JF-STOLL

Drum Mower

CM 3050 F I CM 305 F

Instruction Manual

“Original instructions”

Edition 4 I April 2010

JF-STOLL

EN EC-Declaration of Conformity
according to Directive 2006/42/EC

DE EG-Konformitätserklärung
entsprechend der EG-Richtlinie 2006/42/EC

IT Dichiarazione CE di Conformità
ai sensi della direttiva 2006/42/EC

NL EG-Verklaring van conformiteit
overeenstemming met Machinerichtlijn 2006/42/EC

FR Déclaration de conformité pour la CEE
conforme à la directive de la 2006/42/EC

ES CEE Declaración de Conformidad
según la normativa de la 2006/42/EC

PT Declaração de conformidade
conforme a norma da C.E.E. 2006/42/EC

DA EF-overensstemmelseserklæring
i henhold til EF-direktiv 2006/42/EC

PL Deklaracja Zgodności CE
wedlug Dyrektywy Maszynowej 2006/42/EC

FI EY : N Vaatimustenmukaisuusilmoitus
täyttää EY direktiivin 2006/42/EC

EN We,
DE Wir,
IT Noi,
NL Wij,
FR Nous,
ES Vi,
PT Me,
DA Vi,
PL Nosotros,
FI Nós,

JF-Fabriken - J. Freudendahl A/S
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EN declare under our sole responsibility, that the product:
DE erklären in alleiniger Verantwortung, dass das Produkt:
IT Dichiara sotto la propria responsabilità che il prodotto:
NL verklaren als enig verantwoordelijken,dat het product:
FR déclarons sous notre seule responsabilité que le produit:
ES declaramos bajo resposibilidad propia que el producto:
PT declaramos com responsabilidade próqria que o produto:
DA erklærer på eget ansvar, at produktet:
PL deklarujemy z pełną odpowiedzialnością, iż produkt:
FI ilmoitamme yksin vastaavamme, että tuote:

EN Model:
DE Typ :
IT Tipo :
NL Type :
FR Modèle :
ES modelo :
PT Marca :
DA Typ :
PL Model :
FI Merkki :

CM 3050 F
CM 305 F

EN to which this declaration relates corresponds to the relevant basic safety and health requirements of the Directive:

2006/42/EC

DE auf das sich diese Erklärung bezieht, den einschlägigen grundlegenden Sicherheits- und Gesundheitsanforderungen der EG
2006/42/EC

IT E' Conforme ai Requisiti Essenziali di Sicurezza a di tutela della Salute di cui alla Direttiva e sue successive modificazioni:
2006/42/EC

NL waarop deze verklaring betrekking heeft voldoet aan de van toepassing zijnde fundamentele eisen inzake veiligheid en gezondheid van de EG-machinerichtlijn no:
2006/42/EC

FR faisant l'objet de la déclaration est conforme aux prescriptions fondamentales en matière de sécurité et de santé stipulées dans la Directive de la:
2006/42/EC

ES al cual se refiere la presente declaración corresponde a las exigencias básicas de la normativa de la y referentes a la seguridad y a la sanidad:
2006/42/EC

PT a que se refere esta declaração corresponde às exigencias fundamentais respectivas à segurança e à saúde de norma da
2006/42/EC

DA som er omfattet af denne erklæring, overholder de relevante grundlæggende sikkerheds- og sundhedskrav i EF-direktiv sam:
2006/42/EC

PL dla którego się ta deklaracja odnosi, odpowiada właściwym podstawowym wymogom bezpieczeństwa i ochrony zdrowia Dyrektywy Maszynowej:
2006/42/EC

FI johon tämä ilmoitus liittyy, vastaa EY direktiivissä mainituja perusturvallisuus- ja terveysvaatimuksia (soveltuvin osin) sekä muita siihen kuuluvia EY direktiivejä:
2006/42/EC

CE

Konstruktion (Design) + Produktion (Production)
Sønderborg, 15.12.2009 Jørn Freudendahl

FOREWORD

DEAR CUSTOMER!

We appreciate the confidence you have shown our company by investing in a JF-product and congratulate you with your new machine. 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. Besides this there are illustrations with text.

"Right" and "Left" is 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 on the time of publication.

JF-Fabriken 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.

1. INTRODUCTION

INTENDED USE

The drum mowers **CM 3050 F/ CM 305 F** should only be used for the agricultural work which they are 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. JF-Fabriken 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 drum mower CM 3050 F/CM 305 F 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 is 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 JF-Fabriken A/S, JF-Fabriken A/S cannot be held responsible for any damage resulting from this.

SAFETY

The safety of persons and machines is an integral part of JF-Fabriken's development work. We wish to ensure the safety of you and your family in the best possible way, but this also requires and effort on your part. However, damage can occur as a consequence of misuse and insufficient instruction.

A drum 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!

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

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 himself 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 oneself 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.

4. Never work under a raised machine unless the lift suspension of the machine is 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 30 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 check 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 in the lift suspension 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 mower during connection and disconnection.

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 inside 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 blades or drums 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, rotors and drums). 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 other foreign bodies. 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 bodies, if possible.

10. Even if the machine is adjusted and operated correctly, stones and foreign bodies 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, never back with the cutting unit in working position. The correct movement for the cutting unit only works when driving forwards, and 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 blades or drums have come to a complete stop before getting near the cutting unit.

13. If in doubt, always contact the nearest dealer.

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 machine.

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 lift suspension of the tractor is intended to carry machines with the own weight in question.

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 couple of weights on the tractor.

You should make sure not to use a wrong number of rotations on the PTO by mistake.

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

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)

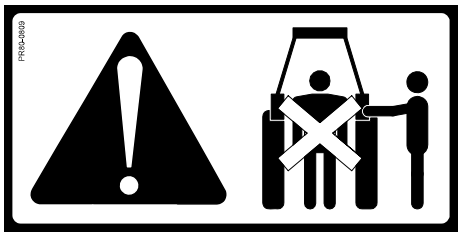


Fig. 1-1

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

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.

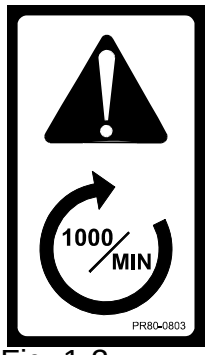


Fig. 1-2

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 that they 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)

TRANSPORT

Never drive faster than the conditions allow, and maximum 30 km/h.

It is important to block the machine with the mechanical transport lock, otherwise you risk that the machine is lowered to the ground. Collision with e.g. kerbs, ramps, road humps etc might damage the machine and cause steering problems.
Always make sure that the transport lock is correctly mounted during transport. (see section 3: ADJUSTMENTS AND DRIVING)

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 destroying the machine.**

If the cutting unit or the conditioner is blocked because of foreign matter, stop the power take-out 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 lift suspended machines keep a safe distance from steep slopes and similar condition of the ground, as the ground may be slippery and pull the mower and the tractor sidewards. Also remember to adjust the speed of the tractor for sharp turns when driving on hillsides.

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.
You should make sure the machine stands steadily on the ground when parked and disconnected from the tractor.

GREASING

When greasing or maintaining the machine, make sure that the cutting unit is resting on the ground or 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 and to reduce the risk of damaging the rotor gearbox.

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 5: MAINTENANCE)

Never apply other spare parts than those prescribed by the manufacturer.

MACHINE SAFETY

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

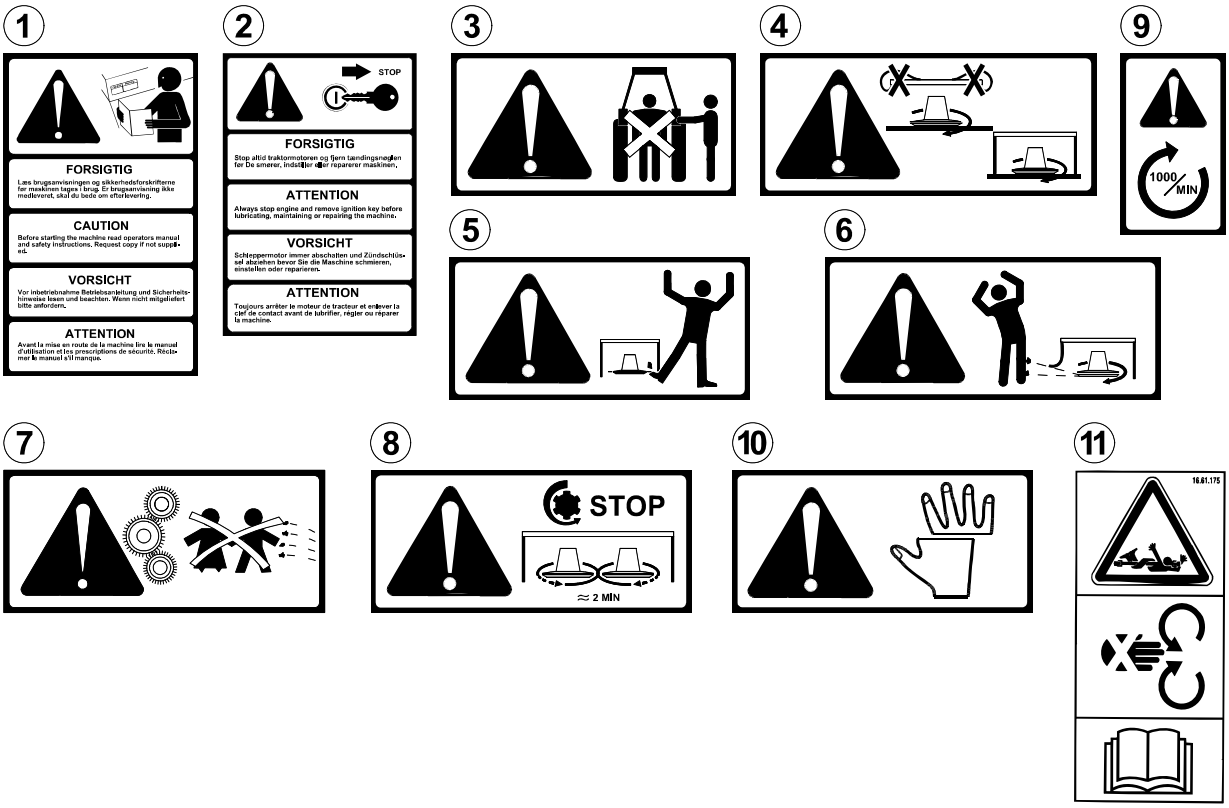
The rotors run at up to 2000 RPM, and even the slightest unbalance will cause abnormal vibrations which may lead to fatigue fractures.
If the vibrations or the noise of the machine increase gradually during a period you should stop working and check whether the revolving parts have been damaged. Do not 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, all blades on the rotor in question must be replaced as not to create an unbalance.

Clean rotors and drums 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.


1
FORSIGTIG
Læs brugsanvisningen og sikkerhedsforskrifterne før maskinen tages i brug. Er brugsanvisning ikke medleveret, skal du bede om efterlevering.
CAUTION
Before starting the machine read operators manual and safety instructions. Request copy if not supplied.
VORSICHT
Vor Inbetriebnahme Betriebsanleitung und Sicherheitshinweise lesen und beachten. Wenn nicht mitgeliefert bitte anfordern.
ATTENTION
Avant la mise en route de la machine lire le manuel d'utilisation et les prescriptions de sécurité. Réclamer le manuel s'il manque.
2
STOP
FORSIGTIG
Stop altid traktormotoren og fjern tændingsnøglen før De smører, indstiller eller reparerer maskinen.
ATTENTION
Always stop engine and remove ignition key before lubricating, maintaining or repairing the machine.
VORSICHT
Schleppermotor immer abschalten und Zündschlüssel abziehen bevor Sie die Maschine schmieren, einstellen oder reparieren.
ATTENTION
Toujours arrêter le moteur de tracteur et enlever la clef de contact avant de lubrifier, régler ou réparer la machine.
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STOP
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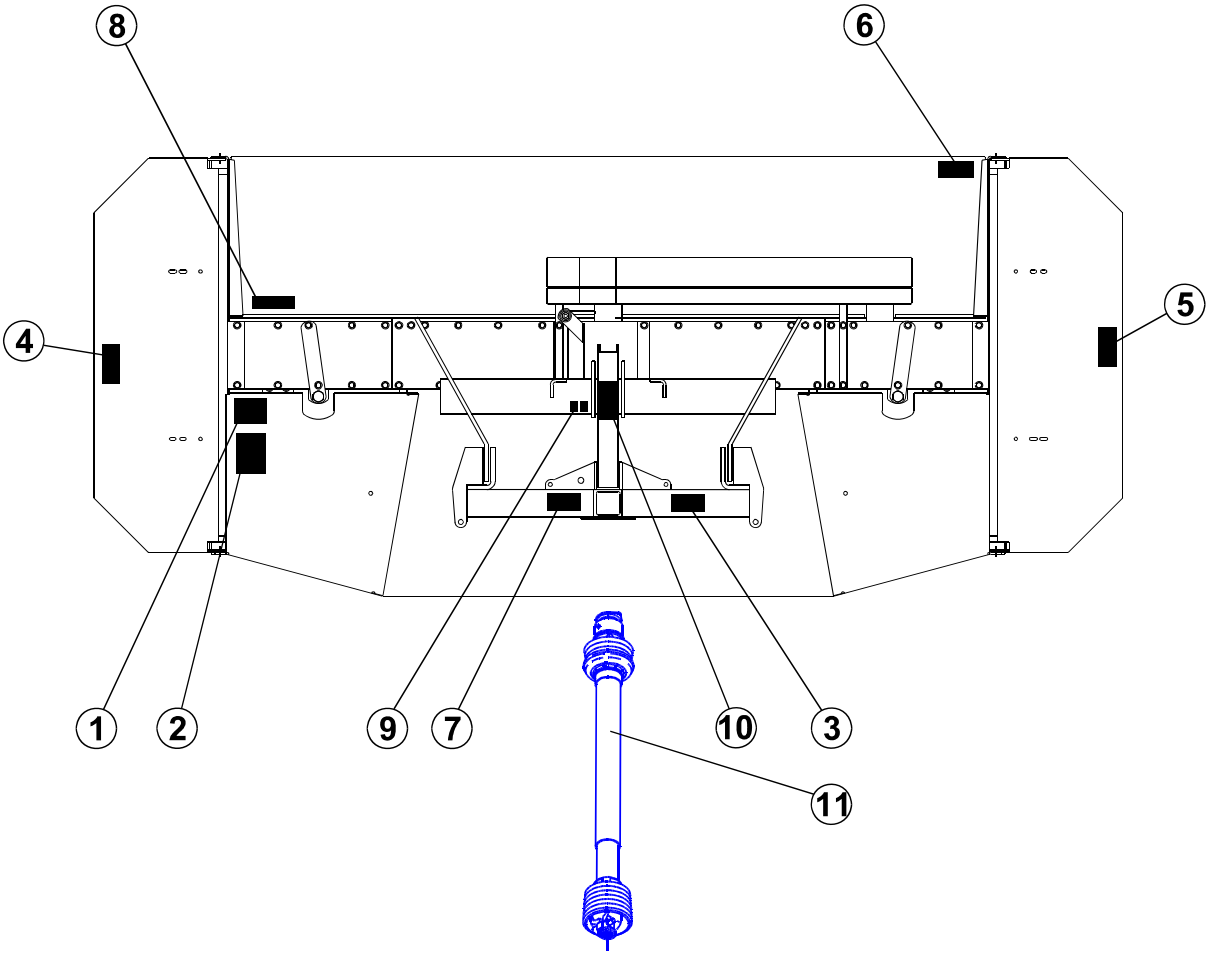
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11

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 **Risk of getting jammed during the connection.**
Never let anybody stand between the tractor and the machine during connection to the tractor. An unintentional manoeuvre may cause the person to get jammed.

4 **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.

5 **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.

6 **Risk of stones being thrown.**
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.

7 **Children.**
Never let children stand near the machine during operation. Especially not small children as they have a tendency to do unforeseen things.

8 **Momentum.**
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.

9 **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.

10 **Risk of cutting.**
There is a risk of getting fingers or hands crushed or cut off if touching parts of the machine when it moves up and down. Make sure that other persons keep a safe distance from the moving parts.

11 **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.

TECHNICAL DATA

Type			CM 3050 F	CM 305 F
Working width			3.05 m	3.05 m
Transport width			3.0 m	3.0 m
Power requirement, minimum on PTO			50 kW/68 HP	50 kW/68 HP
PTO Input, standard			1000 RPM	1000 RPM
Hydraulic connection			None	None
Weight			765 kg	705 kg
Number of rotors			4	4
Number of blades			12	12
Swath width, minimum			1.1 m	1.1 m
Adjustment of cutting height			Central, continuous	In steps
Rotating swath shaper			4 standard	4 standard
Noise level in the tractor cabin	Machine connected	Window closed	68,8 dB (A)	68,8 dB (A)
		Window open	75.3 dB (A)	75.3 dB (A)
	Machine disconnected	Window closed	67.7 dB (A)	67.7 dB (A)
		Window open	74.6 dB (A)	74.6 dB (A)

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

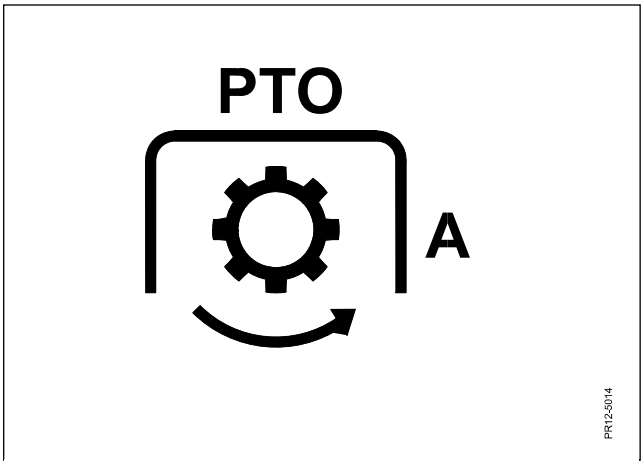


Fig. 2-1

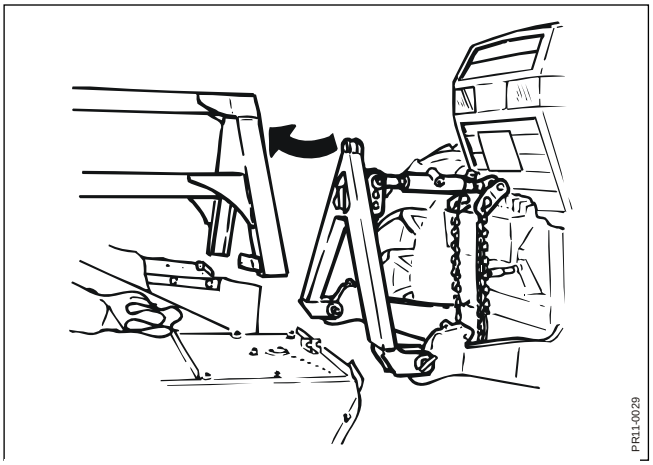


Fig. 2-2

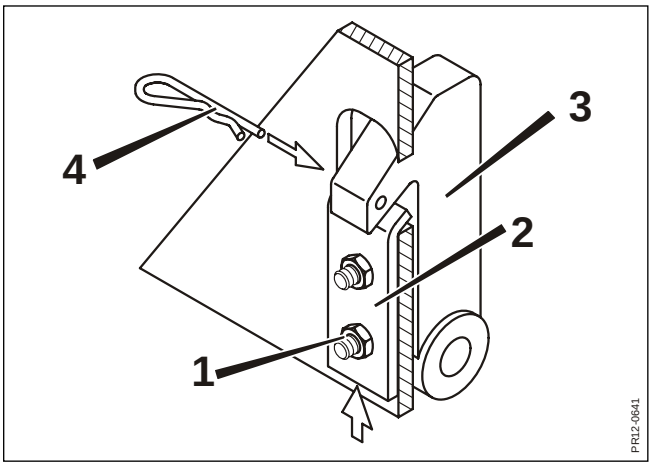


Fig. 2-3

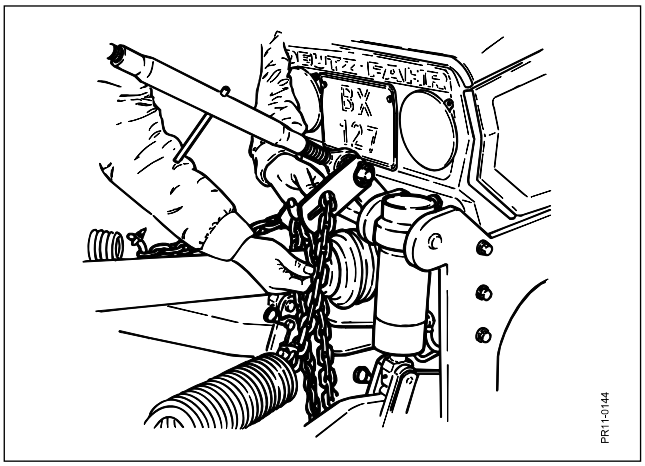


Fig. 2-4

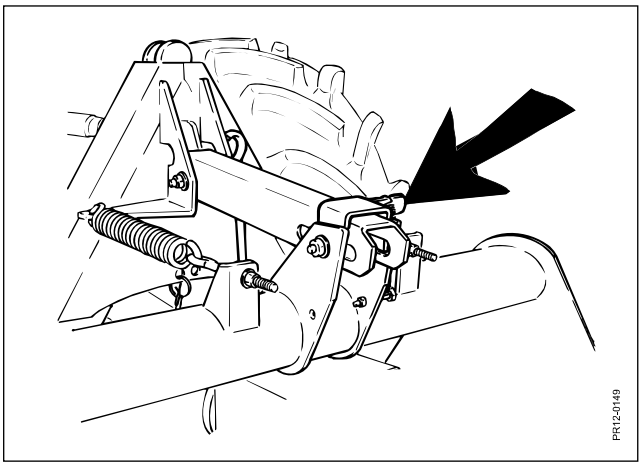


Fig. 2-5

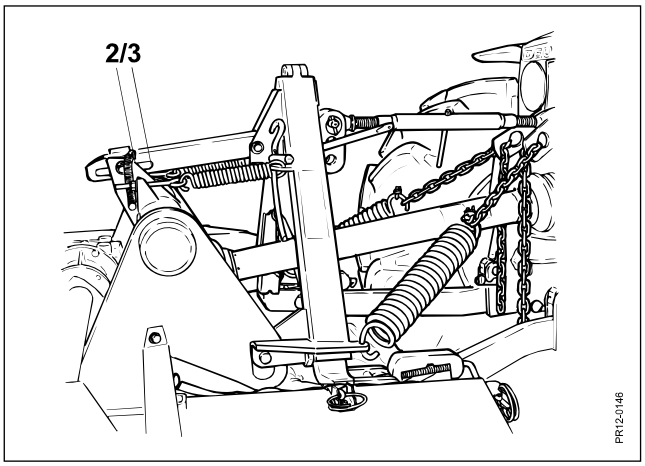


Fig. 2-6

2. CONNECTION AND TEST DRIVING

CONNECTION TO THE TRACTOR

TRANSMISSION

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

CONNECTION

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

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

Fig. 2-3 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.

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 be pulled out with the handle. Tighten the nuts and remember to retighten after approx. 10 operating hours.
Remember always to secure the latch with the safety pin **4** to prevent it from being released by accident.

Fig. 2-4 Mount pin and chain fittings on the tractor side. Mount the relief springs on the A-frame of the machine.

Raise the mower and mount the chains to the fittings on the tractor.

Fig. 2-5 Loosen the transport lock (only CM 3050 F): Lower the mower and adjust the top link
Fig. 2-6 so that the bolt for the shock absorber is in the front third of the oblong hole.
The springs must be tightened so that the mower is horizontal when driving.
For inclination forward tighten the springs, for inclination backward loosen the springs.

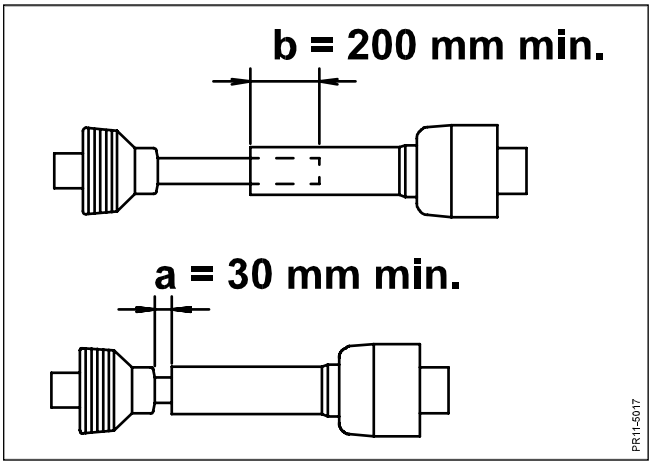


Fig. 2-7

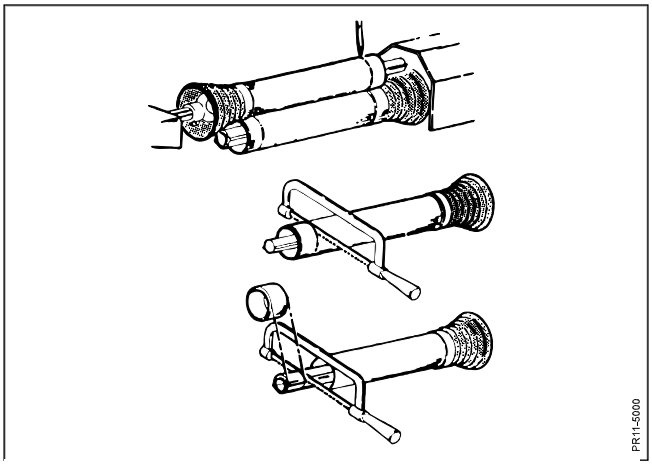


Fig. 2-8

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-out (PTO) of the tractor to the input shaft (PIC) on 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 the PTO to the PIC which is standard on most tractor brands.

<u>If it is necessary to shorten the shaft on your machine, the following applies:</u>

Fig. 2-7 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. 2-7.

Fig. 2-8 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 with the shortest possible length of the shaft on this machine and usually corresponds with the working position when the machine rests on even ground.
2) Hold the ends of the shaft parallel side by side and mark the 30 mm (minimum) on the tubes. See also fig. 2-8.
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 assembled the PTO shaft must be fastened to the PIC shaft.
Check that the PTO has sufficient overlapping in all positions by raising and lowering the machine by means of the hydraulics.

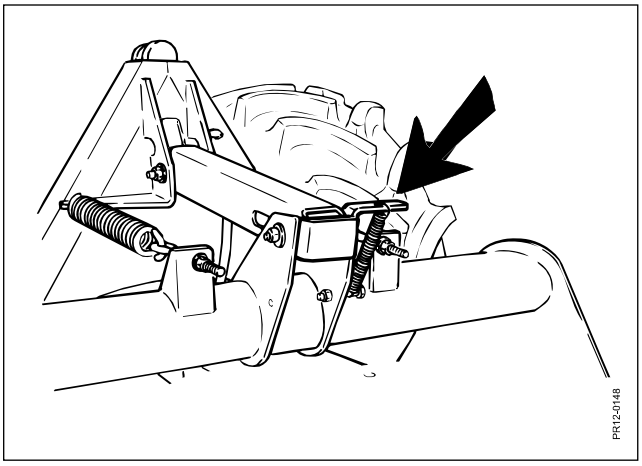


Fig. 2-9

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 RPM falls slowly or is suddenly reduced it can be a sign of overload of the transmission due to too high speed or foreign bodies in the cutting unit. In this case, declutch immediately and let the machine “rest”.

TRANSPORT SAFETY DEVICE (CM 3050 F)

The machine has a built-in mechanical transport safety device. When the machine is connected and lifted with the tractor hydraulics, it must be secured before transport.

Fig. 2-9 Before transporting the machine, turn the locking pawl into locking position.

IMPORTANT: The lock must always be in the position shown on fig. 2-9 during transport of the machine.

TEST DRIVING

CHECK BEFORE TEST DRIVING

Before test driving, the following should be checked:

1) That the PTO shaft of the tractor has the correct number of RPM.

2) That all lubricating points have been greased. See section 4; LUBRICATION.

3) That all blades on the rotors are intact and correctly mounted.

4) That the cutting unit rests on the ground when connecting the PTO shaft of the tractor.

5) That connection of the PTO shaft of the tractor is carried out with a low number of RPM on the engine.

6) 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.

7) That the safety guards of the PTO shafts do not rotate with the shafts, that the support chains are fastened correctly.

8) That the protection (guards and canvases) on the machine are complete, intact and correctly mounted.

9) That all tools have been removed from the machine.

10) That nobody stands near the machine during operation.

11) The front hydraulics is lowered and placed in floating position.

THE ACTUAL TEST DRIVE

Connect the PTO shaft carefully and let the engine run at a low number of RPM for some minutes.
If there is no unintended noise or unusual vibrations, the speed can gradually be increased to normal number of RPM (see page 17).
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 rotors and blades rotate with up to 2000 RPM, even slightly damaged rotating parts (blades, rotor skirts and drums) can cause vibrations which in the long run may lead to secondary damage in the form of cracks or fractures.

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

During the season check daily if blades, rotors and drums are damaged and replace the parts, if necessary.

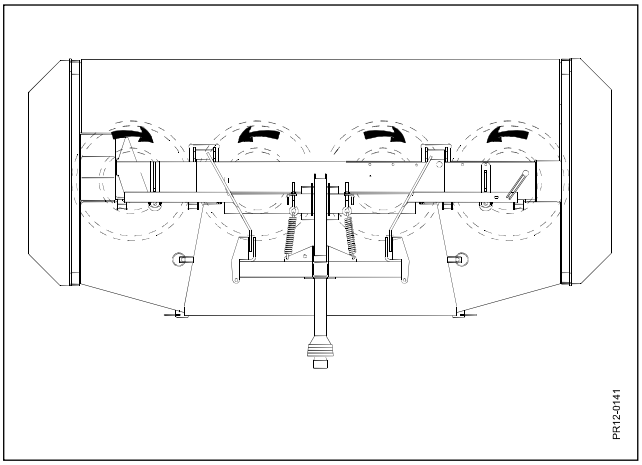


Fig. 3-1

3. ADJUSTMENTS AND DRIVING

CONSTRUCTION AND FUNCTION

CM 3050 F / CM 305 F are drum mowers which are connected at the front of the tractor and lay a gathered swath between the wheels of the driving tractor.

THE MOST IMPORTANT ELEMENTS OF THE MACHINE

BLADES

Each rotor on the machine is fitted with a set of blades made of hardened high-strength steel.

REMEMBER: Before working with the machine, check:

- that all blades are there and correctly mounted.
- that no blades are bent or cracked.
- that all blades can turn freely around the blade bolt.

A special feature of the machine and the rotors is the large effective cutting length of the blades.

The cutting length of a blade is defined by the distance from the front edge of the rotor skirt to the blade end.
The larger the cutting length per blade, the higher the maximum possible driving speed with the machine before an unclean cut appears.

ROTOR SKIRTS

Fig. 3-1 The rotor skirts turn towards each other in pairs to ensure the shortest way of the material through the machine and thus optimise the flow of material.
This construction ensures that the cutting is not blocked by the material and that the cut grass does not remain on the ground with the risk of being recut.

NB: It is not possible to change the direction of rotation of the individual rotors.

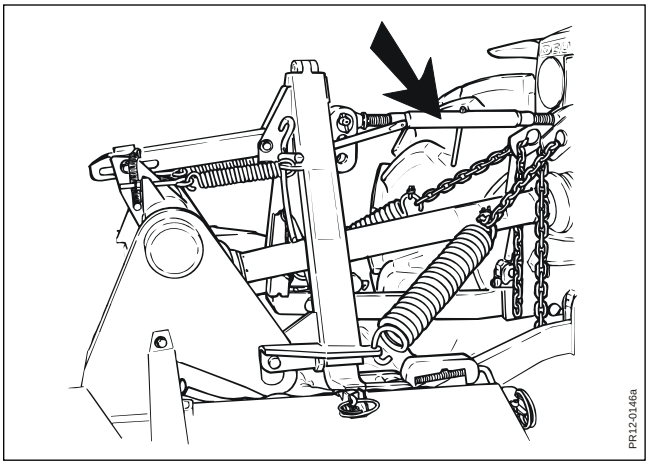


Fig. 3-2

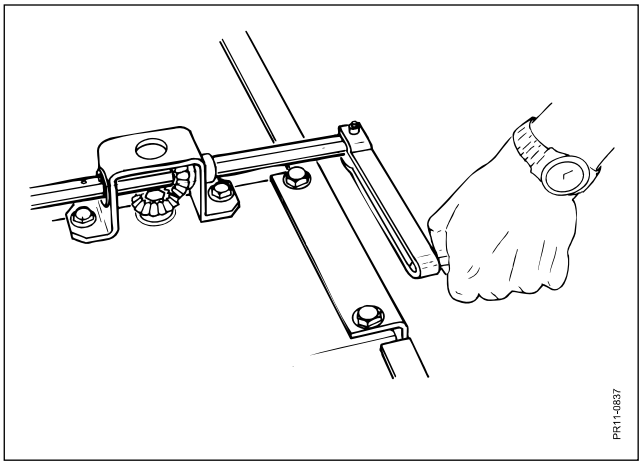


Fig. 3-3

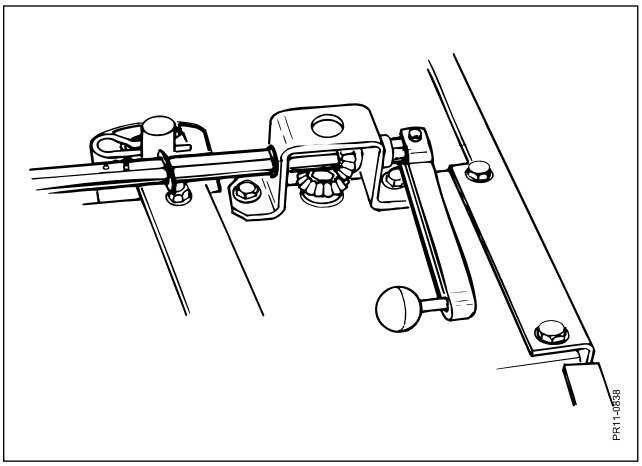


Fig. 3-4

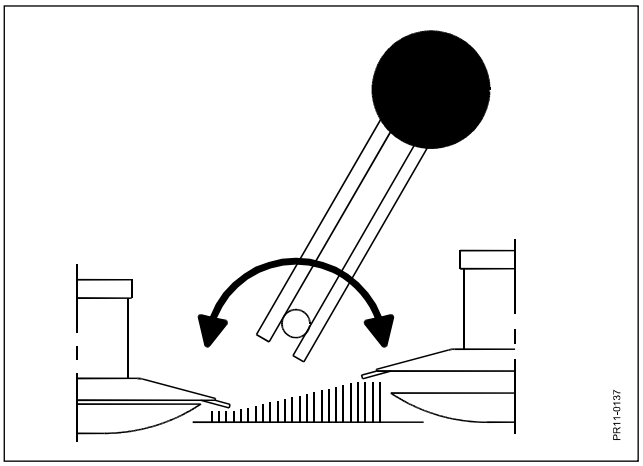


Fig. 3-5

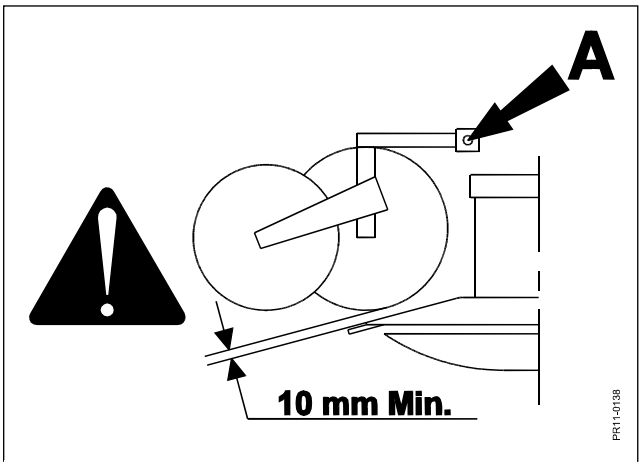


Fig. 3-6

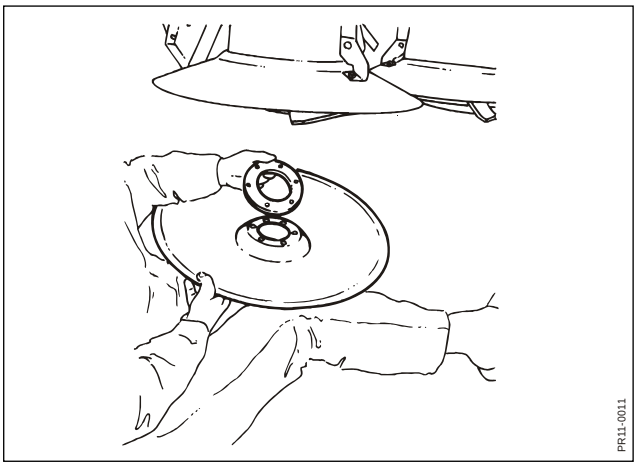


Fig. 3-7

ADJUSTMENTS

On **CM 3050 F/ CM 305 F** there are several elements which must be adjusted correctly to ensure optimal performance.

CUTTING ANGLE

Fig. 3-2 The cutting angle must always be 0°.

N.B. Do not let the machine incline backwards as this would result in recutting of the material and the stubble.

ADJUSTMENT OF THE CUTTING HEIGHT (CM 3050 F)

Fig. 3-3 The cutting height can be adjusted centrally and continuously by means of the
Fig. 3-4 movable shaft which must first be pulled over the edge after which the bar can be turned.

Fig. 3-5 The adjustment area is 30 mm.

Note!

Fig. 3-6 When adjusting the stubble height, the rotating swath discs must also be adjusted so that there is 10 mm distance to the rotor skirts.

ADJUSTMENT OF THE CUTTING HEIGHT (CM 305 F)

Fig. 3-7 A higher cutting height can be obtained by mounting the supplied discs between hub and skids.

RELIEF

In order to take care of 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 should of course be adjusted according to the conditions of the ground and the driving conditions. On hilly ground it may be necessary to reduce the relief (i.e. increase the ground pressure) to ensure satisfactory ground following abilities for the cutting unit.

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 opposite 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.

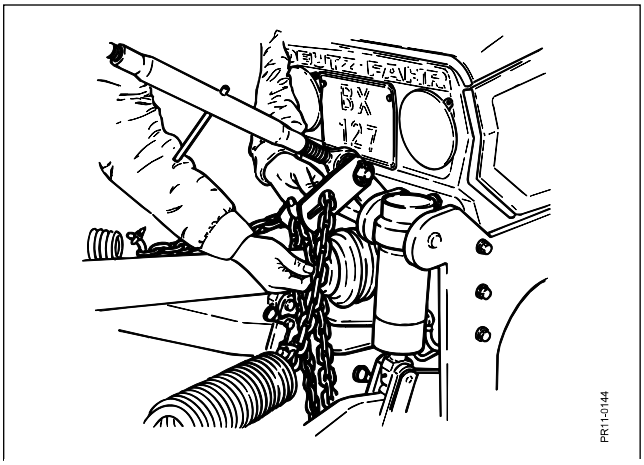


Fig. 3-8

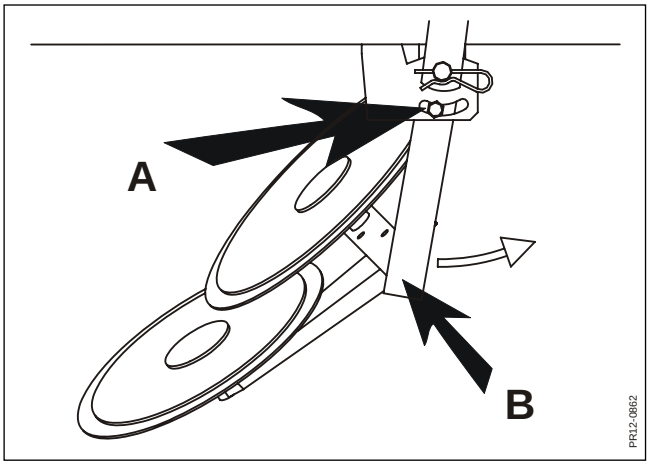


Fig. 3-9

Fig. 3-8 The relief is adjusted by tightening or loosening the limiting chains of the springs.

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:

Fig. 3-9

1) Adjust the rotating swath discs to the desired swath width and so that the tractor wheels do not drive on the material. Minimum swath width: 1.1 m. Adjustment is made by loosening the screw **A** and turning the arm **B**.
2) Lower the cutting unit to the ground without driving into the crop.
3) Connect the PTO of the tractor with the engine at idle speed.
4) Increase the RPM of the engine gradually until you obtain full RPM on the PTO (see page 17).
   Drive forwards and lead the cutting unit into the crop.

NB: It is normal that the revolving parts (rotors, drums and blades) will be noisy when starting due to the high number of rotations of the rotors (2000 RPM). The noise will decrease when the machine works in the crop.

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

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 15 km/h. However, always adjust the driving speed to the conditions, i.e. the amount of crop and the conditions of the ground.

The tractor driver should constantly be in full control of the tractor and be able to avoid unevenness on 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 lying down
- the crop is unusually high and thick

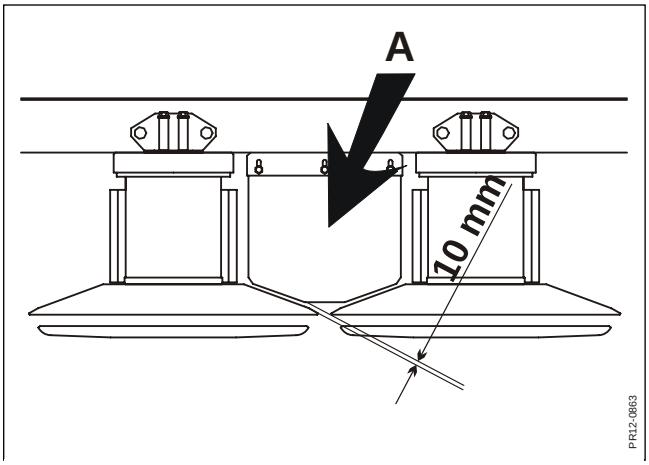


Fig. 3-10

Increase the driving speed if:

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

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 movement 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.

Be especially aware of sudden movements and bumps against the cutting unit and reduce the driving speed considerably. If necessary, declutch, stop and examine the obstacle. (The above especially applies in stony areas).

IMPORTANT: After heavy collisions with obstacles, always check the machine for any possible damage. This especially applies to the carrying parts and the cutting parts.

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

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.

During mowing make sure to keep a constant and correct number of rotations on the PTO shaft (see page 17) to ensure that the cutting parts work optimally.

Fig. 3-10 If the machine leaves a high stubble between the two middle drums it may be due to the generation of an airflow between the drums which lays the crop down before it is harvested. To reduce this airflow, the machine is equipped with a windbreak made of synthetic material **A** which limits the airflow.
From the factory the windbreak is adjusted so that the cutting height can be adjusted to maximum without the rotor skirts touching the guard.
If you work with the lowest cutting height and the machine leaves a high stubble between the middle drums, it often helps to move the windbreak closer to the rotor skirts.
However, never move the windbreak closer than 10 mm to the rotor skirts.
Remember to move the windbreak back if you wish to work with a higher cutting height.

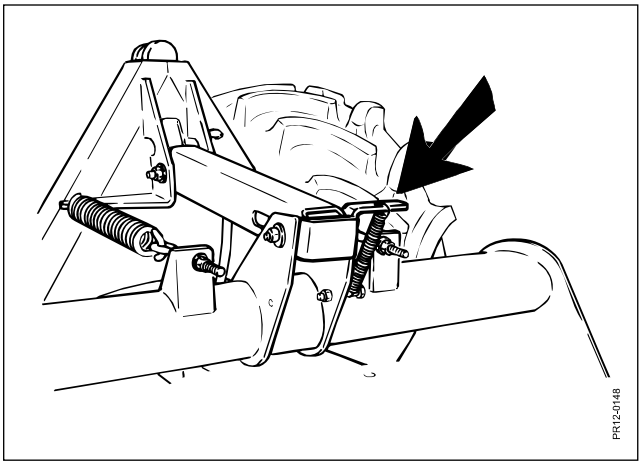


Fig. 3-11

TURNING

When turning in the field, lift the cutting unit from the ground and reduce the number of rotations.

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.

Lower the cutting unit to the ground before increasing the number of rotations again.
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.

TRANSPORT

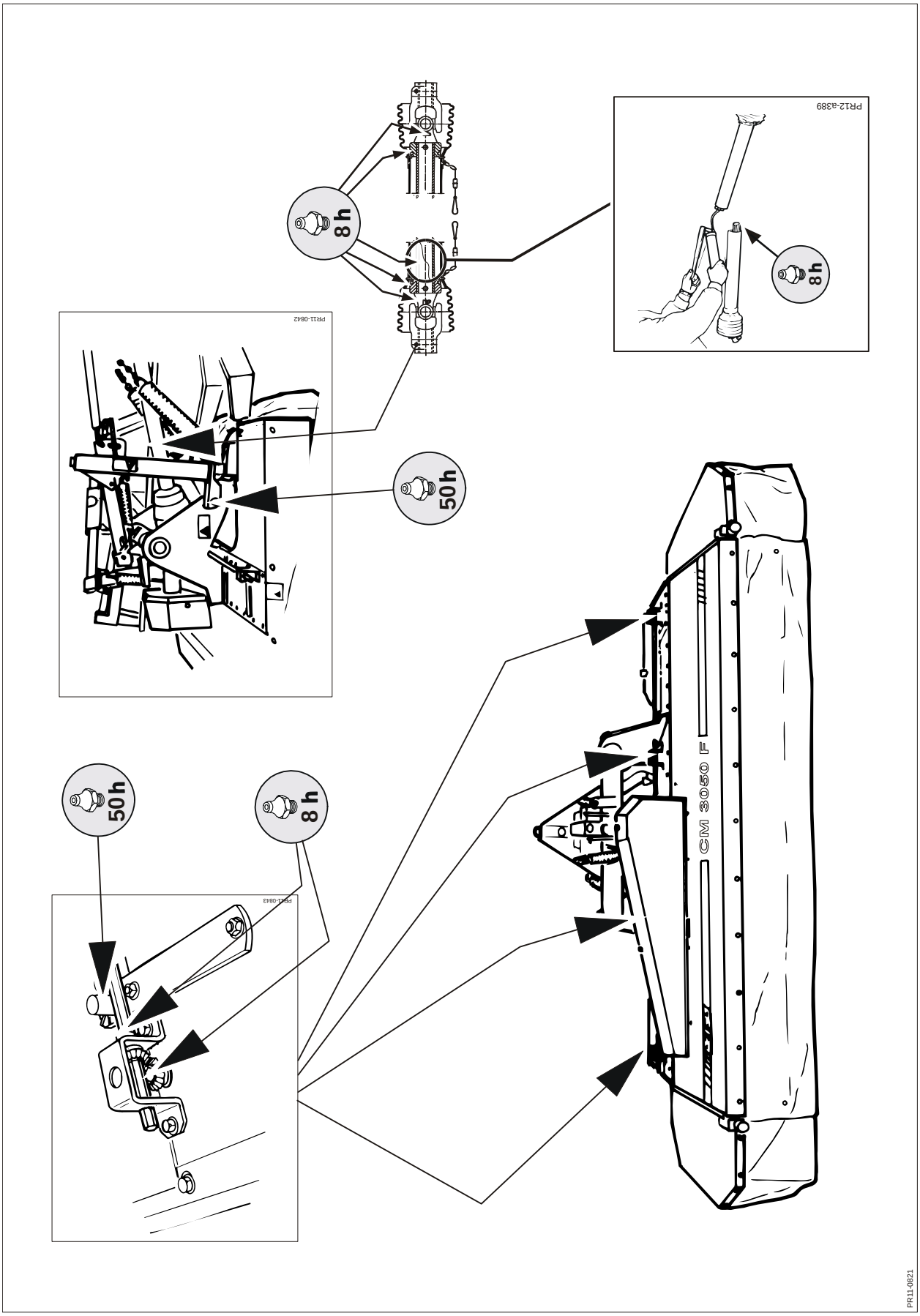
Fig. 3-11 All transport on public road and outside fields must take place with the machine raised with the front link arms **and the transport lock activated. (CM 3050 F)**

PARKING

When parking the transport lock must be activated **(CM 3050 F)**.

Always park the machine on even and stable ground. If this is not possible, use stop blocks or plates.

Lubrication chart for drum mower type: <u>CM 3050 F/ CM 305 F</u>
The indicated lubricating points **must** be lubricated according to the prescribed operation interval.



4. GREASING

GREASE

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

Go through the greasing chart on the opposite page.

Type of grease: Universal grease of good quality.

The rotor gearbox is pre-lubricated with special grease type:

SHELL ALVANIA EP 0 LF

Check and refill is unnecessary. **When repairing only use this type of grease.** Fill up to the lower side of the main shaft.

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

IMPORTANT - REMEMBER: ***Lubricate the PTO shaft after every 10 working hours.*** Pay special attention to the **sliding profile tubes** of the PTO shafts.
They must be able to slide back and forth when the torque is heavy during work.

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 bearings.**

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 RULES 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. The same applies if repairs have been made.**

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

M_A 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

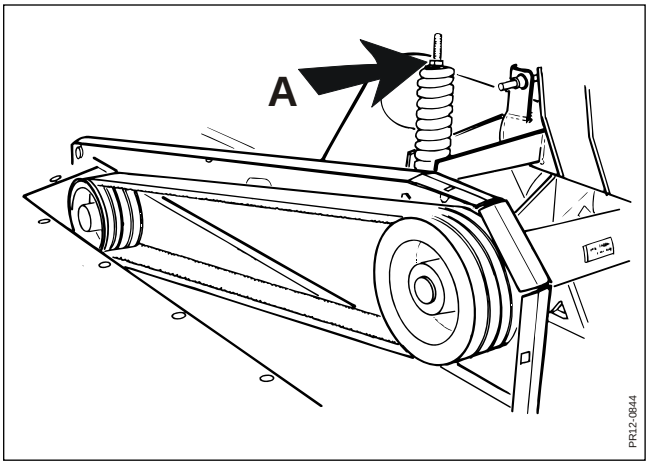


Fig. 5-1

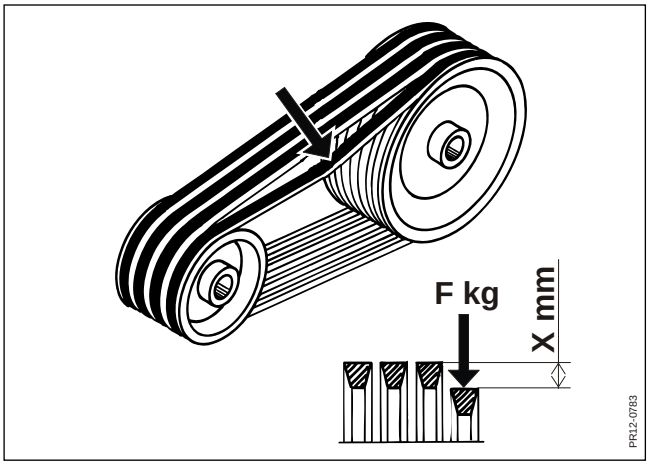


Fig. 5-2

CONTROL OF UNBALANCE

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 rotors run at up to 2000 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 and rotor fingers are intact.
In the long run unbalance may cause fatigue fractures and serious damage.

From the factory a test drive has been made on all machines, which are also 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.

BELT DRIVE

BELT DRIVE

On the machine is a belt drive with 4 belts going from the PIC-shaft to the rotor gearbox. The belt drive must be checked for correct belt tension before starting, especially when the machine is new and the belts have been replaced.

Fig. 5-1 The belt tension is adjusted with a nut **A**. In the spring is a tube which limits the compression of the spring. The belts are tightened for correct tension as follows: 1. Tighten the spring to the tube. 2. Loosen the spring by turning the nut one turn. The tube must always be loose inside the spring and should never be tightened.

IMPORTANT: If one of the belts in the belt drive needs to be replaced, all belts should be replaced in order to obtain optimum operational reliability.

Fig. 5-2 The belt is tightened correctly when a force of **F**=6.5 daN (kg) gives a deflection of **X**= 15 mm at the middle of the belt.

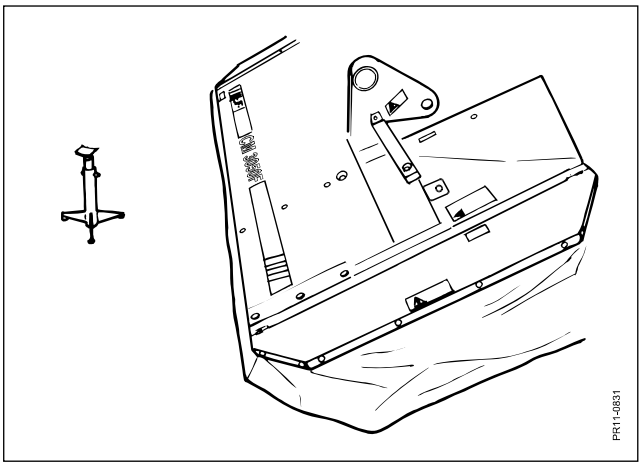


Fig. 5-3

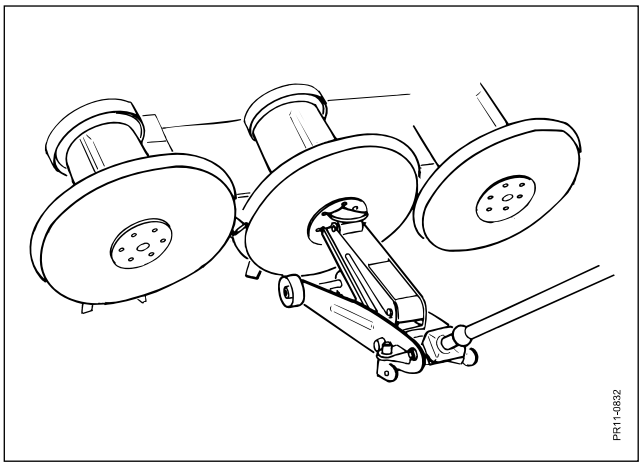


Fig. 5-4

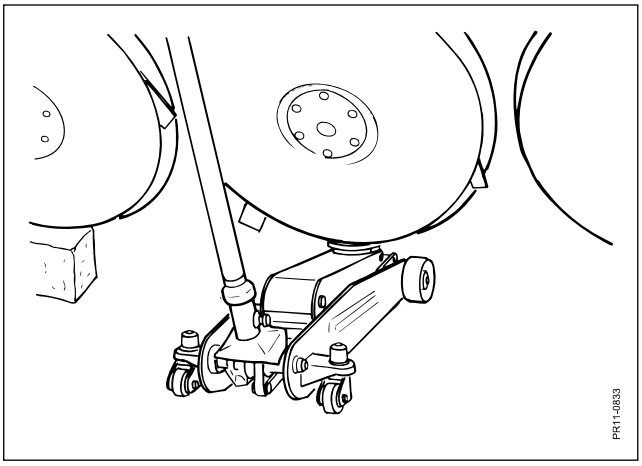


Fig. 5-5

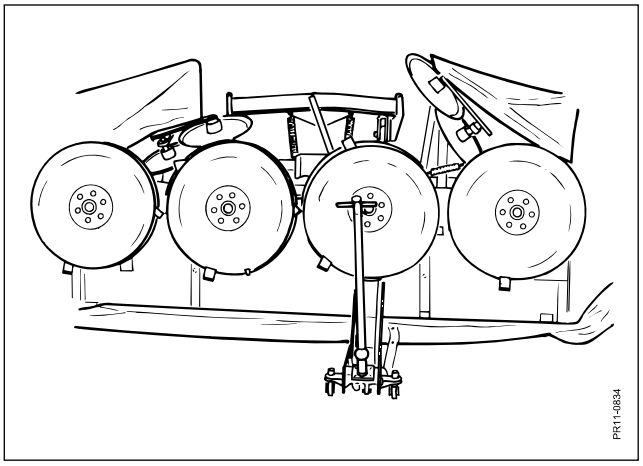


Fig. 5-6

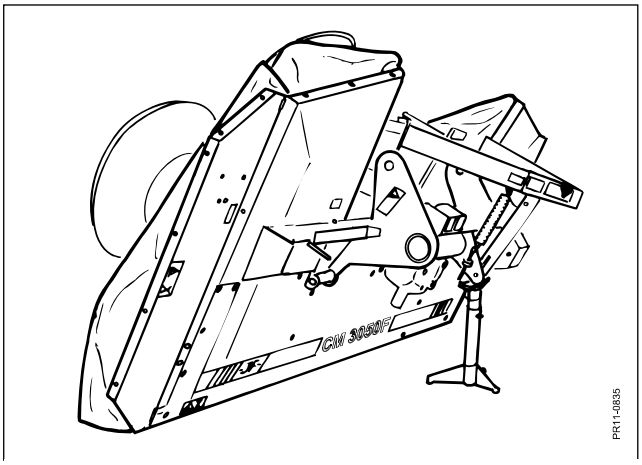


Fig. 5-7

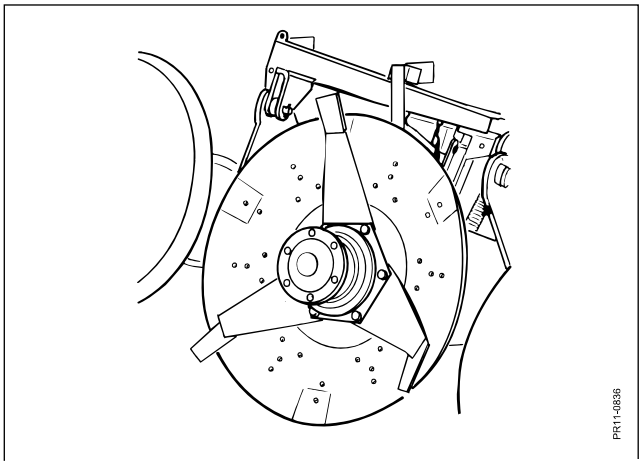


Fig. 5-8

CUTTING UNIT

DISMOUNTING OF GUIDE SHOES AND BLADE HOLDERS

To be able to dismount the guide shoes it is necessary to tip the machine. This should take place on steady and plane ground in the following way:

Use a support with a suitable height, a workshop jack and a block which is a little higher than the jack in folded position.

Fig. 5-3 Tip the machine so that it rests on the two rubber buffers at the front of the machine.

Fig. 5-4 Place the jack under one of the bolts at the bottom of one of the middle rotors and lift the machine carefully

Fig. 5-5 until you can place a block under one of the outermost rotor skirts.
Then move the jack to the edge of the rotor skirt

Fig. 5-6 and lift the machine further until it nearly tips over.

Fig. 5-7 Now tip the machine manually until the top of the A-frame rests on the support.

Fig. 5-8 The machine now lies steadily for dismounting of guide shoes and blade holders.

To move the machine back to working position, adjust the jack so that it is a little lower than the bottom of the rotor skirts and tip the machine manually until it rests on the jack. The rest takes place in reverse order.

Blades and blade holders 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 blade holder 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, blade holders, drums and rotors **must be replaced by original -JF- spare parts to obtain safe operation.**

WARNING: **When replacing blades, all blades on the rotor in question must be replaced as not to create an unbalance.**

CAUTION: **When replacing blades, lower the cutting unit to the ground or lift the machine with the link arms of the tractor and secure with support chains.**
When replacing blade holders, rotor skirts, drums etc., tip the machine as described above.

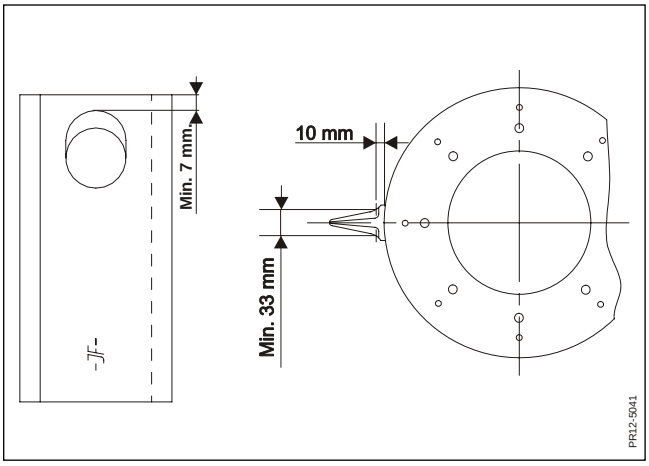


Fig. 5-9

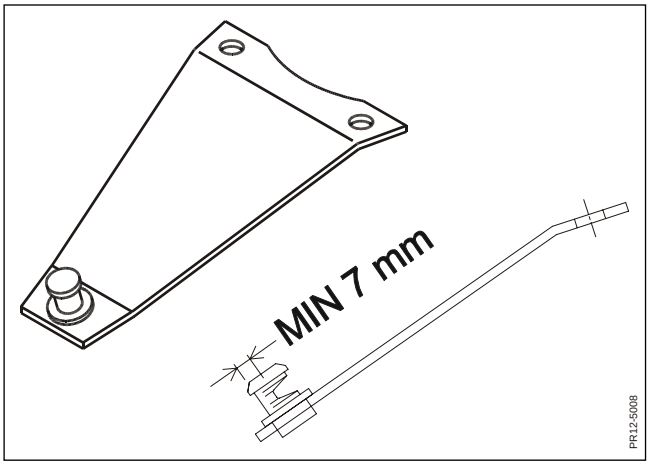


Fig. 5-10

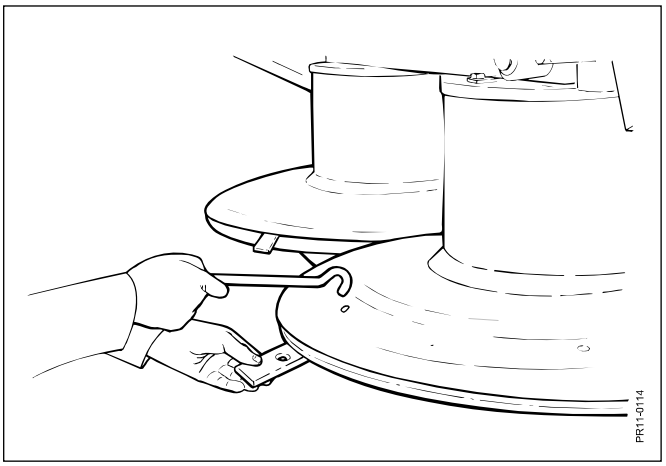


Fig. 5-11

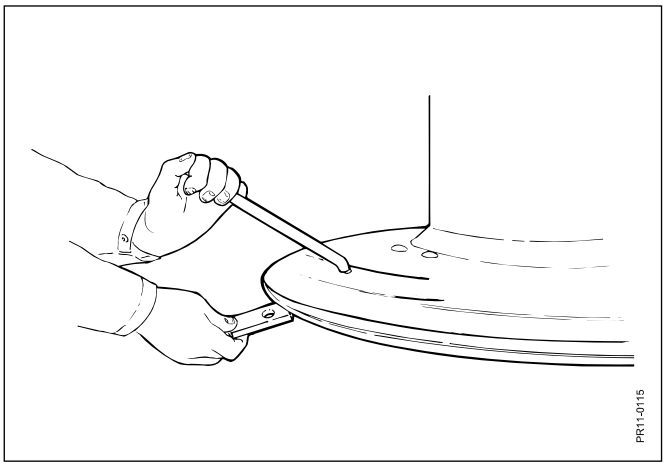


Fig. 5-12

BLADES

When replacing blades, the cutting unit must be secured by means of a stop block or other mechanical securing.

To obtain satisfactory cutting it is important that blades are intact and sharp. If the blades are not sharp the power requirement will increase unnecessarily and the cutting will be irregular resulting in slower regrowth of the grass.

The blades have two cutting edges and can thus be worn on two sides.

- Remove straight blades to the neighbouring rotor.
- Turn twisted blades.

Fig. 5-9 Replace blades if:

1) they are bent or cracked,
2) the blade width is less than 33 mm measured 10 mm from the edge of the rotor skirt.
3) the metal thickness around the blade hole is less than 7 mm.

Blade holders must also be checked regularly. Especially after collision with foreign matter, after replacement of blades and the first time you use the machine.

BLADE HOLDERS

Fig. 5-10 Replace blade holders if:

1) They are deformed
2) The diameter of the blade pin is less than 7 mm.

REPLACEMENT OF BLADES

Fig. 5-11 Place the tool for replacement of blades in the hole on the rotor skirt,
Fig. 5-12 turn it halfway around and release the blade by pulling towards yourself.
Remove the old blade and mount the new one by moving the tool away from you.

WARNING: After replacing blades, blade bolts, rotors etc., check that no tools have been left on the machine.

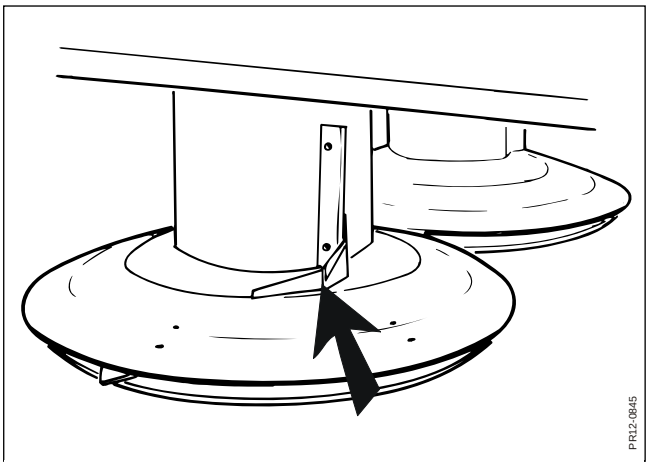


Fig. 5-13

CONDITION OF THE ROTOR SKIRTS

If the edges in front of the blades are deformed/worn, the blade holders can be moved to a new position. **All** blade holders must be removed.

CARRIERS/DRUMS

Fig. 5-13 Check that carriers on the drums are in place and intact. The drums can be deformed by stones and the like. If this results in unbalance, they must be replaced.
(Unbalance can be due to accumulation of dust, seeds and the like in the drums.)

6. MISCELLANEOUS

DRIVING TIPS AND FAULT-FINDING

Problem	Possible cause	Remedy
Uneven stubble or bad cutting	The cutting unit has too much relief	Check the basic adjustment of the machine and, if necessary, reduce the relief by loosening the springs
	The number of PTO of the tractor is too low	Check that the number of rotations of the tractor PTO is correct. Keep a constant number of RPM
	Worn blades	Turn/move the blades to another rotor or replace the blades.
	Rotors or drums are deformed	Replace deformed parts
Stripes in stubble	You are working in thin crop	Increase the driving speed, if possible
	You are working early in the morning when the grass is still very wet	Increase the driving speed, if possible
	You are working in lodged crop	Reduce the cutting height to minimum Adjust the windbreak downwards (see page 33)
Irregular flow through the machine	Carriers may be worn or missing	Replace worn carriers and mount new ones where these are missing
	The swath width is too narrow in relation to the amount of crop.	Adjust the rotating swath discs to a larger width (see page 31). Try with small changes first.
The machine vibrates/ uneven operation	Blades may be deformed, damaged or missing	Replace or move damaged blades and mount new ones where these are missing
	Defective PTO drive shaft	Check if the shaft is intact. Repair, if necessary
	Defective bearings in rotor gearbox.	Check if bearings are loose or damaged. Replace, if necessary
	Earth and grass in drums and rotor skirts	Clean drums and rotor skirts

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 clean rotating parts with a high pressure cleaner and never spray directly on bearings.

IMPORTANT: Lubricate all lubricating points after cleaning the machine.

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.

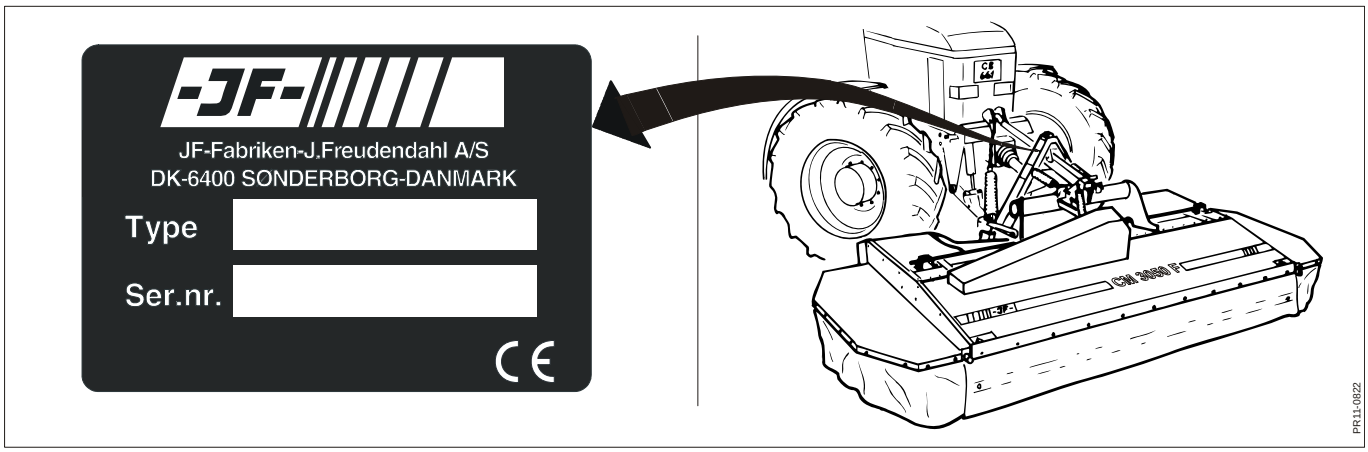
- Spray the machine with a thin coat of rust-preventing oil. This is especially important on the parts polished with use.

- Store the machine in a ventilated engine house.

SPARE PARTS ORDER

When ordering spare parts please state 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 catalogue 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 in a proper way.

Observe the following:

- The machine must not be placed somewhere outside; the gearbox must be empties of oil. These oils must be handed over to a destruction company.

- Disassemble the machine and separate the individual parts, e.g. PTO shafts 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.

WARRANTY

JF-Fabriken - J. Freudendahl A/S, 6400 Sønderborg, Denmark, hereafter called **"JF"**, grants warranty to any buyer of new JF machines from authorised JF-dealers.

The warranty covers remedy of material and production faults.
This warranty is valid within a year after date of sale to end-user.

- The warranty is invalidated in the following cases:

1. **The machine has been used for other purposes than those described in the instruction manual.**
2. **Improper use.**
3. **Damage caused by external sources, e.g. lightning or falling objects.**
4. **Insufficient maintenance.**
5. **Transport damage.**
6. **The construction of the machine has been modified without JF's written permission.**
7. **Unskilled repair of the machine.**
8. **Unoriginal spare parts have been used.**

JF cannot be held responsible for loss of income or legal claim as a result of faults either of the owner or of a third party. JF is also not responsible for wages beyond current agreements in connection with replacement of warranty parts.

JF is not responsible for the following costs:

1. **Normal maintenance such as expenses for oil, grease and minor adjustments.**
2. **Transport of machine to and from workshop.**
3. **The dealer's travelling expenses or freight charges to and from the user.**

Warranty is not granted on wearing parts unless it can clearly be proved that JF has committed a fault.

The following is regarded as wearing parts:
Protective canvases, blades, blade suspensions, shearbars, guide shoes, stone protections, discs, rotor skirts, crimper parts, tyres, tubes, brake shoes, chain tightener parts, guards, hydraulic hoses, conveyors, wheel-fixing bolts and nuts, snap rings, sockets, PTO-shafts, clutches, gaskets and seals, tooth belts, V-belts, chains, sprocket wheels, carriers, conveyor chain slats, rake- and pick-up tines, rubber seals, rubber paddles, cutter blades, wearing plates and lining for spreading platform, shredding blades incl. bolts and nuts, spreading rotors and vanes for farmyard manure spreaders.

In addition, the user must note the following:

1. **The warranty is only valid if the dealer has undertaken pre-delivery check and has given instruction to the end user in the use of the machine.**
2. **The warranty cannot be transferred to others without JF's written permission.**
3. **The warranty can be nullified if the repair is not undertaken immediately.**

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When it comes to green feed techniques, JF-STOLL has gained a reputation as one of the world's leading suppliers and specialists. As a specialist manufacturer for over 50 years, we have gained a vast amount of experience from right around the world and, more importantly, unique regional requirements.

We also receive important inspiration in our development work through a close and continuous dialogue with customers, dealers and agricultural researchers.

No matter which type of JF-STOLL-machine you chose, you can be sure to obtain the best result to obtain a top result - in the shape of high performance and operational reliability, minimum maintenance, flexible working possibilities and optimal operating economy.

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