
JF-STOLL

Disc Mower

GMS 3202 FLEX



Instruction Manual

“Original instructions”

Edition 3 | April 2010

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
według 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 Nös,

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EN **declare under our sole responsibility, that the product:**
DE erklären in alleiniger Verantwortung, dass das Produkt:
IT Dichiaro 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 responsabilidad propia que el producto:
PT declaramos com responsabilidade própria 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 :

GMS 3202 FL

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 exigências 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 mainittuja perusturvallisuus- ja terveysvaatimuksia (soveltuvin osin) sekä muita siihen kuuluvia EY direktiivejä: 2006/42/EC



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" 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 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.

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1. INTRODUCTION

INTENDED USE

JF disc mowers are developed for agricultural work. They should only be connected to tractors and driven by the PTO of the tractor.

The disc mowers are solely intended for:

Cutting on the ground of natural or planted grass and stem crops for animal feeding purposes

It is assumed that the work is performed under reasonable conditions, i.e. that the fields are cultivated normally and to a reasonable extent kept clear of stones and foreign matter.

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.

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.

Intended use, of course, implies that you observe the prescriptions in the instruction manual and the spare parts book, use original spare parts and contact an authorised workshop, in so far as it is necessary.

The following safety instructions as well as common rules concerning technical safety, working practices and road safety **must** be observed altogether.

The disc mowers should only be used, maintained and repaired by persons who, through relevant instructions and after reading the instruction manual, are familiar with the machine in question and, in particular, are informed of possible dangers.

SAFETY

Within agriculture there are generally many working-related injuries due to operation errors and insufficient instruction. 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 an effort on your part.

A 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 and other persons' 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.

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.

1. INTRODUCTION

GENERAL SAFETY INSTRUCTIONS

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 cutting unit to the ground or activate the transport safety device when parking the machine.
3. Always use the stop valves of the hydraulic cylinders of the machine during transport.
4. Never work under a raised cutting unit unless it is secured by means of stop blocks or other mechanical securing device.
5. Always block the wheels before working under the machine.
6. Never start the tractor until all persons are safely away from the machine.
7. Make sure that all tools have been removed from the machine before starting the tractor.
8. Make sure that all guards have been mounted correctly.
9. During work never wear loose clothes which can be pulled in by the moving parts of the machine.
10. Do not change the guards or work with the machine when a guard is missing or defective.
11. Always drive with the statutory lights and safety marking during transport on public road and at night.
12. Limit the transport speed to maximum 30 km/h if the machine has not been marked with another maximum speed limit.
13. Do not stand near the machine while it is working.
14. When mounting the PTO drive shaft check that the number of RPM of the tractor matches those of the machine.
15. 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.

1. INTRODUCTION

16. Before raising or lowering the cutting unit, check that no persons are near the machine or touching it.
17. Do not stand near the guards of the cutting unit and do not lift the guards before all revolving parts have stopped moving.
18. Never use the machine for other purposes than what it has been constructed for.
19. Do not allow any children to be near when you are working with the machine.
20. Never stand between the tractor and the mower during connection and disconnection.

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.

Long-term overload may damage the machine and at worst result in ejection of parts.

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 link arms and towing hook of the tractor are intended to carry machines with the own weight in question.

Always choose a tractor with a closed cabin when working with a disc mower.

1. INTRODUCTION

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)

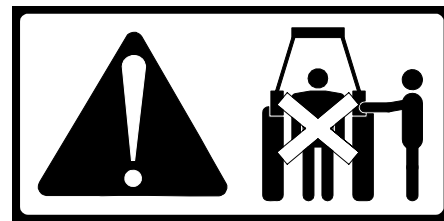


Fig. 1-1

Check that the machine is intended for the number and the direction of rotation of the tractor PTO. The number and direction of rotation of the tractor must be as in figure 1-2, seen from a position standing behind the tractor facing the direction of travel. A wrong number of rotations may result in reduced cutting and over a long period may damage the machine and at worst result in ejection of parts.

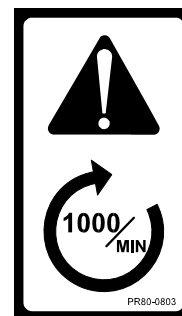


Fig. 1-2

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

The PTO drive shaft must be correctly protected. If a guard is defective, it must be replaced immediately.

Check that all hydraulic couplings are correctly mounted and tight and that all hoses and fittings are undamaged before activating the hydraulic system.

When the tractor engine has stopped, make sure 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 drawbar and the cutting unit can move freely before you activate the hydraulic cylinders. 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.

1. INTRODUCTION

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. It is important not to remove the guards until all revolving parts have stopped.

Before working check blades and discs for cracks and other damage. Replace damaged blades and discs. (see section on maintenance)

Check periodically if blades and blade bolts are worn according to the rules in the instruction manual. (see section on maintenance)

TRANSPORT

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

It is important to block the hydraulic transport adjustment. An unintentional operation of the drawbar cylinder may cause the machine to move to the opposite lane, the bicycle track or the sidewalk. Always check that mechanical transport safety devices are activated before transport.

This may also happen if there is air in the hydraulic cylinders or if there is a sudden loss of oil from the hydraulic hoses.

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 road.

1. INTRODUCTION

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.

Worn and damaged canvases should be replaced.

In stony fields the stubble height should be adjusted to maximum. This results in less wear of knives and stone guards and reduces the risk of loose stones being thrown out from the rotating parts of the machine.

If the cutting unit or the conditioner is blocked, stop the tractor engine, activate the parking brake and wait until the revolving parts have stopped before removing the foreign matter.

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

Change into a lower tractor gear if PTO number of rotations decreases distinctively. The machine and clutch are intended for 1000 rpm.

When working with a trailed mower 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 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.

Make sure that the jack on the drawbar of the machine is correctly fastened and locked when parking the machine.

GREASING

When lubricating or maintaining the machine, make sure that the cutting unit is resting on the ground or that the lifting cylinders are blocked by means of stop valves.

Never try to clean, grease or adjust the machine before the PTO has been disengaged, the tractor engine has stopped and the parking brake been activated.

1. INTRODUCTION

MAINTENANCE

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

Always make sure that the used spare parts are tightened to the correct torque.

When replacing parts in the hydraulic system always make sure that the cutting unit rests on the ground or the lifting cylinders are blocked.

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 the manufacturer. All hoses are marked with date of production.

MACHINE SAFETY

All revolving parts are balanced by JF-Fabriken by means of a special machine with electronic sensors. If it turns out that a part still has an unbalance, small counterweights should be fastened.

As the discs run at up to 3000 RPM, even the slightest unbalance will cause vibrations which may lead to fatigue fractures.

If the vibrations or the noise of the machine increase considerably during the operation, stop working immediately. Do not continue the work until the fault has been corrected.

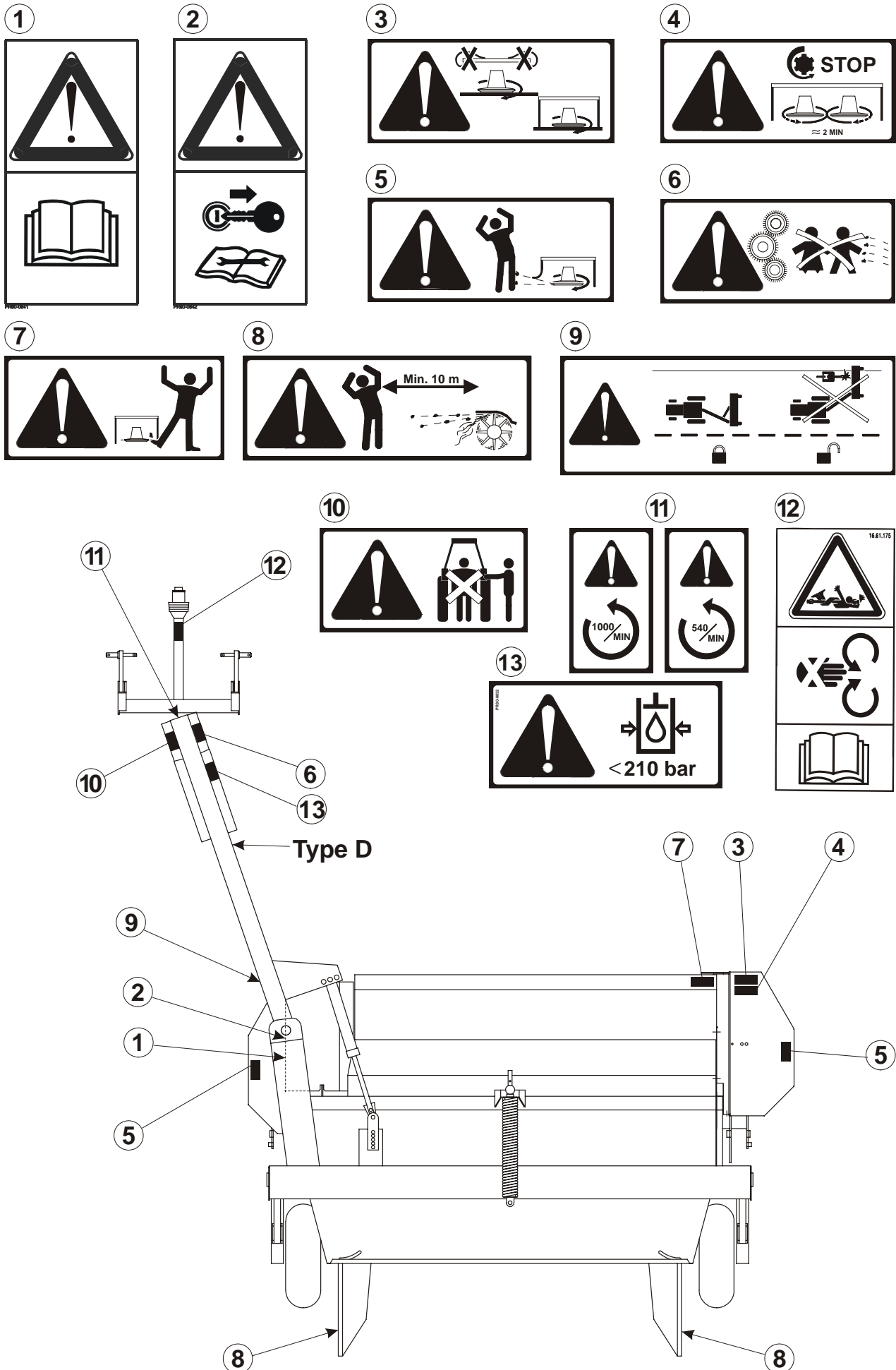
When replacing blades, both blades on the disc in question must be replaced as not to create an unbalance.

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

Clean caps and flow intensifiers of earth and grass regularly.

You should also check and “air” the friction clutch regularly to ensure it does not rust.

1. INTRODUCTION



1. INTRODUCTION

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, until you have finished.

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 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.

5 Risk of stones being thrown.

Almost the same meaning as decal No. 3. 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.

6 Children.

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

7 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.

8 Stones being thrown from the conditioner.

The conditioner rotor runs with a high number of RPM and stones on the ground can be thrown up to 10 m backwards at a very high speed. Therefore, always make sure that nobody is standing near the machine when it is working.

9 Remember the transport lock.

Always remember to activate the transport lock before transporting the machine on public road. Errors in the hydraulic system and unintended manoeuvres may cause the machine to move to working position during transport which may result in serious machine damage or personal injury.

10 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.

11 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.

12 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.

13 Maximum 210 bar.

Make sure that the hydraulic components are not exposed to more pressure than maximum 210 bar as there could be a risk of explosive damage of parts. Hereby you expose yourself and others to serious danger of getting hit by metal parts with high speed or oil under high pressure.

1. INTRODUCTION

TECHNICAL DATA

Type		GMS 3202 FL
Working width		3.2 m
Capacity at 10 km/h, effective		3.2 ha/h
Power requirement, minimum on PTO		75 kW/102 HP
Power take-off		1000 rpm
Oil outlet		1 DV + 1 EV
Drawbar		Heavy Duty, centrally positioned, with swivel gearbox
Number of discs		8
Number of blades		16
Floating suspended cutter bar		Standard (Top Safe)
Top Dry equipment for wide swath		Standard
Conditioner	System	PE-fingers Y-shape
	Fingers	152
	Rotor width	2.7 metres
	Central adjustment	Standard
	Speed for grass, standard	1000 rpm
	Speed for clover and the like	640 rpm
	Speed for whole crop	510 rpm (Ekstra equipment)
Swath width, single swath		1.1-1.5 m
Swath width, Top Dry		2.4-2.8 m
Transport width		3.18 m
Tyres		13/55-16
Weight standard		2400 kg
Weight transferred to tractor		ca. 550 kg

Technical data for the conveyor belt unit Collector: See instruction manual "COLLECTOR".

2. CONNECTION TO TRACTOR

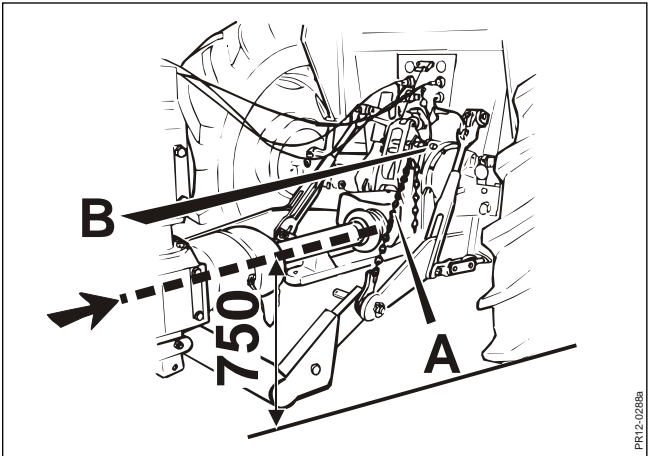


Fig. 2-1

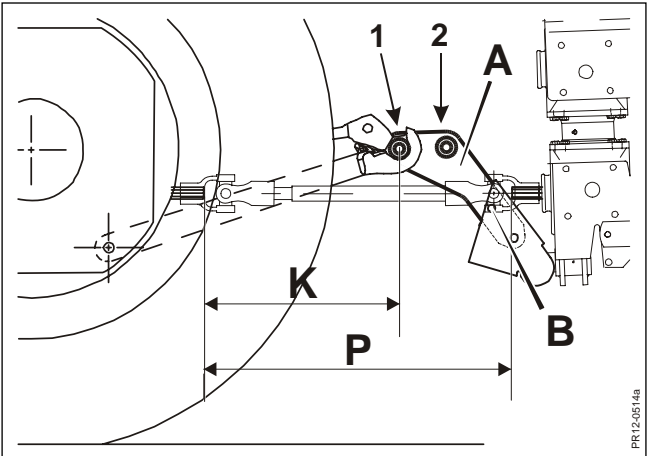


Fig. 2-2

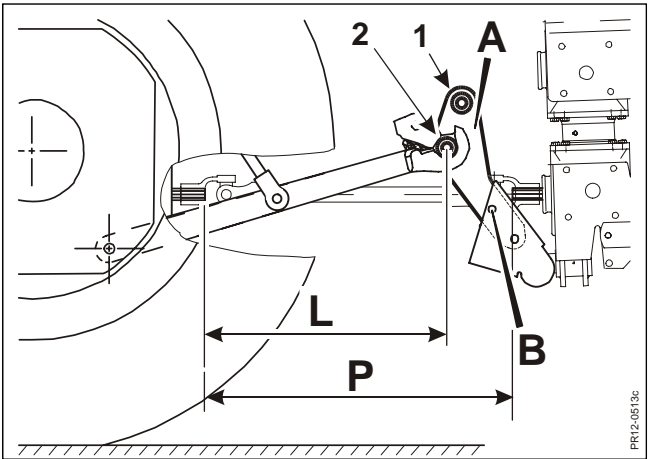


Fig. 2-3

2. CONNECTION TO TRACTOR

CONNECTION TO THE TRACTOR

Fig. 2-1 The GMS machine is connected to the lower link arms of the tractor. The dowels are intended for category II. Bushings can be supplied from your tractor dealer for category III.

This machine has a drawbar with a swivel gearbox up front so that you are not dependent on the angle of the transmission between tractor and machine.

Connection step by step:

- 1) Adjust the lower link arms to the same height. Fasten the limiting chains **A** to the lift dowels at the wanted category as shown on the figure.
- 2) The lower link arms of the tractor can now be connected to the machine and then raised to a height where the input shaft of the machine (PIC) is 750 mm above the ground. In this position the machine is horizontal. In case the PTO drive shaft of the tractor deviates more than 60 mm in height, the machine must be lifted / lowered in order for the deviation to get below 60 mm.
- 3) The lower link arms must be locked in this position to prevent a sideways travel so that the PTO shaft and the PIC shaft are in line seen from above.
A straight PTO drive shaft absolutely gives the longest life on axle universal joint and the other rotating parts of the machine.
- 4) Attach the upper end of the limiting chains at the top link fix point **B** on the tractor.
The limiting chains are not intended to carry the weight of the machine drawbar but to prevent unintentional lowering of the lower link arms which will pull the PTO drive shaft halves away from each other.

ADJUSTMENT OF THE FRONT PTO DRIVE SHAFT

Fig. 2-2 The extension links **A** are shock absorbers in the Top Safe system, which is standard on the machine. On the extension links there are two possibilities for placing the draw pins, depending on whether the lower link arms on the tractor are short or long.



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

However, the following should be observed:

Fig. 2-2 SHORT LOWER LINK ARMS:

On tractors where the distance **K** between PTO on the tractor and the coupling eyes of the lower link arms is **short**, the draw pins are to be assembled at position **1**.

Fig. 2-3 LONG LOWER LINK ARMS:

On tractors where the distance **L** between PTO on the tractor and the coupling eyes of the lower link arms is **long**, placing of the draw pins at position **2** would be preferable.

2. CONNECTION TO TRACTOR

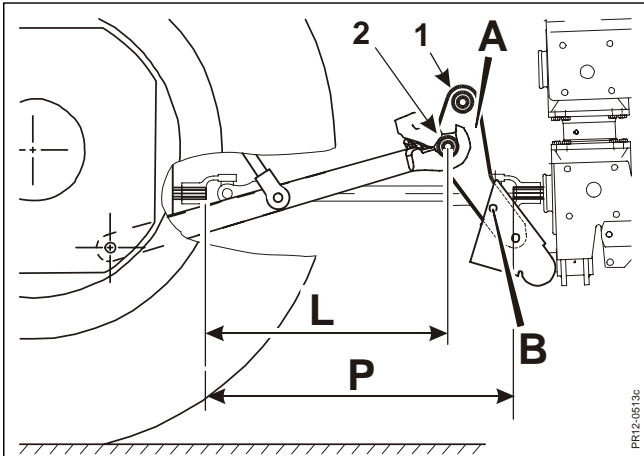


Fig. 2-3

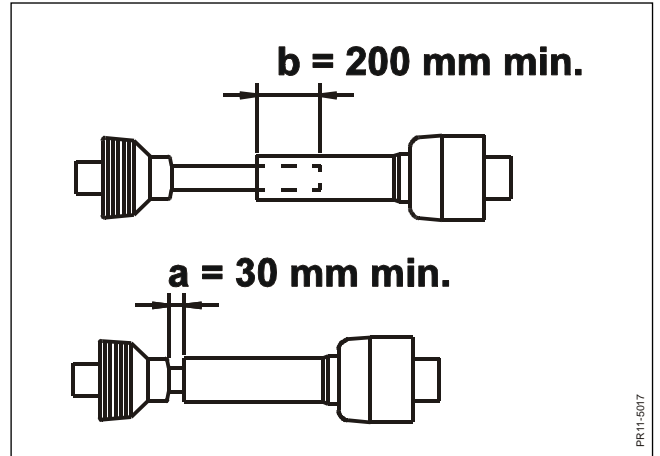


Fig. 2-4

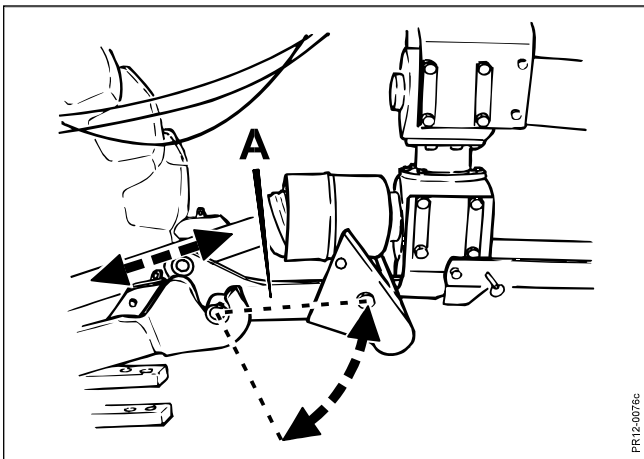


Fig. 2-5

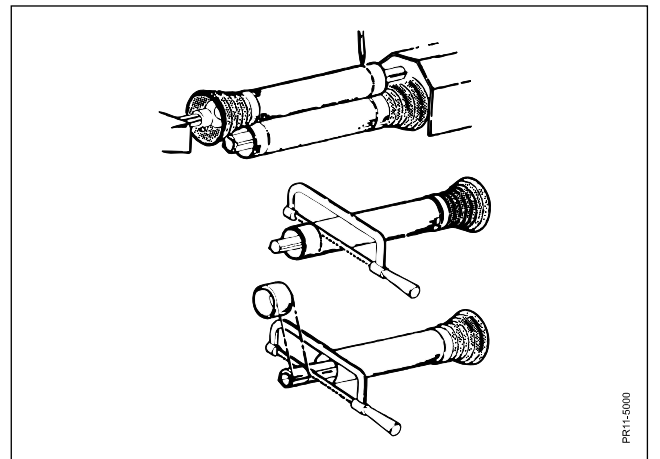


Fig. 2-6

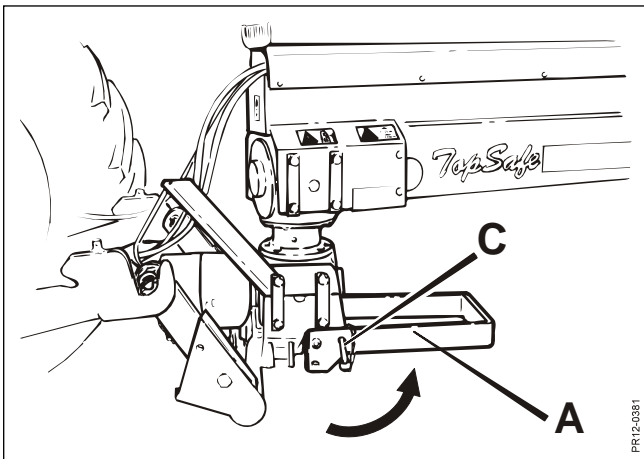


Fig. 2-7

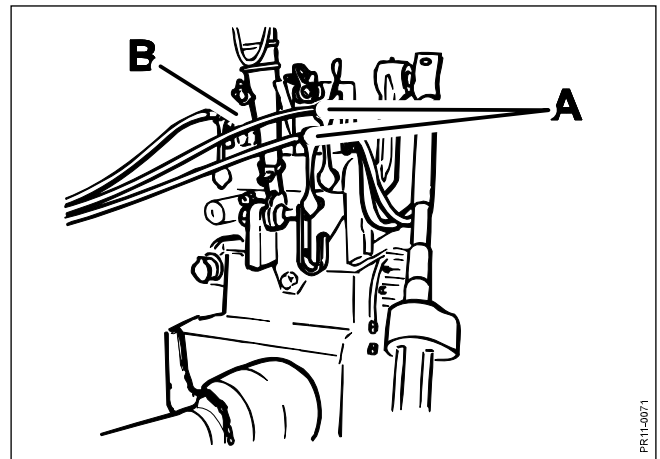


Fig. 2-8

2. CONNECTION TO TRACTOR

Fig. 2-3 When mounting the draw pins at position **2** remember to exchange and turn around the right and left extension arms **A**.



CAUTION: The minimum measures for overlapping of the profile tubes of the PTO shaft as shown on figure 2-4 must be observed. 2-4.

POSSIBLE SHORTENING OF THE PTO DRIVE SHAFT:

When the machine is connected to the extension links of the machine it may be necessary to shorten the PTO drive shaft to ensure correct function.

Fig. 2-4 Adjust the length of the PTO shaft so that it:

has as much overlapping as possible

Fig. 2-5 in no position has less overlapping than 200 mm. This refers to situations where the extension links **A** of the Top Safe system will be released, e.g. in case of collision with stones or the like.

- is not compressed more than the prescribed 30 mm in order not to bottom the shaft.

Fig. 2-6 Fasten the PTO drive shaft half parts to PTO and PIC, respectively, when these are at the same horizontal level and opposite each other (the shortest distance on this machine). Hold the shaft ends parallel to each other and mark the 30 mm (minimum).



CAUTION: Shorten all 4 tubes equally. The ends of the profile tubes **MUST** be rounded off and burrs **MUST** be removed carefully. Grease the tube carefully before reassembling. If the shafts are not greased, they are exposed to big friction forces if e.g. the shock absorbing system is activated during the transmission of heavy load.

JACK

Fig. 2-7 After connection the jack **A** is swivelled to the rear and up under the swivel gearbox and locked with pin and spring pin **C**.

FRICTION CLUTCH

On the PTO drive shaft between tractor and machine there is a friction clutch which ensures that the machine is not overloaded during operation.



IMPORTANT: Before starting a new machine, the clutch must be "aired". See section concerning the friction clutch in chapter 6 "MAINTENANCE".

FREEWHEEL

The machine is also equipped with an overrun clutch on the front PTO drive shaft. This overrun clutch is integrated in the friction clutch and ensures that the rotating parts of the machine keep rotating a while when the power take-off of the tractor is disconnected. This prevents unnecessary overload of the rotating parts of the machine.

HYDRAULIC CONNECTION

Fig. 2-8 The hydraulic hoses for the drawbar shift cylinder are connected to the double-acting oil outlet **A** and the hydraulic hose for the wheel cylinders is connected to a single-acting outlet **B** on the tractor.



DANGER: The hydraulic components must not be exposed to a higher working pressure than 210 bar as a higher working pressure may gradually cause parts to be damaged. Hereby a serious risk of personal injury occurs.

CHECK BEFORE USE

When machine has been connected to the tractor, please follow these instructions before using your new disc mower:

1. Read this instruction manual carefully.
2. Check that the machine has been assembled correctly and is undamaged.
3. Check that the PTO speed for the tractor is correct. Too high PTO speed can be dangerous. Too low PTO speed will cause reduced cutting capacity of the machine, reduced flow through the machine and increased load on the transmission elements.
4. Check the movements of the PTO drive shafts. If the PTO shafts are too short or too long it may damage the tractor as well as the machine considerably. Check that the protection tubes do not get jammed or damaged in any position. Check that the safety chains of the protection tubes have been secured properly and that they do not in any position get too tight or damaged.
5. Make sure that the hydraulic hoses have been connected to the tractor in such a way that they are long enough for the movements of the cylinders.
6. Re-tighten the wheel bolts. After a few hours of operation with your new machine all bolts must be tightened up. This is especially important on fast revolving parts. See the torque settings in chapter 6 "MAINTENANCE". Also re-tighten after servicing the machine.
7. Check the tyre pressure. See chapter 6 "MAINTENANCE".
8. Check that the machine has been greased sufficiently and check the oil level in the gearbox and the cutter bar. See chapter 5 "GREASING".
9. Check the friction clutch as described in chapter 6 "MAINTENANCE".

From the factory the revolving parts of the machine have been tested and found correct. However, you should do as follows before using the machine:

10. The following should be done with open rear window and without hearing protector:

Start the machine at a low number of RPM. If there are no unusual scratching or knocking sounds the number of RPM can be increased. At the correct number of RPM, check if there are any noticeable vibrations. (Check the guards for unusual vibrations).

2. CONNECTION TO TRACTOR



CAUTION: If you are in doubt whether the machine runs correctly, stop the tractor and the machine immediately.

Turn the revolving parts with manual power to check if all parts can turn freely. Check the machine visually to find possible errors. Check if any paint has been burnt or scratched off.

In case you cannot find any errors, or deviations, contact your JF dealer or the Service Department at JF-Fabriken.



IMPORTANT: Note that because of the smaller centrifugal force at a low number of RPM, the blades can touch the upper edge of the cutter bar suspension, which can be heard by a "ticking" sound from the blades. This sound must disappear at the normal number of RPM during work.

Also note that the cutter bar under the discs will get very warm. The colour of the cutter bar gets darker after some hours of operation.



CAUTION: If the machine has been checked and you wish to test it for a long time, close the rear window or wear hearing protector!

3. ADJUSTMENTS AND DRIVING

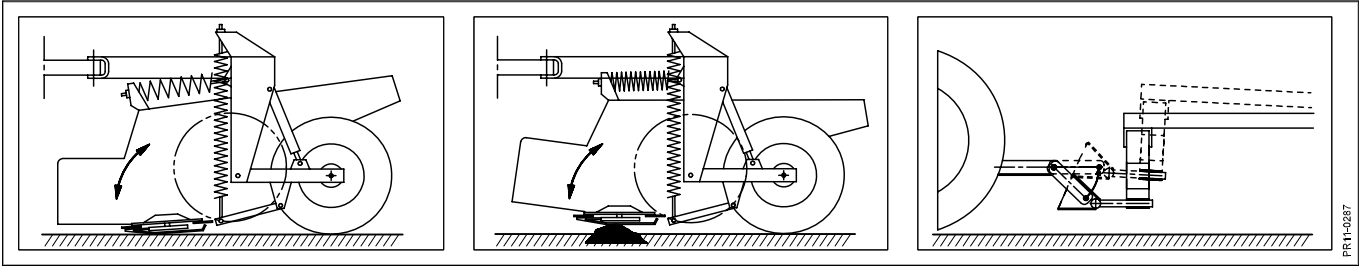


Fig. 3-1

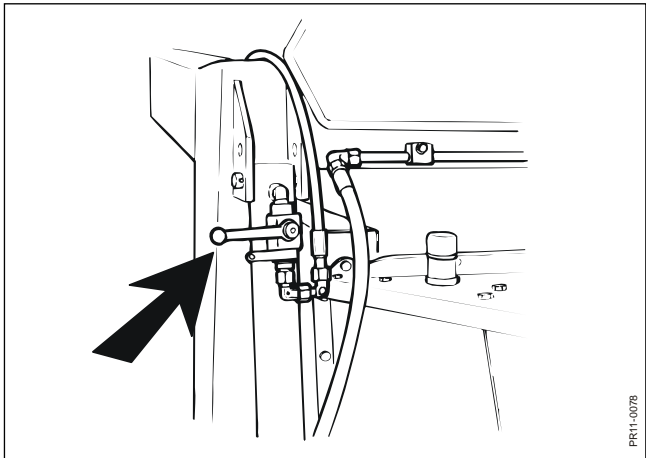


Fig. 3-2



Fig. 3-3

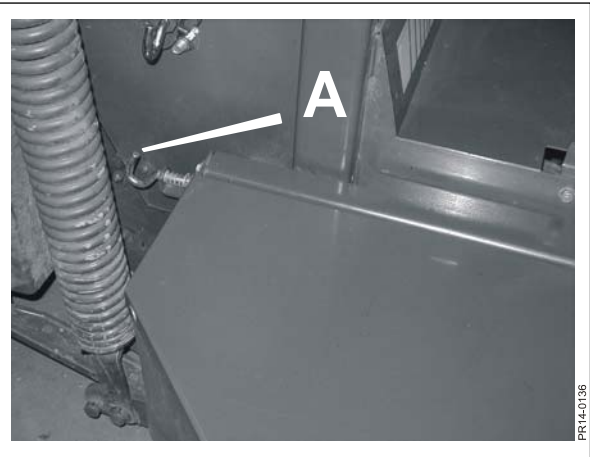


Fig. 3-4

3. ADJUSTMENTS AND DRIVING

CONSTRUCTION AND FUNCTION

The cutter bar cuts and throws the crop against the conditioner rotor. This rotor is equipped with PE-fingers which lift and throw the crop to the rear to the swath guards which gather the crop in an even swath.

The conditioning degree can be adjusted in two ways. The distance between the conditioner plate and the rotor is adjustable, and there are two different rotor speeds available.

Fig. 3-1 The machine is equipped with the Top Safe anti-crash system. The cutting unit with the cutter bar is floating suspended in two strong springs for vertical movement and two horizontal placed springs. These provide the cutter bar with an easy swivelling movement when meeting stones or the like. At the same time, the drawbar has an integral shock absorber which is released in case of increased resistance on the machine. If the resistance is increased, the extension links swivel to the rear and upwards, thereby reducing the impact significantly.

The stubble height is continuously adjustable by adjusting the inclination of the cutter bar. Furthermore, the stubble height can be changed adjusting the height of the guide shoes in steps.

The machine can without problems manoeuvre round obstacles by means of the hydraulic shift cylinder.

TRANSPORT ON PUBLIC ROAD

The machine is intended for suspension in the lower link arms of the tractor, as mentioned in the section CONNECTION TO TRACTOR in chapter 2. The transport speed should not exceed 30 km/h.

Fig. 3-2 Lifting and lowering of the machine takes place by means of the single-acting oil outlet to which the hydraulic hose from the lifting cylinder is mounted.



DANGER: When lifting the machine for transport, the ball valve on the cylinder in the left-hand side must be locked (handle in horizontal position) to secure against leaking hoses.

The machine is lifted from the ground until the cylinders are fully stretched out. Possible air in the cylinders is removed by moving the pistons in and out a few times. If there is air in the system, the machine cannot stay in lifted position, or is lifted unevenly.

Fig. 3-3 Fold up the side boards to reduce the transport width as much as possible.

Fig. 3-4 The side boards are locked with a latch A, which is operated with a spring.



DANGER: **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.

3. ADJUSTMENTS AND DRIVING

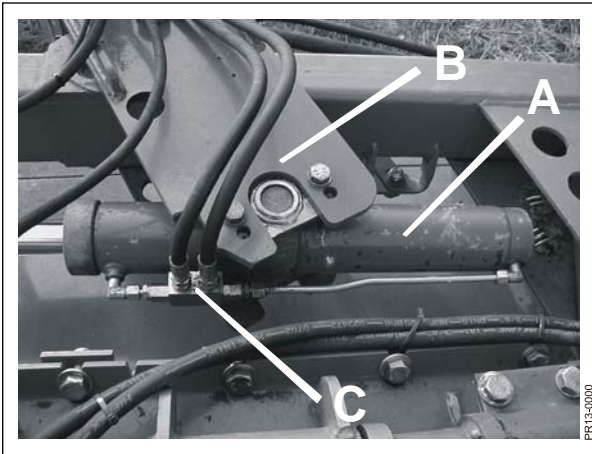


Fig. 3-5

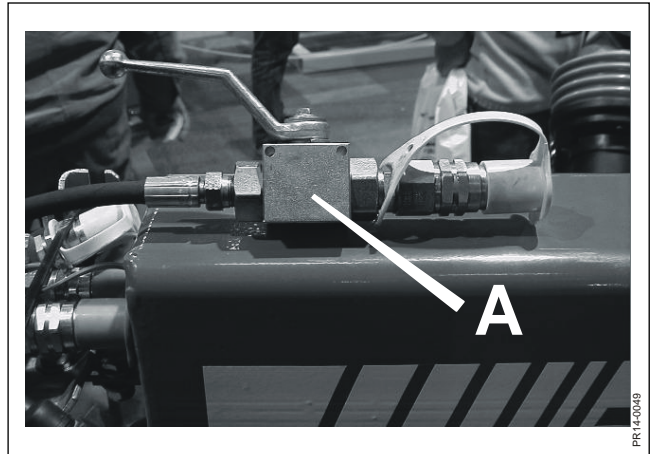


Fig. 3-6

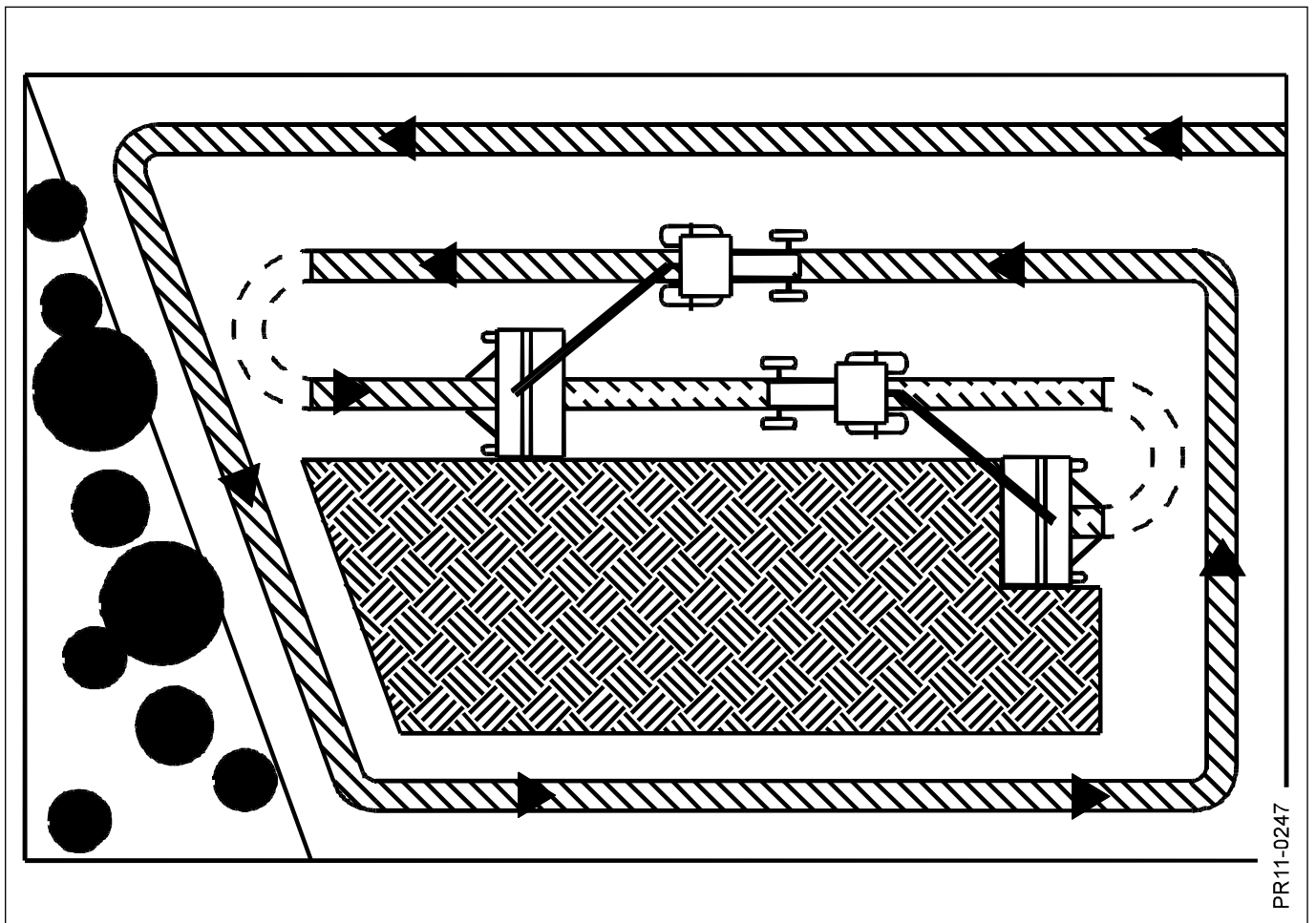


Fig. 3-7

CYLINDER FOR DRAWBAR

Fig. 3-5 The hydraulic cylinder **A** for turning the drawbar **B** is equipped with a double pilot operated check valve **C** which secures the cylinder and thus also the machine in a given position when the hydraulic handle for the drawbar is not operated.

This prevents the machine from making unintended or sudden movements due to e.g. leaky valves or clutches on the tractor or hoses that burst or come off.



WARNING: Hose couplings must be kept clean and filters on the tractor must be kept in a proper condition as impurities may in some cases prevent the valve from working correctly.

In case of operating troubles on the valve, see chapter 6 "MAINTENANCE".

SECURING THE POSITION OF THE DRAWBAR

Fig. 3-6 When the machine has been put into transport position behind the tractor, the ball valve **A** on the hose for the drawbar cylinder must be closed.

The valve is shown in open position and is turned off when the handle is turned 90 degrees.

The tap must be turned off during transport to secure against unintended use of the hydraulic handle, to prevent the machine from swinging into working position and thus increase the transport width.

WORKING IN THE FIELD

Fig. 3-7 The basic idea with the FLEX machines with central drawbar is that the crop can be harvested from one side.

Place the machine in working position. Mow a suitable width headland to allow space to turn at the ends of the field. Then the FLEX driving method can begin. The speed varies from 6-20 km/h depending on the crop and the working conditions.

Connect the power take-out carefully and increase to the correct number of rpm, i.e. 1000 rpm before working in the crop. When mowing, the single-acting hydraulic outlet of the tractor for raising/lowering the machine must be in floating position.

SWING SPEED

The swing speed for the drawbar is adjusted from the factory with throttle valves in the hydraulic system.

The system is constructed so that a complete swing from one side to the other will last between 7 and 8 seconds. This corresponds with the turning time of the tractor on the headland which lasts between 9 and 12 seconds. See also the next section.

This relation between the swing of the machine and the turning time of the tractor ensures a steady operation during turning and great stability minimizing the risk of overturning.

3. ADJUSTMENTS AND DRIVING

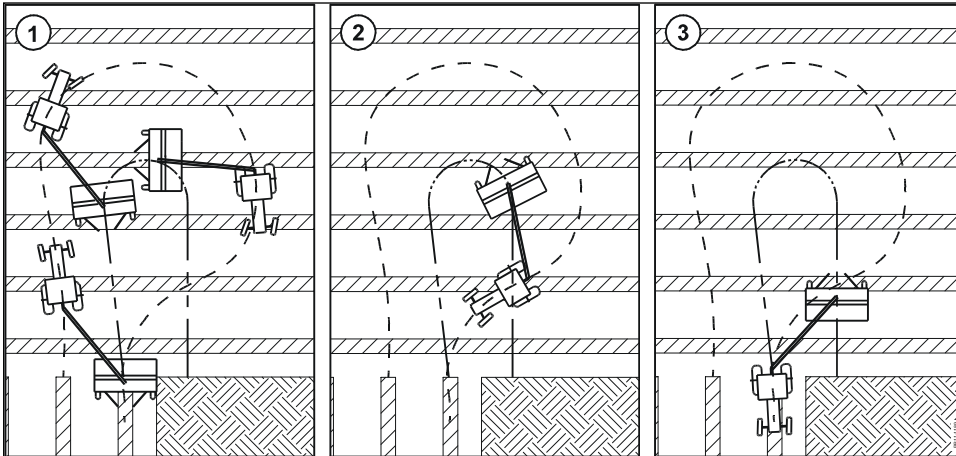


Fig. 3-8

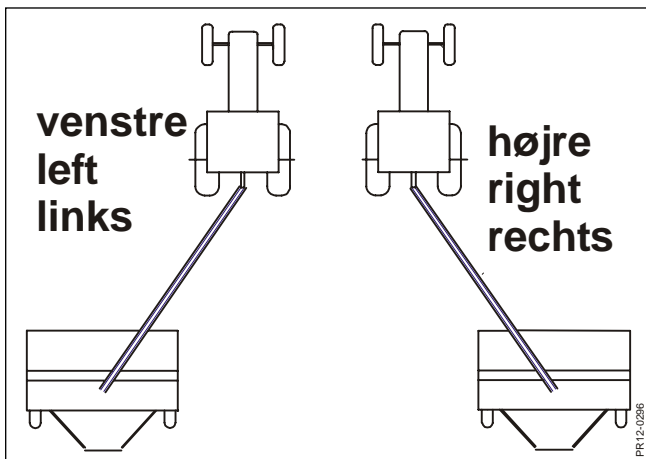


Fig. 3-9

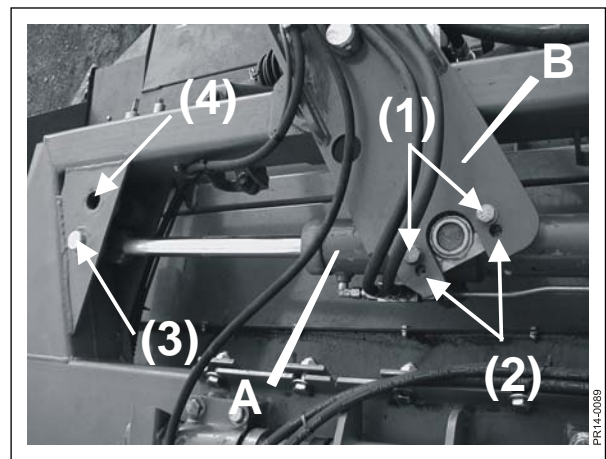


Fig. 3-10

TURNING IN THE FIELD

By following the instructions below, you will obtain an optimal turning operation in the field.

When driving out of the crop, lift the machine and activate the hydraulic handle for the drawbar immediately.

Now turn with the tractor while the machine slowly swings to the opposite side.

Just before driving into the crop again, deactivate the handle for the drawbar and lower the machine into the crop.

Fig. 3-8 General instructions:

It is important that the mower makes as small turns as possible (ill. ① - ③). Thereby the space requirement is reduced and a high driving speed for the machine, which could result in risk of overturning, can be avoided.



CAUTION: Turning should take place continuously. Avoid sudden movements during turning, e.g. sudden application of the brakes or sudden change of gears. This especially applies at high driving speeds.

ADJUSTMENT OF THE SWING OF THE DRAWBAR

Fig. 3-9 From the factory the machine is mounted to drive symmetrically with equal swing to the right and left hand side, so-called FLEX-driving.

During FLEX-driving the most comfortable operation is obtained when the machine swings equally to the right and left hand side. This means that the tractor driver does not need to correct the position of the tractor or the swing of the drawbar cylinder at every swath.

Fig. 3-10 The drawbar cylinder **A** can be mounted in 2 positions on the drawbar **B**. The position determines the swing of the drawbar. From the factory the cylinder is mounted in position **(1)** which gives the smallest overlap.

The cylinder can be moved to the alternative position **(2)** if more overlap is wanted. This can be necessary on very hilly ground.

The optimal working position is obtained when the previous swath is right between the wheels of the tractor and the cutter bar has full working width in the crop.

Fig. 3-10 At the opposite end the cylinder is mounted in position **(3)**. The other mounting hole, position **(4)** is **ONLY** intended for driving with asymmetric guards where the swing of the drawbar is different to the left and right hand side.



CAUTION: The cylinder **MUST** be mounted in position **(1)** on the drawbar when position **(4)** for asymmetric equipment is used. See more in the section “ASYMMETRIC EQUIPMENT” at the end of this chapter.

3. ADJUSTMENTS AND DRIVING

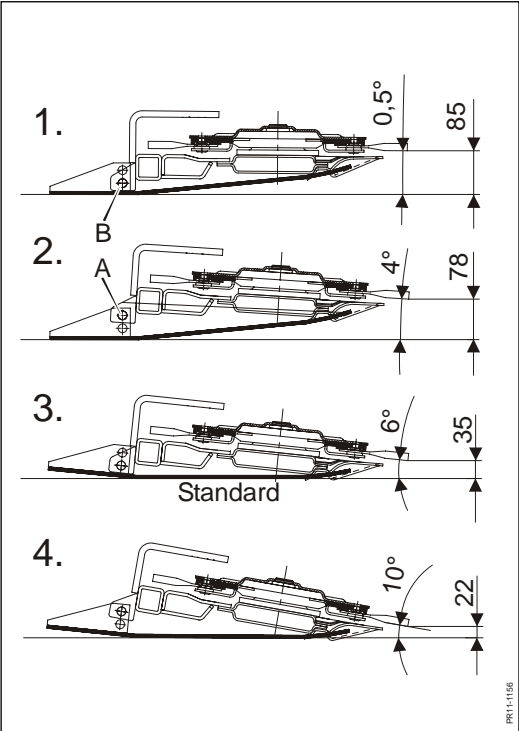


Fig. 3-11

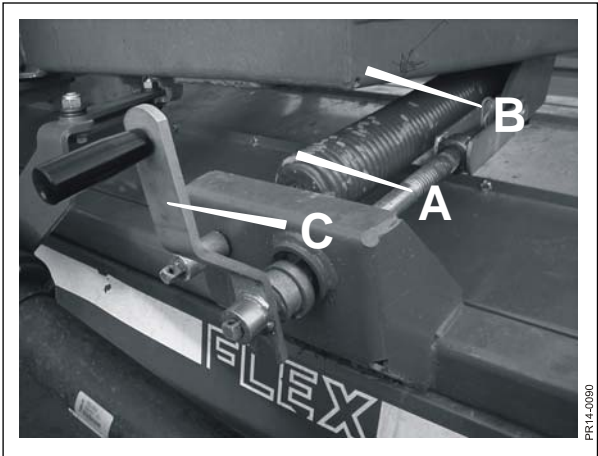


Fig. 3-12

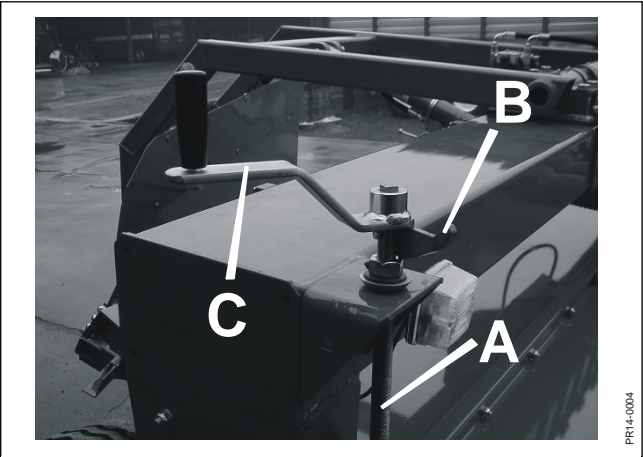


Fig. 3-13

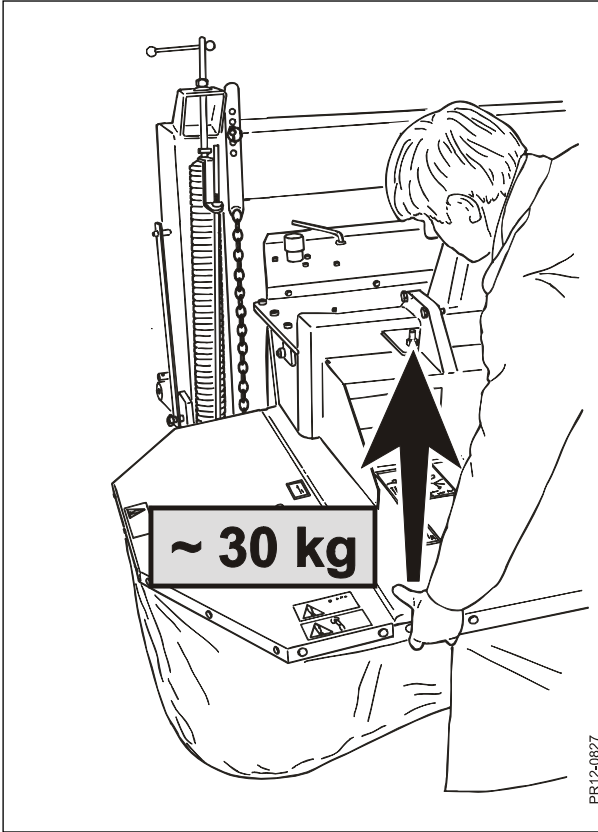


Fig. 3-14

STUBBLE HEIGHT AND RELIEF OF THE CUTTER BAR

Adjustment of the stubble height and relief of the cutter bar must be performed in a specific order.

The procedure is as follows:

1)

Place the machine behind the tractor **in transport position**.

The machine must be mounted correctly in the lower link arms of the tractor, see the section CONNECTION TO THE TRACTOR in chapter 2. The cutter bar must be lowered to rest on an even surface.

2)

Adjust **the stubble height** by means of the guide shoes and by adjusting the inclination of the cutter bar.

Fig. 3-11 The guide shoes have 2 holes for mounting at different heights in relation to the cutter bar suspension.

The following table shows the theoretical stubble heights which can be obtained by moving the position of the guide shoes and adjusting the inclination of the cutter bar.

Situation	Position for guide shoes	Angle for cutter bar	Theoretical stubble height
1	Topping (pos B)	0.5 degrees	85 mm
2	High (pos) A	4 degrees	78 mm
3	Standard (pos B)	6 degrees	35 mm
4	Extremely short (pos A)	10 degrees	22 mm

NB: Usually the stubble height is 1.5 to 2 x theoretical stubble height).

Fig. 3-12 When the position for the guide shoes has been chosen, fine adjustment of the stubble height can take place through central adjustment of the inclination of the cutter bar by means of the 2 spindles **A**.

Remove the split pin **B** and turn the spindles **A** with the handle **C**. After adjusting, mount the split pin **B** as it secures the adjustment.

TIP: When the front board is folded up you can easily see how the angle of the cutter bar and the stubble height are changed during the adjustment.

3)

The **relief** of the cutter bar is adjusted by means of the 2 vertical and the 2 horizontal springs.

Fig. 3-13 The vertical springs **A** are adjusted by releasing the lock **B** and turning with the handle **C**.

Note: This handle is also used for adjustment of the stubble height.

Fig. 3-14 Tighten/loosen the springs until the weight on the ground is approximately **25-30 kg** in each side.



IMPORTANT: The vertical springs are **NOT** necessarily tightened equally on each side.

After tightening, the lock **B** is engaged to secure the adjustment.

3. ADJUSTMENTS AND DRIVING

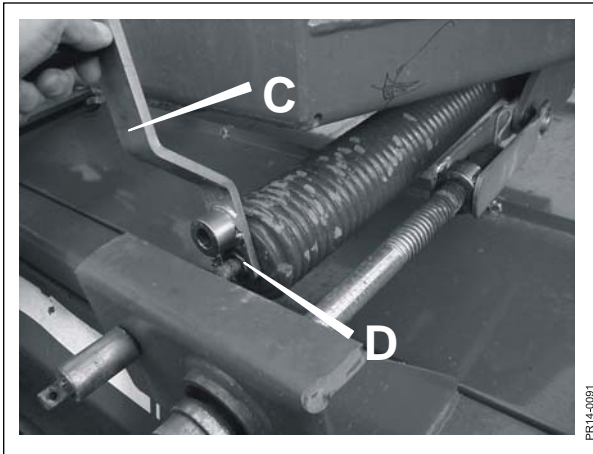


Fig. 3-15

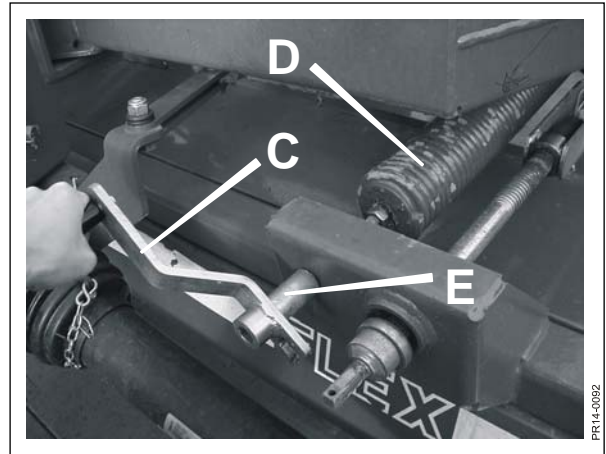


Fig. 3-16

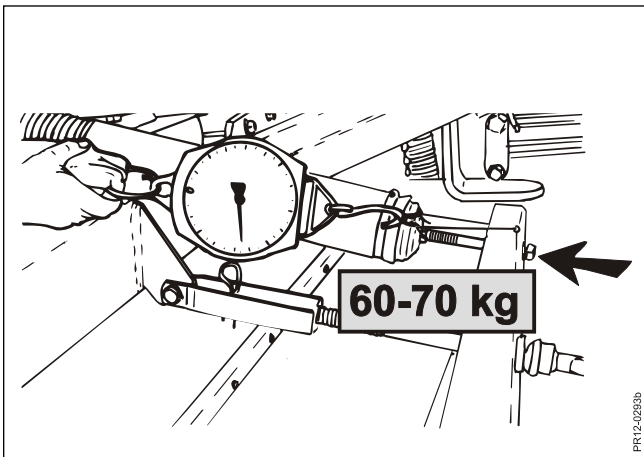


Fig. 3-17

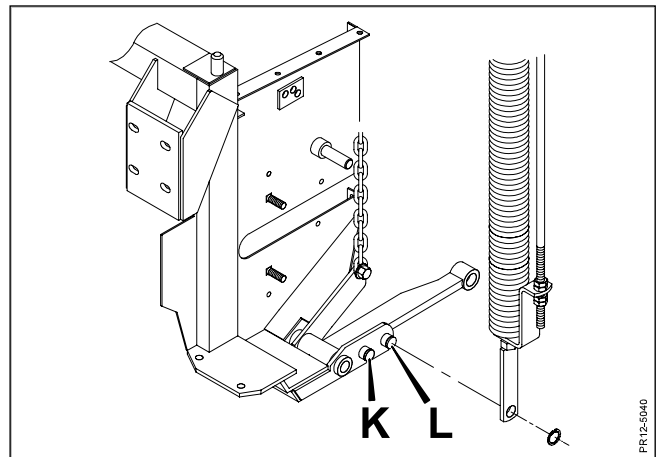


Fig. 3-18

3. ADJUSTMENTS AND DRIVING

Fig. 3-15 The horizontal Top Safe springs are adjusted by loosening the counter nuts **D** with the end of the handle **C**.

Fig. 3-16 and then turn the spindles **E** with the handle **C** on the spindle. Tighten the nuts **D** after finishing the adjustment to secure the tightening of the springs.

Note: This handle is also used for adjustment of the stubble height.

Fig. 3-17 Tighten/loosen the springs until the weight in direction of the arrow is approximately 60 -70 kg

Note: In practice this adjustment is checked by hanging on the top plate at the rear of the machine whereby the cutting unit should only just be able to rock and the cutter bar is lifted from the ground.



IMPORTANT: The horizontal Top Safe springs are, with a view to transport, not adjusted from the factory, and after the first adjustment you should check the adjustment as described above.

4)

If the stubble height is changed, a re-adjustment of the relief is always necessary according to item 3) on the previous page and above.

5)

Drive in the field when all adjustments have been made. At the first test drive you can check the stubble height and if the stubble is even.

RE-ADJUSTMENT OF THE RELIEF

Too much relief (The cutter bar is light):

- The stubble gets uneven (waved) and the relief is adjusted according to item 3.

Too small relief (The cutter bar is heavy):

- The machine damages the grass roots, which reduces re-growth, and wear on the guide shoes is increased.
- Increased risk that the machine "picks up stones" which means increased risk of damage to materials and injury to persons.



IMPORTANT: The size of the relief is only a guide and must be adjusted to the ground and the way of driving.

At intervals it must be checked that the machine is working with the correct relief. Earth and grass on the cutter bar and the rest of the cutting unit may change the relief considerably!

If the cutting platform has a marked tendency to tip backwards, the problem can be solved as follows:

- By loosening the horizontal Top Safe springs a little (see fig. 3-12) and tighten the vertical springs a little (see fig. 3-10).

Fig. 3-18 If the cutting platform seems to be too ground seeking and it is difficult to relieve the cutter bar with the horizontal Top Safe springs (i.e. great power is needed to make it tip backwards), the problem can be solved as follows:

- By moving the lower coupling point of the vertical springs at the cutter bar from position **L** to **K**. Thereby the centre of gravity of the cutting platform is moved to the rear which reduces the ground seeking qualities and increases the possibility of the cutter bar to tip backwards when meeting obstacles.

3. ADJUSTMENTS AND DRIVING

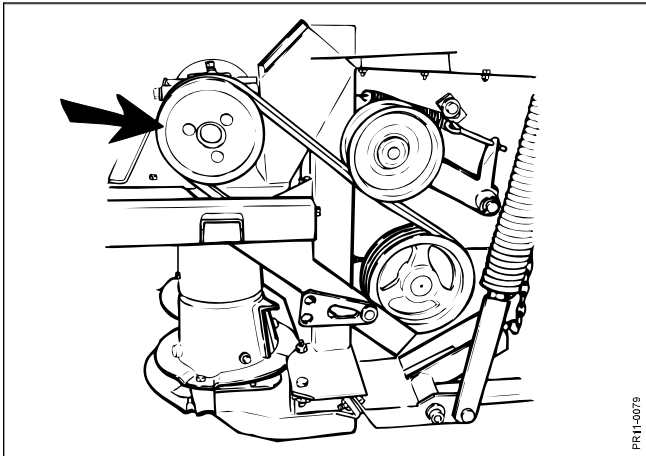


Fig. 3-19

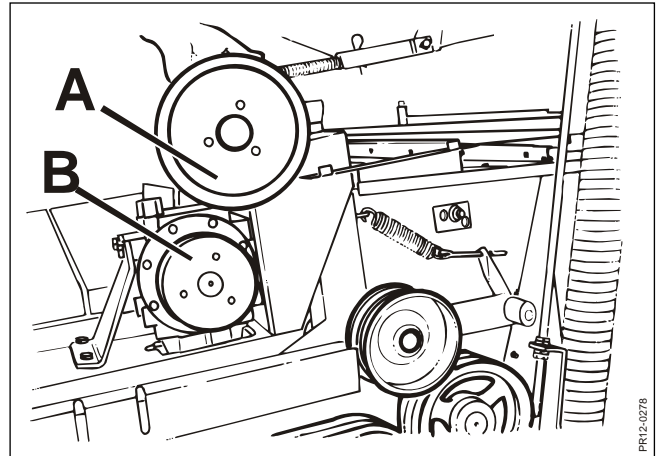


Fig. 3-20

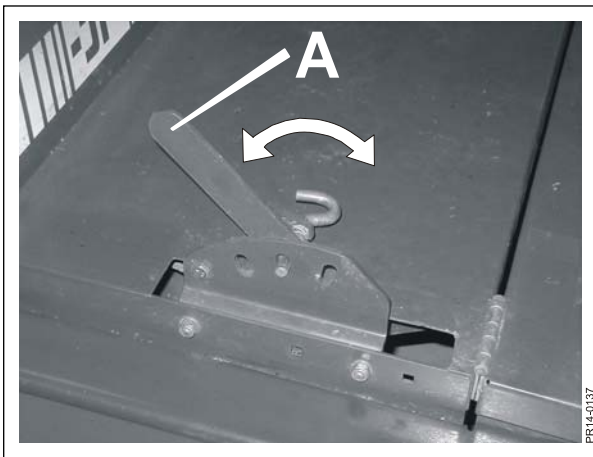


Fig. 3-21

THE CONDITIONER

The conditioner rotor has 2 speeds: 640 - 1000 RPM

Fig. 3-19 From the factory the gearbox above the cutter bar is equipped with a pulley for a conditioner speed of 1000 rpm.

Fig. 3-20 When changing to **640 rpm** remove the outer big pulley **A** on the gearbox. Under this big pulley **A** a **smaller B** is mounted. The 3 extra belts supplied with the machine must now be mounted instead of those mounted as standard.

Conditioning in relation to the rotor speed in general:

High speed ⇒ Strong conditioning

Low speed ⇒ Moderate conditioning

Fig. 3-21 The degree of conditioning can also be varied by changing the distance between the conditioner plate and the rotor. Adjustment is made by turning the handle **A** which can be placed in 3 positions for 10, 30 and 50 mm distance, respectively. In direction of the arrow the distance between the conditioner plate and the rotor is reduced.

Conditioning in relation to the distance to the rotor in general:

Small distance ⇒ Strong conditioning

Large distance ⇒ Moderate conditioning

From the factory the handle **A** is placed in the middle hole, which is considered to give a suitable degree of conditioning and optimum flow through the machine under normal conditions.

REMEMBER: The adjustment should be adapted to the forward speed and the state of the crop.

Optimal conditioning in relation to the conditions can be obtained with the following adjustments:

You have a:

Wet, green crop	or	Strawy, dry and more ripe crop
-----------------	----	--------------------------------

You want to drive:

above 10 km/h	below 10 km/h		above 10 km/h	below 10 km/h
---------------	---------------	--	---------------	---------------

The following adjustment is recommended

Conditioner rotor speed	High				X	X
	low	X	X			
Distance between conditioner plate and rotor	large		X			
	medium	X				X
	small				X	

Finally the PE-fingers on the rotor can be turned for a more aggressive attack on the crop. However, this may reduce the throwing of the crop out of the machine to the rear.

3. ADJUSTMENTS AND DRIVING

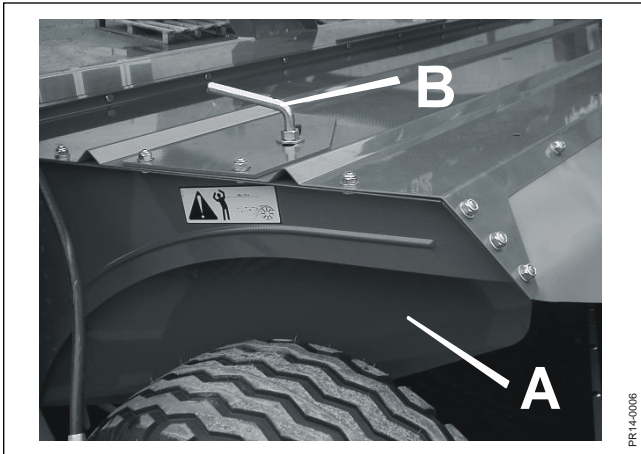


Fig. 3-22

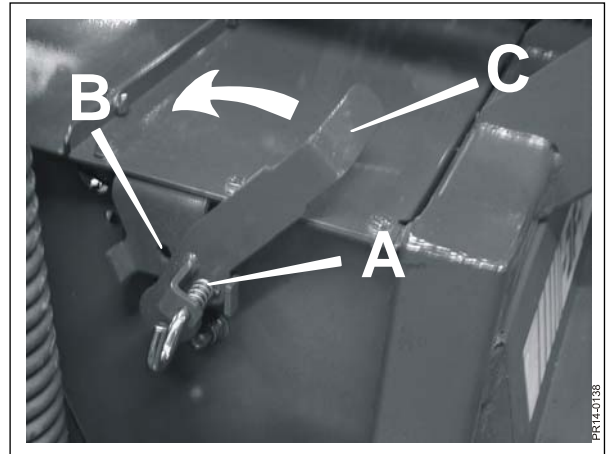


Fig. 3-23

SWATH GUARDS

The swath guards on the machine must ensure that the swath has the wanted shape and width. The crop is thrown from the conditioner rotor to the rear to the swath guards which gather the crop in an airy, narrow swath with a rectangular cross section.

Such a swath provides optimal preconditions for effective drying and subsequent unproblematic picking up for a forage harvester or a baler.

Fig. 3-22 The swath width can be adjusted by moving the swath guards **A**. The handles **B** on the top plate are loosened, the guards are moved either out or in, and the handles are tightened again.

EQUIPMENT FOR WIDE SPREADING (TOP DRY)

The machine is mounted with equipment for wide spreading which makes it possible to spread the crop instead of laying a swath in order to optimise the drying.

Fig. 3-23 The equipment consists of a plate which is mounted behind the conditioner rotor. When normal swathing is wanted, the plate is folded up under the top plate and is inactive in position **A**.

For wide spreading the plate is folded down with the handle **C** in an active position **B** behind the conditioner rotor.

During wide spreading the crop is thrown from the conditioner rotor against the plate which leads the crop towards the ground. Thereby the crop is laid in the full width of the conditioner, corresponding to the width between the wheels of the machine.

ASYMMETRIC EQUIPMENT (OPTION)

As option, JF-Fabriken A/S can deliver equipment for asymmetric swathing.

The equipment makes it possible to place two swaths asymmetrical, so that, in most cases, a 3 m pick-up can pick up the double swath.

The width of the double swath depends on the crop, the driving technique and the adjustments of the machine.

The equipment consists of a special top plate, strong swath guards and lightweight extensions for the swath guards.

If you want to be able to lay asymmetric swaths without driving with Flex, it is necessary also to mount hydraulics on the guards.



IMPORTANT: The number of revolutions on the conditioner rotor must be 1000 rpm.

MOUNTING

The equipment is easily mounted by means of the pictures of the parts in the spare parts book for the machine.

3. ADJUSTMENTS AND DRIVING

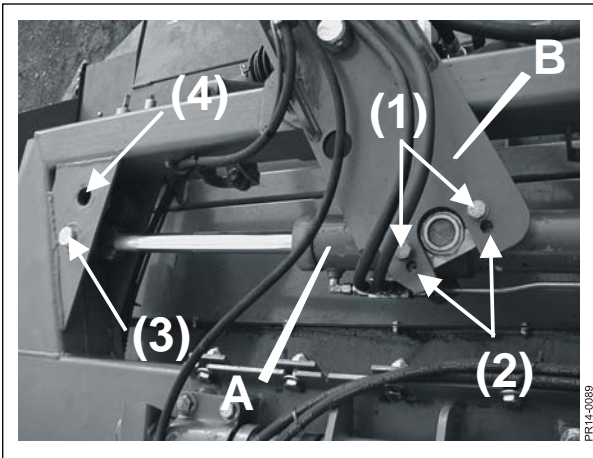


Fig. 3-24

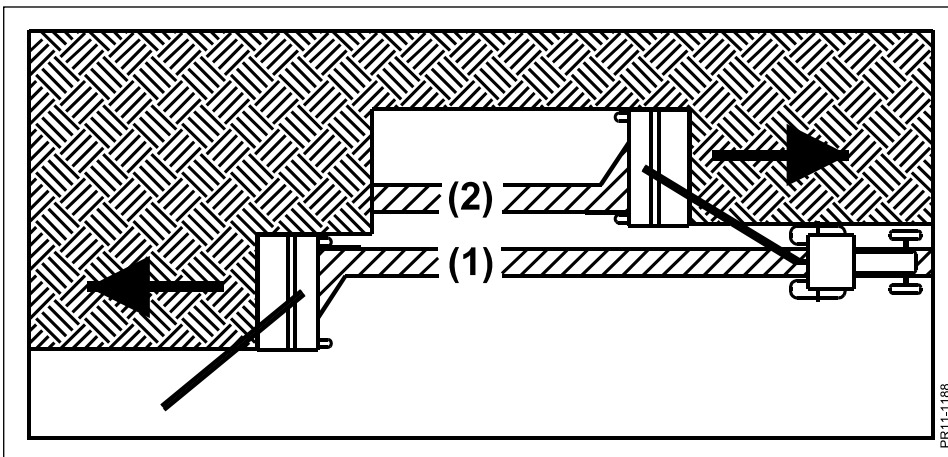


Fig. 3-25

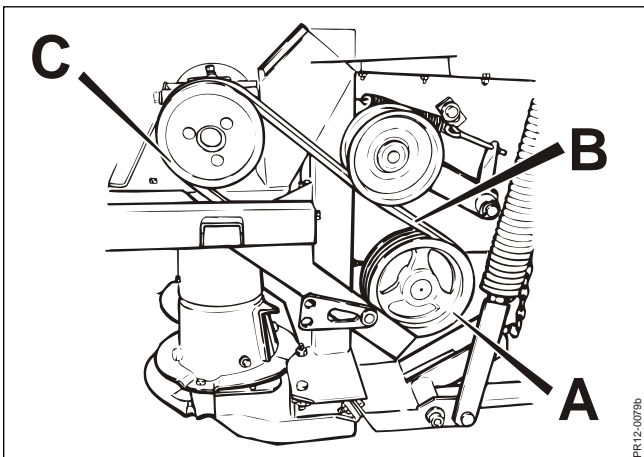


Fig. 3-26

3. ADJUSTMENTS AND DRIVING

Fig. 3-24 When the equipment is mounted, the drawbar cylinder **A** MUST be mounted in position **(1)** at the drawbar **B** and in position **(4)** at the opposite end.



WARNING: Only the above mounting of the drawbar in position **(1)** and **(4)** can be used for asymmetric double swathing. Any other position may result in collision between moving parts.

ADJUSTMENTS AND DRIVING

Fig. 3-25 The first swath is placed towards the crop **(1)** and the second swath it is placed away from the crop **(2)**. In this way the asymmetric double swath is created. The swath guards are adjusted so that the crop is moved as far to the right as possible so that the swath is placed in the right side of the direction of travel. This means that the tractor, which usually drives with the swath between the wheels during FLEX-driving, drives close to the crop and with a distance to the crop every second time.

This happens automatically when the drawbar cylinder is mounted as described above.



IMPORTANT: When driving in heavy and wet crop, it may be necessary to swing the swath guards slightly towards the middle. This is because the large angle of the left swath guard extension may cause the crop to stick to the guard and prevent an unproblematic flow.

TIP: Fine adjustment of the swath guards should take place in the field.

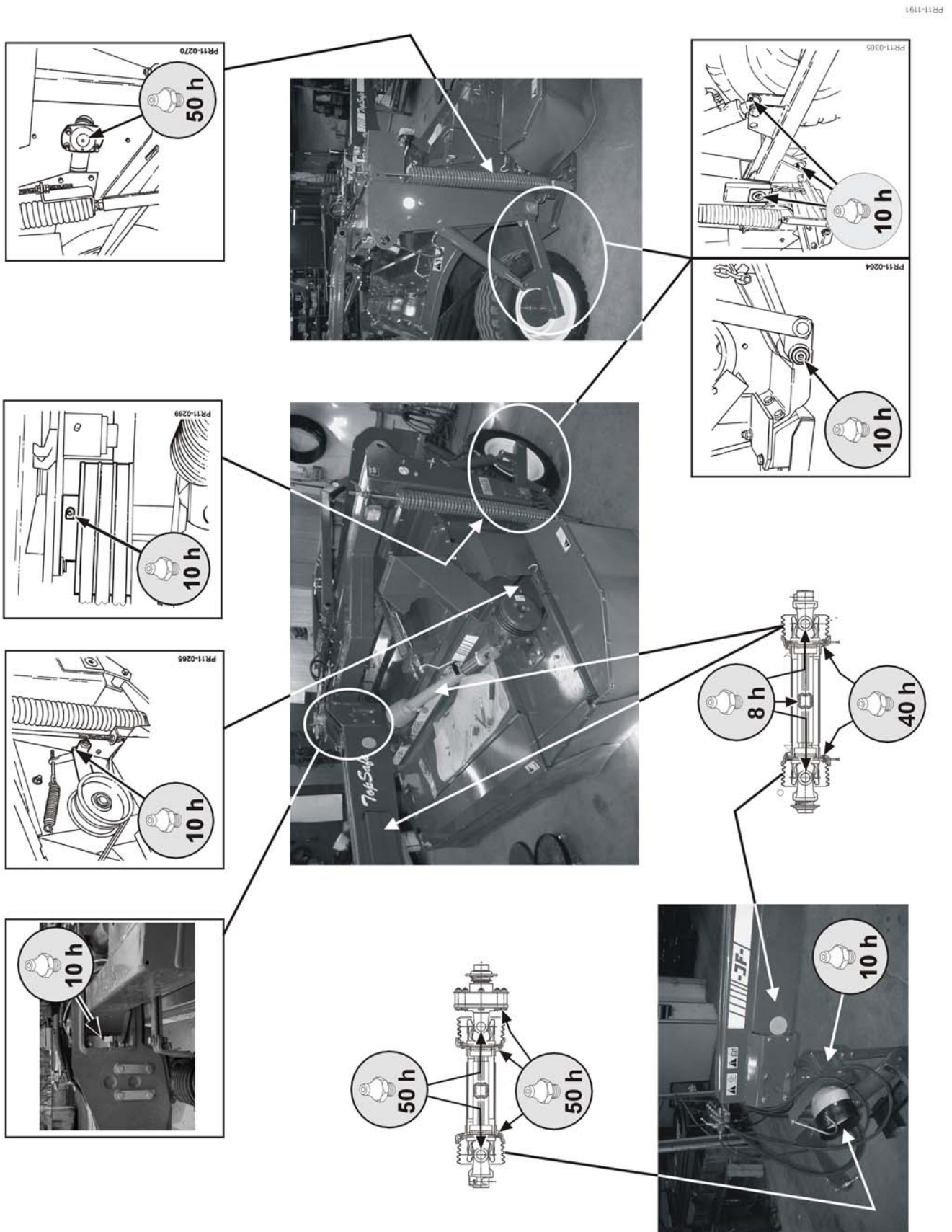
EQUIPMENT FOR WHOLE CROP (OPTION)

As option, JF-Fabriken A/S can deliver equipment for swathing in whole crop. In whole crop the crop must be treated carefully and therefore it is necessary to reduce the conditioner rotor speed.

Fig. 3-26 The equipment consists of an alternative pulley **A** which is to be mounted on the conditioner rotor and a set of belts **B**, with an alternative length. To get an optimal yield from the equipment, the outer pulley **C** on the gearbox must be dismantled so that you drive with the little pulley and the reduced speed of the conditioner rotor of **510 rpm** is obtained.

Greasing chart for the disc mower GMS 3202 FL.

IMPORTANT: The below grease spots must be greased according to the operation time intervals indicated.



4. GREASING

GREASE

Always ensure that the machine has been properly greased before it starts operating.

Go through the greasing chart.

TYPE OF GREASE: Universal grease of good quality.

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



IMPORTANT: If the machine is cleaned with a high pressure cleaner, make sure to grease the machine carefully afterwards, in order to press any water out of the bearings.



CAUTION: Be careful when cleaning with a high pressure cleaner. Never spray directly on the bearings.

4. GREASING

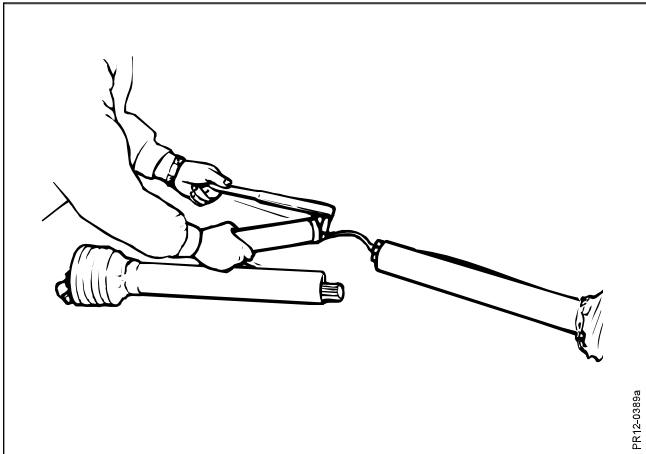


Fig. 4-1

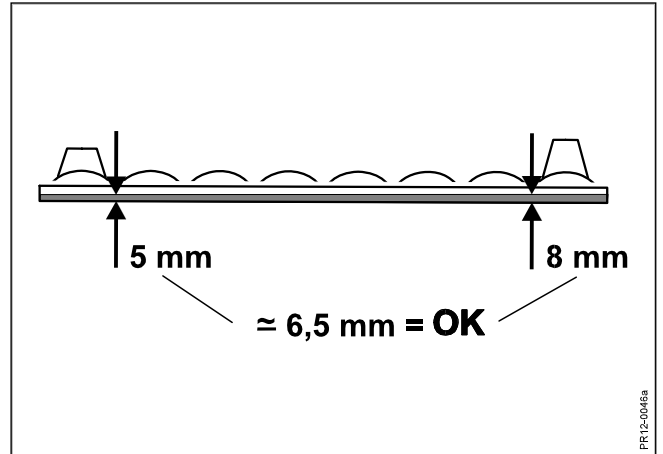


Fig. 4-2

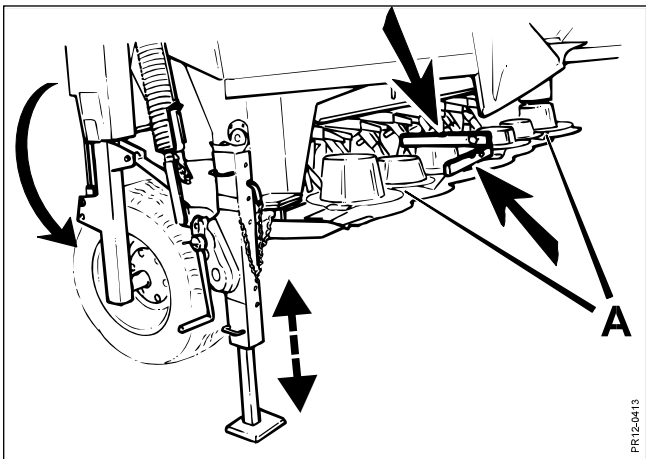


Fig. 4-3

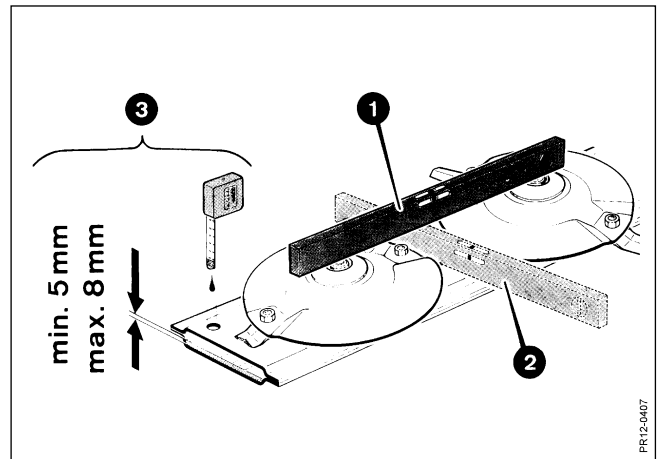


Fig. 4-4

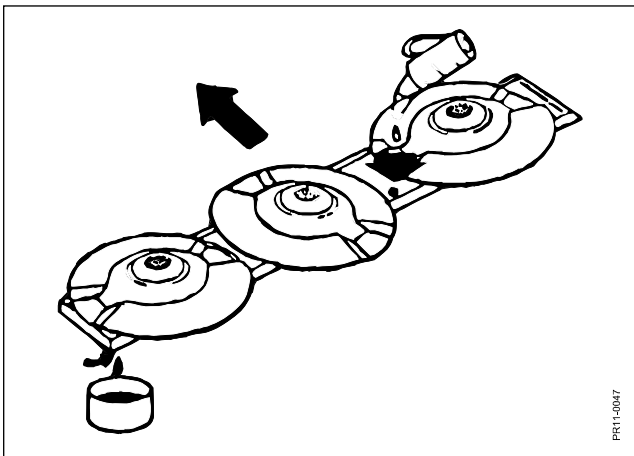


Fig. 4-5

PTO DRIVE SHAFTS

REMEMBER: PTO DRIVE SHAFTS MUST BE GREASED EVERY 8 HOURS OF OPERATION



Fig. 4-1

CAUTION: Pay special attention to the sliding profile tubes of the PTO shaft. They must be able to slide back and forth when the torque is heavy.
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.

OIL IN THE CUTTER BAR

Oil content:  2.25 litres

2 filling plugs are placed on top of the cutter bar between 1st and 2nd disc in the right and left-hand side.

Oil type: Only the quality **API GL4 SAE 80W**
(In certain countries API GL4 SAE 80W oil is not available. In these cases API GL4 or GL5 SAE 80W-90 can be used as an acceptable alternative. Never use pure SAE 90W oil in the cutter bar).

Fig. 4-2

Fig. 4-3


Oil level:  6 -7 mm
This oil level must be an average of the level measured at both filling holes (marked at A).
Wait 3 min. (If the oil is cold wait 15 min.), and then check.

Fig. 4-4

The oil level must be checked every day during the harvesting season.


In order to facilitate the daily oil check we recommend you to have a permanent "oil measuring platform". This means that the check for "**horizontal cutter bar**", as shown in Fig. 5-3 and 5-4, only has to be made once.

Horizontal cutter bar:

Longitudinal direction: The machine is lifted to maximum ground clearance. Hereby the construction ensures that the cutter bar will tip backwards to almost horizontal position. Fine adjustment can for instance be made with the lower link arms of the tractor, or by ground adaptation.

Cross direction: Fine adjustment can be made with e.g. lifting jack, as shown.

Fig. 4-5

Oil change:  First oil change after 10 working hours and then after every 200 working hours or at least once a year.
The oil is drained out at the plug in the bottom in the left-hand side.

NOTE: The left skid must be dismantled in order to reach the drain plug.

4. GREASING

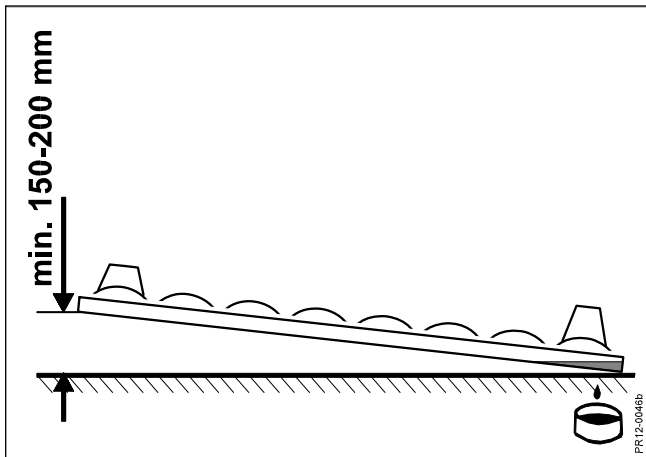


Fig. 4-6

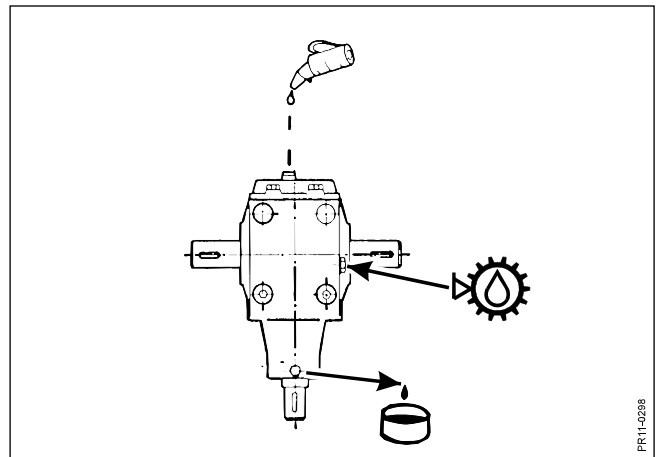


Fig. 4-7

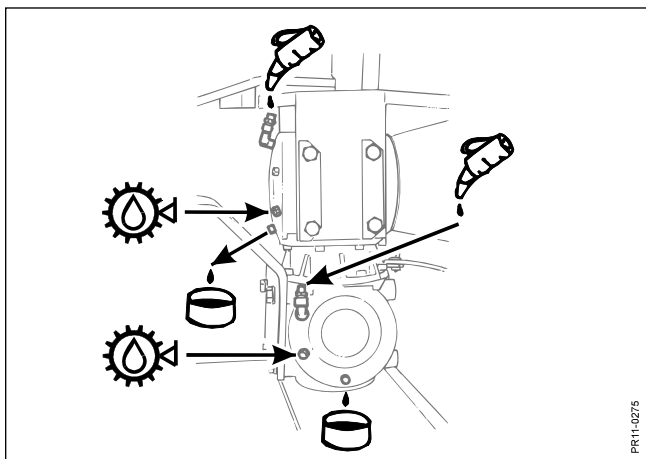


Fig. 4-8

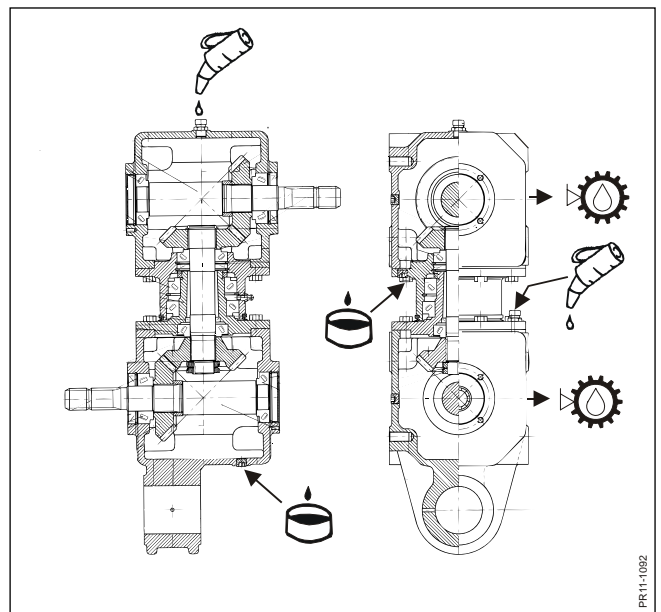


Fig. 4-9




4. GREASING

Fig. 4-6 For oil change the cutter bar is raised minimum 150-200 mm in the right-hand side to ensure optimum emptying. The drain plug is fitted with a magnet and should be cleaned at every oil change.






CAUTION: Never fill with more oil than prescribed.
Too much oil as well as too little oil in the cutter bar causes unintended heating which in time will damage the bearings.




OIL IN THE BEVEL GEARBOX ABOVE THE CUTTER BAR

- Fig. 4-7 **Oil content:**  1.5 l
- Oil type:** API GL4 or GL5 SAE 80W -90
- Oil level:**  The oil level must be checked every day during the harvesting season.
- Oil change:**  First oil change after 50 working hours and then after every 500 working hours or at least once a year.

SWIVEL GEARBOX ABOVE THE CUTTER BAR

- Fig. 4-8 **Oil content:**  Upper part: 1.0 l
Lower part: 1.2 l
- Oil type:** API GL4 or GL5 SAE 80W -90
- Oil level:**  The oil level must be checked every day during the harvesting season.
- Oil change:**  First oil change after 50 working hours and then after every 500 working hours or at least once a year.

SWIVEL GEARBOX AT TRACTOR

- Fig. 4-9 **Oil content:**  Upper part: 2.3 l
Lower part: 2.5 l
- Oil type:** API GL4 or GL5 SAE 80W -90
- Oil level:**  The oil level must be checked every day during the harvesting season.
- Oil change:**  First oil change after 50 working hours and then after every 500 working hours or at least once a year.

5. MAINTENANCE

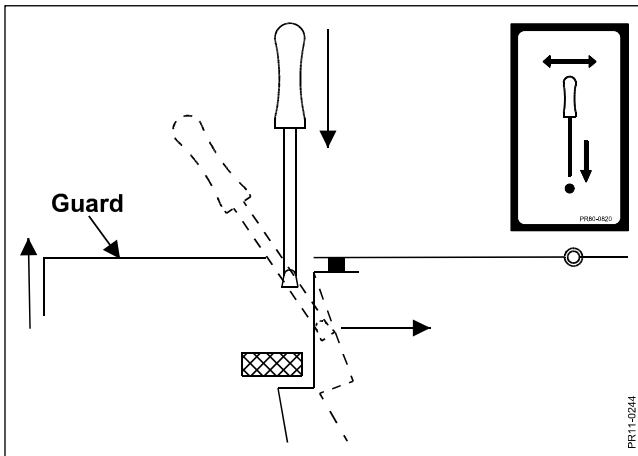


Fig. 5-1

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 1-20 in the beginning of this instruction manual.



IMPORTANT:

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

Torque moment M_A (if nothing else has been stated)

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 24	640	900	1100
M 24x1,5	690	960	1175
M 30	1300	1800	2300

GUARDS

Fig. 5-1 When maintaining the machine you often need to open or remove guards. All guards which must not be lifted for transport have for safety reasons been fitted with a lock. The lock ensures that the guard cannot be opened without using tools. Fig. 5-1 shows the locking principle and the corresponding transfer which indicates and illustrates the locks on the machine.

5. MAINTENANCE

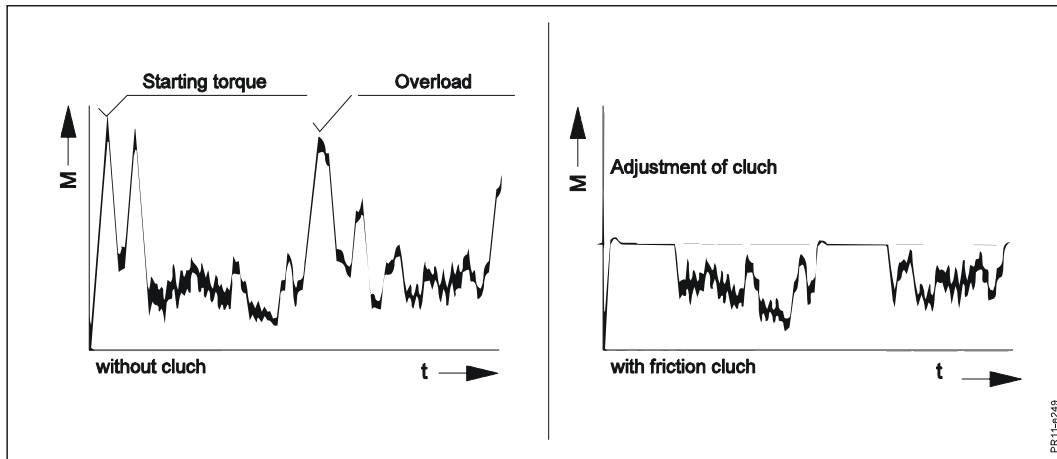


Fig. 5-3

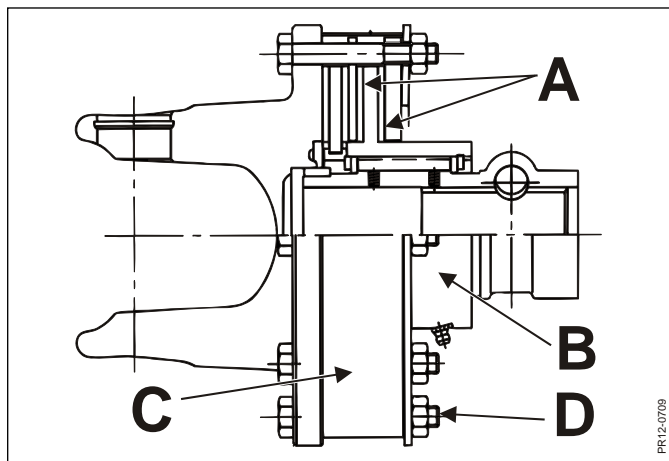


Fig. 5-4

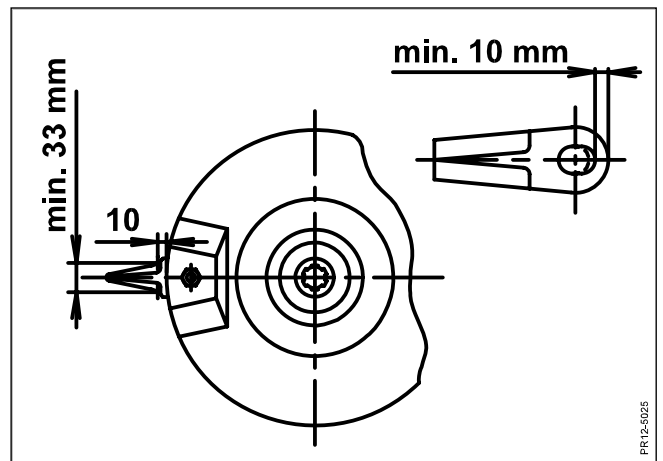


Fig. 5-5

FRICTION CLUTCH

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 is in function (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.

Maintaining the friction clutch:

- Fig. 5-4
- 1) Disassemble the clutch 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.

CUTTER BAR – DISCS AND BLADES

Discs, blade bolts and blades are made of high-alloyed, hardened materials. This heat treatment provides especially hard and ductile material which is able to withstand extreme stress. If a blade or a disc is damaged, do not attempt to weld the parts together again as the generation of heat will weaken the parts.

Damaged blades, discs, blade bolts and nuts **must be replaced by original -JF- spare parts to obtain a safe operation.**



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

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

BLADES

- Fig. 5-5 Blades must be replaced if:
- the blade width is less than 33 mm measured 10 mm from the edge of the disc.
 - the metal thickness around the blade hole is less than 10 mm.

Bent blades must be replaced immediately.

5. MAINTENANCE

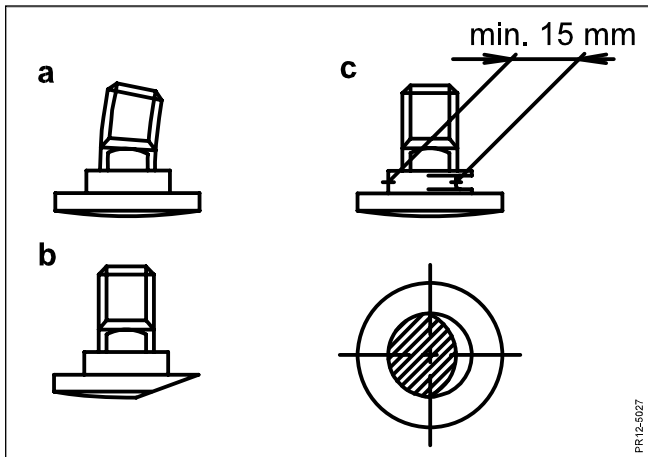


Fig. 5-6

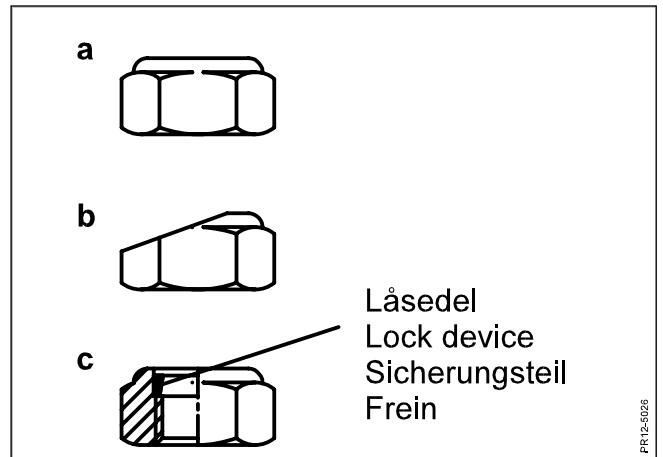


Fig. 5-7

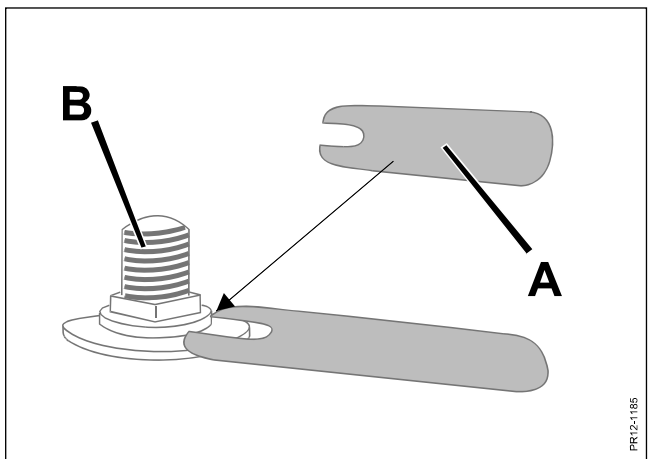


Fig. 5-8

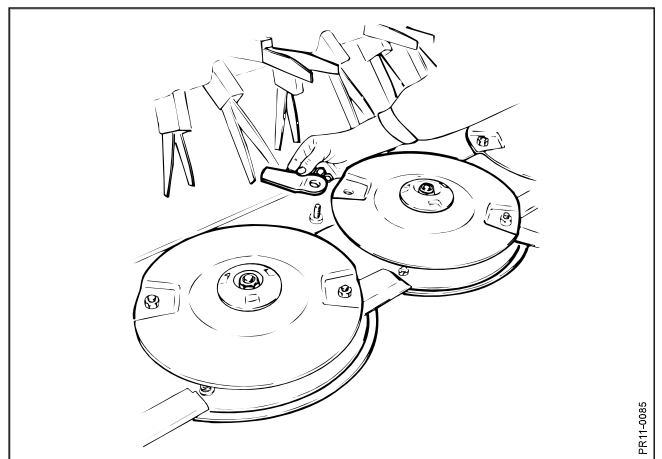


Fig. 5-9

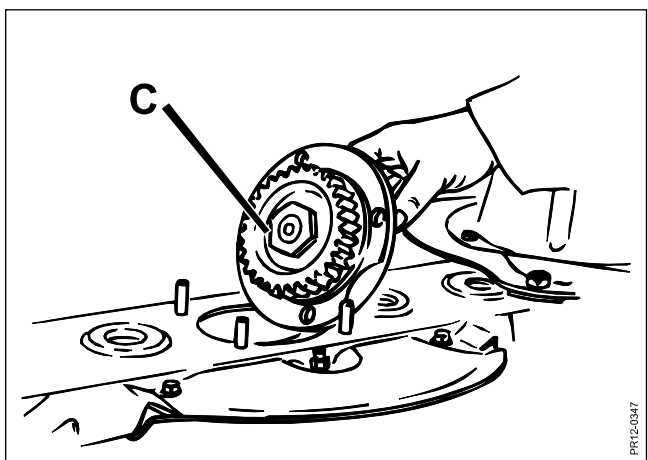


Fig. 5-10

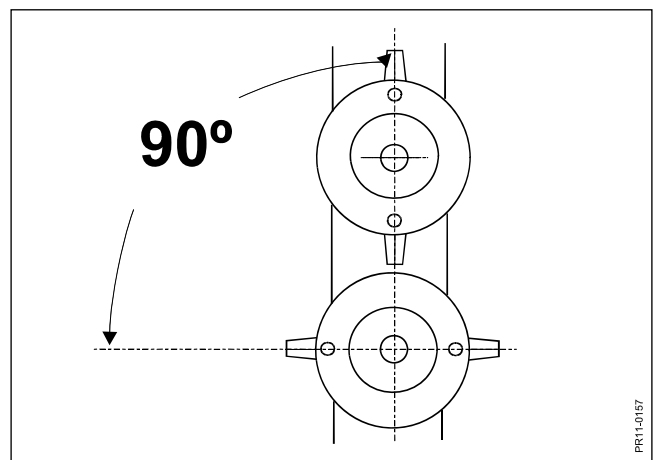


Fig. 5-11

5. MAINTENANCE

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

- Fig. 5-6 Blade bolts must be replaced if:
- a) they are deformed
 - b) they are strongly worn on one side
 - c) the diameter is less than 15 mm (see also below at fig. 5-8).

- Fig. 5-7 The special nut must be replaced if:
- a) it has been used more than 5 times
 - b) the height of the hexagon is less than half of the original height.
 - c) the lock device is worn or loose.

REPLACEMENT OF BLADES

- Fig. 5-8 In connection with replacement of blades check all blade bolts **B** on the discs regularly with the gauge **A** (in the spare parts package).



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

Also check regularly if the disc assemblies, blade bolt, special nut and disc are worn or loose. If this is the case, the parts must be tightened or replaced.



DANGER: It is very important to check the disc assemblies after:

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

Parts can be damaged and you MUST replace parts if you have the slightest doubt whether they have been damaged to secure against loss of rotating parts.

- Fig. 5-9 To obtain a satisfactory harvesting it is important that blades and shearbar are intact and sharp. Replacement of blades is made by dismounting the blade bolt and pull it out from beneath the disc. This is easily done when the blade is in the front position so that the bolt can fall out through the hole in the stone protector. Remove the old blade and mount the new one together with the blade bolt. The blades can be used on both sides by moving the blades from one disc to another with opposite direction of rotation.

CUTTER BAR AND DISCS

- Fig. 5-10 A cutter bar is used on which each hub **C** below the discs is easily replaced from above (Top Service cutter bar).

- Fig. 5-11 If discs have been dismounted they must be mounted again staggered 90° in relation to each other.

5. MAINTENANCE

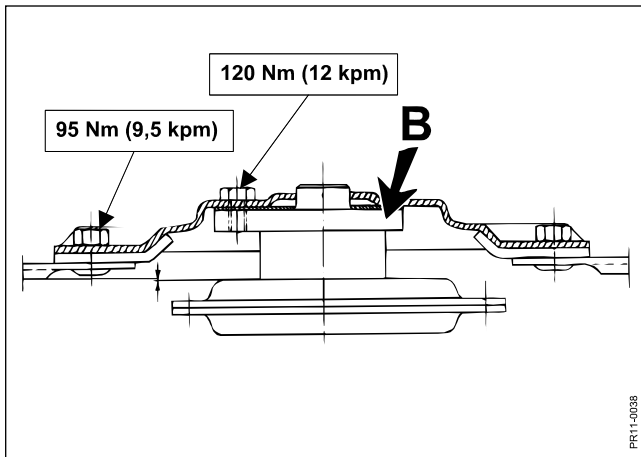


Fig. 5-12

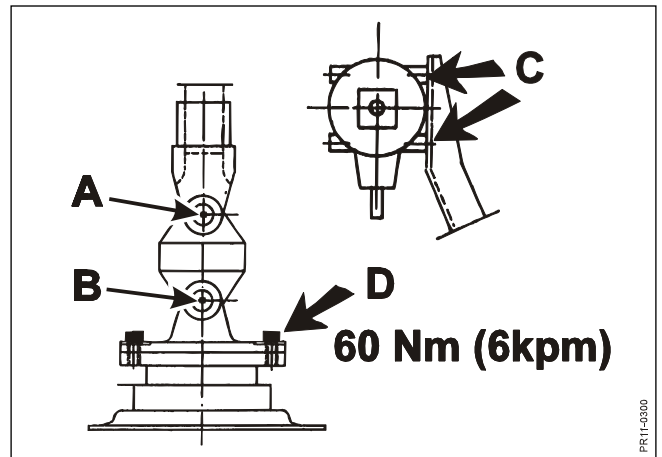


Fig. 5-13

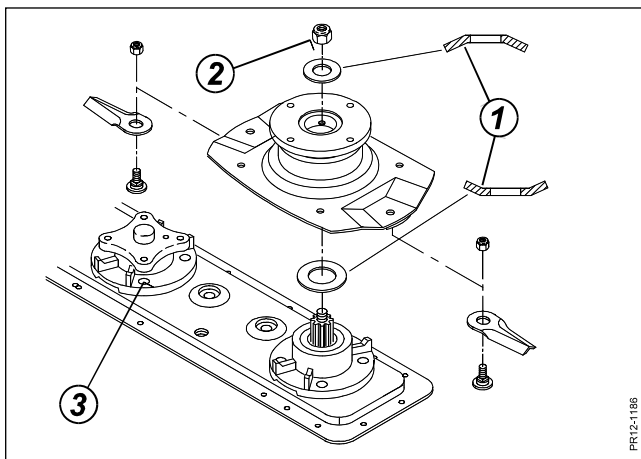


Fig. 5-14

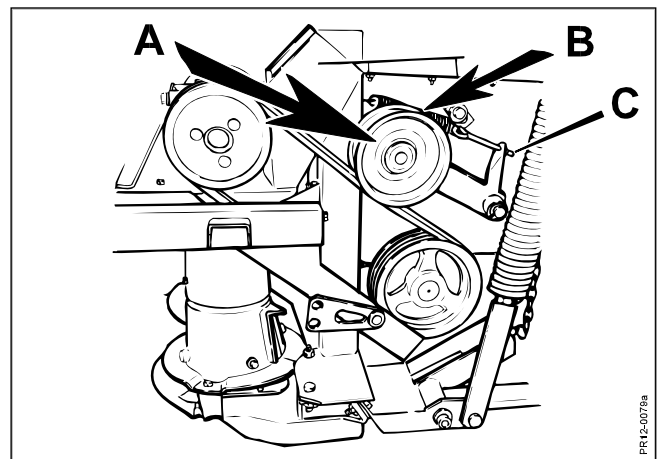


Fig. 5-15

5. MAINTENANCE

Fig. 5-12 Make sure that the bolts have been tightened as shown.

- Discs fastened with four bolts must be tightened to **120 Nm** (12 kpm).
- Blade bolts must be tightened to **95 Nm** (9.5 kpm).

The height of the disc can be adjusted by mounting fillers under the disc at **B**. This may be necessary when replacing the discs if the blades are not at the same height.



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

Fig. 5-13 The PTO drive shaft for the cutter bar has been greased for life. The PTO should run with minimum angle deviation, i.e. the measure difference at **A** and **B** should maximum be 6 mm (+/- 3).

The alignment is made at the gearbox above the shaft by moving the gearbox in the oblong holes or mount fillers between the gearbox and the frame at **C**.

The bolts **D** are tightened with **60 Nm** (6 Kpm) and must be locked with LocTite.

Fig. 5-14 The spring washer (**1**) above the input disc is placed as shown with the curved side upwards.

The nut (**2**) is tightened to **190 Nm** (19 Kpm).

The bolts (**3**) which hold the disc bearing housing to the bar are tightened to **85 Nm** (8.5 Kpm).



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

CONDITIONER

Check the conditioner rotor regularly. Replace defective or missing fingers to avoid waste of crop during operation.



IMPORTANT: If you fail to ensure that all fingers are mounted and intact, the conditioner rotor will be out of balance, which will for instance reduce the life of the bearings.

TIGHTENING OF V-BELTS

Fig. 5-15 The V-belts driving the conditioner rotor are tightened with the tension pulley **A**.

The tension pulley is tightened automatically by a spring **B**. The spring should be adjusted so that there is always at least 1-2 mm distance between the spring coils. Adjustment is made by means of a nut at **C**.

5. MAINTENANCE

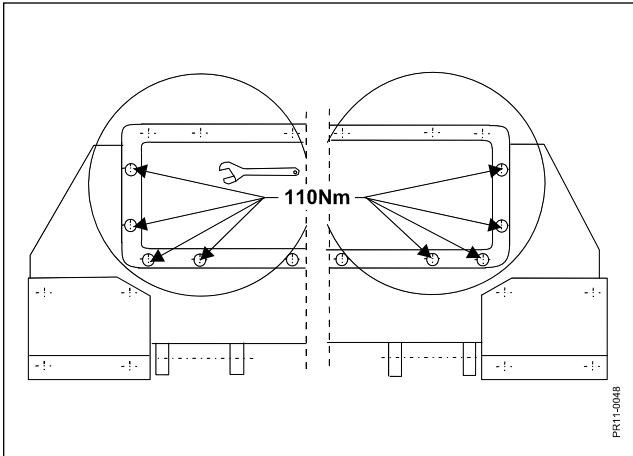


Fig. 5-16

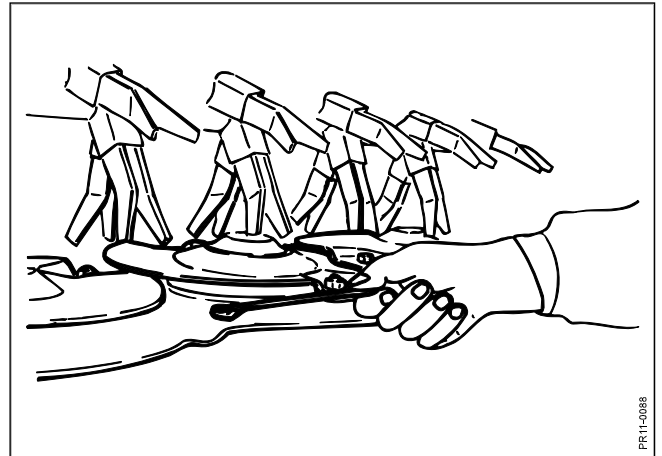


Fig. 5-17

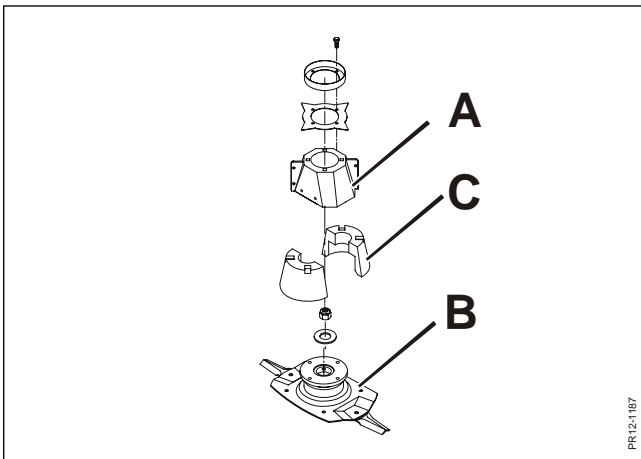


Fig. 5-18

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 rotate with approx. 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 rotating parts are intact. In the long run unbalance will cause fatigue fractures and serious damage.

Fig. 5-16 To avoid damage caused by vibrations the cutter bar must be tightened properly. Tighten the bolts at the cutter bar ends to **110 Nm** (11 Kpm).



WARNING: Bolts at the cutter bar ends **MUST** be checked regularly to ensure the cutter bar is always correctly fastened to the frame.

Fig. 5-17 The bolts at stone protections and shearbar must be checked at regular intervals.

Fig. 5-18 The flow intensifier **A** in the left-hand side, on the input disc **B** is filled with PUR foam blocks **C** to avoid accumulation of dirt which may lead to unbalance. It is important that the foam blocks **C** remain intact and are checked regularly.

TYRES

The machine is as standard equipped with wide tyres which provide extra large carrying capacity and thus a low ground pressure.

The tyre pressure for your disc mower is stated below:

GMS 3202 FL	
Tyre dimension	13,0/55-16 12 PR
Recommended tyre pressure	3.6 bar / 52.2 PSI
Minimum tyre pressure *)	1.6 bar / 23.2 PSI

Minimum tyre pressure can be used when driving in areas where extra large carrying capacity is required (meadows, sandy areas or the like).

***) IF A LOWER TYRE PRESSURE IS USED THAN RECOMMENDED THE LIFE OF THE TYRES WILL BE VERY MUCH REDUCED!**



CAUTION: At regular intervals you should check the tyre pressure and make sure that the wheel bolts have been tightened properly.

6. VARIOUS

DRIVING TIPS AND FAULT FINDING

PROBLEM	POSSIBLE CAUSE	REMEDY	SEE PAGE
Stubble uneven or bad cutting.	Wrong relief. Number of rpm on the tractor PTO too low. Blades are dull or missing. Discs, stone protectors and flow caps are deformed.	Relief springs must be checked and adjusted. Check number of rpm (PTO 1000 rpm) Replace blades. Replace deformed parts.	29-31 63 63-65
*) Stripes in stubble.	The angle of the cutter bar is not ideal for the crop in question. Guide shoe under the cutter bar adjusted to high stubble. Accumulation of material on the cutter bar. Earth and grass in the space in front of the cutter bar where the blades enter.	Change the inclination of the cutter bar. Normally the stubble height must be reduced, i.e. the angle of the cutter bar increased. Adjust the guide shoes to low stubble (there should be no stones in the field). Increase the driving speed. Mount special shearbars/replace worn shearbars. Mount only where the blades touch the cutter bar.	29 29
Uneven flow through the machine. The grass is not thrown up onto the collector or asymmetric double swath is not narrow enough.	Check if conditioner fingers are worn or missing. Distance between conditioner plate and rotor too big. Number of rpm on the tractor PTO too low. Conditioner rotor drives with too low speed.	Replace worn conditioner fingers. Turn fingers with the straight edge in the direction of rotation. Adjust the conditioner plate, in a hole, where the distance is medium 30 mm (or at least 10 mm). Increase the driving speed. Check number of rpm (PTO 1000 rpm) Check whether conditioner rotor has been adjusted to high speed.	33
The machine vibrates/uneven operation	Check if blades are damaged or missing. Defective PTO drive shaft. Defective flow intensifiers in the sides. Earth and grass in the flow cap above input disc.	Mount missing blades. Check that the PTO drive shafts are in order. Replace flow intensifiers. Clean flow cap.	61-63 55 67 67
Gearbox is over-heated	Wrong oil level or type.	Check oil level in gearbox	57
Cutter bar is over-heated	Wrong oil level or type.	Check oil level in cutter bar	55

*) Especially short, strong spring crops harvested under unfavourable conditions.

STORAGE (WINTER STORAGE)

When the season is over, the preparation for winter storage should be made immediately after. First, clean the machine thoroughly. 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.



IMPORTANT: Grease all grease 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 necessary parts you will need before the next season and order the spare parts.

Dismount the PTO drive shafts, lubricate the profile tubes and keep them in a dry place.

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

Change the oil in the hydraulic system, the cutter bar and the gearboxes.

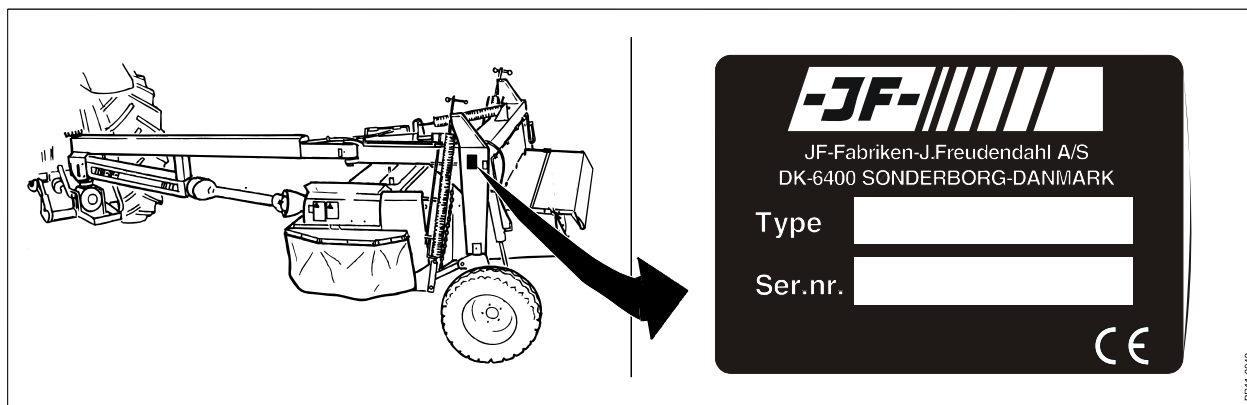
Store the machine in a ventilated engine house.

Lay up the machine to unload the tyres.

SPARE PARTS ORDER

When ordering spare parts please state machine type and serial number.

This information is printed on the machine plate. 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.



MACHINE 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.
- * Gearboxes, cylinders, hoses and cutter bar must be emptied of oil. These oils must be handed over to a destruction company.
- * Disassemble the machine and separate the individual parts, e.g. PTO drive shafts, tyres, hydraulic components etc.
- * 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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We also receive important inspiration in our development work through a close and continuous dialogue with customers, dealers and agricultural researchers.

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