 / +45 65 19 19 99 web: www.kvernelandgroup.com

Table of contents

Table of contents

Target group for the Instruction Manual

NOTICE

Simplified illustrations to improve understanding
Some of the illustrations of the machine in this instruction manual show it without the guards or with the protective equipment open to improve 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 prior to assembly and use of the machine. This will allow you to work under optimal conditions and in safety.

For the employer

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

Instructions

Your dealer will assist you with the 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 have also used 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.

This pictogram indicates that the tractor can be started.

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

California Proposition 65

WARNING

Operating, servicing and maintaining off road equipment or off road vehicles can expose you to inhalation of or contact with chemicals including engine exhaust, carbon monoxide, phthalates, and lead which are known to the state of California to cause cancer and birth defects or other reproductive harm. To minimize exposure:

- Avoid breathing exhaust.
- Always start and operate the engine in a well ventilated area.
- If in an enclosed area, vent the exhaust to the outside.
- Do not modify or tamper with the exhaust system.
- Do not idle the engine except as necessary.
- Service your equipment or vehicle in a well ventilated area.
- Wear gloves or wash your hands frequently when servicing your equipment or vehicle.

For more information go to: www.P65warnings.ca.gov

SAFETY FIRST

This symbol, the industry's "Safety Alert Symbol", is used throughout this manual and on labels on the machine itself to warn of the possibility of personal injury. Read these instructions carefully. It is essential that you read the instructions and safety regulations before you attempt to assemble or use this unit.

DANGER:

Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

WARNING:

Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION:

Indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury.

For your own safety

Know your equipment and its limitations. Read this entire manual before attempting to start and operate the unit.

This chapter includes general safety instructions. In addition, each chapter in the instruction manual includes specific safety instructions not set out here. The safety instructions must be followed

- For your own safety.
- For the safety of others.
- To ensure the safety of the machine.

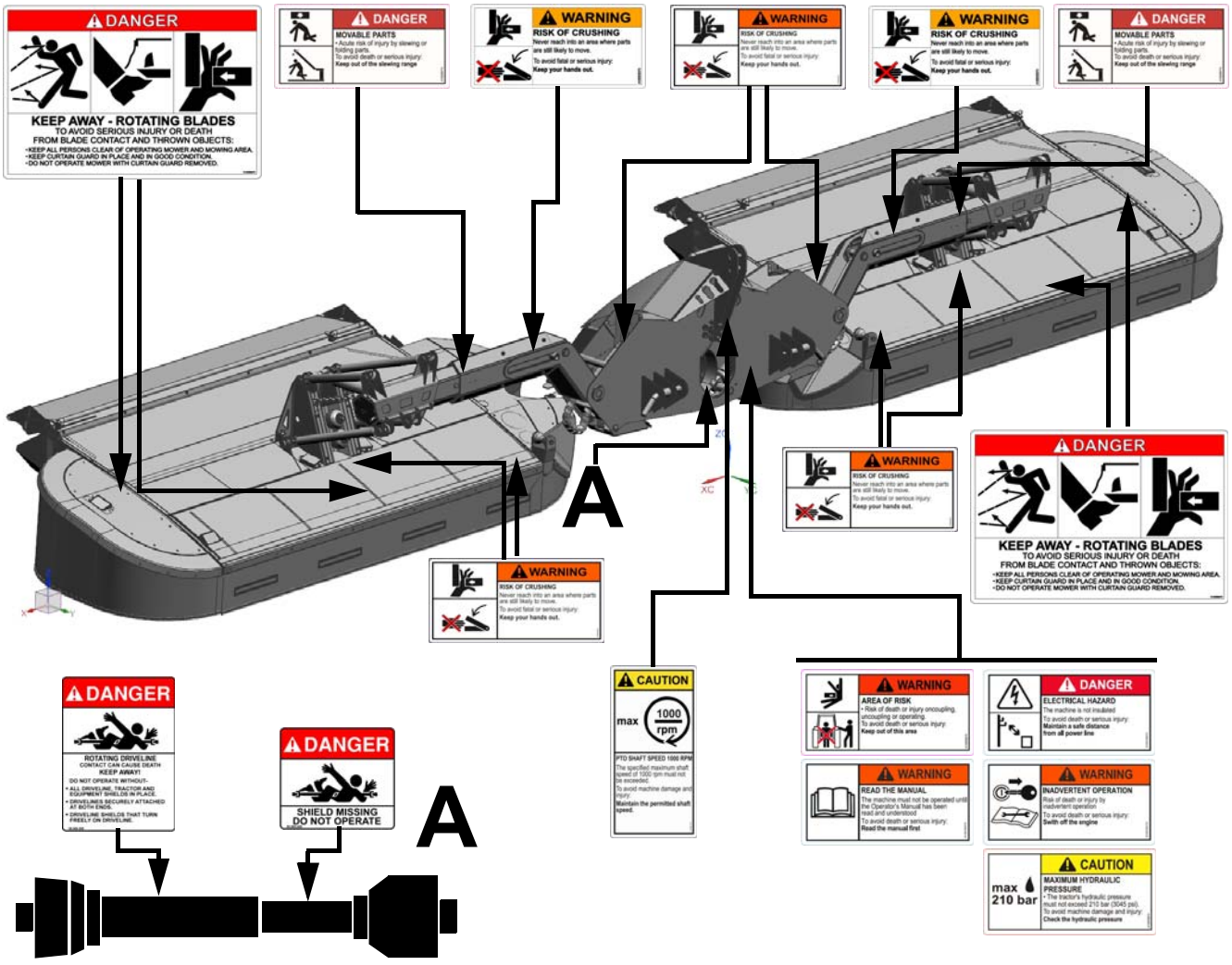
When working with agricultural machinery, incorrect handling can pose a number of dangers. Therefore, you should always be very careful and never rush your work under pressure.

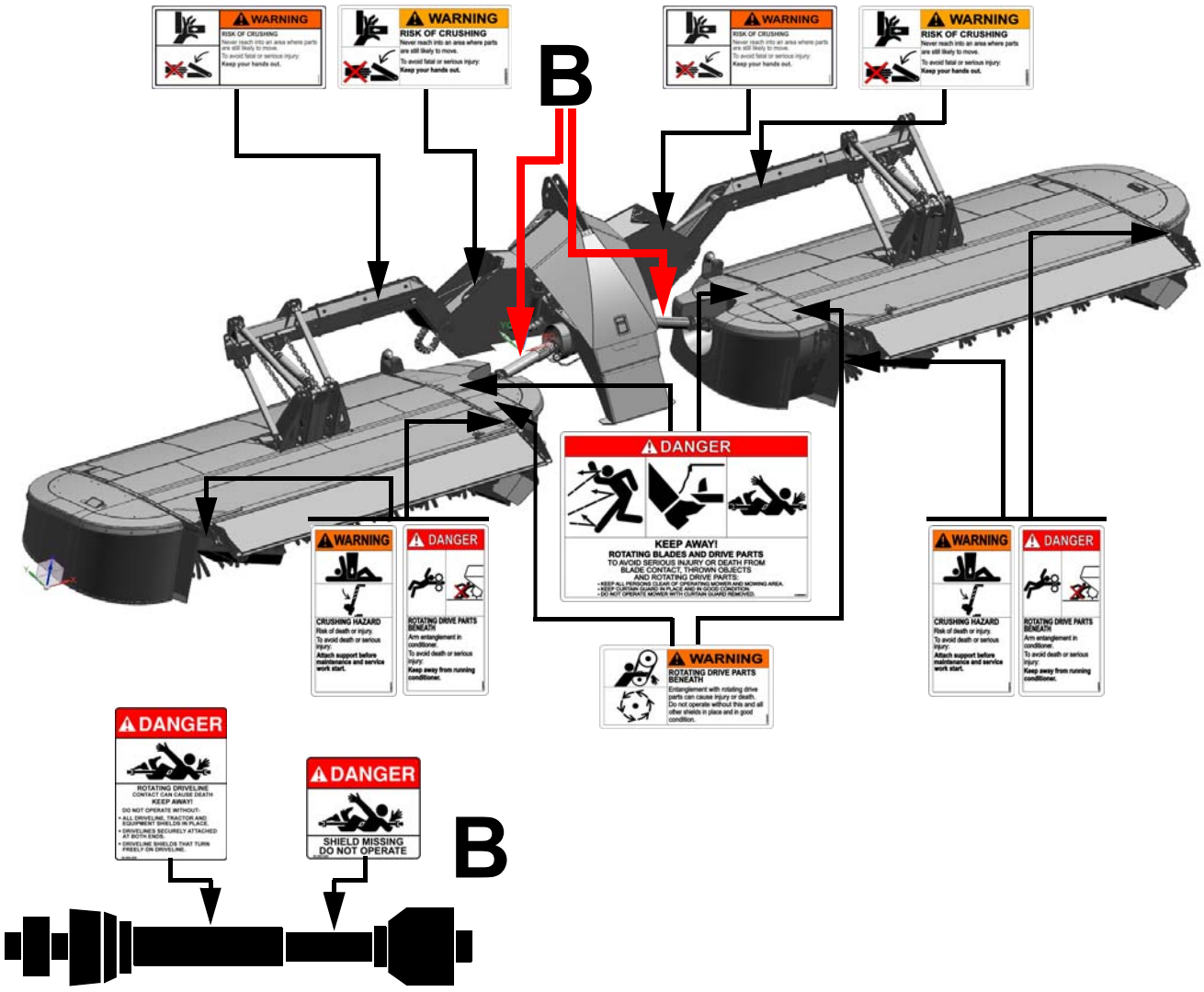
The operator must receive regular training
Periodically inform those working with the machine about these safety instructions.
The safety instructions should be followed in accordance with local statutes concerning agricultural machines.

Recommended work clothing
Do not wear loose-fitting clothing. Wide or loose-fitting clothing can get caught by rotating parts.
Wear the kind of work and protective clothing that industry and professional organizations recommend.
In this case, you may be seriously injured and these injuries can be deadly.

Safety labels

On the machine, you will find labels relating to your safety. These labels must not be removed. If the labels become illegible or detached, new labels can be ordered and affixed in the appropriate areas.



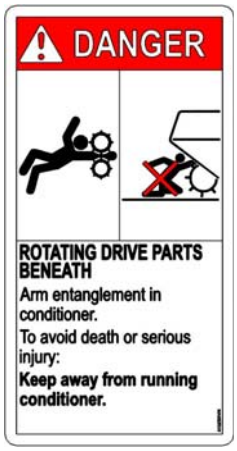

WARNING
RISK OF CRUSHING
Never reach into an area where parts are still likely to move.
To avoid fatal or serious injury:
Keep your hands out.
B
DANGER
KEEP AWAY!
ROTATING BLADES AND DRIVE PARTS
TO AVOID SERIOUS INJURY OR DEATH FROM
BLADE CONTACT, THROWN OBJECTS
AND ROTATING DRIVE PARTS:
WARNING
CRUSHING HAZARD
Risk of death or injury.
To avoid death or serious injury:
Attach support before maintenance and service work start.
DANGER
ROTATING DRIVE PARTS BENEATH
Arm entanglement in conditioner.
To avoid death or serious injury:
Keep away from running conditioner.
WARNING
ROTATING DRIVE PARTS BENEATH
Entanglement with rotating drive parts can cause injury or death.
Do not operate without this and all other shields in place and in good condition.
DANGER
ROTATING DRIVELINE CONTACT CAN CAUSE DEATH
KEEP AWAY!
DO NOT OPERATE WITHOUT:
• ALL DRIVELINE, TRACTOR AND EQUIPMENT SHIELDS IN PLACE.
• DRIVELINES SECURELY ATTACHED AT BOTH ENDS.
• DRIVELINE SHIELDS THAT TURN FREELY ON DRIVELINE.
DANGER
SHIELD MISSING
DO NOT OPERATE
B


DANGER
KEEP AWAY - ROTATING BLADES
TO AVOID SERIOUS INJURY OR DEATH
FROM BLADE CONTACT AND THROWN OBJECTS:
•KEEP ALL PERSONS CLEAR OF OPERATING MOWER AND MOWING AREA.
•KEEP CURTAIN GUARD IN PLACE AND IN GOOD CONDITION.
•DO NOT OPERATE MOWER WITH CURTAIN GUARD REMOVED.

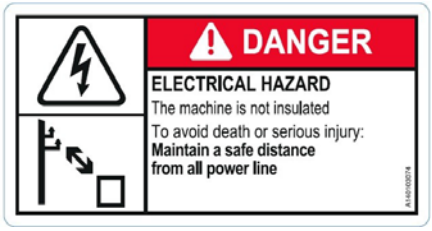

DANGER
KEEP AWAY!
ROTATING BLADES AND DRIVE PARTS
TO AVOID SERIOUS INJURY OR DEATH FROM
BLADE CONTACT, THROWN OBJECTS
AND ROTATING DRIVE PARTS:
• KEEP ALL PERSONS CLEAR OF OPERATING MOWER AND MOWING AREA.
• KEEP CURTAIN GUARD IN PLACE AND IN GOOD CONDITION.
• DO NOT OPERATE MOWER WITH CURTAIN GUARD REMOVED.


DANGER
ROTATING DRIVELINE
CONTACT CAN CAUSE DEATH
KEEP AWAY!
DO NOT OPERATE WITHOUT-
• ALL DRIVELINE, TRACTOR AND EQUIPMENT SHIELDS IN PLACE.
• DRIVELINES SECURELY ATTACHED AT BOTH ENDS.
• DRIVELINE SHIELDS THAT TURN FREELY ON DRIVELINE.
56.968.000

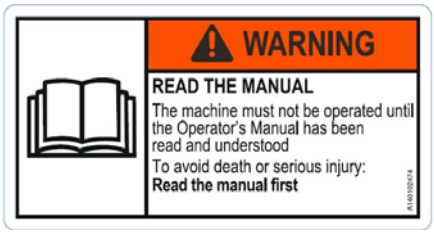

DANGER
SHIELD MISSING
DO NOT OPERATE
56.969.000

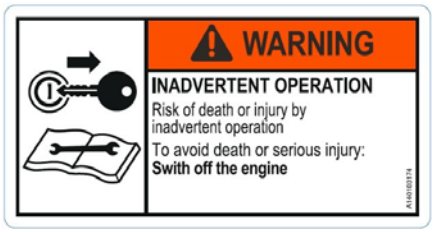

DANGER
ROTATING DRIVE PARTS BENEATH
Arm entanglement in conditioner.
To avoid death or serious injury:
Keep away from running conditioner.


DANGER
MOVABLE PARTS
• Acute risk of injury by slewing or folding parts.
To avoid death or serious injury:
Keep out of the slewing range


DANGER
ELECTRICAL HAZARD
The machine is not insulated
To avoid death or serious injury:
Maintain a safe distance
from all power line


WARNING
AREA OF RISK
• Risk of death or injury oncoupling, uncoupling or operating.
To avoid death or serious injury:
Keep out of this area


WARNING
READ THE MANUAL
The machine must not be operated until the Operator's Manual has been read and understood
To avoid death or serious injury:
Read the manual first

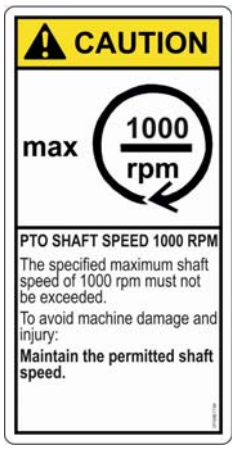

WARNING
INADVERTENT OPERATION
Risk of death or injury by inadvertent operation
To avoid death or serious injury:
Swith off the engine


WARNING
RISK OF CRUSHING
Never reach into an area where parts are still likely to move.
To avoid fatal or serious injury:
Keep your hands out.


WARNING
ROTATING DRIVE PARTS BENEATH
Entanglement with rotating drive parts can cause injury or death.
Do not operate without this and all other shields in place and in good condition.

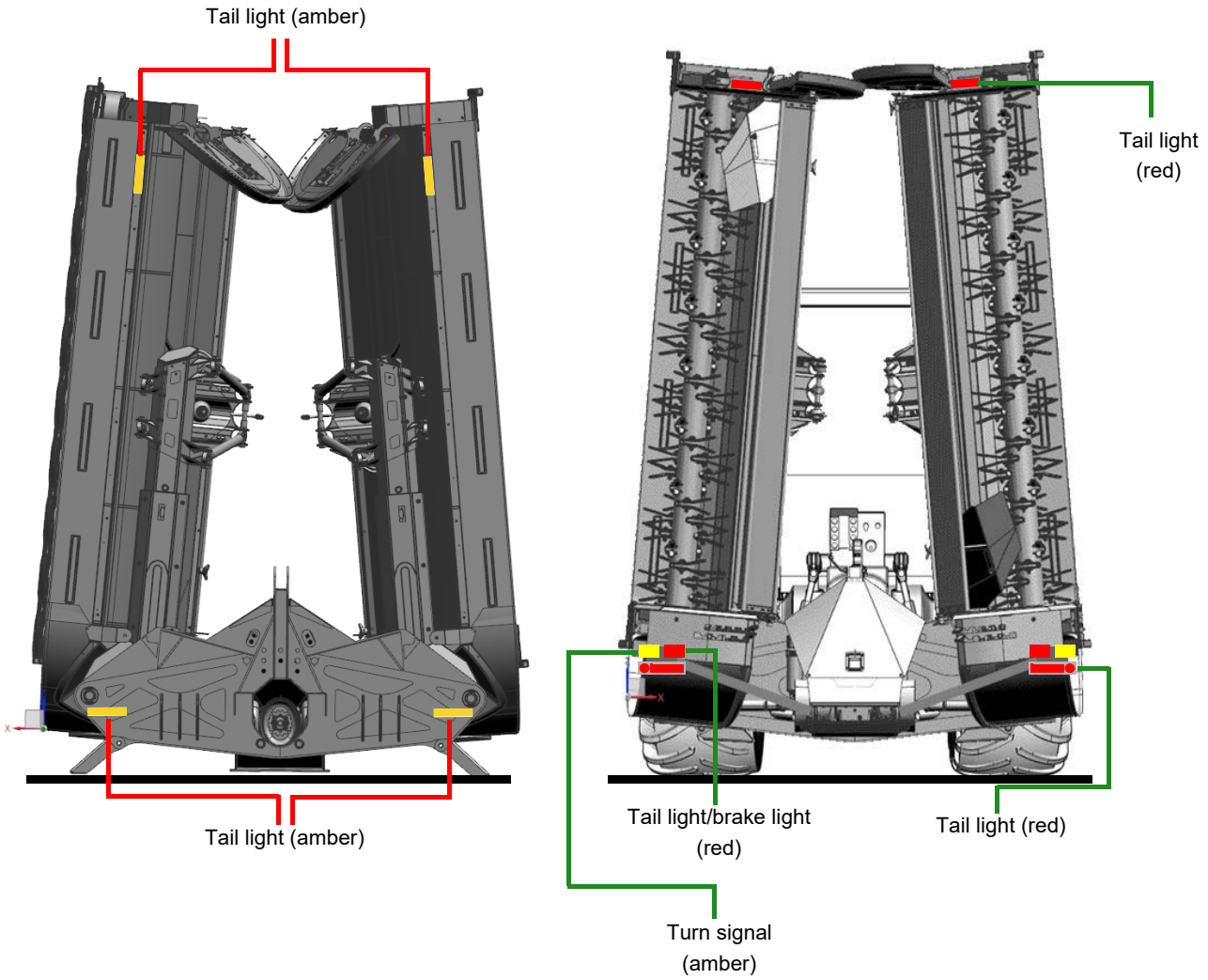

WARNING
CRUSHING HAZARD
Risk of death or injury.
To avoid death or serious injury:
Attach support before maintenance and service work start.


max
210 bar
CAUTION
MAXIMUM HYDRAULIC PRESSURE
• The tractor's hydraulic pressure must not exceed 210 bar (3045 psi).
To avoid machine damage and injury:
Check the hydraulic pressure


CAUTION
max
1000
rpm
PTO SHAFT SPEED 1000 RPM
The specified maximum shaft speed of 1000 rpm must not be exceeded.
To avoid machine damage and injury:
Maintain the permitted shaft speed.

Lighting and reflective devices - USA

The machine is equipped with lighting and reflective devices as a standard, which serve to ensure safety on the roads.
Lighting and reflective equipment shall be in good and sound condition at all times. Lights and labels must not be removed from the machine. Illegible or missing labels must be replaced. You can get new labels as spare parts from your dealer.



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 126

Who can operate the machine?

Qualified machine operators
Children under 16 years of age must not operate the machine. The machine may only be operated, maintained and repaired by persons with the required qualifications and who are informed of the risks associated with the handling of the machinery.
The necessary knowledge is conveyed within the framework of an agricultural education, a professional education or through intensive instruction.

General safety directions

The operator must receive regular training
Periodically inform those working with the machine about these safety instructions.
The safety instructions should be followed in accordance with local statutes concerning agricultural machines.

Stop the tractor and make sure to secure it
Before you get out:

- Stop the tractor.
- Remove the ignition key.
- Secure the tractor to prevent it from rolling.

If a tractor is not secured, it can roll on top of up or squeeze you. In this case, you may be seriously injured and these injuries can be deadly!

The operator should receive careful instructions before using the machine
The machine should only be used if the operator has been given thorough instructions. Thorough machine instruction allows safe usage.
Insufficient training may lead to incorrect usage of the machine and thus to accidents.

Safety is your responsibility
Observe the safety directives. You must insist that the safety directives be maintained. Complying with the safety directives will help to avoid serious or fatal accidents.

Carrying passengers on the machine is prohibited
It is dangerous and illegal to carry passengers on the machine.
The machine is not approved for personal transportation. Transporting persons on the machine may result in serious injuries and death.

Recommended work clothing
Do not wear loose-fitting clothing. Wide or loose-fitting clothing can get caught by rotating parts.
Wear the kind of work and protective clothing that industry and professional organizations recommend.
Otherwise, you may be seriously injured and these injuries can be deadly.

Check and clear the surrounding area before starting to use the machine
Before driving and using the machine the surrounding area should be checked and cleared. This prevents persons and animals in the vicinity from being harmed. If the surrounding area is not checked, it may result in serious injuries to persons or animals.

Keep away from the machine
No bystanders should be close to the machine when active. This will ensure that no dangerous situations can arise. Persons close to the machine during operation are at risk of being severely injured.

Never perform any service and maintenance work to the machinery while it is running
One must not perform service and maintenance work of any kind to the machinery while it is running. People or objects can be carried away and dragged into the machine, or can get crushed. In this case, you may be seriously injured and these injuries can be deadly.

Safety for children
Never assume that children will remain where you last saw them. Be alert and shut your machine down if children are in the work area. Never allow children to play on or operate the machine.

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 ensure that the machine will operate without malfunctions and provide maximum protection for the environment. Poorly maintained machinery poses a danger to the surroundings.

Attachment

Correct attachment of the machine
The machine must be correctly attached according to the instructions. The machine can become detached from the tractor if the attachment is not done properly. Incorrect attachment can lead to accidents.

When attaching the machine to the tractor you must therefore:

- Make sure that the tractor can not roll.
- Make sure that the tractor and the machine belong to the same category.
- Never stand between the tractor and the machine during attachment.
- Use the hydraulic three/point suspension slowly and carefully.

Adherence to the above instructions will ensure your own safety and that of others. Failure to follow the above instructions may result in serious injury.

Make the electrical connection after attachment
When you connect the lighting equipment, the tractor must be stopped, the ignition key removed and all the lights turned off. This will prevent short circuits and damage to the electric circuit. There may be a danger of short circuiting of the electrical circuitry.

PTO shaft check
Refer to the manufacturer's user manual included with the P.T.O. shaft. Here you will find instructions on the correct RPM for the P.T.O. shaft. If you ignore this information, it may result in damage to the P.T.O. shaft and to the machinery.

Be careful when working around the P.T.O shaft
When working on the PTO shaft, the tractor's PTO outlet must be disconnected, the tractor must be stopped and the ignition key removed. This prevents the PTO shaft from suddenly starting to rotate. If the tractor and the PTO shaft have not been connected in accordance with the instructions, serious accidents causing injury to limbs can occur.

Use the recommended P.T.O. shaft
Only use the P.T.O. shaft that the manufacturer has recommended.

- Read the accompanying operating guidelines carefully. Failure to do so may result in damage to the machinery or serious or fatal injuries.
- If necessary, adjust the lengths of the P.T.O. shaft. A wrong length on a P.T.O. shaft can result in damages to the machinery and injuries to persons.
- Other PTO shafts with deactivation couplings can allow higher disconnection torques. Higher disconnection torques can cause damage to the machinery.

Checking and fastening the screens to the P.T.O. shaft
The rotating P.T.O. shaft is protected by the screen. Make sure that the screens are intact. Attach the screens for the P.T.O. shaft to both tractors and equipment with chains. An unprotected P.T.O. shaft can cause life-threatening injuries.

Hydraulics

Only connect the hydraulics when the system is depressurized
You should only connect the hydraulic hoses to the tractor's hydraulics when the hydraulic system on both the tractor and the machine is depressurized. There is a risk that the machine will move accidentally. Unintentional movement of the machine may result in serious injuries.

Hydraulic oil under pressure can cause serious injuries
Before connecting hydraulic connections, the excess pressure must always be released. Hydraulic oil under pressure can penetrate the skin and result in serious injuries. Before connecting the hydraulic system, you must ensure that all connections are tight and that all pipes and hoses are not damaged.

Increased pressure in the hydraulic system
The hydraulic system is under high pressure. Regularly check all conduits, hoses and fittings for visible damage. Only use appropriate aids when searching for leaks. Rectify damages with the same. Leaking oil can cause injuries or fire. Immediately contact a physician in case of accidents.

Never use your fingers or hands to check for leaks
Never use your fingers or hands to check the hydraulic system for leaks. Use a piece of paper or cardboard to check the hydraulic system for leaks. Leaking pressurized oil can cause serious injuries to skin and cause gangrene.

Replacing the hydraulic hoses
Replace the hydraulic hoses at least once every 6 years. Hydraulic hoses also wear without any visible damage. Only use hydraulic hoses with the same technical specifications. The necessary data are printed on the hydraulic hose. Defective hydraulic hoses may cause serious injury or death.

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

- Avoid direct contact with hydraulic oil. It can damage the skin.
- Protect your skin with barrier cream or protective gloves.
- Never use oil or lubricants to clean your hands.
- Clothes contaminated with oil should be changed immediately.
- Oily cloths should not be kept in your pockets.
- Seek medical help for skin injuries or if you come into contact with hydraulic oil under pressure, as such injuries can cause gangrene.

Load capacity

Compliance with total weight, axle pressure, carrying capacity of the tires and minimum weight on the tractor

Neither the tractor's total weight, axle pressure or the carrying capacity of the tires may be exceeded on front/mounted and rear- mounted machines. To ensure the maneuverability of the tractor, the load on the front axle must be at least 20% of the tractor's weight. Failure to do so can result in a loss of control and cause accidents.

→ »Permissible total weight of the tractor« Page 36

Weight/power ratio between machine and tractor

The machine may only be connected to a tractor of the correct size and power.

The tractor's size and PTO outlet must correspond to the power consumption of the machine and its weight. Wrong weight/power ratio can result in damage to both machine and tractor.

Transport on public roads

Make sure that the machinery complies with all national and local requirements for transport on public roads
When driving on public roads, the machine must comply with the Road Traffic Act's current requirements. This ensures your safety and that of other road users. Failure to meet the requirements can result in accidents.

Compliance with the Road Traffic Act's current requirements includes, for example:

- Installation of lights, warning and safety equipment.
- Compliance with permitted transport width, weight, axle pressure, tire carrying capacity and total weight.
- Keep to the maximum allowable transport speed.
- Secure the machine
  .

The tractor's dead weight must be greater than the machine's weight. Violations can result in the driver and the owner of the vehicle being held responsible.

Carrying passengers on the machine is prohibited
It is dangerous and illegal to carry passengers on the machine. The machine is not approved for personal transportation. Transporting persons on the machine may result in serious injuries and death.

Attached machines change the driving and braking abilities of the tractor
Be aware of the changed driving and braking abilities when driving with machines attached. You should be especially aware of the machine's width and length when driving around bends and turns. Serious accidents and a loss of control may result if this is not taken into account.

Adjust the speed according to the road conditions
Adjust driving speed according to the conditions on the road. Poor road conditions and high speeds can lead to parts of the tractor and machine being overloaded. Driving too fast can lead to accidents and damage both the machine and the tractor.

Use

Check that the machine has no technical faults
Only use the machine if it has no technical faults. This ensures that the machine is operating correctly and safely. A machine with technical faults and defects can be dangerous and inappropriate to use.

Check the safety devices
Check that all protective devices are in place before use. This ensures that the machine will give maximum protection to the operator. If the safety devices are removed or not used, it may result in serious injuries and accidents.

Carrying passengers on the machine is prohibited
It is dangerous and illegal to carry passengers on the machine. The machine is not approved for personal transportation. Transporting persons on the machine may result in serious injuries and death.

Check and clear the surrounding area before starting to use the machine
Before driving and using the machine the surrounding area should be checked and cleared. This prevents persons and animals in the vicinity from being harmed. If the surrounding area is not checked, it may result in serious injuries to persons or animals.

Never perform any service and maintenance work to the machinery while it is running
One must not perform service and maintenance work of any kind to the machinery while it is running. People or objects can be carried away and dragged into the machine, or can get crushed. In this case, you may be seriously injured and these injuries can be deadly.

Keep away from the machine
No bystanders should be close to the machine when active. This will ensure that no dangerous situations can arise. Persons close to the machine during operation are at risk of being severely injured.

Safety for children
Never assume that children will remain where you last saw them. Be alert and shut your machine down if children are in the work area. Never allow children to play on or operate the machine.

Checking bolts on moving parts
Check that all bolts on moving parts are correctly tightened. Tightening parts prevents moving parts from jarring. Parts which are not correctly tightened can work themselves loose and damage the machine.

Maintain the rotational speed on the tractor's PTO outlet
The recommended RPM on the P.T.O. shaft must not be exceeded. It can result in damage to the machine and be dangerous to any persons in the vicinity.

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 ensures the transmission a long and trouble-free service life. An incorrect oil level will damage the transmission.

Stop the machine immediately in case of malfunction
In case of malfunction, the machine should be stopped immediately. A mechanical malfunction can endanger persons and animals in the vicinity. Malfunctioning machines can give rise to dangerous situations.

Make sure that the tractor and the machinery stand on a level surface
Make sure that the machinery stands evenly before switching it from transport to working position (and vice versa). There is a particular risk of the machine falling on slopes. Otherwise, serious damage can occur to the machine and fatal injuries to the operator.

Check the tire pressure regularly
Check the tire pressure on the tractor and machine regularly. This will ensure optimal driving conditions and prevent the accidental lifting of the tractor and the machine. Abnormal and uncontrollable lifting of the tractor and machine can result in accidents.

Disconnection

Increased risk of injury when disconnecting
There is an increased risk of injury when disconnecting the machine from the tractor. Adherence to the above instructions will ensure your own safety and that of others. Failure to follow the above instructions may result in serious injury.

Therefore, when disconnecting:

- Make sure that the tractor can not roll.
- Never stand between the tractor and the machine during disconnection.
- Use the hydraulic three/point suspension slowly and carefully.
- Make sure that the machine is standing on a safe, level surface.
- When depressurizing the hydraulic system for both tractor and machine, first disconnect the hydraulic hoses.

If you do not follow these instructions, it can result in serious injury or death.

Maintenance

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 ensure that the machine will operate without malfunctions and provide maximum protection for the environment. Poorly maintained machinery poses a danger to the surroundings.

Maintenance of the P.T.O. shaft
Keep to the recommended intervals for service and maintenance of the P.T.O. shaft. Refer to the manufacturer's user manual included with the P.T.O. shaft. Here you will find instructions on the correct maintenance of the P.T.O. shaft. If you ignore this information, it may result in damage to the P.T.O. shaft and to the machinery.

Always use original spare parts on the machine
Always use original spare parts. Original spare parts should be used for safety reasons. The manufacturer's warranty becomes void if non-original spare parts are used.

Never perform any service and maintenance work to the machinery while it is running
One must not perform service and maintenance work of any kind to the machinery while it is running. People or objects can be carried away and dragged into the machine, or can get crushed. In this case, you may be seriously injured and these injuries can be deadly.

High risk when performing service and maintenance work
When performing service or maintenance work, there is a higher risk of injury. Paying full attention to the aforementioned point ensures your safety and that of others. Failure to pay attention to the aforementioned point may result in serious injuries.

Therefore, when you perform maintenance work:

- Disconnect the P.T.O shaft.
- Depressurize the hydraulic system.
- Stop or disconnect the tractor.
- Check that the machine is parked safely; support it if necessary.
- Do not use parts of the machine to climb onto it; the correct climbing devices must be used.
- Make sure that the machine can not start rolling.

Disconnect the power source when working on the electrical systems
Always disconnect the negative terminal to the battery before working with the electrical system. This will prevent short circuits and damage to the electric circuit.

Be careful when cleaning with high pressure cleaning equipment
Only use low-pressure cleaning equipment to clean bearings, hydraulic hoses, plastic components, electrical control boxes and electrical equipment. Using low water pressure to clean will protect the sensitive equipment on the machine. Using high water pressure to clean could damage vital parts of the machine.

No harsh cleaning agents
Do not use harsh cleaning agents when cleaning. Bare metal surfaces may be damaged.

Disconnect the battery, ECU and the alternator before welding
The tractor battery and alternator should be disconnected before performing welding work on the machine. This will protect the tractor alternator during 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. Tightening parts prevents moving parts from jarring. Parts which are not correctly tightened can work loose and damage 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.
Poorly maintained machinery will not provide optimum protection and can be dangerous.

Further safety instructions

Follow the instructions when working on the machine
The machine safety instructions should always be complied with. This will protect you and others from injury. Failure to follow the safety instructions may result in serious injuries.

In addition to the safety instructions, the following should be followed:

- Environmental legislation.
- 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.

Areas of use

63100T/R is a swather designed for cutting common grass and cereal crops. The instructions for use are given in the following chapters.

Correct usage of the machine

The machine can be used in fields for mowing the following crops:

- All types of grass
- All types of clover
- Whole crop
- Alfalfa
- Sorghum

Incorrect use of the machine

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

- Cutting grass in park facilities and lawns
- Cutting grass on the boulevard strips of public roads
- Harvesting corn
- Clearing forest floors or other densely wooded areas

Similar use is outside the intended applications of the machine.
The manufacturer is not liable for any damages caused by incorrect usage of the machine. The user is wholly liable for the machine.

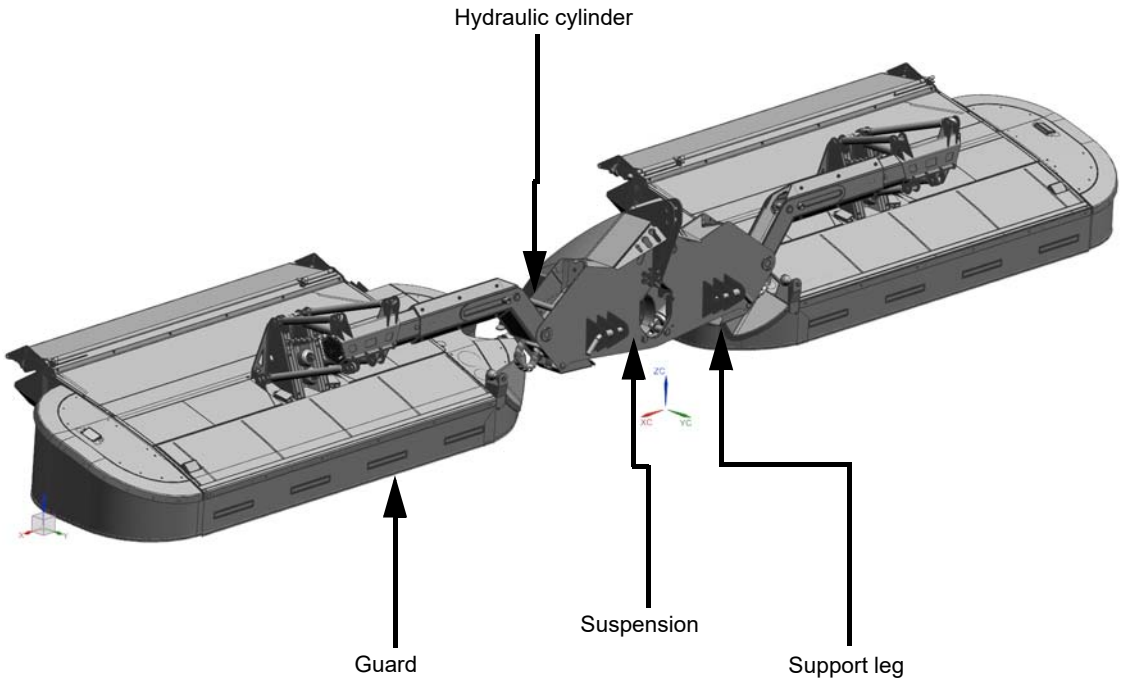
Characteristics

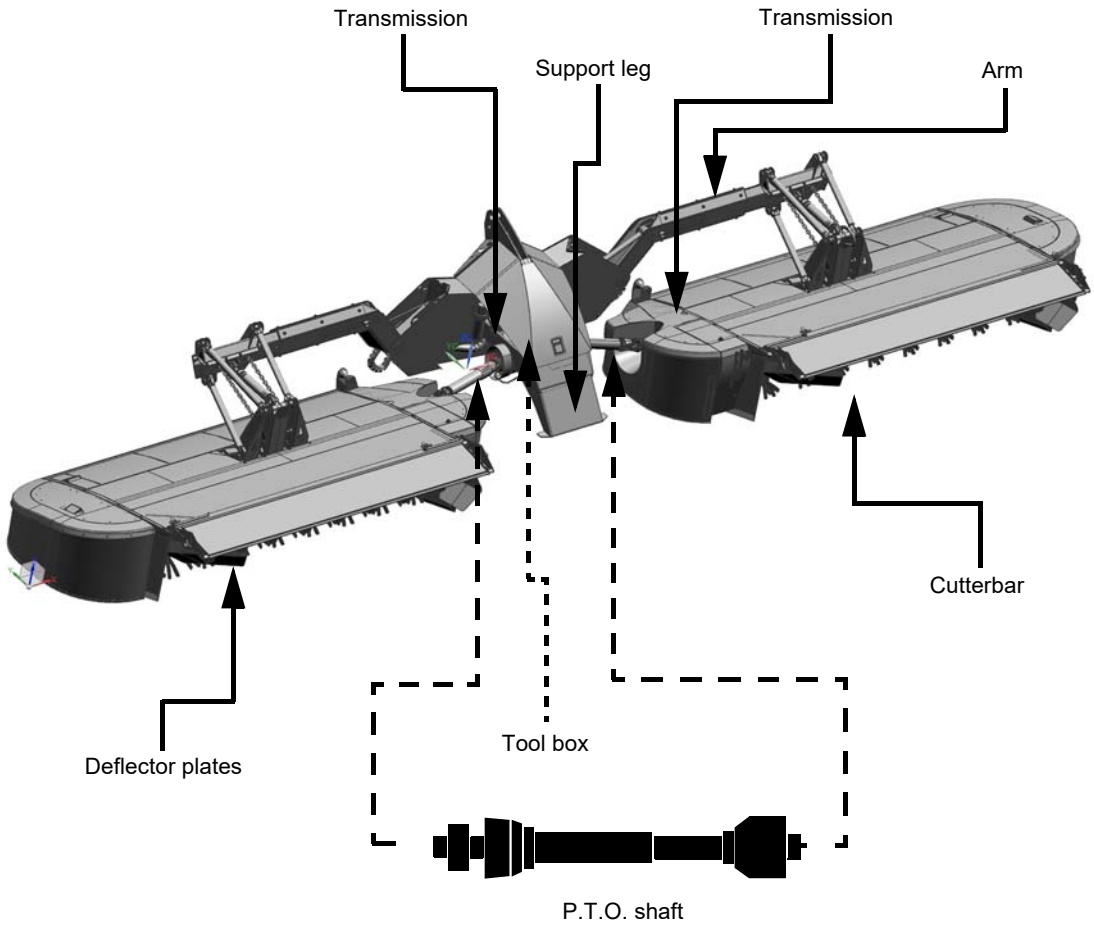
Description of the machine
63100 T/R is a swather that operates on both sides of the tractor and is connected to the tractor's lifter.
The machine's cutting unit is connected to powerful arms that can be lifted and lowered using the tractor's hydraulic system. On some models, the machine's arm can be shifted 400 mm and can thus be used together with a forward-mounted swather with different cutting widths.
Both of the machine's cutting units are hydraulically balanced using a strong hydraulic cylinder connected to the accumulators that ensure that the machine's cutter bar follows the ground precisely and cutting the crop uniformly.
The machine's cutting discs are equipped with durable, reversible knives, which have a high capacity when used at a high speed of rotation, even for difficult crops.
Even at high mowing speeds, the machine is able to mow the crop cleanly and uniformly. For safety reasons, it is recommended that the speed not exceed 9 mph (15 km/h).
The R model is fitted with powerful rollers that provide effective conditioning of the crop.
The T model is fitted with a powerful rotor that provides effective conditioning of the crop.
The cutting unit 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
A solid construction and flexible design, the machine is both strong and reliable.

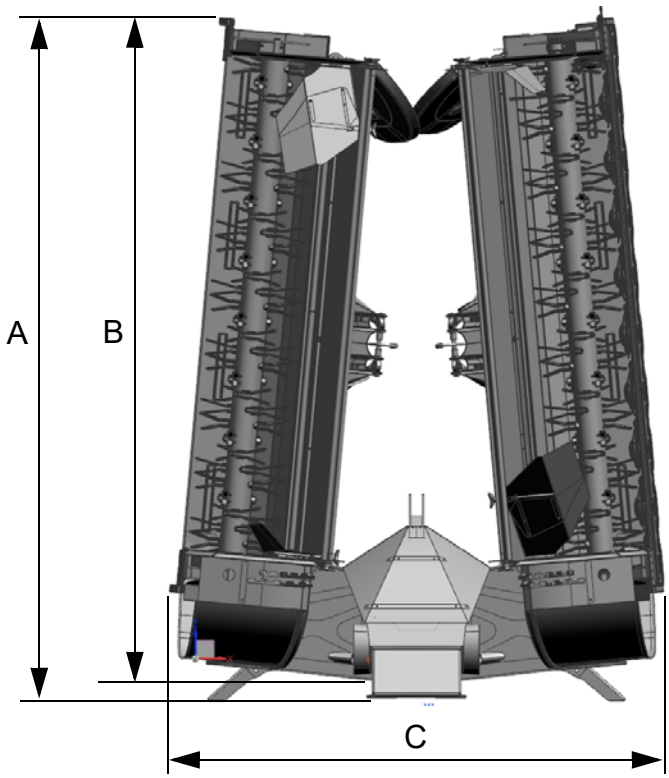
Your safety when using the machine
To make working with the machine as safe as possible the machine complies with EC regulations. The machine is CE labeled.

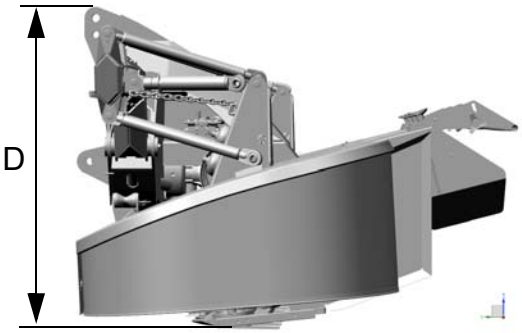
Synopsis

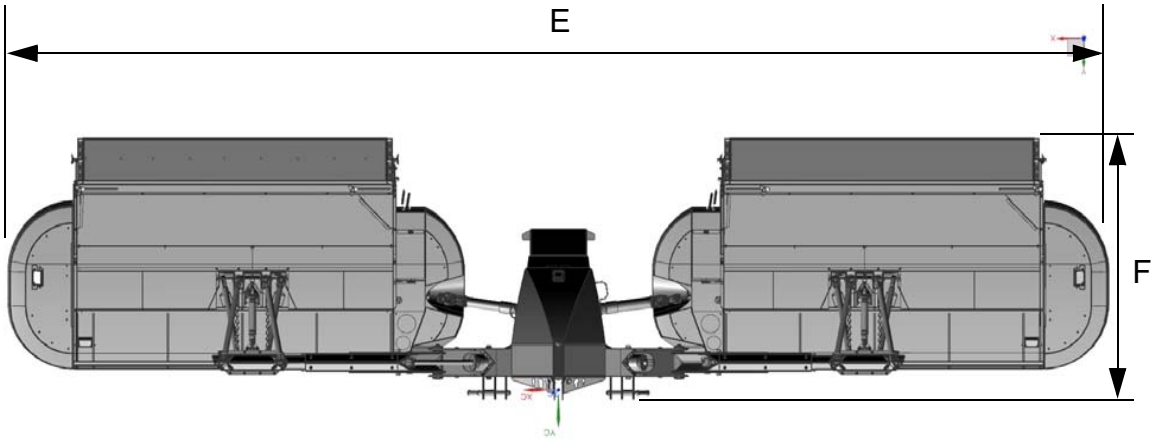

Hydraulic cylinder
Guard
Suspension
Support leg


Transmission
Support leg
Transmission
Arm
Cutterbar
Deflector plates
Tool box
P.T.O. shaft

Dimensions







Dim.	Unit	63100T 63100R
A	mm	3990
	inch	157
B	mm	3890
	inch	153
C	mm	2840
	inch	112
D	mm	1525
	inch	60
E	mm	10800
	inch	425
F	mm	2160
	inch	85

Specifications

	Unit	63100T	63100R
Unladen weight	kg	3064	3188
	lb	6756	7030
PTO (power take off)	RPM	1000	
Power requirement, minimum	kW	155[1]	
	HP	210[1]	
Number of cutting discs	parts	20	
Number of blades	parts	60	
RPM, cutting discs	RPM	3000	
RPM, rotors	RPM	550 / 1000	
Stubble height	mm	35 - 50	
	inch	1,4 - 2	
Cutting width	m	10,2*	
	inch	394	
Hydraulic pressure min. - max.	bar	180 - 220	
	PSI	2610 - 3190	
Noise level	dB(A)	85	
Cutting speed	km/h	6 - 15	
	mph	4 - 9	

[1] Front cutter included
* Also see section »Overlap« Page 57

Tractor requirements

WARNING

Tractor weight and size
The tractor must have a proper weight. Local legislation governing this ratio must be observed.
The correct ratio between tractor and machine ensures correct braking functions and maneuverability.
An incorrect ratio between tractor and machine can be dangerous.

→ »Hydraulic connection« Page 53
→ »Permissible total weight of the tractor« Page 36
→ »General« Page 125

Permissible total weight of the tractor

WARNING

Compliance with total weight, axle pressure, carrying capacity of the tires and minimum weight

Neither the tractor's total weight, axle pressure or the carrying capacity of the tires may be exceeded on front/mounted and rear-mounted machines.

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

Failure to do so can result in a loss of control and cause accidents.

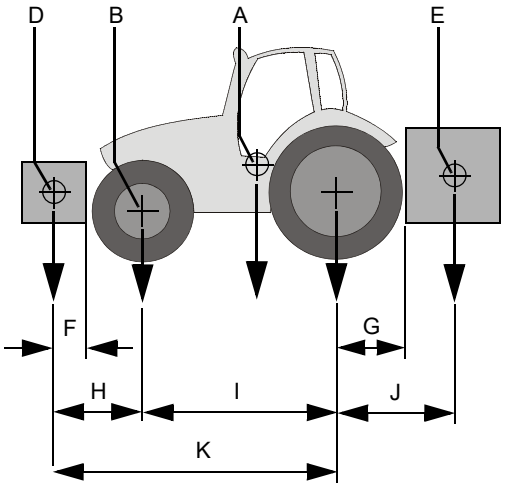
The maximum permissible unladen weight of the tractor including static axle and tire pressures must be checked before the machine is used.

When coupling machines to the tractor's lift, you must ensure that:

- The tractor's permissible total weight is not exceeded.
- The permissible loads on the front or rear axle are not exceeded.
- The permissible tire pressure is not exceeded.
- The permissible carrying capacity of the tires is not exceeded.
- The minimum load on the tractor's front axle must not be less than that stated by the tractor manufacturer.
- The minimum load on the tractor's rear axle must not be less than that stated by the tractor manufacturer.

Also take the weight of water in the tires, optional equipment etc., into account.

Before starting to use the machine, the tractor must be checked for compliance with the above conditions.



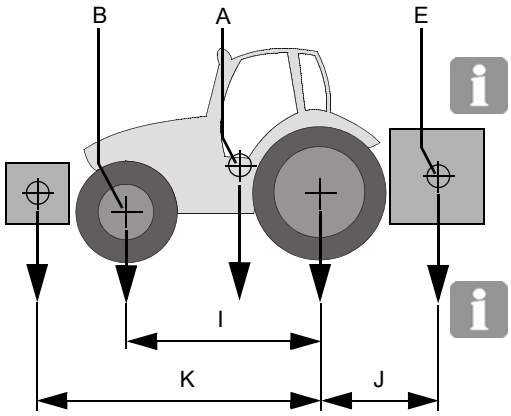
Most of the measurements and weight specifications in the diagram can be found in the tractor's instruction manual. If, however, this is not the case, you should contact the relevant tractor dealer to obtain the missing information.

	Specification	Unit
A	Tractor unladen weight (see instruction manual for the tractor)	kg / lb
B	Weight, front axle (see instruction manual for the tractor)	kg / lb
C	Weight, rear axle (see instruction manual for the tractor)	kg / lb
D	Unladen weight on front-mounted machine (see “Machine specifications”)	kg / lb
E	Unladen weight on rear-mounted machine (see “Machine specifications”)	kg / lb
F	Distance from lifting eyes to the center of the front-mounted machine	cm / inch
G	Distance from center of the rear axle to lifting eyes/hitch on tractor	cm / inch
H	Distance from center of the front axle to center of the front-mounted machine	cm / inch
I	Distance between front and rear axle	cm / inch
J	Distance from center of the rear axle to center of the rear-mounted machine	cm / inch
K	Distance from center of the rear axle to center of the front-mounted machine	cm / inch

Calculation

The values “A” to “K” can be inserted in formulae.

Front ballast for rear-mounted machine



Calculation of the front ballast for rear-mounted machine.

Front ballast [kg/lb]:

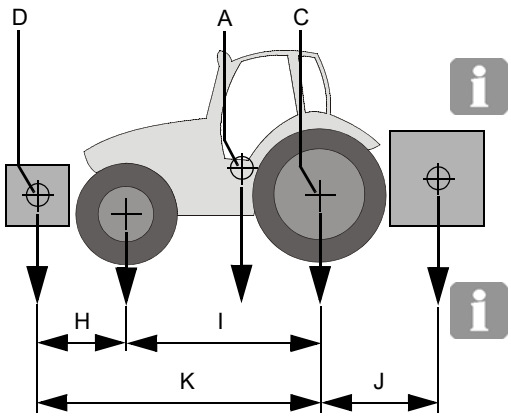
$$\frac{(E \times J) - (B \times I) + ((A \times 0,2) \times I)}{K}$$

It is recommended that the smallest permissible load [kg] on the tractor's front axle is at least 20% of the tractor's unladen weight [A]. Information can be found in the instruction manual for the tractor.

→ »Estimation« Page 40
→ »Carrying capacity of the tires« Page 40

The calculation is only a guide.

Rear ballast for front-mounted machine



Calculation of the rear ballast for front-mounted machine.

Rear ballast [kg/lb]:

$$\frac{(D \times H) - (C \times I) + ((A \times 0,45) \times I)}{I + J}$$

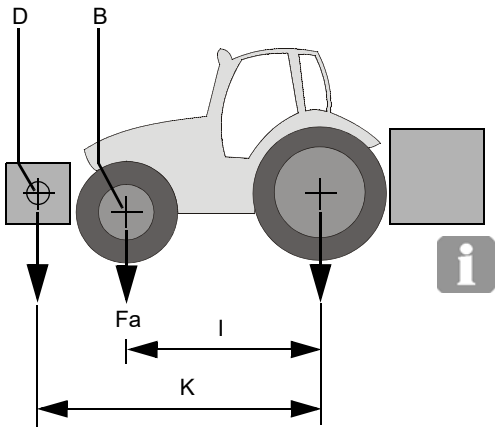
It is recommended that the smallest permissible load [kg] on the tractor's rear axle is at least 45% of the tractor's unladen weight [A]. Information can be found in the instruction manual for the tractor.

→ »Estimation« Page 40
→ »Carrying capacity of the tires« Page 40

The calculation is only a guide.

Load on the front axle

Calculation of the actual load on the front axle (Fa).



Actual load on the front axle (Fa) [kg/lb]:

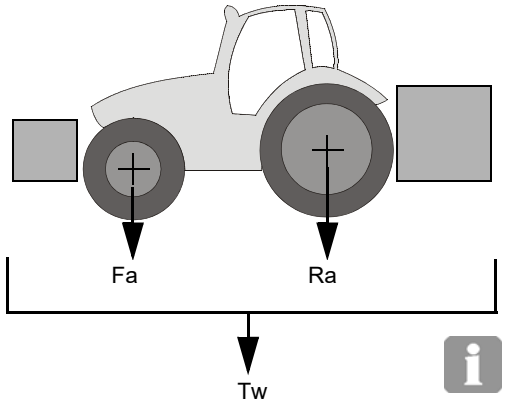
$$Fa = \frac{B + D \times K}{I} - \frac{D \times K}{I}$$

→ »Estimation« Page 40
→ »Carrying capacity of the tires« Page 40

The calculation is only a guide.

Load on the rear axle

Calculation of the actual load on the rear axle (Ra).



Actual load on the rear axle (Rwra) [kg/lb]:

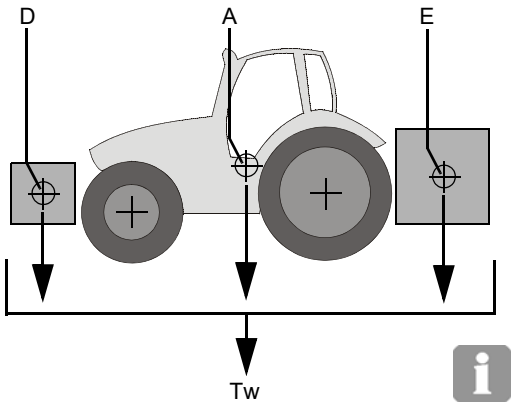
$$Ra = Tw - Fa$$

→ »Estimation« Page 40
→ »Carrying capacity of the tires« Page 40

The calculation is only a guide.

Total weight

Calculation of the vehicle total all-up weight (Tw).



Total all-up weight (Tw) [kg/lb]:

$$Tw = D + A + E$$

→ »Estimation« Page 40
→ »Carrying capacity of the tires« Page 40

The calculation is only a guide.

Carrying capacity of the tires

Information on the carrying capacity for front and rear tires respectively can be found in the tire manufacturer documentation.

- The carrying capacity for front tires gives the maximum permissible load for one front tire.
  - With a normal wheel configuration on the tractor's front axle (2 wheels in total), the maximum permissible carrying capacity of the tire is multiplied by 2.
  - If dual wheels are fitted on the tractor's front axle (4 wheels in total), the maximum permissible carrying capacity of the tire is multiplied by 4.

- The carrying capacity for rear tires gives the maximum permissible load for one rear tire.
  - With a normal wheel configuration on the tractor's rear axle (2 wheels in total), the maximum permissible carrying capacity of the tire is multiplied by 2.
  - If dual wheels are fitted on the tractor's rear axle (4 wheels in total), the maximum permissible carrying capacity of the tire is multiplied by 4.

Estimation

- The actual load [kg/lb] on both front and rear axle must not exceed the maximum permissible loads given in the instruction manual for the tractor.
- The tire carrying capacity [kg/lb] (front and rear) must be higher than the maximum permissible loads on the front and rear axle given in the instruction manual for the tractor.
- The actual total weight [kg/lb] must not exceed the maximum permissible total weight given in the instruction manual for the tractor.

If this requirement is not observed, machines must not be fitted to this tractor.

Preparing the machine

The machine is divided into its main components for transport to the user. The machine must be assembled in accordance with the specific assembly instructions delivered with each machine.

CAUTION

Do not attempt to assemble the machine alone
Personnel must be trained before assembling the machine. Do not carry out assembly work alone. The following must be observed to ensure that the machine is in good working order:

- Adhere to the sequence of the work steps.
- Adhere 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 any parts are missing or were damaged during transport, kindly contact the distributor, importer or manufacturer without delay.

Parts checklist	Number
P.T.O. shaft	3
Instruction manual	1
Spare parts book	1
Additional parts	See packing list

Instruction manual

The instruction manual is a part of the machine and must always be kept on or at the machine.

Length of PTO shaft

WARNING

Stop the tractor and secure it
Before uncoupling:

- Stop the tractor.
- Remove the ignition key.
- Secure the tractor to prevent it from rolling.

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

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

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.

Check the length of the PTO shaft

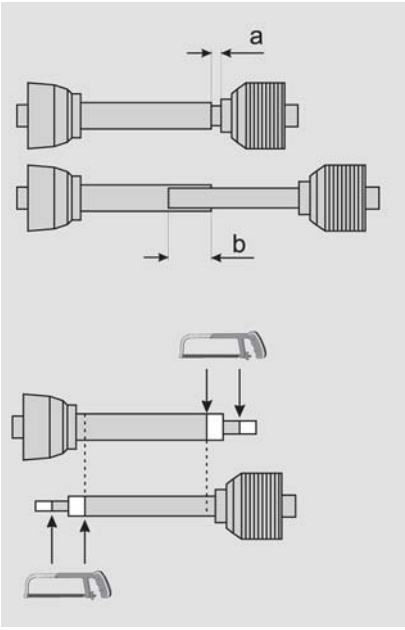
- Connect the machine to the tractor without the PTO shaft.
- Stop the tractor, remove the ignition key and secure the tractor to prevent it from rolling.

Refer to the manufacturer's user manual included with the P.T.O. shaft.

User manual for the P.T.O. shaft

The P.T.O. shaft comes with a user manual from the manufacturer. The user manual contains detailed information on the version of the P.T.O. shaft in question, maintenance and a description of how the length of the P.T.O. shaft can be adjusted to the tractor.
The description and information in the user handbook must be observed.

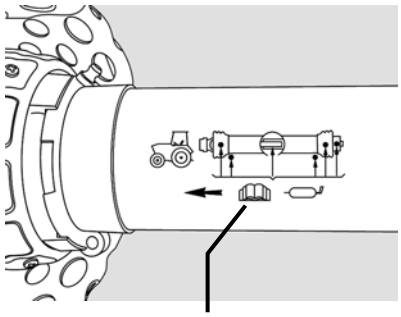
Shorten the PTO shaft



Refer to the manufacturer's user manual included with the P.T.O. shaft.
→ »User manual for the P.T.O. shaft« Page 42

a	Minimum 20 mm (0.8”)
b	Minimum 200 mm (8”)

Installing the PTO shaft



Marking of protective tubes

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

- Install the P.T.O. shaft between the tractor and the machine.
- Secure the PTO shaft with a locking pin and safety chain.

Crane lifting safety

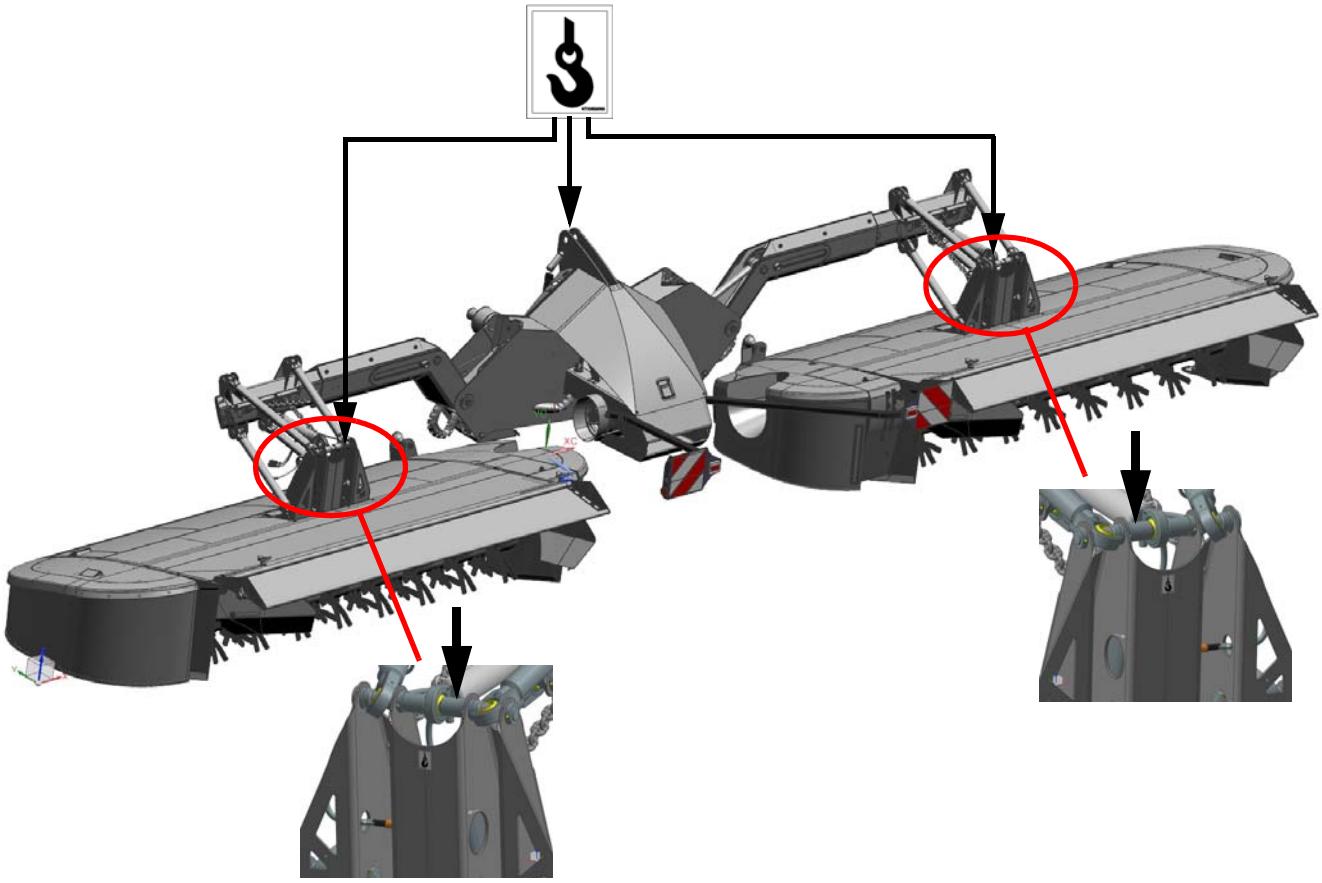
WARNING

Only use approved lifting devices
Only use approved lifting devices which is properly affixed to the machine.
This increases your personal security.
Failure to follow the safety instructions may result in serious injuries and accidents.

If you wish to move the machine, this can be done through the use of crane equipment. The machine is lifted in the following way:
The machine must be in working position as shown.

- 3 Install approved lifting devices/straps at the locations shown on the machine.
- Lift the machine carefully free from the ground and move it to the desired location.

Unladen weight of the machine:
→ »Specifications« Page 34



Attachment of the tractor

WARNING

Coupling a tractor and a machine together
When connecting the machine and the tractor there is an increased risk of personal injury.
Attention to the task will ensure your safety and that of others.
Failure to follow the safety instructions may result in serious injuries.

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

- Make sure that the tractor can not roll.
- Make sure that the tractor and the machine belong to the same category.
- Never stand between the tractor and the machine during attachment.
- Use the hydraulic three/point suspension slowly and carefully.

Attachment of the machine
When connecting the machine on the tractor there is an increased risk of personal injuries.
Attention to the task will ensure your safety and that of others.
Failure to follow the safety instructions may result in serious injuries.

When carrying out an attachment you must make sure that:

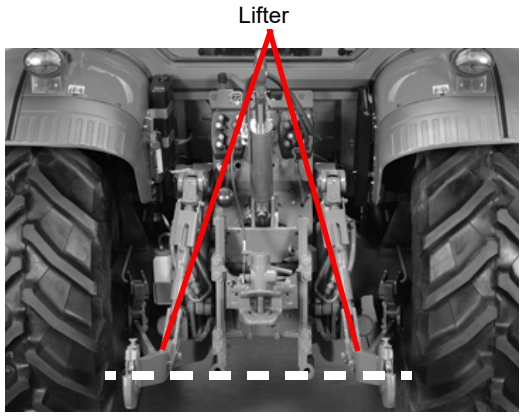
- The machine is placed on an even surface.
- The machine is secured with a sturdy support.

Lock the tractor's lift arms
Lock the tractor's lift arms at the correct height.
If the lift arms are at the correct height, it will prevent damage to the PTO shaft and injury to persons in the vicinity.
Lowering or raising the lift arms can lead to injury and can damage the PTO shaft.

Secure the attachment with the locking pin
The attachment must be secured to the machine with the locking pin.
The locking pin secures the machine against becoming detached from the tractor.
Attachment without the locking pin can result in the machine becoming detached, leading to serious or fatal injury.

Therefore, when connecting the machine you should be sure that:

- The machine can not become detached from the tractor.
- The coupling is secured with the locking pin.



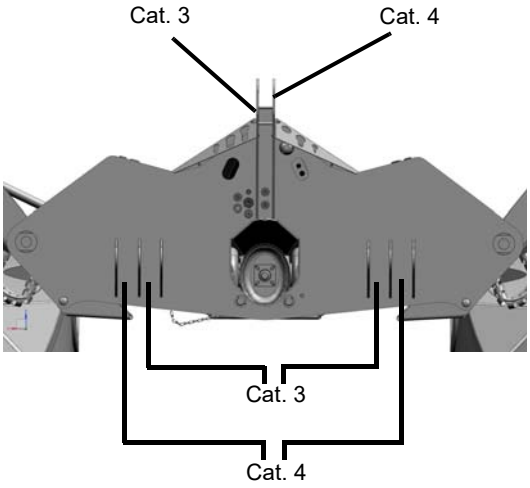
- Check to see that the tire pressure on the tractor's rear wheel is correct.

→ »Check the tire pressure regularly« Page 24
→ »Permissible total weight of the tractor« Page 36

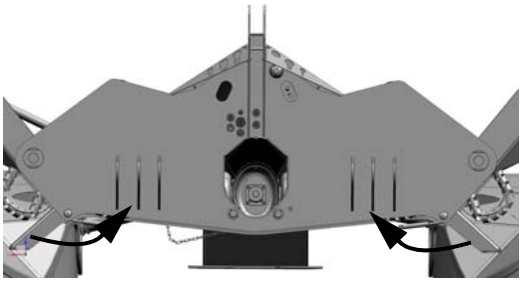
- As a starting point:
  - Adjust the right and left lift arm so they are at the same height.

If a pivoting drawbar is mounted on the tractor:

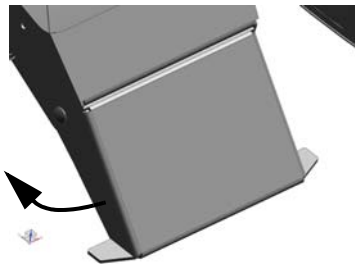
- Swing the drawbar out to the side or remove the drawbar.
- Raise or lower the tractor's lift arms until the machine's lifting pins can be attached to the tractor's lift arms.



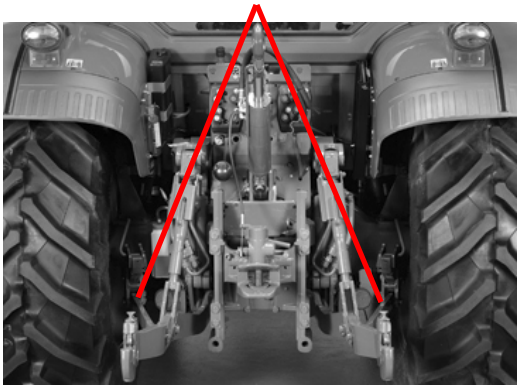
- The machine is equipped with connection points for both category 3 and 4.
- Install the machine on the tractor's lifting arms.
- Lift the machine's mounts up off the ground.
- Make sure that the tractor's lifting arms are at the same height.
- If not, lower the machine's mounts to the ground again and adjust the tractor's lifting arms.



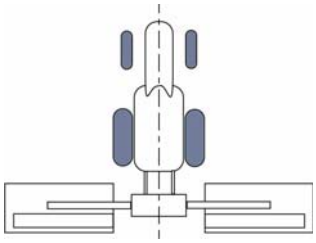
- Turn the support legs up as shown.



Stabilizers

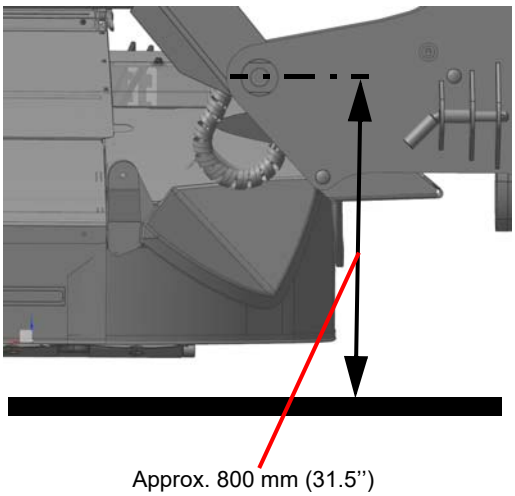


- Lift the machine well up off the ground.
- Tighten the tractor's stabilizer so that the machine is centered with the tractor.



Setting the mounting bracket

Working height on the machine



It is important that the machine's mounting bracket is at the correct height above the ground. The correct height is set as follows:

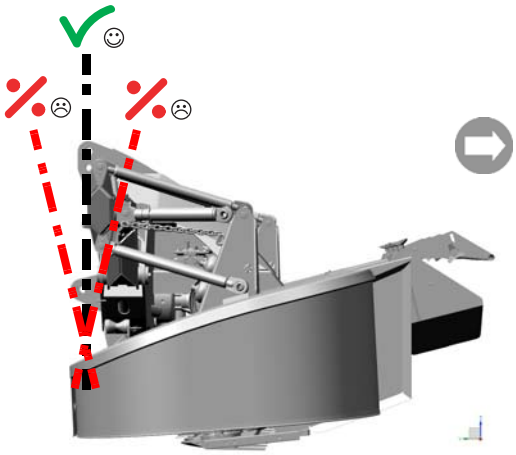
- Activate the tractor's hydraulics.
- Lift or lower the machine's mounting bracket until the specified height is shown.

- Lock and lift arms with a chain between the lifting arm and the highest point.

* Optional equipment.

→ »Optional equipment« Page 183

Angle of the machine



Henceforth, the machine's angle shall be checked. The settings are made as follows:

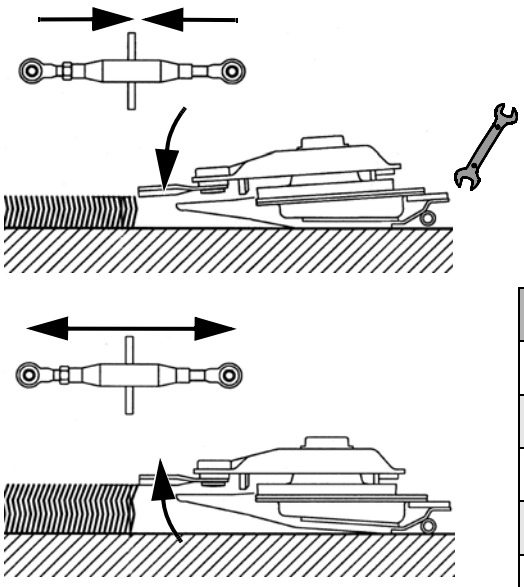
- Place the machine at the correct working height

→ »Working height on the machine« Page 48

Initially, the linkage shall be placed in an upright position.

- Adjust the upper bar so that the linkage is in the position shown.

Stubble height



The stubble height is set as follows:

- Lower the harvester to the ground.
- Set the stubble height by adjusting the upper bar.

- If the upper bar is made shorter, the stubble height is reduced
- If the upper bar is made shorter, the stubble height is increased.

The stubble height can be combined with the installation of high skids, which allows the stubble height to be adjusted as follows:

Stubble height	Note
20 - -45 mm (0.8 - 1.8")	No skids attached
35 - -65 mm (1.4 - 2.6")	20 mm (0.8") skids attached
45 - -80 mm (1.8 - 3.1")	40 mm (1.6") skids attached
65 - -105 mm (2.6 - 4.1")	60 mm (2.4") skids attached
85 - -130 mm (3.3 - 5.1")	80 mm (3.1") skids attached

* Optional equipment

→ »Optional equipment« Page 183

Lighting equipment

Connect the electrical

Check 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 accompanying cable to the tractor.

Lighting equipment

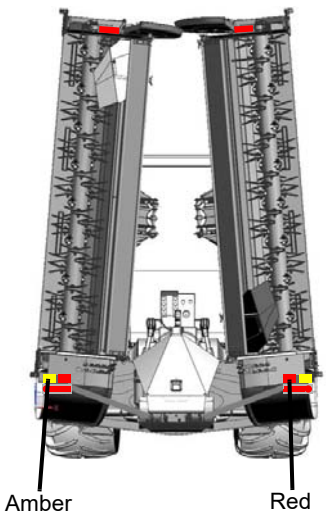
- Connect the plug for the 12 V power supply to the 7-pole plug socket on the tractor.

Lighting equipment - USA

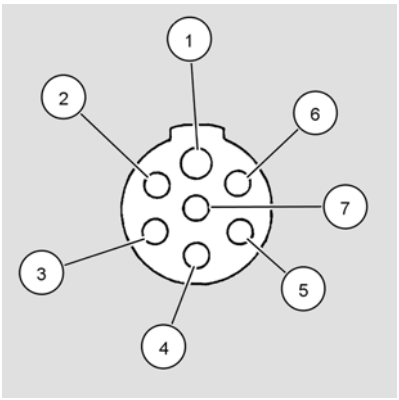
The machine is equipped with a light for road transportation. The lighting equipment is installed on the rear of the machine and is connected to the tractor using a 7-pole plug. The corresponding connection must be on the tractor (SAE J560).

If the tractor does not have the corresponding connection, this must be subsequently installed. Contact your dealer.

This lighting is controlled by the tractor. The lights are only lit if the tractor's parking lights are lit or the tractor's headlights are lit.



SAE J560 plug - overview



Pin	Cable	Connected to:
1	White	Ground, alt. light
2	Black	Not in use
3	Yellow	Left flasher (amber)
4	Red	Brake light
5	Green	Right flasher (amber)
6	Brown	Tail light (red)
7	Blue	Not in use

- Connect the plug for the 12 V power supply to the 7-pole plug socket on the tractor.

Comply with the local regulations for lighting and marking for road use. Contact your dealer if the lighting does not work as specified.

Hydraulics

Safety

⚠ WARNING

Only connect the hydraulics when the system is depressurized
You should only connect the hydraulic hoses to the tractor's hydraulics when the hydraulic system on both the tractor and the machine is depressurized.
There is a risk that the machine will move accidentally.
Unintentional movement of the machine may result in serious injuries.
→ »Attachment« Page 17

Avoid mixing oil
Avoid using different tractors for the same machine.
It can lead to various oil types being improbable mixed.
Improbable 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 visible damage.
Hydraulic hoses also wear without any visible damage.
Defective hydraulic hoses can cause injury or fire.
→ »Attachment« Page 17

Connecting hydraulics
When connecting the hydraulics there is an increased risk of personal injuries. Paying full attention to the aforementioned point ensures your safety and that of others.
Failure to follow the above instructions may result in serious injuries.
→ »Attachment« Page 17

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 result in injuries.

Hydraulic connection

WARNING

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

- Stop the tractor and remove the ignition key.

The machine may only be connected to the tractor with LS.
The tractor's hydraulic system is recommended to have a surface of 90 l/min.

LS hydraulics

No.	Connection
1	"LS" outlet on the tractor
2	"T" outlet on the tractor
3	"P" outlet on the tractor

Hydraulic cylinder

All excess air in the machine's hydraulic system must be removed when assembling and preparing the machine.

In any attempt to bleed the hydraulic system, always be sure to wear proper protection.
→ »Recommended work clothing« Page 9

Electrical connection

WARNING

Correct connection of the control system
The electronic system must be connected correctly:

- The power supply to the tractor shall be 12 volts.
- The power supply to the tractor must be set to the correct polarity.

Electrical power must be correctly connected
Connect the power correctly.
Correctly connected power prevents short circuits and damage to the electrical circuit.
Incorrectly connected power may result in short circuits and damage to the electrical circuit.

Drilling and welding on the tractor's safety frame
Drilling and welding on the tractor's safety frame is not recommended.
Drilling and welding on the tractor's safety frame may result in weakening the structure.
A weakening of the tractor's safety frame may result in the driver being insufficiently protected if the tractor should tip over.

* Optional equipment
→ »Optional equipment« Page 183

The bracket for the control shall be installed in the tractor driver's cabin.

A cable with a DIN prong can be purchased for the machine as an extra option.
Contact your dealer.

Electronic control system

3 electronic control systems are available:

ISOBUS (standard):
The tractor has its own ISOBUS connection and an ISOBUS terminal. The machine's control can be operated via the terminal.
→ »ISOBUS control« Page 63

Portus terminal / ISOBUS
The tractor's own terminal can be fitted with a Portus terminal*, which allows the machiner's functions to be operated with a joystick. The Portus terminal* is connected to the machine with a cable.
→ »Portus Terminal« Page 70

ISOMatch Grip
The tractor's own terminal can be fitted with an IsoMatch Grip*, which allows the machine's functions to be operated with a joystick. IsoMatch Grip* can be connected to the tractor's own integrated ISOBUS system.
* Optional equipment
→ »Optional equipment« Page 183.
For setting up and operating the IsoMatch Grip*, refer to the manufacturer's instruction manual.

Portus terminal for tractors without ISOBUS
Tractors without their own integrated ISOBUS system shall be connected to the Portus terminal* with a cable*.
Moreover, the machine must have a 12V supply with an extra cable* that connects to the tractor.
Contact your dealer.
* Optional equipment
→ »Optional equipment« Page 183.

Connection to the tractor's ISOBUS control

In the standard model where the connection is made to the tractor's internal ISOBUS terminal, the machine's cable is connected to the tractor's ISOBUS connection.

- Connect the ISOBUS cable from the machine's control box to the tractor's ISOBUS connection.
- Refer to the tractor manufacturer's operation manual.

Connection of the Portus terminal*

- Connect the Portus terminal's connection cable to the machine.
- Connect the 12V cable* to the tractor.

* Optional equipment
→ »Optional equipment« Page 183.

Initial startup of machine

WARNING

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.
Attention to the task will ensure your safety and that of others.
Failure to follow the safety instructions may result in serious injuries.

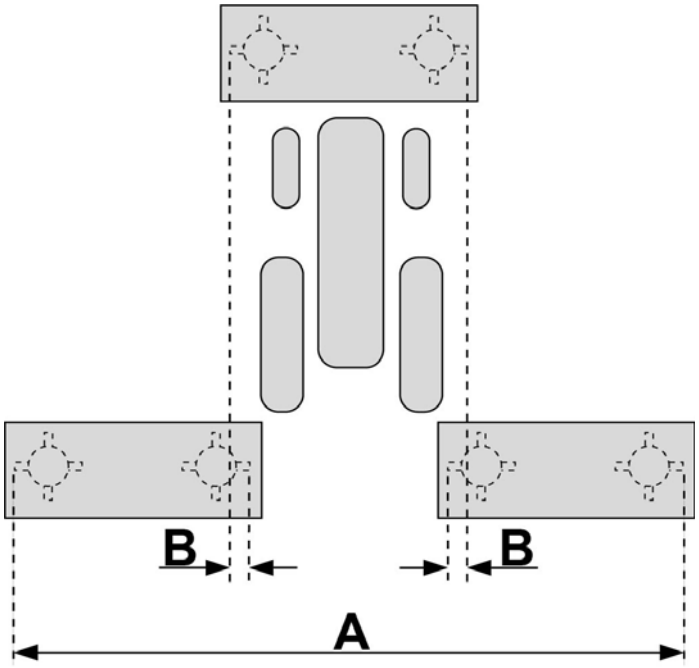
Do not remove the protective guards
Check that all protective guards are in place before use.
This ensures that the machine will offer maximum protection to the operator.
If the safety guards are removed or not used, it may result in serious injuries and accidents.

The side guards for the cutter must be correctly positioned before start up
The guards for the cutting unit must be folded down and correctly positioned before the machine is started.
This ensures that the machine will give maximum protection to the operator from thrown objects.
Thrown objects may cause serious injuries and accidents.

- Carefully connect the tractor's PTO shaft.
- Carefully increase the speed on the PTO shaft to 1000 RPM.
- Check that the machine runs smoothly without any vibrations.
- Reduce the PTO shaft to idle speed.
- Disconnect the tractor's PTO shaft.
- Check to see that the tractor's PTO socket has stopped rotating.

Overlap

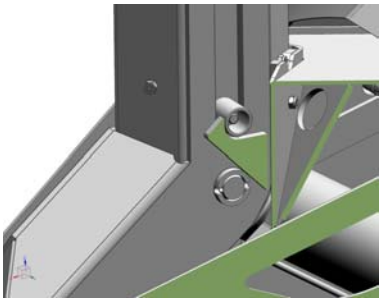
Upon the operation of a front-mounted machine, one can adjust the machine's overlap via the following table and thereby make optimal use of the total cutting width.

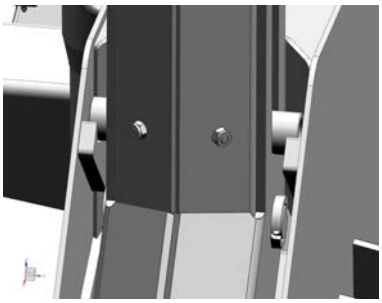


				Front unit		
				2.8 m 110”	**3.2 m 126”**	**3.6 m 142”**
Rear units	**2 x 3.6 - 2 x 142"**	A	cm	935-982	935-1020	935-1020
			“	368-387	368-402	368-402
		B	cm	23-0	40-0	55-15
			“	9-0	16-0	22-6

For a correct overlap, the front unit's width must be inputted:
→ »Options« Page 101
This applies to ISOBUS, IsoMatch Grip and Portus.

Machine in the transport position





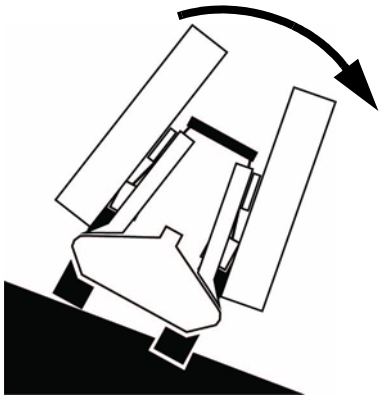
WARNING

Check the surrounding area before starting to use the machine
Before driving and using the machine the surrounding area should be checked and cleared.
This prevents persons and animals in the vicinity from being harmed.
If the surrounding area is not checked, it may result in serious injuries to persons or animals.

Disconnection of the P.T.O. shaft
The P.T.O outlet shall be interrupted when the machine is lifted into transport position.
The universal joints on the machine's PTO shafts are forced out over is maximum working angle.
Widespread damage may occur to the machine's main gear and the PTO shaft.

Arms and cutting units are secured with a mechanical lock
The machine's arms and cutting units are secured with mechanical locks in transport position.
Mechanical locks prevent the accidental falling of the cutters.
Accidental fall of the cutters can result in serious injuries and death.

Pay attention to the machine's total height during transport
The machine's total height must not exceed 4 meters (13' 1.5") during transport on public roads.
This ensures that the machine will fit under viaducts, overhead electrical wires and such.
Exceeding the total maximum height can result in serious damage to the machine and injury to the driver of the tractor.



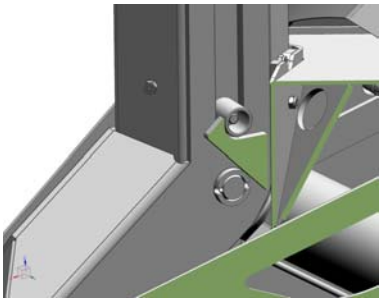
WARNING

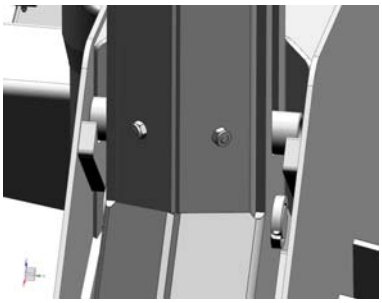
Risk of tractor tipping
Never drive on sharp curves with raised cutting units at a high speed on sloping and / or soft surfaces.
This places the tractor at risk of tipping.
This may result in serious injury and death.

→ »Tractor requirements« Page 35
→ »Permissible total weight of the tractor« Page 36

→ »Machine in the transport position« Page 75

Safety





⚠ WARNING

Check the surrounding area before starting to use the machine
Before driving and using the machine the surrounding area should be checked and cleared.
This prevents persons and animals in the vicinity from being harmed.
If the surrounding area is not checked, it may result in serious injuries to persons or animals.

Disconnection of the P.T.O. shaft
The P.T.O outlet shall be interrupted when the machine is lifted into transport position.
The universal joints on the machine's PTO shafts are forced out over is maximum working angle.
Widespread damage may occur to the machine's main gear and the PTO shaft.

Arms and cutting units are secured with a mechanical lock
The machine's arms and cutting units are secured with mechanical locks in transport position.
Mechanical locks prevent the accidental falling of the cutters.
Accidental fall of the cutters can result in serious injuries and death.

The operator should receive careful instructions before using the machine
The machine should only be used if the operator has been given thorough instructions.
Thorough machine instruction allows safe usage.
Insufficient training may lead to incorrect usage of the machine and accidents.

Read the safety instructions before using the machine
Before using the machine, the operator should read the safety instructions carefully.
→ »Safety« Page 9
Attention to the task will ensure your safety and that of others.
Failure to follow the instructions may result in serious injuries.

WARNING

The side guards for the cutter must be correctly positioned before start up
The guards for the cutting unit must be folded down and correctly positioned before the machine is started.
This ensures that the machine will give maximum protection to the operator from thrown objects.
Thrown objects may cause serious injuries and accidents.

Do not remove safety devices
Check that all safety devices are in place before use.
This ensures that the machine will offer maximum protection to the operator.
If the safety devices are removed or not used, it may result in serious injuries and accidents.

Pay attention to the machine's total height during transport
The machine's total height must not exceed 4 meters (13' 1.5") during transport on public roads.
This ensures that the machine will fit under viaducts, overhead electrical wires and such.
Exceeding the total maximum height can result in serious damage to the machine and injury to the driver of the tractor.

WARNING

The following instructions should be complied with:

- Check all points mentioned in the “maintenance” section.

→ »Specific safety information« Page 133
→ »Lubrication safety and use of oil« Page 133

- Check blades are not worn down. Blades can be turned.

→ »Blades« Page 139

General

CAUTION

Please note the manufacturer's authorization
Ask the manufacturer for the tractor's internal ISOBUS systems' approval. This may cause malfunctions and damage to the machine.

The ISOBUS control system is connected to the tractor's own integrated system. The virtual ISOBUS terminal monitors and controls the machine in all operating modes.

Do the following:

- Connect the ISOBUS control.

→ See »Connection to the tractor's ISOBUS control« page 55.

The electronic control system monitors and controls the machine. Moreover, the system has a function for displaying error messages. In order to open the correct function on the control, the machine must be connected to the tractor's hydraulic system.

IsoMatch Grip*

- Connection of IsoMatch Grip.

→ »Electronic control system« Page 55

Portus Terminal*

- Connection of the Portus terminal.

→ See »Electrical connection« page 54.
→ »Electronic control system« Page 55

* Optional equipment
→ »Optional equipment« Page 183

Electrical control system

CAUTION

Protect electronic components from moisture
The electric control system and the electrical plug connections must be protected from moisture and from the intrusion of water.
Moisture in electrical devices can result in leaked currents and subsequent malfunctions.

Please note the manufacturer's authorization
Ask the manufacturer for the tractor's internal ISOBUS systems' approval. This may cause malfunctions and damage to the machine.

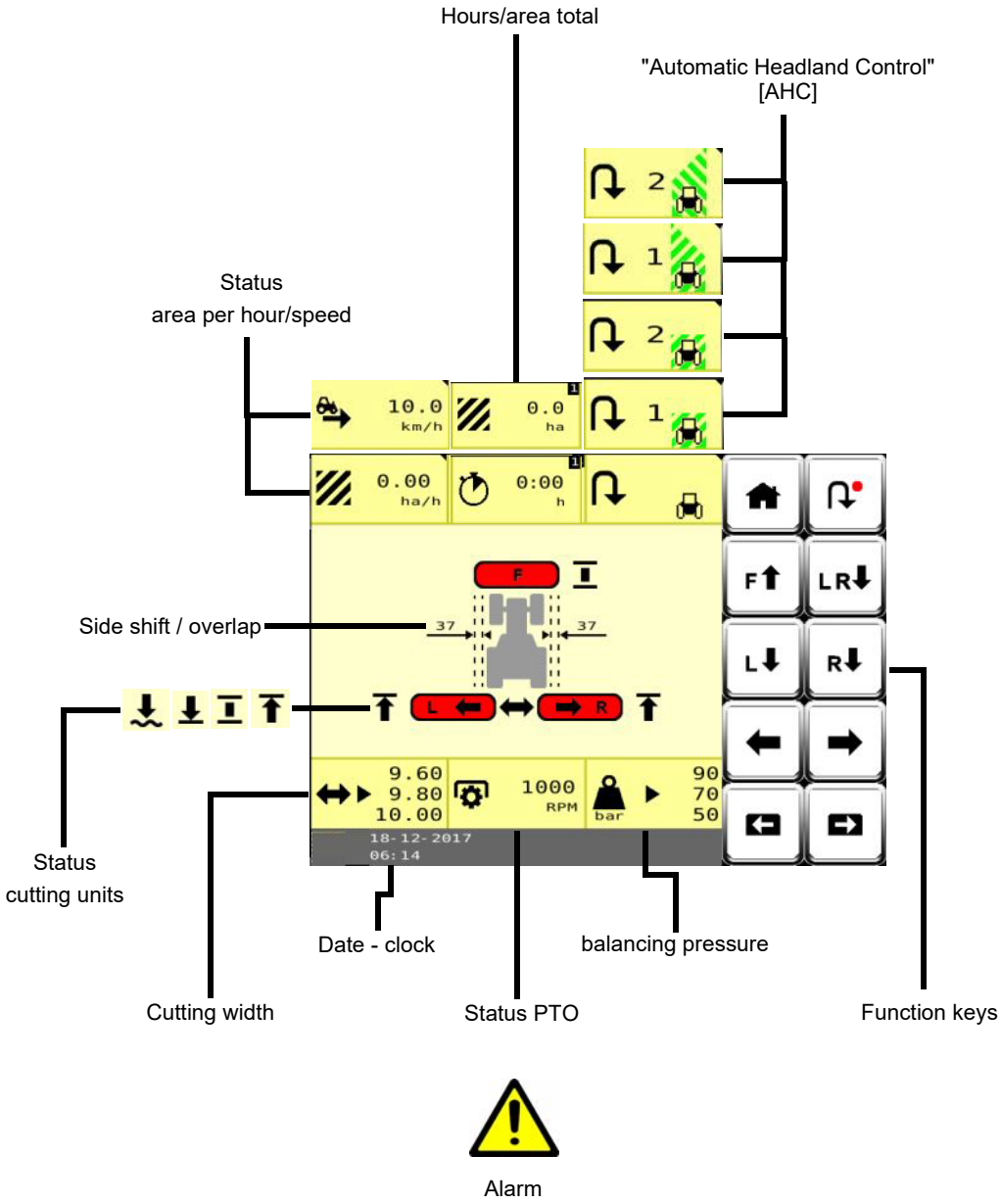
Terminal

It is possible to control all of the machine's functions via the tractor's own screen.

→ See »ISOBUS control« page 63

ISOBUS control

→ »Status symbol on the screen« Page 65
→ »Function key on screen« Page 66



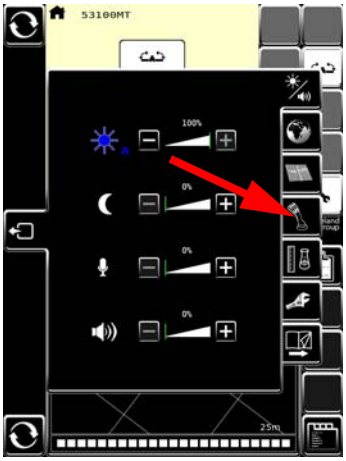
ISOMatch Grip

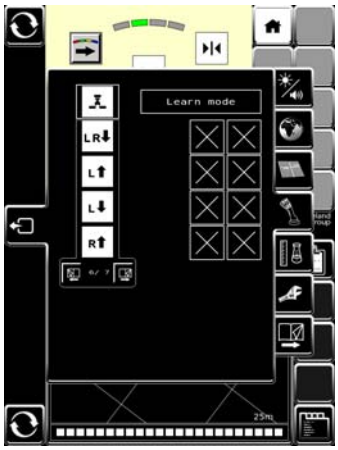
Available only as an option

* Optional equipment
→ »Optional equipment« Page 183

- Connect IsoMatch Grip to the tractor's own ISOBUS system.

- Press the key.





- Press the key.

- For setting up and operating the IsoMatch Grip*, refer to the manufacturer's instruction manual.

Status symbol on the screen

Status symbol	Function	Status symbol	Function
	• Current average area per hour		• Area (Trip function)* *Reset the function by pressing and holding the icon for 3 sec.
	• Current speed		• Hour counter (Trip function)* *Reset the function by pressing and holding the icon for 3 sec.
	• "AHC" deactivated		• Alarm when raising/lowering cutting units to transport and working positions
	• "AHC 1" → »Operation [AHC]« Page 86		• "AHC 2" → »Operation [AHC]« Page 86
	• "AHC 1" → »Operation [AHC]« Page 86		• "AHC 2" → »Operation [AHC]« Page 86
	• Cutting unit raised for turning on headlands		• Cutting unit lowered into working position - P.T.O. disconnected
	• Cutting unit lowered into working position - P.T.O. connected Active balancing for rear units floating position for front-mounted unit		• Cutting unit in locked position.

Function key on screen

See also
→ »Operation« page 59

Function key	Function	Function key	Function
	• Front cutter up		• Front cutter down
	• Rear cutter up		• Rear cutter down
	• Left cutter up		• Right cutter up
	• Left cutter down		• Right cutter down
	• Side shift, left • Back to starting page		• Side shift, right
	• Home		• Side shift, centering
	• Programming of "Automatic Headland Control" [AHC^2]		
	• Activation of "Automatic Headland Control" [AHC^2] - lowering sequence		• Activation of "Automatic Headland Control" [AHC^2] - raising sequence
	• Reduction of cutting width		• Increase of cutting width
	• Increase of balance pressure		• Reduction of balance pressure
	• Previous page		• Next page
	• Menu for machine in working position		• Menu for machine in transport position
	• Front harvesting unit up / down[3]		• Rear harvesting unit up / down[3]
	• Left harvesting unit up / down[3]		• Right harvesting unit up / down[3]
	• Menu for user settings		• Reset to factory settings
	• Scroll down		• Scroll up

Function key	Function	Function key	Function
	• OK		• Emergency operation → »Override« Page 106
	• Front cutter unit up (Transport)		• Front cutter unit down (Transport)
	• Activation of automatic raising / lowering of front harvesting unit[4]		• Deactivation of automatic raising / lowering of front harvesting unit[4]
	• All cutting units up (Transport)		• All cutting units down (Transport)
	• Menu for operation of side guard[1]		
	• Side guards up[1]		• Side guards down[1]
	• Reduction of the stubble height (only possible with hydraulic upper bar[1])		• Increase of stubble height (only possible with hydraulic upper bar[1])
	• Creating a job		• Deletion of job

[1] »Optional equipment« Page 183.

[2] Automatic turning on headlands.

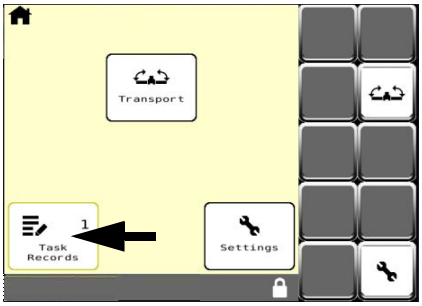
[3] Only IsoMatch Grip.
→ »ISOMatch Grip« Page 64

[4] Only possible in the transport menu.

Also see:
→ »ISOBUS control« Page 87
→ »Operation [AHC]« Page 86
→ »Service menu« Page 99

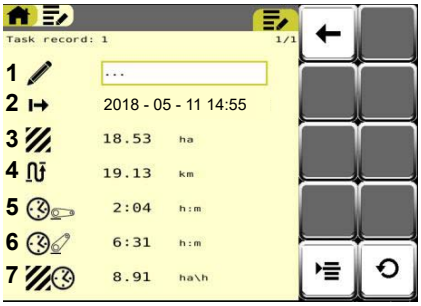
"Task Records"

"Task Records" is a function allowing you to store up to 20 jobs for use in, e.g., accounting or bookkeeping.

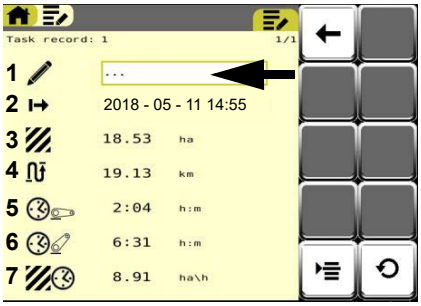


- Press the key.

Creating a job



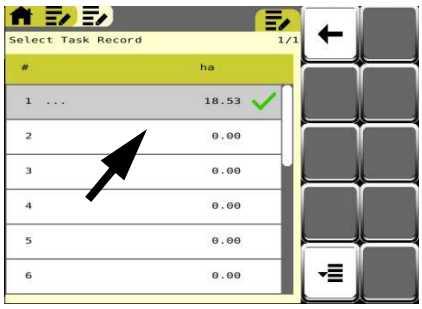
The page contains the following information:
1. Name of job.
2. Year, Month, Day and Time when the job started.
3. The total area of the job in question.
4. Total number of kilometers driven in the job in question.
5. Total effective working time (at least one cutter unit in operation) in the job in question in hours/minutes.
6. Total idling time (all cutter units raised for turning on headlands) in the job in question in hours/minutes.
7. The average area per hour for the job in question.



- Press the field.
- Enter the name of job.
- Press "OK"

The job is created and work can begin.

Wish to delete a job.
→ »Deletion of job« Page 69



- Press the key.

here you will see a list of all the job. A maximum of 20 jobs can be stored.

- Press the field.

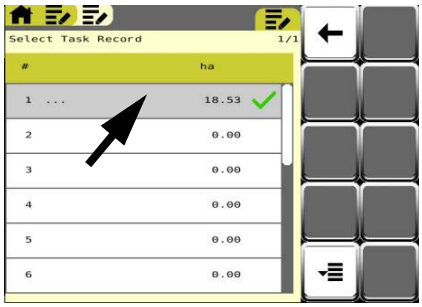
- Press the key.

A new job can now be created.
→ »Creating a job« Page 68

It is possible to scroll through the list by pressing the keys indicated.

Deletion of job

All the jobs in the list can only be deleted individually:



- Press the field you wish to delete.

- Press and hold the key.

Hold the key until the graphics in the display indicate that the job is complete.

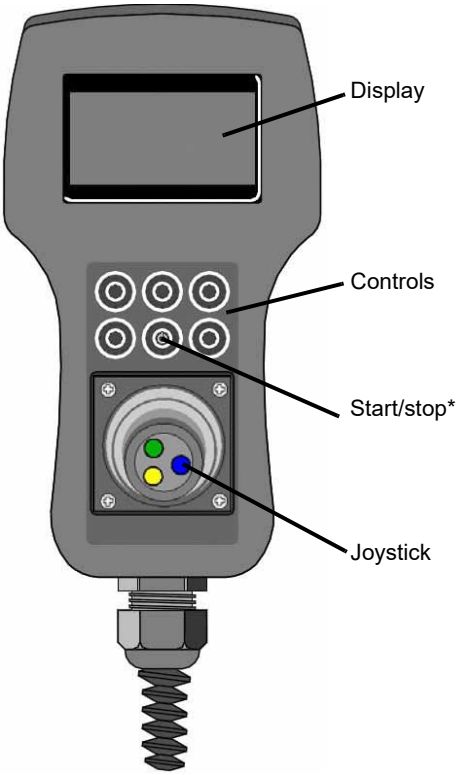
Portus Terminal

Only for tractors without ISOBUS

Available only as an option

→ »Optional equipment« Page 183

- Connect the Portus terminal to the control system.
- Connect the machine's hydraulic system to the tractor's LS system.
- Start the tractor.
- Press and hold the start/stop button for approximately 4 seconds and the Portus terminal starts.



The Portus terminal consists of the following:

- Display
- Operating buttons (6 pcs).
- Joystick + operating buttons (3 pcs).

Display
The menu is divided into 4 sections:

- 1 Main menu
- 3 Control menus

The display is divided into 6 fields, whose symbols show which parts of the machine can be controlled.
Only fields whose symbols are visible can be activated by the machine's control system. An empty field means that is it not possible to issue commands.

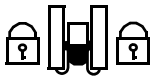
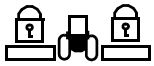
Controls
There are 6 control buttons available and they correspond to the 6 fields in the display, e.g.,

- Upper left control button = upper left field in the display.
- The lower operating button in the middle = corresponds to the lower field in the middle of the display.
- Lower right control button = lower right field in the display.

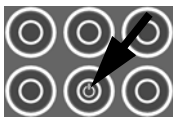
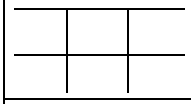
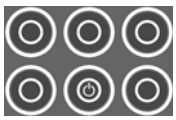
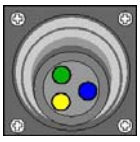
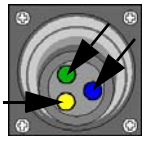
Joystick
The unit is equipped with a joystick on which there are 3 pushbuttons at the end. The pushbutton is used in connection with the operation and programming of the Portus terminal.

→ »Status symbol on the screen« Page 71
→ »Function key on screen« Page 72

Status symbol on the screen

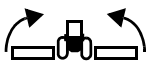
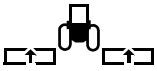
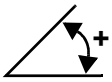
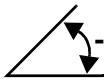
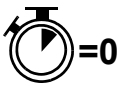
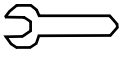
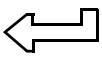
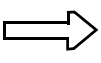
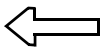
Status symbol	
	• Transport position - steering locked
	• Transport position - steering unlocked
	• Working position - steering locked
	• Menu for extra equipment
 0000	• Hour counter, total
 00:00	• Hour counter, trip function - can be reset

The following table provides a brief overview of the functions.

Display	Joystick / Key	Function	
		Start/stop	Press to start the Portus terminal Press and hold for approximately 4 seconds to close the Portus terminal The Portus terminal can only be switched off when the start/ stop icon is shown in the display.
			Press the corresponding button for the desired command in the display
			Joystick Joystick operates in 4 directions: up, down, right, left, and it has several functions.
			The joystick is equipped with three buttons at the top of the grip. Green: Operation of the front cutter unit Blue: Confirm (enter) in connection with programming Yellow: Operation of the front cutter unit

Function key on screen

Also see:
→ »Operation« Page 59

Key	Function	Key	Function
	• Rear cutter unit in working position		• Rear cutter unit up in transport position • Menu for folding for transport
	• Menu for operating the cutter units in working position		• Menu for operation of side guard* • Menu for operation of hydraulic top bar*
	• Cutters up		• Cutters down
	• Side guard up*		• Side guard down*
	• Front cutter down		• Front cutter up
	• Activation of automatic raising / lowering of front cutter unit****		• Deactivation of automatic raising / lowering of front cutter unit****
	• Reduction of the stubble height (only possible with hydraulic upper bar*)		• Increase of stubble height (only possible with hydraulic upper bar*)
AHC1	• Activation of "Automatic Headland Control" [AHC**] - setting 1	AHC2	• Activation of "Automatic Headland Control" [AHC**] - setting 2
BAR+	• Increase of balance pressure	BAR-	• Reduction of balance pressure
	• Resetting of trip meter		• Side shift, centering
	• Back to user menu		• Access to service menu
	• Access to Configuration Menu***		• Settings
	• Back to starting page		• Next page
	• Manual steering/control		• Previous page

Key	Function	Key	Function
	• Start/stop		• Joystick info • Function test of joystick
	• Diagnostic input		• Diagnostic information
	• contrast, display		•
	• Increase of contrast on display		• Decrease of contrast on display

* »Optional equipment« Page 183.

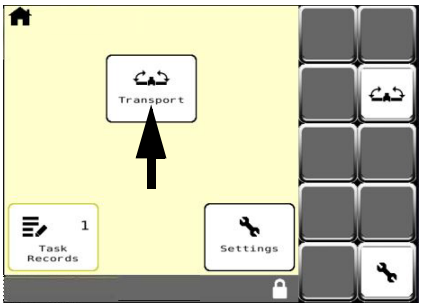
** Automatic turning on headlands.

*** Only for service staff.

**** Only possible in transport mode.

Machine in Working Mode

ISOBUS control



- Press the key.

- Press and hold the key throughout the entire sequence.
- Both rear cutter units are lowered to working position.

A warning will blink and indicate that both rear cutter units are lowered into position where they are raised for turning on headlands.

→ »Operation [AHC]« Page 86.

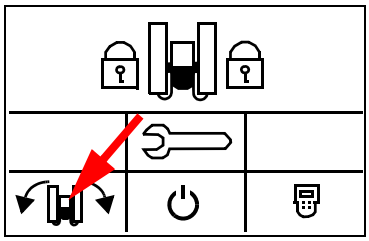
IsoMatch Grip*

→ * »Optional equipment« Page 183
→ »ISOMatch Grip« Page 64

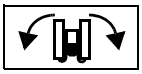
Portus terminal*

→ * »Optional equipment« Page 183

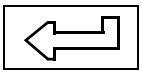
Only for tractors without ISOBUS



- Press the button.



- Press and hold the key.
- All cutters are lowered into position where they are raised for turning on the headland.



- Press the button.
- Menu back to start page.

When the sequence is complete, the terminal emits a sound.

- Make sure that all the machine's guards are closed and in position.
- Carefully connect the tractor's PTO shaft.
- Carefully increase the speed of the PTO shaft to 1000 rpm.

Machine in the transport position

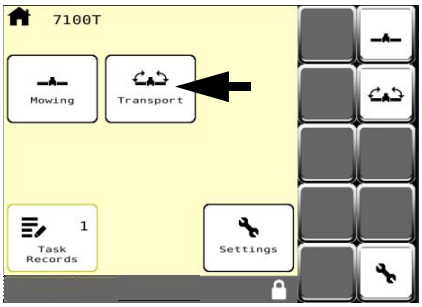
ISOBUS Control

The machine is placed in its transport mode in the following way:

- Check that the tractor's P.T.O shaft is disengaged and that the machine has stopped rotating.

In order to reduce the maximum height of the machine during transport, the machine's side guards should be open.

Machines with hydraulic side guards* attached: the side guards open automatically during folding into transport position.
→ * »Optional equipment« Page 183



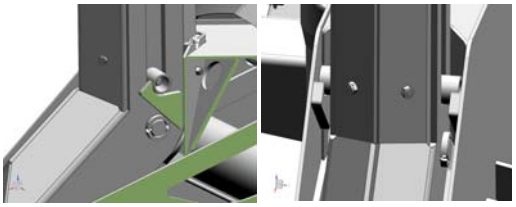
- Press the key.

If the P.T.O. shaft is running simultaneously as the machine is being put into transport position, an alarm will sound.

- Press the key.
- Disconnect the P.T.O. shaft.

- Press and hold the key throughout the entire sequence.
- When the sequence is complete, the terminal emits a sound.

When the rear cutter is in a vertical position, both arms will be placed into the smallest configuration and thereby be lowered to the lowest possible transport height.
The cutter units will be automatically secured with a mechanical lock in transport position.



- Do a visual inspection and make sure that the cutter units are secured in transport position.

→ »Arms and cutting units are secured with a mechanical lock« Page 59
→ »Transport on public roads« Page 125

If the tractor's lifting arms are equipped with shock-absorbing dampers, they should be used during transport; see the tractor's Instruction manual.

Machine in Working Position:
→ »Machine in Working Mode« Page 74

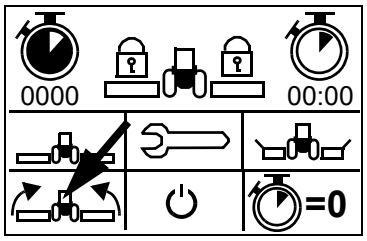
IsoMatch Grip*

→ * »Optional equipment« Page 183
→ »ISOMatch Grip« Page 64

Portus terminal*

→ * »Optional equipment« Page 183

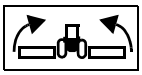
Only for tractors without ISOBUS



- Press the key.
- Press and hold the key throughout the entire sequence.
- The Portus terminal gives off a sound and a warning signal is shown on the display before all cutters are raised into transport position.

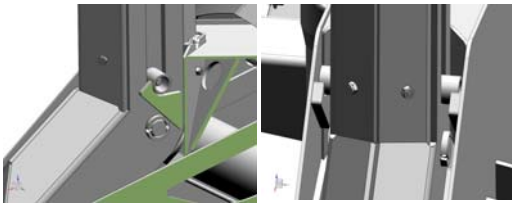
If the P.T.O. shaft is running simultaneously as the machine is being put into transport position, an alarm will sound.

- Disconnect the P.T.O. shaft and wait until it has stopped rotating.



- Press and hold the key throughout the entire sequence.
- When the sequence is complete, the terminal emits a sound.

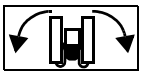
When the rear cutter is in a vertical position, both arms will be placed into the smallest configuration and thereby be lowered to the lowest possible transport height.
The cutter units will be automatically secured with a mechanical lock in transport position.



- Do a visual inspection and make sure that the cutter units are secured in transport position.

→ »Arms and cutting units are secured with a mechanical lock« Page 59
→ »Transport on public roads« Page 125

Once the machine is in transport position, the front-mounted unit can be operated separately.



- Press the button.


By pressing one of the two buttons shown, it is possible to raise/lower the front-mounted unit separately.

The yellow and the green buttons on the top of the joystick can also be used to raise/lower the front-mounted unit separately.

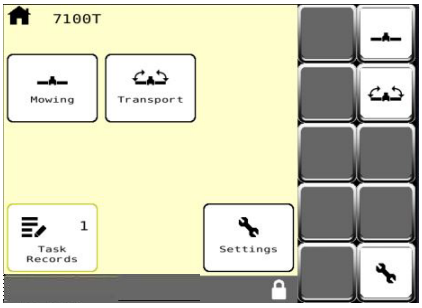
If the tractor's lifting arms are equipped with shock-absorbing dampers, they should be used during transport; see the tractor's Instruction manual.

Machine in Working Position:
→ »Machine in Working Mode« Page 74

Balancing pressure

ISOBUS control

Applies only to the rear cutters



Setting the balancing pressure is done in the following way:

- Press the key.

- Press the key twice.

- Press the key.

The cutter's ground contact pressure can be adjusted in 3 steps:

- Low
- Medium
- High

- By pressing "+", the pressure in the hydraulic system increases (high balance pressure).
- By pressing "-", the pressure in the hydraulic system decreases (low balancing pressure).

If you wish to adjust balancing pressure to your own preferences, do the following:

- Press the key until the arrow indicates the desired step that you wish to change.
- Press and hold the key.

- By holding "+", the number blinks in the display and increases.
- By holding "-", the number blinks in the display and decreases.

The values for the balancing pressure can be a minimum of 50 and maximum of 100.

Balancing pressure can only be adjusted when the machine is running (P.T.O connected).

IsoMatch Grip*

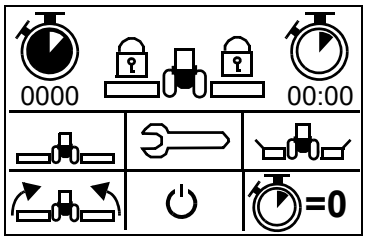
→ * »Optional equipment« Page 183
→ »ISOMatch Grip« Page 64

Portus terminal*

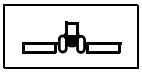
→ * »Optional equipment« Page 183

Only for tractors without ISOBUS

Applies only to the rear cutters



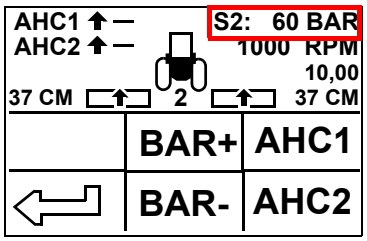
Setting the balancing pressure is done in the following way:



- Press the button.

- Press the button.
- "BAR+" reduces the machines pressure against the ground in three steps.

- "BAR+" increases the machines pressure against the ground in three steps.



The setting of the balancing pressure can be done seamlessly.

- Press the button to select setting 1, 2 or 3.
- "BAR+" changes the setting by steps between "1" and "3"
- "BAR-" changes the setting by steps between "3" and "1"

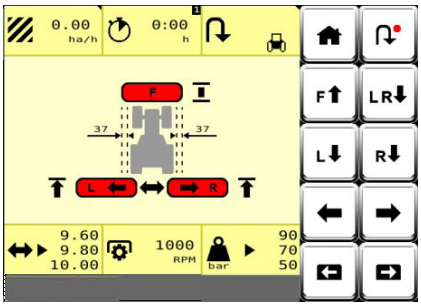
- Press and hold the key.
- The pressure now increases continuously until the desired pressure is reached.
  - "BAR+" reduces the machines pressure against the ground.
  - "BAR-" increases the machine's pressure against the ground.

- Press and hold the key.
- The pressure now decreases continuously until the desired pressure is reached.
  - "BAR+" reduces the machines pressure against the ground.
  - "BAR-" increases the machine's pressure against the ground.

Balancing pressure can only be adjusted when the machine is running (P.T.O connected).

Changing the cutting width

ISOBUS Control



Both the machine's rear cutters can be moved up to 400 mm (15.7") in relation to the tractor by using the tractor's hydraulic system.
This offers an optimal use of the machine's overlap between the front and rear cutters, and thereby an optimal use of the total cutting width.
The machine's cutting width can be increased/decreased seamlessly and be lowered in three different settings.
the display continuously shows the machine's cutting width and overlap between the front and rear cutters.

to switch between the 3 settings, do the following:

▸ Press the key.

▸ Press the key.

The cutter's cutting width/overlap can be adjusted in 3 settings

- Pressing the key shown increases the cutter width (overlap is reduced).

- Pressing the key shown decreases the cutter width (overlap is decreased).

If you wish to adjust cutter width/overlap to your own preferences, do the following:

▸ Press the key until the arrow indicates the desired setting that you wish to change.

▸ Press and hold the key.

- By pressing and holding the shown key, the cutter width is increased (overlap is reduced) 1 cm at a time.

- By pressing and holding the shown key, the cutter width is decreased (overlap is increased) 1 cm at a time.

When the key is released, the new working width is stored in the selected setting.

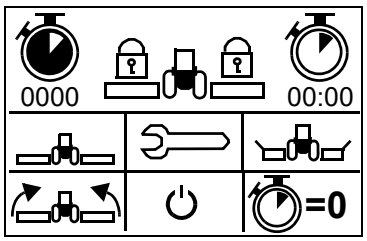
IsoMatch Grip*

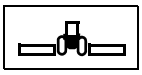
→ * »Optional equipment« Page 183
→ »ISOMatch Grip« Page 64

Portus Terminal*

→ * »Optional equipment« Page 183

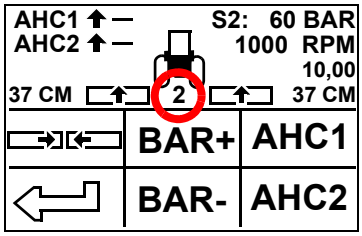
Only for tractors without ISOBUS





How to change the cutting width:

- Press the button.



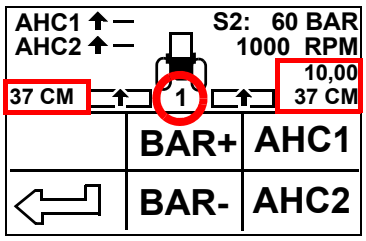
The machine's cutting width can be increased/decreased seamlessly and be lowered in three different settings

to switch between the 3 settings, do the following:

- Press and hold the blue button on the joystick.
- Joystick up and release.
  - Cutting width increases
- Press and hold the blue button on the joystick.
- Joystick down and release.
  - Cutting width decreases.

The cutter width is set as follows:

- Press and hold the blue button on the joystick.
- Joystick up/down until you reach the desired setting ("1", "2" or "3").
- Release joystick.



- Press and hold the blue button on the joystick.
- Joystick up and hold.
- The cutter width increases until the desired with is reached.
- Release joystick.

Reduction of the cutter width is done as follows:

- Joystick down and hold.
- The cutter width decreases until the desired with is reached.
- Release joystick.
- "10.00": Total cutter width is 10m (394")
- "37 cm": Overlap between the front and rear cutter is 37 cm (14.5")

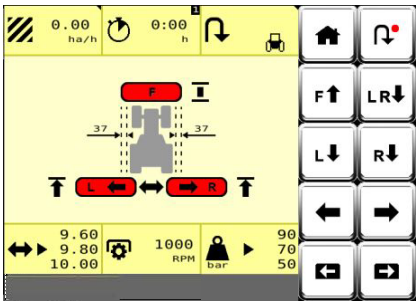
From there, one shifts to the following groups 2 and 3:

- Press and hold the blue button on the joystick.
- Joystick up and release.
- From there, one sets the desired cutter width in the same manner as above.

When the joystick is released, the new working width is stored in the selected setting.

Side shifting of cutters

ISOBUS Control



The rear cutter unit can be laterally shifted up to 400 mm (15.7").
This is particularly recommended on hills and on hilly terrain.

Side-shifting the cutter is done as possible:

- Press and hold the key.

If the machine's rear cutter is adjusted to the maximum working width and the lateral shift to the right is activated, only the left cutter unit can be shifted to the right.

If the machine's rear cutter is adjusted to the maximum working width and the lateral shift to the left is activated, only the right cutter unit can be shifted to the left.

IsoMatch Grip*

→ * »Optional equipment« Page 183
→ »ISOMatch Grip« Page 64

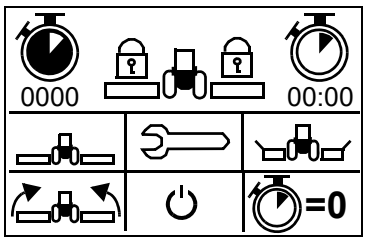
Portus Terminal*

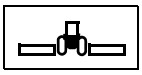
→ * »Optional equipment« Page 183

Only for tractors without ISOBUS

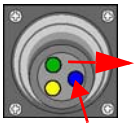
The rear cutter unit can be laterally shifted up to 400 mm (15.7"). This is particularly recommended on hills and on hilly terrain.

Side-shifting the cutter is done as possible:

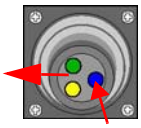




- Press the button.



- Press and hold the blue button on the joystick.
- Joystick to the right and hold until the cutter has shifted to the right to the desired degree.
- Release joystick.



- Press and hold the blue button on the joystick.
- Joystick to the left and hold until the cutter has shifted to the left to the desired degree.
- Release joystick

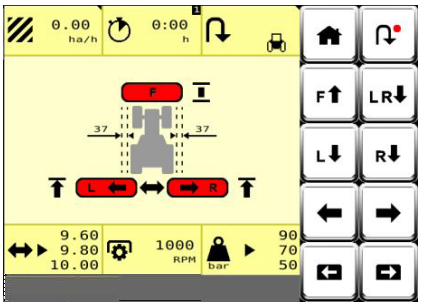
If the machine's rear cutter is adjusted to the maximum working width and the lateral shift to the right is activated, only the left cutter unit can be shifted to the right.

If the machine's rear cutter is adjusted to the maximum working width and the lateral shift to the left is activated, only the right cutter unit can be shifted to the left.

Centering of side-shift

ISOBUS Control

Bringing the machine's side shift back to the original position is done as follows:



- Press the key.

- Press the key.
- The machine's side shift is centered back to the original position.

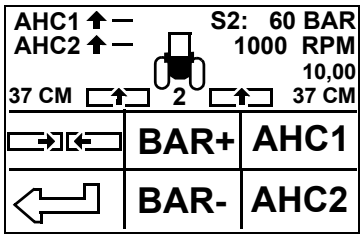
IsoMatch Grip*

→ * »Optional equipment« Page 183
→ »ISOMatch Grip« Page 64

Portus terminal

→ * »Optional equipment« Page 183

Only for tractors without ISOBUS



- Press the button.
- The machine's side shift is centered back to the original position.

Working in the field

WARNING

Check and clear the surrounding area before starting to use the machine
Before driving and using the machine the surrounding area should be checked and cleared.
This prevents persons and animals in the vicinity from being harmed.
If the surrounding area is not checked, it may result in serious injuries to persons or animals.

Keep away from the machine
No unauthorized persons should be close to the machine when active.
This will ensure that no dangerous situations can arise.
Persons close to the machine during operation are at risk of being severely injured.

Do not remove safety devices
Check that all safety devices are in place before use.
This ensures that the machine will offer maximum protection to the operator.
If the safety devices are removed or not used, it may result in serious injuries and accidents.

The side guards for the cutter must be correctly positioned before start up
The guards for the cutting unit must be folded down and correctly positioned before the machine is started.
This ensures that the machine will give maximum protection to the operator from thrown objects.
Thrown objects may cause serious injuries and accidents.

Operation [AHC]

WARNING

Check and clear the surrounding area before starting to use the machine
Before driving and using the machine the surrounding area should be checked and cleared.
This prevents persons and animals in the vicinity from being harmed.
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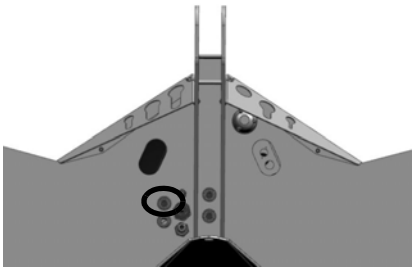
The side guards for the cutter must be correctly positioned before start up
The guards for the cutting unit must be folded down and correctly positioned before the machine is started.
This ensures that the machine will give maximum protection to the operator from thrown objects.
Thrown objects may cause serious injuries and accidents.

When Automatic Headland Control (AHC) is selected, the machine's hydraulic raise/lower functions for all three cutters are checked automatically though the operation of the ISOBUS control with a simple motion.

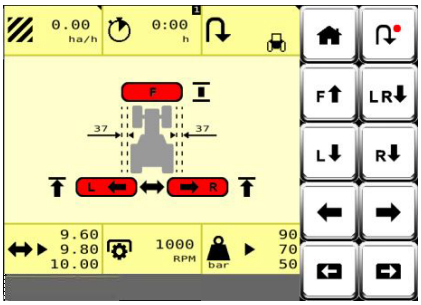


"Auto Headland Control [AHC] requires that the front cutter unit be hydraulically connected to the outlet on the rear suspension.

ISOBUS control

Programming of Automatic Headland Control:
→ »Programming [AHC]« Page 89

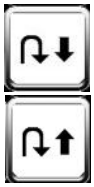
If you want to change the control to auto !"1" or "2" [AHC*], do the following:



- Press the key.

The control is now set to auto ("Auto Headland Control 1"*).

Is only available when the tractor's P.T.O. shaft is connected.



- Press the key.
- All cutters are lowered/raised automatically when this key is pressed.

If you want to change the control to auto "2" [AHC*], do the following:

- Press the key.

The control is now set to auto ("Auto Headland Control 2"*).

Is only available when the tractor's P.T.O. shaft is connected.

- Press the key again.

Terminal is back under manual control (AHC deactivated).

IsoMatch Grip*

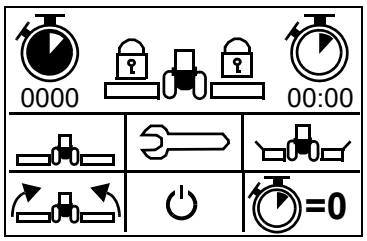
→ * »Optional equipment« Page 183
→ »ISOMatch Grip« Page 64

Portus Terminal*

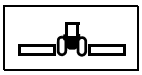
→ * »Optional equipment« Page 183

Only for tractors without ISOBUS

Programming of Automatic Headland Control:
→ »Programming [AHC]« Page 89



If you want to change the control to auto [AHC*], do the following:



▸ Press the button.

▸ Press the button.

The control is now set to auto ("Auto Headland Control" [AHC1*]).

Is only available when the tractor's P.T.O. shaft is connected.

If you want to change the control to auto "2" [AHC*], do the following:

▸ Press the button.

The control is now set to auto ("Auto Headland Control" [AHC2*]).

Programming [AHC]

Programming of AHC [Automatic Headland Control]:

- Programming of the raising / lowering sequence for all cutters before turning on headlands.

Only one programming is performed in "AHC 1" and one programming in "AHC 2".

Only ISOBUS Control

AHC can be programmed according to 2 optional parameters:

- Via time (time measured in seconds)

  The system measures the time interval between the activation of the front cutter and the activation of the rear cutters.
- Distance (in cm), where it is possible to choose between the following:
  - Wheel
  - Radar*
  - GPS**

  The system measures the distance the tractor has traveled from the activation of the front cutter and to the activation of the rear cutters.

Please refer to the tractor's instruction manual.
* Only on tractors equipped with radar.
* Only on tractors on which GPS is installed.

IsoMatch Grip*

→ * »Optional equipment« Page 183
→ »ISOMatch Grip« Page 64

Only Portus Terminal*

→ * »Optional equipment« Page 183

Only for tractors without ISOBUS

These 2 areas can be programmed according to 1 parameter:

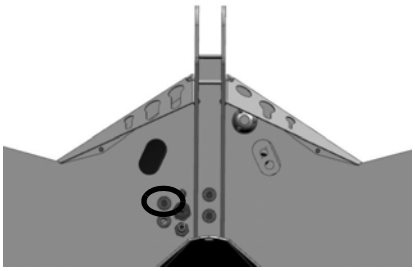
- Via time (time measured in seconds)

  The system measures the time interval between the activation of the front cutter and the activation of the rear cutters.

→ »Portus Terminal*« Page 88

→ »Operation [AHC]« Page 86

Programming of AHC



The AHC [Automatic Headland Control] function can be programmed so that the lifting and lowering sequences of the front cutter and rear cutters are automatically controlled from the ISOBUS control.

"Auto Headland Control [AHC] requires that the front cutter unit be hydraulically connected to the outlet on the rear suspension.

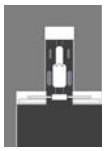
Programming of AHC can only be done with the PTO connected with the correct rotational speed where the machine is in operation and approached the headland where the turn is to be made.

It is important that all the cutters have the same setting when programming of the AHC shall be done.

Two different user-defined AHC [Automatic Headland Control] programs can be programmed:

AHC1		
	up	Raising sequence for all cutters before turning on the headland - even headland
	down	Lowering sequence for all cutters after turning on the headland - even headland
	up	Raising sequence for all cutters before turning on the headland - splined headland left
	down	Lowering sequence for all cutters after turning on the headland - splined headland left
	up	Raising sequence for all cutters before turning on the headland - splined headland right
	down	Lowering sequence for all cutters after turning on the headland - splined headland right

AHC2		
	up	Raising sequence for all cutters before turning on the headland - even headland
	down	Lowering sequence for all cutters after turning on the headland - even headland
	up	Raising sequence for all cutters before turning on the headland - splined headland left
	down	Lowering sequence for all cutters after turning on the headland - splined headland left
	up	Raising sequence for all cutters before turning on the headland - splined headland right
	down	Lowering sequence for all cutters after turning on the headland - splined headland right

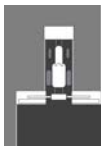



This symbol indicates that the headland is perpendicular to the direction of travel.


This symbol indicates that the headland is splined to the left in the direction of travel.

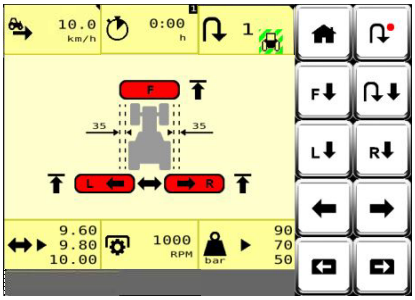

This symbol indicates that the headland is splined to the right in the direction of travel.

AHC1



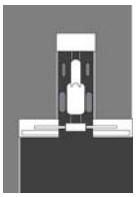
Example: The headland is perpendicular to the direction of travel:

- All cutters are in working position.



- Press the key.
- AHC 1 is selected.

- Press and hold the key again for approximately 1 -2 seconds.
- Red dots blink and indicate that AHC1 is ready for programming.



When you reach the headland at the other end of the ground, do the following:

- Press the key.
- The front cutter is raised.

- Press the key.
- The rear cutter is raised.

Programming for AHC1 is ready.

The control has now measured and saved the time or the driven distance between the lifting of the first cutter and the rear cutters.

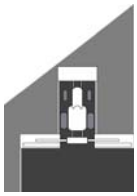
- Turning at the headlands.

- Press the key.
- The front cutter is lowered.
- Then the rear cutter is lowered automatically once the registered time period has expired.

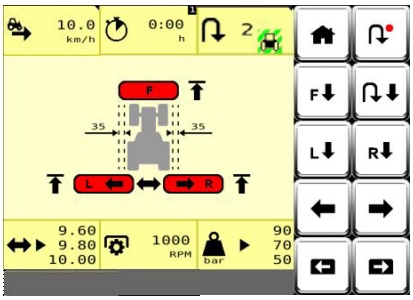
- If you wish to cancel AHC1, press the key twice.

AHC1 and AHC2 are cancelled automatically the P.T.O. shaft is interrupted.

AHC2

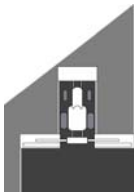


Programming of AHC2 is done in the same manner as AHC1.
Example: The headland is splined to the left:



- Press the key.
- AHC 2 is selected.

- Press and hold the key again for approximately 1 -2 seconds.
- Red dots blink and indicate that AHC2 is ready for programming.



When you reach the headland at the other end of the ground, do the following:

- Press the key.
- The front cutter is raised.

- Press the key.
- The rear left cutter is raised.

- Press the key.
- The rear right cutter is raised.

Time period between:

- the front cutter is raised
- the rear left cutter is raised
- the rear cutter is raised

is now registered.
The "AHC2" field stops blinking.

Note that the symbol for the tractor is found outside the shaded green field symbolizing harvested crop.
This means that:

- the rear left cutter is lowered into working position first.
- then the rear right cutter is lowered into working position.

IsoMatch Grip*

→ * »Optional equipment« Page 183
→ »ISOMatch Grip« Page 64

Portus Terminal*

→ * »Optional equipment« Page 183

Only for tractors without ISOBUS

Two different user-defined AHC [Automatic Headland Control] programs can be programmed:

AHC1		
AHC1 —	up	Raising sequence for all cutters before turning on the headland - even headland
	down	Lowering sequence for all cutters after turning on the headland - even headland
AHC1 ／	up	Raising sequence for all cutters before turning on the headland - splined headland left
	down	Lowering sequence for all cutters after turning on the headland - splined headland left
AHC1 ＼	up	Raising sequence for all cutters before turning on the headland - splined headland right
	down	Lowering sequence for all cutters after turning on the headland - splined headland right

AHC2		
AHC2 —	up	Raising sequence for all cutters before turning on the headland - even headland
	down	Lowering sequence for all cutters after turning on the headland - even headland
AHC2 ／	up	Raising sequence for all cutters before turning on the headland - splined headland left
	down	Lowering sequence for all cutters after turning on the headland - splined headland left
AHC2 ＼	up	Raising sequence for all cutters before turning on the headland - splined headland right
	down	Lowering sequence for all cutters after turning on the headland - splined headland right

AHC —

This symbol indicates that the headland is perpendicular to the direction of travel.

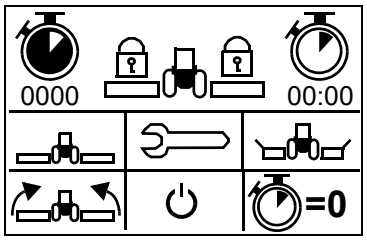
AHC ／

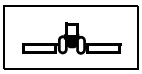
This symbol indicates that the headland is splined to the left in the direction of travel.

AHC ＼

This symbol indicates that the headland is splined to the right in the direction of travel.

AHC1





▸ Press the button.

Example: The headland is perpendicular to the direction of travel:

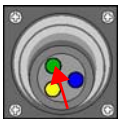
- All cutters are in working position.

When cutting, do the following:

▸ Press and hold the key.

- The "AHC1" field blinks

the terminal is now ready for programming AHC1 ("Auto Headland Control" [AHC1*]).



▸ Press the green button on the joystick.

- The front cutter is raised.

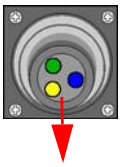
▸ Joystick up.

- The rear cutter is raised.

The time span from the front cutter being raised and the rear cutter being raised is now registered.

- The "AHC1" field stops blinking.

▸ Turning at the headlands.



▸ Joystick down.

- First, the front cutter is lowered

Then the rear cutter is lowered automatically once the registered time period has expired.

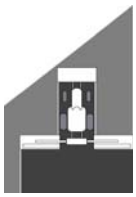
If you wish to cancel AHC1:

▸ Press the button shown on the terminal again.

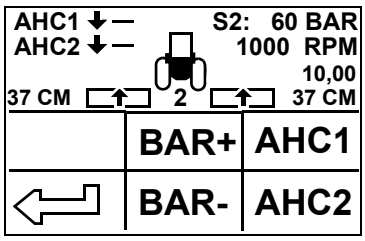
- "AHC1" turns off in the display.

AHC2

Programming of AHC2 is done in the same manner as AHC1.
Example: The headland is splined to the left:

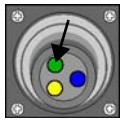


When cutting, do the following:

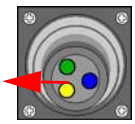


- ▸ Press and hold the key.
- • The "AHC2" field blinks

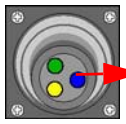
the terminal is now ready for programming AHC2 ("Auto Headland Control" [AHC2*]).



- ▸ Press the green button on the joystick.
- • The front cutter is raised.



- ▸ Joystick to the left.
- • The rear left cutter is raised.

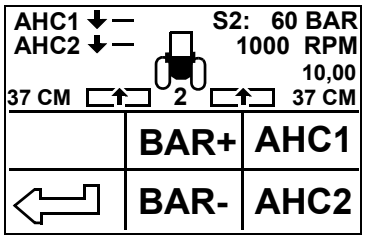


- ▸ Joystick to the right.
- • The rear right cutter is raised.

Time period between:

- • the front cutter is raised
- • the rear left cutter is raised
- • the rear cutter is raised

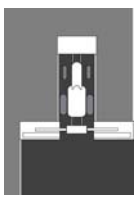
is now registered.
The "AHC2" field stops blinking.



When reaching the headland perpendicular to the direction of travel, do the following:

- ▸ Press the button.

AHC1 is programmed to be perpendicular to the direction of cutting at the headland
→ »AHC1« Page 96
→



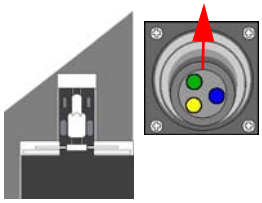
- ▸ Joystick up.
- • First, the front cutter is raised
- • Then the rear cutter is raised automatically.
- ▸ Turning at the headlands.
- ▸ Joystick down.
- • First, the front cutter is lowered
- • Then the rear cutter is lowered automatically.

When reaching the headland which splits to the left, do the following:

AHC2

- Press the button.

AHC2 is programmed to spline to the left at the headland.
→ »AHC2« Page 97



- Joystick up.
  - First, the front cutter is raised
  - Then the rear left cutter is raised automatically.
  - Then the rear right cutter is raised automatically.
- Turning at the headlands.
- Joystick down.
  - First, the front cutter is lowered
  - Then the rear left cutter is lowered automatically.
  - Then the rear right cutter is lowered automatically.

If you wish to cancel AHC2:

AHC2

- Press the button shown on the terminal again.
  - "AHC2" turns off in the display.

Side-shifting of cutters

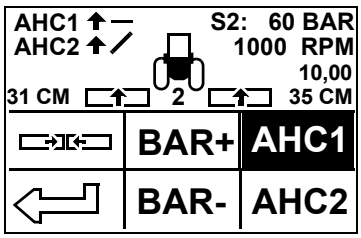
In combination with AHC

Side-shifting of the machine's cutter can be used in combination with AHC ("Auto Headland Control").

programming of AHC:
→ »AHC1« Page 96
→ »AHC2« Page 97

- Adjust the side-shift of the cutters.

→ »Side shifting of cutters« Page 82



AHC1

Side-shift is inverted when the cutters are raised and a turn on the headland is made.

AHC2

Wish to center the lateral shift:

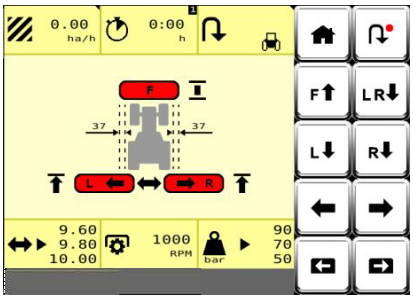
- Press the button.

If you wish to change the machine's working width:

- »Changing the cutting width« Page 79

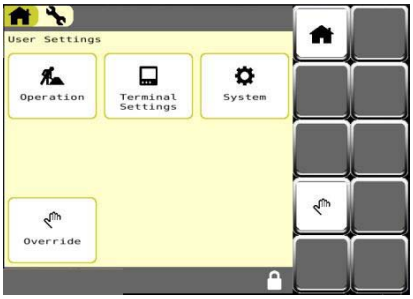
Service menu

The data shown in the service menu is an aid to the user or service technician in case of a malfunction.
Access to the service menu is gained as follows:



- Press the key.

- Press the key.
- The screen switches to the user settings.



The user settings have 4 main areas:

- Operation
- Terminal Settings
- System
- Override

Operation

The Operation menu is divided into two main menus:

- "Settings"
- "Options"

Settings

"Settings" has the following possible settings.
There are three options for setting AHC.

- "Timer" (time measured in seconds)

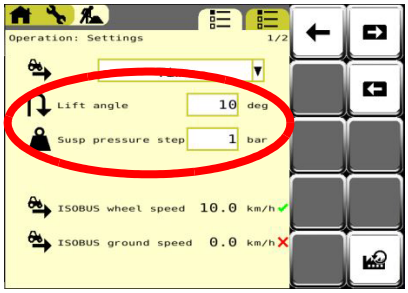
The system measures the time interval between the activation of the front cutter and the activation of the rear cutters.

- "Wheel" (distance measured in cm)
- "Radar" (distance measured in cm)*
- "J1939" (GPS)**

The system measures the distance the tractor has traveled from the activation of the front cutter and to the activation of the rear cutters.
*Please refer to the tractor's instruction manual.

- Press "ESC" if no change is desires

* Only on tractors equipped with radar.
* Only on tractors on which GPS is installed.
→ »Operation [AHC]« Page 86



- "Lift angle"
  Indicates the angle of the cutters when turning on the headland.
  - Min. 0 degree - Max 10 degrees
- "Susp Pressure Step" adjusts how much the pressure in the balancing system is increased/reduced each time a key is pressed.
  - Min. 1 bar - Max 5 bars

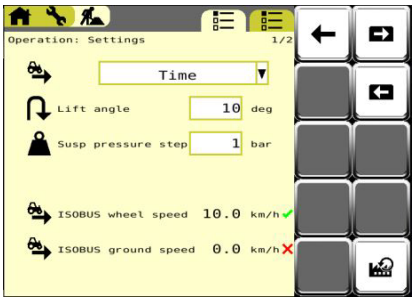
→ »Balancing pressure« Page 77

Settings are changed in the following way:

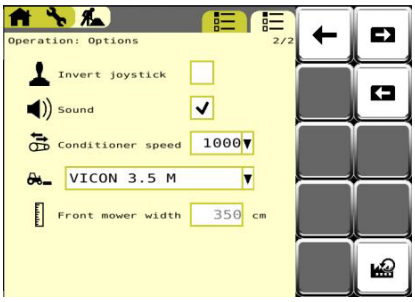
▸ Press / touch the field on the display.

▸ Key in the desired setting and conclude with a "V".

Options



- Press the key.



"Options" has the following possible settings.

- "Invert Joystick" (portus terminal)*
  - Normal (Default) setting

  The joystick's activation directions are normal (factory set)

- Touch the field upon "Invert Joystick".
- A mark is shown in the field.

  The joystick's left/right functions have now switched places.

- "Sound"

  The control emits a sound upon operation.

* Optional equipment

→ »Optional equipment« Page 183

- "Front Mower"
- Select the correct front unit from the list.

The working width of the front unit is used to calculate area and overlap.

→ »Status symbol on the screen« Page 65
→ »Overlap« Page 183

In case the front unit is another make:

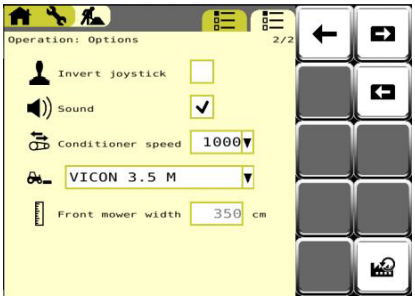
- Select "Off Brand"
- Input the correct working width manually in the display.

- "Conditioner Speed"

  If the machine's rotor changes to 550 RPM, this shall be set to 550
- Touch the field upon "Conditioner Speed".
- Select the correct speed of the rotor.

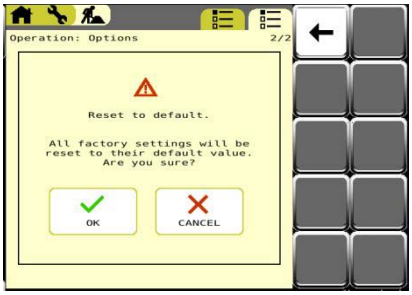
As the machine is equipped with rotor speed monitoring, it is important that this setting correct.

→ »Rotor RPM« Page 113



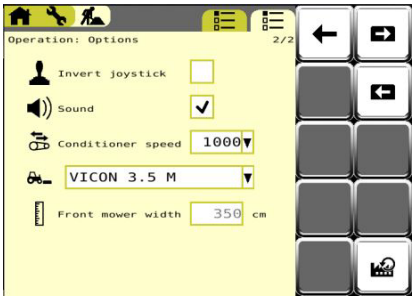
If you wish to change the control to the factory setting:

▸ Press the key.



▸ Press "yes"

• Accept changing the control to the factory setting.

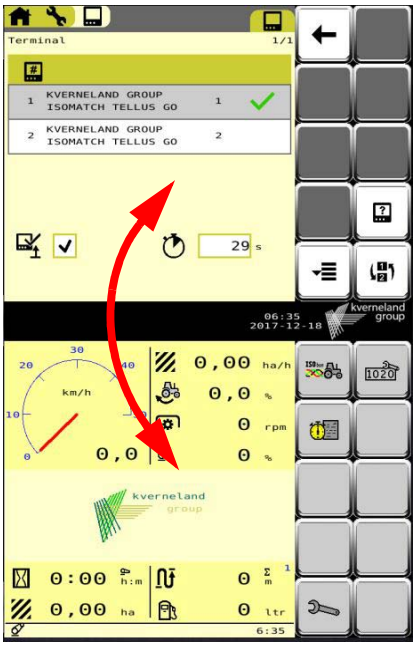


▸ Press the key.

• The screen switches back to the user settings.

All user settings are now changed to the factory setting.

Terminal Settings



"Terminal Settings" has the following possible settings.
If you wish to have the 2 displays change place on the screen, do the following:

- ▸ Press the key.
- • Display changes place..

Depends on the tractor terminal - see the tractor's instruction manual.

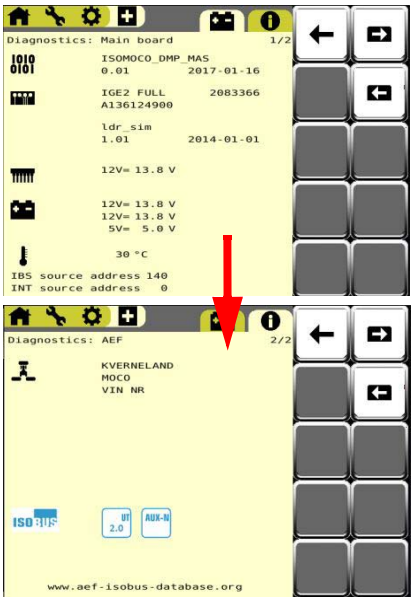
System

The System menu contains the setting options for setting up the system.

Access

Access only for dealers and service staff.

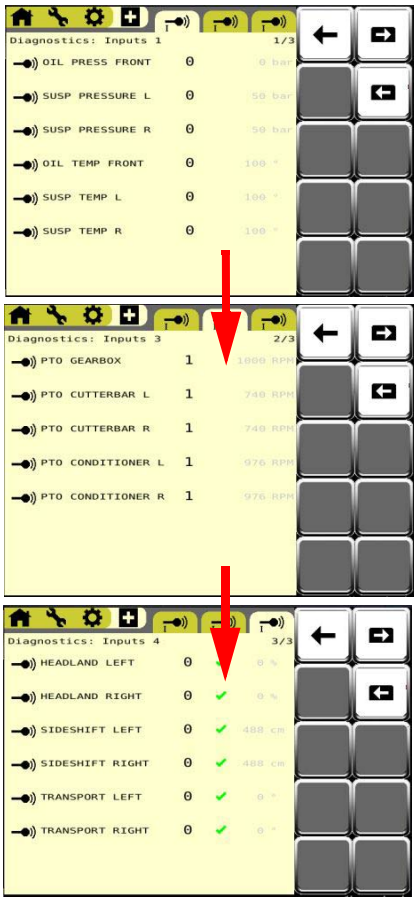
Diagnostics Info



The following information is shown here.

Please provide this information if your dealer requests it..

Diagnostics Inputs



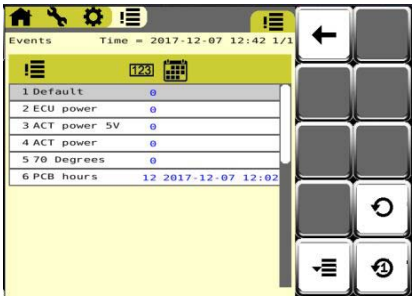
The following information is shown here.

Actual tensions (V) from the pressure sensors..
Can be used in troubleshooting.

Current status and RPM at the RPM sensor.
0 = non-activated sensor.
1 = Activated sensor.

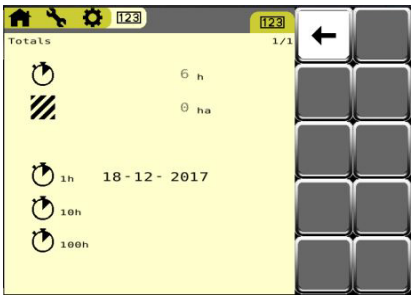
Actual tension (V) from the position sensors in the hydraulic cylinders.
Electrical tension, or voltage, shall be between 0.5 and 4.5 V.

Events



The following information is shown here.

Lifetime Total

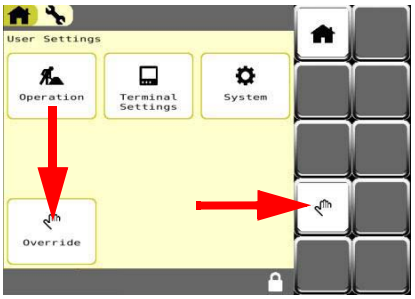


Information on the following is shown here:

- Total operating hours driven (P.T.O. connected).
- Total area cut.
- "1h" indicates date/month/year of the first hour of operation.
- "10h" indicates date/month/year of the tenth hour of operation.
- "100h" indicates date/month/year of the hundredth hour of operation.

Override

Significant risk of damaging the machine when this function is activated!



In the event of a sensor failure on the machine, for instance the machine is not able to be folded for transport, this function can be used.

- Press one of the keys shown.

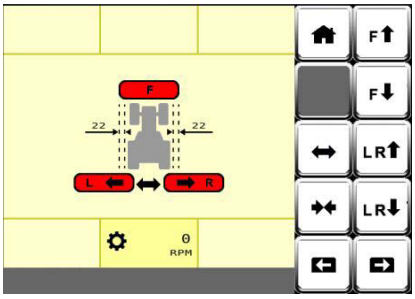
Upon activating this function, all the position sensors on the machine are overridden.

- Press the key.

Important!

- Operate both arms a minimum of 10 cm (4") out **before** lifting them into transport position or lowering them from transport position.

This must be done with regard to the mechanical transport lock.
→ »Machine in the transport position« Page 58



It is only possible to use the machine manually, one function at a time.

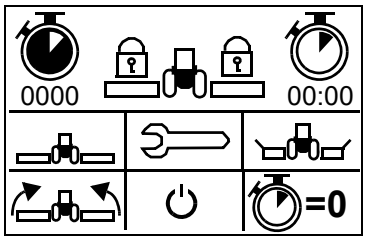
Contact your dealer and have this fault corrected immediately.

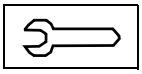
Joystick configuration

This section is only available on Portus Terminal connected to a tractor that does not have its own integrated ISOBUS system.

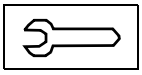
The joystick's activation directions can be programmed in two settings:

- Normal (Default) setting
  - The joystick's activation directions are normal (factory set)
- Reverse settings
  - The joystick's lift/lower functions change place.



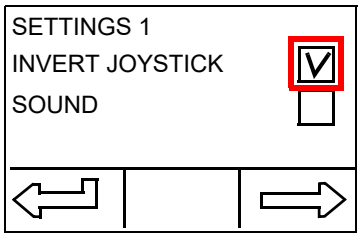


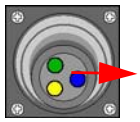
▸ Press the button.



▸ Press the button.

Setting 1

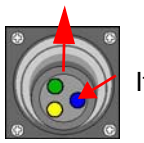




▸ Joystick to the right.
- Marking box is activated.

▸ Joystick up.
- The check box is ticked.

▸ Press the blue button on the joystick.



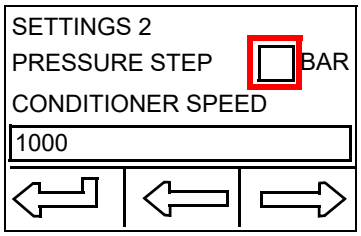
If you wish to remove the mark:

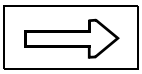
▸ Joystick to the right.
- Marking box is activated.

▸ Joystick up.

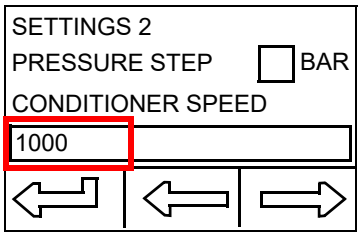
▸ Press the blue button on the joystick.
- The check box is unticked.

Setting 2

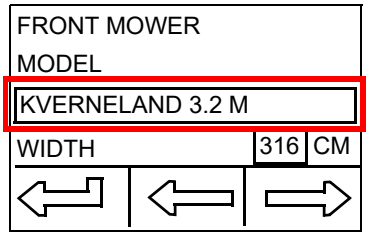


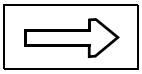


- Press the button.
- Joystick to the right.
- Marking box is activated.
- Joystick up / down.
- The values are increased/decreased - however by a maximum of 5 bars.
- Press the blue button on the joystick.

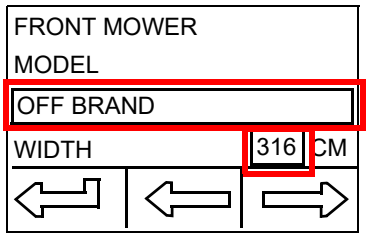


- Joystick to the right.
- Marking box is activated.
- Joystick up.
- RPM at crimpers are selected (1000 or 550 RPM).
- Press the blue button on the joystick.



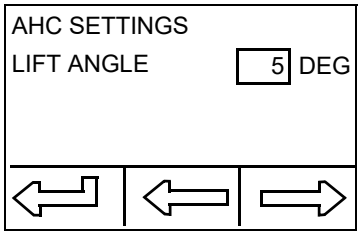


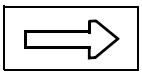
- Press the button.
- Joystick to the right.
- Marking box is activated.
- Joystick up.
- Selected the front-installed model from the list.
- Press the blue button on the joystick.



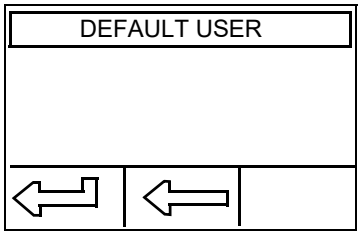
If a front-installed cutter unit is not found on the list:

- Joystick to the right.
- Marking box is activated.
- Joystick up.
- Select "Off brand" from the list.
- Joystick to the right.
- Input the width of the front-installed cutter unit:
- Joystick to the left for first digit:
  - Joystick up to select first digit.
- Joystick to the left for second digit:
  - Joystick up to select second digit.
- Joystick to the left for third digit:
  - Joystick up to select third digit.
- Press the blue button on the joystick.

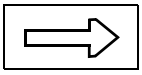




- Press the button.
- Joystick to the right.
- Marking box is activated.
- Joystick up / down.
- The values are increased/decreased - however by a maximum of 10 degrees.
  - The values indicate the angles of the arms when the rear cutter unit is lifted for turning on headlands.
- Press the blue button on the joystick.

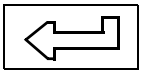


If you wish to cancel all the settings:



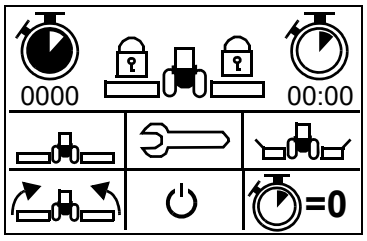
- Press the button.
- Joystick to the right.
- Marking box is activated.
- Joystick up.
- Press the blue button on the joystick.

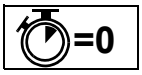
Hence all settings are restored to the factory settings



- Press the button.
- Back to starting page.

Resetting the hour counter

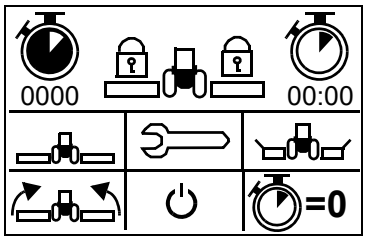


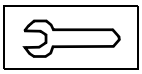


- Press and hold the button for approximately 3 seconds.
- Hour counter is reset.

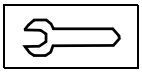
Sound

A sound signal can be activated in the Portus terminal that confirms all procedures done with the terminal.

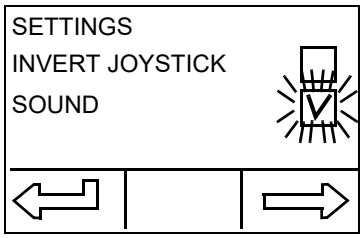


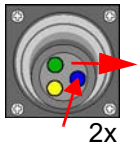


- Press the button.



- Press the button.





- Joystick to the right (twice).
- Marking box is activated.
- Joystick up.
- The check box is ticked.
- Press the blue button on the joystick.

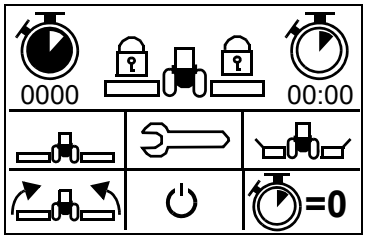
If you wish to remove the mark:

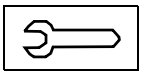
- Joystick up again.
- Press the blue button on the joystick.
- The check box is unticked.

Display

Contrast

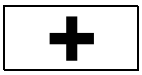
Contrast on the display can be set as desired.



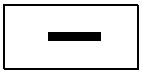


- Press the button.

- Press the button.



- Press the button.
- Contrast on the display is changed.

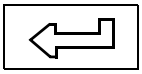


The joystick can also be used to adjust the contrast on the display.

- Joystick up / down.
- Contrast on the display is changed.

- Press the button.

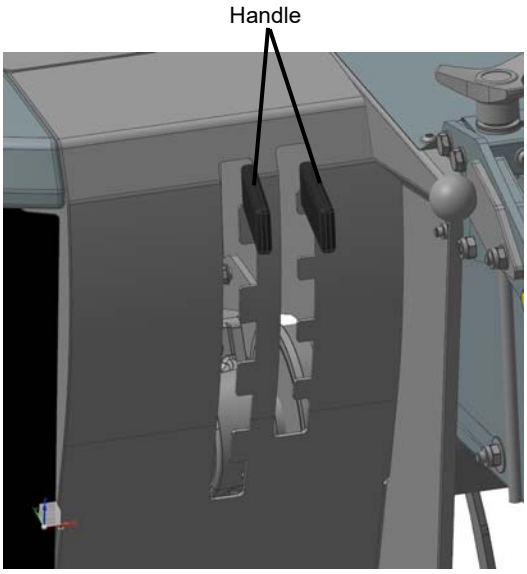
- Press the button.



- Press the button.
- Back to starting page.

Conditioner plate

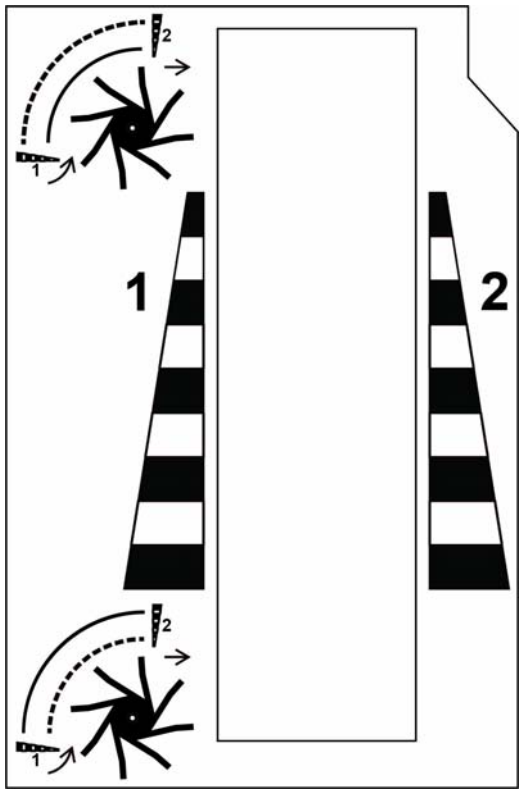
Only T model



The distance of the conditioner plate to the rotor can be adjusted with two levers.

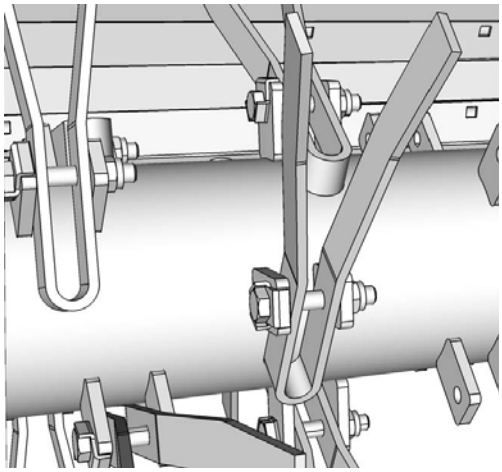
The conditioner plate is set as follows:

- Pull the lever away from the lock.
- Set the lever to the desired position.
- Release the lever
- Check that the lever is locked correctly.



- Lever 1 adjusts the front part of the conditioner plate.
  - Lever 1 at the top: the front part of the conditioner plate is completely closed.
  - Lever 1 at the bottom: the front part of the conditioner plate is completely open.
- Lever 2 adjusts the rear part of the conditioner plate.
  - Lever 2 at the top: the rear part of the conditioner plate is completely closed.
  - Lever 2 at the bottom: the rear part of the conditioner plate is completely open.

Rotor



The rotor can be set to 2 speeds: 1000 RPM or 550 RPM.
The recommended RPM for the rotor should be as follows:

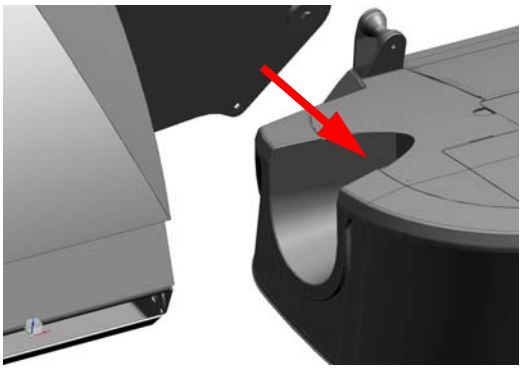
Type of crop	Rotor RPM
• **Normal crops** • **Crops with moderate amounts of foliage** • **Whole crop**	1000
• **Delicate spring crops** • **Alfalfa** • **Clover**	550

To ensure the correct conditioning and length of the crop, it is recommended you check the conditioner plate's setting.
→ »Conditioner plate« Page 111

Due to good setting options on conditioner plates, the different crop types can be adjusted without changing the rotor speed.
→ »Conditioner plate« Page 111

Rotor RPM

From 1000 RPM to 550 RPM.



The RPM for the rotor can be changed as follows:

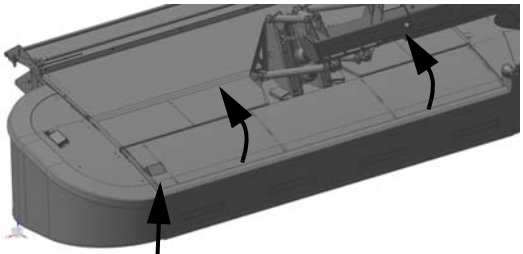
- Place both cutting units at the maximum working width.

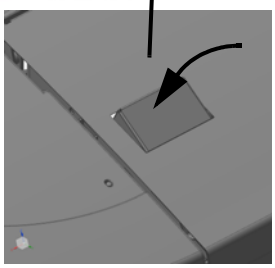
→ »Changing the cutting width« Page 79

- Raise the machine's suspension to 10-20 cm (4-8") over the correct working height.

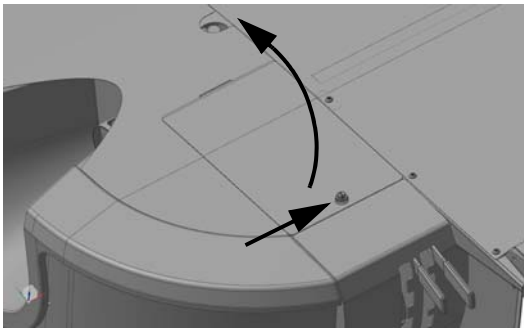
→ »Working height on the machine« Page 48

- Lower both cutters down onto a stable and flat surface.
- Stop the tractor and remove the ignition key.
- Remove the PTO shaft.

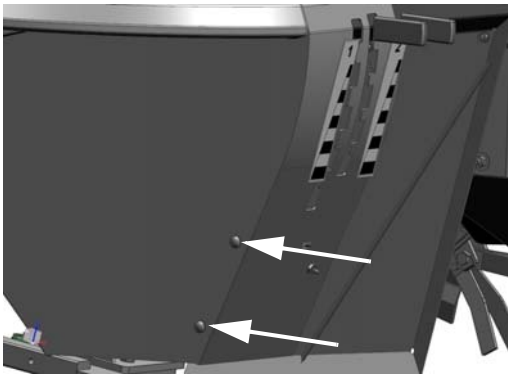




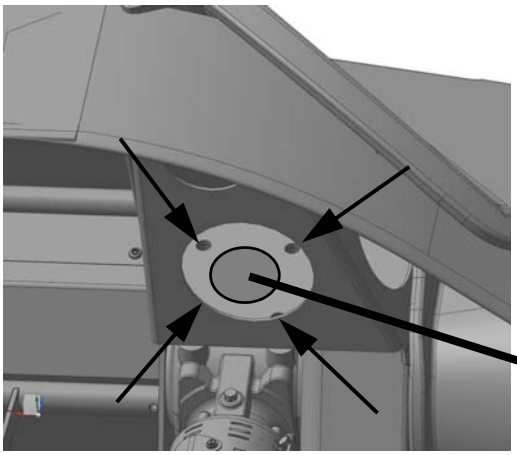
- Push the lever down.
- Open the guard.



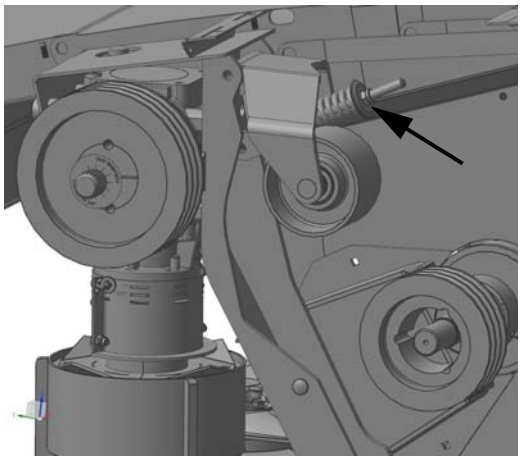
- Open the cover.



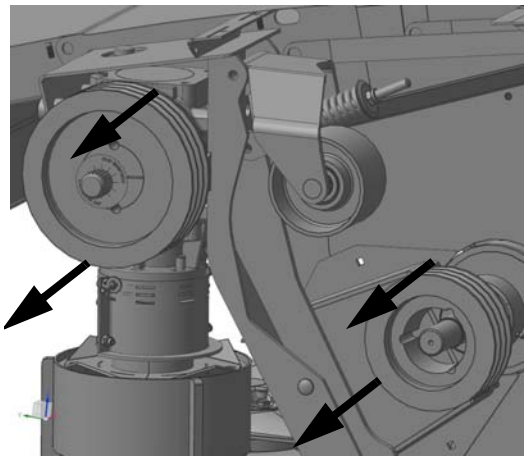
- Remove the side guard.



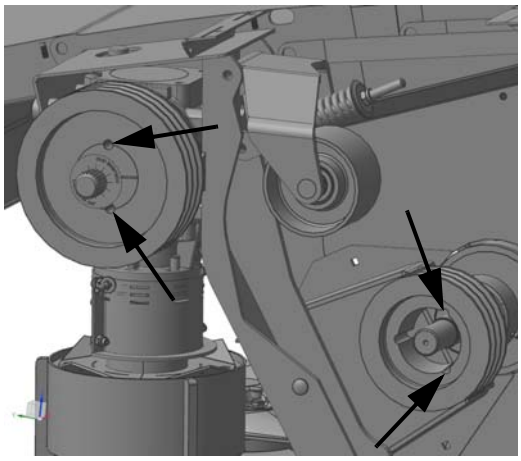
- Disconnect the cable.
- Remove the bolts.
- Disassemble the guard.



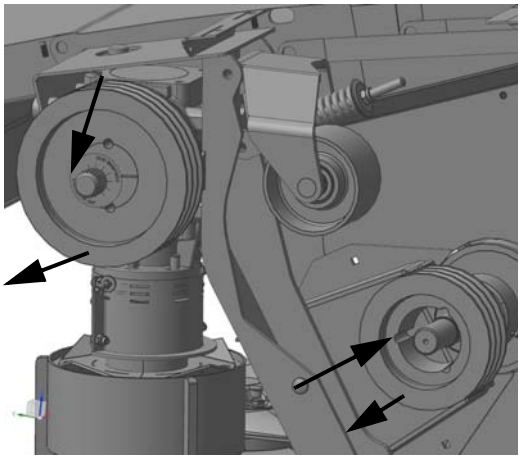
- Loosen the nut at the spring until all the V-belts are relieved.



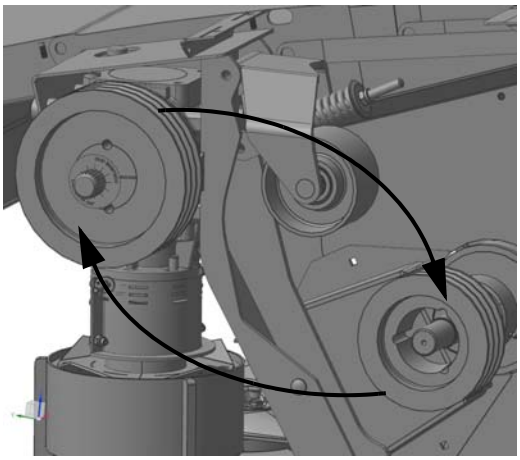
- Remove the V-belt.



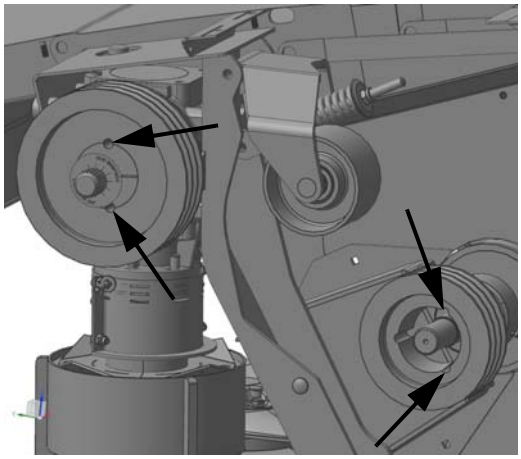
- Remove all bolts at the V-belt pulleys.



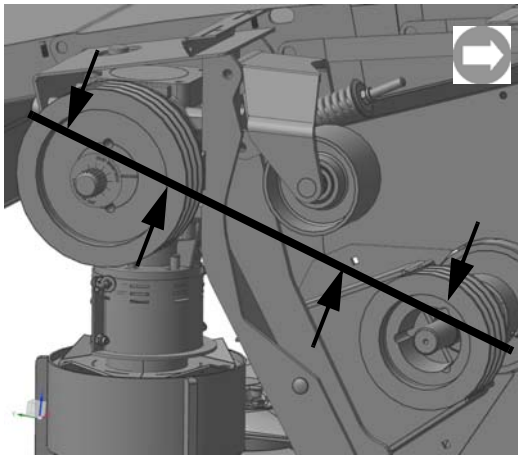
- Install a bolt in the V-belt pulley as shown and tighten the bolt until the V-belt pulley loosens from the hub.
- Loosen and remove the bold.
- This procedure is carried out on both V-belt pulleys.



- Replace both V-belt pulleys as shown.
- Attach the V-belt pulleys at the hub.



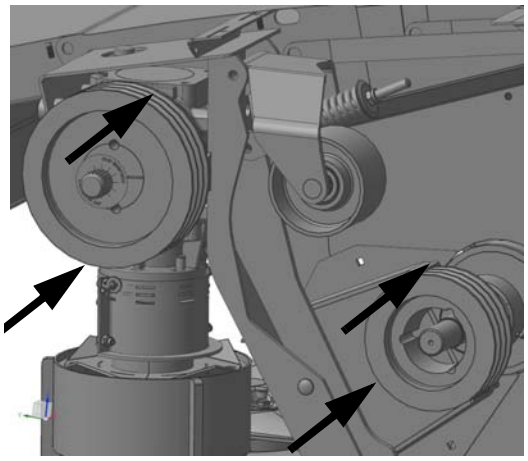
- Fasten the bolts in the V-belt pulley as shown.
- This procedure is carried out on both V-belt pulleys.



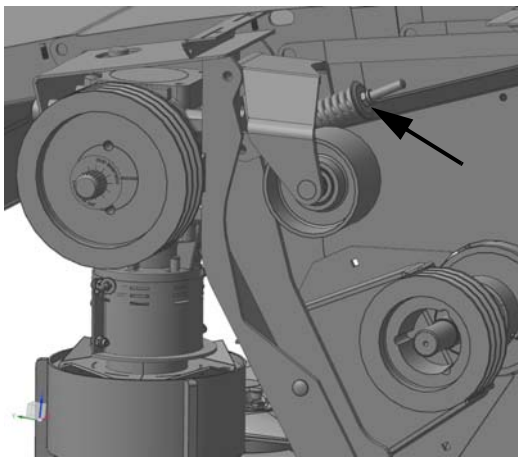
- Make sure that both pulleys are aligned with each other.

Use a straight edge or a ruler.

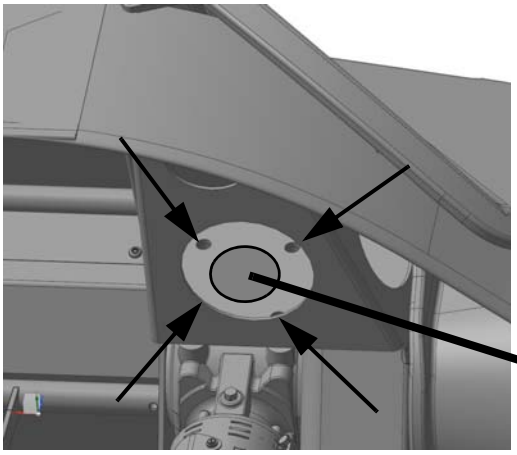
- Tighten the bolts and make sure that both pulleys are firmly in place.



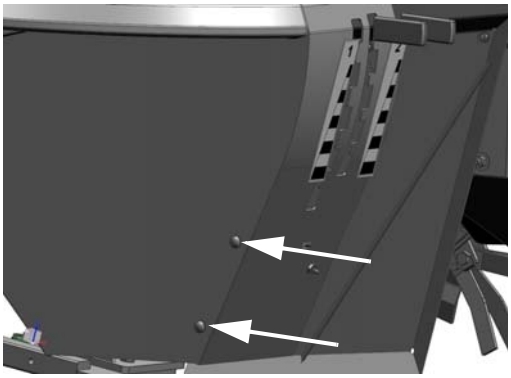
- Install the V-belt.



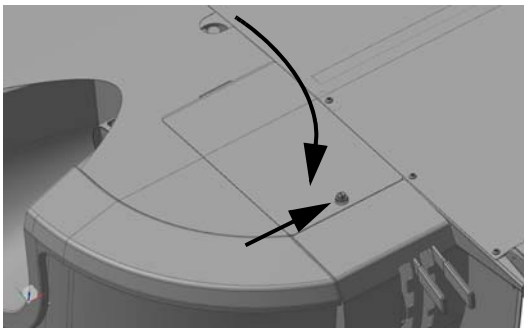
- Screw the nut until it is tightened against the stop.



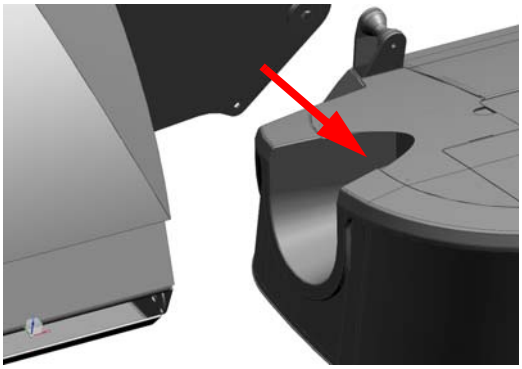
- Install the guard.
- Install the bolts.
- Attach the cable.



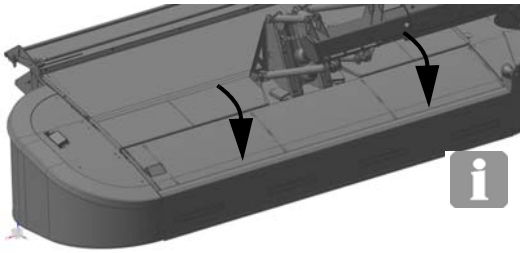
- Attach the side guards.



- Close the cover.



- Installing the PTO shaft.



- Close the guard.
- Make sure that the guard is in place and locked.

This procedure is carried out for both cutters.

- Go into the controls and select the relevant RPM of the rotor (1000/550 RPM).

→ »Options« Page 101

Rollers

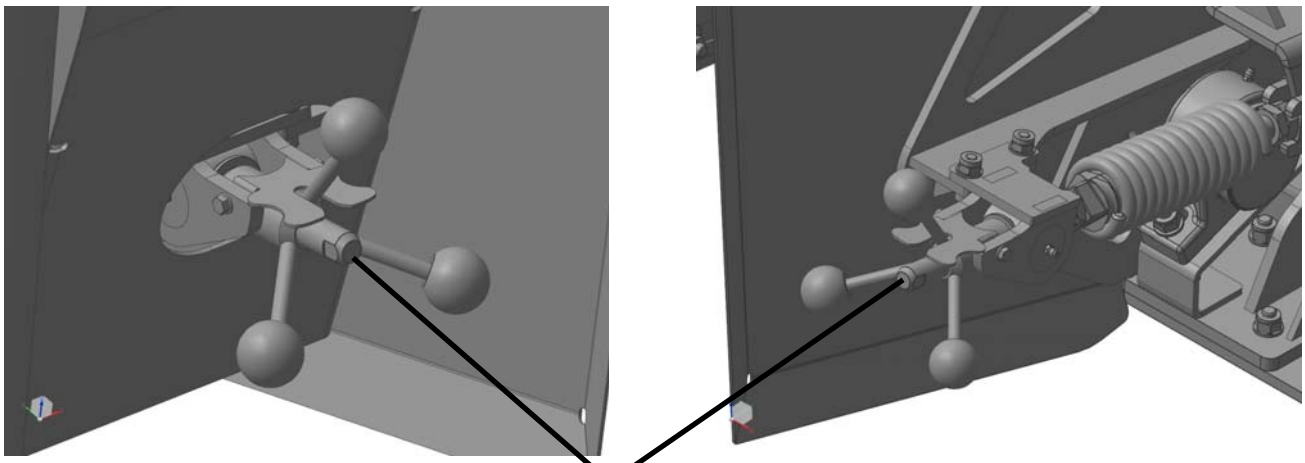
Only R model

Roller RPM is 1000 RPM.

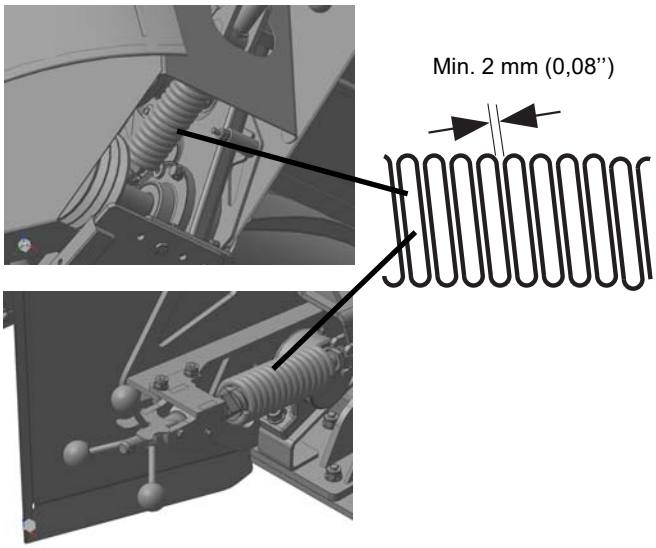
Roller pressure
The pressure of the rollers against the crop depends on the type of crop and its characteristics:

- When harvesting a rich crop, the roller pressure must be increased.
- When harvesting clover or other leafy crop, the pressure on the rollers must be decreased.

The roller pressure against the crop is adjusted by means of a handle on either side of the machine.

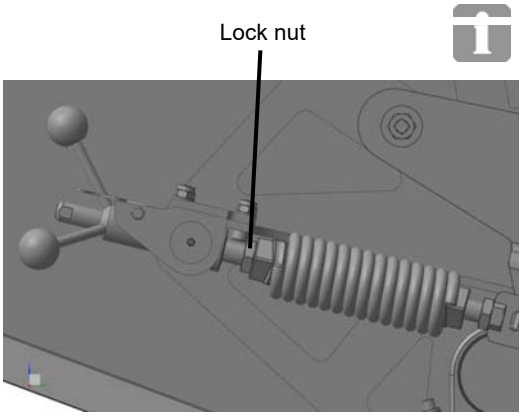


Coming from the factory, the spring have a standard setting between the springs' coils as shown.



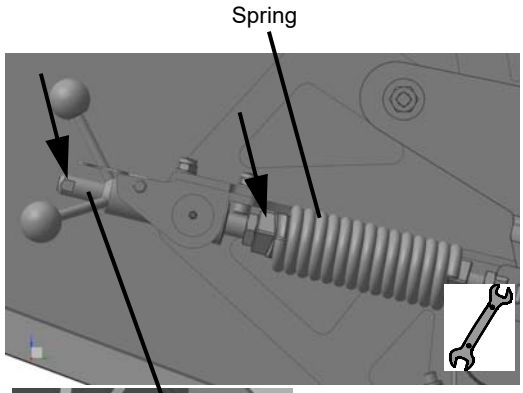
Changing the roller pressure

The springs' tension shall be the same on both sides of the machine.

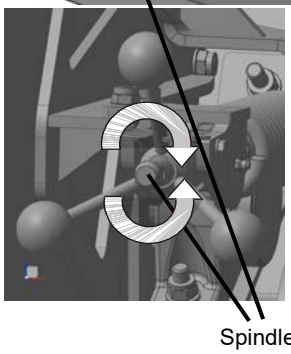


How to adjust the roller pressure:

- Loosen the counter nut.



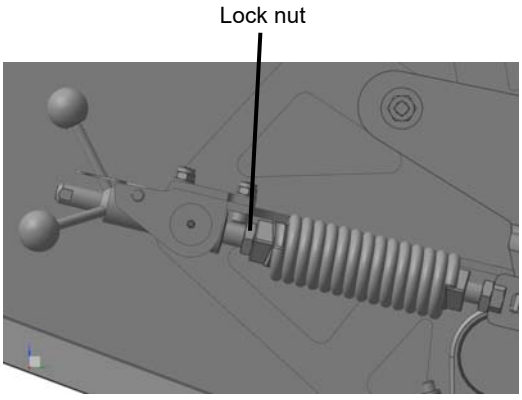
- Place a tool on the spring as shown.
- Place a tool on the spindle as shown.
- Turn the spindle with the help of the tool.



- If the spindle is turned clockwise, the roller pressure against the crop increases.
- If the spindle is turned counterclockwise, the roller pressure against the crop decreases.

We recommend that you adjust the springs approximately 5 mm (0.2") at a time, after which the roller pressure against the crop is checked.

The springs' tension shall be the same on both sides of the machine.

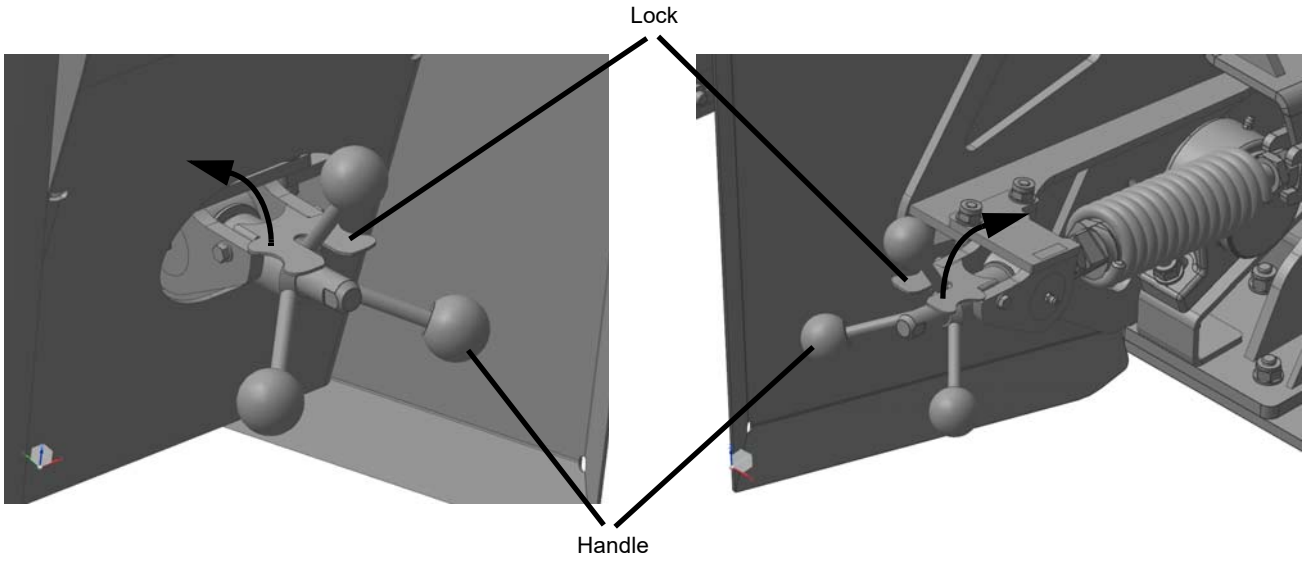


- Fasten counter-nut.

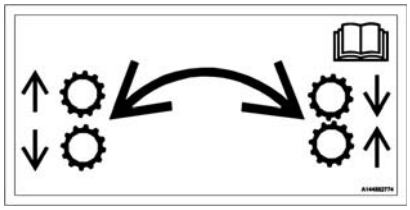
Distance between rollers

The distance between the rollers is adjusted as follows:

- Turn and unlock.

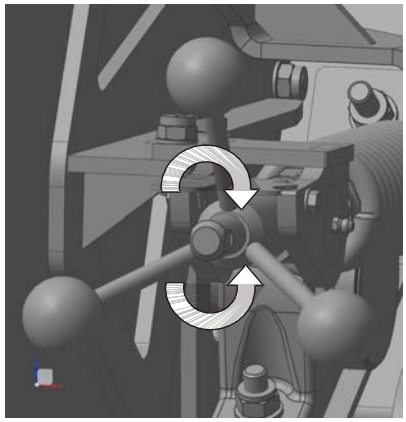


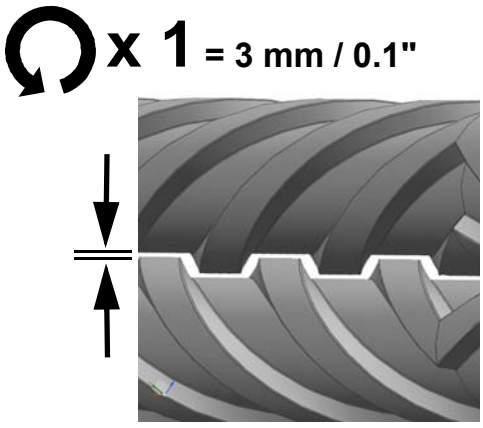
- Turn the handle.



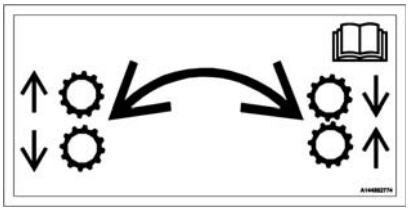
- If the handle is turned clockwise, the distance between the rollers is reduced.
- If the handle is turned counterclockwise, the distance between the rollers is increased.

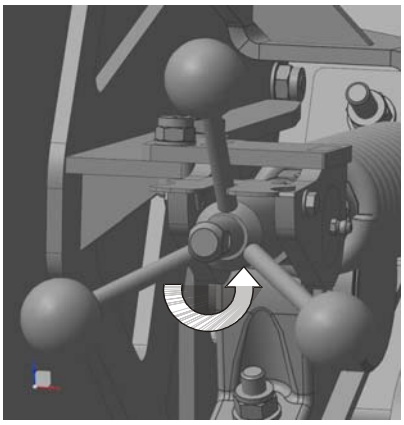
When the handle is turned 1 turn, the distance between the rollers changes by 3 mm (0.1").





- Turn the lock downward right after you have finished adjusting.





The recommended distance between the rollers must be 5 -6 mm (0.2-0.24").

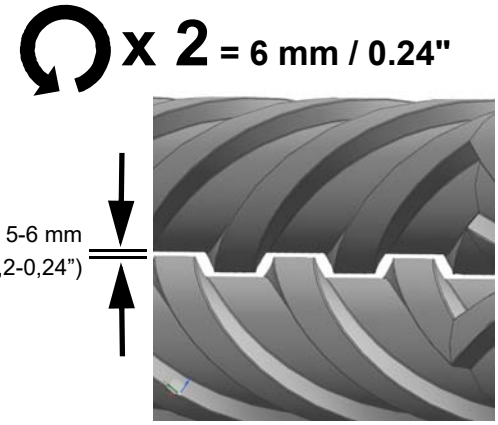
- Turn both handles clockwise until you sense the resistance.
- Then turn both handles counter-clockwise until the desired distance is obtained.

Examples:
6 mm between rollers is desired:

- Turn both handles twice counter-clockwise.

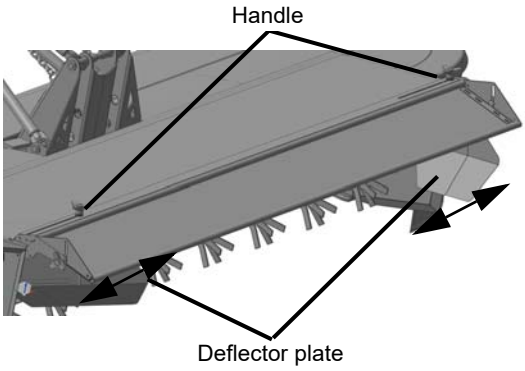
If the distance between the rollers wrong::

- Repeat the procedure.



Deflector plates

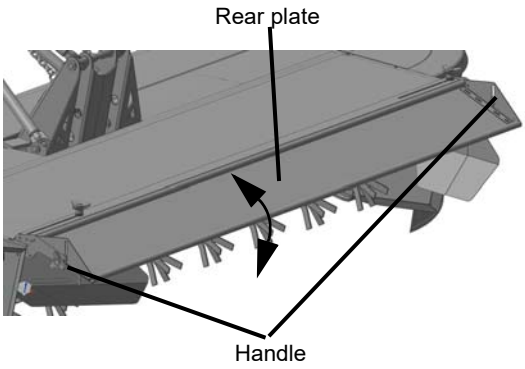
The machine is equipped with 2 deflector plates, such that it is possible to adjust the deflector plates either to the broad-spreading or to the swathing of the crop.
The cutting width should be as even as possible.
The deflector plates are equipped with adjustable plates as shown.



- Loosen the handle.
- Adjust the deflector plates to the desired cutting swath.
- Tighten the handle.

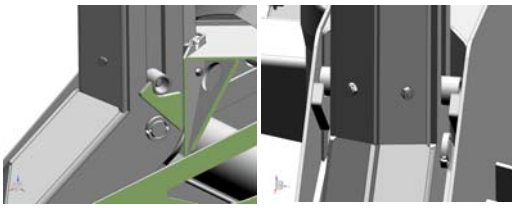
Rear plate

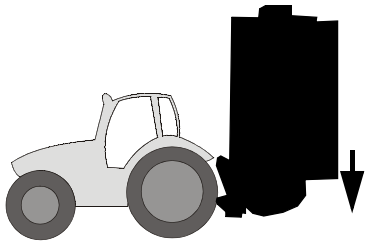
The machine is equipped with a rear plate that makes it possible to affect the form of the swath by adjusting the rear plate.
The cutting width should be as even as possible.
The rear plate is adjusted as shown.



- Loosen the handle.
- Adjust the rear plate to the desired position.
- Tighten the handle.

Safety





WARNING

Read the safety instructions carefully before driving on public road

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

This will ensure that dangerous situations and accidents are avoided.

Lack of information can cause accidents.

Arms and cutting units are secured with a mechanical lock

The machine's arms and cutting units are secured with mechanical locks in transport position.

Mechanical locks prevent the accidental falling of the cutters.

Accidental fall of the cutters can result in serious injuries and death.

Pay attention to the machine's total height during transport

The machine's total height must not exceed 4 meters (13' 1.5") during transport on public roads.

This ensures that the machine will fit under viaducts, overhead electrical wires and such.

Exceeding the total maximum height can result in serious damage to the machine and injury to the driver of the tractor.

→ »Machine in the transport position« Page 58

General

WARNING

- Comply with the local laws concerning lights, warning reflective requirements.
- The driver and/or the owner of the machine has the responsibility of complying with local requirements for use on public roads.
- The tractor's maneuverability should not be adversely affected. 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 traveling on public roads

- The machine's hydraulic function must be in neutral and locked.
- Check the surrounding area before starting the machine.

Checking the machine

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

☑ Is the outermost guard on the harvester opens to minimize the transport height of the machine?

→ »Machine in the transport position« Page 58

☑ Is the machine in the transport mode?

☑ Are the machine's transport safety mechanisms locked?

☑ Are the machine attachment points secured by a pin?

☑ Does the lighting kit of the machine work correctly?

Traveling on public roads

WARNING

- Check the area around the machine before you start. Make sure there are no children or unauthorized 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 of 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).

Before cleaning

WARNING

Higher risk when cleaning the equipment
When cleaning, there is an increased risk of 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, do the following before cleaning:

- Check the area around the machine.
- Disconnect the P.T.O shaft.
- The hydraulic system is depressurized and disconnected from the tractor.
- Activate the handbrake and stop the tractor.
- Remove the ignition key from the tractor.

Disconnect the power when cleaning the machine
When cleaning the machine the tractor must be stationary, the ignition key removed and all the lights turned off. This will prevent short circuits and damage to the electric 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 the correct protective gear for body and face when cleaning the machine.
This 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 to clean the machine do the following:

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

Cleaning

Use the correct cleaning agents
Use only pH neutral cleaning agents when cleaning the machine. pH neutral cleaning agents give your machine maximum protection. Cleaning agents with either high or low pH value can be corrosive to plastic, rubber and varnished surfaces.

- High pressure cleaning equipment may be used to clean. However, the area around the bearings should be cleaned using gentle squirts of water.
- Hydraulic components should only be cleaned with gentle squirts of water to protect the gaskets.

After cleaning

- Let the remaining water run off for about 1 hour.
- Remove any water which has collected behind the guards.

Before storage

At the end of the season, the machine should be prepared for storage:

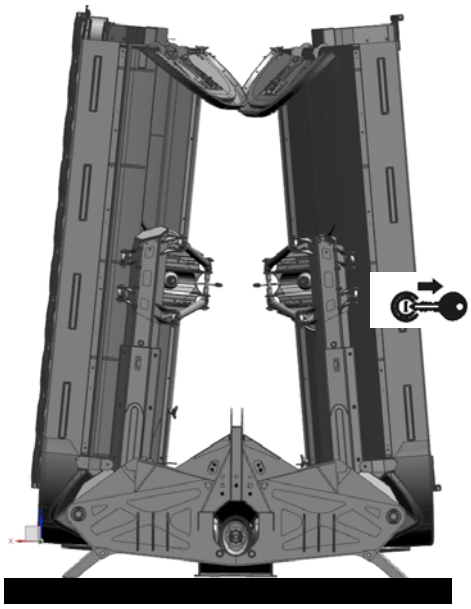
- Check and tighten all bolts.

→ »Torque moment« Page 194

- Repair any damaged components.
- Replace any defective components.
- Repair any damage to the paint work.
- Lubricate the machine according to the lubrication schedule.

→ »Maintenance intervals« Page 135

Parking/ disconnection of the machine



WARNING

Disconnection between the machine and the tractor
There is an increased risk of injury from crushing when disconnecting the machine from the tractor.
Paying full attention when disconnecting ensures your safety and that of others.
Failure to follow the safety instructions may result in serious injuries.

→ »Safety« see page 125

Therefore, when disconnecting make sure that:

- The machine is placed upon a horizontal and level surface.
- The PTO is disengaged.
- all support legs are turned downward.
- Lower the implement to the ground.
- The hydraulic controls is in neutral.
- The tractor is stopped.
- The ignition key is removed.
- The parking brake is set.
- The tractor can not roll after being disconnected.
- Children and unauthorized persons must never be allowed near the machine.

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

Hydraulics

WARNING

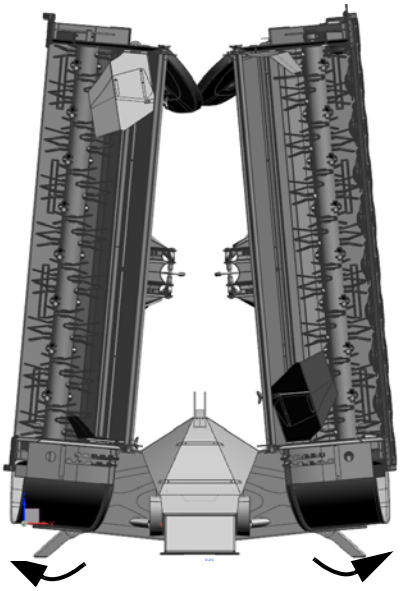
Only disconnect the hydraulics when system is depressurized
You should only disconnect the hydraulic hoses from the tractor's hydraulics if the hydraulic systems on both tractor and machine are depressurized. There is a risk that the machine will move accidentally. Unintentional movement of the machine may result in serious injuries.

Never use your fingers or hands to check for leaks
Never use your fingers or hands to check the hydraulic system for leaks. Use a piece of paper or cardboard to check the hydraulic system for leaks. Leaking pressurized oil can cause serious injuries to skin and cause gangrene.

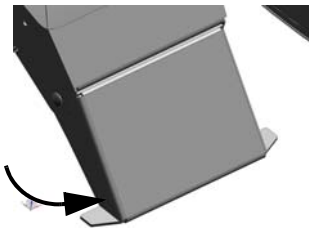
Avoid physical contact with hydraulic oil
Hydraulic oil contains additives that under certain circumstances can have serious consequences for your health. Therefore, when handling hydraulic oil be aware of the following:

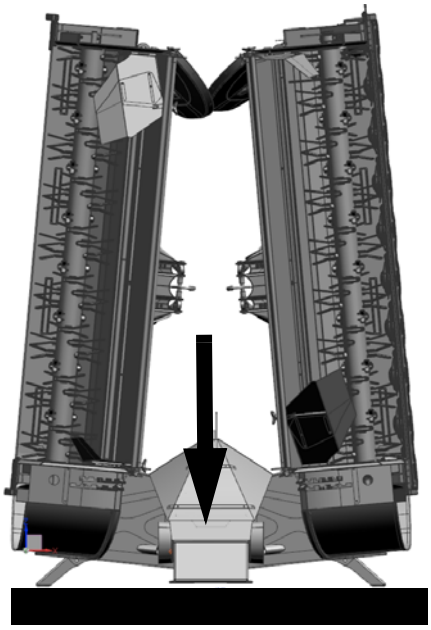
- Avoid direct contact with hydraulic oil. It can damage the skin.
- Protect your skin with barrier cream or protective gloves.
- Never use oil or lubricants to clean your hands.
- Clothes contaminated with oil should be changed immediately.
- Oily cloths should not be kept in your pockets.
- Seek medical help for skin injuries or if you come into contact with hydraulic oil under pressure, as such injuries can cause gangrene.

→ »Machine in the transport position« Page 75



- Turn out all support legs.





- Activate the tractor's hydraulics and lower the machine on a level and stable surface.
- Lower the front-installed cutter.
- Stop the tractor.
- Disconnect the hydraulic connections.
- Disconnect the electrical system.
- Disconnect the PTO shaft from the tractor.
- Disconnect the upper bar and both lifting arms.

Storage

At the end of the season, the machine is prepared for winter storage. Do the following:

- Clean the machine thoroughly.

→ »Cleaning« Page 127

- Change the oil on the gears.

→ »Lubricants« Page 193

- The hydraulic quick coupling should either be covered with a dust cap or placed in a small plastic bag.
- The PTO shaft is cleaned, lubricated and placed in storage in a dry location in order to prevent damage and breakdown.
- Always check that the machine's safety equipment is not worn or damaged.
- Place the machine in a ventilated machine room.

Safety

WARNING

The machine shall be secured when parked
The machine must be correctly secured when parked in storage. A correctly secured machine prevents persons from being run over and other serious accidents.
If the machine is not properly secured when parked it can result in serious injuries and death.

→ »Safety« see page 125

Therefore, when disconnecting make sure that:

- The machine is in working position.
- The machine is placed upon a horizontal and level surface.
- The PTO is disengaged.
- Lower the implement to the ground.
- The hydraulic controls is in neutral.
- The tractor is stopped.
- The ignition key is removed.
- The parking brake is set.
- The tractor can not roll after being disconnected.
- Children and unauthorized persons must never be allowed near the machine.

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

For your own safety

WARNING

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. An incorrectly maintained machine is a danger to personnel and environment.

Specific safety information

WARNING

- Repair and maintenance work should only be carried out by persons with the necessary professional knowledge and the correct tools.
- The PTO on the tractor should be disconnected, and the motor should be stopped.
- Make sure that the hand brake is applied and the ignition key has been removed from the tractor.
- 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 a pressurized grease gun spray to lubricate the machine bearings.

Lubrication safety and use of oil

WARNING

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

- Avoid direct contact with these agents. It can damage the skin.
- Protect your skin with barrier cream or protective gloves.
- Never use oil or lubricants to clean 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.
- Seek medical help if skin is injured 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 any maintenance work the machine must be secured in the transport mode. If maintenance requires the working position, you will find a suitable instruction for this work.

Working with the grease gun
One or two pumps of the grease gun is sufficient for lubrication. If you feel resistance after just one pump with the grease gun do not apply more grease to the bearings. Too much grease can destroy the bearings' sealing rings. In this case dust and dirt can enter the bearings and cause an early wear and tear.

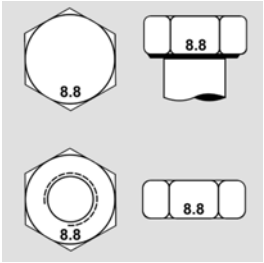
Basic

This table contains explanations of the most important maintenance terms.

Work	Performance
Lubricating with oil can	Apply oil to the moving parts. Use only authentic products. → »Technical information« Page 193
Lubricating with grease gun	1-2 pumps with the grease gun is sufficient unless otherwise stated. Use only authentic products. → »Technical information« Page 193
Oil change	Use only authorized oil products. Using used oil is dangerous for your health and is strictly prohibited. → »Technical information« Page 193
Replace	Replace the part in question according to the instructions
Check	Check the part in question according to the instructions. The check is sometimes related to the replacement of the part in question
Complying with the maintenance intervals	All specifications are based on an average usage of the machine. If heavily loaded, e.g. machine pools, maintenance should be carried out on a more regular basis. In work conditions producing high levels of dust, maintenance should also be carried out on a more regular basis

Torque for screw connections

→ »Torque moment« Page 194



Maintenance intervals

		Daily	Every 200 hours of operation / once annually	As required	Oil change	Lubrication	Check	Replacement	Page
	Hydraulic hoses every 6 years							•	20
Cutter	Blades	•					•		139
				•				•	167
	Cutting disc	•					•		140
				•				•	169
	Stone guard and counter blade	•					•		143
				•				•	171
	Tarpaulin	•					•		145
				•				•	181
Transmission Cutterbar	After 50 working hours				•				137
	Cutterbar		•		•				147
	Main gear		•		•				149
	Bevel gear		•		•				151
	Roller gear		•		•				153
Lubrication	Drive shaft		•			•			163
	Bearings		•			•			164
	Moving joints		•			•			165
Cone	External	•					•		141
	Internal		•				•		158
Rotor / Roller	Y - fingers	•					•		142
				•				•	174
	Rollers	•					•		143
	V-belt	•					•		144
				•				•	175
Other	Drive shaft		•				•		160
				•				•	178
	Oil filter		•					•	157

WARNING

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

When working on the transmission:

- The PTO is disengaged.
- Lower the implement to the ground.
- The hydraulic controls is in neutral.
- The tractor engine must be stopped.
- The ignition key is removed.
- The parking brake is set.
- Secure the tractor to prevent it from rolling.

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

Always use original spare parts on the machine
Always use original spare parts.
Original spare parts should be used for safety reasons.
The manufacturer's warranty becomes void if non-original spare parts are used.

Make sure that all safety devices are in place
Check that all safety devices are in place.
This ensures that the machine will offer maximum protection to the operator.
If the safety devices are disassembled or not used, it may result in serious injuries and accidents.

PTO shaft check

Refer to the manufacturer's user manual included with the P.T.O. shaft.
→ »User manual for the P.T.O. shaft« Page 42

After 50 hours of operation

WARNING

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 transmission:

- The PTO is disengaged.
- Lower the implement to the ground.
- The tractor engine must be stopped.
- The ignition key is removed.
- The parking brake is set.
- Secure the tractor to prevent it from rolling.

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

Be careful when using oil
Use barrier cream or protective gloves when handling 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.

After 50 hours of operation, the oil in the machine needs to be changed:

- Cutterbar
  → »Cutterbar« Page 147
- Main gear
  → »Main gear« Page 149
- Bevel gear
  → »Bevel gear« Page 151
- Roller gear
  → »Roller gear« Page 153

Daily

WARNING

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 transmission:

- The PTO is disengaged.
- Lower the implement to the ground.
- The tractor engine must be stopped.
- The ignition key is removed.
- The parking brake is set.
- Secure the tractor to prevent it from rolling.

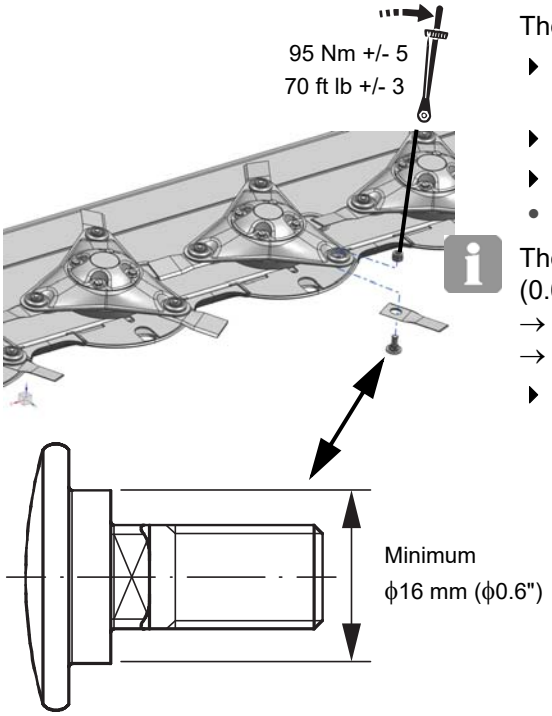
Failure to secure the tractor to prevent it from rolling could endanger lives.

Blades

CAUTION

Check the machine knives on a regular basis
The machine's knives must be regularly inspected.
Worn or damaged knives can unbalance the rotating parts.
Vibrations can cause damage to the machine.

→ »Maintenance intervals« Page 135



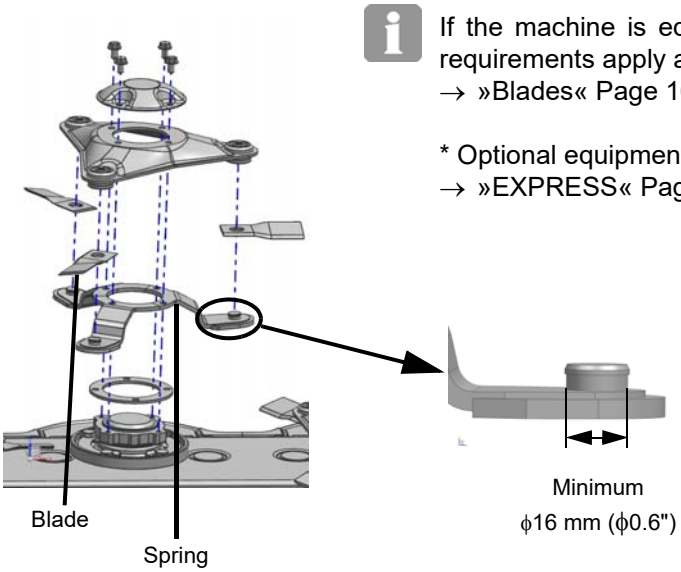
The knives are checked in the following way:

- Turn the cutting discs by hand until the damaged blade is in the position shown.
- Inspect the condition of the bolts and blades for wear.
- Inspect the bolt for damage or wear.
- If the bolt is damaged or worn, it must be changed.

The minimum diameter of the bolt must not be less than ϕ16 mm (0.6").

→ »Blades« Page 167
→ »Synopsis« Page 31

- Retighten the bolts to the specified torque.



If the machine is equipped with quick-changing blades*, the same requirements apply as with the wearing of bolts.

→ »Blades« Page 167

* Optional equipment

→ »EXPRESS« Page 184

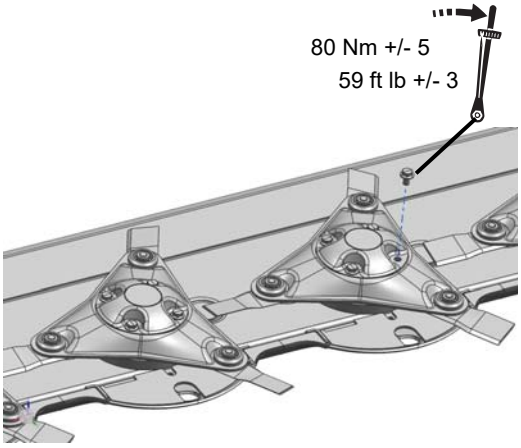
Cutting disc

→ »Maintenance intervals« Page 135

- Inspect the condition of the cutting discs for deformities and cracks.

Damaged and/or deformed cutting discs must be replaced immediately.

→ »Cutting disc« Page 169

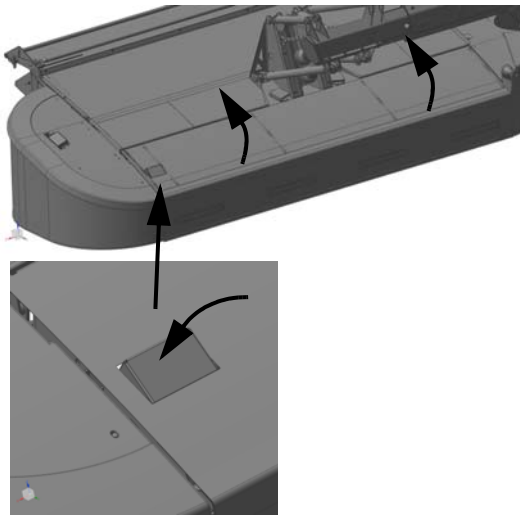


- Tighten the cutting disc to the indicated torque.

Cones

CAUTION

Check the machine's cones on a regular basis
The machine's cones must be inspected and cleaned regularly.
The accumulation of residual grain can cause an imbalance in the rotating parts.
Vibrations can cause damage to the machine.



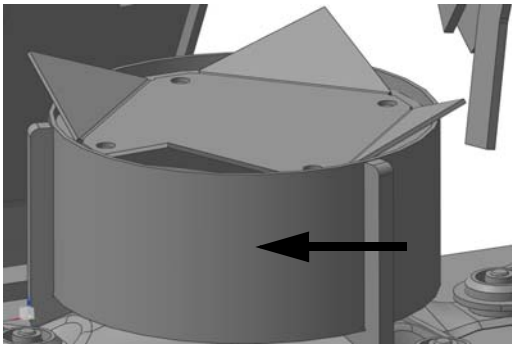
An external check of the cones is carried out in the following way:
→ »Maintenance intervals« Page 135

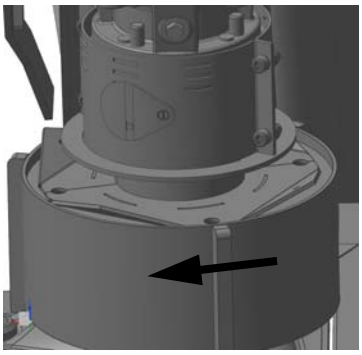
- Push the lever down.
- Open the guard.

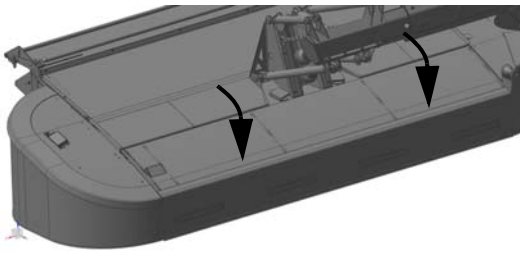
- Conduct an external inspection of the cones on the right and left sides for dirt.

Damaged and/or deformed cones must be replaced immediately.

- Clean the cone as necessary.





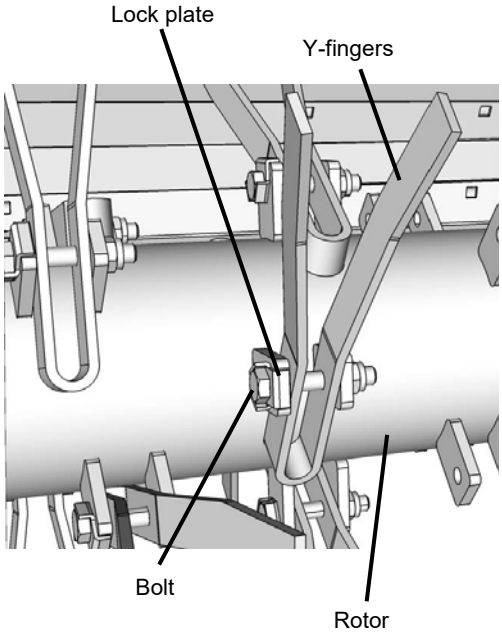


- Close the guard.

Y-fingers

Only T model

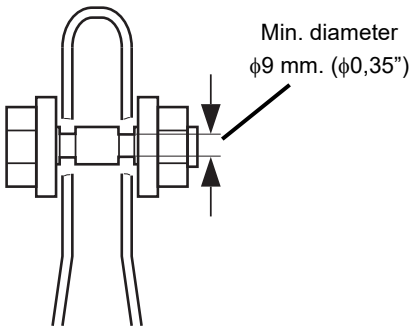
→ »Maintenance intervals« Page 135



How to check steel Y-fingers:

- Check the rotor for loose fingers.
- Check the lock plate by the bolt.
- If the lock plate is damaged or cracked, it must be changed.

→ »Y - fingers« Page 174



- Inspect the bolt for damage or wear.
- If the bolt is damaged or worn, it must be changed.

The minimum diameter of the bolt must not be less than ϕ9 mm (ϕ0.35").

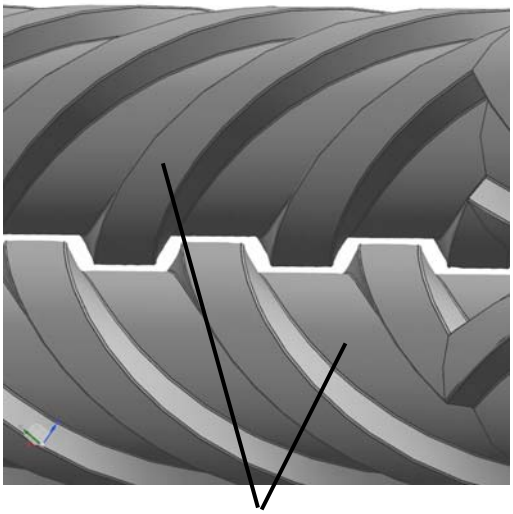
→ »Y - fingers« Page 174

- Check that the bolt is fully tightened.
- If not, tighten the bolt some more.
- The Y-fingers should be able to move freely.

Rollers

Only R model

→ »Maintenance intervals« Page 135

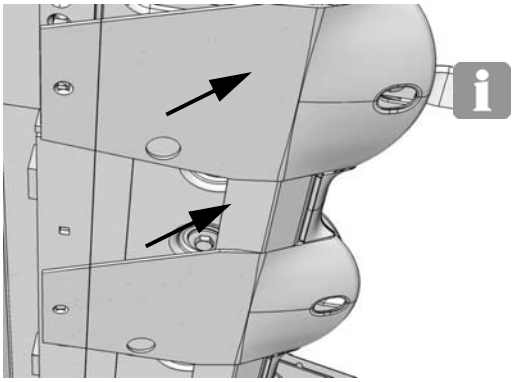


The rollers are checked as follows:

- Inspect the rollers for jammed foreign objects.

Stone guard and counter blade

→ »Maintenance intervals« Page 135



- Carry out a visual inspection of the machine's stone guard and counter blade for wear.

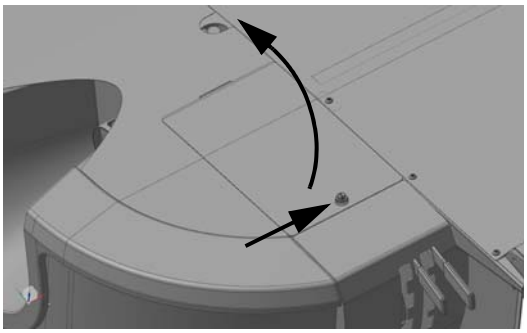
Stone guards and counter blades with visible holes caused by heavy wear must be replaced immediately.

→ »Stone guard and counter blade« Page 171

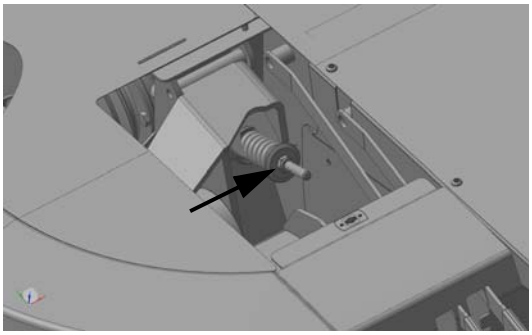
V-belt

→ »Maintenance intervals« Page 135

The V-belts on the rotor must be regularly checked.
The V-belts are checked in the following way:



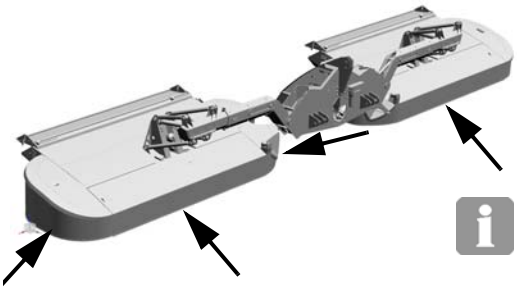
- Open the cover.



- Check the spring at the V-belt transmission.
- Check to see that the nut is tightened until it stops.

Tarpaulin

The tarpaulin and auxiliary protection around the cutter bar must be charged regularly.



The tarpaulin and auxiliary protection are inspected as follows:

- Do a visual inspection of machine protection for holes and other damage.

Guards with visible holes and other damage must be replaced immediately.
→ »Tarpaulin« Page 181

Every 200 hours of operation

or once annually

WARNING

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 transmission:

- The PTO is disengaged.
- Lower the implement to the ground.
- The tractor engine must be stopped.
- The ignition key is removed.
- The parking brake is set.
- Secure the tractor to prevent it from rolling.

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

Be careful when using oil
Use barrier cream or protective gloves when handling 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.

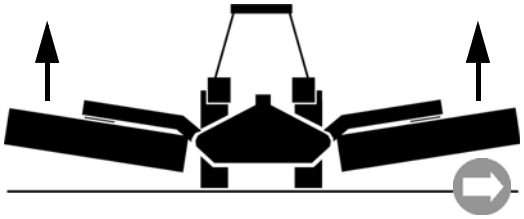
Maintain correct oil level
The max. and min. oil level indicators on the transmission must not be exceeded. Correct transmission oil level will ensure a long service life. Incorrect oil levels can cause the transmission to overheat, resulting in serious damage.

WARNING

Proper support for the machine is vitally important
When working under the machine, the machine must be properly supported. If the machine is not properly supported, there is a serious risk that the machine till turn over onto people. Insufficient support of the machine may result in serious injuries and death.

Cutterbar

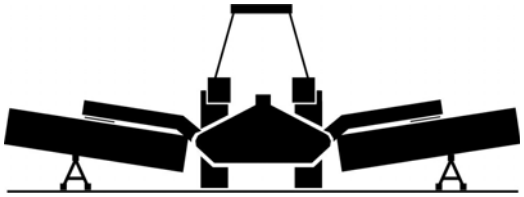
The oil in the cutter bar is changed as follows:



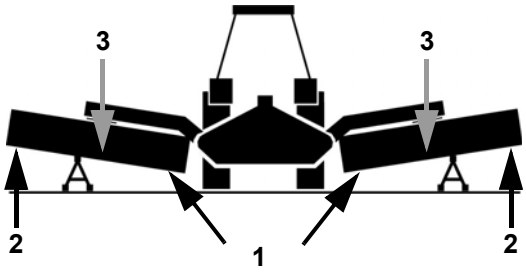
- Place the machine in working position.

→ »Machine in Working Mode« Page 74

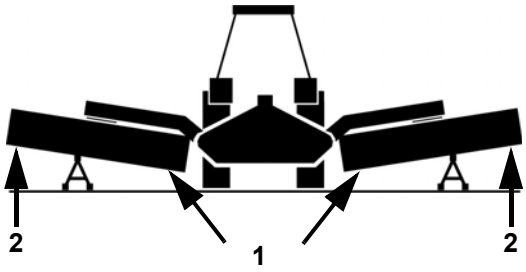
- Raise both cutter units.
- Connect the tractor's P.T.O. shaft and allow the machine to run for about 5 minutes.
- Turn off the tractor's P.T.O. shaft
- Stop the tractor and remove the ignition key.



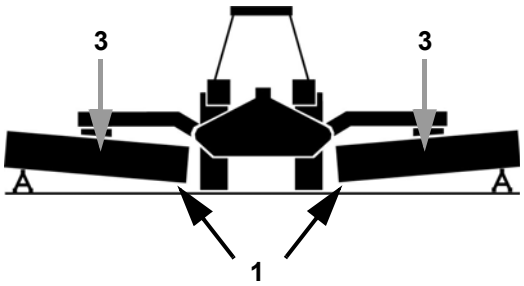
- Place the proper support under both cutterbars as shown.



- Locate oil plugs 1, 2 and 3 on both cutterbars and clean the area.



- Remove oil plug 1 and 2.
- Let the oil flow into a suitable container.
- Allow the last of the oil to drip out of the cutter bar for approx. 10 - 15 minutes.

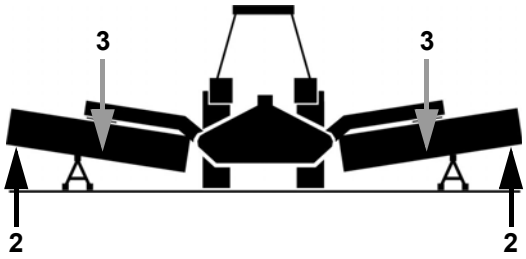


- Insert the oil plug [1].
- Remove oil plug [3].

- Fill with new oil:

Always fill with the correct amount of oil.

Model	Liter (approx.)	Pints (US) (approx.)	Pints (Imp.) (Approx.)
63100	3,0*	6,3*	5,3*

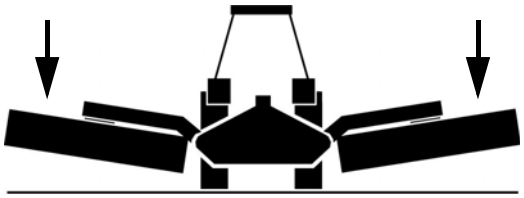


* per cutter.

→ »Lubricants« Page 193
→ »Maintenance intervals« Page 135

- Fit oil plug 2 and 3.

Always maintain the correct oil level.



- Start tractor.
- Remove the support.
- Lower both cutter units.

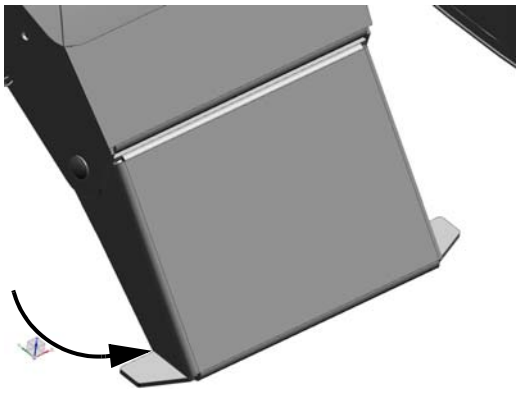
Main gear

→ »Maintenance intervals« Page 135
The oil is changed as follows:

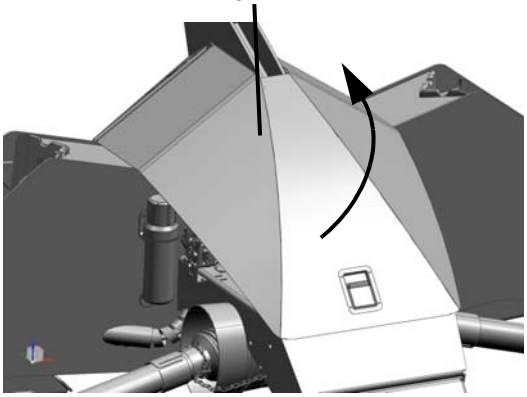
- Place the machine in working position.

→ »Machine in Working Mode« Page 74

- Connect the tractor's P.T.O. shaft and allow the machine to run for about 5 minutes.
- Turn off the tractor's P.T.O. shaft
- Stop the tractor and remove the ignition key.
- Turn out support legs.

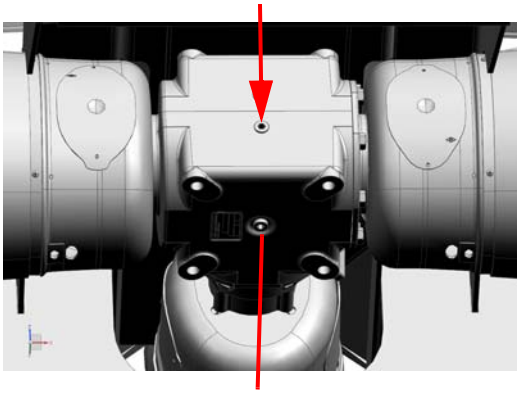


Cover



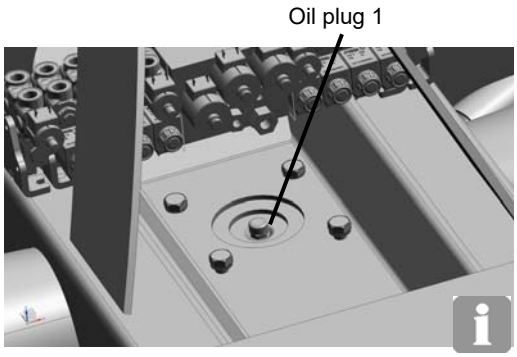
- Open the cover.
- Remove the toolbox

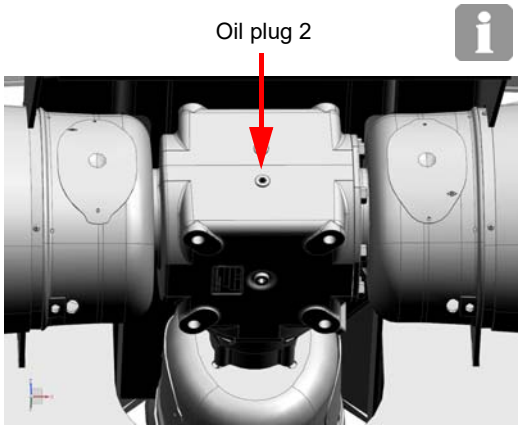
Oil plug 2



Oil plug 3

- Locate oil plug [2,3] and clean the area.
- Remove oil plug 2 and 3.
- Let the oil flow into a suitable container.
- Allow the last of the oil to drip out of the transmission for approx. 10 - 15 minutes.
- Plug the oil plug 3 back in place.





- Remove oil plug 1.
- Oil amount when changing oil:

Liter (approx.)	Pints (US) (approx.)	Pints (imp) (approx.)
2,5	5,3	4,4

- Fill with new oil.

Always fill with the correct amount of oil.

Always maintain the correct oil level.
→ »Lubricants« Page 193

- Affix oil plugs 1 and 2, and then tighten them.
- Attach the toolbox.
- Close the cover.
- Turn support legs inward.

Bevel gear

→ »Maintenance intervals« Page 135

Oil amount when changing oil:

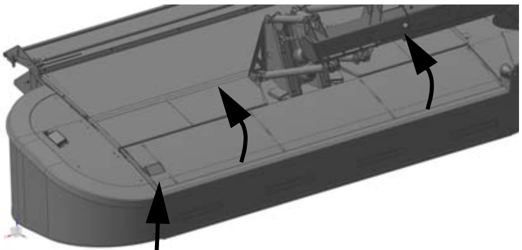
Liter (approx.)	Pints (US) (approx.)	Pints (imp) (approx.)
1,0	2,1	1,8

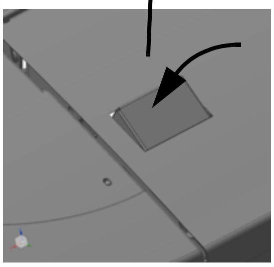
The oil is changed as follows:

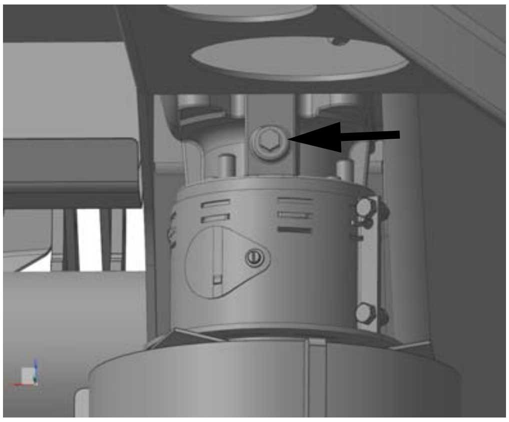
- Place the machine in working position.

→ »Machine in Working Mode« Page 74

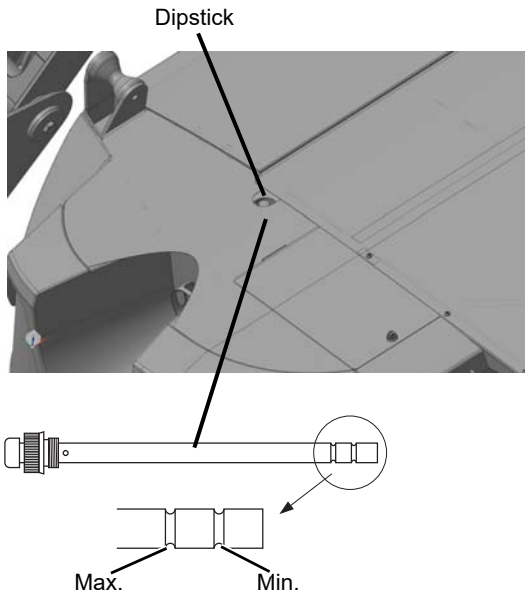
- Connect the tractor's P.T.O. shaft and allow the machine to run for about 5 minutes.
- Turn off the tractor's P.T.O. shaft
- Stop the tractor and remove the ignition key.
- Push the lever down.
- Open the guard.





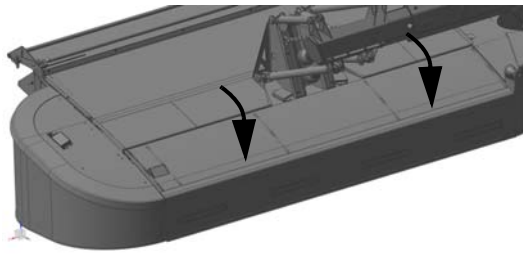


- Remove the oil plug.
- Let the oil flow into a suitable container.
- Allow the last of the oil to drip out of the transmission for approx. 10 - 15 minutes.
- Plug the oil plug back in place.



- Remove the dipstick.
- Pour the oil through the hole where the dipstick is fitted.
- Check that the oil level is up to the "max" indication on the dipstick.
- Place and fasten the dip stick.

→ »Lubricants« Page 193

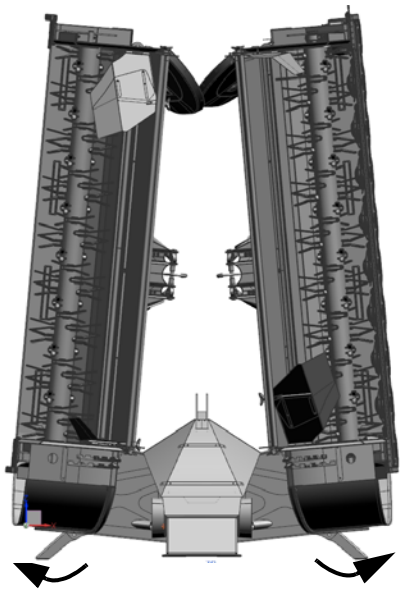


- Close the guard.
- Make sure that the guard is in place and locked.

Roller gear

Only R model

Main gear

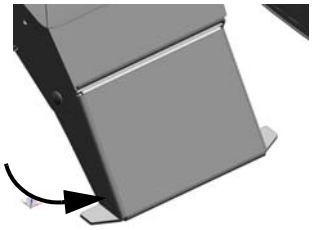


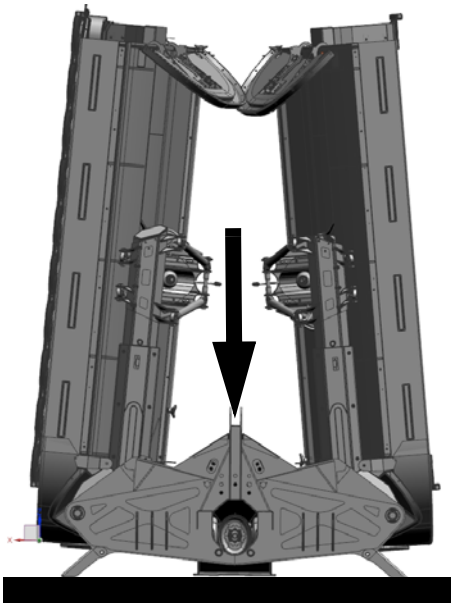
How to change the oil:

- Activate the tractor hydraulics and raise the machine up into its transport position.

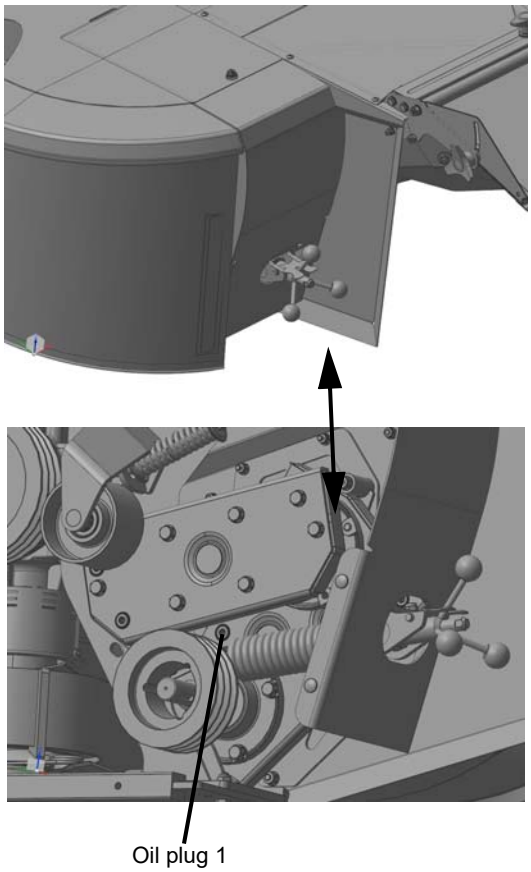
→ »Machine in the transport position« Page 58

- Turn out all support legs.



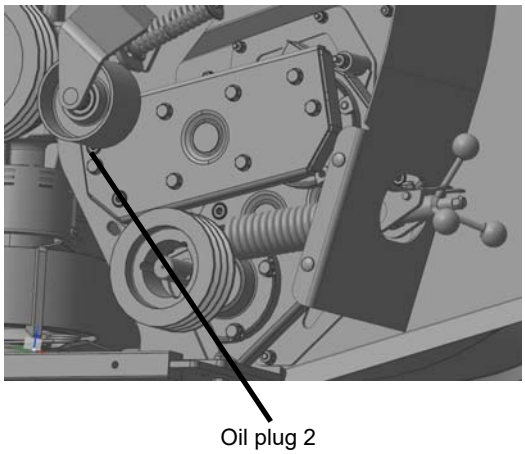


- Carefully lower the machine down onto the support legs.
- Stop the tractor.



- Remove oil plug 1.
- Let the oil flow into a suitable container.
- Allow the last of the oil to drip out of the cutter bar for approx. 10 - 15 minutes.

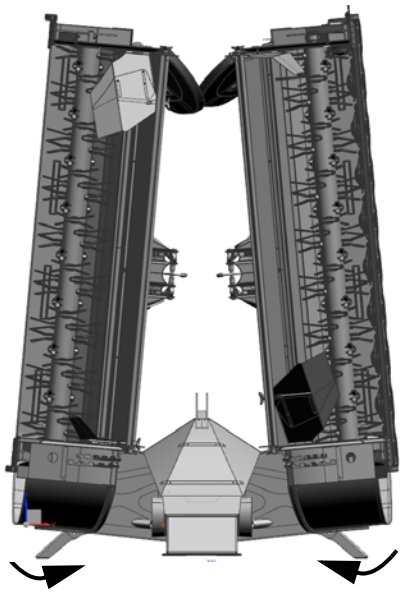
Arm

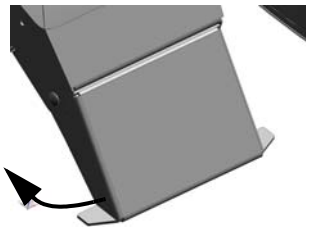


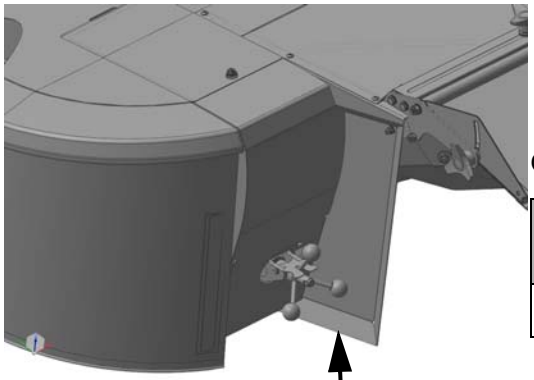
- Remove oil plug 2.
- Let the oil flow into a suitable container.
- Allow the last of the oil to drip out of the cutter bar for approx. 10 - 15 minutes.
- Attach and secure the oil plug 2.

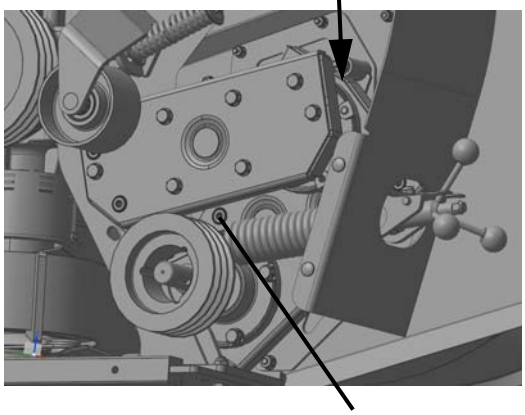
- Start the tractor.
- Activate the tractor's lifting arms and life the machine free from the ground.
- Turn all support legs inward.
- Place the machine in working position.

→ »Machine in Working Mode« Page 74









Oil plug 1

- Fill oil through the hole for oil plug 1.
- The correct oil level is reached once the oil level reaches the edge of the hole for oil plug 1.

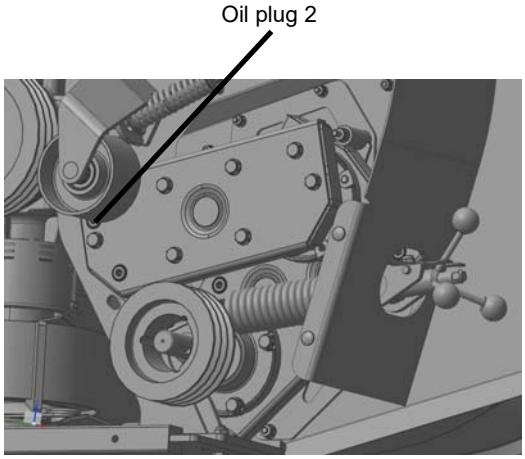
Oil amount when changing oil:

Liter (approx.)	Pints (US) (approx.)	Pints (imp) (approx.)
0,8	1,7	1,4

- Attach and secure the oil plug 1.

→ »Lubricants« Page 193
→ »Maintenance intervals« Page 135

Arm



- ▶ Remove oil plug 2.
- ▶ Fill oil through the hole for oil plug 2.
- • The correct oil level is reached when the oil reaches the edge of the hole for oil plug 2.

Oil amount when changing oil:

Liter (approx.)	Pints (US) (approx.)	Pints (imp) (approx.)
0,75	1,6	1,3

- ▶ Attach and secure the oil plug 2.

→ »Lubricants« Page 193
→ »Maintenance intervals« Page 135

Oil filter

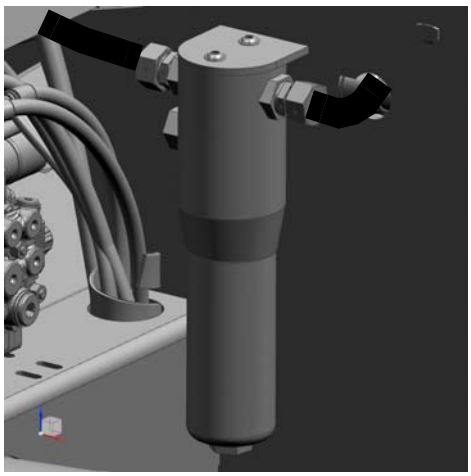
WARNING

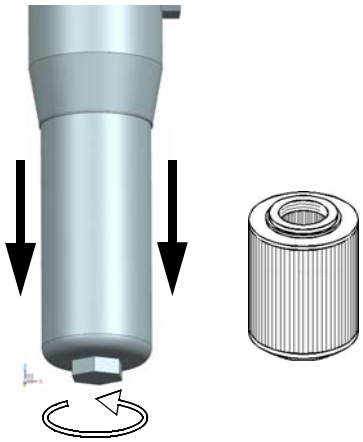
Hydraulic oil under pressure can cause serious injuries
Before disconnecting hydraulic connections, the excess pressure must always be released. Hydraulic oil under pressure can penetrate the skin and result in serious injuries.

Be careful when using oil
Use barrier cream or protective gloves when handling oil.
It will protect your hands against skin injuries.
Direct contact with the oil could lead to serious skin injuries.

How to change the oil filter:

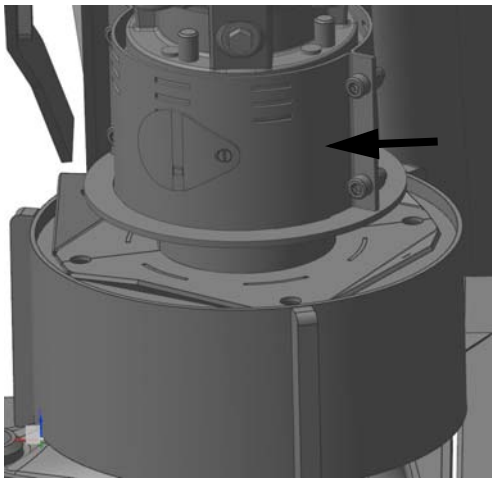
- Stop the tractor and remove the ignition key.
- Disconnect the hydraulic connection to the tractor.
- Place a container under the filter.
- Carefully loosen the screws at the bottom of the filter.
  - Be careful when dealing with oil under pressure.
- Allow the excess oil to run into the collection tank.
- Remove and change the filter element.
- Assemble filter element and tighten screw appropriately.
- Connect the hydraulic connection to the tractor.
- Start the tractor and allow the oil pressure to build up.
- Check the filter for leaks.





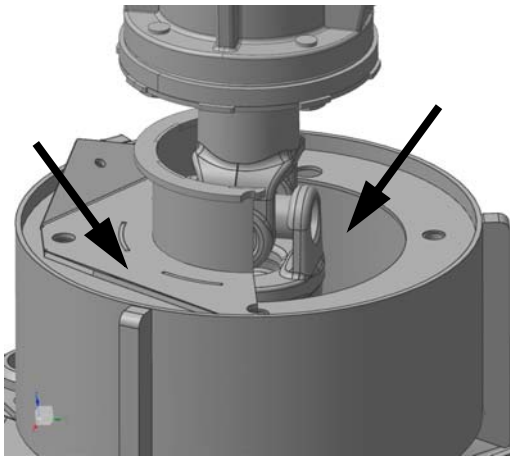
Cone

Internal inspection

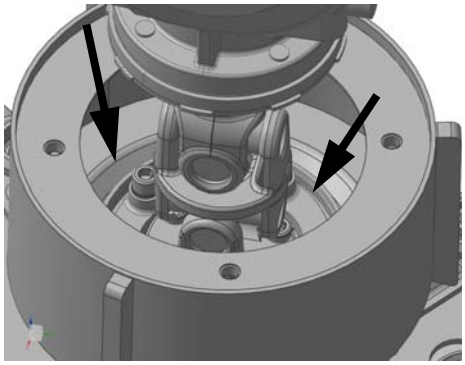


An internal check of the cones is carried out in the following way:
→ »Maintenance intervals« Page 135

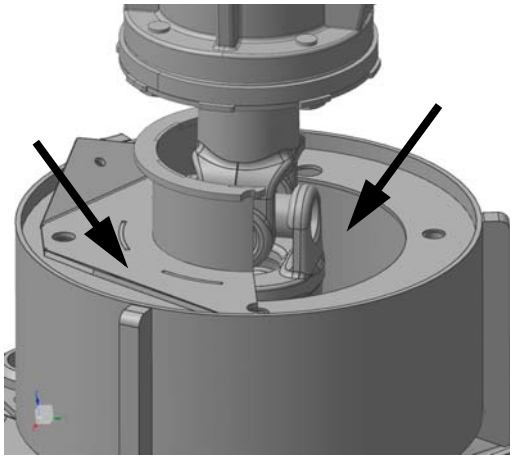
- Remove the guard around the cutterbar transmission on the left side of the cutterbar.



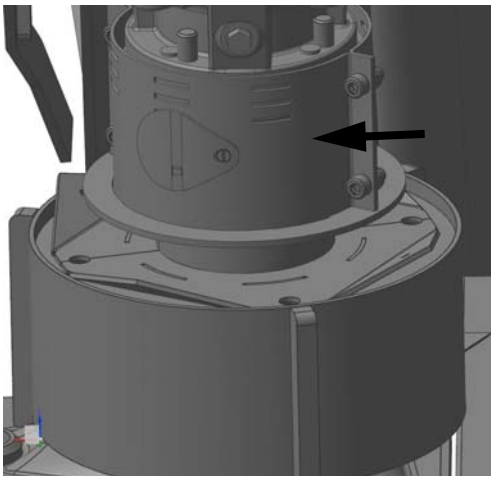
- Remove the top cover from the cone.



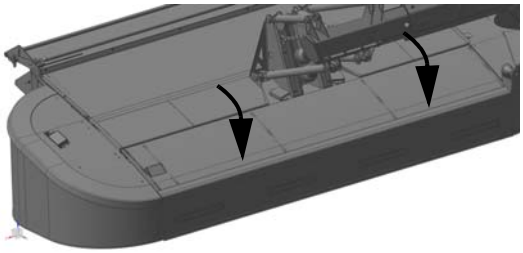
- Do an internal inspection of the cones for dirt.
- Clean the cone if necessary.



- Fit the cone's top cover.



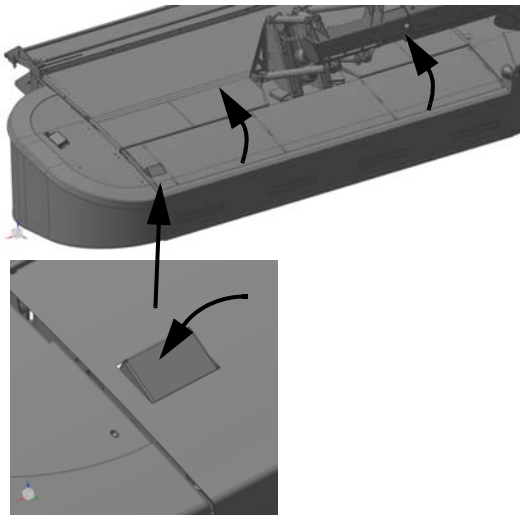
- Fit the guard around the cutterbar's transmission.



- Close the guard.
- Make sure that the guard is in place and locked.

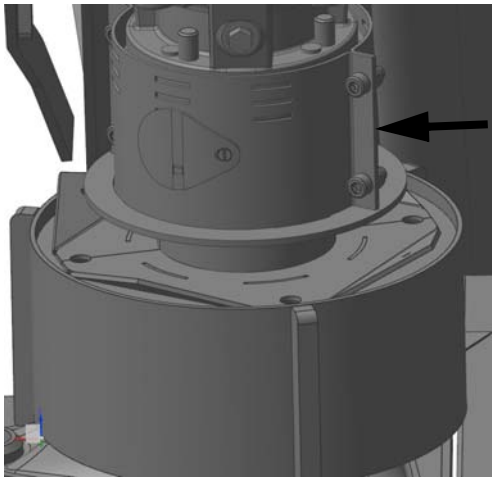
Drive shaft

Check

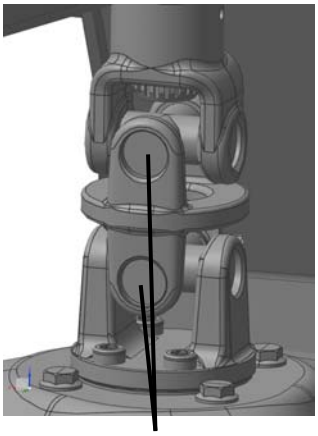


The universal joint between the transmission and the cutterbar is checked in the following way:
→ »Maintenance intervals« Page 135

- Push the lever down.
- Open the guard.

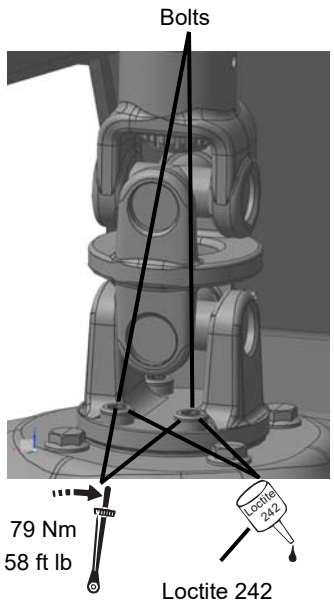


- Remove the guard on the left side.

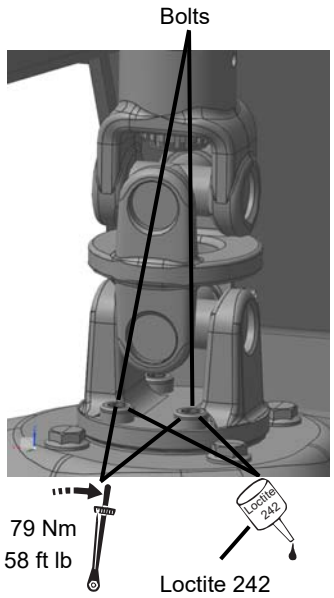


Universal joint

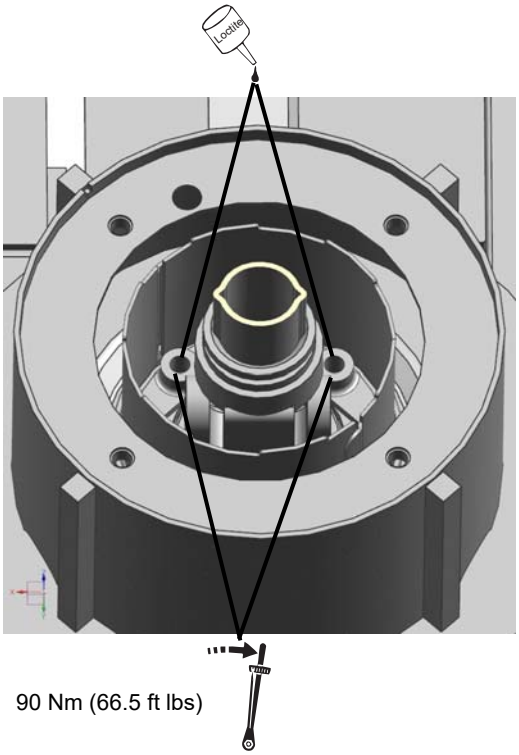
- Inspect both universal joints for wear.



- Check the universal joint for broken or loose bolts.
- Replace the broken bolts.
- Apply Loctite 242 or a similar product to all bolts.
- Fit the bolts and tighten to the indicated torque.

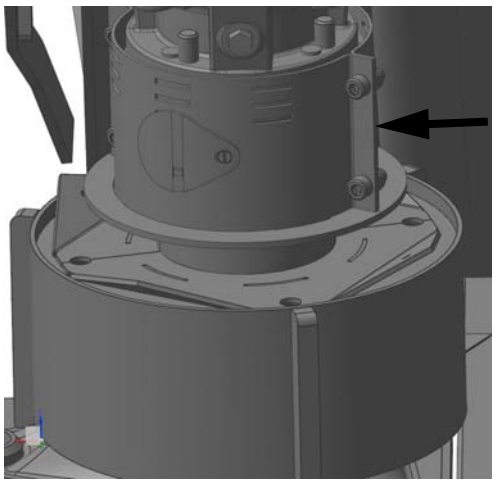


- If there are loose bolts, the following procedure should be followed:
- Remove and clean the bolts.
- Apply Loctite 242 or a similar product to all bolts.
- Fit the bolts and tighten to the indicated torque.
- Fit the cone's top cover.



If the cone has been dismantled:

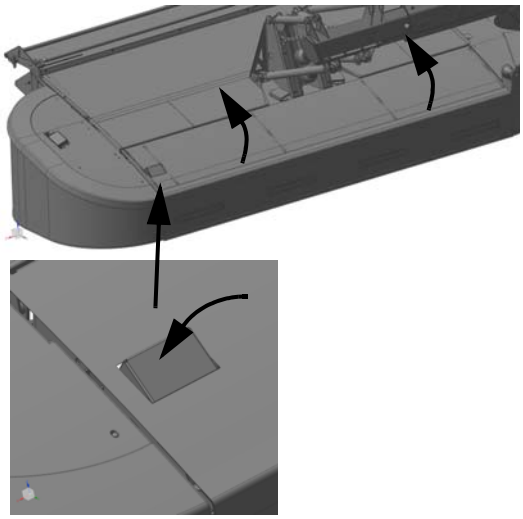
- Clean all the bolts to the cone.
- Apply Loctite 242 or a similar product to all bolts.
- Secure the cone with the indicated tightening torque.



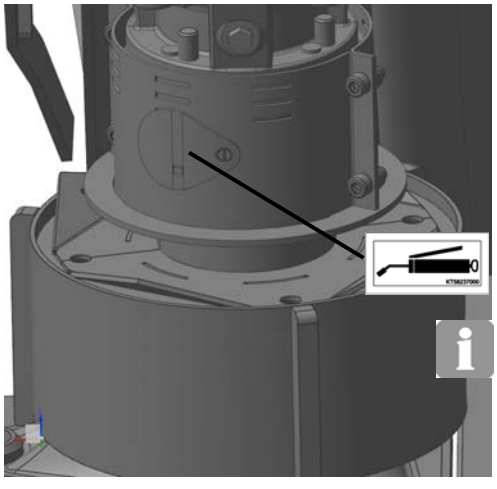
- Disassemble the protection around the PTO shaft between the transmission and the cutter bar.

Drive shaft

Lubrication



- Push the lever down.
- Open the guard.



- Turn the cone on the left side of the machine until the grease nipple is visible in the hole shown.
- Press the nozzle of the grease gun over the grease nipple.
- Pump the grease gun once or twice (max.).
- Remove the grease gun from the grease nipple.

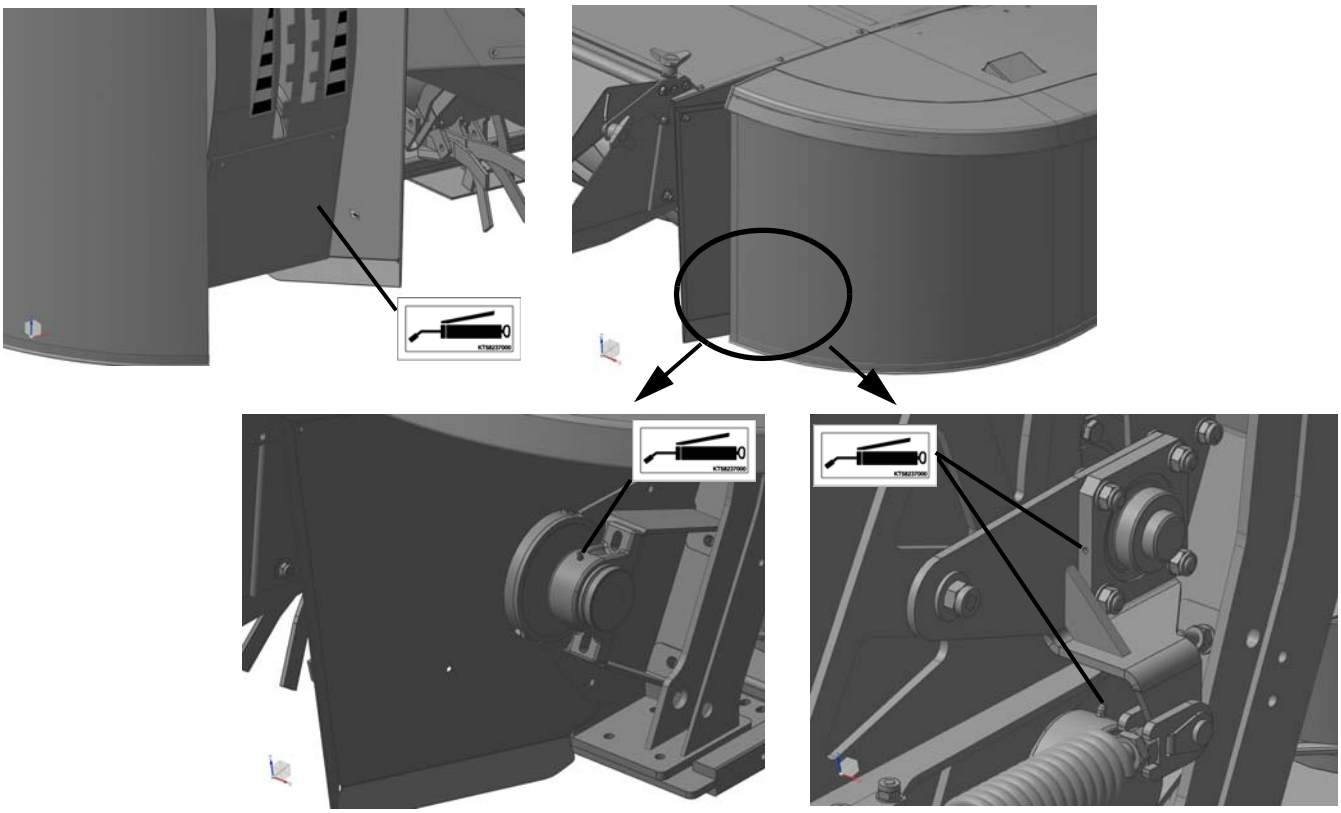
→ »Maintenance intervals« Page 135
→ »Lubricants« Page 193

Watch out for blades and sharp edges.

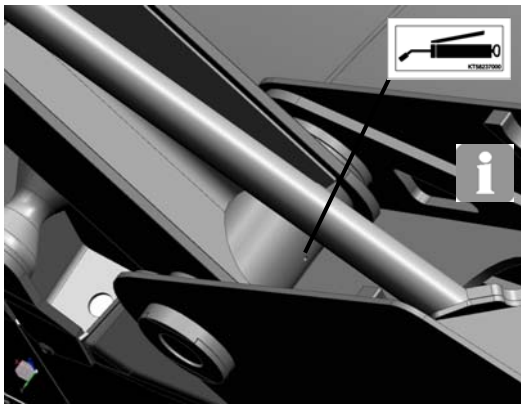
Bearings

- Localize the grease nipples on the right and left side of the machine
- Press the nozzle of the grease gun over the grease nipple.
- Pump the grease gun once or twice (max.).

→ »Maintenance intervals« Page 135
→ »Lubricants« Page 193



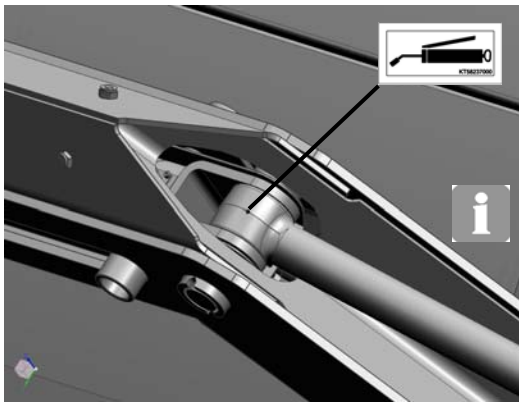
Moving joints



- Press the nozzle of the grease gun over the grease nipple.
- Pump the grease gun once or twice (max.).

→ »Maintenance intervals« Page 135
→ »Lubricants« Page 193

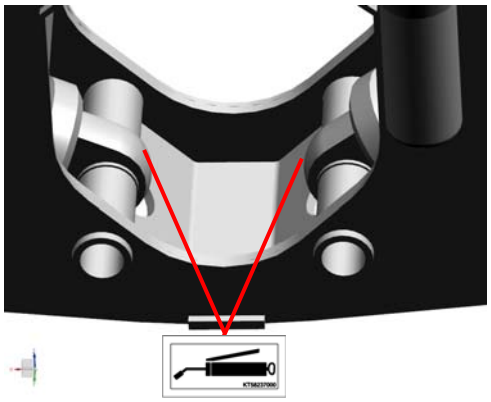
The same procedure is performed on both sides of the suspension.



- Press the nozzle of the grease gun over the grease nipple.
- Pump the grease gun once or twice (max.).

→ »Maintenance intervals« Page 135
→ »Lubricants« Page 193

The same procedure is performed on both sides of the suspension.



- Press the nozzle of the grease gun over the grease nipple.
- Pump the grease gun once or twice (max.).

→ »Maintenance intervals« Page 135
→ »Lubricants« Page 193

As required

WARNING

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 transmission:

- The PTO is disengaged.
- Lower the implement to the ground.
- The tractor engine must be stopped.
- The ignition key is removed.
- The parking brake is set.
- Secure the tractor to prevent it from rolling.

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

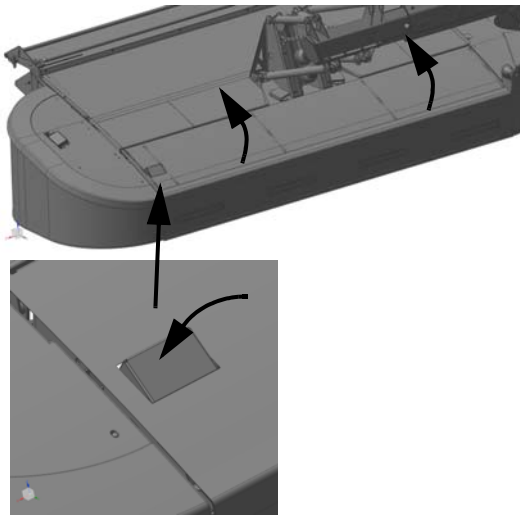
Always use original spare parts on the machine
Always use original spare parts.
Original spare parts should be used for safety reasons.
The manufacturer's warranty becomes void if non-original spare parts are used.

Make sure that all protective guards are in place
Check that all protection guards are in place.
This ensures 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.

Blades

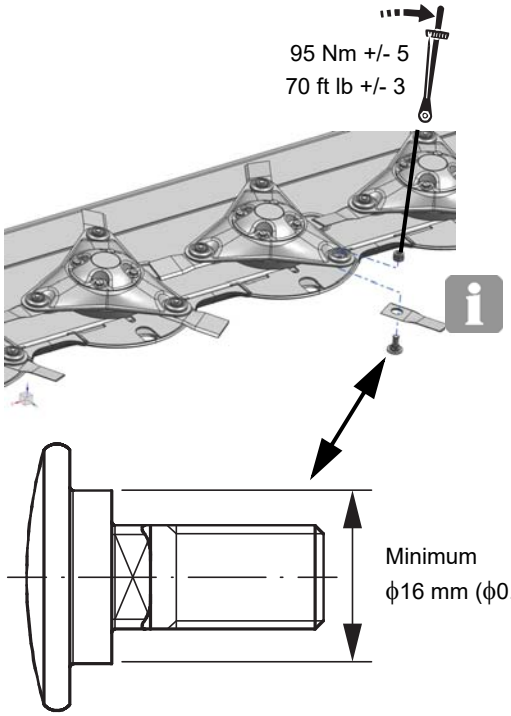
CAUTION

Check the machine knives on a regular basis
The machine's knives must be regularly inspected.
Worn or damaged knives can unbalance the rotating parts.
Vibrations can cause damage to the machine.



Replace the blades as follows:
→ »Maintenance intervals« Page 135

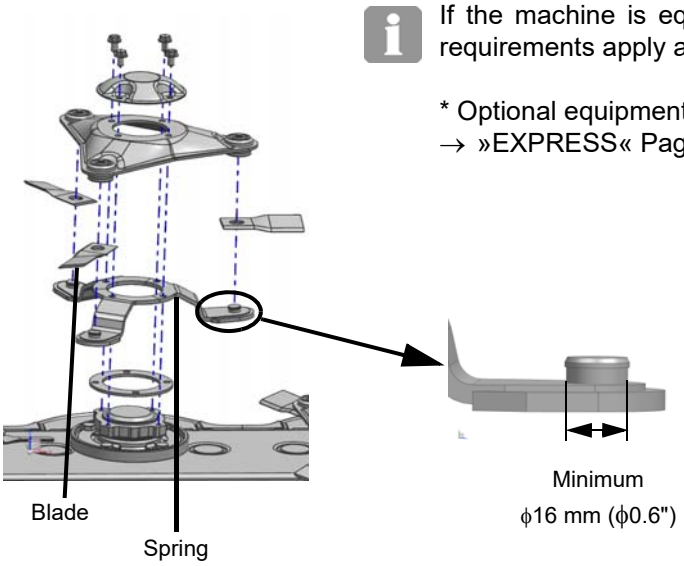
- Push the lever down.
- Open the guard.



- Turn the cutting discs by hand until the damaged blade is in the position shown.
- Remove the bolt.
- Replace the knife.
- Inspect the bolt for wear.
  - If the bolt is damaged or worn, it must be changed.

The minimum diameter of the bolt must not be less than ϕ16 mm (0.6").

- Mount the knife and bolt.
- Tighten the bolts and nuts to the specified torque.

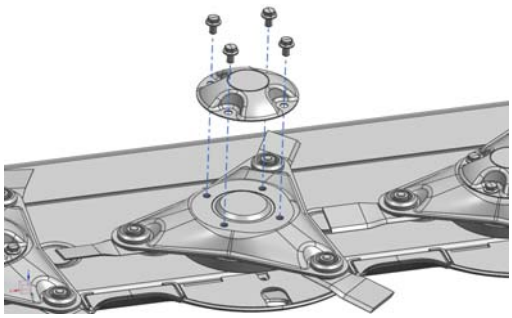


If the machine is equipped with quick-changing blades*, the same requirements apply as with the wearing of bolts.

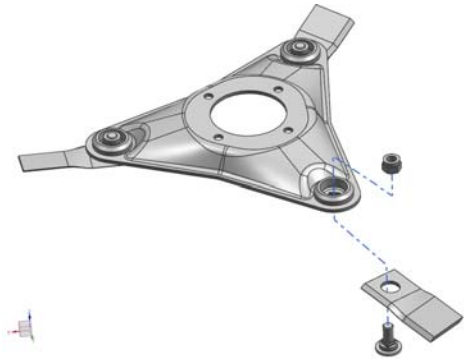
* Optional equipment
→ »EXPRESS« Page 184

Cutting disc

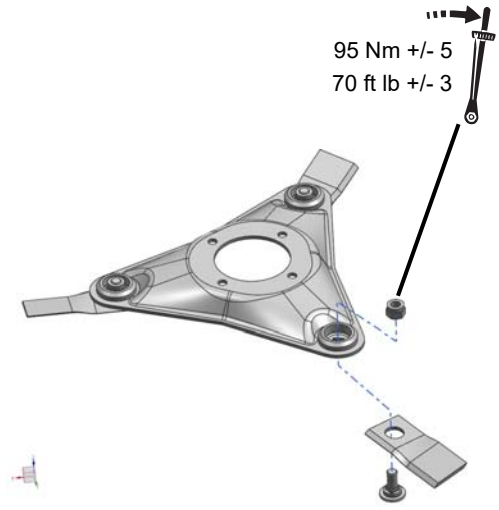
The cutting discs are replaced in the following way:
→ »Maintenance intervals« Page 135



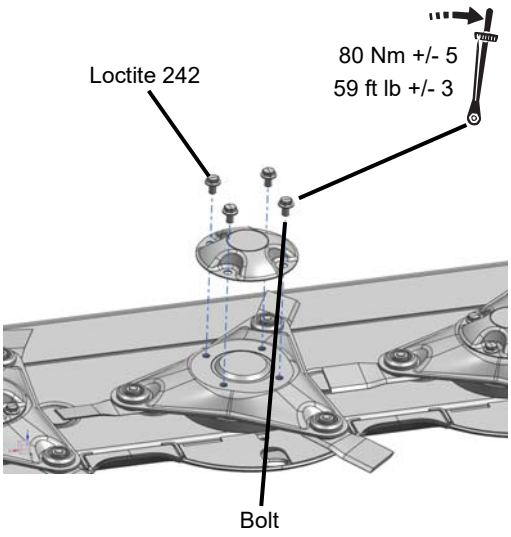
- Dismantle the cutting disc.



- Remove the bolt and blade from the cutting disc.



- Fit the knife and bolt on the new cutting disc.
- Tighten the bolts and nuts to the specified torque.



- Apply Loctite 242 or a similar product to all bolts.
- Fit the cutting disc on the cutter bar.
- Tighten the bolts to the given torque.

Stone guard and counter blade

WARNING

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

When working on the transmission:

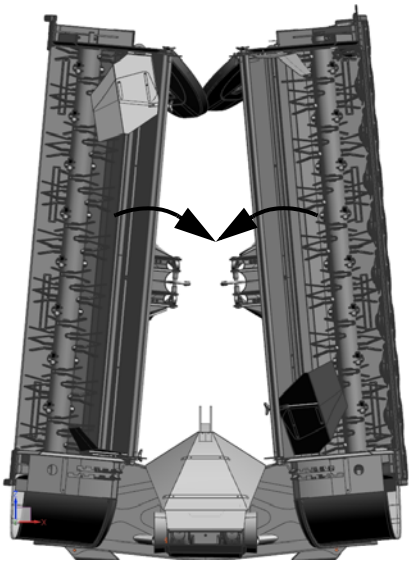
- Disconnect the P.T.O. shaft.
- Lower the implement to the ground.
- The hydraulic controls is in neutral.
- The tractor engine must be stopped.
- The ignition key is removed.
- The parking brake is set.
- Secure the tractor to prevent it from rolling.

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

As required

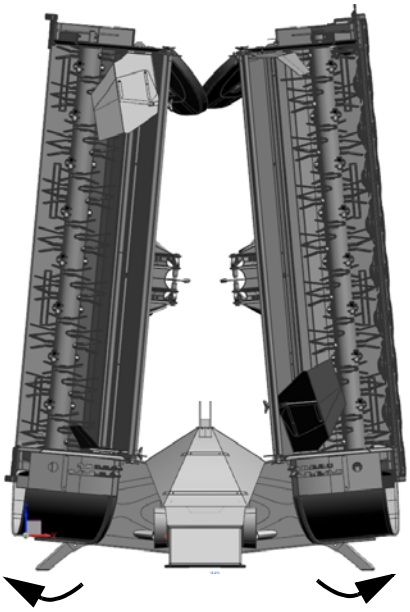
→ »Maintenance intervals« Page 135

The stone guard and counter blade are changed as follows:
The machine shall be installed onto the tractor.

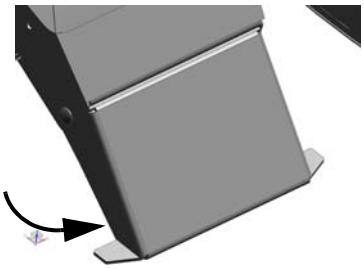


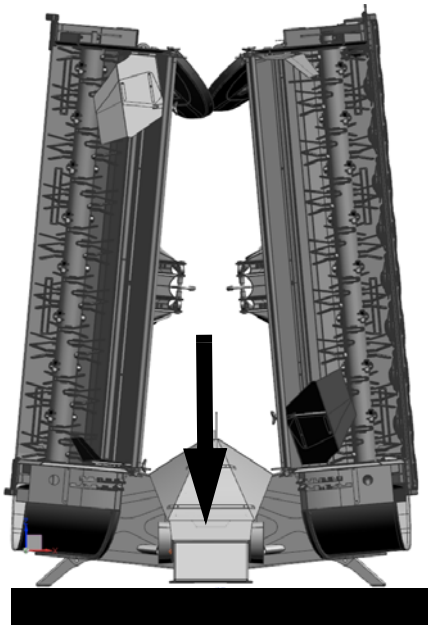
- Swing the machine's cutter up into transport position.

→ »Machine in the transport position« Page 58

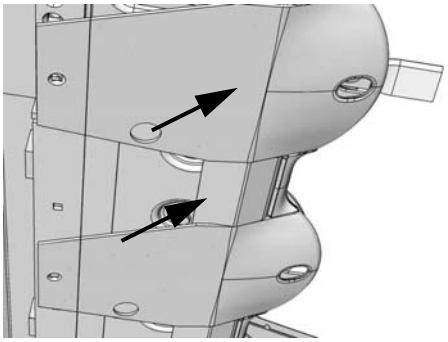


- Activate the tractor hydraulics and raise the machine up into its transport position.
- Turn out all support legs.





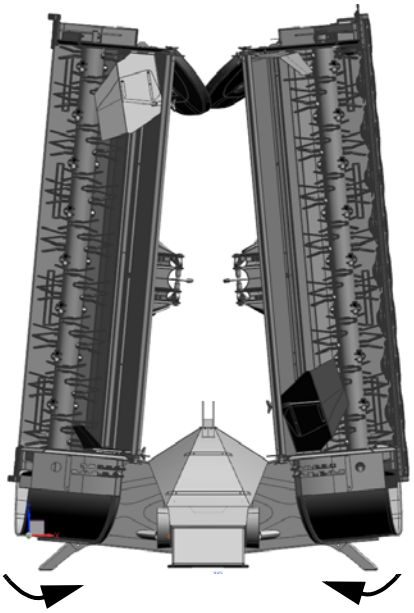
- Activate the tractor's hydraulics and lower the machine on a level and stable surface.
- Stop the tractor.

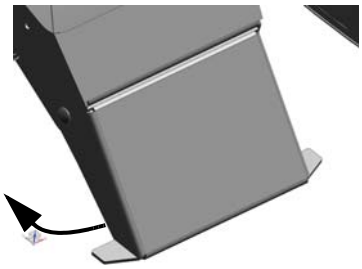


- Remove the worn stone guard and counter blade.
- Fit the new stone guard and counter knife.

Stone guards and counter blades with visible holes caused by heavy wear must be replaced immediately.

- Start the tractor.
- Activate the tractor's lifting arms and life the machine free from the ground.





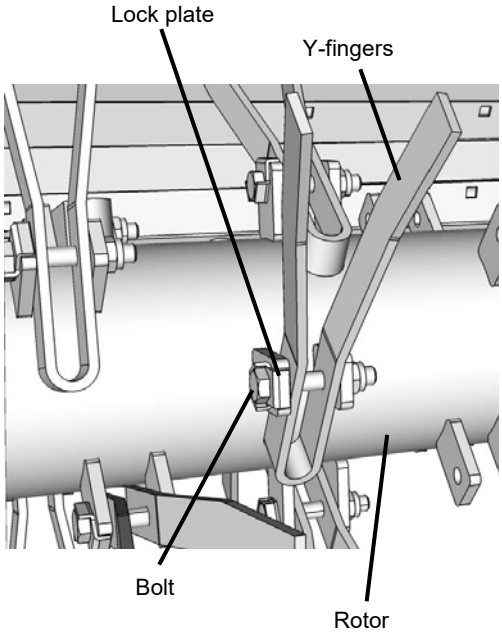
- Turn all support legs inward.

If you want the machine in working position:
→ »Machine in Working Mode« Page 74

Y - fingers

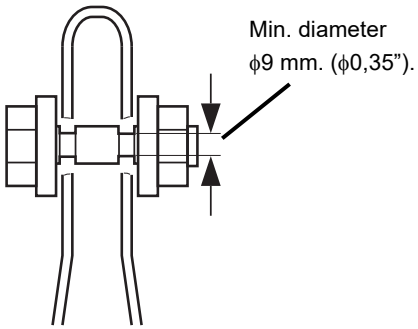
Only T model

→ »Maintenance intervals« Page 135



How to replace steel Y-fingers:

- Remove the nut on the bolt.
- Remove the bolt and the lock plate and replace the damaged Y-finger.



- Inspect the bolt for wear.

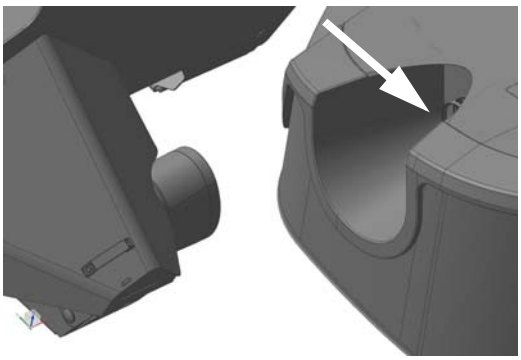
The minimum diameter of the bolt must not be less than ϕ9 mm.
If the diameter of the bolt is less than ϕ9 mm (ϕ0.35") in the worn areas, it must be replaced.

- Fit the bolt with the lock plate and Y-fingers.
- Attach the bolts.

- The Y-fingers should be able to move freely.

V-belt

V-belts for the rotor transmission must be replaced when it is shown that they are worn.
The V-belts are replaced in the following way:



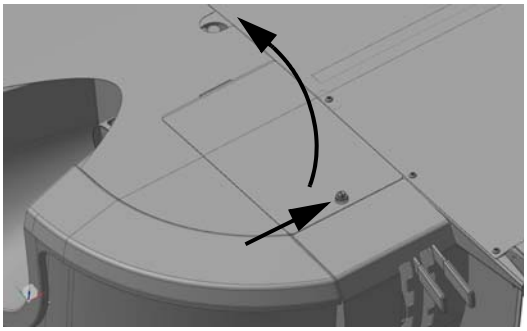
- Place both cutting units at the maximum working width.

→ »Changing the cutting width« Page 79

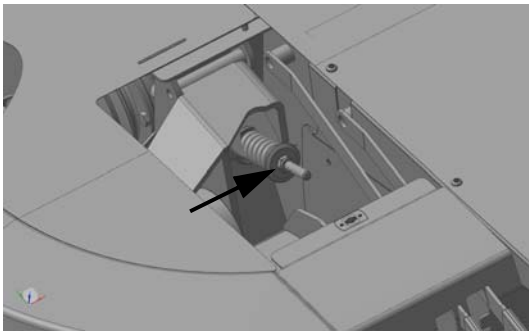
- Raise the machine's suspension to 10-20 cm (4-8") over the correct working height.

→ »Working height on the machine« Page 48

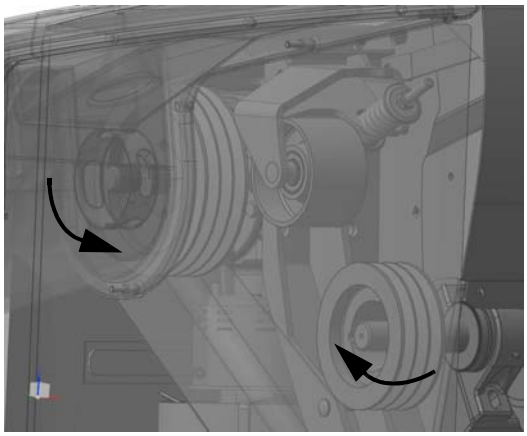
- Lower both cutters down onto a stable and flat surface.
- Stop the tractor and remove the ignition key.
- Remove the PTO shaft.

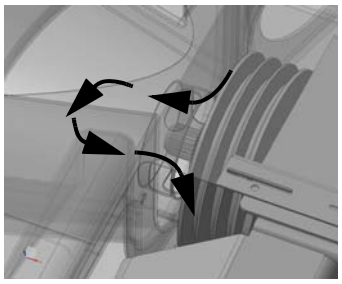


- Open the cover.

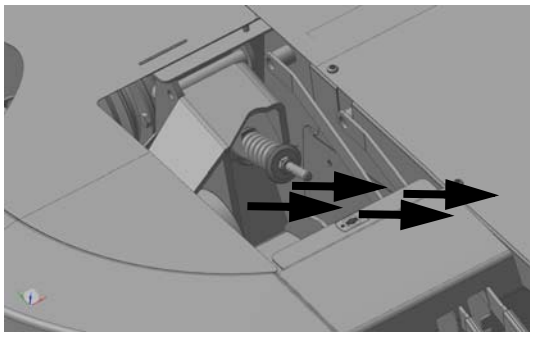


- Loosen the nut until the V-belt is completely relieved.

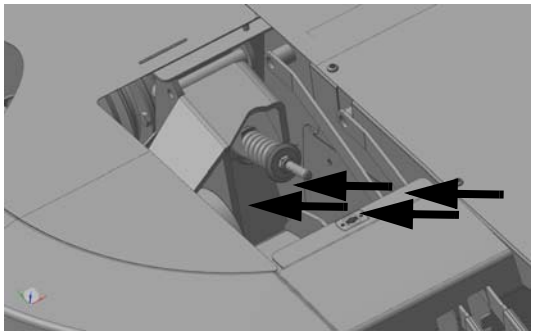


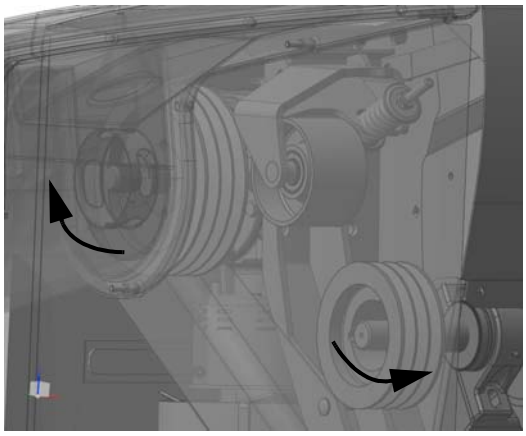


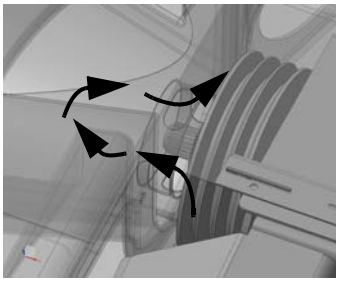
- Remove the old V-belts.

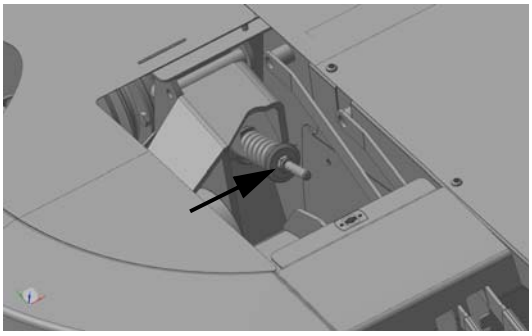


- Install the new V-belt.

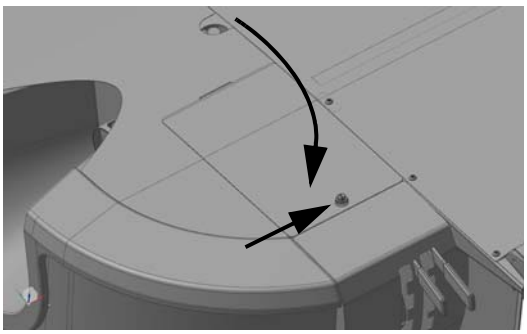




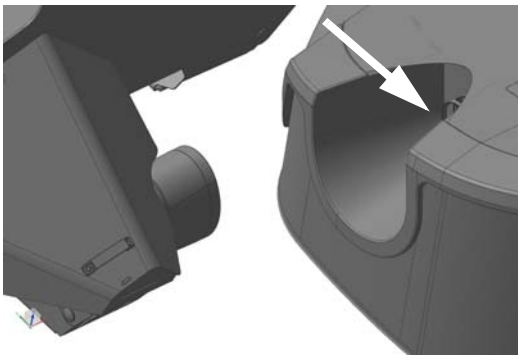




- Tighten the nut until it stops.



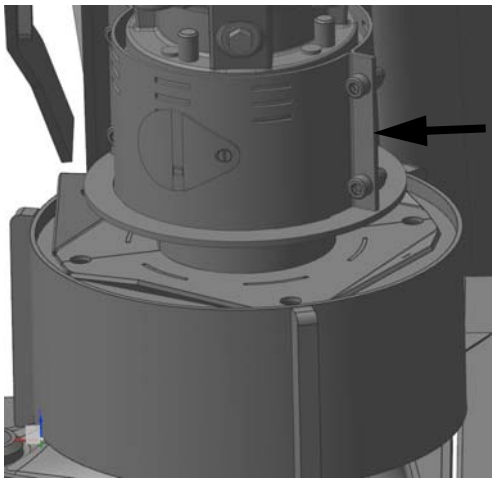
- Close the cover.



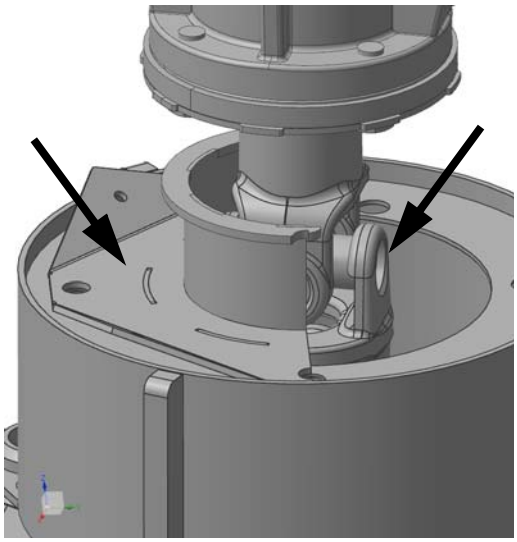
- Installing the P.T.O. shaft.

Drive shaft

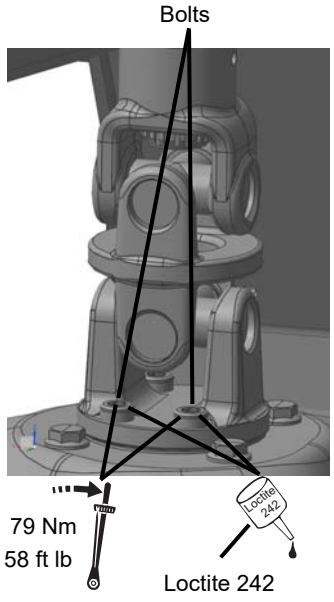
Replace the drive shaft as follows:
→ »Maintenance intervals« Page 135



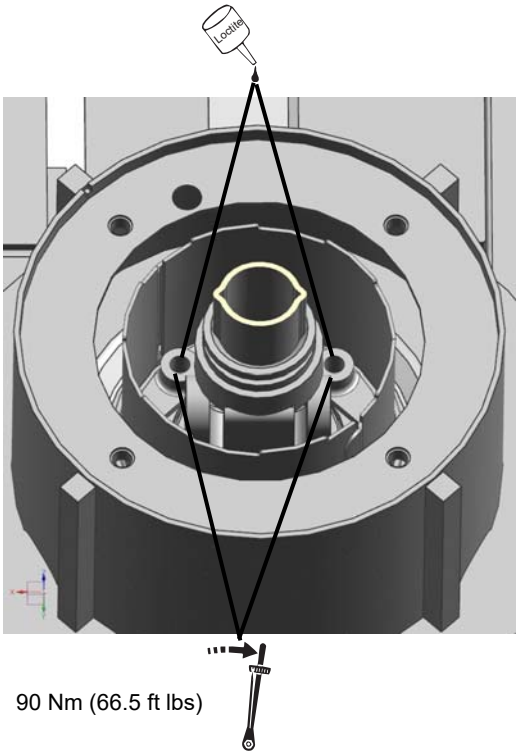
- Dismount the protection around the drive shaft between the transmission and the cutterbar.



- Remove the top cover from the cone.

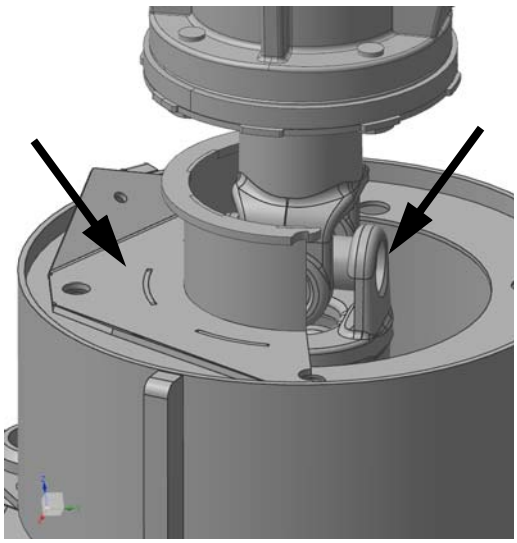


- Remove the bold and replace the drive shaft.
- Clean the bolts.
- Apply Loctite 242 or a similar product to all bolts.
- Fit the bolts and tighten to the indicated torque.

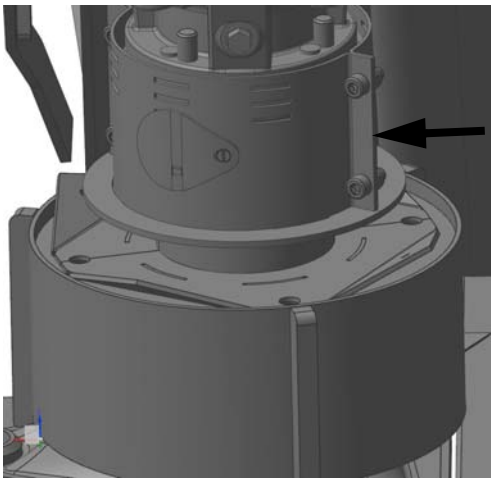


If the cone has been dismantled:

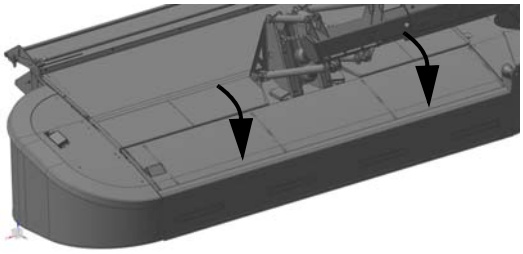
- Clean all the bolts to the cone.
- Apply Loctite 242 or a similar product to all bolts.
- Secure the cone with the indicated tightening torque.



- Fit the cone's top cover.

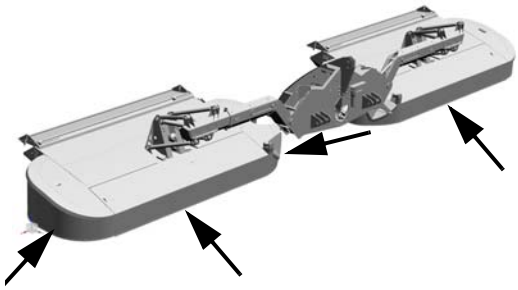


- Attach the protection around the PTO shaft between the transmission and the cutterbar.



- Close the guard.
- Make sure that the guard is in place and locked.

Tarpaulin



Tarpaulin and other covers around the cutter bar shall be replaced in the event of any form of damage.

Replacement of a damaged tarpaulin and auxiliary protection is done as follows:

- Remove the machine's protection.
- Replace the damages parts.
- Attach the machine's protection.
- Make sure that the machine's protective guard is correctly attached.

P.T.O. shaft

Refer to the manufacturer's user manual included with the P.T.O. shaft.
→ »User manual for the P.T.O. shaft« Page 42
→ »Lubricants« Page 193

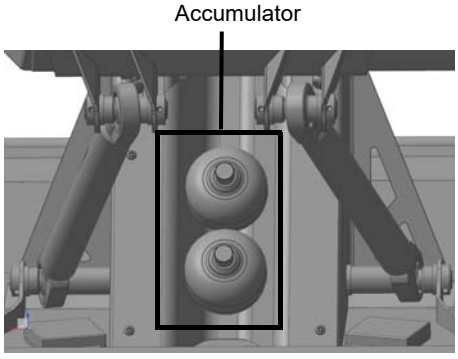
Friction clutch

With respect to replacing the friction discs on the P.T.O. shaft, refer to the included user's manual.
→ »User manual for the P.T.O. shaft« Page 42

Accumulator

WARNING

Very high amount of accumulated pressure in the accumulator
Do not attempt to replace the accumulator.
The accumulator contains a very high level of accumulated pressure and may only be taken apart by authorized persons.
Attempting to replace the accumulator can lead to serious or fatal injury.



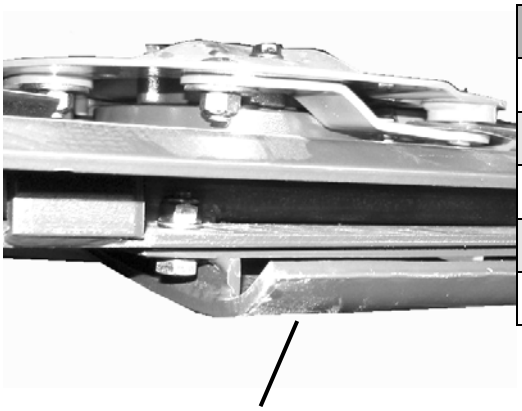
The machine is equipped with an accumulator used to adjust the machine's balancing pressure.

Pressure in the accumulator: up to 210 bars. (3045 psi)

Inspections and/or repairs must only be done by authorized service staff.

Skid

The machine can be fitted with high skids if a higher stubble height is required.
High skids are recommended for uneven fields with lots of stones or molehills.



High skids

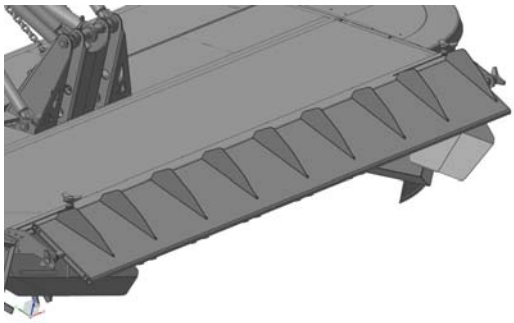
Stubble height	Note
20 - -45 mm (0.8 - 1.8")	No skids attached
35 - -65 mm (1.4 - 2.6")	20 mm (0.8") skids attached
45 - -80 mm (1.8 - 3.1")	40 mm (1.6") skids attached
65 - -105 mm (2.6 - 4.1")	60 mm (2.4") skids attached
85 - -130 mm (3.3 - 5.1")	80 mm (3.1") skids attached

Chain

A chain is available as Optional equipment to prevent the tractor's lift arms from lowering. The chain is fitted between the highest point on the tractor and one of the lift arms.

Spreading device

The machine can be equipped with a spreader that can adjust the spreading direction as desired.

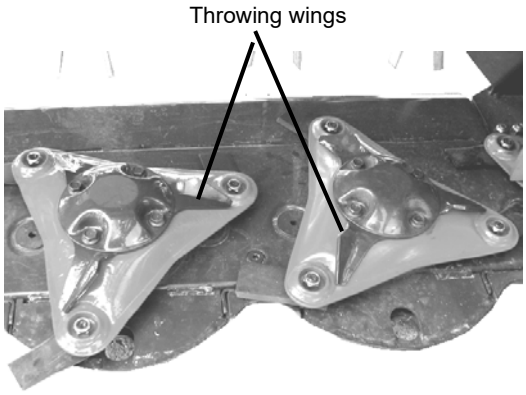


Throwing wings

Only T model

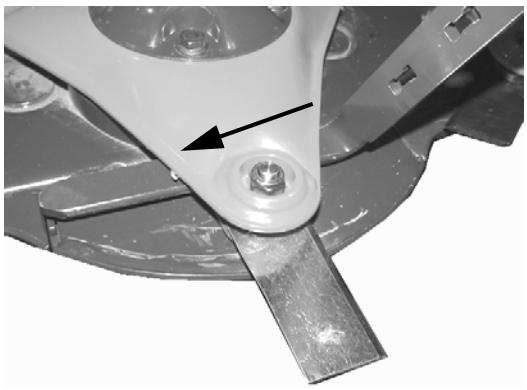
Fitting throwing wings is recommended to rectify any stripe problems with spring crops, caused by grass blocking the cutting discs.

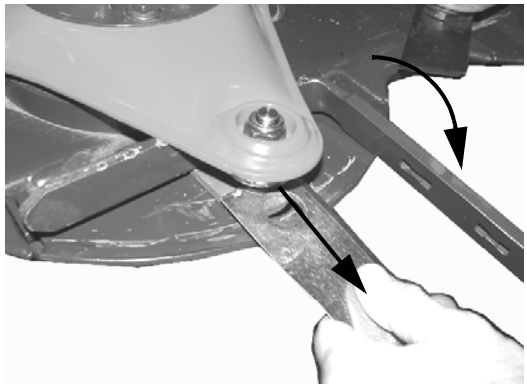
The throwing wings are specifically made for right and left turning cutting discs.



EXPRESS

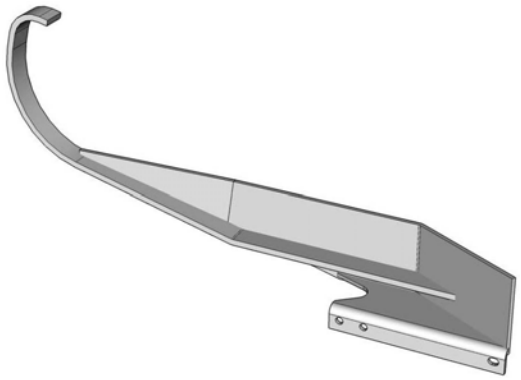
The machine can be equipped with quick-changing blades [EXPRESS], so the blades can easily be changed or turned in a manner of seconds with the help of a simple tool.





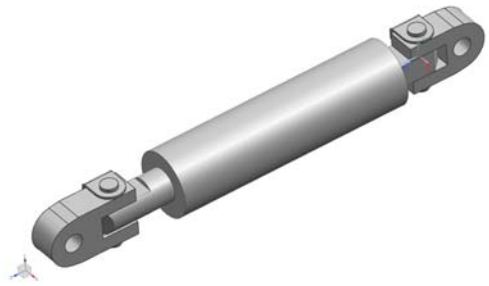
Straw divider

The machine can be equipped with a straw divider on the right side of the cutter that is used during the harvesting of seedlings and of long tangled grass species.



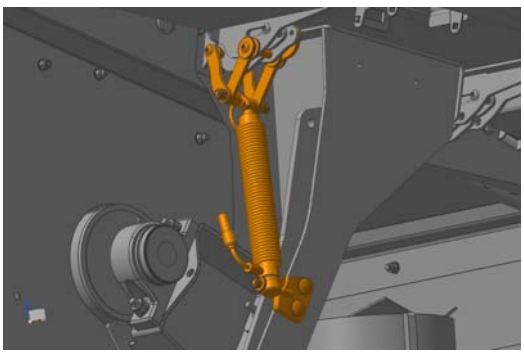
Upper rod

The machine can be equipped with a hydraulic upper bar.



Side guards

The machine can be equipped with hydraulically operated equipment that opens/folds up the side guards on the cutter units.



Portus terminal

The machine can be equipped with Portus terminal, in which all the machine's functions can be controlled via the terminal's joystick.
The Portus Terminal is compatible with all ISOBUS systems.
For tractors without ISOBUS systems, the Portus Terminal can be connected to the machine with a cable for steering and control and a 12V cable connected to the tractor's 12V supply.

ISOMatch Grip

The machine can be equipped with IsoMatch Grip, in which all the machine's functions controlled via ISOBUS can be moved over to IsoMatch Grip.
IsoMatch Grip is compatible with all ISOBUS systems.

Hydraulic system

Fault	Possible cause	Remedy	Page
The machine leaves towing tracks on the ground	There is too much downward pressure on the cutter unit	Increase the balancing pressure on the cutter unit	77
Hydraulics	The machine's hydraulic functions do not work	Check that the hydraulic hoses are correctly connected to the tractor's hydraulic outlet	53
		Make sure that the machine's hydraulic control is connected to power	
		Insufficient amount of oil or oil pressure from the tractor	
The machine can not be lifted in transport position	The machine's hydraulic valve cannot be activated	Turn off the P.T.O. shaft	58

Cutterbar

Fault	Possible cause	Remedy	Page
Uneven stubble	Driving too slowly	Increase speed	34
	The tractor RPM on the PTO is too low	Check RPM	34
	The blades are blunt or individual blades are missing	Turn or replace the blades	167
	The machine is not correctly balanced	Adjust the cutter unit's balancing pressure	77
	The mounting bracket is not at the correct height	Adjust the height of the mounting bracket	48
	balancing pressure too low	Adjust the cutter unit's balancing pressure	77
Stripes in stubble[1]	The inclination of the cutter bar does not have the correct angle for the crop in question	Adjust the angle of the cutter bar	49
		Increase speed	
	Build up of crop on the cutting discs	Increase speed	
		The rotor RPM is set to 1000 RPM	113
		Attach casting blades [2]	183
Stubble too high	Beam angle too small	Adjust the stubble height	49
Increased wear on the skids	Balancing pressure too high	Adjust the balancing pressure	77
"Black" stripes on the ground			

Fault	Possible cause	Remedy	Page
Uneven swathes	The rotor's RPM is too low	Adjust the rotor's RPM to 1000 RPM	112
	Insufficient tension of V-belt transmission at the rotor	Check the V-belts	144
	Worn V-belt transmission at rotor	Replace the V-belts	175
	Incorrect setting of the deflector plate	Adjust the deflector plates	124
Conditioning too weak	Too much distance between the conditioner plate and the rotor	Adjust the conditioner plate	111
	The rotor's RPM is too low	Adjust the rotor's RPM to 1000 RPM	112
	Roller pressure is too low	Adjust the roller pressure	121
	The V-belts at the rollers are not sufficiently tight	Check the V-belts	144
	The V-belts at the rollers are worn	Replace the V-belts	175
Breaking of stems too severe	Roller pressure is too great	Adjust the roller pressure	121
	The speed of the tractor is too low	Increase speed of the tractor	
The cutter bar gets abnormally warm	Wrong oil type	Change to the correct oil type	193

P.T.O. shaft

Fault	Possible cause	Remedy	Page
The friction clutch on the PTO shaft becomes abnormally warm	The RPM on the PTO shaft is too low	Check the rotational speed at the tractor's PTO outlet	34
	The friction discs in the coupling are worn	Replace the friction discs in the clutch	182
PTO shaft is difficult to adjust between the tractor and the machine	PTO shaft's profile tube is dirty	PTO shaft is removed, cleaned and lubricated	182

- [1] Problems with stripes are more likely to occur when mowing short, strong, spring crops in less than ideal weather conditions. Always begin by checking that the blades on the cutting discs are sharp.
- [2] »Optional equipment« Page 183
- [3] May only be carried out by authorized service personnel.

Guidelines for Warranty

The warranty period for our product is 12 months from the date of purchase. The warranty does not include the parts subject to wear.

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

No liability is accepted for any damage that may arise

We are not liable for compensation for any damage not arising from the machine/equipment itself. This also includes damage arising from incorrect usage of the machine/equipment.

Therefore, read this instruction manual before putting the machine/equipment to use. Furthermore, always check that the machine/equipment works correctly before and during use.

Disposal

When the machine reaches the end of its service life, it must be disposed of in the correct way. Observe the following:

Metal parts

Take usable parts to an authorized recycling plant. Larger scrap parts must be taken to an authorized wrecker where they can be processed in accordance with applicable regulations.

Rubber parts

Take usable parts to an authorized recycling plant where they can be processed in accordance with applicable regulations.

Plastic

Take usable parts to an authorized recycling plant where they can be processed in accordance with applicable regulations.

Hydraulic oil

The machine must be emptied of oil.
Used oil and lubricants must be taken to a wrecker where it can be processed in accordance with applicable regulations.

Electronic parts

Take usable parts to an authorized recycling plant where they can be processed in accordance with applicable regulations.

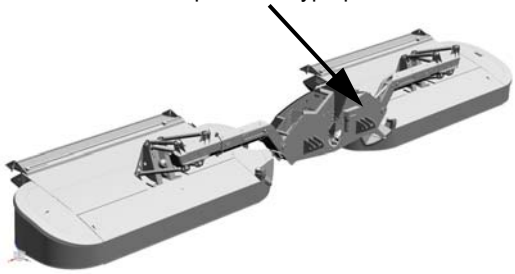
in accordance with Council Directive 2006/42/EC

We:

Kverneland Group Kerteminde AS
Taarupstrandvej 25
DK - 5300 Kerteminde
Denmark

hereby declare under our sole responsibility that the following product:

CE plate and type plate



DMC 63100T - 63100R
in all models
and accessories

Applicable as from machine No: KT478436

to which this declaration pertains, satisfies the fundamental safety and health requirements set out in EC Directive 2006/42/EC.

In the interest of a correct implementation of the Council Directives concerning safety and health directives, the following standards have been applied:

- DIN EN ISO 12 100-1:2003
- DIN EN ISO 12 100-2:2003
- DIN EN ISO 4254-12:2012
- DIN 11001-3:1998

Kverneland Group Kerteminde AS
Kerteminde 03.01.2018

Claus Udengaard Thomsen

Administrating manager
and party in charge of documentation*

* The person authorized to collect the technical appendices and who is a resident of the community. Address, see above.

Conversion table

Basic unit:	SI - unit	Conversion figures:
Length	1 m	39.4 in = 3.3 ft = 1.1 yd = 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 gallon (lmp) = 0.26 gallon (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 lbs = 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
RPM	min^{-1} = revolutions / min = RPM	

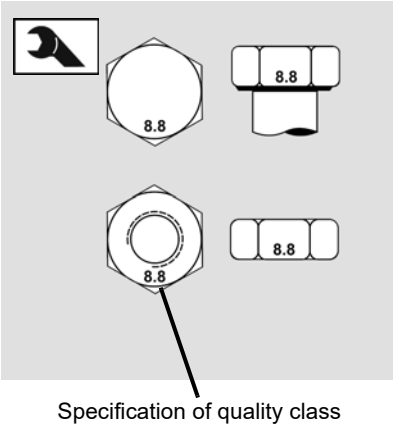
Lubricants

Only check the oil level when there is a visible loss of oil while the machine is level.

Transmission oil and lubricant must meet the following requirements

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

Torque moment



Specification of quality class

WARNING

Use the correct torque
Fasten the screws, nuts and bolts using the indicated torque. Otherwise, this may result in damaging the machine and cause serious injury or death.

Note the quality class for screws, nuts and bolts.
Note the size of screw, nut and bolt and find the corresponding torque in the table.
Tighten screws, nuts and bolts to the indicated values, provided that no other value is indicated.

Tightening torque for grade 8.8 black and/or galvanized and ungreased bolts 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/lbs	4	7,5	18	35	60	94,5	145,5	284	382,5

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