JF-STOLL

Disc Mower

GMS 3202 TS

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 :

GMS 3202 TS

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.

CONTENTS

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

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

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

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

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

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 transport safety device of the cutting unit and the stop valves of the hydraulic cylinders 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.

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.

Choose a tractor with a suitable power on the PTO. If the power of the tractor is considerably larger than the usual requirement of the machine, the machine should be secured against overload with a suitable clutch on the PTO.

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.

CONNECTION AND DISCONNECTION

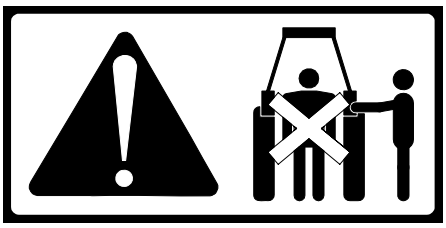


Fig. 1-1

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)

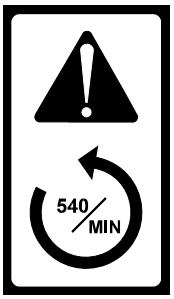


Fig. 1-2

Check that the machine is intended for the number and the direction of rotation of the tractor PTO. (see figure 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 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.

Fig. 1-3

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)

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.

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.

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 and the cutting angle to minimum.

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 working on hillsides.

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 sidewards. 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.

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.

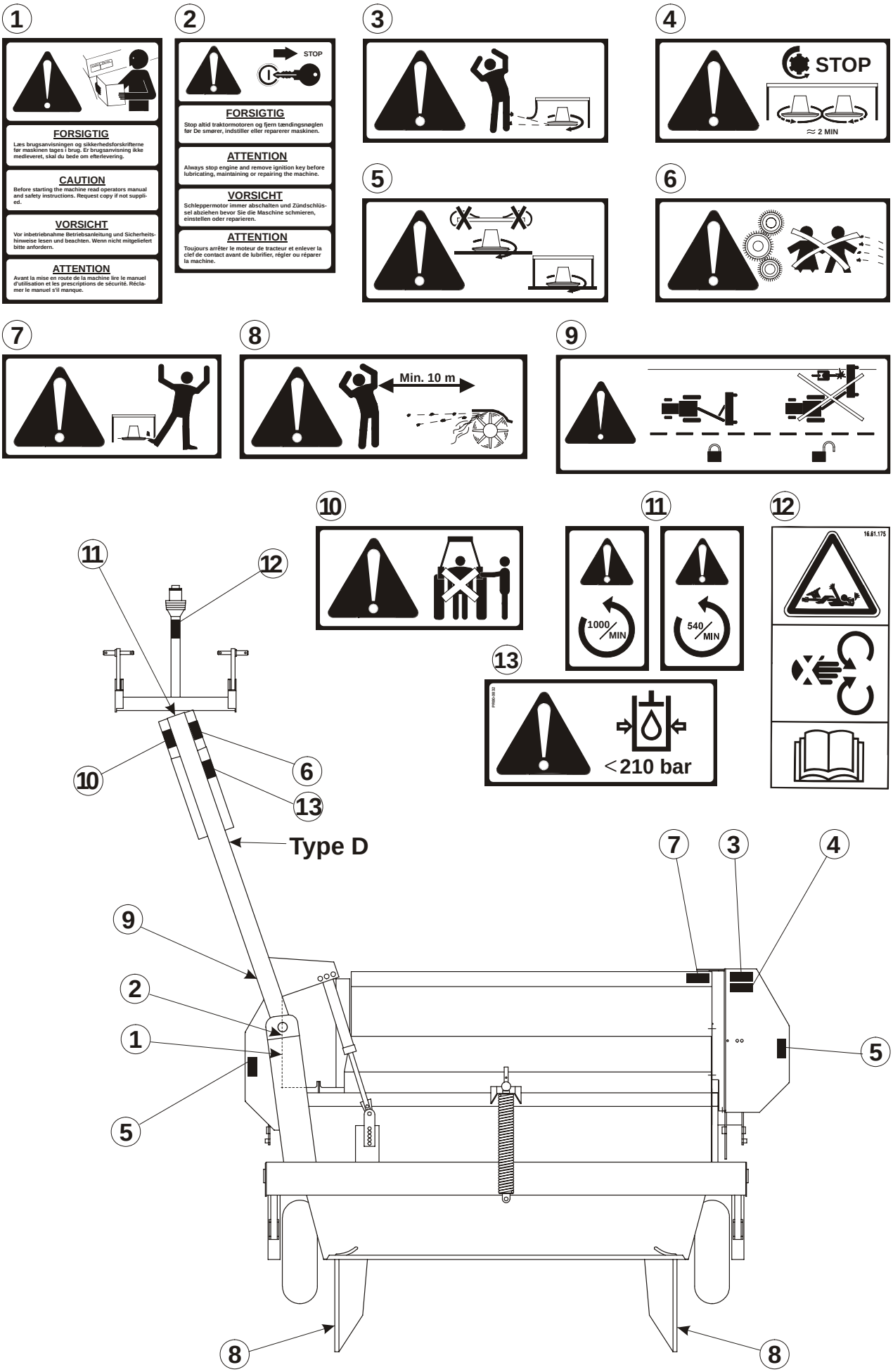
If the vibrations or the noise of the machine increase considerably during the operation, stop working immediately. Do not continue the work until the fault has been corrected.

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
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.
3
4
STOP
≈ 2 MIN
5
6
7
8
Min. 10 m
9
10
11
1000/MIN
540/MIN
12
16.61.175
13
<210 bar
Type D

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 Risk of stones being thrown.
Almost the same meaning as decal No. 5. Even though all canvases and guards are in the right place, there is still a risk of stones etc. being thrown out. Therefore, nobody should be allowed to stand near the machine during operation.

4 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.

5 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.

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.

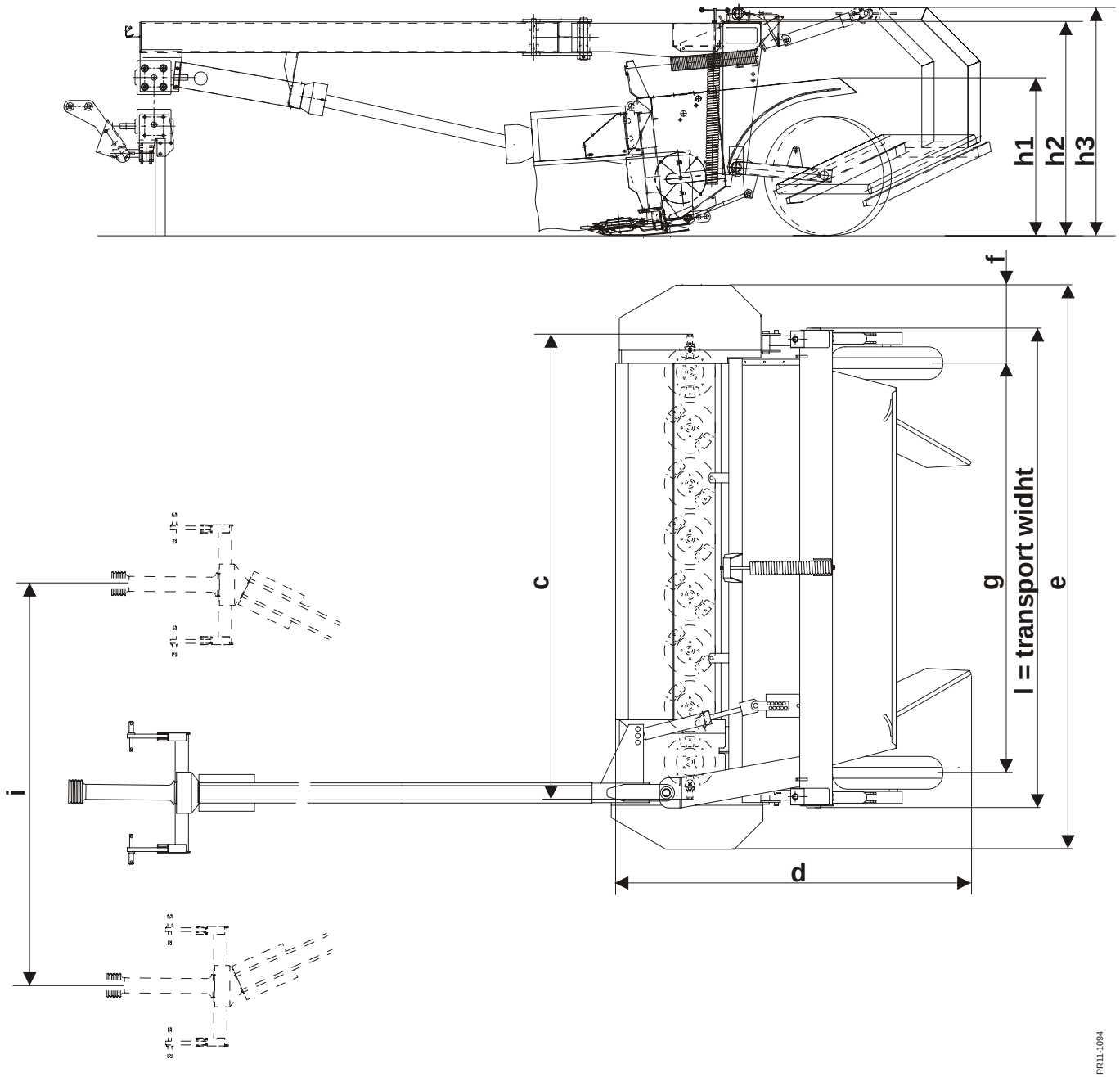
9 Remember the transport lock.
Always remember to activate the transport lock before transporting the machine on public road. Errors in the hydraulic system and unintended manoeuvres may cause the machine to move to working position during transport which may result in serious machine damage or personal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



	GMS 3202 TS
c	3150
d	2180
e	3800
f	590
g	2570
h1	1020
h2	1385
h3	1475
i, maximum	2975
l	3180

- All dimensions are in mm and are approximate values.
- The i, maximum value is obtained by moving the position of the swivel cylinder in the holes on the wheel frame and drawbar as described in the section “Adjustment of the swing of the drawbar” in chapter 3 “ADJUSTMENTS AND DRIVING”.

TECHNICAL DATA

Type			**GMS 3202 TS**
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 double-acting + 2 single-acting (1 single-acting for Collector)
Drawbar			Heavy Duty, with swivel gearbox
Number of discs			8
Disc system			Round HD discs
Blades, number and type			16 profile
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 (option)
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			2,020 kg
Weight with Collector			2,340 kg
Weight transferred to tractor			approx. 600 kg
Noise level in the tractor cabin	Machine connected	Window closed	76.5 dB (A)
		Window open	92 dB (A)

Technical data for the conveyor belt unit Collector: See chapter 4 "COLLECTOR".

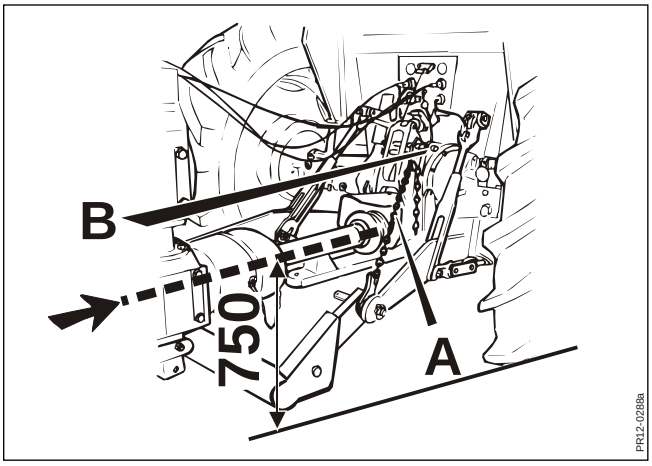


Fig. 2-1

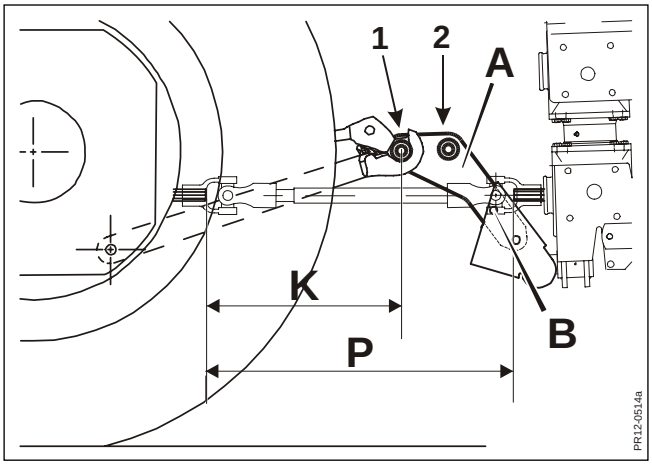


Fig. 2-2

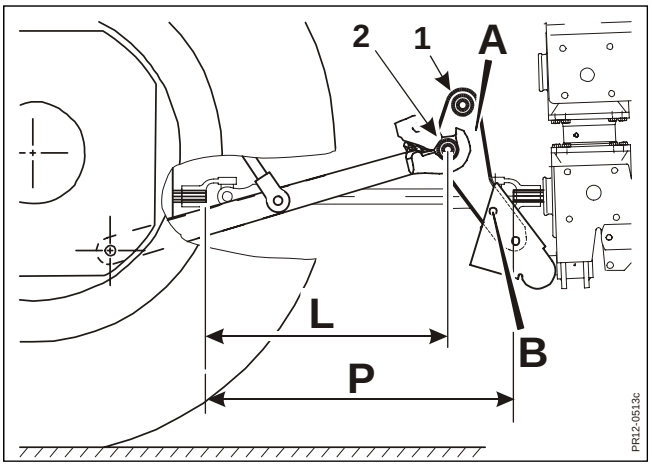


Fig. 2-3

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 for category III.
The machine is delivered with a so called D-drawbar. This drawbar has a swivel gearbox up front so that you are not dependent on the angle of the transmission between the tractor and the 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 power take-off (PTO) and the input shaft of the machine (PIC) are 750 mm above the ground.

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 <u>not</u> 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
Fig. 2-3 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.

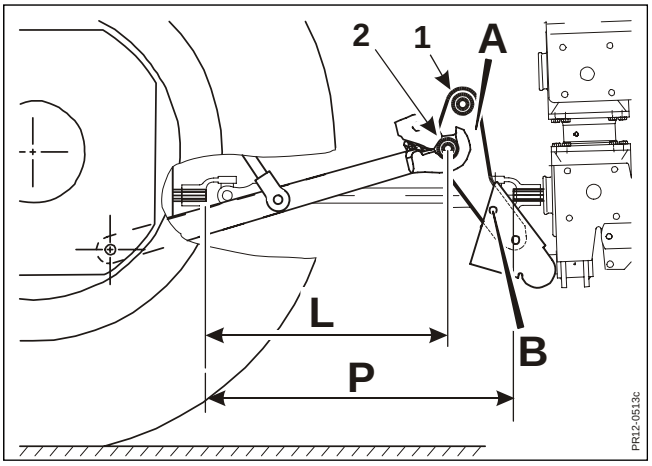


Fig. 2-3

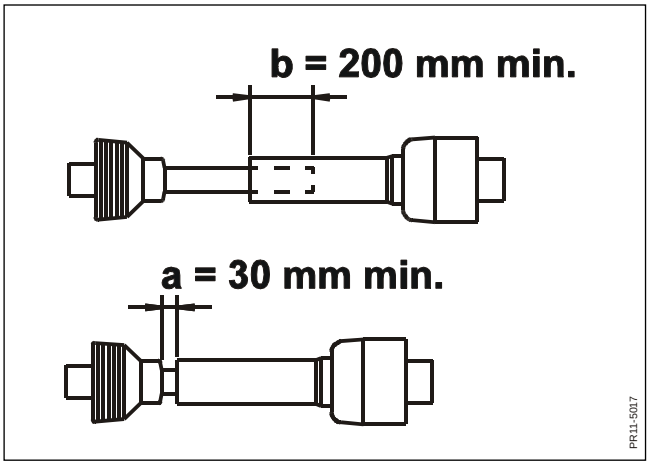


Fig. 2-4

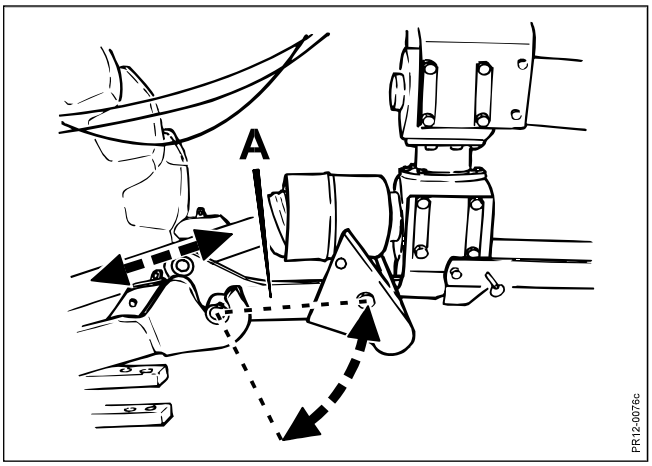


Fig. 2-5

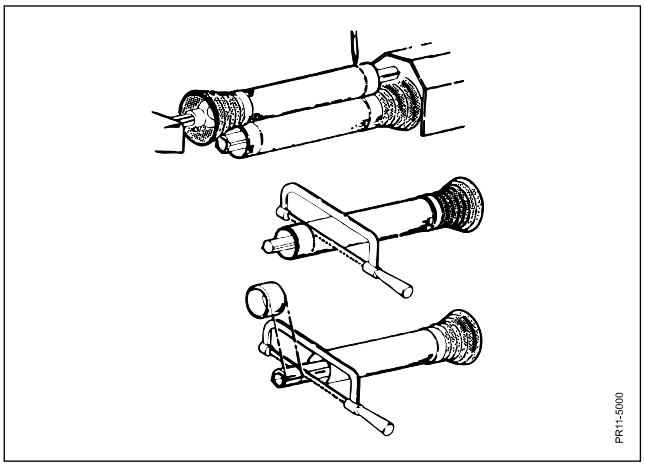


Fig. 2-6

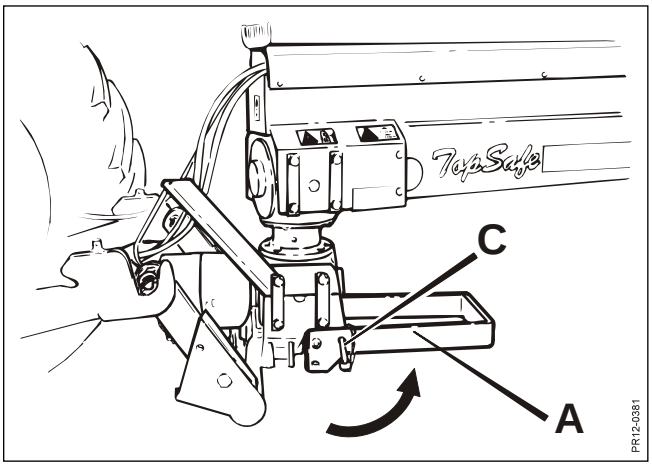


Fig. 2-7

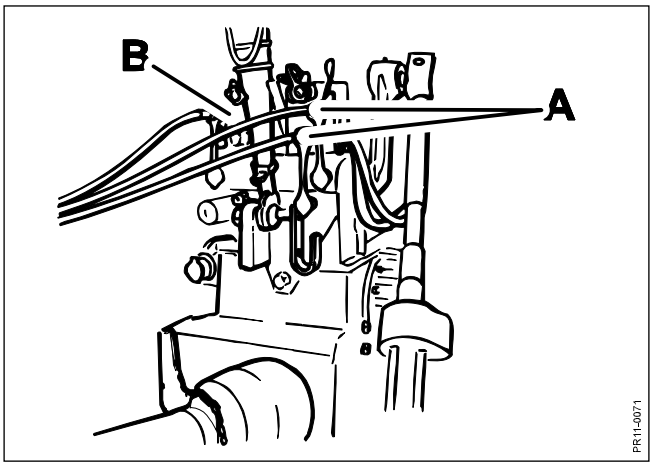


Fig. 2-8

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

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**.
The pin solution ensures that the jack is safely locked and removes the risk that the jack is released unintentionally.

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

OVERRUN CLUTCH

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 pressure than 210 bar as a higher pressure may cause parts to be damaged. Hereby a serious risk of personal injury occurs.**

CHECK BEFORE USE

When the machine has been connected to the tractor you ought to do as follows 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).

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/distributor 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!

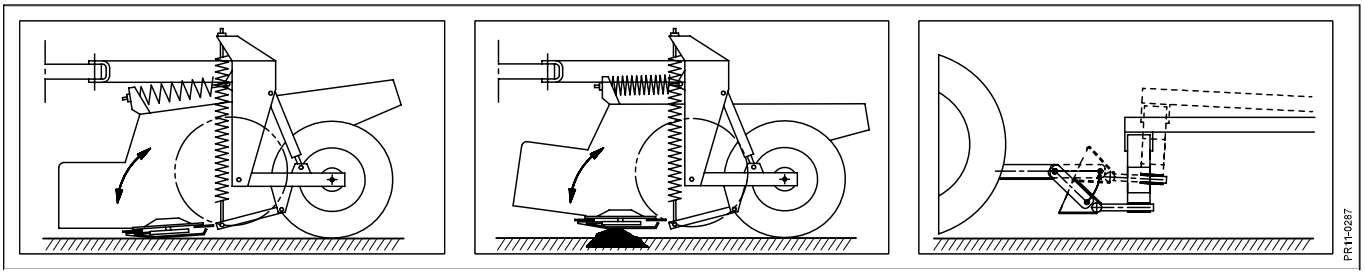


Fig. 3-1

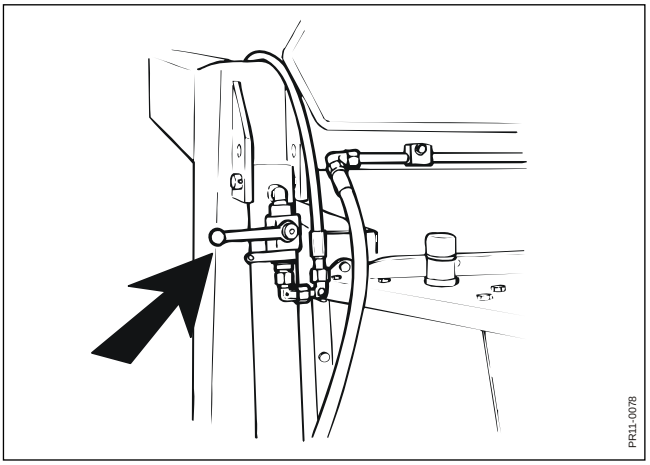


Fig. 3-2

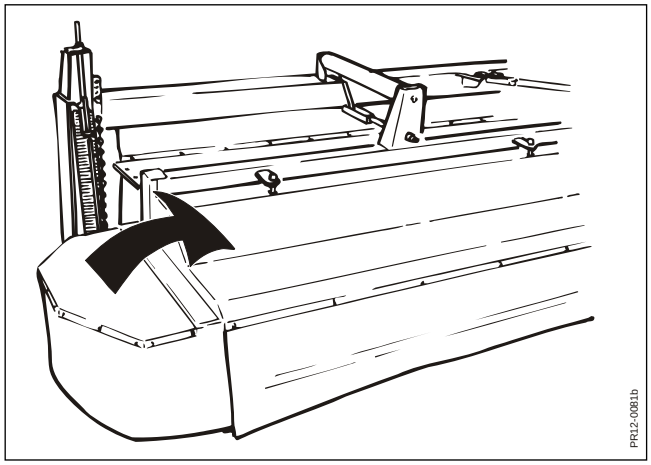


Fig. 3-3

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, centrally 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.

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.

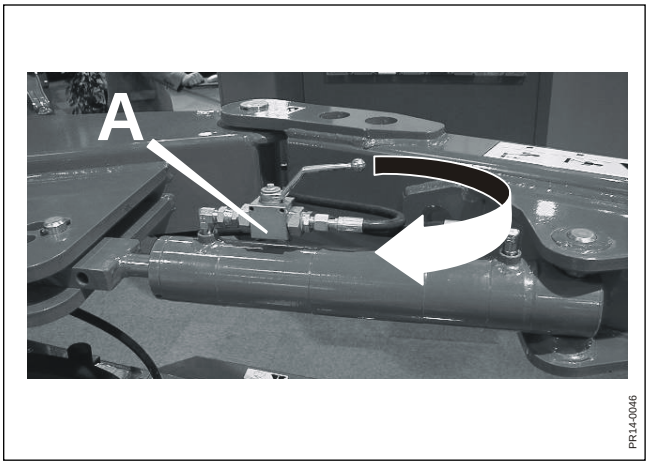


Fig. 3-4

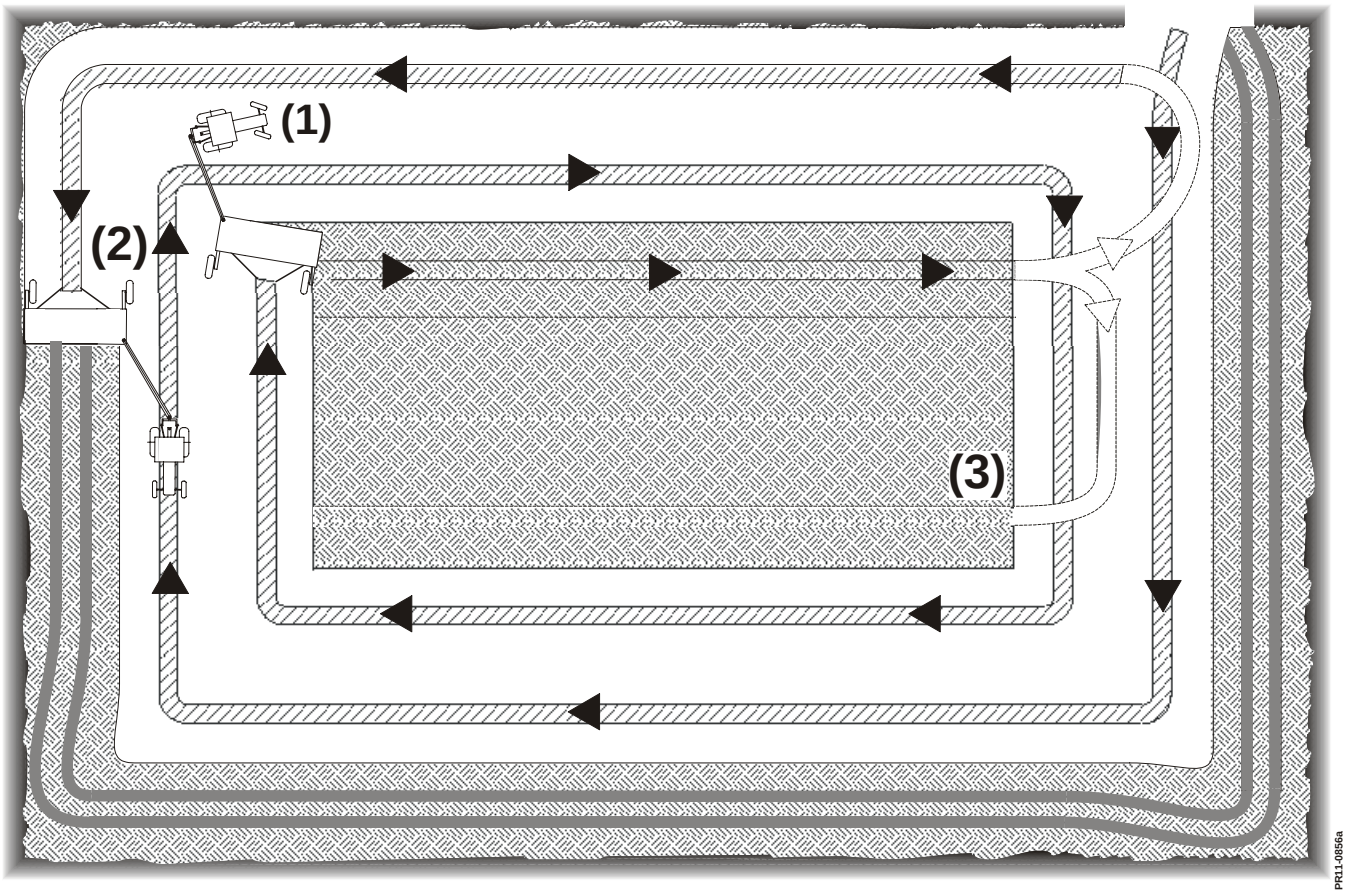


Fig. 3-5

Fig. 3-4 When the machine has been put into transport position behind the tractor, the ball valve **A** at the cylinder for the drawbar must be closed. Move the handle on the ball valve in direction of the arrow in order to turn off the oil supply. The valve is closed when the lever is across the cylinder.
The tap must be turned off to secure against leaking hoses or unintended use of the hydraulic handles during transport to prevent the machine from swinging into working position and thus increase the transport width.

WORKING IN THE FIELD

Fig. 3-5 Place the machine in working position. In this position drive clock-wise for some rounds **(1)** so that there is space to turn at the ends of the field. The preparation of the headland is ended by mowing the outermost round, driving counter clock-wise **(2)**.
Then the field is ready to be harvested in one piece, or divided into sections, as required **(3)**. The speed varies from 6-19 km/h depending on the crop and the working conditions.

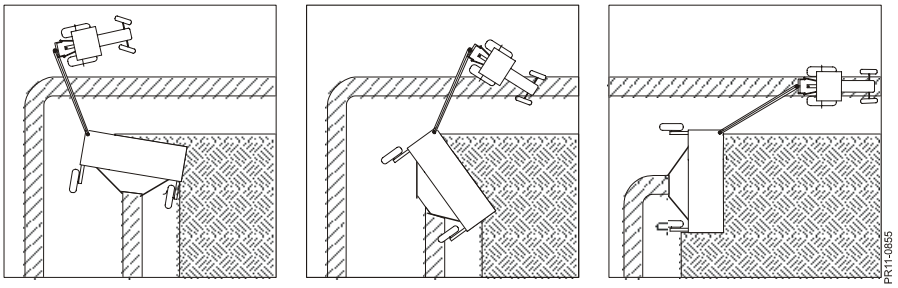


Fig. 3-6

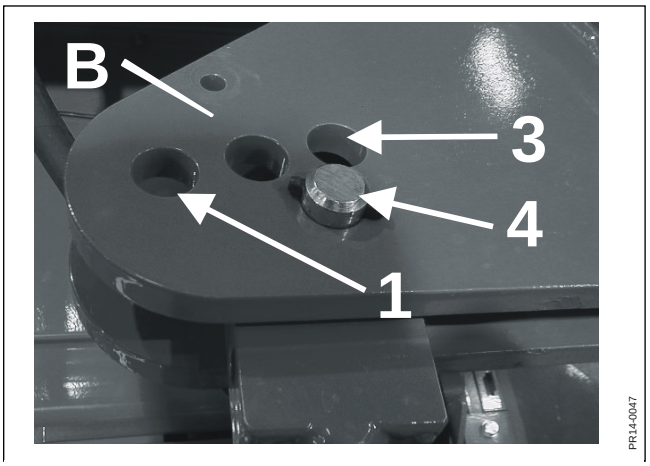


Fig. 3-7

Fig. 3-6 The swivel gearbox allows a turn of 90° to both sides without vibrations in the transmission. Turning in the corners of the field is reduced from the usual approx. 12 sec. to only approx. 3 sec. because the machine practically turns around its own centre line.

Connect the power take-off 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.

ADJUSTMENT OF THE SWING OF THE DRAWBAR

Fig. 3-7 The swing of the drawbar is determined by the swing cylinder **A**. When the cylinder is compressed, the machine will always be in transport position centred right behind the tractor.
The swing of the drawbar in working position can be adjusted to the track width of your tractor. The cylinder **A** can be placed in 3 holes on the bracket **B**. The position determines the swing of the drawbar, and the hole **(1)** gives a minimum swing, based on tractors with a small track width, and the hole **(3)** gives a maximum swing, based on tractors with a large track width.
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.

NOTE: The figure shows the cylinder mounted in the hole **(4)** which is only used when asymmetric equipment is fitted. The equipment is available as option and is further described in the section “ASYMMETRIC EQUIPMENT" at the end of this chapter.

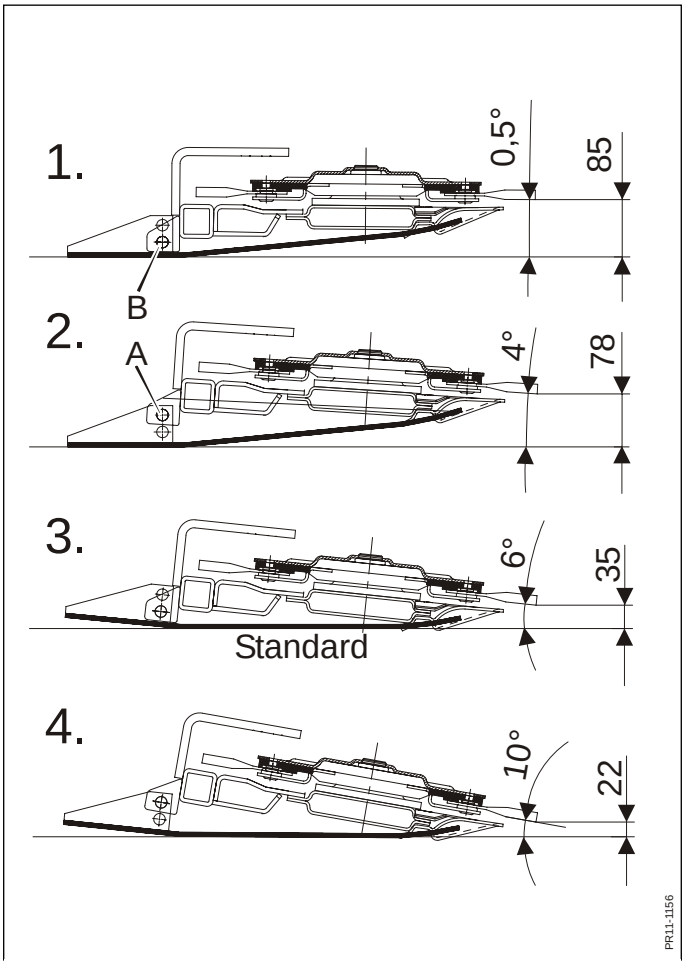


Fig. 3-8

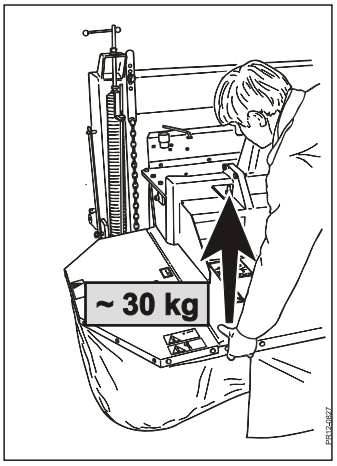


Fig. 3-11

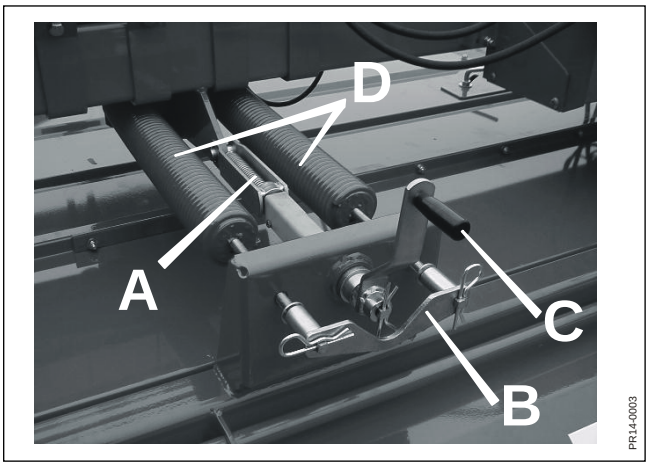


Fig. 3-9

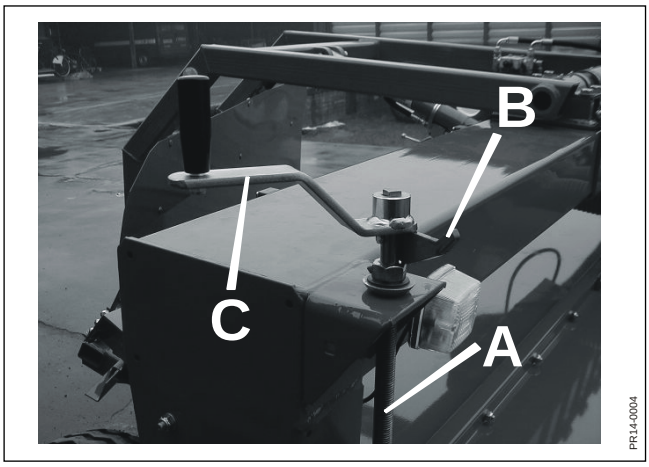


Fig. 3-10

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) The machine is swivelled into **working 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. 3-8 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. 3-9 When the correct position of the guide shoes has been chosen, the fine adjustment of the stubble height can be made by central adjustment of the inclination of the cutter bar at the spindle **A**. This is done by removing the lock **B** and turning with the handle **C**. After adjustment the lock **B** is mounted as it secures the adjustment. When the front board is folded up you can easily see how the angle of the cutter bar and the stubble height are changed.

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

Fig. 3-10 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. 3-11 Tighten/loosen the springs until the weight on the ground is approximately **25-30 kg** in each side.

Note: The vertical springs are NOT tightened equally on each side.

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

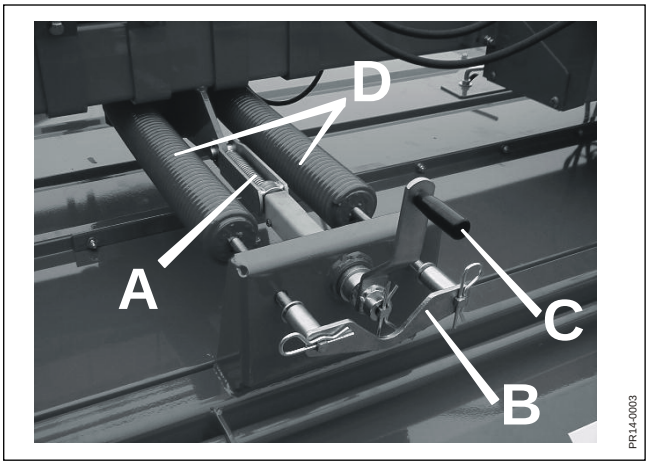


Fig. 3-12

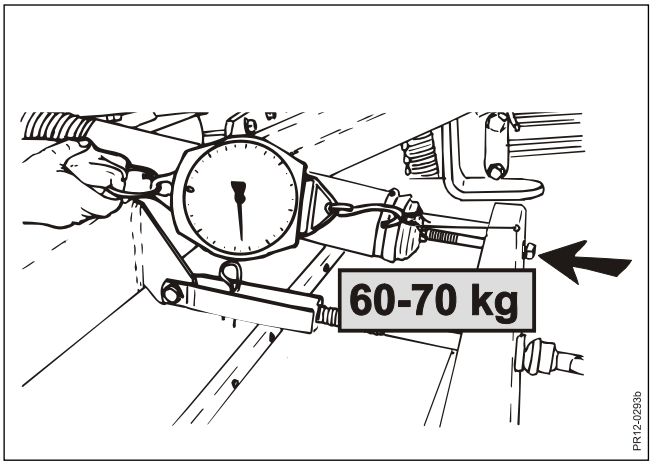


Fig. 3-13

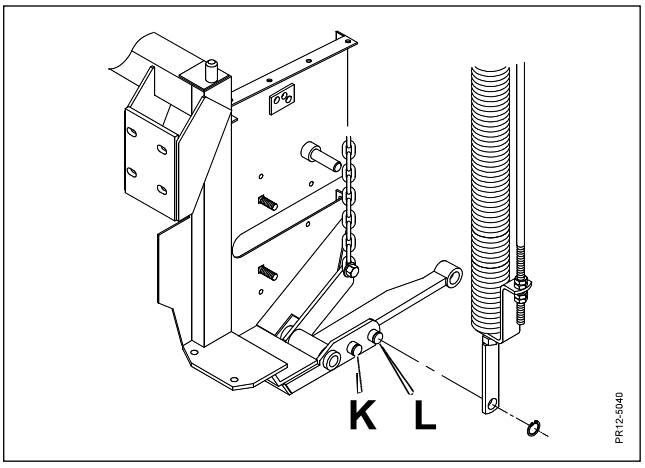


Fig. 3-14

Fig. 3-12 Adjust the horizontal Top Safe springs by releasing the lock **B** and turning with the handle **C** on the 2 springs **D**.

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

Fig. 3-13 Tighten/loosen the springs until the weight in direction of the arrow is approximately **60 -70 kg**

Note: **In practice the 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.**

After adjustment the lock **B** is mounted as it secures the adjustment.

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 the above item 3).

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 individual needs and situation.**
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. 3-14 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.

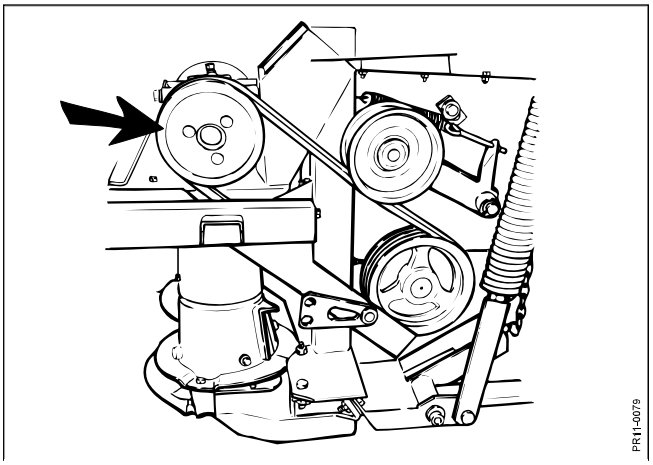


Fig. 3-15

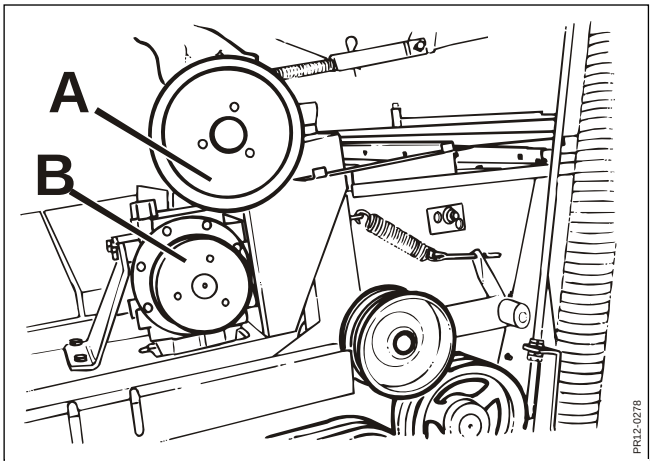


Fig. 3-16

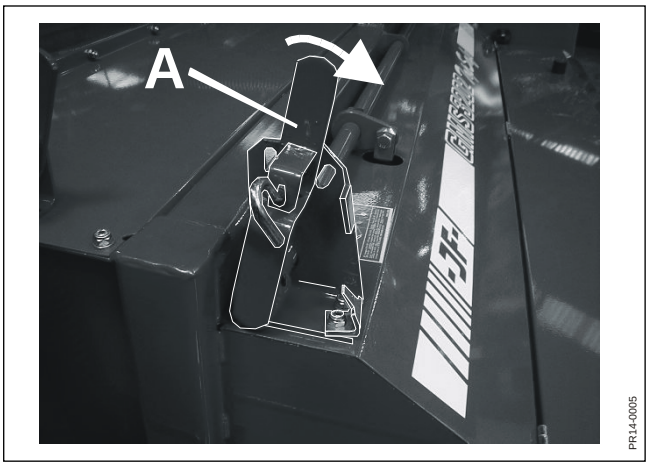


Fig. 3-17

THE CONDITIONER

The conditioner rotor has 2 speeds: 640 - 1000 RPM

Fig. 3-15 From the factory the gearbox above the cutter bar is equipped with a pulley for a conditioner speed of 900 rpm.

Fig. 3-16 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. 3-17 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.

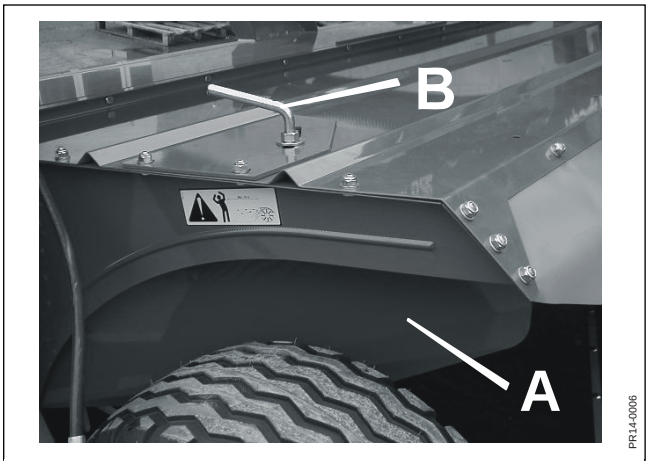


Fig. 3-18

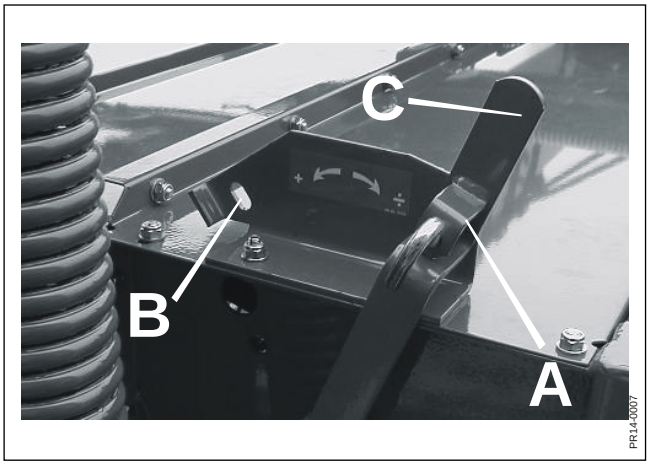


Fig. 3-19

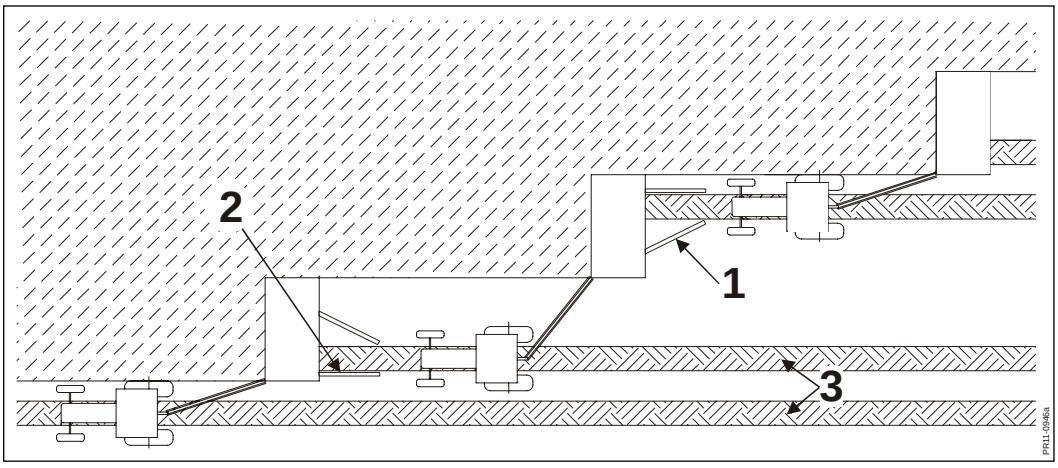


Fig. 3-20

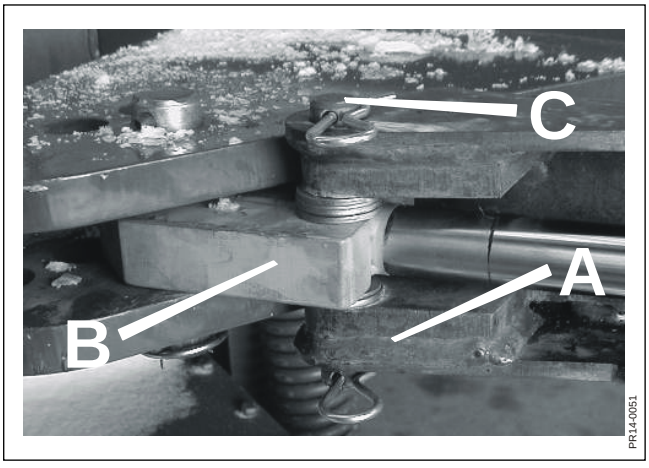


Fig. 3-20a

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. 3-18 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. 3-19 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.

Fig. 3-20 The equipment makes it possible to place two swaths asymmetrical with a distance so that, in most cases, a 3 m pick-up can pick up the double swath.
The equipment consists of swath guard extension, hydraulic equipment for moving the swath guards, and a mechanical stop which is mounted on the swivel cylinder on the drawbar.
First, the swath guards are swivelled to the right (**1**) and then to the left (**2**). In this way the asymmetric double swath (**3**) is created.

MOUNTING

The equipment is mounted according to the supplied instruction drawing.

WARNING: **When mounting the stop A for the cylinder, it is important that the piston rod B is placed correctly, i.e. the hole for the pin C turns AWAY from the drawbar.**
It is also important to mount 4 discs C between the stop A and the piston rod B so that the stop is at the correct height.

Fig.3-20a

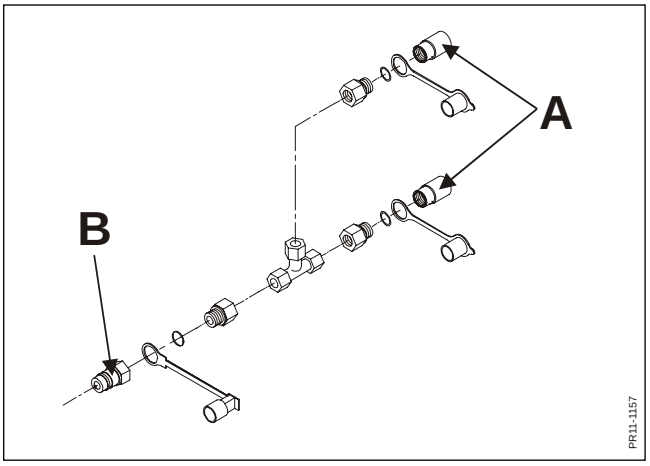


Fig. 3-21

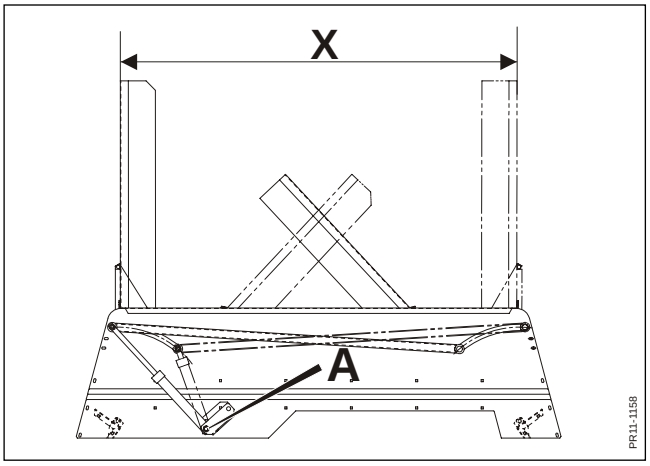


Fig. 3-22

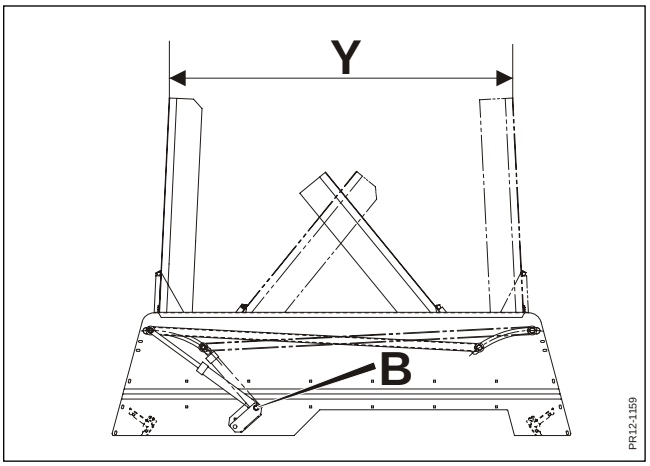


Fig. 3-23

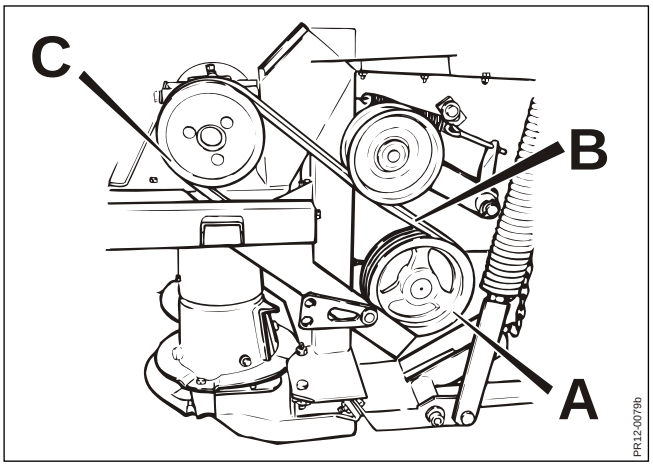


Fig. 3-24

CAUTION: **It is important that the nylon discs are placed between the connecting rod and the upper plate and to check whether the guards are easily moved before mounting the hydraulics.**
A throttle has been mounted in the cylinder for the swath guards to reduce the speed of movements. However, it may be necessary to reduce the oil flow from the tractor to obtain a suitable movement of the guards.

ADJUSTMENTS AND DRIVING

Fig 3-21 It is possible to connect the cylinder for the swath guards with the swivel cylinder on the drawbar. This is done by means of the 2 supplied “2 to 1 connections” where quick connections from the two cylinders are connected at **A** and the single quick connection **B** is mounted in a double-acting outlet on the tractor.
Thereby the drawbar is swivelled simultaneously with the swath guards.

Fig. 3-22 The cylinder for the swath guards can be mounted in 2 positions on the machine.
Fig. 3-23 Pos. **A** is standard position where the swath guards are moved in full and the distance **x** between the guards is at a maximum.
The cylinder can be moved to pos. **B** which results in a reduced movement of the swath guards and the distance **Y** between the guards is minimised. In this position you obtain a narrower asymmetric double swath where the two single swaths are also narrower.

WARNING: **When working in heavy and wet crop, the standard position is preferable as the angle of the swath guards as shown in fig. 3-23 may prevent an unproblematic flow of the crop.**

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. 3-24 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 dismounted so that you drive with the little pulley and the reduced speed of the conditioner rotor of **510 rpm** is obtained.

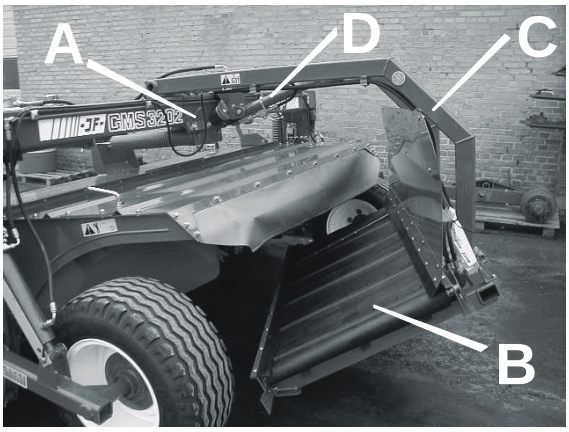


Fig. 4-1

4. COLLECTOR

INTRODUCTION

The Collector unit is optional equipment which is delivered from JF-Fabriken. It is a unit which can be mounted on a standard machine and is intended for double swathing which means that 2 swaths are put together.

This section in the instruction manual deals with the Collector unit only, i.e. everything concerning this unit is only described here. The rest of the instruction manual only deals with the standard machine.

Fig. 4-1 The unit consists of a suspension **A** which is attached to the wheel frame on the standard machine with bolts, a belt unit **B** which is suspended in a frame **C** behind the machine, and a closed hydraulic system which is operated from the standard machine (a pump is mounted on the gearbox).
Double swathing means that the crop is thrown from the machine onto a rubber belt which runs across the direction of travel and throws the crop to the left of the machine. Thereby the crop can be placed just beside a previously laid swath.

Normal swathing:

Fig. 4-1 If you wish to work normally with the machine when Collector is mounted it can be lifted to an inactive position with a hydraulic cylinder **D**. The unit is not driven in this position and the machine can lay normal single swaths.

Double swathing:
When you wish to put 2 swaths together, Collector is lifted every second time to place a normal swath and folded down in active position every second time in order to place the second swath just beside the first swath.
As described, the position of the Collector is determined by a hydraulic cylinder which is operated from the tractor with a single-acting hydraulic outlet.

TECHNICAL DATA

Type	**Collector**
Net weight	approx. 320 kg
Drive of the unit	Gear on the standard machine
Oil outlet	1 Single-acting
Pump displacement	20.8 cm^3 /revolution
Engine displacement	12.9 cm^3 /revolution
Belt speed	Continuously variable
Electric remote control of belt speed	Option
Shock absorber	Rubber buffers (Standard)
Double swath width, minimum	1.4 – 2.0 (depending on the conditions)

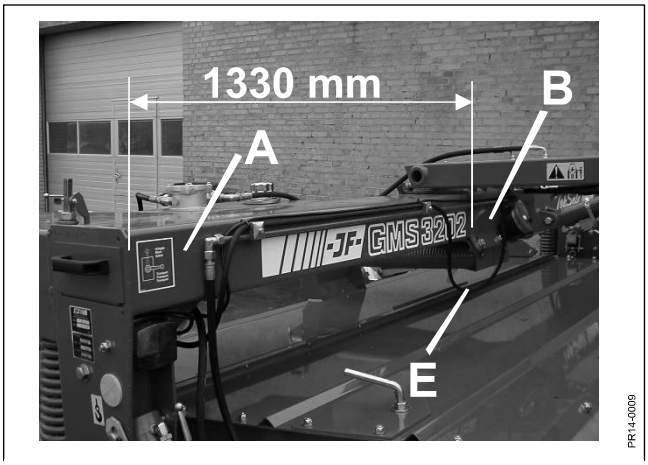


Fig. 4-2

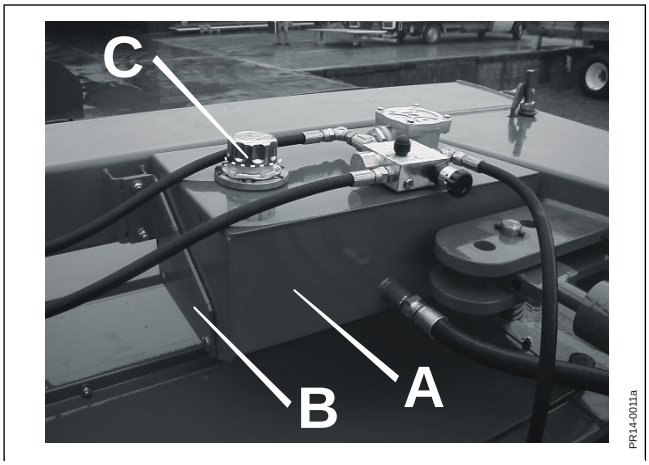


Fig. 4-3

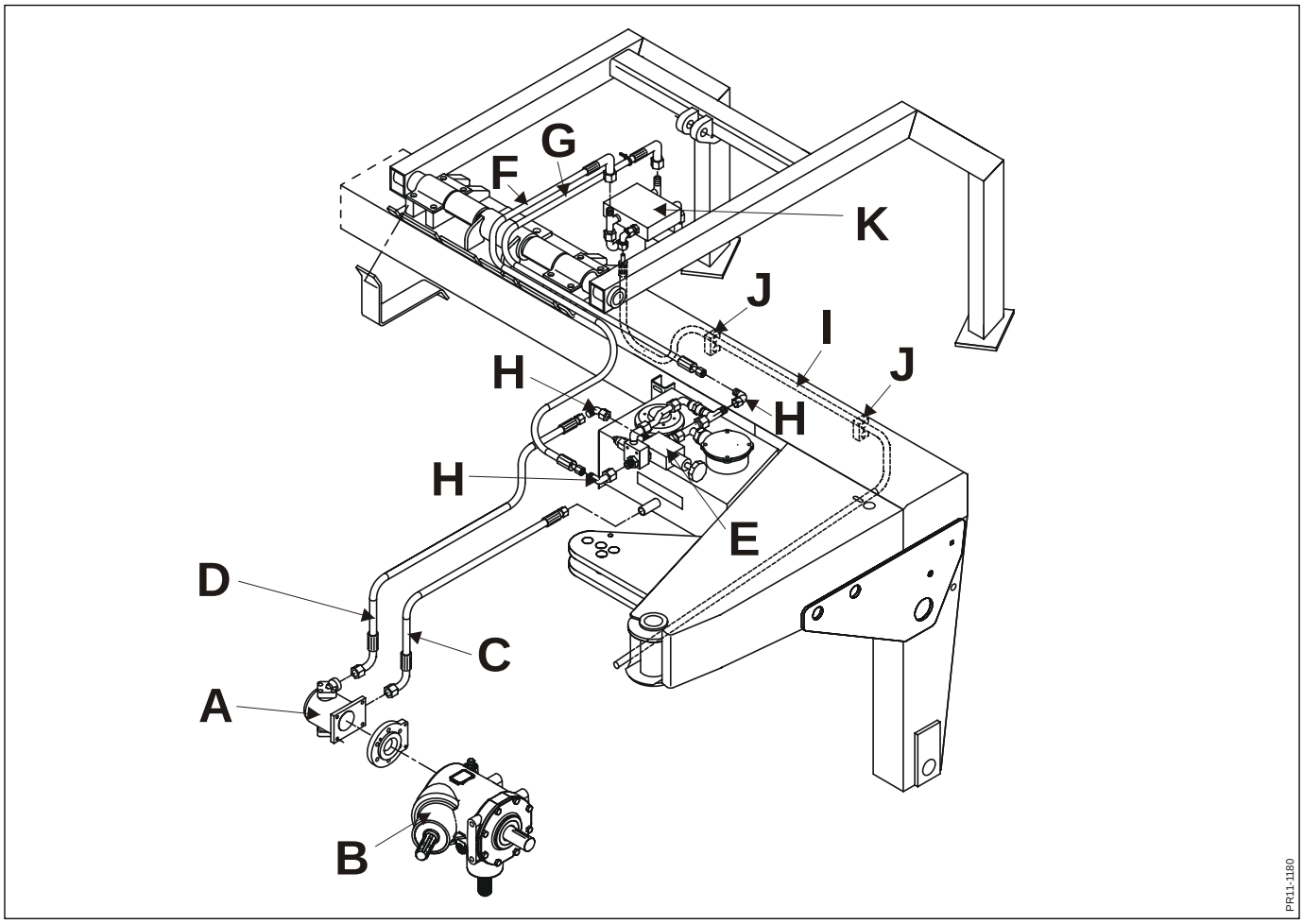


Fig. 4-4

MOUNTING

Fig. 4-2 The Collector is mounted on the wheel frame **A** on the standard machine by tightening the support brackets **B** around the cross tube.
The support brackets must be placed **1330 mm** from the left edge of the wheel frame, as shown on the figure.

HYDRAULICS

Fig. 4-3 The oil tank **A** is mounted on the wheel frame against the drawbar in the bolted bracket **B**.

Fig. 4-4 The hydraulic pump **A** is mounted on the centre gearbox **B** on the machine in the direction shown.
The suction hose **C** (3/4" and 1000 mm long) is mounted on the pump and on the side of the tank with the bend at the pump.
The pressure hose **D** (3/8" and 1100 mm long) is mounted on the pump **A** and on the adjusting valve **E**, with the bend at the pump. An angle **H** is used for mounting on the valve **E**.
The hoses **F** and **G** (3/8" and 1300 mm long) are assembled with angles **H** at the ends without bends and mounted on the tank at the places indicated. The ends with bends are mounted on the valve **K** on the frame for the Collector.

IMPORTANT: **The hydraulic hose G with red strips must be mounted at the same side of the valve as the mounted hose with strips to ensure the motor has the correct direction of rotation.**

The hose **I** from the cylinder for lift of the Collector is, together with hoses on the machine, lead through the drawbar and connected to a single-acting hydraulic outlet on the tractor. The hose is mounted at the rear of the wheel frame in the holders **J**.

Fig. 4-2 Remember that there has to be a "loop" **E** on the hose to allow movements of the Collector-frame.

Fig. 4-3 When the hydraulic system is assembled the oil must be added at filling filter **C**.

WARNING: **The oil is not added from the factory as the Collector unit is dispatched separately and the hydraulic system is therefore separated.**
Therefore, REMEMBER to add oil of the type mentioned below before making a test drive.

Oil type: Hydraulic oil which complies with DIN 51524(2) H-LP
(Shell Tellus T46 or a corresponding type)

Oil content: 20 litres (fill at filling filter **C**).

Concerning maintenance of the hydraulic system see later in this chapter in the section "MAINTENANCE".

TEST DRIVING

When all components have been mounted correctly and the machine has been connected to the tractor, the machine must be tested according to the following procedure:

1) Start the tractor and lift the Collector to inactive position.

CAUTION: Make sure that no hydraulic hoses can get jammed and that the Collector is lifted in a smooth sliding movement without resistance.

2) Connect the power take-off at a low number of rpm. Thereby the pump starts working and the hydraulic system is filled up.

3) Lower the Collector to active position whereby a valve makes sure that the conveyor belt starts rotating.

4) Let the machine run at a low number of rpm. Check if the conveyor belt rotates without any particular noise and that the Collector does not have unusual vibrations.

WARNING: Keep a safe distance from the machine and the rotating parts, pay special attention to the fact that the machine and thereby the cutter bar and the conditioner rotor are rotating.

5) When the machine has been running for a couple of minutes and the oil in the internal system is warm, the number of rpm can be increased to 1000 rpm on the PTO.

CAUTION: Be aware of any unusual noise or vibrations from the machine and the Collector.

6) Lower the number of rpm, disconnect the power take-off and the test drive is finished.

IMPORTANT: If, during test driving, you experience errors or deviations which you cannot solve, contact your JF Dealer/Distributor or the Service Department at JF-Fabriken A/S.

The left roller is spring-loaded, which ensures:

1. correct tensioning of the lower belt edge
2. the seam can pass the rollers.

You can hear when the seam passes the rollers, which is intentional.
The sprung roller also makes it possible to reverse the belt, if necessary.

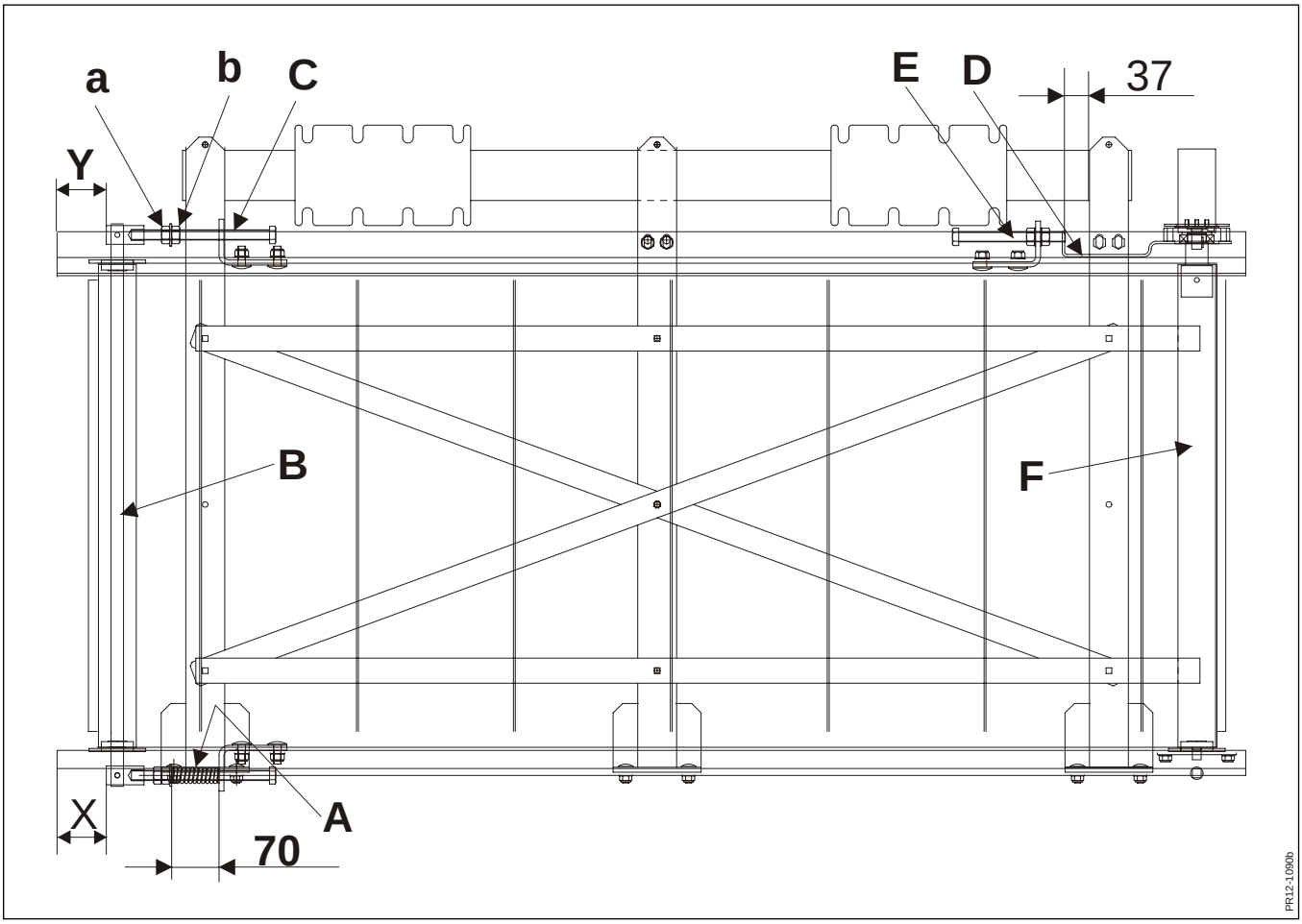


Fig. 4-5

ADJUSTMENTS

CORRECT TIGHTENING OF CONVEYOR BELT

Immediately after test-driving the machine with Collector or replacing parts in the conveyor belt section, check and if necessary adjust the tension of the conveyor belt so that it runs correctly on the rollers.

Fig. 4-5 Adjustment of the conveyor belt is carried out as follows:

Guideline:

1) The spring **A** must be 70 mm long (measured between the washers).

2) With the bolt **C** the roller **B** must be adjusted so that the distance **Y** (from the rod to the edge of the back plate) is 4-5 mm longer than **X** (from the rod to the edge of the front plate).

3) With the bolt **E** the motor bracket **D** must be adjusted so that its folded edge measures 37 mm to the frame.

4) Remove all tools and start the machine at idle speed.

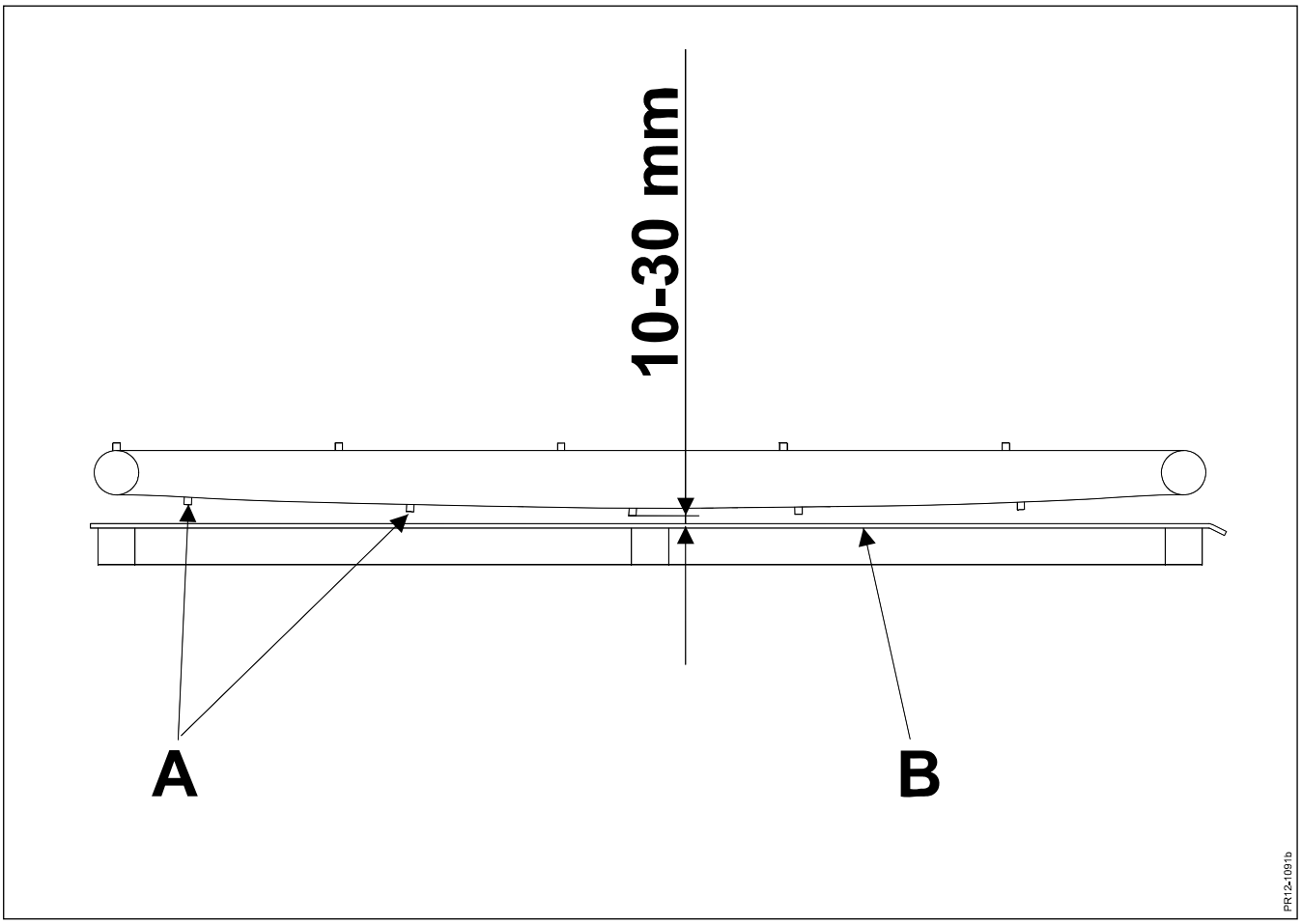


Fig. 4-6

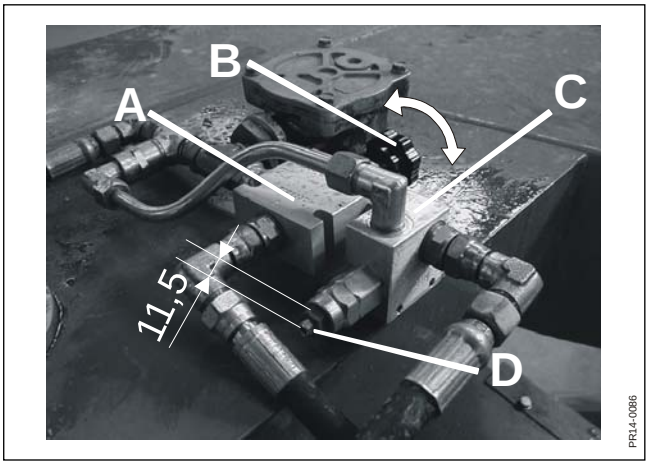


Fig. 4-7

WARNING: **Pay special attention when the conveyor belt runs and do not get too close to rotating parts.**

5) Let the belt run for minimum 30 sec. and check that the belt runs at the top of the rollers without wearing the back plate. The belt must run at the top of the rollers as the crop will press the belt downwards on the rollers during work.

Adjustment:

IMPORTANT: **Only adjust one place and only 1-2 mm at a time, wait minimum 20-30 sec. to see the effect before making further adjustments.**

6) If the belt runs hard against the slide bars **B** at the lower side of the frame the spring **A** can be tightened to 64-65 mm. After this item 2) MUST be performed.

7) At the idler roller **B**:
- If the belt runs against the front plate ⇒ Loosen the bolt **C** with the nut **a** (remember the counter nut **b**), and adjust the roller towards the middle.
- If the belt runs against the back plate ⇒ Tighten the bolt **C** with the nut **a** (remember the counter nut **b**), and adjust the roller towards the side.

8) At the driving roller **F**:
- If the belt runs against the front plate ⇒ Adjust the motor bracket **D** towards the middle.
- If the belt runs against the back plate ⇒ Adjust the motor bracket **D** towards the side.

Fig. 4-6 When the adjustment is finished, check the tension of the belt, - the carriers **A** on the belt should have a distance of 10-30 mm down to the slide bars **B** on the belt frame.

The belt will stretch at the beginning and it is necessary to check the spring tension and the angle of the left roller regularly.

WARNING: **When you start operating in the field it is important to check the belt the first couple of rounds and make the necessary readjustments until the belt runs correctly.**
If the belt runs hard against the front or back plate, it will get damaged within a short time.

CHANGING THE CONVEYOR BELT SPEED

Fig. 4-7 The conveyor belt speed is adjusted manually at the valve **A** by adjusting the handle **B**. The valve will often be adjusted to maximum flow and thereby maximum conveyor belt speed to obtain a narrow double swath.
Reduced conveyor belt speed is used when a wide double swath is wanted if the crop is very thin and easy or if there is a strong wind.

On the valve **A** a safety valve **C** is mounted which ensures that the pressure in the hydraulic system does not get too high.
If the conveyor belt speed is irregular or the conveyor belt stands still, the maximum working pressure for the Collector can be adjusted at the adjusting screw **D**.

Either the maximum pressure must be adjusted or there is dirt or other accumulation of material on/in the belt unit which causes the hydraulic pressure to increase to be able to drive the conveyor belt.

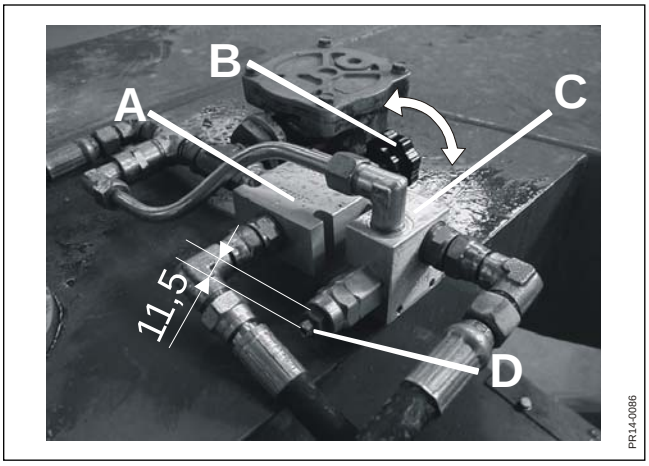


Fig. 4-7

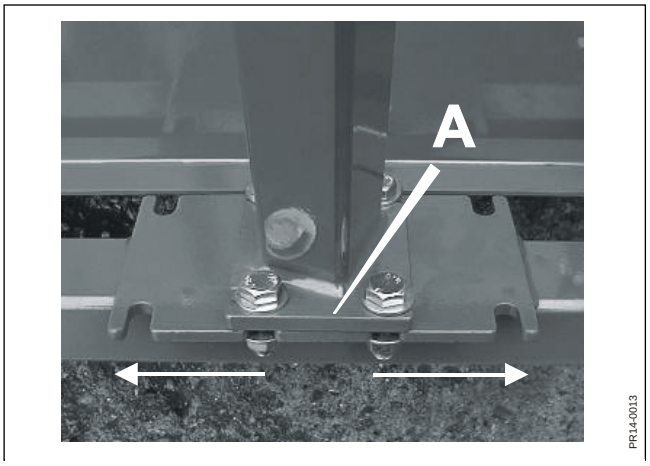


Fig. 4-8

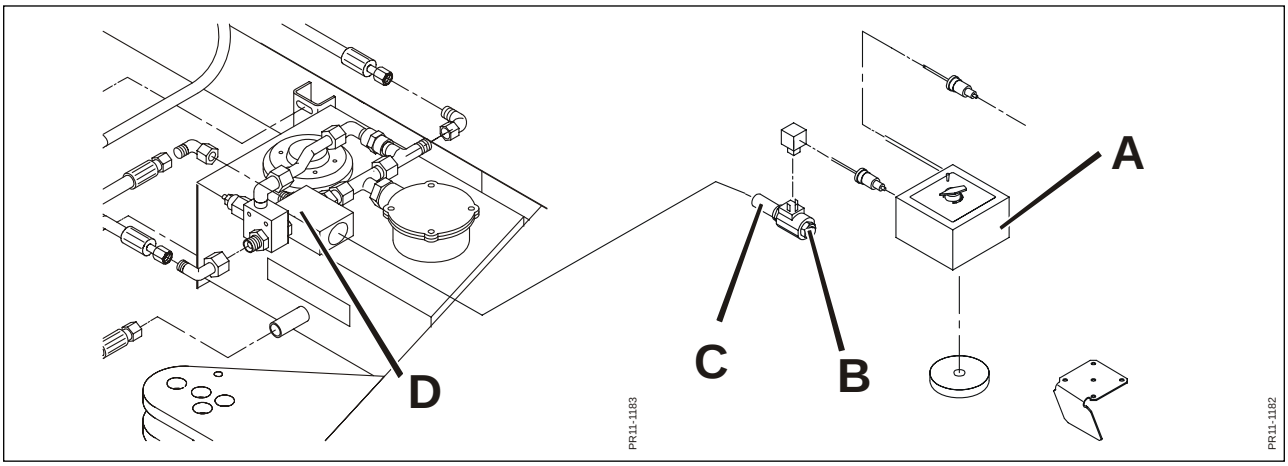


Fig. 4-9

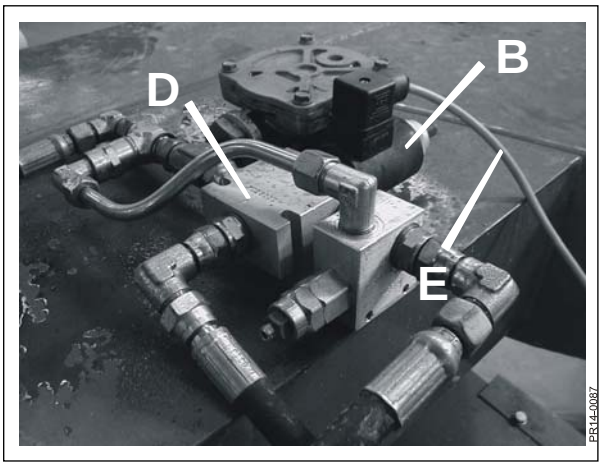


Fig. 4-9a

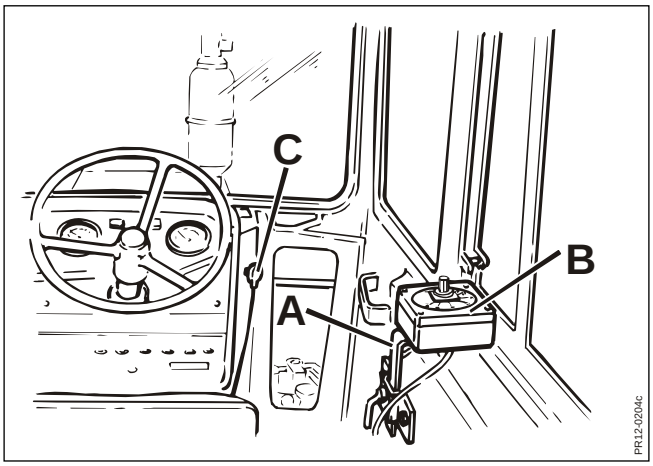


Fig. 4-10

Fig. 4-7 **IMPORTANT: From the factory the valve is adjusted to the maximum allowable pressure of 140 bar, and the adjusting screw D protrudes 11.5 mm above the nut E.**

Fig. 4-8 If you wish to change the position of the belt unit in relation to the suspension, the belt can be moved at the flange connection **A**.
The belt can be moved to 2 alternative positions, for a more narrow double swath (is moved to the left) and a wider double swath (is moved to the right), respectively.

ELECTRIC REMOTE CONTROL OF THE BELT (OPTIONAL EQUIPMENT)

As option, JF-Fabriken A/S can deliver equipment for electric remote control of the speed of the Collector belt.

Fig. 4-9 The equipment consists of a *SPEEDControl* control box **A** to be placed inside the tractor cabin which is connected with a coil **B** on a cartridge **C** for mounting in the adjusting valve **D** as the cartridge with the hand wheel for manual control is dismounted.

Fig. 4 -9a When the coil **B** is mounted on the adjusting valve **D** the cable **E** is, together with hydraulic hoses, drawn through the drawbar and to the tractor cabin.

With the *SPEEDControl* control box, the speed of the belt can be adjusted from 600 RPM to 1600 RPM, approximately. Thereby the length of the throw from the belt is changed, and it is possible to adjust the width of the double swath.

The equipment is applicable when driving:

- on hilly ground,
- in windy weather,
- in fields where the condition and amount of the crop is varying.

In these cases the equipment will help to ensure a symmetric double swath with a sufficiently constant width.

MOUNTING

Fig. 4-10 Mount the holder **A** for the control box in a suitable place within the reach of the tractor driver and mount the *SPEEDControl* control box **B**.
Connect the 2-pole plug **C** on the control box to a 2-pole socket in the tractor cabin.

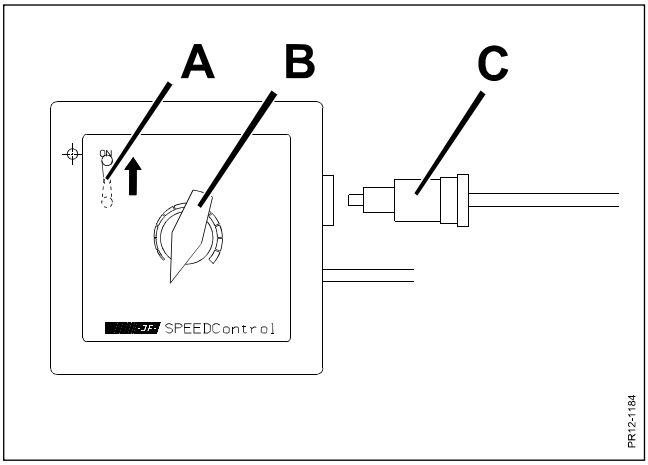


Fig. 4-11

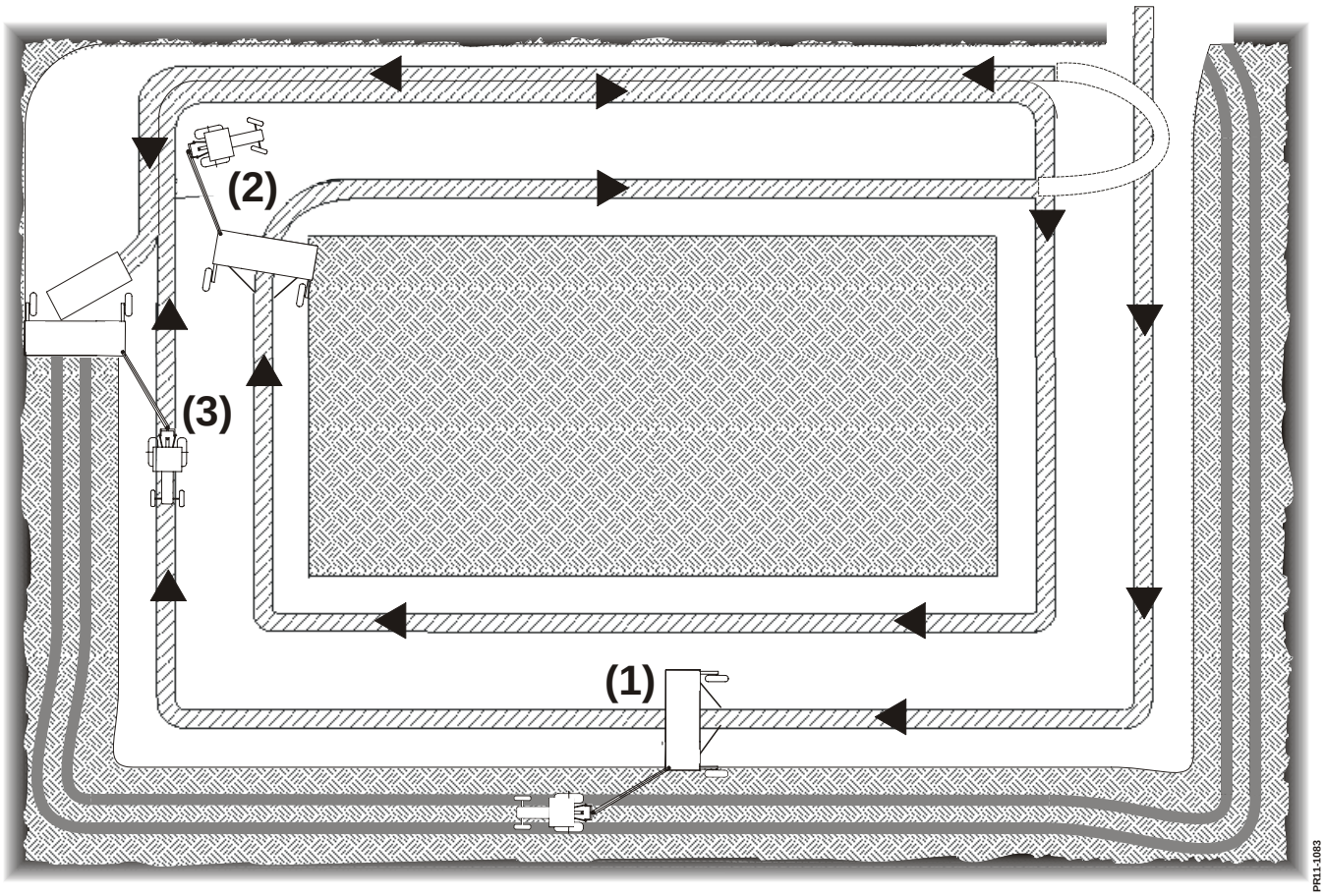


Fig. 4-12

Fig. 4-11 When starting the machine connect the remote control by switching on the ON/OFF toggle switch **A**. Now the speed is controlled with the arrow knob **B**.

WARNING: REMEMBER to turn off the ON/OFF toggle switch A when the work is finished. Otherwise the electric coil is damaged and the tractor battery will be discharged.

When the machine is disconnected from the tractor the control box must be separated from the machine. This is done by pulling out the plug **C** from the box.
The box should remain in the cabin or be kept indoors as it is not constructed to be stored outside.

WARNING: In case the control box gets wet, it should be dried and dehydrated before it is used again. This is to avoid short circuit or defects.

WORKING IN CASE OF DEFECT

Should the electronics fail it is possible to continue the work with the Collector until new parts have been received or repair has been made.

Fig. 4-11 Pull the plug **C** out of the control box and mount it in the 2-pole socket in the tractor where the plug for the control box was mounted.
Thereby the coil will have full voltage and works with maximum speed.

WORKING IN THE FIELD

With the Collector the machine is intended for making double swaths with minimum widths of 1.4 to 2.0 metres. The minimum width of the double swath depends on the crop you work in but also the speed of the conveyor belt.

STARTING

Fig. 4-12 Lift the Collector to place a normal swath. Drive one round clock-wise approximately one working width from the edge **(1)**. Drive the second round in the same direction to the left of the first swath **(2)**. Lower the Collector and drive one round counter clock-wise along the edge **(3)**. Now there is space to turn at the ends of the field and the field is ready to be harvested in one piece or divided into sections as required.

DOUBLE SWATHING

When making double swaths the Collector must be lifted every second time to place a normal swath first and folded down in active position every second time to place the second swath on or just beside the first swath.

NORMAL SWATHING

If you wish to work normally with the machine when the Collector is mounted it is lifted to inactive position and the machine can lay normal single swaths.

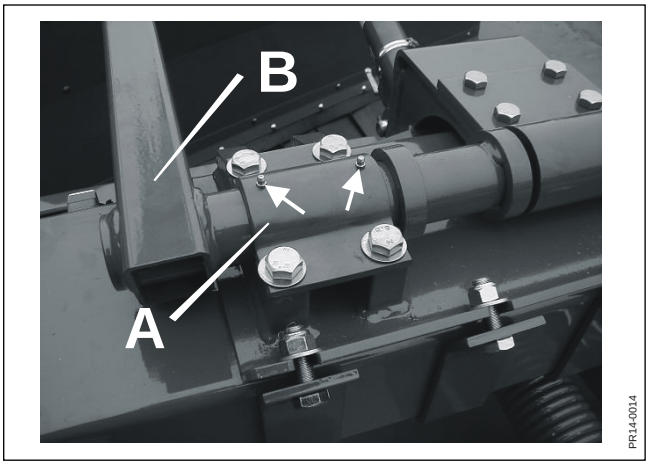


Fig. 4-13

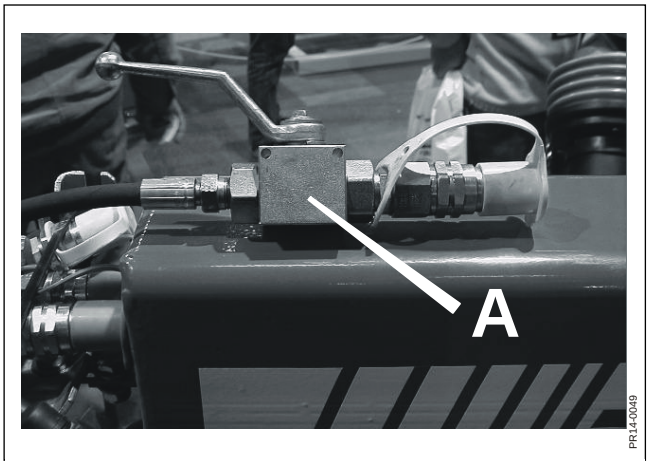


Fig. 4-14

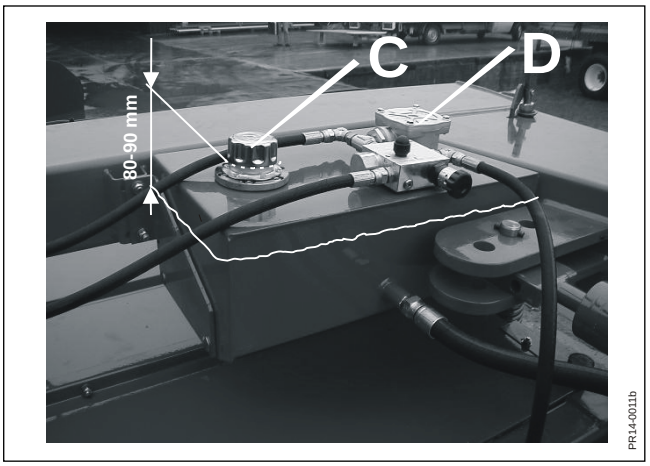


Fig. 4-15

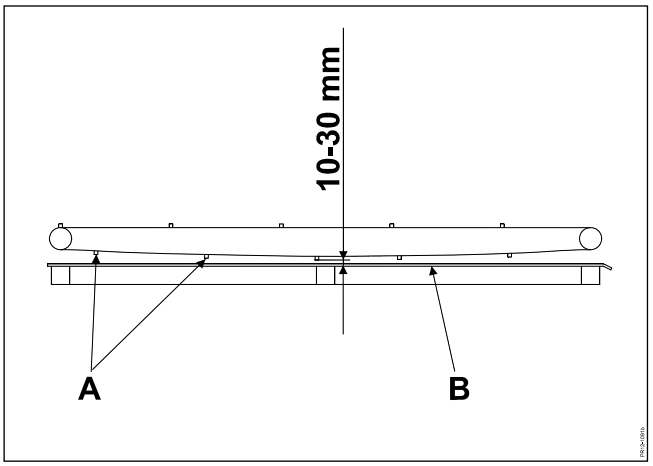


Fig. 4-16

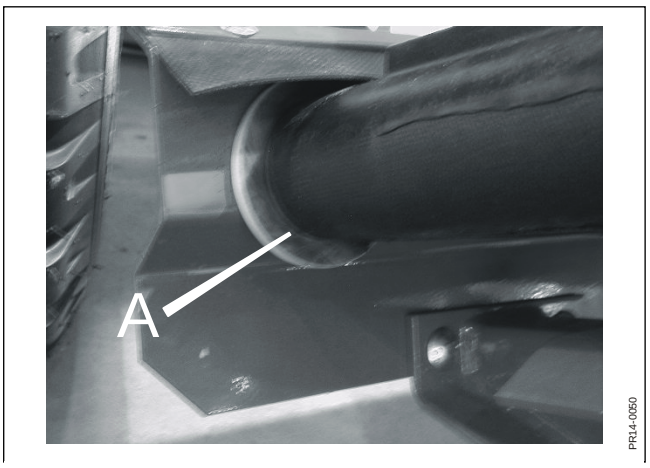


Fig. 4-17

GREASING

Fig. 4-13 The only grease spots on the Collector are the bearings **A** which secure the frame **B**. These 4 grease spots must be lubricated every day.

MAINTENANCE

For general maintenance of the Collector as regards re-tightening of bolts see the table for torque settings in chapter 6 "MAINTENANCE".

Fig. 4-14 **CAUTION:** **When the Collector is lifted and you need to stand below it or near it, the ball valve A on the hose for the lifting cylinder must ALWAYS be turned off to ensure that the Collector does not move downwards unintentionally.**
The valve is shown in open position and is turned off when the handle is turned 90 degrees.

THE HYDRAULIC SYSTEM

Fig. 4-15 **Oil level:** The oil level in the tank must be checked every day. The tank can hold 25 litres of oil, but should only be filled with the prescribed 20 litres. The oil level **MUST** be between 80 and 90 mm from the rim of the filling filter **C**.

Oil temperature: Maximum working temperature is 85° Celsius. At temperatures exceeding this, the carrying capacity of the oil is reduced causing strong wear on pump and motor.

Oil change: Normally it is not necessary to change oil. However, in exceptional cases the oil must be changed if it:
* has been too hot (burnt) (after working for a long time at too high temperatures)
* has changed colour
* has an undesirable smell
* has become dirty

Oil filter: **Once a year** the filter cartridge in the return filter **D** must be cleaned and, if necessary, replaced.

THE CONVEYOR BELT UNIT

By checking the following, the conveyor belt is ensured a very long life:

Fig. 4-16 1) The conveyor belt must be tightened correctly so that the carriers **A** do not touch the slide bars **B** on the frame. If they do, adjustment must be made according to item 6 and 7 in the section "CORRECT TIGHTENING OF CONVEYOR BELT".

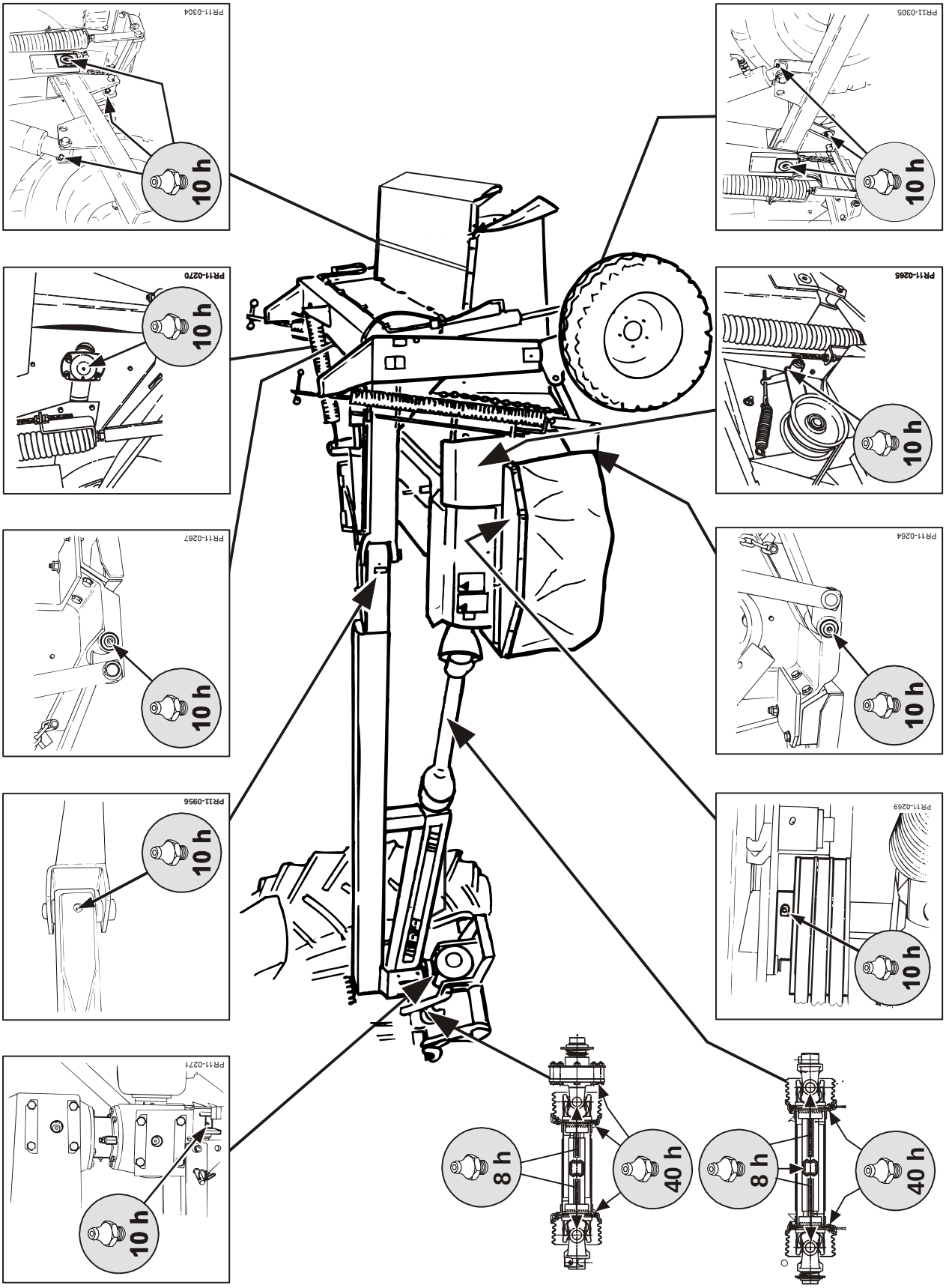
2) The conveyor belt must be running correctly on both rollers. If the conveyor belt is not running, readjustment must be made according to item 7 and 8 in the section "CORRECT TIGHTENING OF CONVEYOR BELT".

Fig. 4-17 3) At the front of the rollers steel discs **A** have been mounted at both ends which help to control the belt on the rollers. It is important to check that these are intact to avoid that the belt wears against the front plate on the belt frame.

4) Be especially aware of possible accumulation of grass between rollers and belt. This can be seen by the roller diameter getting bigger and the grass must be removed to avoid problems with the tightening of the belt and subsequent damage of same.

Greasing chart for the disc mower GMS 3202 TS.

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



5. 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.

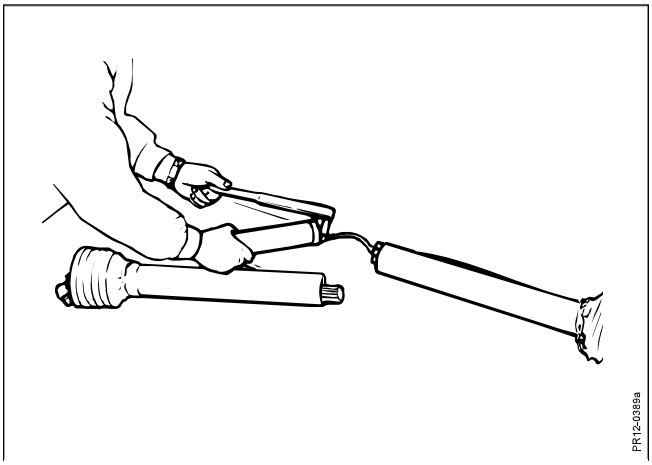


Fig. 5-1

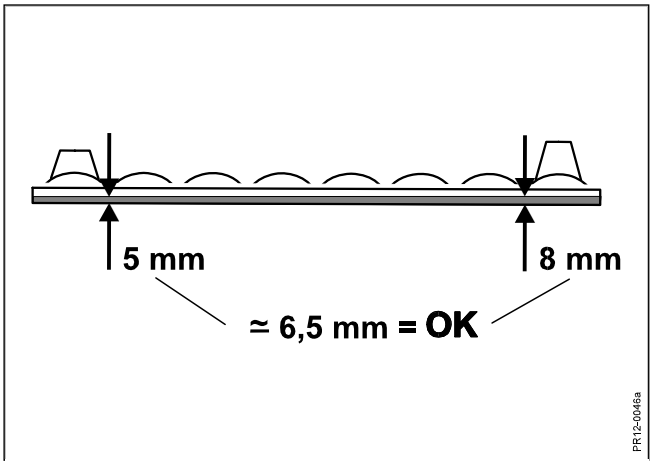


Fig. 5-2

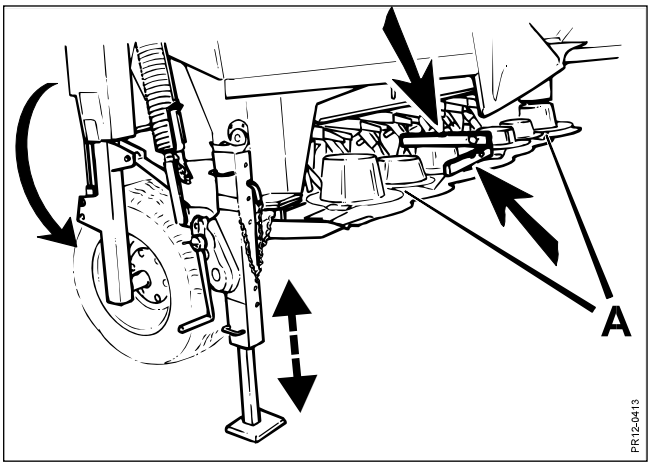


Fig. 5-3

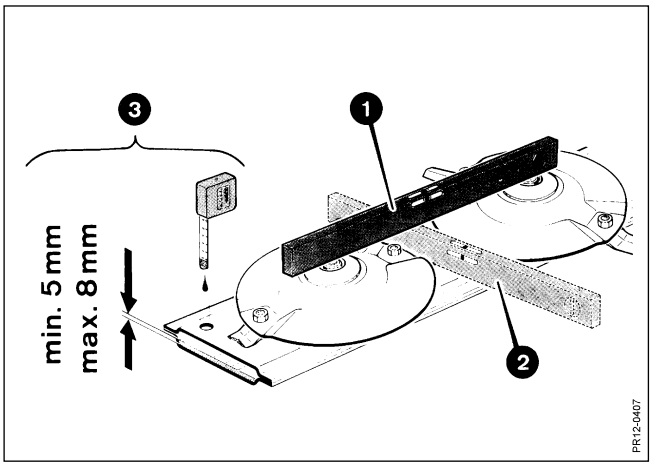


Fig. 5-4

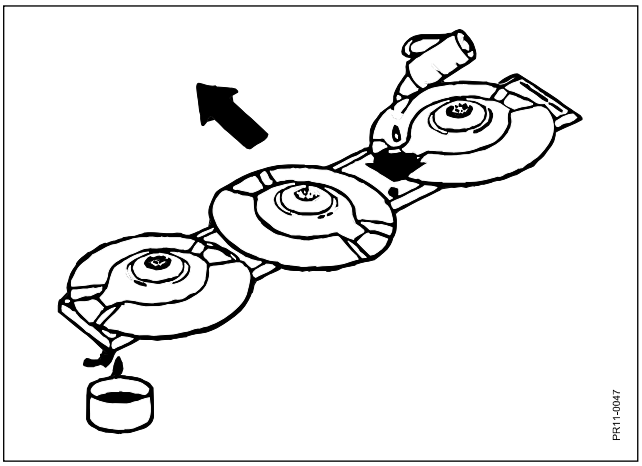


Fig. 5-5

PTO DRIVE SHAFTS

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

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.**

Fig. 5-1 **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. 5-2 **Oil level:** **6 -7 mm**

Fig. 5-3 **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.

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

Fig. 5-4 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. 5-5 **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 dismounted in order to reach the drain plug.

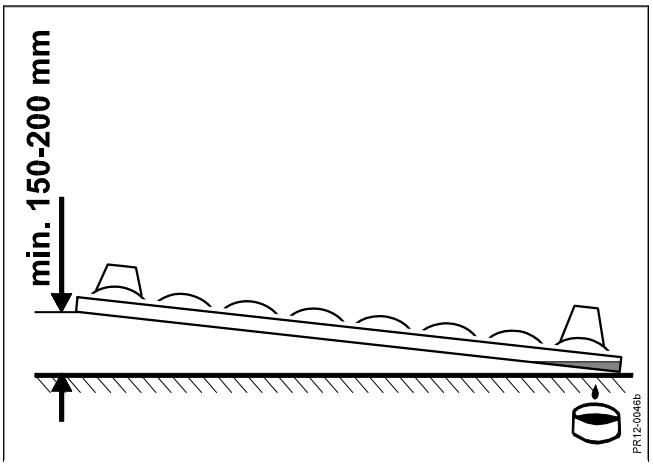


Fig. 5-6

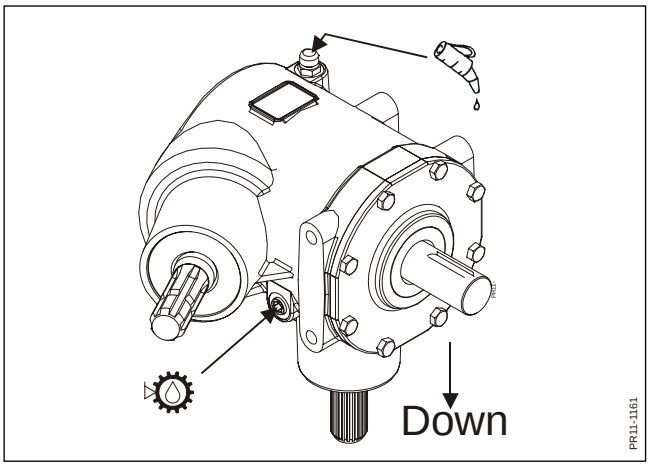


Fig. 5-7

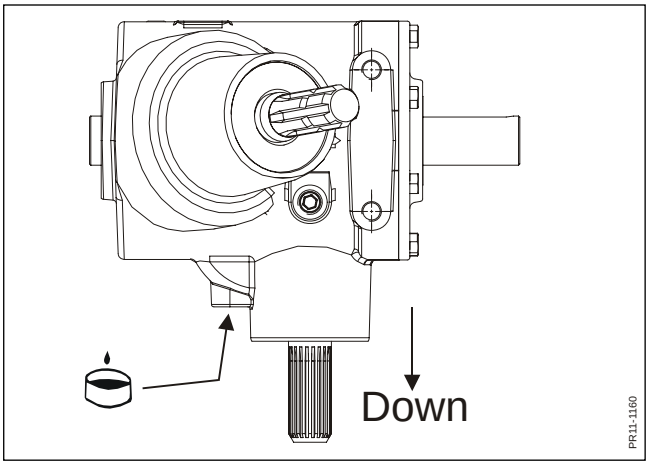


Fig. 5-8

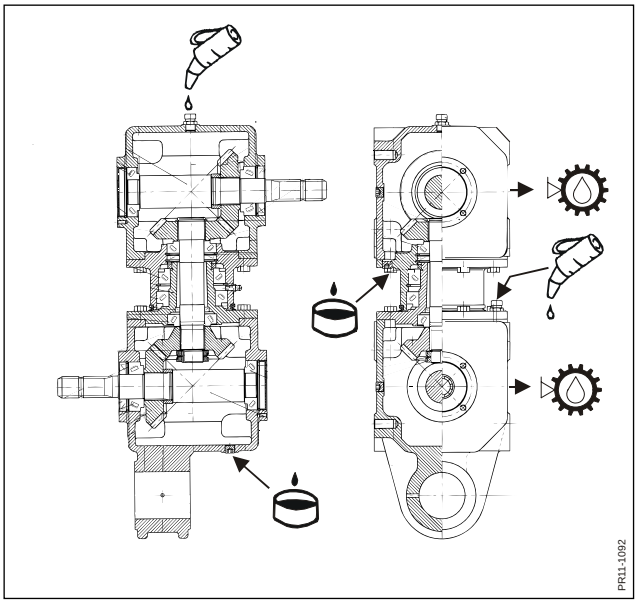


Fig. 5-9

Fig. 5-6 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. 5-7 **Oil content:** **1.80 litres**

Oil type: API GL4 or GL5 SAE 80W -90

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

Fig. 5-8 **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. 5-9 **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.

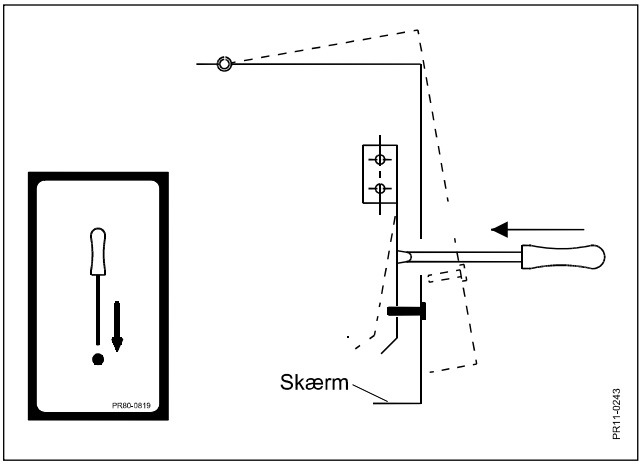


Fig. 6-1

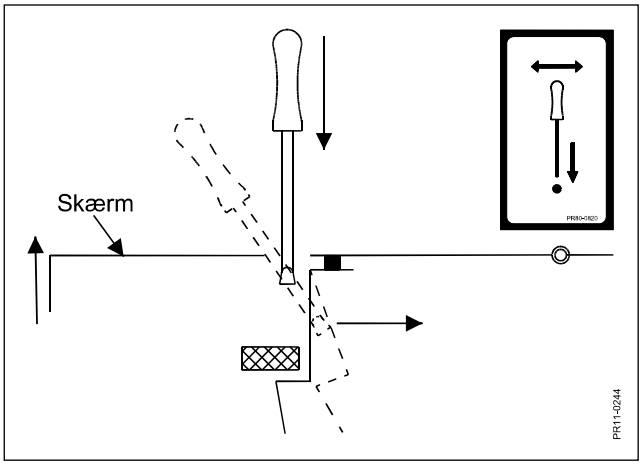


Fig. 6-2

6. 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.**

Correct torque moment $\mathbf{M}_A$ (if nothing else stated)

A Ø	Class: **8.8** $\mathbf{M}_A$ [Nm]	Class: **10.9** $\mathbf{M}_A$ [Nm]	Class:**12.9** $\mathbf{M}_A$ [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. 6-1 In connection with maintenance you will often need to open or remove guards.

Fig. 6-2 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. 6-1 and 6-2 show the two different types of lock and the corresponding transfers which mark and illustrate the locks on the machine.

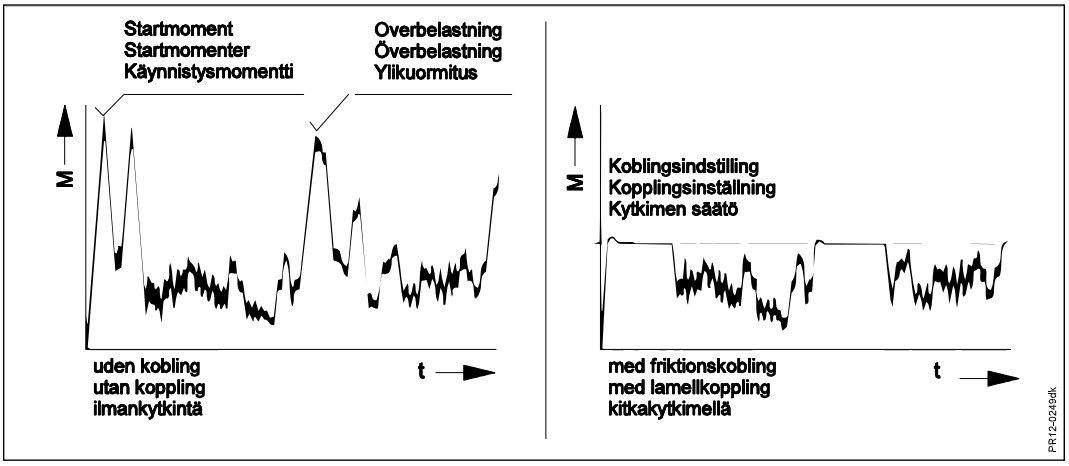


Fig. 6-3

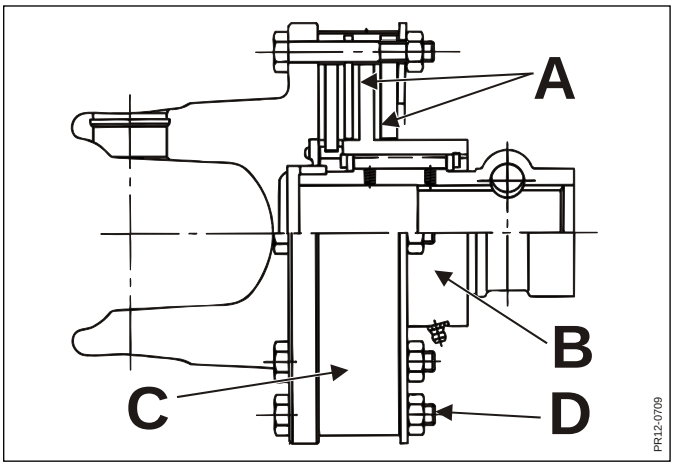


Fig. 6-4

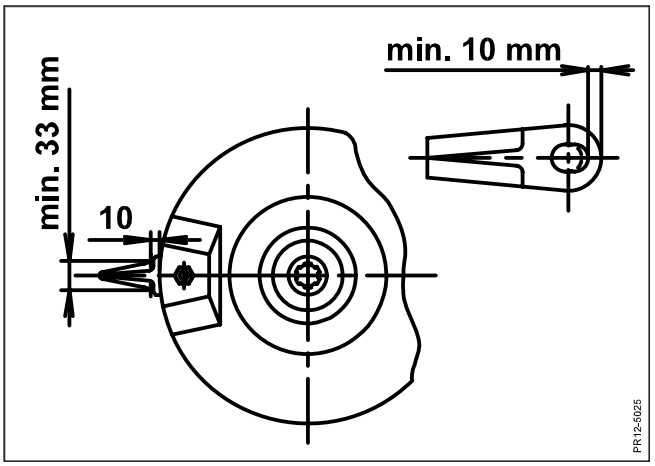


Fig. 6-5

FRICTION CLUTCH

Fig. 6-3 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. 6-4
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. 6-5 Replace blades 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.

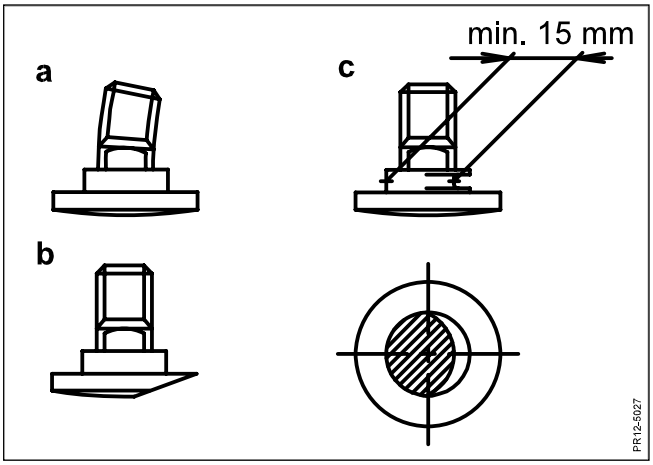


Fig. 6-6

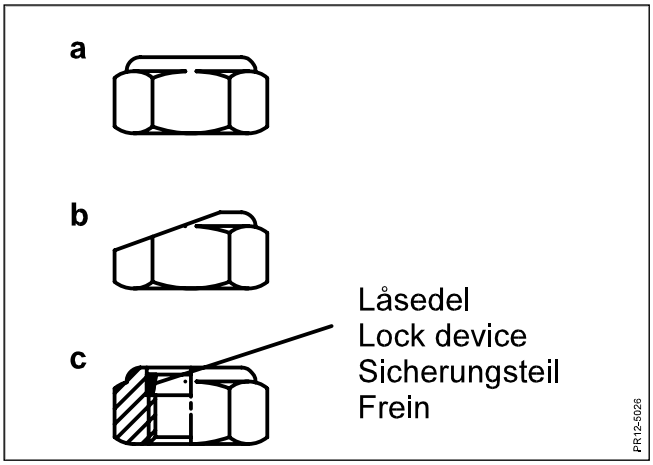


Fig. 6-7

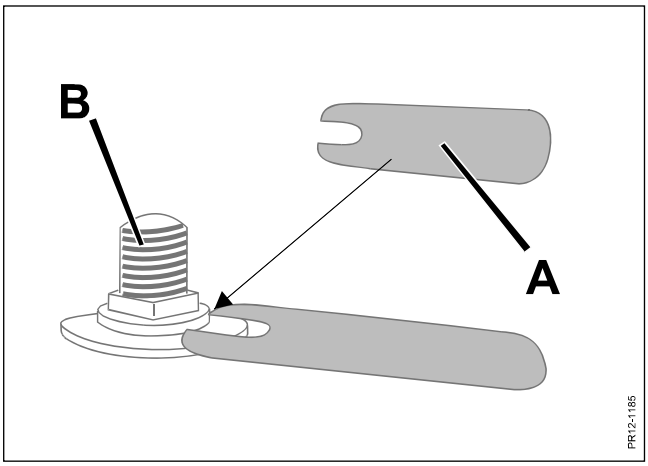


Fig. 6-8

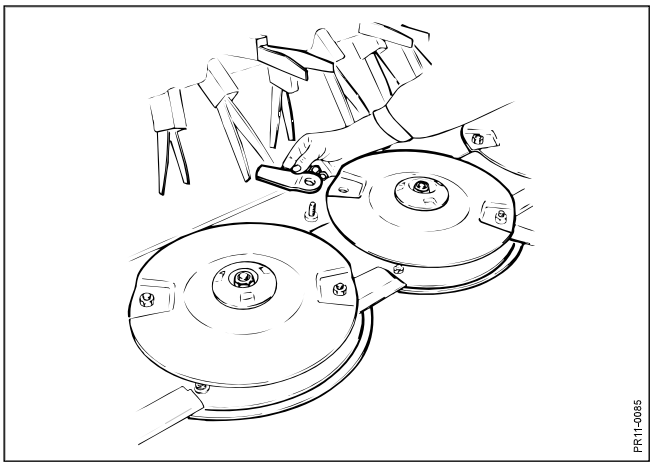


Fig. 6-9

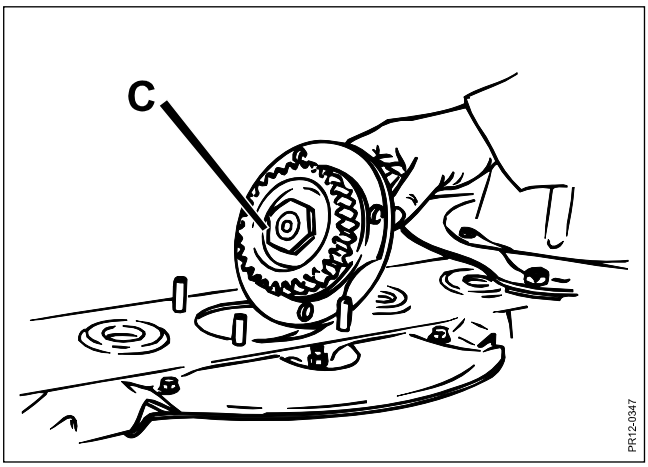


Fig. 6-10

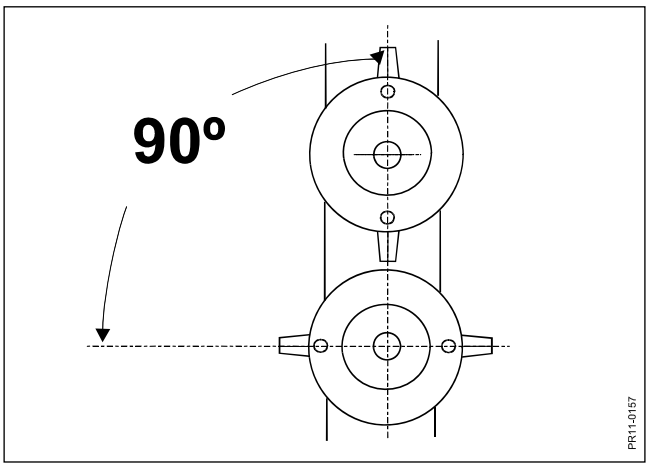


Fig. 6-11

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. 6-6 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. 6-8).

Fig. 6-7 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. 6-8 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 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. 6-9 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. 6-10 A cutter bar is used on which each hub **C** below the discs is easily replaced from above (Top Service cutter bar).

Fig. 6-11 If discs have been dismounted they must be mounted again staggered 90° in relation to each other.

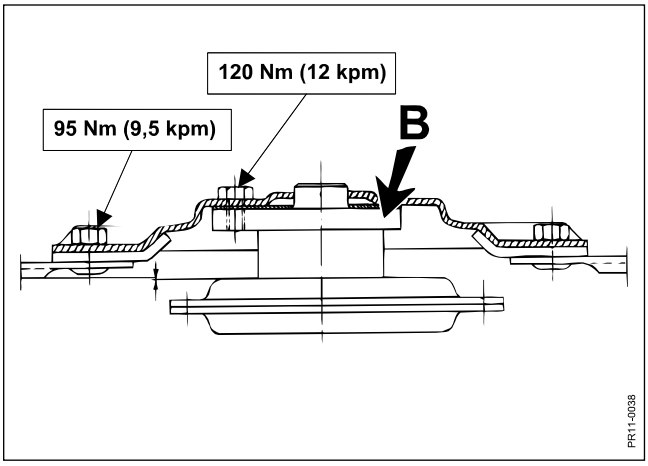


Fig. 6-12

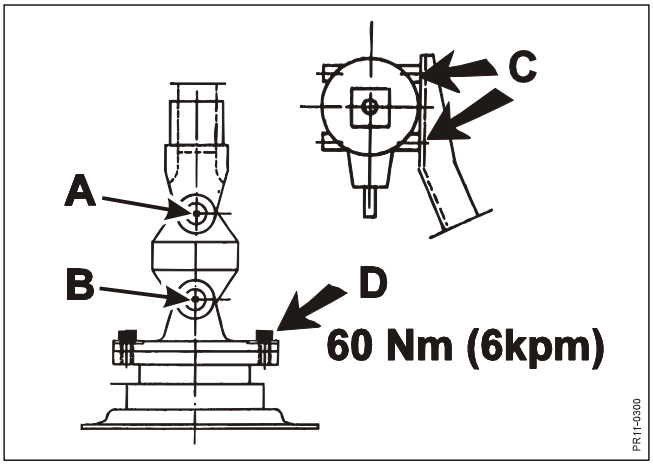


Fig. 6-13

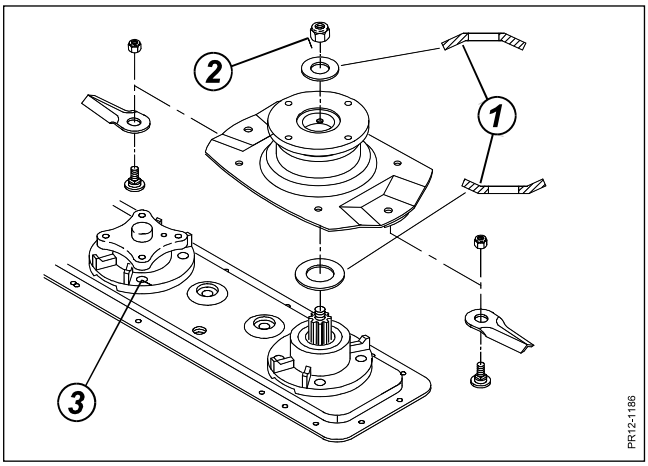


Fig. 6-14

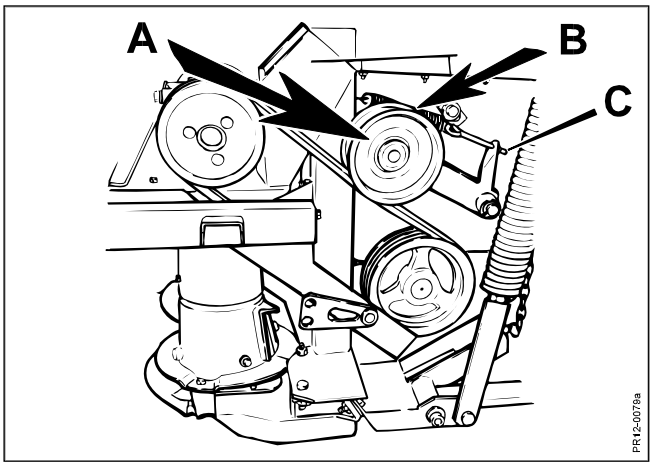


Fig. 6-15

Fig. 6-12 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. 6-13 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. 6-14 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. 6-15 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**.

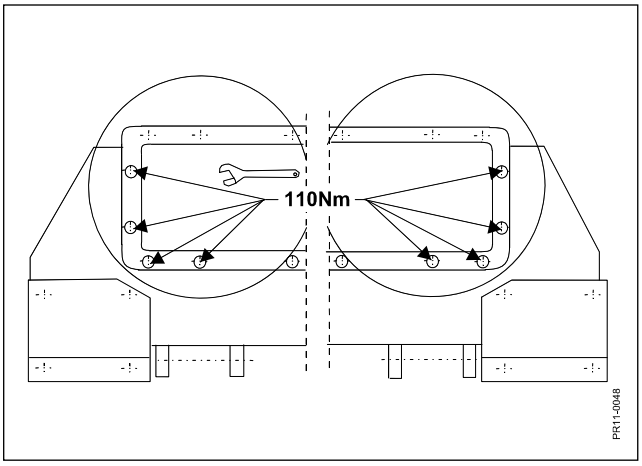


Fig. 6-16

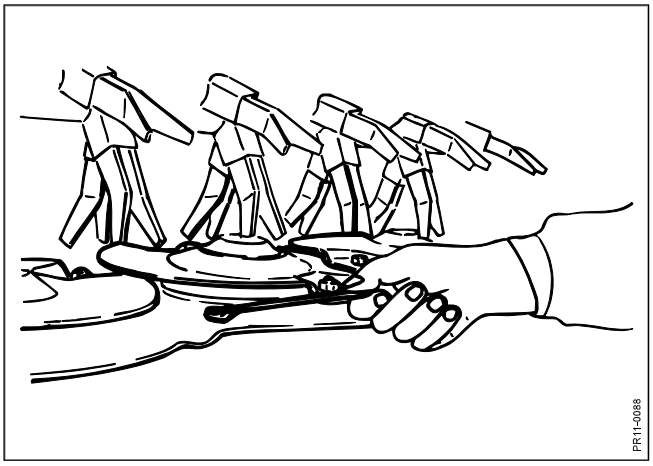


Fig. 6-17

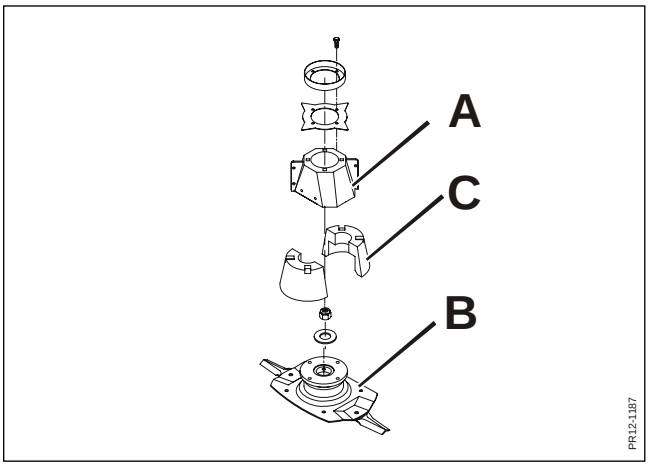


Fig. 6-18

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. 6-16 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. 6-17 The bolts at stone protections and shearbar must be checked at regular intervals.

Fig. 6-18 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 TS
Tyre dimension	13,0/55-16
Recommended tyre pressure	3.6 bar / 52.2 PSI
Minimum tyre pressure *)	1.6 bar / 23.2 PSI

Minimum tyre pressure can be used in extreme cases 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.**

7. VARIOUS

DRIVING TIPS AND FAULT FINDING

Problem	POSSIBLE CAUSE	REMEDY	SEE PAGE
Stubble uneven or bad cutting.	Wrong relief.	Relief springs must be checked and adjusted.	29-31
	Number of rpm on the tractor PTO too low.	Check number of rpm (PTO 1000 rpm)	
	Blades are dull or missing.	Replace blades.	63
	Discs, stone protectors and flow caps are deformed.	Replace deformed parts	63-65
*) Stripes in stubble.	The angle of the cutter bar is not ideal for the crop in question.	Change the inclination of the cutter bar. Normally the stubble height must be reduced, i.e. the angle of the cutter bar increased.	29
	Guide shoe under the cutter bar adjusted to high stubble.	Adjust the guide shoes to low stubble (there should be no stones in the field).	29
	Accumulation of material on the cutter bar.	Increase the driving speed.	
	Earth and grass in the space in front of the cutter bar where the blades enter.	Mount special shearbars/replace worn shearbars. Mount only where the blades touch the cutter bar.	
Uneven flow through the machine.	Check if conditioner fingers are worn or missing.	Replace worn conditioner fingers. Turn fingers with the straight edge in the direction of rotation.	
	Distance between conditioner plate and rotor too big.	Adjust the conditioner plate, in a hole, where the distance is medium 30 mm (or at least 10 mm). Increase the driving speed.	33
The machine vibrates/ uneven operation	Check if blades are damaged or missing.	Mount missing blades.	61-63
	Defective PTO drive shaft.	Check that the PTO drive shafts are in order.	53
	Defective bearings.	Check if bearings have defects. If they are damaged, loose or need to be greased.	50
	Defective flow intensifiers in the sides.	Replace flow intensifiers.	67
	Earth and grass in flow cap above input disc, perhaps missing foam blocks in flow intensifier.	Clean the flow cap and mount missing foam blocks.	67
Machine swivels too fast from side to side.	The oil flow to the cylinder on the drawbar is too high.	Check if the oil flow of the tractor to the cylinder has been adjusted to a minimum.	
Gearbox is over-heated	Wrong oil level or type.	Check oil level in gearbox	55
Cutter bar is overheated	Wrong oil level or type.	Check oil level in cutter bar	53

*) 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.

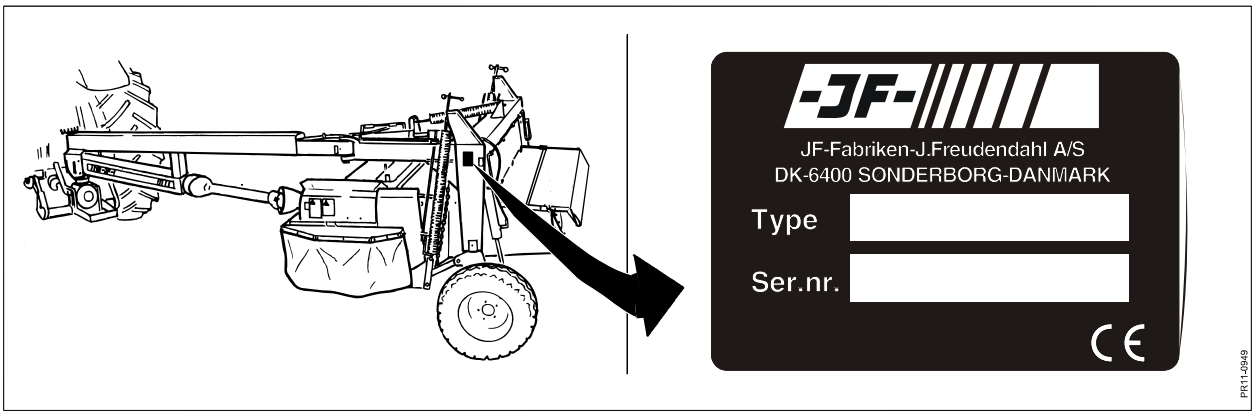
* Store the machine in a ventilated engine house.

* 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 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.**

Specialist in grassland machinery and complete diet mixers

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.

Dealer

JF-STOLL

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