

ORIGINAL INSTRUCTIONS - according to Directive 2006/42/EC, Annex I 1.7.4.1

OPERATOR'S MANUAL

SMF 3005

Disc Mower

FOREWORD

DEAR CUSTOMER!

We appreciate the confidence you have shown to our company by investing in a KONGSKILDE product and congratulate you on your new purchase. Of course, it is our wish that you will experience complete satisfaction with the investment.

This instruction manual contains information about correct and safe use of the machine.

When buying the machine you will receive information about use, adjustment and maintenance.

However, this first introduction cannot replace a more thorough knowledge of the different tasks, functions and correct technical use of the machine.

Therefore you should read this instruction manual very carefully before using the machine. Pay special attention to the safety instructions.

This instruction manual is made so that the information is mentioned in the order you will need it, i.e. from the necessary operation conditions to use and maintenance. There are illustrations to support the instructions.

"Right" and "Left" are defined from a position behind the machine facing the direction of travel.

All the information, illustrations and technical specifications in this instruction manual describe the latest version at the time of publication.

Kongskilde Industries A/S reserves the right to make changes or improvements in the design or construction of any part without incurring the obligations to install such changes on any unit previously delivered.

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1. INTRODUCTION

INTENDED USE

The disc mower **SMF 3005** should only be used for the agricultural work which it is intended for, i.e.: Usual work in fields or meadows where natural or planted grass or green crops are cut on the ground for animal feeding purposes. The material is laid in a swath, which allows subsequent picking up.

Of course, the machine should only be connected to a tractor which corresponds with the specifications of the product and is legal to use.

Any use beyond this is outside the intended use. Kongskilde Industries A/S is not responsible for any damage resulting from such use, the user bears that risk.

The performance of the machine will depend on the material, i.e. the crop, the condition of the field, the ground, and finally the weather.

It is assumed that the work is performed under reasonable conditions, i.e. thorough agricultural knowledge and authorised operation.

Intended use, of course, implies that the prescriptions concerning adjustment, operation and maintenance in the instruction manual are observed.

The disc mower SMF 3005 should only be operated maintained or repaired by persons who are confident with the use of the product and are aware of the risks.

In the following there are a number of general and special safety instructions which **must** be observed altogether.

If changes are made on the machine and its construction without permission from Kongskilde Industries A/S, Kongskilde Industries A/S cannot be held responsible for any damage resulting from this.

SAFETY

The safety of persons and machines is an integral part of Kongskilde Industries A/S's development work. However, damage can occur as a consequence of misuse and insufficient instruction. **We wish to ensure the safety of you and your workforce in the best possible way**, but this also requires an effort on your part.

A disc mower cannot be constructed in such a way that it guarantees the full safety of persons and at the same time performs an efficient piece of work. This means that it is very important that you as user of the machine pay attention and use the machine correctly and thereby avoid exposing yourself and others to unnecessary danger.

The machine demands skilled operation, which means that **you should read the instruction manual before you connect the machine to the tractor**. Even though you have been driving a similar machine before, you should read the manual - this is a matter of your own safety!

You should **never** leave the machine to others before you have made sure that they have the necessary knowledge to operate the machine safely.

2. CONNECTION AND TEST DRIVING

DEFINITIONS

The safety decals and the instruction manual of the machine contain a line of safety notes. The safety notes mention certain measures, which we recommend you and your colleagues to follow as to increase the personal safety as much as possible.

We recommend that you take the necessary time to read the safety instructions and inform your staff to do the same.



In this instruction manual this symbol is used with reference to personal safety directly or indirectly through maintenance of the machine.

CAUTION: The word CAUTION is used to ensure that the operator follows the general safety instructions or the measures mentioned in the instruction manual to protect the operator and others against injuries.

WARNING: The word WARNING is used to warn against visible or hidden risks, which might lead to serious personal injuries.

DANGER: The word DANGER is used to indicate measures which, according to legislation, must be followed to protect the driver and others against serious injuries.

GENERAL SAFETY INSTRUCTIONS

Before use, the operator should make sure that the tractor and the machine observe the general work-related legislation and can comply with the Road Traffic Act.

The following is a brief description of the measures, which should be a matter of common knowledge to the operator.

1. Always disengage the PTO drive shaft, activate the parking brake and stop the tractor engine before you
 - lubricate the machine,
 - clean the machine,
 - disassemble any part of the machine,
 - adjust the machine.
2. Always lower the machine to the ground and use correct support or transport safety device when the machine is parked.
3. Always use the transport safety device of the machine during transport.

2. CONNECTION AND TEST DRIVING

4. Never work under a raised machine unless the machine is secured with a mechanical transport safety device and the link arms of the tractor are secured by means of a support chain or other mechanical securing device.
5. Never start the tractor until all persons are safely away from the tractor and the machine.
6. Make sure that all tools have been removed from the machine before starting the tractor.
7. Make sure that all guards have been mounted correctly.
8. During work never wear loose clothes which can be pulled in by the moving parts of the machine.
9. Do not change the guards or work with the machine when a guard is missing.
10. Always drive with the statutory lights and safety marking during transport on public road and at night.
11. Limit the transport speed to maximum 40 km/h if the machine has not been marked with another maximum speed limit.
12. Do not stand near the machine while it is working.
13. When mounting the PTO drive shaft observe that the number of RPM of the tractor matches those of the machine.
14. Always use hearing protectors if the noise from the machine is annoying or if you are working with the machine for a considerable period in a tractor cabin, which has not been silenced sufficiently.
15. Before raising or lowering the machine with the link arms of the tractor, check that no persons are near the machine or touching it.
16. Do not stand near the guards of the cutting unit and do not lift the guards before all revolving parts have stopped moving.
17. Never use the machine for other purposes than what it has been constructed for.
18. Do not allow any children to be near when you are working with the machine.
19. Never stand between the tractor and the machine during connection and disconnection.

2. CONNECTION AND TEST DRIVING

SPECIAL SAFETY INSTRUCTIONS

When working with mowers the following special measures should be observed.

1. Use a tractor with a cabin provided with safety glass. Furthermore it is advisable to protect the glass of the cabin with polycarbonate plates or with a close-meshed net outside. The cabin should be closed when working in the field.
2. Always keep away from the cutting unit when the parts of the machine rotate.
3. When replacing blades it is important to observe the rules in the instruction manual to fulfil the safety requirements. **Always use original spare parts.**
4. Before use, check the revolving parts (blades, blade bolts, discs and flow caps). If parts are damaged (bent or cracked), worn or missing, they should be replaced immediately.
5. Damaged, worn or missing blades should be replaced in sets in order not to create an unbalance in the machine.
6. Check canvases and guards regularly. Replace worn or damaged canvases.
7. Canvases and guards secure against ejection of stones and foreign matter. Before use canvases and guards must be placed correctly.
8. Lower the cutting unit to working position before starting the power transmission.
9. The field should be kept clear of stones and foreign matter, if possible.
10. Even if the machine is adjusted and operated correctly, stones and foreign matter in the field can be ejected from the cutting unit. Therefore no persons should stand near the cutting unit where the conditions are unknown. Be particularly careful when working along public roads or facilities (schools, parks etc.)
11. Though it is possible, you should never reverse with the cutting unit in working position. The correct movement for the cutting unit only works when driving forward, as there is a risk of damage if driving backwards with the machine in working position.
12. Even though the power transmission has stopped, the revolving parts have a momentum. Therefore, always wait until the revolving parts have come to a complete stop before getting near the cutting unit.
13. If in doubt, always contact the nearest dealer.

2. CONNECTION AND TEST DRIVING

CHOICE OF TRACTOR

Always follow the recommendations specified in the instruction manual of the tractor. If this is not possible, technical assistance must be sought.

Choose a tractor with a suitable power on the PTO.

If the power of the tractor is considerably larger than the prescribed power, care should be taken to avoid long-term overload. This may damage the friction clutch in the PTO drive shaft which secures against overload.

Choose a tractor with a suitable own weight and track width so that it can drive steadily on the ground. Also make sure that the linkage of the tractor is intended to carry machines of the given weight.

However, the tractor specifications are different within the individual tractor brands. Therefore, at worst, it may be necessary to adjust the weight distribution with a counterweight on the tractor.

The machine is designed for 1000 rpm. Therefore you should make sure not to use other speeds on the PTO by mistake.

To apply the hydraulic function of the machine, it is necessary that the tractor has a single-acting hydraulic outlet at the front or that there is access to one of the outlets at the rear. It is necessary that the front hitch is, or can be set to be, single-acting.

Likewise, make sure that the hydraulic system of the tractor has a pressure of max 210 bar.

Finally, always choose a tractor with a closed cabin when working with a disc mower.

2. CONNECTION AND TEST DRIVING

CONNECTION AND DISCONNECTION

Always make sure that nobody is standing between the tractor and the machine during connection and disconnection. An unintentional manoeuvre with the tractor may cause serious injury. (See figure 1-1)



Fig. 1-1

Check that the machine is intended for the number and the direction of rotation of the tractor PTO (see figure 1-2) seen in the direction of travelling. A wrong number of rotations over a long period may damage the machine and at worst result in ejection of parts.

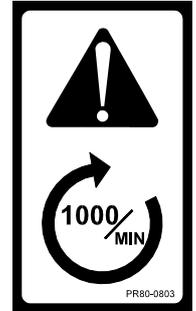


Fig. 1-2

Make sure that the PTO drive shaft has been mounted correctly. The lock pin must be in mesh and the support chains must be fastened at both ends.

The PTO drive shaft must be correctly protected. If the guard is damaged it must be replaced immediately.

Check that all hydraulic couplings are correctly mounted and fastened and that all hoses and fittings are undamaged before activating the hydraulic system. When the tractor engine has stopped, ensure that there is **no** pressure in the hydraulic hoses by activating the tractor hydraulic spool valves.

Hydraulic oil under pressure can penetrate the skin and cause serious infections. You should always protect the skin and the eyes against oil splashes. If, by accident, hydraulic oil under pressure hits you, consult a doctor immediately. (See figure 1-3).



Fig. 1-3

Check that the cutting unit can move freely before you activate the hydraulic cylinder. Make sure that no persons are near the machine when starting as there might be air in the hydraulic system which might lead to sudden movements.

ADJUSTMENT

Never adjust the mower while the PTO drive shaft is engaged. Disengage the PTO drive shaft and stop the tractor engine before you adjust the machine. Do not lift the guard until all the revolving parts have stopped moving.

Before starting check that no blades are missing or are defective and can be turned freely. Likewise, check that the blade holders are not loose or defective. Replace damaged blades and blade holders. (see section 5: MAINTENANCE)

Check periodically if blades and blade holders are worn according to the rules in the instruction manual. (see section 5: MAINTENANCE)

2. CONNECTION AND TEST DRIVING

TRANSPORT

Never drive faster than the conditions allow.

It is important to block the hydraulic cylinder on the machine with the mechanical transport lock. An unintentional operation of the hydraulic handle for the cylinder, sudden leakage from hoses or fittings or air in the system may cause the machine to be lowered and perhaps hit the ground. Collision with e.g. kerbs, ramps, road humps etc. might damage the machine and cause steering problems.



IMPORTANT: To ensure all the air has been expelled from the oil in the hydraulic cylinders, test all the functions after the hydraulic connections are connected to the tractor, especially before driving on public roads. Otherwise you risk that the cutting unit suddenly moves downward after you have dismantled the transport lock.

WORKING

During the daily work it should be considered that loose stones and foreign matter on the ground might get in contact with the revolving parts and get thrown out again at a very high speed.

Therefore, all guards must always be correctly mounted and intact when you are working with the machine.

Never allow anybody to stand near the mower during work, especially not children.

On stony ground adjust the stubble height to maximum, reduce the cutting angle as much as possible and limit the driving speed.

Through the suspension, the machine is secured against shocks in the direction of travel. However, there is **no** securing against shocks if backing with a lowered cutting unit and you **risk damaging the machine**.

If the cutting unit or the conditioner is blocked because of foreign matter, stop the power take-off of the tractor, activate the parking brake and wait until all revolving parts have stopped. Then try to remove the foreign matter.

Change into a lower tractor gear if working on hilly ground. When working with 3-point mounted machines keep a safe distance from steep slopes and similar conditions of the ground, as the ground may be slippery and pull the mower and the tractor sideways. Also remember to adjust the speed of the tractor for sharp turns when driving on hillsides.

2. CONNECTION AND TEST DRIVING

PARKING

Never leave the tractor before the cutting unit is resting on the ground, the engine of the tractor has stopped, and the parking brake has been activated. This is the only way to perform a safe operation.

GREASING

When greasing or maintaining the machine, make sure that the cutting unit is resting on the ground or is secured with mechanical transport lock and that the link arms of the tractor are secured with a support chain.

Also check that the PTO has been disengaged, the tractor engine has stopped and the parking brake is activated.

MAINTENANCE

It is important that the cutting unit is correctly relieved to ensure optimal operation in the field and to reduce the risk of damaging the cutter bar.

Always make sure that the applied spare parts are tightened to the correct torque and that parts on the machine are retightened regularly. (see section on maintenance)

Never fit other spare parts than those prescribed by KONGSKILDE.

When replacing parts in the hydraulic system always make sure that the cutting unit rests on the ground.

Remember to relieve the oil pressure before working with the hydraulic system.

Hydraulic hoses must be checked by an expert before use, and after that minimum once a year. If necessary, they must be replaced. The working life of hydraulic hoses should not exceed 6 years, including maximum 2 years of storage.

When replacing, always use hoses which comply with the requirements stated by KONGSKILDE. All hoses are marked with date of production.

2. CONNECTION AND TEST DRIVING

MACHINE SAFETY

All revolving parts are checked 100 % and balanced by the factory by means of special machines with electronic sensors.

The discs run at up to 3000 RPM, and even the slightest imbalance will cause abnormal vibrations which may lead to fatigue fractures.

If the vibrations or the noise of the machine increase gradually during a period you should stop working and check whether the revolving parts have been damaged. Do not continue the work until the fault has been corrected.

During the season check daily that no blades, carriers or bolts are missing. If any of these are missing, mount new parts immediately.

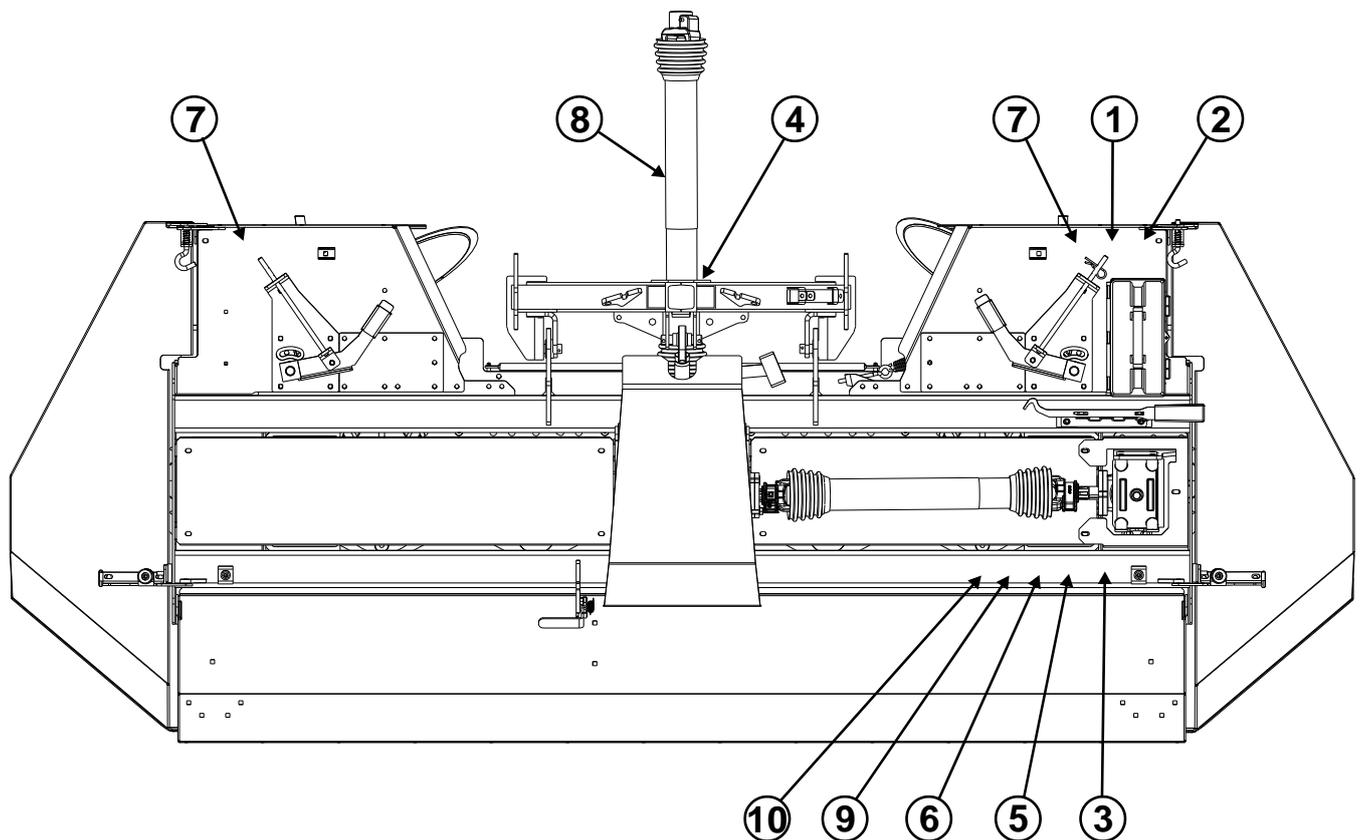
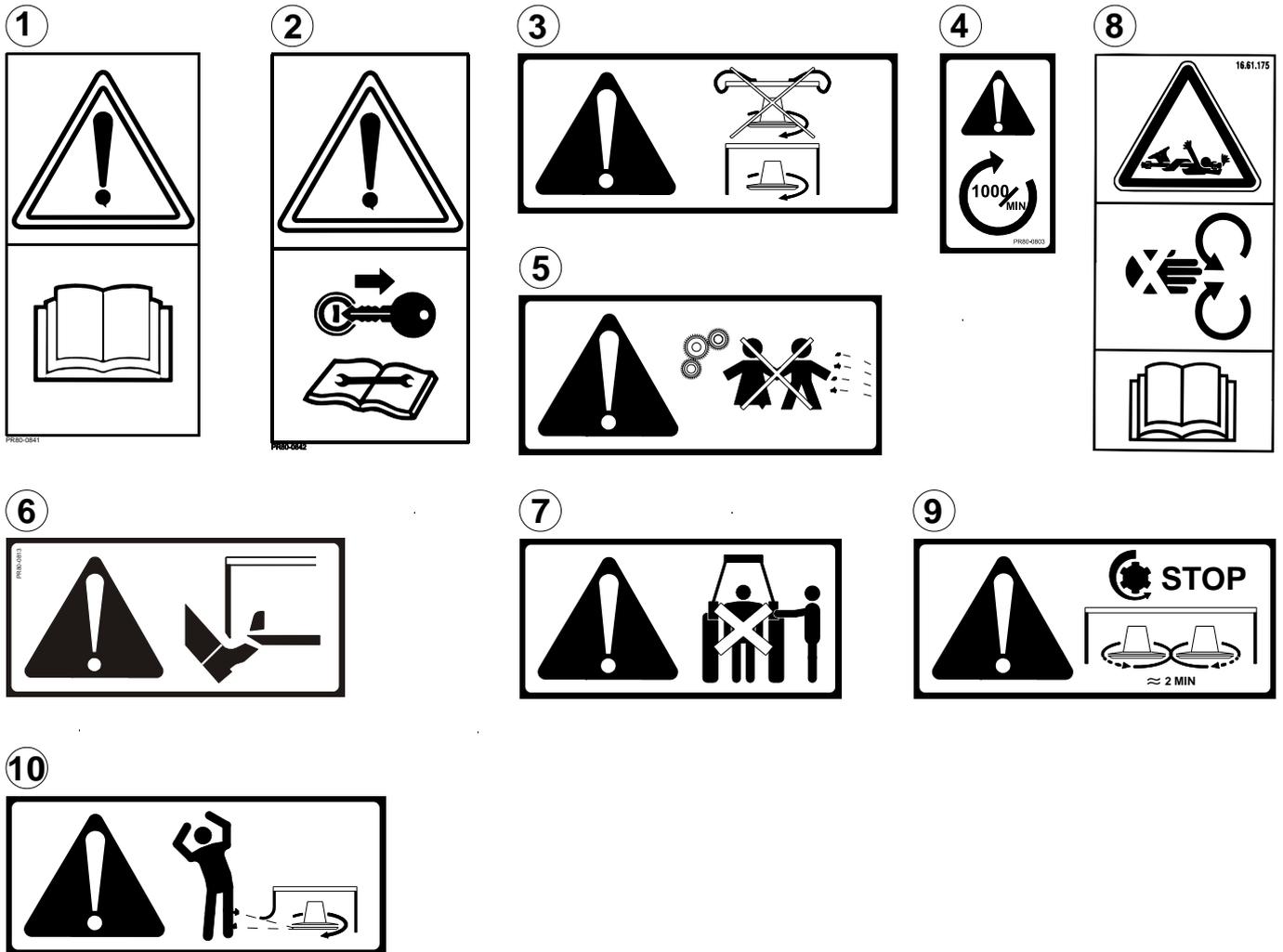
When replacing blades, both blades on the disc in question must be replaced in order not to create an imbalance.

Clean discs and flow intensifiers of earth and grass regularly and check that all parts are intact.

Check regularly that all parts at the mortise joints (various pins and ball heads) are intact and sufficiently lubricated.

You should also check and "air" the friction clutch regularly to ensure that the discs do not rust. (see section 5: MAINTENANCE)

2. CONNECTION AND TEST DRIVING

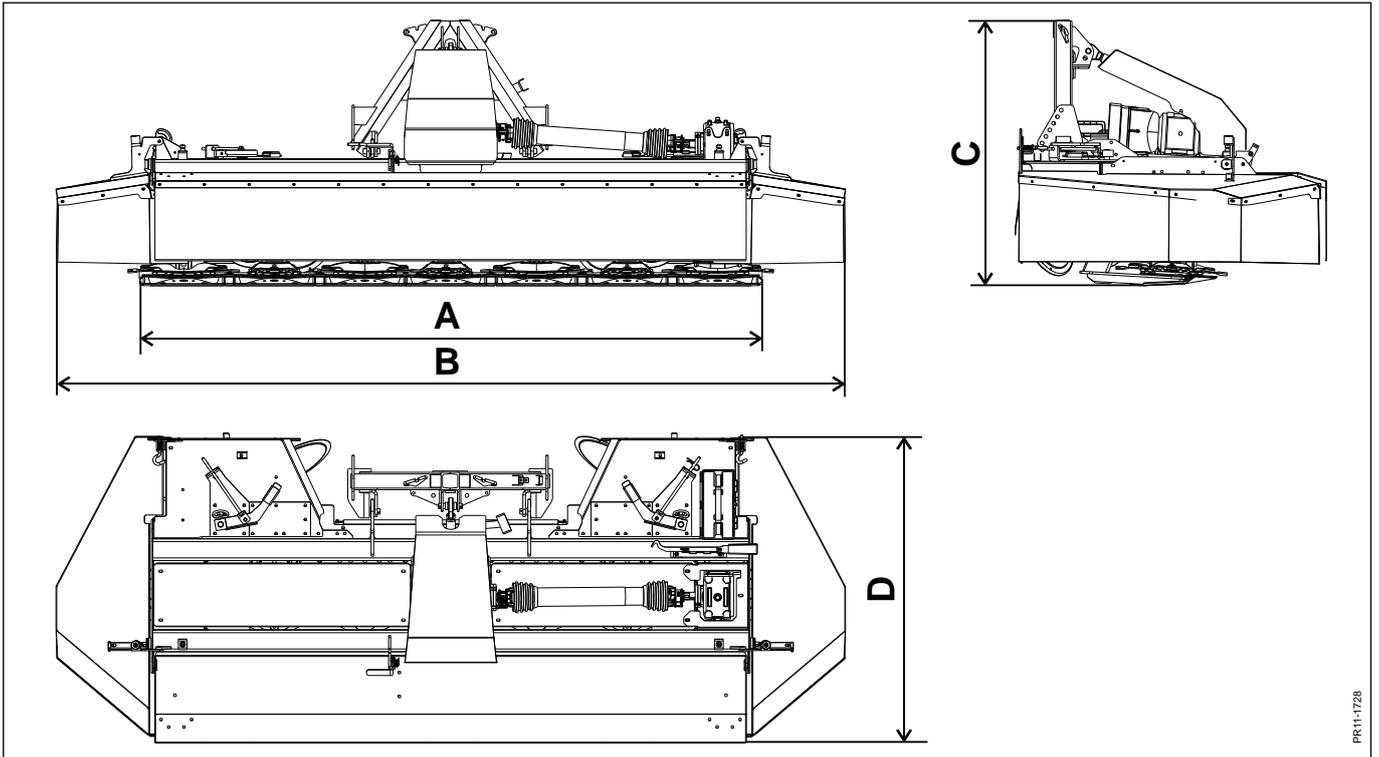


SAFETY DECALS

The safety decals shown on the previous page are positioned as shown on the drawings at the bottom of the page. Before using the machine, check that all decals are present: if not, require those missing. The decals have the following meaning:

- 1. Read the instruction manual and the safety instructions.**
This is to remind you to read the delivered documents to ensure the machine is operated correctly and to avoid unnecessary accidents and machine damage.
- 2. Stop the tractor engine and remove the ignition key before touching the machine.**
Always remember to stop the tractor engine before lubricating, adjusting, maintaining or repairing. Also remember to remove the ignition key to ensure that nobody starts the engine.
- 3. Operation without canvas.**
Do not start the machine unless canvases and guards are intact and in their right place. The machine can throw out stones and other foreign matter during operation. The purpose of the canvases and the guards is to reduce such danger.
- 4. The number and the direction of rotations.**
Check that the PTO drive shaft runs with the right RPM and in the right direction. A wrong number of rotations and/or direction of rotation can damage the machine with the risk of personal injury as a result.
- 5. Children.**
Never let children stand near the machine during operation. Especially not small children as they have a tendency to do unforeseen things.
- 6. Rotating blades.**
Do not under any circumstances let anyone get near or stand near the machine during operation. The rotating blades of the machine can without difficulty cause serious injury to any part of the body if hit by such a blade.
- 7. Risk of injury during the connection.**
Never let anybody stand between the tractor and the machine during connection to the tractor. An unintentional manoeuvre may cause serious injury.
- 8. The PTO drive shaft.**
This decal has the purpose to remind you how dangerous the PTO drive shaft can be if it is not correctly mounted or protected.
- 9. Rotating parts.**
After the PTO drive shaft has stopped, the blades will have a momentum where they keep rotating for up to 2 minutes. Wait until the blades have come to a complete stop before you remove the canvas and the guards for inspection and maintenance.
- 10. Risk of stones being thrown.**
Similar meaning to decal No. 5. Even though all canvases and guards are in the right place, there is still a risk of stones etc. being thrown out. Therefore, nobody should be allowed to stand near the machine during operation.

2. CONNECTION AND TEST DRIVING



PR11-1728

TECHNICAL DATA

Type		SMF 3005	
Working width		2.96 m	
Theoretical capacity at 10 km/h		2.96 ha/h	
Power requirement, minimum on PTO		44 kW / 60 HP	
PTO speed		1000 rpm	
Three-point category		Cat. II A-frame	
Oil outlet		-	
Weight, approx.		700 kg	
Driving speed		6 -19 km/h	
Number of discs		7	
Number of blades		14	
Swath discs standard		4	
Swath width		1.2-2.6 m	
Overrun clutch		Standard	
Friction clutch		Standard	
Dimensions (see drawing on previous page)			
A Transport width		2.86 m	
B Working width		3.61 m	
C Height		1.24 m	
D Length		1.45 m	
Noise level in the tractor cabin	Machine connected	Window closed	66.5 dB (A)
		Window open	70.8 dB (A)
	Machine disconnected	Window closed	66.0 dB (A)
		Window open	70.2 dB (A)

We reserve the right to change the construction and specification details without notice.

2. CONNECTION AND TEST DRIVING

CONNECTION TO THE TRACTOR

IN GENERAL

SMF 3005 is connected to the lower link arms at the front of the tractor with an A-frame (Accord system or similar).

Before the connection the link arms of the tractor must be set to the same height and the top link must be mounted correctly between tractor and A-frame so that the A-frame is vertical or has a small inclination forward.

TRANSMISSION

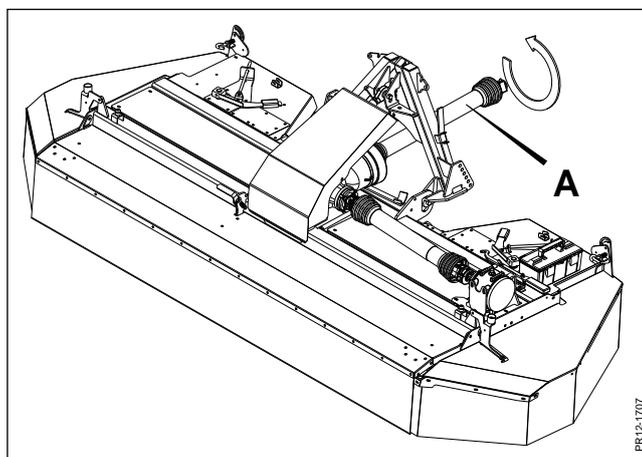


Fig. 2-1

Fig. 2-1 The machine is constructed for a PTO speed from the tractor of **1000 rpm** and is intended for tractors on which the direction of rotation is counter clockwise **A** when looking towards the front of the tractor.

2. CONNECTION AND TEST DRIVING

CONNECTION

The mower is constructed for connection to the tractor by means of quick connection with A-frame (Accord system or similar).

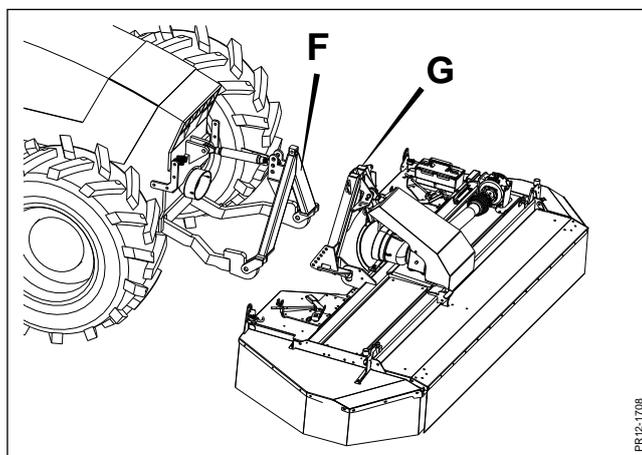


Fig. 2-2

Fig. 2-2 With the A-frame **F** mounted on the tractor, drive straight to the machine and lift the A-frame up in the headstock **G** at the rear of the machine.

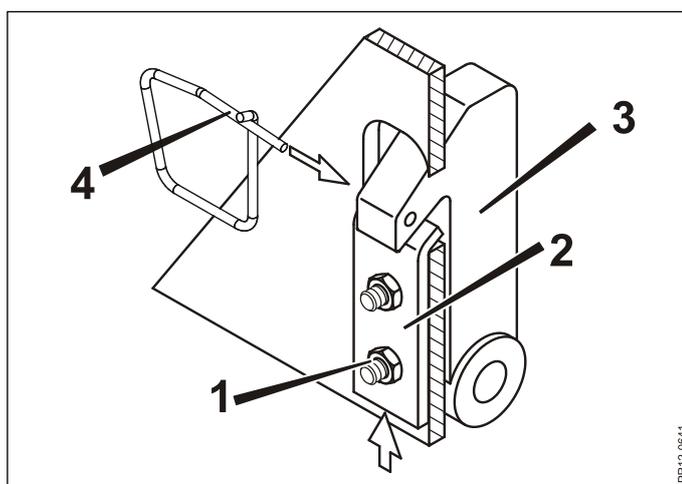


Fig. 2-3

Fig. 2-3 There are different types of A-frames. All types of A-frames must be locked as soon as the machine has been connected.

If you use the type with locking pawl, you must check the clearance between the locking pawl and the tractor frame. If there is too much clearance between the locking pawl and the latch of the tractor frame, the machine may get disconnected from the tractor during operation or transport.

To avoid this, the locking pawl must be adjusted to the smallest possible distance.

2. CONNECTION AND TEST DRIVING

The pawl is adjusted by first lifting the machine so that it hangs from the tractor frame. Loosen the nuts **1** and move the locking pawl **2** so close to the latch **3** that it can only just be pulled out with the handle.



IMPORTANT: Tighten the nuts and remember to retighten after approx. 10 operating hours.

Always remember to secure the latch with the safety pin **4** to prevent it from being released by accident.

IMPORTANT: The front hitch must be single-acting.

A double-acting front hitch will, when lowering, transfer the tractor's weight to the machine. This will load the machine, especially the A-frame and headstock, much more than it is intended for.

If this has happened the machine, especially the A-frame and the headstock, must be checked to see if there are deformations, damaged parts must be replaced and the locking pawl must be adjusted again. See fig. 2-3.

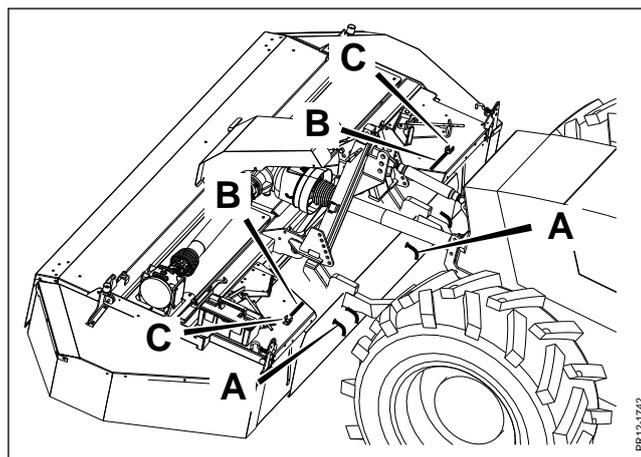


Fig. 2-4

Fig. 2-4 Several elastic straps are fitted on the rear curtain. The purpose of these straps is to ensure that the curtain is in the correct position during operation. The straps **A** are going to be fitted around the tractor's link arms. The straps **B** are going to be fitted in the holders **C** at both sides.

2. CONNECTION AND TEST DRIVING

ADJUSTMENT OF THE PTO DRIVE SHAFT

The PTO drive shaft between the tractor and the machine must now be mounted to complete the drive line.

Dimensions and movements of the link arms of the individual tractor brands are not standardised. Therefore, the distance from the power take-off (PTO) of the tractor to the input shaft (PIC) on the centre gearbox of the machine may vary according to the tractor.

It may therefore be necessary to shorten the PTO shaft before using it on the machine to ensure correct operating ability.



IMPORTANT: Do not shorten your new PTO shaft until you are certain that it is necessary. From the factory the shaft is adjusted to the distance from PTO to PIC which is standard on most tractor brands.

If it is necessary to shorten the shaft on your machine, the following applies:

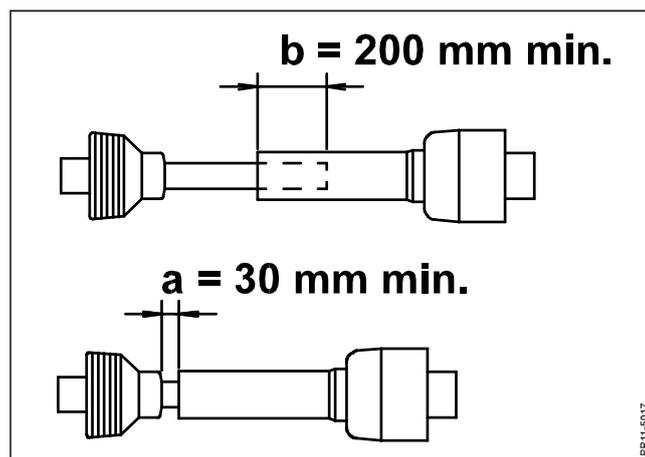


Fig. 2-5

- Fig. 2-5** Adjust the length of the PTO shaft so that it:
- **has as much overlapping as possible**
 - **in no position has less overlapping than 200 mm.** (As the distance from PTO to PIC varies when the machine moves up and down within the normal working area, make sure that the overlapping is sufficient in both extreme positions).
 - **is not compressed more than the prescribed 30 mm in order not to bottom the shaft.**



IMPORTANT: The specified values for overlapping on the tubes of the PTO shaft must be observed as shown on figure. 2-5.

2. CONNECTION AND TEST DRIVING

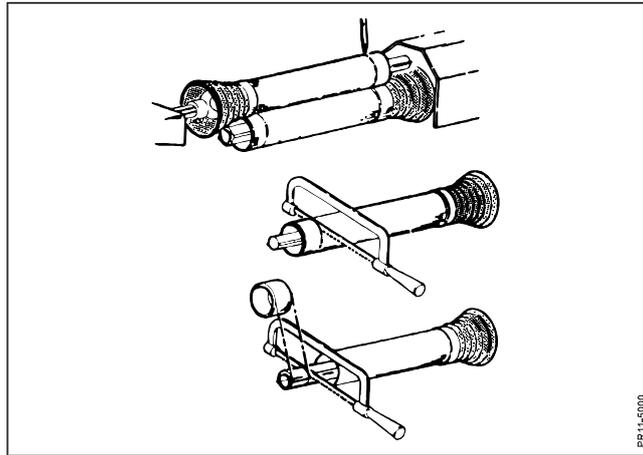


Fig. 2-6

Fig. 2-6 Shortening procedure:

- 1) Separate the PTO shaft in two halves and mount these on PTO and PIC, respectively, when these are at the same horizontal level. This corresponds to the shortest possible length of the shaft on this machine.
- 2) Hold the ends of the shaft parallel side by side and mark the 30 mm (minimum) on the tubes. See also fig. 2-6.
- 3) Shorten all 4 tubes equally.
- 4) Round off the ends of the profile tubes and remove burrs carefully with a file until the tubes are smooth. It is important **to deburr the inside of the outer tube and the outside of the inner tube**. Thereby the surface of the profile tubes is secured against damage by sharp edges and impurities.
- 5) Clean the ends of the profile tubes of dirt and loose burrs.



WARNING: Lubricate the profile tubes carefully before reassembling. If the shaft has insufficient lubrication it may lead to high frictional forces during work which may cause the transmission to be overloaded.

When the PTO shaft is assembled the end with the friction clutch must be fastened to the PIC shaft on the centre gearbox.

Check that the PTO has sufficient overlapping in all positions by raising and lowering the machine by means of the hydraulics.

Finally, check that the number of rotations of the tractor PTO is 1000 RPM as the machine is intended for and that the direction of rotation is correct according to fig. 2-1.

A too high number of revolutions of the PTO can be highly dangerous. A too low number of revolutions, however, may cause insufficient cutting and an unnecessarily high torque load on the transmission.

FRICITION CLUTCH

As mentioned the PTO shaft has a built-in friction clutch. Its purpose is to secure the transmission against overload when working in the field and when starting the machine (connection of the PTO).

The friction clutch must be “aired” before starting a new machine. See section 5. MAINTENANCE – FRICTION CLUTCH, and do this during test driving.

2. CONNECTION AND TEST DRIVING

SECURING AGAINST OVERLOAD

IMPORTANT: The tractor driver can secure the transmission against overload!



When using the machine, the following should be considered:

- 1) Always start the machine with the engine running at low speed. This especially applies to tractors with electro-hydraulic connection of the PTO shaft.
- 2) When starting, the machine should be in working position.
- 3) A sudden increase in the number of RPM of the machine, e.g. when driving into the field or after turning in the field should also happen with the machine close to working position.
- 4) Listen to the RPM of the tractor when working in the field. If the number of RPM falls slowly or is suddenly reduced it may be a sign of overload of the transmission due to too high driving speed or foreign matter in the cutting unit. In this case, the friction clutch will slip and you should disconnect the PTO immediately and let the machine "rest".

MOUNTING OF RELIEF SPRINGS

The relief springs are mounted between the machine and the tractor. First, a basic adjustment must be made. The fine adjustment is made in the field when you have the right cutting height.

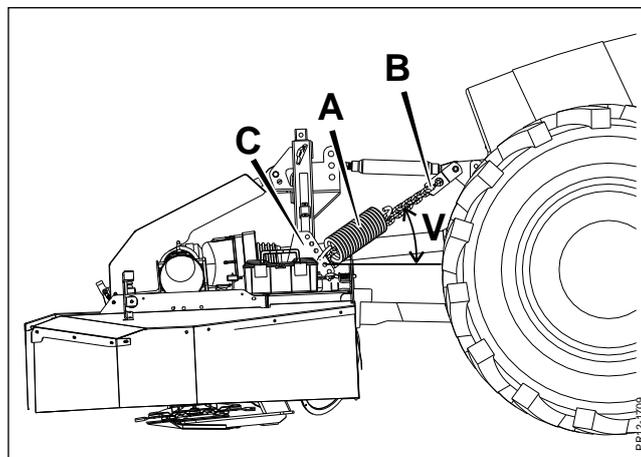


Fig. 2-7

Fig. 2-7 The springs **A** are mounted on the machine and the chains **B** are mounted at the tractor.

Mounting is different from tractor to tractor. KONGSKILDE supplies parts for mounting in the top link fix point and extra shackles to make it easier to mount other places.

When you have found the placement on the tractor, a hole in the spring bracket **C** must be chosen so that the angle **V** is **30 - 40 degrees**.

2. CONNECTION AND TEST DRIVING

In order to find the correct spring length the machine must be lifted up in transport position to be able to adjust the chains **B**. You start with a long chain and shorten one chain link at a time until you can lift the machine at each side when it is lowered to the ground and is in floating position. **The chains must be shortened simultaneously.**



IMPORTANT! The tractor's link arms must be in floating position.

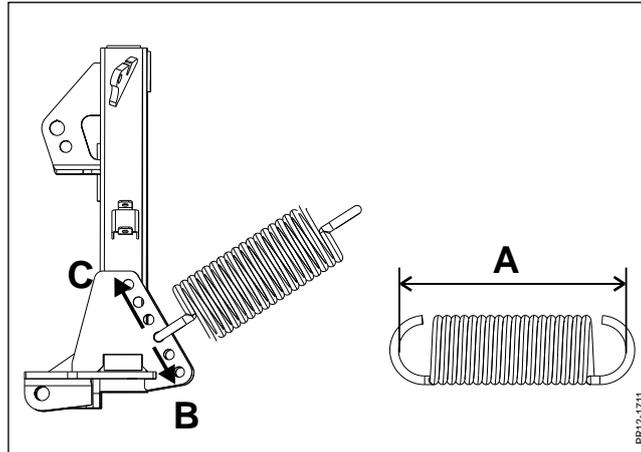


Fig. 2-8

Fig. 2-8 It must be checked that the springs are not too long when the machine is in working position. Each time the chain is shortened **A** must be measured. **A should not be bigger than 600 mm.**

If **A** should not be longer and you cannot lift the machine, you need to move the springs in direction **B** until you can. If you can lift the machine and **A is smaller than 500 mm** KONGSKILDE recommend that you move the springs in direction **C** and make **A** bigger. This ensures better relief on hilly ground.

2. CONNECTION AND TEST DRIVING

STUBBLE HEIGHT

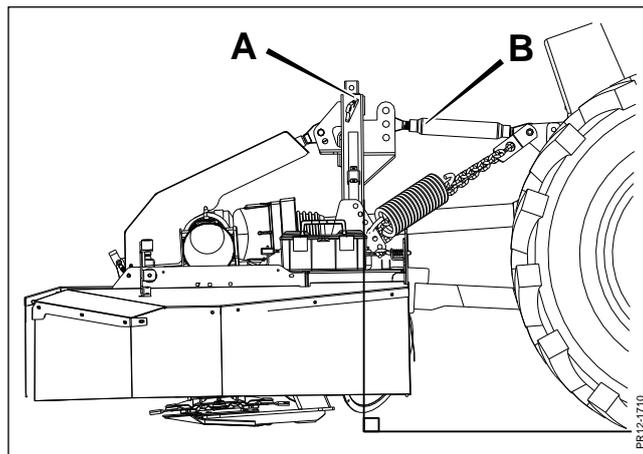


Fig. 2-9

Fig. 2-9 The basic adjustment of the stubble height is when the A-frame **A** is vertical. This is adjusted by means of the top link **B**.

SIDE GUARDS

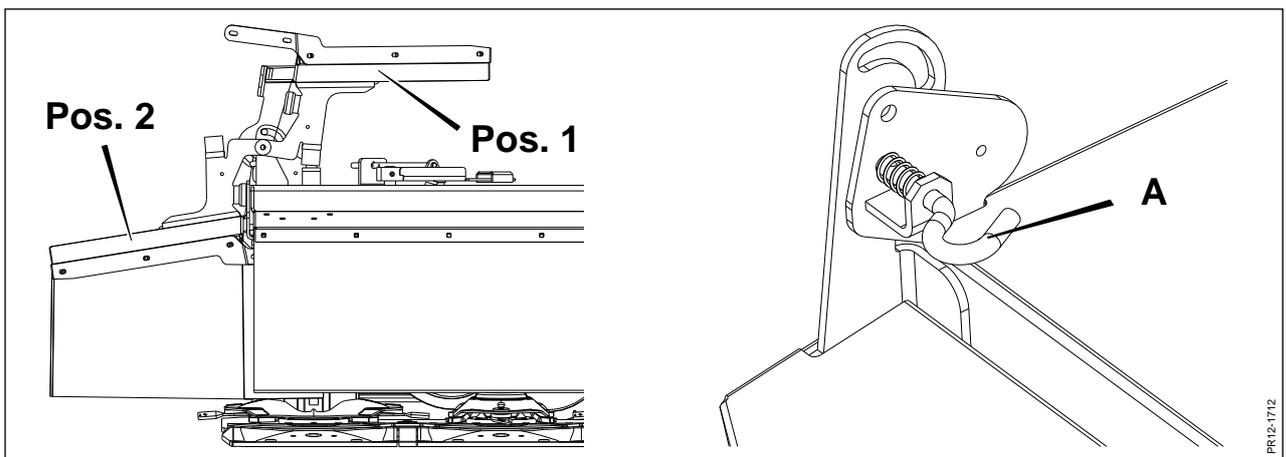


Fig. 2-10

Fig. 2-10 The transport width can be minimised by folding the side guards to pos. **1** during transport. The side guards must be in pos. **2** during operation.

In order to fold the side guards, the handle **A** must be pulled out.

IMPORTANT! ALL GUARDS MUST BE IN PLACE WHEN THE MACHINE IS STARTED.



2. CONNECTION AND TEST DRIVING

TRAFFIC MARKING

The machine is delivered with round reflectors as general traffic marking.



IMPORTANT – TRAFFIC MARKING:

The owner is always obliged to ensure that the machine is equipped with correct lighting system and other traffic marking in accordance with the country's current rules.

KONGSKILDE offers different accessories for traffic marking. If you have bought this, we recommend you to mount it before making a test run.

TEST DRIVING

CHECK BEFORE TEST DRIVING

Before test driving, the following should be checked:

- 1) That the front hitch is single-acting.
- 2) That the PTO shaft of the tractor has the correct number of RPM (1000 rpm).
- 3) That the cutter bar and the bevel gearboxes (2 pcs.) have the correct oil level. See section 4; GREASING.
- 4) That all lubricating points have been greased. See section 4; GREASING.
- 5) That all blades on the discs are intact and correctly tightened.
- 6) That connection of the PTO shaft of the tractor is made with the cutting unit lowered to the ground and the machine in working position.
- 7) That connection of the PTO shaft of the tractor is carried out with a low number of RPM on the engine.
- 8) That the PTO shaft between the PTO of the tractor and the PIC of the centre gearbox is not squeezed, or bottomed, when the link arms of the tractor are raised and lowered carefully.
- 9) That the safety guards of the PTO shafts do not rotate with the shafts, that the support chains are fastened correctly.
- 10) That the protection (guards and canvases) on the machine are complete, intact and correctly mounted, and that the side guards are folded down.
- 11) That all tools have been removed from the machine.
- 12) That nobody stands near the machine.
- 13) That no parts have been tied up inside the machine in connection with the delivery of the machine.
- 14) That the overload clutch has been "aired". See also chapter 5 "Maintenance" in the section "Friction clutch".

2. CONNECTION AND TEST DRIVING

THE ACTUAL TEST DRIVE

Connect the PTO shaft carefully and let the engine run at a low number of RPM. If there is no unintended noise or unusual vibrations, the speed can gradually be increased to normal number of RPM (PTO = 1000 rpm).

Apart from the tractor driver nobody should stand near the machine.

NB: All machines have been tested for vibrations before they leave the factory. This is an essential part of the company's quality assurance.

It is, however, necessary to check regularly whether the machine has unnatural vibrations, especially during test driving.



WARNING: When discs and blades rotate with 3000 rpm, even slightly damaged rotating parts (blades, discs and caps) may result in vibrations which in the long run may lead to secondary damage such as cracks or fractures.

Even though the machine has been secured against impacts and vibration damage, there will always be a certain risk, though limited.

During the season check daily if blades, discs and caps are damaged and replace parts if necessary.

2. CONNECTION AND TEST DRIVING

DISCONNECTION OF THE MACHINE

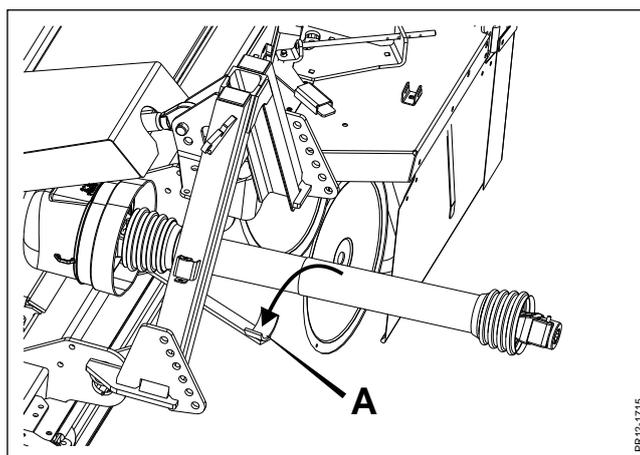


Fig. 2-11

Fig. 2-11 When disconnecting the machine you start by dismantling the relief springs. Afterwards the PTO shaft. The PTO shaft is placed on the holder **A** which can be swivelled out.

The elastic straps which are fastened to the tractor's link arms are dismantled. When you have deactivated the A-frame lock, you can lower the link arms so that the tractor's A-frame is released from the implement.



DANGER! When lowering the A-frame, the parts may suddenly fall apart. Therefore, it is necessary to keep a safe distance.

3. ADJUSTMENTS AND DRIVING

CONSTRUCTION AND FUNCTION

SMF 3005 is a disc mower which is connected at the front of the tractor and places a gathered swath between the wheels of the tractor.

THE FUNCTIONAL PRINCIPLE OF THE MACHINE

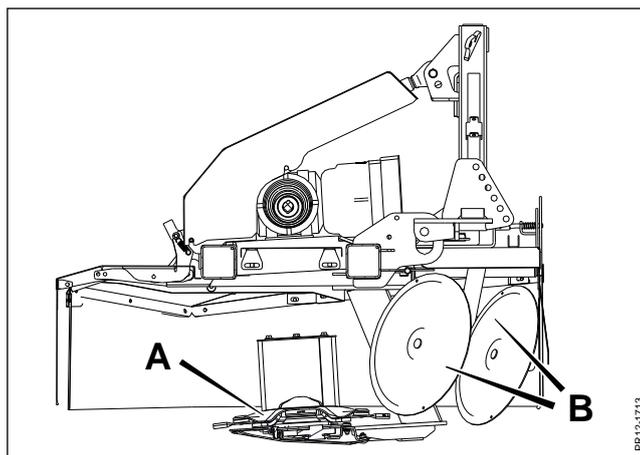


Fig. 3-1

Fig. 3-1 The cutter bar **A** cuts the crop and transports it to the rear towards the swath discs **B**. The discs gather the crop to a swath.

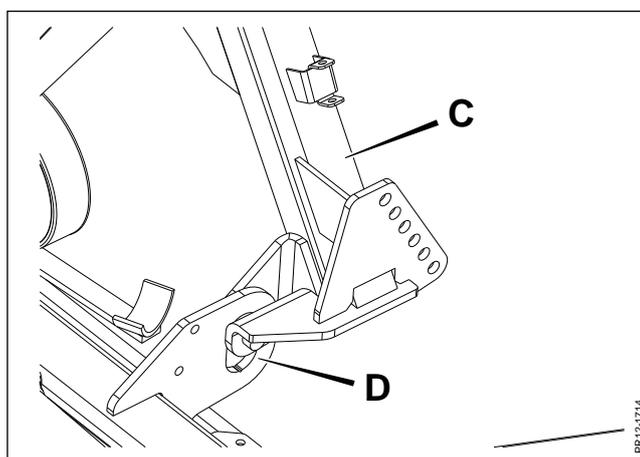


Fig. 3-2

Fig. 3-2 The A-frame **C** is fastened with the rest of the machine in an oblong hole **D** which makes it possible for the machine to move in relation to the tractor when it is necessary.

ADJUSTMENTS

STUBBLE HEIGHT

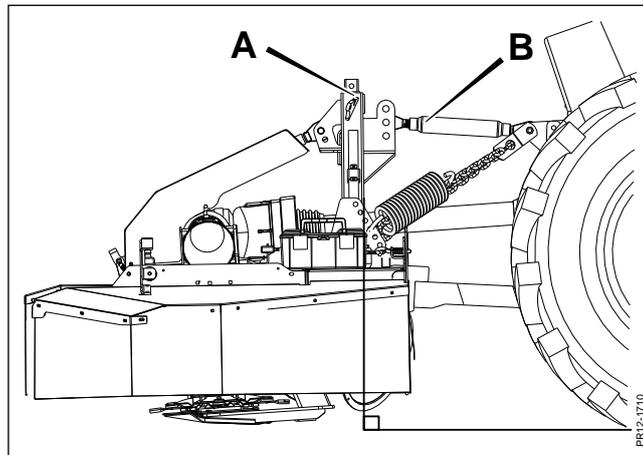


Fig. 3-3

Fig. 3-3 The stubble height is changed by changing the angle of the machine. This is done by changing the length of the top link. If you want higher stubble, the top link must be shorter and if you want a lower stubble the top link must be longer. As mentioned in chapter 2 the basic adjustment is when the A-frame is vertical.

If you want extra high stubble, high guide shoes can be mounted on the machine. See the section "High guide shoes".

3. ADJUSTMENTS AND DRIVING

SWATH DISCS

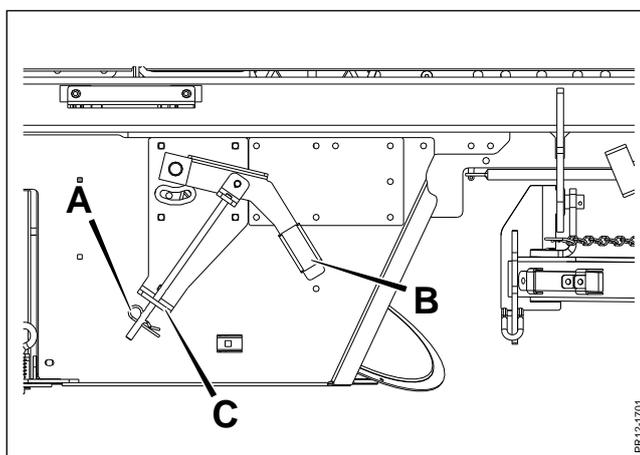


Fig. 3-4

Fig. 3-4 From the factory **SMF 3005** is fitted with 4 swath discs. 2 each side. Their function is to shape a swath in the middle. The swath width is determined by the position of the swath discs. The closer to the centre, the narrower the swath will be.

In order to adjust the swath discs, the split pin **A** must be removed and the swath rollers are moved with the handle **B**. When you have found the chosen position, the split pin **A** must be placed in the hole which is closest to the bracket **C**.

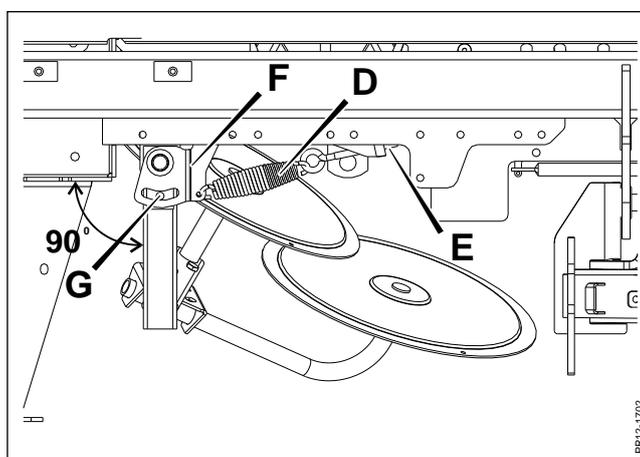


Fig. 3-5

Fig. 3-5 The swath discs are held in their position by means of an adjusting spring **D** which will allow the discs to move to the rear in case a stone or the like gets through the machine.

There must be initial tension on the spring in order to ensure a constant swath width. It is recommended to have about 30 mm free thread at the eye bolt **E** which is tensioning the spring. On the spring holder **F** there is an oblong groove in which you can move the swath discs. It is recommended to place the swath rollers as shown and then tighten the bolt **G**.

3. ADJUSTMENTS AND DRIVING

DOUBLE DRUM SYSTEM (OPTION)

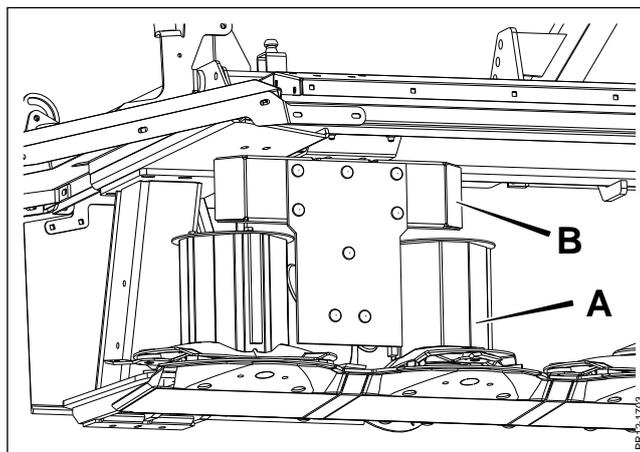


Fig. 3-6

Fig. 3-6 As option **SMF 3005** can be fitted with a set of high discs **A** and a guard **B** at each end. This system makes it possible to make very narrow swaths. The guards ensure that the grass is always led the right way.

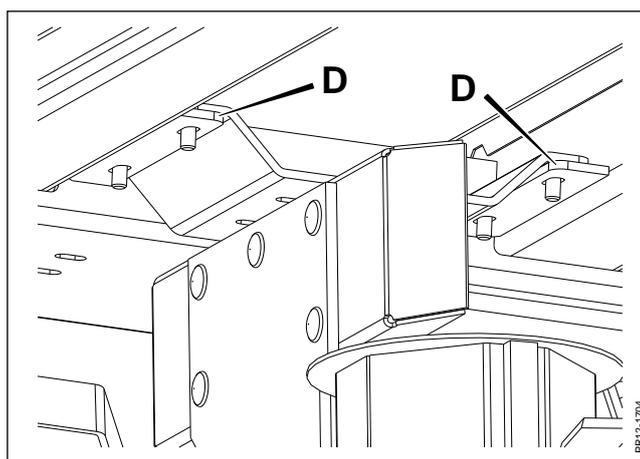


Fig. 3-7

Fig. 3-7 The guards are mounted first. They are mounted at both sides on fittings **D**. Afterwards the standard discs on the cutter bar are dismantled and the high discs are mounted. They must be closed with the supplied cover. Between cover and disc there must be silicone to ensure that the connection is tight.

3. ADJUSTMENTS AND DRIVING

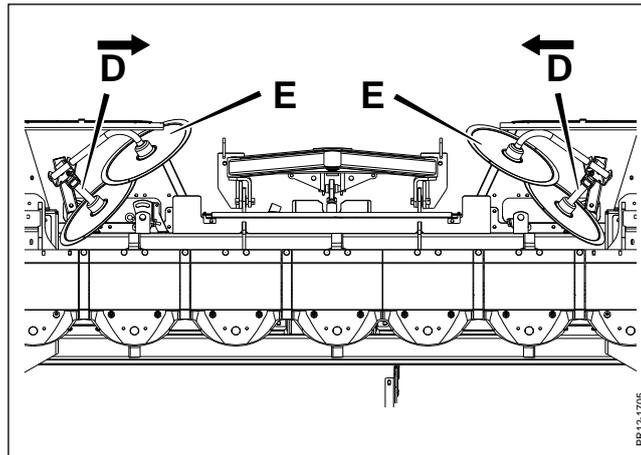


Fig. 3-8

Fig. 3-8 When mounting this system it can be an advantage to move in the swath discs **D**. The rear swath disc **E** at each side must be dismantled because there is no room for it.

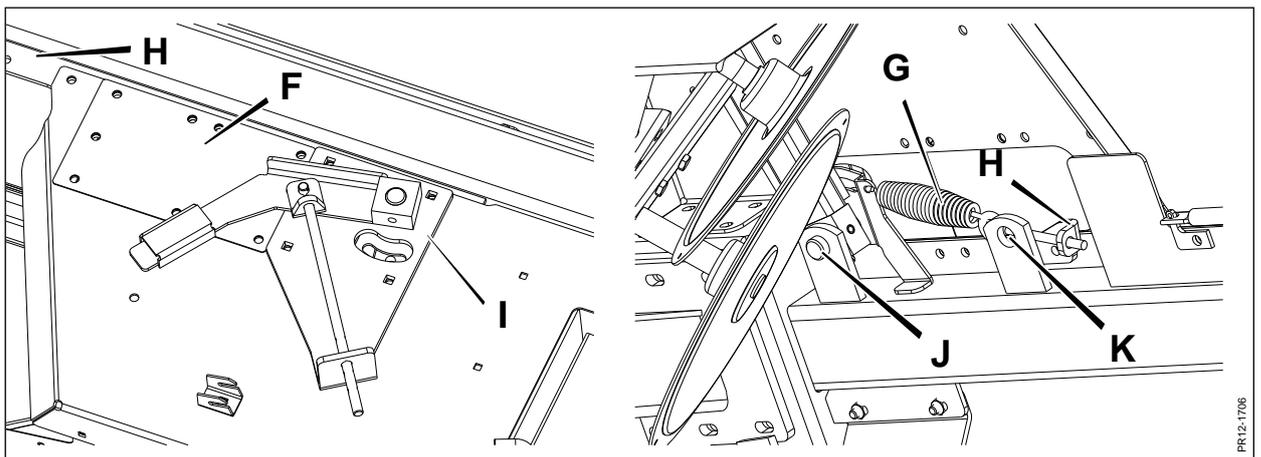


Fig. 3-9

Fig. 3-9 The swath discs are moved by dismantling plate **F** and spring **G**. When this has been done the fittings **H** is moved to the holes indicated. Bracket **I** is loosened. Now the bracket and the swath disc can be lifted from hole **J** to **K**. Ensure you move the washer under the swath disc bracket along from hole **J** to **K**. Now all parts must be mounted again. Plate **F** must be mounted where bracket **I** was mounted.

RELIEF

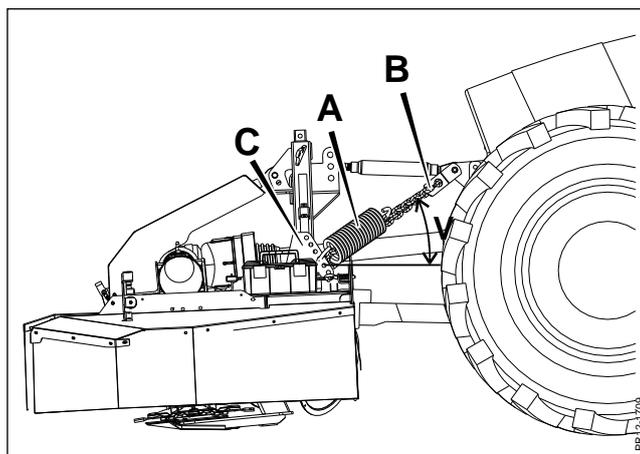


Fig. 3-10

Fig. 3-10 In order to spare the stubble during working, reduce the wear of the skids and ensure good ground following abilities, the machine is relieved by means of 2 strong tension springs.

The relief springs are mounted between the machine and the tractor. First, a basic adjustment must be made. The fine adjustment is made in the field when you have the right cutting height.

The springs **A** are mounted on the machine and the chains **B** are mounted at the tractor.

Mounting is different from tractor to tractor. KONGSKILDE supplies parts for mounting in the top link fix point and extra shackles to make it easier to mount other places.

When you have found the placement on the tractor, a hole in the spring bracket **C** must be chosen so that the angle **V** is **30 - 40 degrees**.

In order to find the correct spring length the machine must be lifted up in transport position to be able to adjust the chains **B**. You start with a long chain and shorten one chain link at a time until you can lift the machine at each side when it is lowered to the ground and is in floating position. **The chains must be shortened simultaneously.**



IMPORTANT! The tractor's link arms must be in floating position.

3. ADJUSTMENTS AND DRIVING

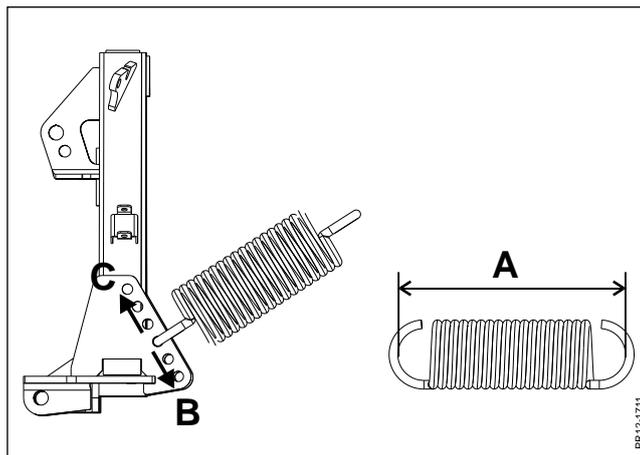


Fig. 3-11

Fig. 3-11 It must be checked that the springs are not too long when the machine is in working position. Each time the chain is shortened **A** must be measured. **A should not be bigger than 600 mm.**

If **A** should not be longer and you cannot lift the machine, you need to move the springs in direction **B** until you can. If you can lift the machine and **A is smaller than 500 mm** KONGSKILDE recommend that you move the springs in direction **C** and make **A** bigger. This ensures better relief on hilly ground.

If it is difficult for the machine to follow the ground, you might have to make the machine heavier than recommended. This is done by making **A** shorter.



IMPORTANT: When driving with a front mounted mower, you should be aware that the machine meets irregularities and holes on the ground before the tractor wheels and that the machine must be able to move in the opposite direction of the tractor movements. Therefore, you must reduce the driving speed when working with reduced relief on hilly ground in order to spare the cutting unit and avoid heavy collision with irregularities of the ground.

DRIVING WITH THE MACHINE

As the machine is front-mounted, few driving instructions are required. However, there are some important circumstances to be aware of.

STARTING

When arriving at the field you want to work in, the following procedure must be followed:

- 1) Fold down the side guards.
- 2) Lower the cutting unit to the ground without driving into the crop. Set the link arms to floating position.
- 3) Connect the PTO of the tractor with the engine at idle speed.
- 4) Increase the number of rotations gradually until the wanted 1000 rpm on the PTO is obtained.
- 5) Drive forwards and lead the cutting unit into the crop.

NB: It is normal that the cutting parts (cutter bar, discs and blades) make noises when starting due to the high number of revolutions of the discs (3000 rpm). The noise will be reduced when the machine starts working in the crop.



IMPORTANT: When the machine is in working position during mowing, the link arms must be in floating position so that the cutting unit can move freely and the suspension works optimally.

3. ADJUSTMENTS AND DRIVING

WORKING IN THE FIELD

There are several important conditions to be aware of when mowing with the machine.

Theoretically, it is possible to work with a speed of 19 km/h. However, always adjust the driving speed to the conditions, i.e. the amount of crop and the conditions of the ground.

The operator should always have full control of the tractor and be able to avoid irregularities of the ground and foreign matter in front of the tractor and the machine.

Reduce the driving speed if:

- the ground is uneven or hilly
- the crop is lodged
- the crop is unusually high and thick

Increase the driving speed if:

- the crop is low and thin
- the crop contains for instance peas etc.

REMEMBER: The tractor's link arms **must** be set to floating position after each turn.

As mentioned earlier, it is important that you pay special attention when working on hilly ground. **Reduce** the driving speed and be aware of the movements of the machine on the ground.

On hilly ground there is a greater risk that the machine hits a bank of earth or foreign matter and you, as tractor driver, should minimise the risk of damage to the equipment.

REMEMBER: As long as the stubble remains uniform and the machine moves evenly and smoothly across the ground, the driving speed is correct.



DANGER: When driving along field boundaries and steep slopes, always be careful and never drive too fast, as there is a risk of foreign matter on the boundary and often varying ground conditions along steep slopes and boundaries.

3. ADJUSTMENTS AND DRIVING



IMPORTANT: It is not possible to back with the machine unless the cutter bar is lifted from the ground!

During mowing make sure to keep the rpm of the PTO-shaft constant (1000 rpm), so that the cutting parts of the machine can work optimally.



WARNING: When the number of rpm falls the load of the transmission increases considerably. Therefore it might happen that the friction clutch, in order to protect the transmission, slips as intended if the machine is overloaded.

Disconnect the PTO immediately when the friction clutch slips and find the reason for the overload of the transmission.



DANGER: After having worked with the machine for a long time, the cutter bar will have a temperature of about 80 degrees and you must be aware of the risk of getting burnt if you want to replace blades or other parts.

TURNING

When turning in the field, lift the cutting unit from the ground.

NB: Noise may occur from the PTO shaft between tractor and machine when the machine is lifted completely during turning. This noise is due to the angle of the shaft and is practically of no importance as the torque of the shaft is minimal in this situation.

When turning on hilly ground or on steep slopes, turn with the machine towards the hill/slope, if possible, to ensure sufficient stability of the tractor. Always reduce the driving speed when turning in the field.



IMPORTANT: The construction of the machine does not allow you to reverse when the machine is in working position. Therefore, **always** lift the cutting unit from the ground when turning.

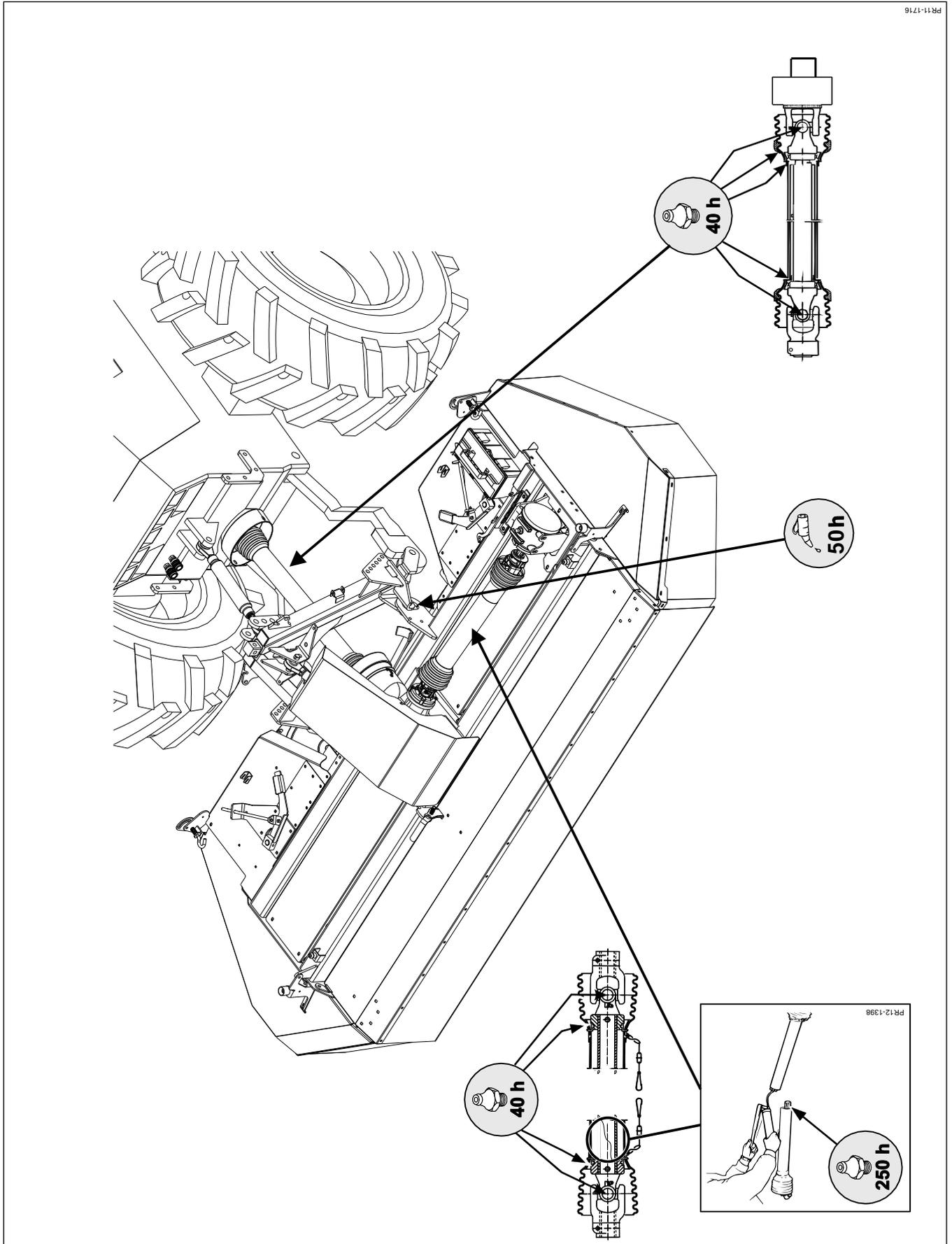
HIGH GUIDE SHOES (OPTIONAL EQUIPMENT)

As optional equipment KONGSKILDE can supply a set of high guide shoes for the machine in order to obtain extra high stubble. These are mounted according to figure in the spare parts book.

4. GREASING

Lubrication chart for mower type: **SMF 3005**

Grease points **must** be greased according to the operation time intervals indicated, however, at least once every season (see chart below).



4. GREASING

GREASE

Always make sure that the machine has been properly and sufficiently greased before working.

Rotating mechanical connections are greased with grease or oil as required.

Type of grease: Universal grease of good quality.



IMPORTANT - REMEMBER: Lubricate the PTO shaft after every 40 working hours. Pay special attention to the sliding profile tubes of the PTO shaft A.

They must be able to slide back and forth when the torque is heavy during work. If the profile tubes do not slide easily, the movement of the cutting unit is limited and the correct floatation will be lost.

If you neglect to lubricate the profile tubes sufficiently, it will result in high frictional forces (seizing) which will damage the profile tubes and in time also connecting shafts and gearboxes.

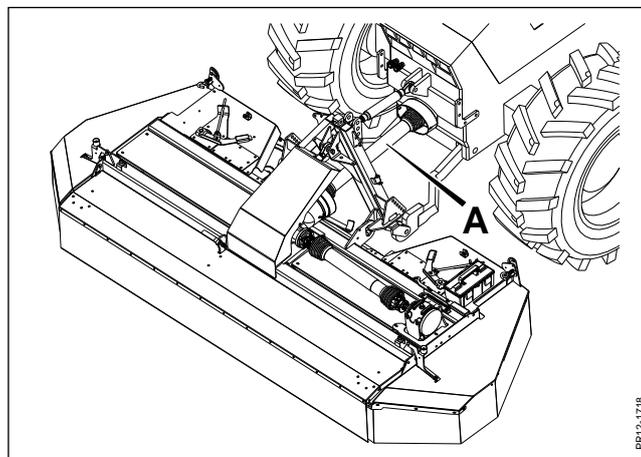


Fig. 4-1

Fig. 4-1 The above applies to the first PTO shaft **A** between the PTO of the tractor and the centre gearbox of the machine.

MACHINE PARTS WITH OIL

THE CUTTER BAR

OIL CONTENT

The oil in the cutter bars is very thick, especially when it is cold. Therefore, wait minimum 15 minutes if the oil is cold and minimum 3 minutes if the oil is warm before checking the oil level if the machine has been moved or has been in operation.

It is practical to place the machine in the correct horizontal position for oil level measuring (as described below) when the working day is over to be sure that the oil is correctly distributed the next morning and the oil level can be checked without any waiting time.

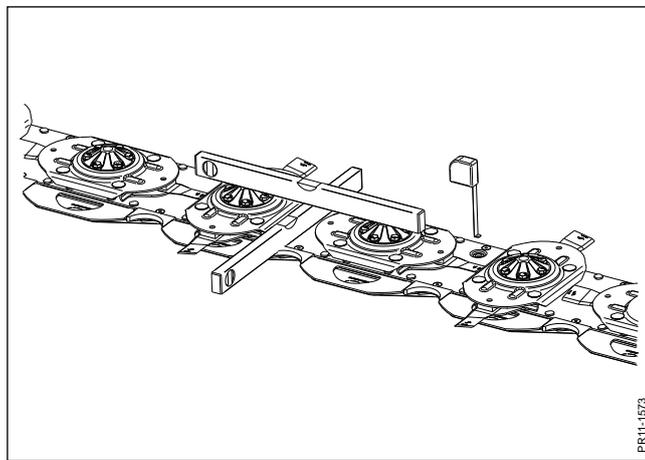


Fig. 4-2

Fig. 4.2 There are 2 plugs for inspection of oil level and filling.

The oil level must be between 5 and 7 mm, as an average of the measurements at the filling holes.

Even if the cutterbar is inclined or curved up to 20 mm, the oil level is read as an average of the two measurements.

On **SMF 3005** these are placed between the 3rd and 4th disc and between the 5th and 6th disc.

Correct oil content:

2.6 l

4. GREASING

Oil level

Fig. 4-2 To check the oil level, place the cutter bar horizontal, which should be checked by means of a spirit level, both lengthwise and crosswise.

In order to facilitate the oil check we recommend you to have a permanent "oil measuring platform" on which the cutter bar can be placed when checking the oil level.

This means that the check for horizontal cutter bar with level tube as shown in Fig. 4-2, need not be repeated every time the oil level is checked.

The oil level must be checked every day during the harvesting season at one of the plugs.

OIL CHANGE:

Oil change: The first change of oil in the cutter bar must be made after 50 working hours and then after every 200 working hours or at least once every season.

The easiest way to change the oil is to let the machine run a couple of minutes until the oil is hot. At the same time this will ensure that impurities are mixed with the oil and are removed when changing the oil.

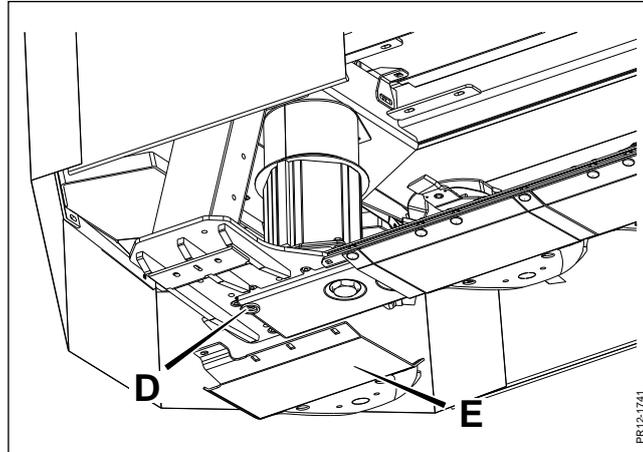


Fig. 4.3

Fig. 4-3 The plug **D** for draining of oil is placed at the outermost guide shoe **E**. The guide shoe must be dismounted to get access to the plug. When the guide shoe **E** is mounted again the bolts must be tightened to 75 Nm (7 kpm).

4. GREASING

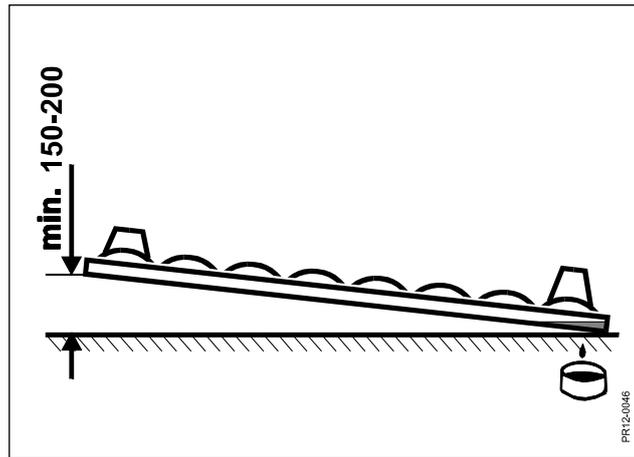


Fig. 4-4

Fig. 4-4 For oil change the cutter bar is raised minimum 150-200 mm from horizontal in the right-hand side to ensure optimum emptying.

REMEMBER: to mount the plug again after draining. The drain plug has a magnet to collect metallic impurities. Therefore, always clean the plug before remounting it.

Lower the cutter bar again before adding new oil.

When changing the oil, ensure you use a correct oil type.

Correct oil type: **SHELL OMALA S2G 320**
Or similar quality of other suppliers.



WARNING: Never fill with more or less oil than prescribed. Too much oil as well as too little oil in the cutter bar may cause unintentional overheating which in the long term will damage the bearings.

4. GREASING

BEVEL GEARBOX ABOVE THE CUTTER BAR

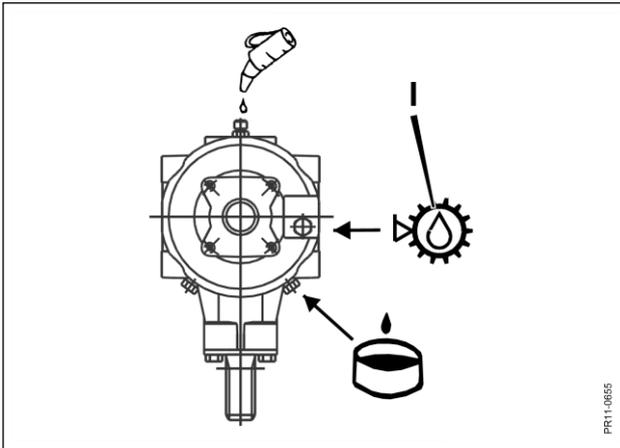


Fig. 4-5

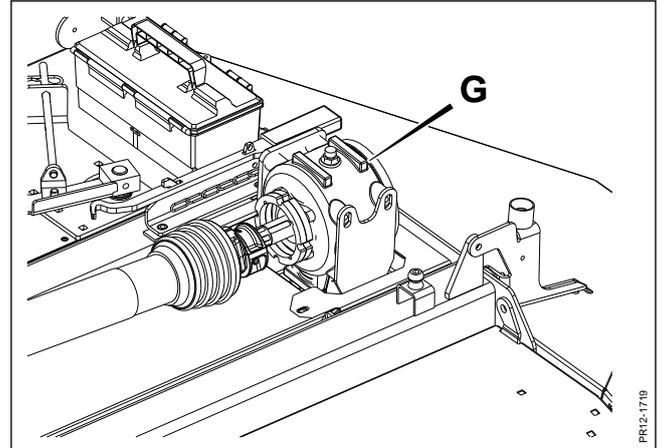


Fig. 4-6

Fig. 4-5 This bevel gearbox **G** drives the cutter bar.

Fig. 4-6 Here the bevel gearbox is seen from the left-hand side of the machine.

Correct oil content: 0.9 litres

Correct oil type: API GL4 or GL5 SAE 80W - 90

Correct oil level: Check the oil level after every 80 hours of operation at the level screw **I**.

Oil change: First oil change must be made after 50 hours of operation. Thereafter every 500 hours of operation or at least once every season.
It is recommended to suck the oil out of the gearbox.

4. GREASING

BEVEL GEARBOX IN THE CENTRE OF THE MACHINE

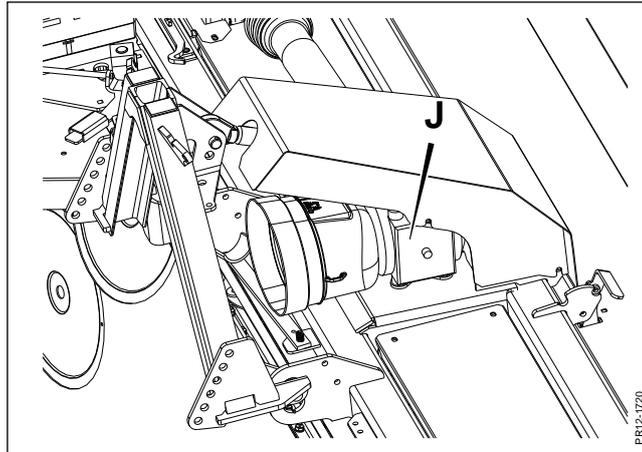


Fig. 4-7

Fig. 4-7 This bevel gearbox **J** is positioned between the two PTO drive shafts on the machine.

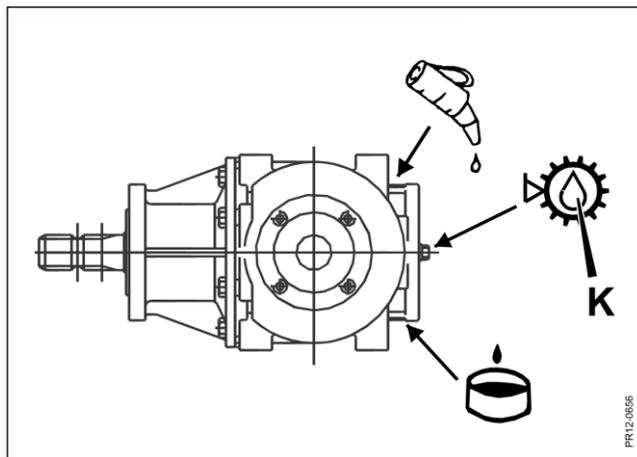


Fig. 4-8

Fig. 4-8 Here the bevel gearbox is seen from the rear of the machine (from the tractor side).

Correct oil content: 1.7 litres

Correct oil type: API GL4 or GL5 SAE 80W – 90

Correct oil level: Check the oil level after every 80 hours of operation at the level screw **K**.

Oil change: First oil change after 50 hours of operation, and then after every 500 hours of operation or at least once every season.

5. MAINTENANCE

IN GENERAL



WARNING: When repairing or maintaining the machine it is especially important to ensure correct personal safety. Therefore, always park the tractor (if mounted) and the machine according to the **GENERAL SAFETY INSTRUCTIONS** items 1-19 in the beginning of this instruction manual.

TIGHTENING OF BOLTS



IMPORTANT: Screws and bolts on your new machine must be retightened after some hours of operation. This also applies if repairs have been made.

Correct torque measurement M_A (if nothing else stated) for bolts on the machine.

Ma Ø	Class: 8.8 M_A [Nm]	Class: 10.9 M_A [Nm]	Class: 12.9 M_A [Nm]
M 8	25	33	40
M 10	48	65	80
M 12	80	120	135
M 12x1,25	90	125	146
M 14	135	180	215
M 14x1,5	145	190	230
M 16	200	280	325
M 16x1,5	215	295	350
M 18	270	380	440
M 20	400	550	650
M 20x1,5	430	615	720
M 24	640	900	1100
M 24x1,5	690	960	1175
M 30	1300	1800	2300

GUARDS

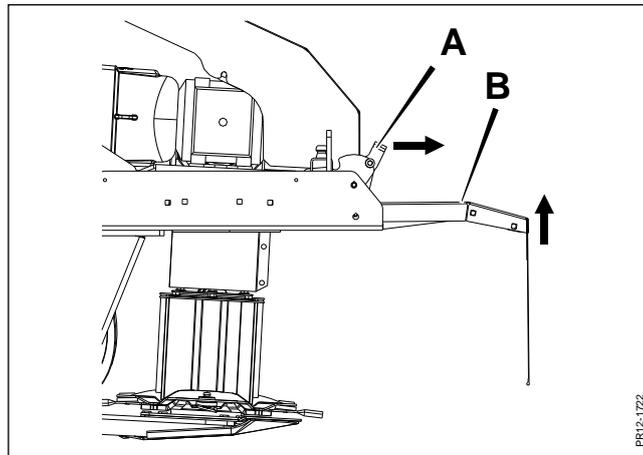


Fig. 5-1

Fig. 5-1 When maintaining the machine you often need to open guards. The front guard, which must not be lifted for transport, have for safety reasons been fitted with a lock. The lock ensures that you cannot open the guard without pulling the handle **A** and lifting the front guard **B**. In order to open the front guard you must pull the handle **A** and hold it while lifting the front guard **B**. When the front guard has been lifted you can let go of the handle **A** and the guard will automatically be locked in open position. Follow the same procedure then closing the front guard.

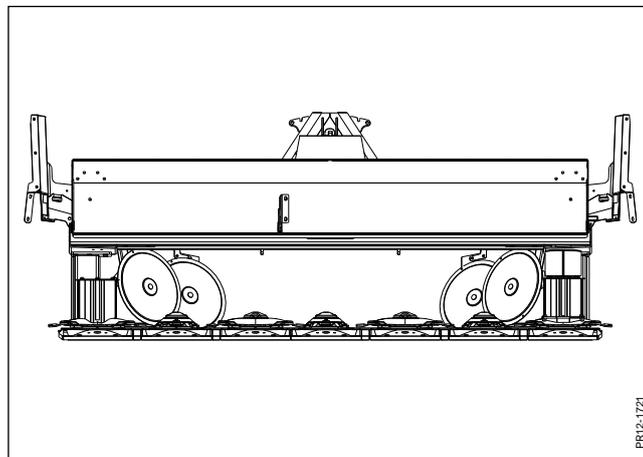


Fig. 5-2

Fig. 5-2 You can place the side guards in a vertical middle position. This means that front guard and side guards can be open at the same time. This makes it easier to maintain and clean the machine.

FRICITION CLUTCH

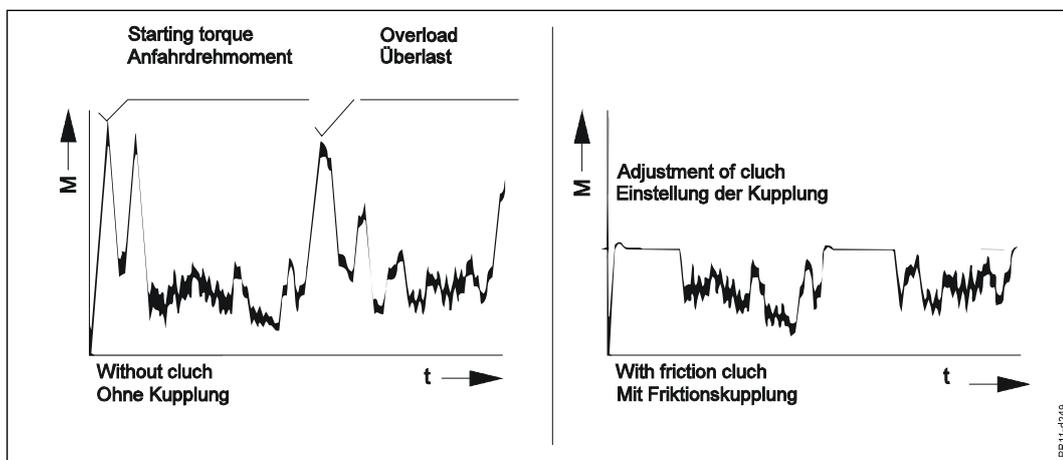


Fig. 5-3

Fig. 5-3 In order to ensure a long life for your tractor and machine, the machine is delivered with a friction clutch on the PTO drive shaft between the tractor and the machine. The figure illustrates how the clutch protects the transmission against high torque peaks and at the same time is capable of transmitting the torque while it slips. The friction clutch must be maintained at regular intervals. At the same time the clutch must be checked after any long period of standstill. This especially applies after winter storage before the machine is used for the first time in the season. Here the clutch must be loosened and the parts must be turned in relation to each other to ensure that the clutch can release.

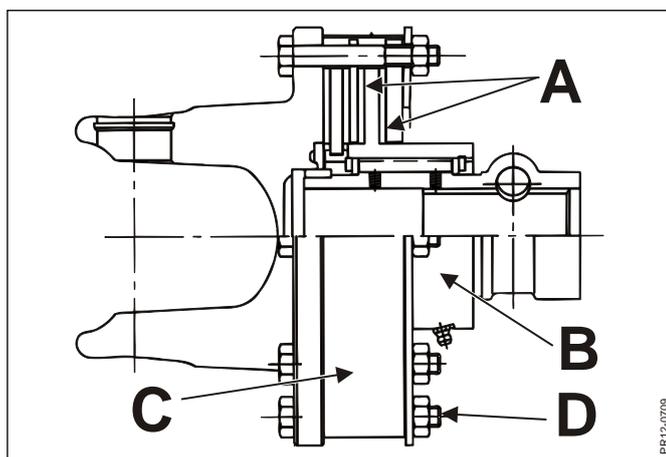


Fig. 5-4

Maintaining the friction clutch:

- Fig. 5-4**
- 1) Disassemble the clutch by loosening the bolts **D** and clean all parts of possible rust.
 - 2) Check the clutch discs **A** for wear and replace if required.
 - 3) Clean and grease the freewheel clutch **B**.
 - 4) Assemble and mount the clutch again. See also the instruction manual for the PTO drive shaft delivered by the supplier.



IMPORTANT: The outer metal band C indicates whether the tightening of the springs is correct. Tighten the bolts D just so much that the metal band C can be turned (max. 0.5 mm play).
The torque setting is not correct if the metal band is too tight or deformed due to excessive tightening of the bolts.



WARNING: If the clutch is overloaded by slipping for some time, it will get heated and thus be worn quickly.
Overheating will damage the friction plates. If the clutch is blocked or partly put out of function in other ways, the factory guarantee will be discontinued.

CONTROL OF BALANCE



WARNING: When driving in the field you must always pay attention if the machine starts vibrating more than usually or if it has jarring sounds.

The discs run at up to 3000 RPM, and one broken blade may cause serious injury to persons or material damage resulting from unbalance.

If working with a modern closed cabin the symptoms may be difficult to discover, and once in a while you have to get out and check if all blades are intact.

In the long run unbalance may cause fatigue fractures and serious damage. All machines manufactured by KONGSKILDE are tested and checked for vibrations with special tools.

The first time you start the machine pay attention to vibrations and noise to have a standard of comparison later.

5. MAINTENANCE

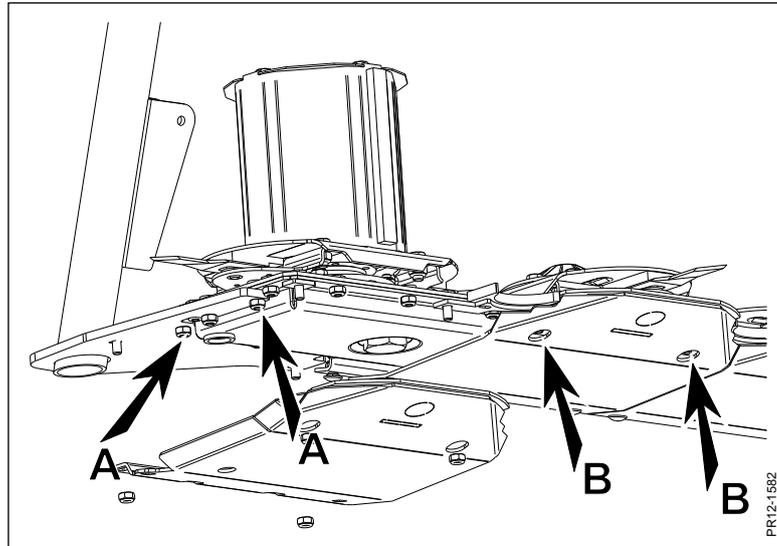


Fig. 5-5

Fig. 5-5 To avoid damage caused by vibrations in the cutting unit, the cutter bar must be fastened correctly to the frame. In order to check this, the outermost guide shoes must be dismantled. The nuts on the bolts, **A**, which fix the cutter bar to the frame must be retightened.

It is M10 bolts which must be tightened to 75 Nm (7 Kpm). The bolts that are placed where there are indents in the frame should not be retightened. These are only intended to hold the cutter bar together and do not go through the frame.

Bolts at guide shoes and shear bars, **B**, on the cutter bar should also be checked at regular intervals.

DISCS AND BLADES – Q+

Your machine can be fitted with a disc/blade system for quick replacement of blades which has been developed to facilitate maintenance of the machine.

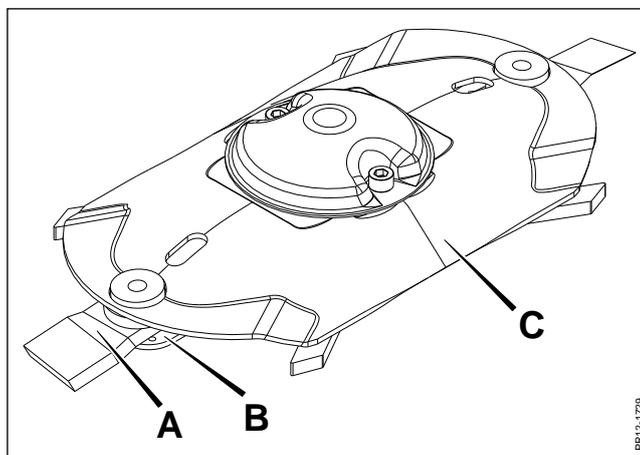


Fig. 5-6

Fig. 5-6 The system is designed for quick fitting/replacement of blades and high safety as blades **A** cannot unintentionally be released from the blade holder **B**, which is bolted under the disc **C**. The blade holder **B** fixes the blade firmly to the disc.

Discs, blade holders and blades are made from high-alloyed hardened materials. A special heat treatment results in an especially hard and ductile material which can handle extreme stress. If a blade or disc is damaged, do not attempt to weld the parts together again as the generation of heat will destroy the material properties and expose you and others to increased risk.

IMPORTANT: Damaged blades, discs and blade holders must be replaced by original KONGSKILDE spare parts to obtain a safe operation.



WARNING: When replacing blades, both blades on the disc in question must be replaced in order not to create an unbalance.

CAUTION: Always lower the cutting unit to the ground before replacing blades, blade holders, discs and the like.

BLADES

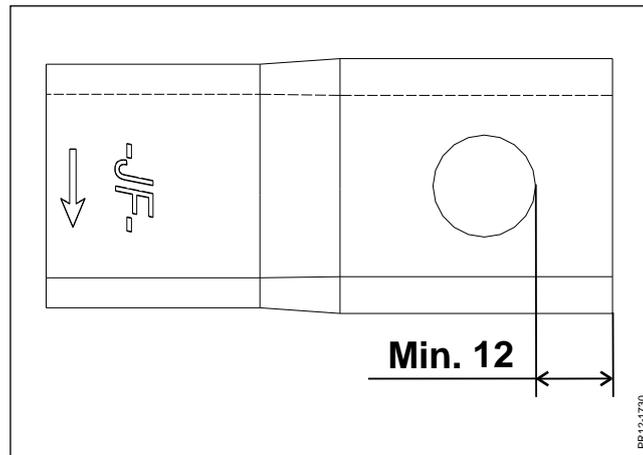


Fig. 5-7

Fig. 5-7 Replace blades immediately if:

- 1) The blade is bent or cracked,
- 2) The thickness behind the hole is less than 12 mm.

BLADE HOLDER

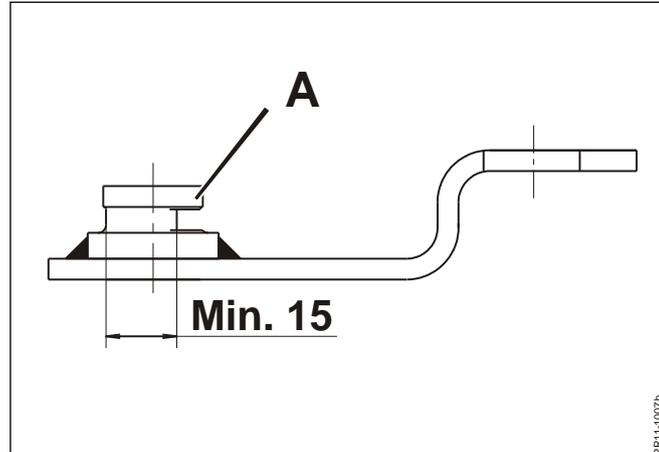


Fig.5-8

Fig. 5-8 The blade holder must be replaced if:

- 1) The blade holder does not fix the blade firmly to the disc.
- 2) The blade pin **A** is badly worn on one side,
- 3) The diameter of the blade pin is less than 15 mm.



IMPORTANT: This must especially be checked after collision with foreign matter, after replacement of blades and the first time you use the machine.

REPLACEMENT OF BLADES



DANGER: It is very important to check the parts after:

- Collision with foreign matter, or
- If a blade, as an exception, is missing on the cutter bar.

Parts can be damaged and **MUST** be replaced if you have the slightest doubt whether they have been damaged to ensure safety against loss of rotating parts.

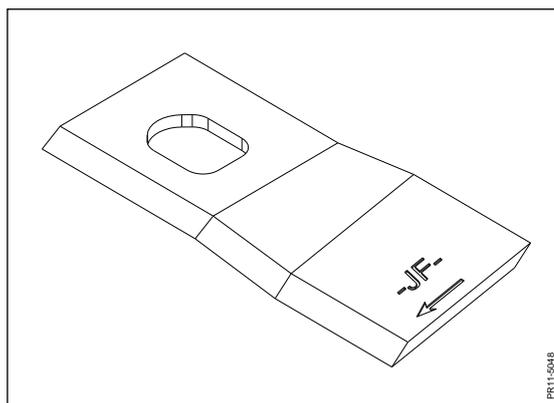


Fig. 5-9

Fig. 5-9 Twisted blades can be used on both sides by turning the blade, but it must remain on the same disc.

Please note that twisted blades are available in a left-twisted and a right-twisted version, adapted to the different direction of rotation of the discs. The blade is placed correctly if the front edge of the blade is lower than the rear edge when the disc is turned in its direction of rotation. An arrow is stamped in the blade showing the right direction. If blades are not placed correctly, it will result in cutting problems.

5. MAINTENANCE

Replacement of blades

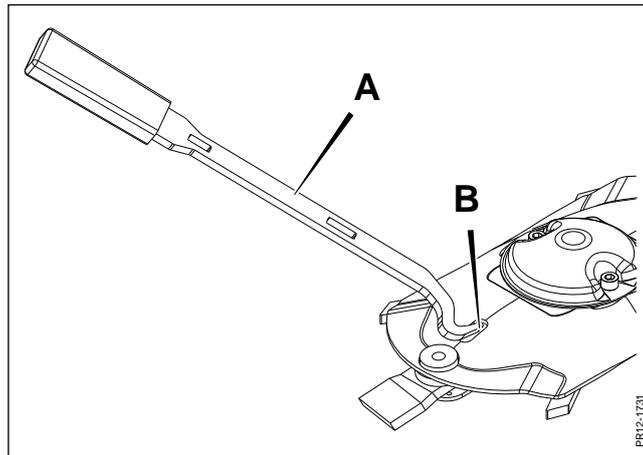


Fig 5-10

Fig. 5-10 The replacement tool **A** placed in the oblong hole **B** in the disc. When the tool is in the hole it is straightened up and pushed forward in the oblong hole.

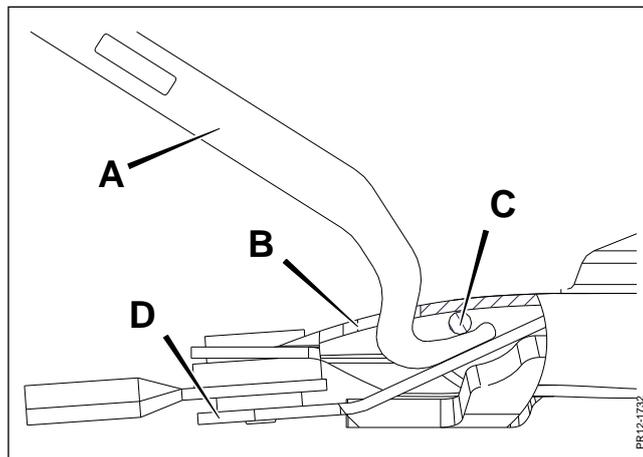


Fig. 5-11

Fig. 5-11 When the replacement tool has been pushed forward in the oblong hole **B** it is situated between the stop **C** and the blade holder **D** as shown.

5. MAINTENANCE

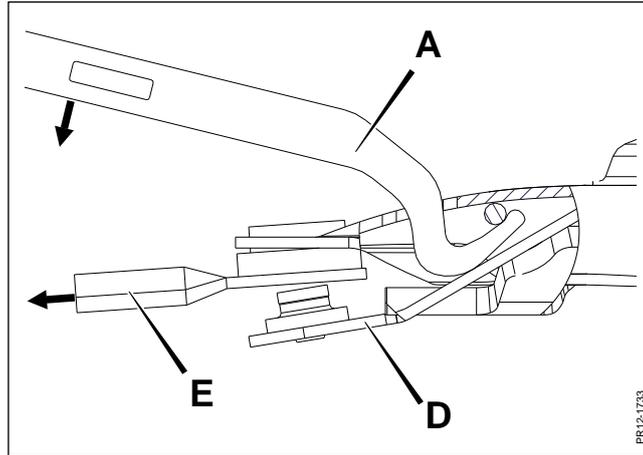


Fig. 5-12

Fig. 5-12 The tool **A** is pulled down until the blade **E** can be removed.

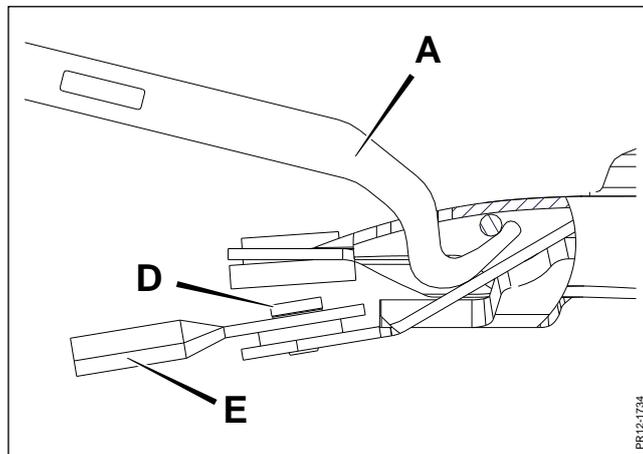


Fig. 5-13

Fig. 5-13 When placing a blade **E** you must ensure that the blade is placed correctly on the pin **D** of the blade holder before you slacken the tool **A** and let it go back up. The replacement tool **A** must, by the force of the blade holder only, end up in the same position as before you replaced the blade. If the blade holder does not let the replacement tool return fully, it indicates that the blade is not placed correctly.



WARNING: Replace the blade with your free hand. Do not let go of the handle since the spring power of the blade holder can make the tool spring back with considerable power.

5. MAINTENANCE

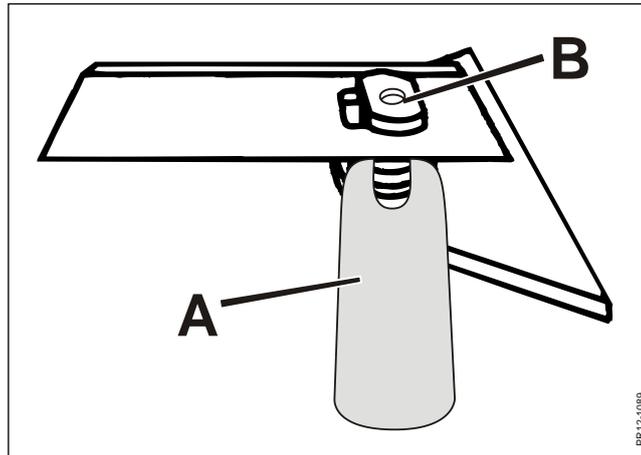


Fig. 5-14

Fig. 5-14 In connection with replacement of blades check the blade pins **B** on the discs regularly with the gauge **A** (in the spare parts package).



IMPORTANT: When the gauge **A** can get over the blade pin **B** it **MUST** be replaced immediately.

When mounting blades this is done in reverse order.

5. MAINTENANCE

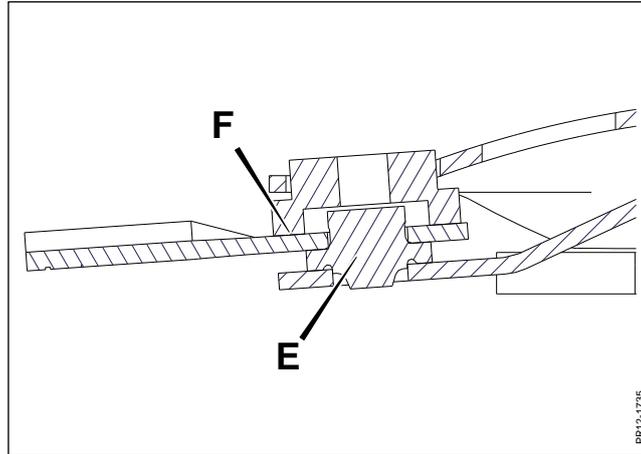


Fig. 5-15

Fig. 5-15 IMPORTANT: Make sure that there are no impurities between the contact faces of the blade pin and the disc **F** and that the blade pin of the blade holder **E** has correct contact with the bottom of the blade and that the blade is firmly in contact with the disc. If the blade pin is not firmly in contact with the disc, the blade holder should be replaced.



IMPORTANT: All discs must have the correct number of blades.

CAUTION: When mounting is finished, the discs must be turned a minimum one complete revolution by hand in order to check that no parts are colliding.

CAUTION: Worn blades and the replacement tool must be removed from the machine and the guards must be placed correctly.

REMEMBER: The blades can be used on both sides.

REPLACEMENT OF DISCS

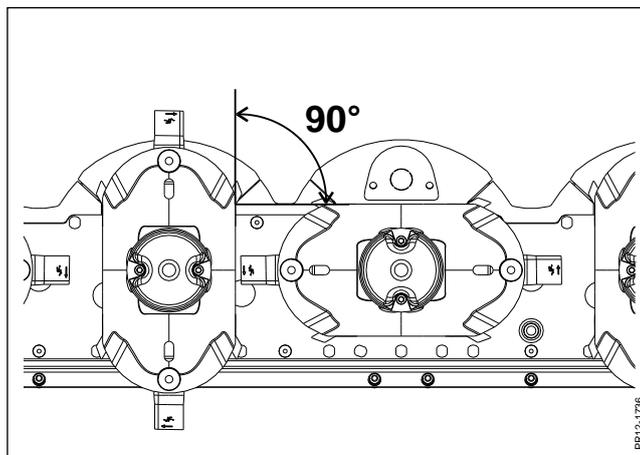


Fig. 5-16

Fig. 5-16 If discs have been dismantled they must be mounted again staggered 90° in relation to each other.

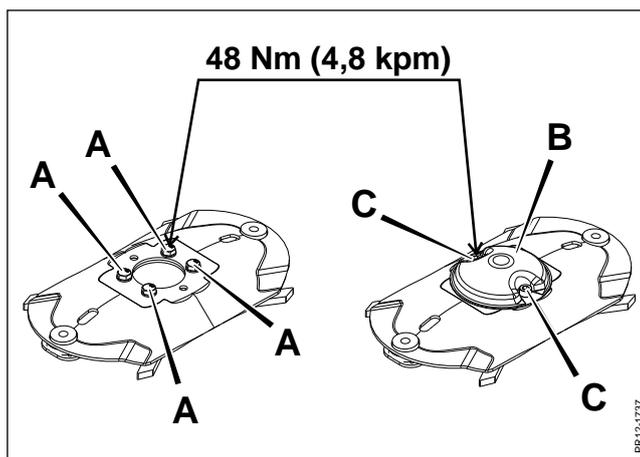


Fig. 5-17

Fig. 5-17 The discs are fastened with 6 bolts which must be tightened to 48 Nm (4.8 kpm). 4 bolts **A** are under top **B**. 2 bolts **C** also fasten top **B**. Input and output discs do not use any top, so all 6 bolts are identical.

IMPORTANT: After replacement of blades and blade bolts it must be checked that the blades are mounted correctly and that all discs have the correct number of blades.

CAUTION: When mounting is finished, the discs must be turned a minimum one complete revolution by hand in order to check that no parts are colliding.



WARNING: After replacement of blades, blade bolts, discs and the like check that no tools have been left on the machine and that the guards have been placed correctly.

CUTTER BAR

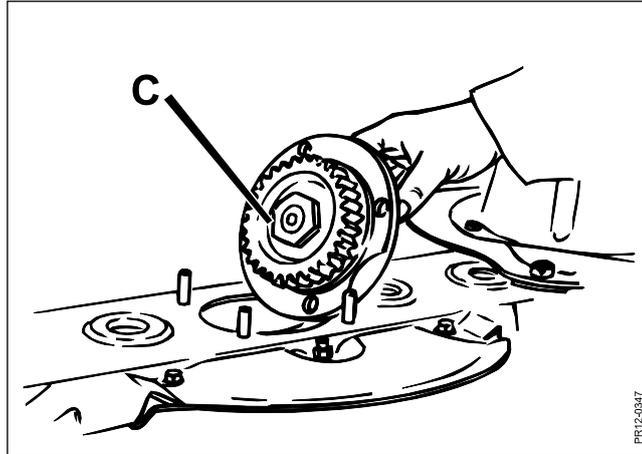


Fig. 5-18

Fig. 5-18 Cutter bars are used on which each hub **C** below the discs is easily replaced from above (Top Service cutter bar).

The hubs with bearing housing are dismantled by loosening the bolts that fix it to the cutter bar.

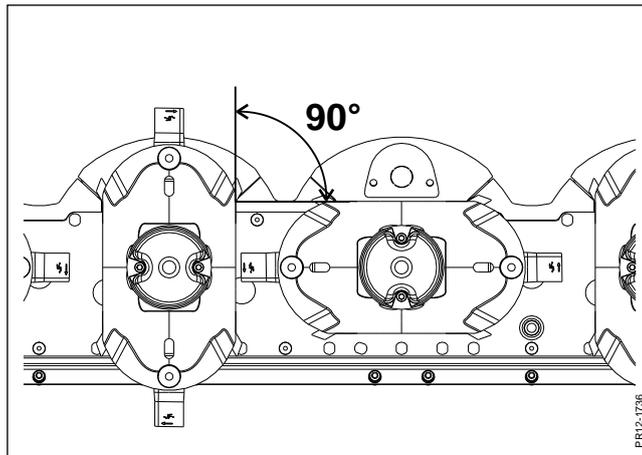


Fig. 5-19

Fig. 5-19 Make sure that the discs are mounted 90 degrees staggered in relation to each other.

5. MAINTENANCE

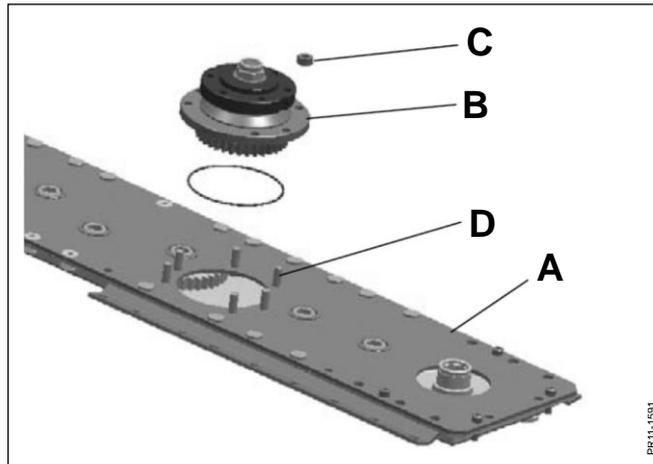


Fig. 5-20

Fig. 5-20 When the hub is mounted the surface of the cutter bar **A** and the underside of the hub **B** must be clean and greased with a thin layer of grease. The nuts **C** must be locked with Loctite 243 on the threaded pins **D** and tightened to **92 Nm** (9.2 Kpm). On the 6-bolt cutter bar all discs are the same. There is no special input disc.

POWER TAKE-OFF FOR THE CUTTER BAR

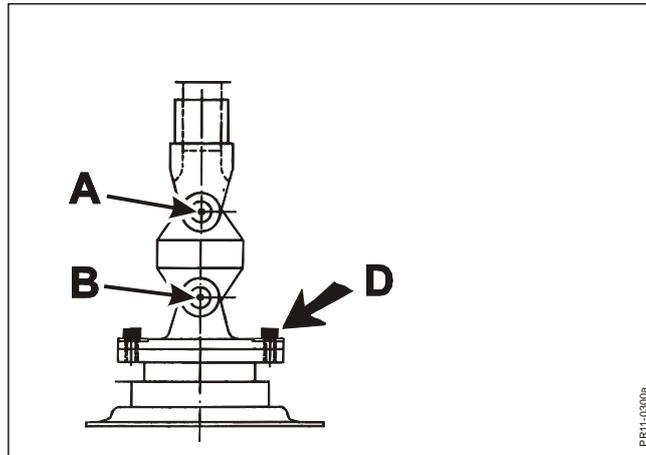


Fig. 5-21

Fig. 5-21 The PTO for the cutter bar should run with minimum angular deviation. Therefore a special tool is available (KONGSKILDE part number 6000-836x) which is used for placing the bevel gearbox precisely in relation to the cutter bar.

If you do not have this special tool, check that the deviation from the vertical line at **A** and **B** is as small as possible and maximum ± 3 mm. This can be tested by placing a right angle on the flange at **D**.

The bolts **D** are tightened to 48 Nm (4.8 Kpm) and must be locked with Loctite 243.

The PTO shaft for the cutter bar which is bolted onto the input disc is greased for life. If it is separated it must however be greased before it is mounted again.

CAUTION: Before starting the machine, the discs must be turned a minimum one complete revolution by hand in order to check that no parts are colliding.



WARNING: After replacement of blades, blade bolts, nuts or discs check that no tools have been left on the machine.

6. MISCELLANEOUS

DRIVING TIPS AND FAULT-FINDING

Problem	Possible cause	Remedy
Uneven stubble or bad cut	<p>The cutter bar ground pressure is too light.</p> <p>The number of rpm of the tractor is too low.</p> <p>The blades are worn</p> <p>The blades are placed wrongly</p> <p>Discs, stone protectors or flow caps are deformed.</p>	<p>Check the basic adjustment of the machine and, if necessary, reduce the relief by loosening the springs</p> <p>Check if the number of revolutions on the tractor PTO is 1000 rpm, and not 540. Make sure the number of rpm is constant.</p> <p>Turn/move the blades to another disc or replace the blades</p> <p>Place the blades correctly</p> <p>Replace deformed parts.</p>
Stripes in stubble	<p>The cutting angle is too large, the grass is not transported across the cutter bar</p> <p>Accumulation of material in front of the cutter bar</p> <p>The blades are placed wrongly</p>	<p>Adjust the cutter bar more horizontal by shortening the top link</p> <p>Increase the driving speed, if possible</p> <p>Place the blades correctly</p>
The machine vibrates/uneven operation	<p>Blades, discs or other rotating parts may be deformed, damaged or missing</p> <p>Defective PTO drive shafts</p> <p>Defective bearings in cutter bar or rotor</p>	<p>Replace or mount new parts</p> <p>Check if the shafts are intact. Repair, if necessary</p> <p>Check if bearings are loose or damaged. Replace if necessary</p>
Gear or cutter bar overheated	Oil level not correct	<p>Check the oil level and refill/drain out oil, if necessary</p> <p>NB: Maximum temperature in gearbox 80 °C, Cutter bar temperature maximum 90-100 °C</p>
Power consumption unusually high	<p>Crop and dust under the discs</p> <p>String or wire is wrapped around a disc.</p>	<p>Stop the tractor engine. Dismount the discs and clean cutter bar and discs.</p> <p>Check if the friction clutch is intact.</p> <p>Remove the foreign matter.</p>

STORAGE

When the season is over, the preparation for winter storage should be made. First, clean the machine thoroughly as dust and dirt absorb moisture and moisture increases the formation of rust.



CAUTION: **Be careful when cleaning with a high pressure cleaner.** Never spray directly on the bearings and grease all grease points carefully after cleaning so that possible water is pressed out of the bearings.

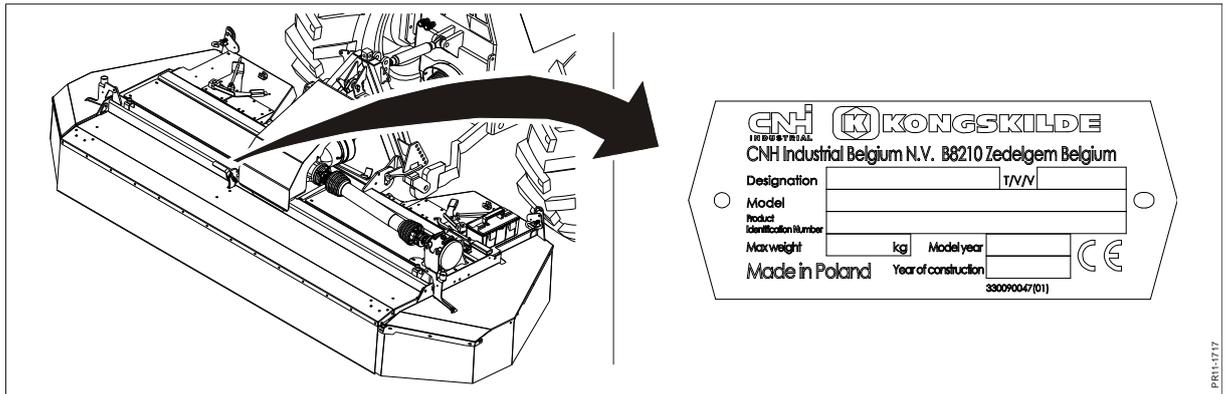
The following points are instructions how to prepare for winter storage.

- Check the machine for wear and other defects.
Note down the wearing parts needed before the next season and order the spare parts.
- Dismount, clean and lubricate the PTO shafts. Remember to grease the profile tubes. The PTO shaft must be kept in a dry place.
- Spray the machine with a thin coat of rust-preventing oil. This is especially important on the parts polished with use.
- Store the machine in a ventilated building.

SPARE PARTS ORDER

When ordering spare parts, please state the exact machine type and serial number. This information is printed on the machine plate which is placed as shown on the figure below.

We request you to write this information on the first page in the spare parts book supplied with the machine as soon as possible so that you have the information at hand when ordering spare parts.



DISPOSAL

When the machine is worn-out it must be disposed of in a proper way.

Observe the following:

- The machine must not be placed somewhere outside, and gearboxes, cylinders and cutter bar must be emptied of oil. These oils must be handed over to a recycling company.
- Disassemble the machine and separate the individual parts, e.g. PTO shafts, hydraulic hoses and components.
- Hand over the usable parts to an authorised recycling centre. The large scrapping parts are handed over to an authorised breaker's yard.

7. WARRANTY

Your machine is warranted according to legal rights in your country and the contractual agreement with the selling dealer. No warranty shall, however, apply if the machine has not been used, adjusted and maintained according to the instructions given in this operator's manual.

It is prohibited to carry out any modifications to the machine unless specifically authorized, in writing, by a NEW HOLLAND representative.

EF-overensstemmelseserklæring/ EG-Konformitätserklärung/ EC Declaration of Conformity/ Déclaration CE de conformité/ Dichiarazione CE di conformita/ EG Verklaring van Overeenstemming/ EG-försäkran om överensstämmelse/ EY-vaatimustenmukaisuusvakuutus/ Declaración de conformidad CE/ Deklaracija Zgodnosti WE./ Декларация за съответствие EO/ EK Megfelelőségi Nyilatkozat /ES Prohlášení o shodě/ EB Atitikties deklaracija/ ES prehlásenie o zhode/ Declarația de conformitate CE/ Vastavuse Deklaratsioon EÜ /ES Izjava o skladnosti/ Δήλωση πιστότητας EK/ Declaração de fidelidade CE/ Dikjarazzjoni ta' Konformità tal-KE/ EK Atbilstības deklarācija/

Fabrikant/ Hersteller/ Manufacturer/ Fabricant/ Produttore/ Fabrikant/ Fabrikant/ Valmistaja/ Fabricante/ Producent/ Производител/ Gyártó/ Výrobce/ Gamintojas/ Výrobca/ Producător/ Tootja/ Proizvajalec/ Κατασκευαστής/ Fabricante/ Fabbrikant/ Ražotājs

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Maskine:	La máquina:	Masin:
Maschine:	Maszyna:	Stroj:
Machine:	Машината:	Η μηχανή:
Machine:	Gép:	Máquina:
La macchina:	Stroj:	Il-magna:
Machine:	Mašina:	Mašina:
Maskin:		Stroj:
Laite:		Mašina:

 **KONGSKILDE**

Model/Type: **SMF 3005**

Designation: Mower

Serial:

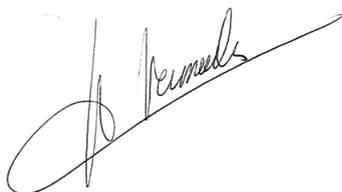
- er i overensstemmelse med Maskindirektivets bestemmelser (Direktiv 2006/42/EF) og hvis relevant også bestemmelserne i EMC-direktivet 2014/30/EU.

- In übereinstimmung mit den Bestimmungen der Maschinen-Richtlinie 2006/42/EG und wenn erforderlich auch mit der EMC-Richtlinie 2014/30/EU hergestellt wurde.

- is in conformity with the provisions of the Machinery Directive 2006/42/EC and if relevant also the provisions of the EMC Directive 2014/30/EU.

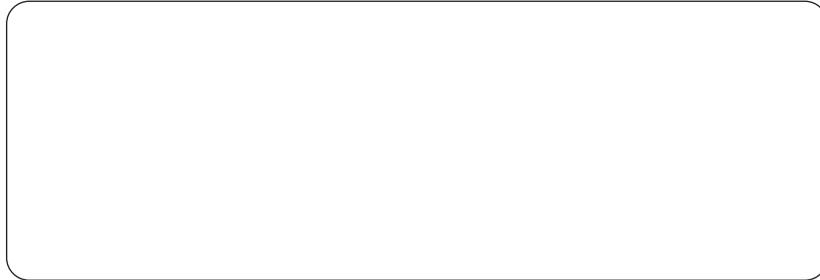
- est conforme aux dispositions de la Directive relatives aux machines 2006/42/CE et également aux dispositions de la Directive sur la Directive EMC 2014/30/UE.
- é in conformita' con la Direttiva Macchine 2006/42/CE e, se pertinente, anche alla Direttiva alla Direttiva EMC 2014/30/UE.
- in overeenstemming is met de bepalingen van de Machine richtlijn 2006/42/EG en wanneer relevant ook met de bepalingen van de EMC richtlijn 2014/30/EU.
- är i överensstämmelse med Maskindirektivets bestämmelser (Direktiv 2006/42/EG) ock om relevant också bestämmelserna EMC-direktivet 2014/30/EU.
- täyttää Konedirektiivin (Direktiivi 2006/42/EY) määräykset ja oleellisilta osin myös EMC-direktiivin 2014/30/EU.
- es conforme a la Directiva de Maquinaria 2006/42/CE y, si aplica, es conforme también a la Directiva EMC 2014/30/EU.
- pozostaje w zgodzie z warunkami Dyrektywy Maszynowej 2006/42/WE i jeżeli ma to zastosowanie również z warunkami Dyrektywy dot. kompatybilności elektro magnetycznej EMC 2014/30/UE.
- отговаря на изискванията на Директивата за Машините 2006/42/ЕО и ако има приложение на изискванията на Директивата за електромагнитна съвместимост 2014/30/ЕС.
- Megfelel a 2006/42/EK Gépi Eszközökre vonatkozó előírásoknak és amennyiben felhasználásra kerül, a 2014/30/EU Elektromágneses kompatibilitás Irányelv feltételeinek.
- odpovídá základním požadavkům Strojní směrnice 2006/42/ES a jestliže to její uplatnění vyžaduje i s podmínkami Směrnice 2014/30/EU týkající se elektromagnetické kompatibility.
- atitinka Mašinų direktyvos Nr. 2006/42/EB ir, jeigu taikoma, Elektromagnetinio suderinamumo direktyvos Nr. 2014/30/ES reikalavimus.
- je v súlade s podmienkami Smernice 2006/42/ES o strojných zariadeniach a pokiaľ si to jeho uplatnenie vyžaduje aj s podmienkami Smernice 2014/30/EÚ o elektromagnetickej kompatibilite.
- îndeplineşte prevederilor Directivei de Maşini 2006/42/CE şi dacă este utilizată de asemenea cu prevederile Directivei referitoare la compatibilitatea electro-magnetică EMC 2014/30/UE.
- on vastavuses Masinate Direktiivi tingimustega 2006/42/EÜ ning sammuti juhul, kui on tegemist sammuti on vastavuses Elektromagnetilise kokkusobivuse Direktiivitingimustega EMC 2014/30/EL.
- z določili Direktive o strojih 2006/42/ES ter, če je to relevantno, tudi z določili EMC Direktive 2014/30/EU.
- παραμένει σύμφωνη με τους όρους της Οδηγίας περί Μηχανών 2006/42/EK και σε περίπτωση που αυτό εφαρμόζεται και με τους όρους της Οδηγίας περί ηλεκτρομαγνητικής συμβατότητας (ΗΜΣ) 2014/30/ΕΕ.
- Está de acordo com exigências das Directivas das Maquinarias 2006/42/CE e no caso em que tiver igualmente aplicação com as exigências das Directivas referentes a compatibilidade electromagnética EMC 2014/30/UE.
- tikkonforma mad-dispožizzjonijiet tad-Direttiva dwar il-Makkinarju 2006/42/KE u jekk rilevanti wkoll mad-dispožizzjonijiet tad d-Direttiva EMC 2014/30/EU.
- atbilst mašīnu direktīvai 2006/42/EK, kā arī nepieciešamības gadījumā elektromagnētiskās saderības direktīvai EMC 2014/30/ES.

Zedelgem, date:



Antoon Vermeulen

Dealer's stamp



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