
JF-STOLL

Disc Mower

GD 2800 FM | GD 3200 FM



Instruction Manual

“Original instructions”
Edition 4 | April 2010

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

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

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

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

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

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

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

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

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

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

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

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EN declare under our sole responsibility, that the product:
DE erklären in alleiniger Verantwortung, dass das Produkt:
IT Dichiaro sotto la propria responsabilità che il prodotto:
NL verklaren als enig verantwoordelijken, dat het product:
FR déclarons sous notre seule responsabilité que le produit:

ES declaramos bajo responsabilidad propia que el producto:
PT declaramos com responsabilidade própria que o produto:
DA erklærer på eget ansvar, at produktet:
PL deklarujemy z pełną odpowiedzialnością, iż produkt:
FI ilmoitamme yksin vastaavamme, että tuote:

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

**GD 2800 FM
GD 3200 FM**

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

2006/42/EC

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

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

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

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

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

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

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

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

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



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

FOREWORD

DEAR CUSTOMER!

We appreciate the confidence you have shown our company by investing in a JF machine, it is, of course, our wish that you experience a complete satisfaction with the investment.

This instruction manual contains important information for 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 the technical correct use of the machine.

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

This instruction manual is made so that the information is mentioned in the order you will need it, i.e. from the necessary operation conditions to use and maintenance. Besides this there are illustrations with text.

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

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

JF-Fabriken reserve the right to modify and improve design and construction without any obligation to make these modifications on machines delivered previously.

FOREWORD	1
1. INTRODUCTION	4
INTENDED USE	4
SAFETY	5
DEFINITIONS	5
GENERAL SAFETY INSTRUCTIONS	6
SPECIAL SAFETY INSTRUCTIONS	7
CHOICE OF TRACTOR	8
CONNECTION AND DISCONNECTION	9
ADJUSTMENT	9
TRANSPORT	10
WORKING	10
PARKING	10
LUBRICATION	11
MAINTENANCE	11
MACHINE SAFETY	11
WARNING DECALS	12
WARNING DECALS	13
TECHNICAL DATA	15
2. CONNECTION AND TEST DRIVE	16
2. CONNECTION AND TEST DRIVE	17
CONNECTION TO TRACTOR	17
IN GENERAL	17
THE TRANSMISSION	17
THE CONNECTION	17
JACK	19
HYDRAULIC CONNECTION	19
ADAPTATION OF THE PTO DRIVE SHAFT	21
FRICTION CLUTCH	24
FRICTION CLUTCH	25
SECURING AGAINST OVERLOAD	25
SECURING OF TRANSPORT	25
TEST DRIVE	26
CHECK BEFORE A TEST DRIVE	26
THE TEST DRIVE	27
3. ADJUSTMENT AND DRIVING	28
3. ADJUSTMENT AND DRIVING	29
CONSTRUCTION AND FUNCTION	29
THE FUNCTIONAL PRINCIPLE OF THE MACHINE	29
THE MOST IMPORTANT ELEMENTS OF THE MACHINE	29
The blades	29
The discs	31
Flow intensifiers	31

CONDITIONER ROTOR	33
ADJUSTMENTS	34
ADJUSTMENTS	35
WORKING AREA	35
THE CUTTING ANGLE	35
RELIEF	37
FINGER CONDITIONER	39
SWATH PLATES (GD 2800 FM)	41
WORKING WITH THE MACHINE	42
TO START UP	42
WORKING IN THE FIELD.....	42
TURNS.....	43
STONE RELEASE	45
TRANSPORT	45
PARKING.....	45
4. GREASING	47
GREASING.....	47
MACHINE PARTS WITH OIL	51
CUTTERBAR	51
BEVEL GEARBOX OVER THE CUTTERBAR.....	53
BEVEL GEAR IN THE CENTRE OF THE MACHINE	54
BEVEL GEAR IN THE CENTRE OF THE MACHINE	55
CHAIN DRIVE	55
5. MAINTENANCE	57
IN GENERAL.....	57
TIGHTENING OF BOLTS	57
FRICTION CLUTCH	58
FRICTION CLUTCH	59
UNBALANCE CONTROL	61
CONDITIONER.....	61
THE CUTTERBAR – DISCS AND BLADES	62
THE CUTTERBAR – DISCS AND BLADES	63
BLADES.....	63
BLADE BOLTS	63
NUTS	63
REPLACING BLADES	64
REPLACING BLADES	65
WHEN REPAIRING	65
6. VARIOUS	66
DRIVING TIPS AND FAULT FINDING	66
STORAGE	67
SPAREPARTS ORDER.....	68
HIGH SKIDS	68
SHARP SHEARBARS.....	68
SCRAPPING	68

1. INTRODUCTION

INTENDED USE

The disc mower **GD 2800 FM and GD 3200 FM** are solely made for normal jobs in agricultural work; They are only intended for cutting naturally growing or planted grass and green crop that is intended for roughage. The material is laid in swaths, which allows a following pick up of the material.

Of course, the machine must only be mounted on tractors that make allowance for the specifications of the product and is legal to use.

Every use beyond what is mentioned above is not included in intended use. JF-Fabriken A/S will not be responsible for any damage resulting from such use, only the user has the risk.

The machine's performance will depend on the crop, i.e. field conditions, the country in which the field is, and finally, the weather.

It is assumed that the work is performed under reasonable conditions, among others, good agricultural knowledge and skilled operation.

It is a matter of course that intended use implies that the instructions for adjustment, use, and maintenance mentioned in the instruction manual must be observed.

The disc mower GD 2800 FM and 3200 FM must only be used, maintained, and repaired by persons who by reading this instruction manual are confident with the machine in question and especially informed about possible risks.

The following instructions that prevent injuries and damage **must absolutely** be observed.

If changes are made on the machine without permission from JF-Fabriken A/S, JF-Fabriken cannot be held responsible for any injuries or damage.

SAFETY

Generally much damage in agriculture occurs in consequence of misuse and insufficient instruction. Therefore, the safety of persons and machines is an integrated part of JF-Fabriken A/S's development work. **We wish to secure you and your family in the best possible way** but this also demands an effort from your side.

A disc mower cannot be constructed in such a way that it guarantees 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 the user of the machine pay attention and use the machine correctly and thereby avoid exposing yourself and others to unnecessary danger.

The machine demands a skilled operation, which means that **you should read the safety instructions and the instruction manual before you connect the machine to the tractor.** Even if you have had a similar machine 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 this 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 possible 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 secure that the operator follows the general safety instructions or the measures mentioned in the manual instruction of how to protect himself and others against injuries.

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

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

1. INTRODUCTION

GENERAL SAFETY INSTRUCTIONS

Before starting the machine the tractor driver must ensure that machine and tractor are in conformity with general labour regulations and that the Road Traffic Act can be observed.

The following is a short mentioning 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 of the tractor, 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 and use correct support or engage the transport safety device when the machine is parked.
3. Remember to use the transport safety device of the cutting unit during transport of the machine.
4. Never work under a raised cutting unit, unless the suspension has been secured by means of support chains or other similar securing.
5. Never start the tractor until all persons are safely away from the tractor and the machine.
6. Before the tractor is started, check that all tools have been removed from the machine.
7. Make sure that all guards have been mounted correctly.
8. During work never wear loose clothes, which can be pulled in by movable parts in the machine.
9. Do not change a guard or work with the machine if a guard is missing.
10. Always drive with the lights and the traffic marking during transport on public roads and at night.
11. Limit the transport speed to max. 30 km/h if the machine has not been marked with another max. speed limit.
12. Never stay near the machine while it is working.
13. When mounting the PTO drive shaft check that the number of RPM of the tractor fits the machine.

1. INTRODUCTION

14. Always use hearing protectors if the noise from the machine is trying or if you are working with the machine for a considerable period of time in a tractor cabin, which has not been silenced sufficiently.
15. Before the machine is raised or lowered in the suspension of the tractor it should be checked that nobody is near the machine – or touching it.
16. Do not stay near the guards of the cutting unit and do not lift the guard before all revolving parts have stopped.
17. Never use the machine for other purposes than what it has been constructed for.
18. Do not allow children to be near when you are working with the machine.
19. Never stay between the tractor and the mower during engagement and disengagement.

SPECIAL SAFETY INSTRUCTIONS

When working with disc mowers special conditions should be observed.

1. Use a tractor with a cabin with safety glass. It is also recommended to cover the tractor interior with polycarbonate sheets or outside with a fine-meshed net. The cabin should be closed while working in the field.
2. Keep away from the cutting unit as soon as the machine's tools revolve.
3. It is important to follow the rules in the instruction manual by replacement of blades in order to observe the safety demands. When replacing the supplied original parts should be used.
4. Before starting the machine the rotating tools (blades, knife bolts, discs, and flow caps) are checked. If part of the tools are damaged (bend or torn), worn, or simply missing they must be replaced immediately.
5. Damaged, worn, or missing blades must be replaced in pairs in order to avoid unbalance of the machine.
6. Canvasses and guards must be checked regularly. Worn or damaged canvasses must be replaced.
7. Canvasses and guards are intended to secure against throwing of stones and other foreign matter. Before starting the machine canvasses and guards must be placed correctly.
8. Before starting the PTO the machine's cutting unit must be lowered to working position.
9. The field should be kept free of stones and foreign matter.

1. INTRODUCTION

10. Even by correct adjustment and operation of the machine it is possible that stones and foreign bodies in the field is thrown out of the cutting unit. Therefore, no persons should be near the cutting unit where you are not familiar with the surroundings. You should be especially cautious when working along public roads or public grounds (schools, parks and the like).
11. Although it is possible, you should never reverse with the cutting unit in working position. Only when driving forward the movement of the cutting unit is correct and there is a risk of damage when reversing with the cutting unit in working position.
12. The rotating tools take some time to stop completely after the PTO has been stopped. Therefore, you must wait until the tools' movements have stopped and check the cutting unit for any damage.
13. If any doubt, contact the nearest dealer.

CHOICE OF TRACTOR

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

Choose a tractor with a suitable power on the power take-out, compared to what is described as necessary.

If the power of the tractor is considerably larger than prescribed, be cautious towards long-lasting and considerable overload of the machine. This can damage the friction clutch, which is built in the machine to secure it against overload.

Choose a tractor with a suitable own weight and track width so that it can drive steadily in the conditions. Also make sure that the lift arms of the tractor are intended to carry machines with the weight in question.

The tractor specifications have many variations within the individual tractor makes. For that reason it may at worst be necessary to adjust the weight distribution with a couple of front weights.

This machine is intended for 1000 RPM. Therefore, you must make sure that the wrong RPM of the power take-out is not used by mistake.

In order to use the machine's hydraulic functions it is necessary that the tractor has a single acting hydraulic take-out at the front or that there is access to the current take-outs at the rear.

You must also make sure that the tractor's hydraulic system cannot transmit a higher pressure than 210 bar.

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

1. INTRODUCTION

CONNECTION AND DISCONNECTION

Always make sure that nobody is standing between the tractor and the machine during connection and disconnection. An unintentional manoeuvre with the tractor might jam persons (see fig. 1-1).



Fig. 1-1

Check that the machine is intended for the number and direction of rotations of the tractor (see fig. 1-2). A wrongly chosen RPM for a considerable period of time can damage the machine and at worst lead to parts being thrown out.

Make sure that the PTO drive shaft has been mounted correctly, which means that the shear pin must be engaged and that the support chains have been fastened in both ends.

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



Fig. 1-2

Check that all hydraulic clutches are tight and that all hoses and fittings are undamaged before the hydraulic system is activated. When the engine of the tractor has stopped make sure that there is **no** pressure in the hydraulic hoses, which is done by activating the hydraulic tractor valves.

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



Fig. 1-3

Check that the cutting unit can move freely before activating the hydraulic cylinder. Make sure that no persons are near the machine when starting as there might be some air in the hydraulic system and this air might cause sudden movements.

ADJUSTMENT

Never adjust the mower while the PTO drive shaft is engaged. Disengage the PTO drive shaft and stop the engine of the tractor before you change the adjustment of the machine. Do not lift the guard until all the revolving tools/blades have stopped.

Before working check that blades are mounted, that they do not have any breaks or other damage. You must also check that the knife holders are not loose or defect. Damaged blades must be replaced immediately (see section 5: MAINTENANCE).

If blades and blade bolts are worn is checked periodically according to the instructions mentioned in the instruction manual (see section 5: MAINTENANCE).

1. INTRODUCTION

TRANSPORT

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

It is important to block the machine's hydraulic cylinder with the mechanical transport lock. Unintentional operation of the hydraulic handle for the cylinder, sudden loss of oil from hoses or fittings, or air in the system can cause the mower to be lowered and it might hit the ground. This would mean collisions with for instance kerb, ramp, road bumps and the like, causing damage and possible steering problems.

Always make sure that the transport lock has been correctly mounted (see section 3: ADJUSTMENT AND DRIVING).



IMPORTANT: To remove possible air from the hydraulic system, check the hydraulic cylinder after engagement to the tractor. If the air is not removed from the hydraulic system there is the risk of an unintentional movement of the cutting unit downwards after having dismantled the transport lock.

WORKING

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

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

Never allow anybody to stay near the mower during work and especially not children.

On stony ground the stubble height must be adjusted to a maximum, the cutting angle must be as small as possible and the forwarding speed must be limited.

In the suspension the machine is secured against shock loads in the driving direction. However, there is no securing against shocks if you reverse with the cutting unit lowered down and thereby **risk damaging the machine**.

In case of a blocking of the cutting unit or the conditioner caused by foreign matters, stop the tractor engine, activate the parking brake and wait until all the revolving parts have stopped before removing the foreign matter.

Gear down if the machine is working on a steep slope. When working with trailed mowers keep a safe distance to slopes and similar ground conditions, as the earth can slide down and pull the mower and the tractor down. Also remember to adjust the speed when making sharp turns up a hillside.

PARKING

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

1. INTRODUCTION

Make sure that the support up front on the machine has been positioned correctly and that it supports the machine when parked and disconnected.

LUBRICATION

When lubricating or maintaining the machine make sure that the cutting unit is touching the ground or that the lifting cylinders of the tractor are blocked by means of the stop valve.

Also make sure that the PTO drive shaft has been disengaged, the tractor engine has been stopped, and that the parking brake has been activated.

MAINTENANCE

It is important that the cutting unit is correctly unloaded to ensure perfect performance in the field, and to reduce the risk of damage to the cutterbar.

Always make sure that the spare parts have been tightened to the correct moment and that the parts on the machine are retightened with intervals (see the section about maintenance).

Never use other spare parts than what has been recommended from the producer of the machine.

When replacing parts in the hydraulic system make sure that the cutting unit is touching the ground or that the lifting cylinders are blocked with the transport lock. Remember to check that there is no pressure in the system before working with it.

MACHINE SAFETY

All revolving parts are checked 100% and are balanced by means of a special machine with electronic sensors.

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

If the vibrations or the noise of the machine increases gradually during a period you should stop immediately and check if there is any damage to the revolving parts. When the defect has been corrected the work can continue.

During the season you should check several times every day that no blades, carriers, PE conditioners or bolts are missing. If any of these are missing you should mount the parts immediately.

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

At regular intervals clean discs and flow intensifiers by removing earth and grass, and in that connection check that all parts are intact.

Also at regular intervals check that all parts at the mortise joints (pins, ball valves, and cotter) are intact and sufficiently greased. Also check and "air" the friction clutch at regular intervals to make sure that the discs do not rust together (see section 5: MAINTENANCE).

1. INTRODUCTION

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

FORSIGTIG
Stop altid traktormotoren og fjern tændingsnøglen før De stryker, indstiller eller reparerer maskinen.

ATTENTION
Always stop engine and remove ignition key before lubricating, maintaining or repairing the machine.

VORSICHT
Schleppmotor immer abschalten und Zündschlüssel abziehen bevor Sie die Maschine schmalern, einstellen oder reparieren.

ATTENTION
Toujours arrêter le moteur de tracteur et enlever la clé de contact avant de lubrifier, régler ou réparer la machine.

3

FORSIGTIG

4

FORSIGTIG

1000 MIN

PR80-0803

5

FORSIGTIG

Min. 10 m

6

FORSIGTIG

7

FORSIGTIG

8

FORSIGTIG

10

FORSIGTIG

STOP

≈ 2 MIN

9

16.61.175

11

FORSIGTIG

12

FORSIGTIG

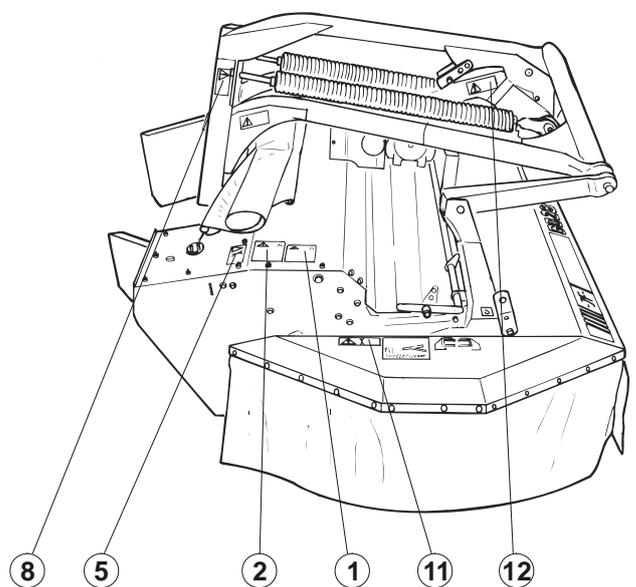
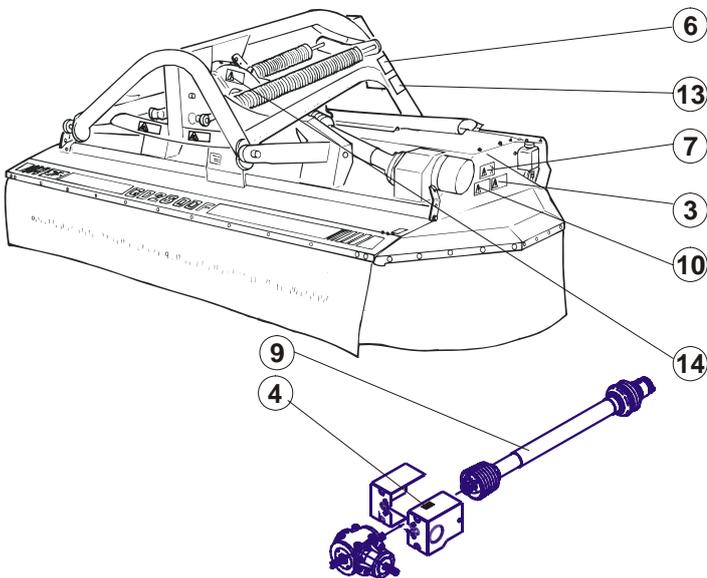
13

FORSIGTIG

< 210 bar

14

FORSIGTIG



WARNING DECALS

The warning decals shown on the opposite page are positioned as shown at the bottom of the opposite page. Before using the machine check that all the 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 that 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 before the work is completed.
- 3 **Operation without canvas.**
Do not start the machine unless canvas and guards are intact and in their right place. The machine can throw stones and other foreign matters out during the operation. The purpose of the canvas and the guards is to reduce such danger.
- 4 **Number and direction of rotations.**
Check that the PTO shaft is running with the correct number of rotations, and in the correct direction. A wrong number and/or direction will damage the machine in time with the risk of personal damage.
- 5 **Stones being thrown from the conditioner.**
The conditioner runs with a very high number of revolutions and if there are any stones in the field the conditioner is capable of throwing the stone up to 10 m to the rear or to the sides with very high speed. Therefore, make sure that no persons are near the machine during work.
- 6 **Children.**
Never let children stay near the machine during the operation. Especially not small children as they have a tendency to do unforeseen things.
- 7 **Rotating blades.**
Do not under any circumstances let anybody get near or stay near the machine during operation. The machine's rotating blades can without difficulty cause serious injury on any part of the body hit by such a blade.
- 8 **Risk of getting jammed during connection.**
Never let anybody stay between the machine and the tractor during connection to the tractor. An unintentional manoeuvre can result in unauthorised persons getting jammed.
- 9 **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.
- 10 **Time to stand still.**
After the machine's PTO shaft has stopped, the rotating blades of the machine will keep rotating for up to 2 minutes. Wait until the blades have come to a complete stop before removing canvas and guards for inspection and maintenance.
- 11 **Stones being thrown.**
The machine may throw stones even if all canvases and guards are mounted. Therefore, always make sure that nobody is standing near the machine when it is working.
- 12 **Remember the transport lock.**
Always remember to activate the transport lock before transporting the machine on public roads. Defects in the hydraulic system and unintentional manoeuvres can make the machine swivel into working position during transport and thereby cause serious machine damage and personal injury.
- 13 **Max. 210 bar.**
Make sure that the hydraulics is not exposed to more pressure than max. 210 bar, as there could be a risk of explosive damages of parts. Hereby you expose yourself and other persons to the danger of getting hit by metal parts with high speed or oil under high pressure.
- 14 **Risk of getting cut.**
The meaning is almost the same as decal No. 8. It is pointed out that there is the risk of getting your fingers or hands jammed or cut off if you touch parts of the machine when it is going up and down. Keep everybody in a safe distance to the revolving parts.

1. INTRODUCTION

1. INTRODUCTION

TECHNICAL DATA

Type		GD 2800 FM	GD 3200 FM
Working width		2.80 m	3.20 m
Capacity at 10 km/h		3.0 ha/h	3.4 ha/h
Power requirement, minimum on PTO		60 kW/83 HP	66 kW/90 HP
PTO speed		1000 RPM	
Three-point category		Kat. II	
Oil take-out		1 single acting	
Weight		900 kg	1000 kg
Speed		8-15 km/h	
Number of HD discs		7 pcs.	8 pcs.
Number of HD blades		14 pcs.	16 pcs.
Conditioner width		2.15 m	2.5 m (incl. auger)
Conditioner speed		700 or 860 RPM	860 RPM
Finger conditioner		108 PE fingers	56 PE fingers
Top Dry equipment		Option	Option
Swath width		1.2 – 2.8 m	1.2 – 1.5 m
Transport width		2.7 m	3.0 m
Flow intensifiers		Standard	
Overrun clutch		Standard	
Friction clutch		Standard	
Noise level in the tractor cabin	Machine connected	Window closed	76.6 dB (A)
		Window open	88.0 dB (A)
	Machine disconnected	Window closed	75.1 dB (A)
		Window open	85.5 dB (A)

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

2. CONNECTION AND TEST DRIVE

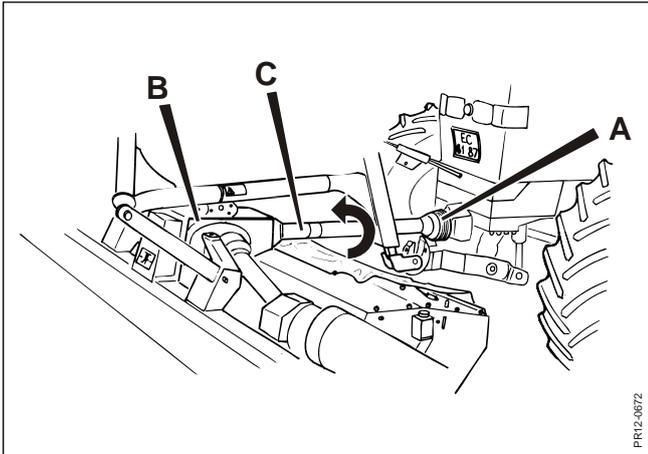


Fig. 2-1

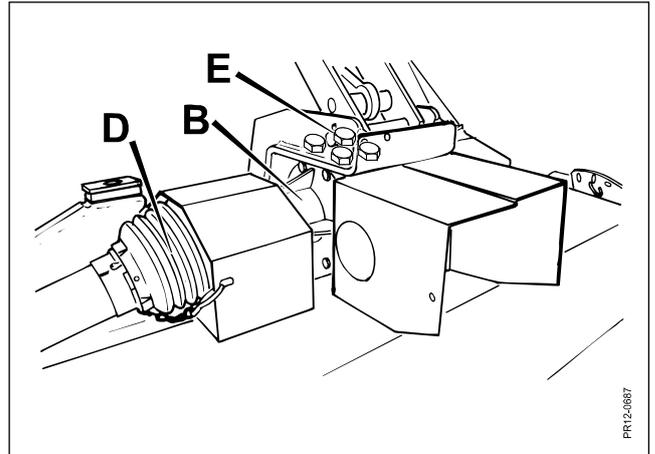


Fig. 2-2

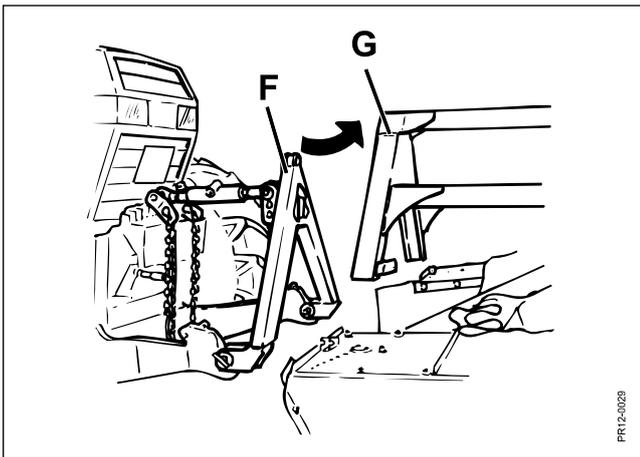


Fig. 2-3

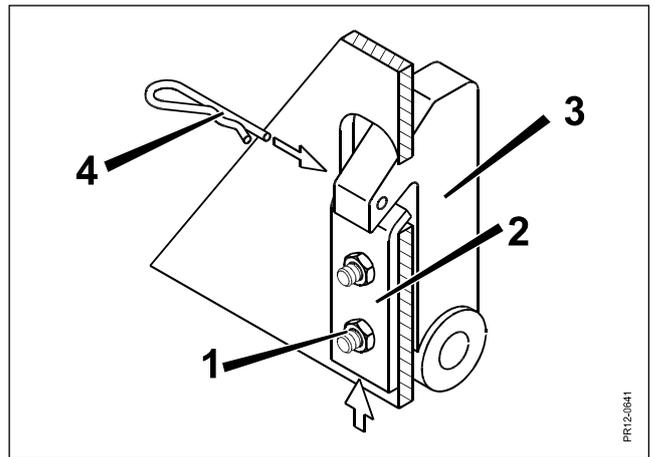


Fig. 2-4

2. CONNECTION AND TEST DRIVE

CONNECTION TO TRACTOR

IN GENERAL

GD 2800 FM is connected to the front lift arms of the tractor. The pins in the A-frame of the machine are intended for tractor category II.

Before connection the lift arms of the tractor must be positioned at the same height and the top link must be mounted correctly between the tractor and the A-frame.

THE TRANSMISSION

Fig. 2-1 The machine is intended to have a PTO number of revolutions from the tractor of **1000 RPM** and fits to all tractors, on which the direction of rotation is counter clockwise **A**, when you look at the front of the tractor.

If you want to connect the machine to a tractor, on which the direction of rotation is the opposite, i.e. clockwise, when you look at the front of the tractor, the central gear **B** on the machine is turned and the supplied PTO drive shaft **C** is replaced by one intended for the opposite direction of rotation. This replacement shaft can be delivered from the factory and the extra shaft is returned.

Fig. 2-2 In order to turn the central gear **B**, the PTO drive shaft **D** is dismantled, the 3 PTO guards on the gear and the 4 bolts **E** above the gear are loosened.

Then the gear can be turned 180 degrees, the 4 bolts can be mounted and tightened again (REMEMBER the lock fittings) and the 3 guards and the PTO drive shaft can be mounted again.

THE CONNECTION

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

Fig. 2-3 With the A-frame **F** mounted on the tractor you drive directly to the machine and lift the A-frame up in the top frame **G** on the rear of the machine.

Fig. 2-4 If the clearance between the locking pawl and the pawl of the tractor frame is too big the machine might be disconnected from the tractor during work or transport. In order to avoid this the locking pawl must be adjusted to have as small a clearance as possible.

The pawl is adjusted by lifting up the machine, so that it is suspended in the tractor frame. The nuts **1** are loosened and the locking pawl **2** is put as close to the pawl of the tractor frame **3** as possible so that it can be pulled out with the handle.



IMPORTANT: Remember to tighten the nuts again and to tighten them after every 10th working hour.

Remember to secure the pawl with the safety pin **4**, so that it is not disengaged by accident.

2. CONNECTION AND TEST DRIVE

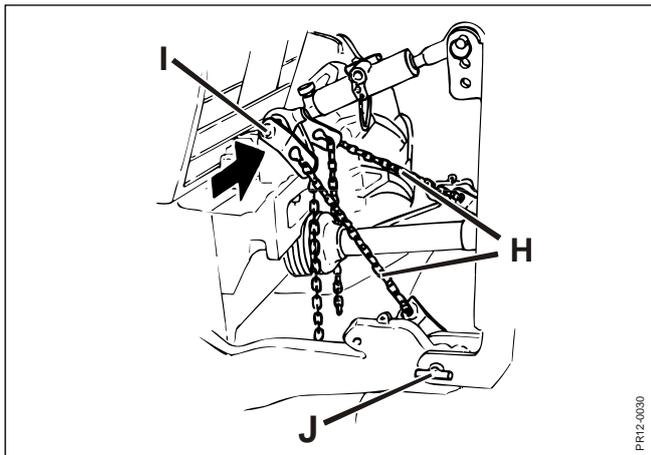


Fig. 2-5

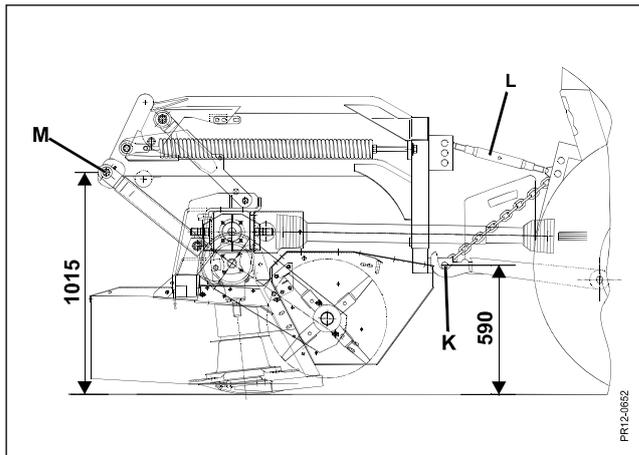


Fig. 2-6

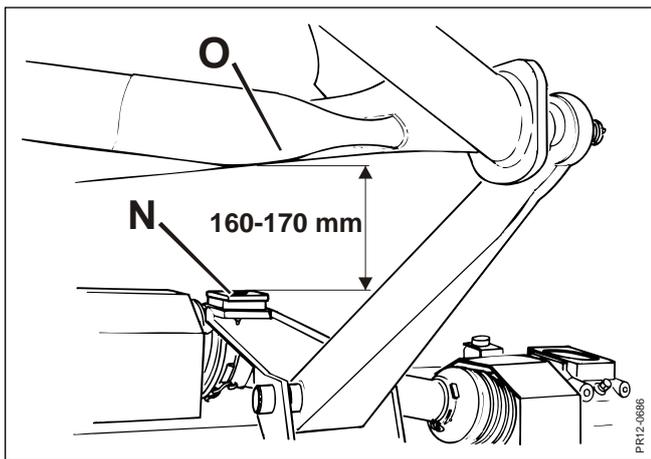


Fig. 2-7

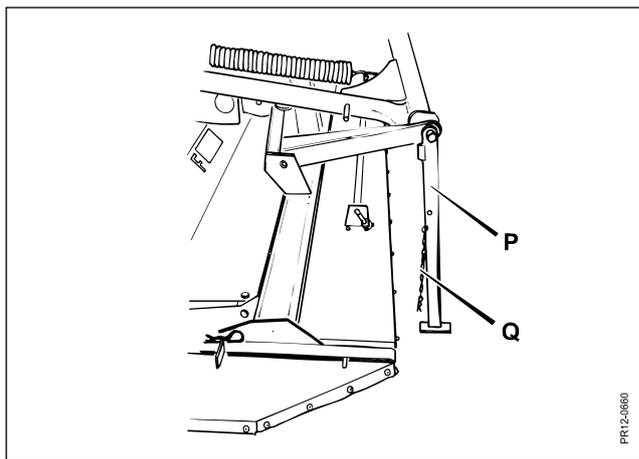


Fig. 2-8

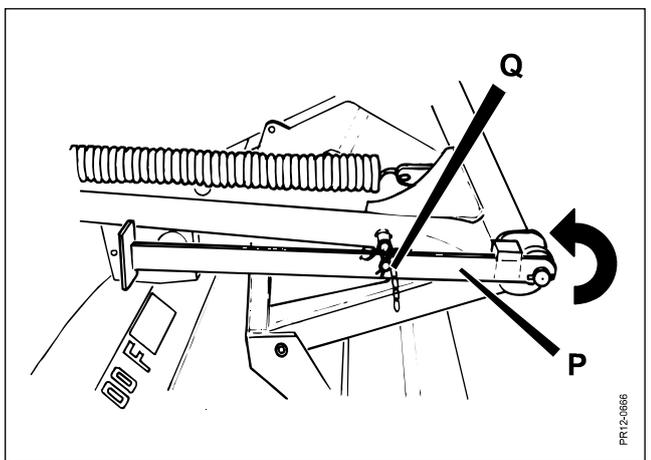


Fig. 2-9

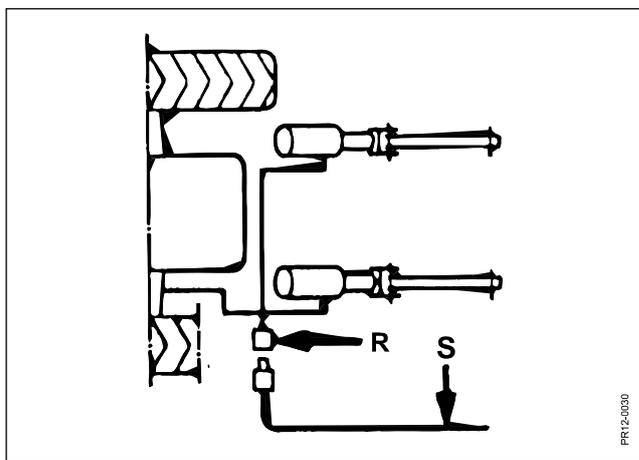


Fig. 2-10

2. CONNECTION AND TEST DRIVE

Fig. 2-5 The upper end of the limiting chains **H** is attached at the anchorage of the top link on the tractor with the pin **I** (from the spare parts package). The other end of the chains is attached to the two lift arms with the pins **J** (from the spare parts package).

Fig. 2-6 The disc mower must be connected, so that the working position is as close to the recommended **basic adjustment** from the factory as possible:

- 1) The machine must be resting on the ground.
- 2) The limiting chains are adjusted in the length, so the downward movement of the lift arms is stopped as close to the recommended height **K** as possible.
- 3) The top link **L** is adjusted in the length until the top frame has the correct height **M** above the ground.

Fig. 2-7 Check that the clearance between the stop **N** (on the frame) and the top frame **O** is within the area 160 to 170 mm. This clearance is recommended from the factory, and is necessary for the machine to have a correct contour following during work in the field and thereby obtaining a perfect performance result.

JACK

The machine has a jack, which is to ensure that the machine can be stably "parked" and that it does not tip forward, when it is connected to the tractor.

Fig. 2-8 When the machine is disconnected turn the jack **P** down in front of the machine and adjust its length so that it rests on the ground. The chain with the cotter **Q** is hanging down along the jack.

Fig. 2-9 When the machine is connected to the tractor, as shown before, the jack **P** is turned backwards, so that the machine can move freely within the working area. The jack is held and secured with the chain with cotter **Q**.



IMPORTANT: To secure the stability of the machine the jack must always be put into the position as shown in figure 2-7, before the machine is disconnected. When the machine is connected the jack must be put into horizontal position as shown in figure 2-8 to ensure free movement of the machine during work in the field.

HYDRAULIC CONNECTION

A lifting cylinder is mounted on the machine, which together with the front lift on the tractor ensures a sufficient clearance for the machine, when it is lifted. The lifting cylinder must be connected to the hydraulic system of the tractor, which can be done in 2 ways:

- 1) Some tractor makes have a female clutch at the front lift, to which the hose from the lifting cylinder on machine is connected directly.

Fig. 2-10 2) A T piece **R** is mounted in-line on the hydraulic system of the front lift, on which a female clutch is mounted. Hereafter the hose **S** from the lifting cylinder is mounted directly on it.

2. CONNECTION AND TEST DRIVE

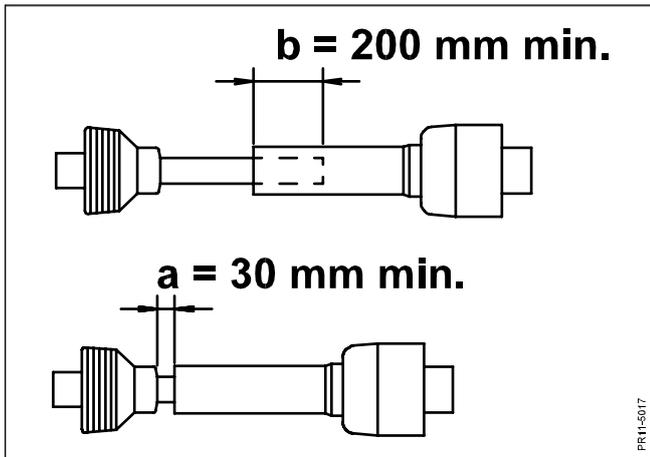


Fig. 2-11

2. CONNECTION AND TEST DRIVE



DANGER: The hydraulic components must only be exposed to a pressure of 210 bar, as a higher pressure could cause a damage of parts resulting in serious injury to persons. Make sure that there are no persons in the area when activating the hydraulic system the first time.



IMPORTANT: The hydraulic hose for the cylinder is equipped with a throttle valve ensuring that the lifting speed of the machine is limited, and therefore unnecessary shock loads are avoided. The throttle valve can be adjusted continuously, so that the oil flow it is adjusted to the oil flow of the tractor.

NB: Remember to take out the hose **S** from the female clutch when the machine is disconnected.

ADAPTATION OF THE PTO DRIVE SHAFT

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

Dimensions and movements of the single tractor makes' front lifts are not standardised. Therefore, the distance from the tractor power take-out (PTO) for the input shaft (PIC) on the centre gear will be different dependent on which tractor you use.

Therefore, it might be necessary to shorten the PTO drive shaft before it is used on the machine to ensure a correct functioning capability.



IMPORTANT: Do not shorten your new PTO drive shaft before you are sure it is necessary. From the factory the PTO drive shaft has been adjusted to the distance from PTO to PIC, which is standard at most tractor makes.

If it is necessary to shorten the PTO drive shaft on your machine notice the following:

Fig. 2-11 The PTO drive shaft is adjusted in the length, so that it:

- **has the largest possible overlap.**
- **in no position has an overlap less than 200 mm.** (As the distance from PTO to PIC varies when the machine moves up and down within the normal working area it must be ensured that the overlap is sufficiently in both outer positions).
- **in no position is closer to bottom the shaft than 30 mm.**



IMPORTANT: The stated dimensions for an overlap on the tube of the PTO drive shaft must unconditionally be observed as shown in fig. 2-11.

2. CONNECTION AND TEST DRIVE

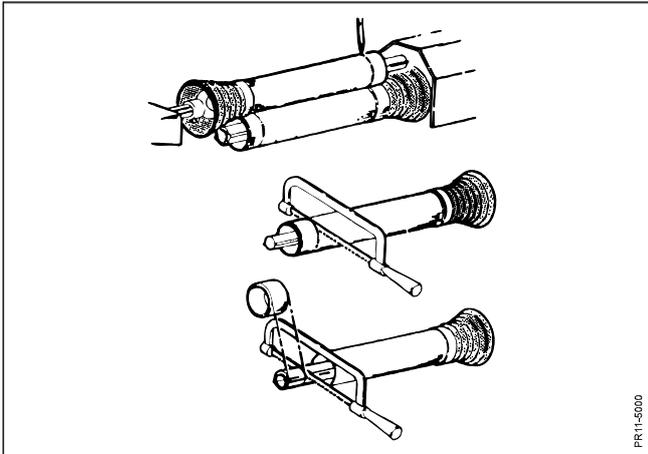


Fig. 2-12

2. CONNECTION AND TEST DRIVE

Fig. 2-12 The procedure when shortening:

- 1) The PTO drive shaft is disassembled in two halves, which are mounted on PTO and PIC, respectively, when these are at the same horizontal level. This corresponds to the shortest length, which the shaft can have on this machine and it normally corresponds to the working position, when the machine is placed on plane ground.
- 2) The shaft ends must be held parallel to each other and the 30 mm (minimum) is marked on the tubes. Besides, see fig. 2-11.
- 3) All 4 tubes are shortened equally much.
- 4) The profile tube ends must be rounded off and deburred carefully with a file until the tubes are completely smooth. It is important that **the outer tube is deburred on the inside and the inside tube is deburred on the outside**. The deburring secures the surface of the profile tubes against damage of sharp edges and impurities.
- 5) The ends of the profile tubes must be brushed free of dirt and loose burrs.



WARNING: Grease the profile tubes thoroughly before the shaft is reassembled, as the lack of grease can result in large frictional forces during work, which can result, in overload of the transmission.

When the PTO drive shaft is reassembled again the end with the friction clutch must be fastened on the PIC shaft on the centre gear.

Check that the power transmission has sufficient overlap in all positions raising and lowering the machine by means of the hydraulic system.

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

A too high PTO number of revolutions can be dangerous. A too low number of rotations, however, can give an unsatisfactory chop and unnecessary high torque load on the transmission.

2. CONNECTION AND TEST DRIVE

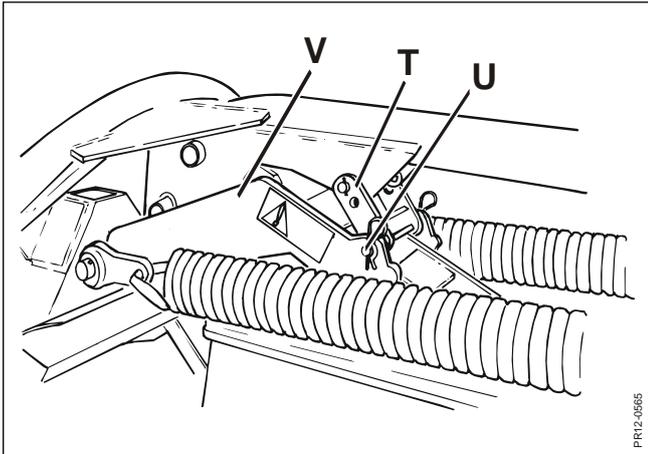


Fig. 2-13

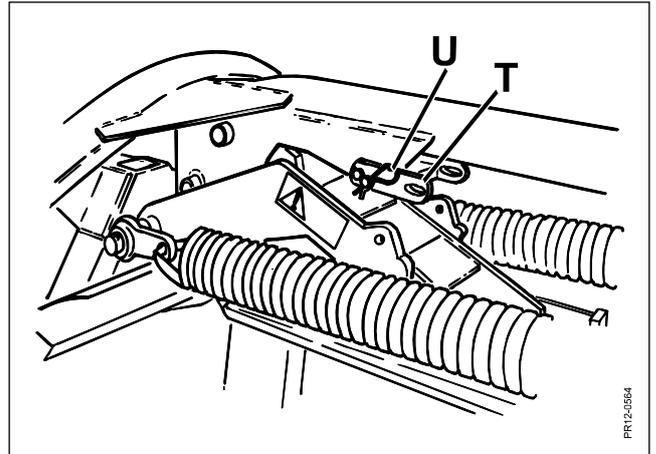


Fig. 2-14

2. CONNECTION AND TEST DRIVE

FRICITION CLUTCH

The PTO drive shaft has as mentioned a built-in friction clutch. This friction clutch aims to secure the transmission against overload when working in the field, and when starting up the machine (connection of PTO).

The friction clutch must be "aired" before the upstart of a new machine. This is mentioned in section 5. MAINTENANCE – FRICTION CLUTCH, and "air" it during a test drive.

SECURING AGAINST OVERLOAD



IMPORTANT: The tractor driver can do a lot to secure the transmission against overload!

The following conditions should be observed in the daily work:

- 1) Always start up the machine at a low number of revolutions, i.e. especially when using tractors with electro-hydraulic connection of the PTO drive shaft.
- 2) Start up the machine in working position.
- 3) An important increase of the machine's number of revolutions, i.e. when turning in the field should be made with the machine as close to the working position as possible.
- 4) Listen to the number of revolutions of the tractor when working in the field. If the number of revolutions slowly or suddenly is reduced it could be a sign that there is an overload of the transmission caused by too high forwarding speed or foreign matters in the cutting unit. In this situation the friction clutch will slide and you must immediately disengage and let the machine "have some air".

SECURING OF TRANSPORT

The machine has a built-in mechanical securing of transport. When the machine is connected and lifted with the hydraulic lifting cylinder, it must be secured before the transport begins.

The transport lock secures that the lifting cylinder on the machine is locked in its longest possible position. Hereby the cutting unit is kept in the upper position and cannot be lowered, if the hydraulic system is incorrectly operated or there is a break of a hose.

Fig. 2-13 Before transport of the machine the transport lock **T** is fastened with the pin **U** in the holes at the top of the centre parallel arm **V** and secured with cotters in both sides.



IMPORTANT: When transporting the machine the lock must always be in the on fig. 2-13 shown position.

Fig. 2-14 When transportation is over and when the machine is to be made ready for work, the pin **U** is pulled out from the centre parallel arm and in stead the lock **T** is fastened at the top of the top frame. The pin **U** is used again and secured with cotters in both sides.



IMPORTANT: When the machine is working in the field the lock must always be in the in fig. 2-14 shown position.

TEST DRIVE

CHECK BEFORE A TEST DRIVE

The following conditions should be checked before a test drive:

- 1) That the hydraulic components are correctly connected and tightened.
- 2) That the PTO drive shaft of the tractor has the correct number of revolutions (1000 rpm).
- 3) That the cutterbar and the bevel gears (2 pcs.) have correct quantity of oil. See section 4; GREASING.
- 4) That all grease spots have been greased. See section 4; GREASING.
- 5) That all blades on the discs are intact and have been correctly tightened.
- 6) That connection of the PTO drive shaft of the tractor is done with the cutting unit lowered to the ground and the machine in working position.
- 7) That the connection of the PTO drive shaft is made at a low number of revolutions.
- 8) That the PTO drive shaft between the PTO of the tractor and the centre gear PIC jammed, while the lift arms of the tractor is raised and lowered carefully.
- 9) That the protection of the PTO drive shafts is kept in place securing it with the chains.
- 10) That protection (guards and canvas) on the machine is complete, intact and correctly positioned.
- 11) That all tools have been removed from the machine.
- 12) That there are no persons in the near of the machine while it is operating.

2. CONNECTION AND TEST DRIVE

THE TEST DRIVE

Carefully connect the PTO drive shaft and let the engine run at a low number of revolutions for some minutes.

If there is no unintended noise or any unusual vibrations, the speed can gradually be increased to a normal number of revolutions (PTO = 1000 RPM).

Except from the tractor driver no one should be near the machine.

NB: All machines have been tested for vibrations before they leave the factory. It is an essential part of the quality securing of the company.

Still, at regular intervals, and especially during the test drive, you have to check if any vibrations occur, which are larger than usual.



WARNING: When discs and blades rotate with 3000 RPM even a minor damage of the rotating parts (blades, discs, and caps) could cause vibrations, which in time could cause secondary damage as cracks or fractures.

Even though the machine has been secured against bumps and vibration damage there will always be a risk even if very limited.

On a daily basis check if blades, discs and caps are damaged and if it is necessary to replace the parts.

3. ADJUSTMENT AND DRIVING

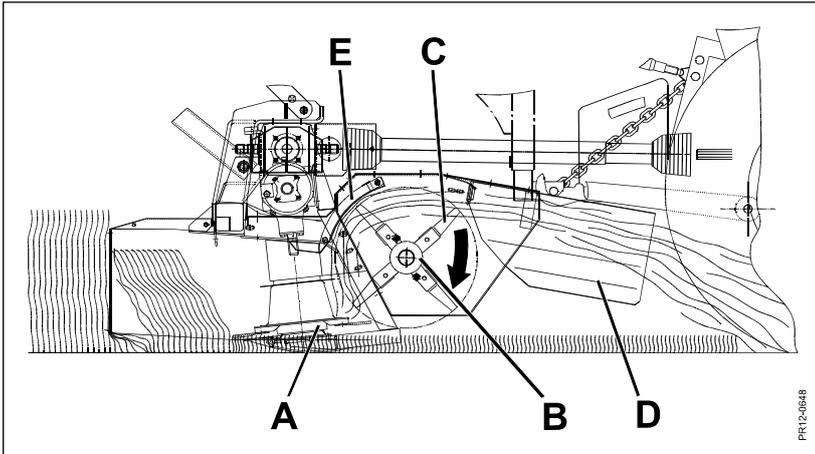


Fig. 3-1.1

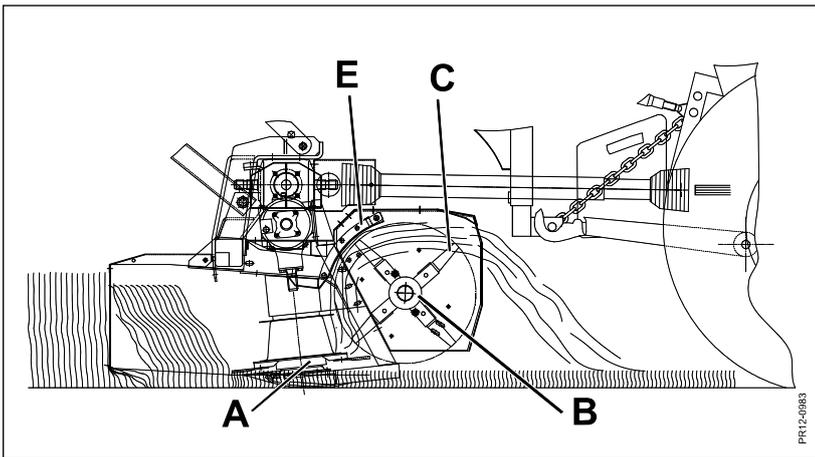


Fig. 3-1.2

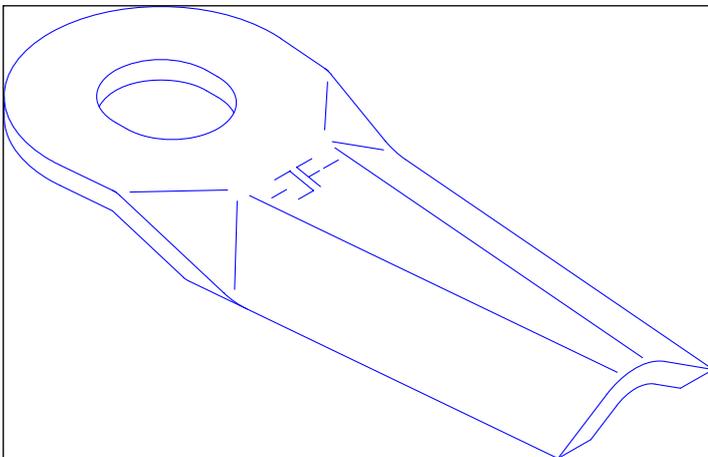


Fig. 3-2

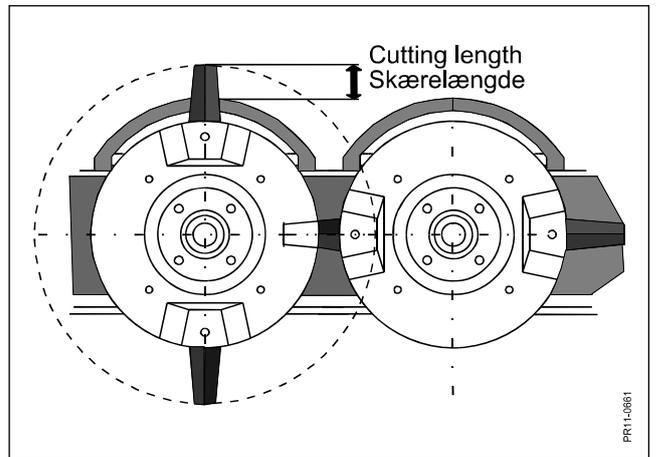


Fig. 3-3

3. ADJUSTMENT AND DRIVING

CONSTRUCTION AND FUNCTION

GD 2800 FM and **GD 3200 FM** are disc mowers for mounting in front of the tractor, and which lay a swath between the wheels of the tractor.

THE FUNCTIONAL PRINCIPLE OF THE MACHINE

Fig. 3-1.1 GD 2800 FM: The cutter bar cuts the crop and throws it backwards towards the conditioner rotor **B**. The PE fingers **C** on the rotor catch the crop, lift it and throw it backwards to the swath plates **D**. Finally the swath plates gather the crop to a swath of usually 1.2 to 1.4 m between the tractor wheels.

Fig. 3-1.2 GD 3200 FM: The cutter bar cuts the crop and throws it backwards towards the conditioner rotor **B**. The conditioner rotor **B** partly consists of an auger section in both sides and partly of a PE finger conditioner in the centre. The auger sections transport the grass towards the centre of the machine and the PE fingers **C** catch the crop, lift it and throw it backwards to a swath of 1.4 to 1.5 m.

When the crop is lead around the rotor by the PE fingers, the crop is pressed against the conditioner plate **E**. The friction between the conditioner plate and the crop leads to the fact that the wax surface of the crop breaks and is torn open, which gives an efficient drying of the crop.

THE MOST IMPORTANT ELEMENTS OF THE MACHINE

The blades

On every disc on the machine a set of profile blades have been bolted. These blades are made of 4 mm thick hardened high strength steel.

Fig. 3-2 The forming of sections of the blades results in an extremely high rigidity, which partly ensures that a blade very rarely bends and damage discs and the cutterbar, and partly results in a very long life because of high wear resistance.

REMEMBER: Before you start the machine check that:



- all blades are present and correctly mounted.
- no blades are bend or broken.
- all blades can rotate freely around the knife bolt.

A particular thing about this machine and the cutterbar is the blades' large efficient cutting length.

Fig. 3-3 The cutting length of a blade is defined by the distance from the front edge of the stone protection and to the point of the blade. The larger the chopping length is for each blade the larger the maximum possible forwarding speed of the machine will be, before an unclean chop occurs.

3. ADJUSTMENT AND DRIVING

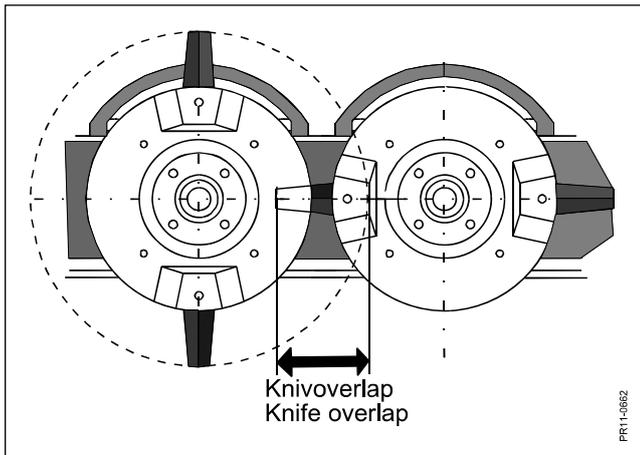


Fig. 3-4

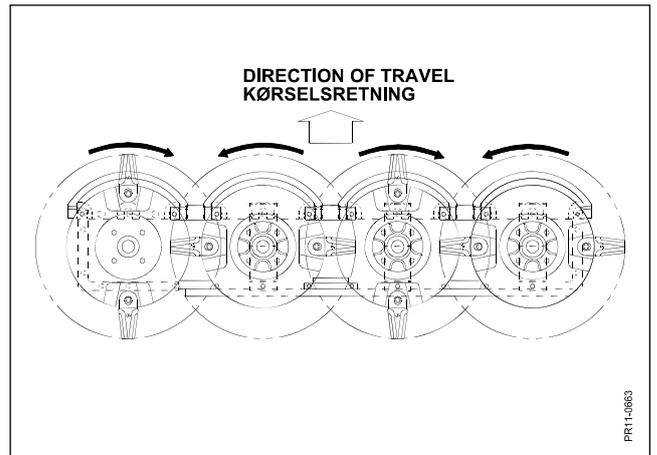


Fig. 3-5

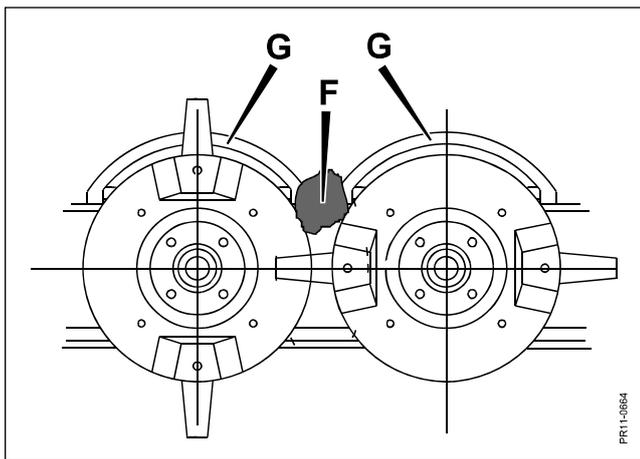


Fig. 3-6

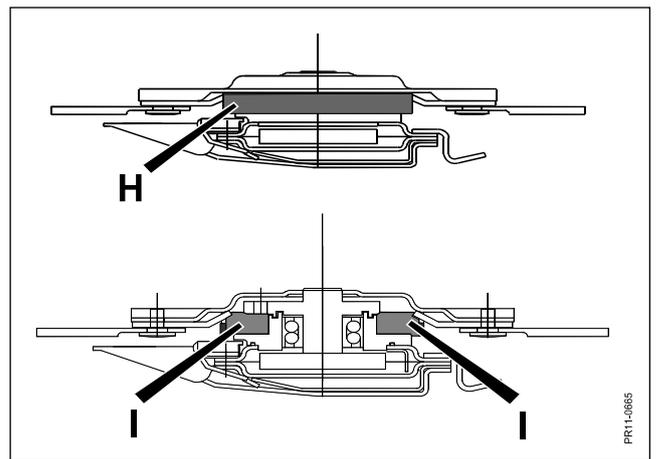


Fig. 3-7

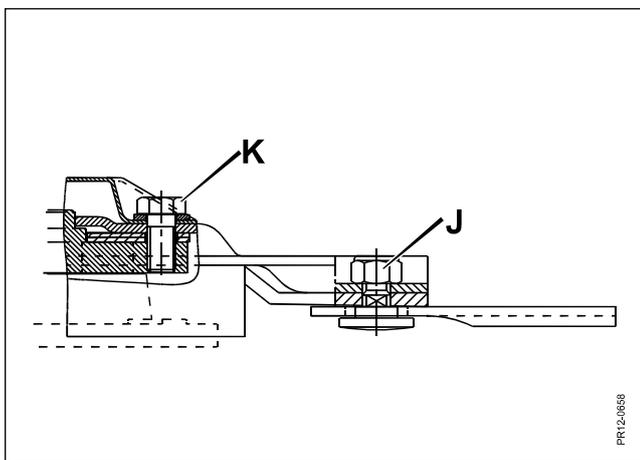


Fig. 3-8

3. ADJUSTMENT AND DRIVING

The following example can illustrate this fact:

The cutting length of the blade	0.05 m
Number of blades per disc	2 pcs.
The RPM of the blade	3180 rpm
Minutes per hour	60
Metre per kilometre	1000
Maximum forwarding speed	<u>19.1 km/h</u>

This result shows that the large efficient cutting length results in a high capacity reserve on this area of the machine.

Fig. 3-4 At the same time the cutterbar has a large blade overlap between the discs. This will, other things being equal, reduce the stripes between the discs. The blade overlap takes part in keeping the cutterbar clean and reduces the risk of the fact that the crop is wrapped around the hubs under the discs.

The discs

Fig. 3-5 The discs run in pairs towards each other to ensure the shortest way for the grass over the cutterbar and thereby to optimise the crop flow. This construction ensures that the cutting is not blocked by already cut crop and that a re-cut of the grass will not be possible.

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

Fig. 3-6 As standard the machine uses circular discs. This type of disc ensures that there will always be the same distance between two discs, which does not make it possible for foreign matters **F** to get stuck and block the rotation of the discs. At the same time the stone guard **G** protects the disc against foreign matters, so that they cannot get stuck underneath or between the discs.

Fig. 3-7 Below the discs is an anti-wrapping ring **H**, which will ensure that for instance string, thread or wire do not wrap around the discs and their hubs and block the rotation.

Periodically the discs should be taken off and dust and other matters, which might get stuck between discs and hubs on the cutterbar in the hatched area **I** should be removed.

Fig. 3-8 The blade bolts nuts on the discs **J** are lowered and thereby protected against wear. As they are lowered to the edge of the disc dust and dirt cannot get stuck and make a later blade replacement difficult.

The bolts **K** for fixing the discs to the cutterbar hub are also lowered in a special cover plate, which prevents that the crop is lead around and damage the material flow over the discs.

Flow intensifiers

To ensure that the machine delivers a gathered string of crop behind the machine a flow intensifier, called a hat, has been positioned on the discs, which optimises the material flow over the cutterbar.

3. ADJUSTMENT AND DRIVING

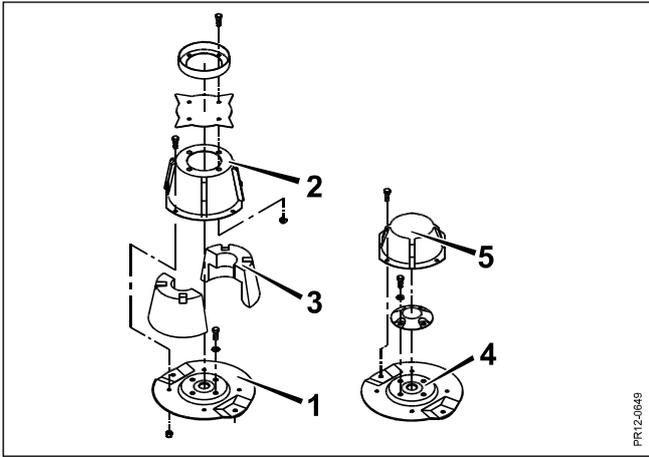


Fig. 3-9

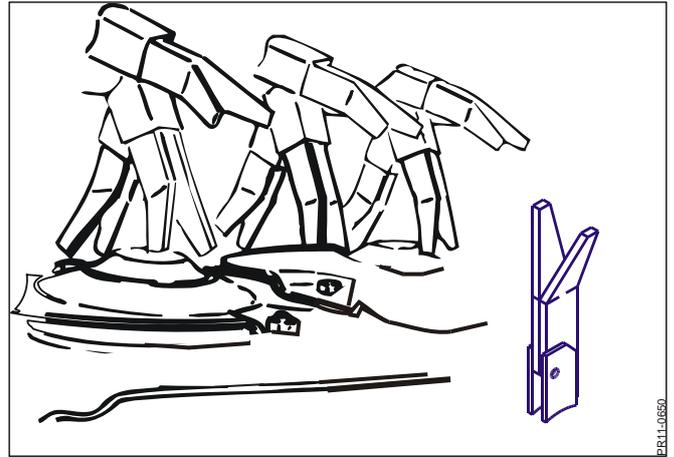


Fig. 3-10

3. ADJUSTMENT AND DRIVING

Fig. 3-9 On each of the two outer discs **1** is mounted one big cap **2**, which on the inside has two foam inserts **3**. These ensure that dust and dirt do not accumulate under the caps and thereby prevent that any unbalance might occur. The two big caps must ensure that the crop is transported in the correct direction around the disc (towards the centre) and over the cutterbar.

On the rest of the discs **4** smaller caps **5** are mounted, which are pressed upwards by a part of the plate. As mentioned these are ensuring an efficient material flow between the discs in pairs and over the cutterbar.

The flow intensifiers on the centre discs can easily be dismantled with 4 bolts per disc. Normally when working in the field with flow intensifiers mounted you get the best result, as they besides the above-mentioned advantages also optimise the possibility of the conditioner rotor to lift, condition and transport the crop on to the swath plates. This is the groundwork for a perfect swath.

The flow intensifiers are absolute necessary as regards special applications of the machine and where conditions might be difficult:

- when working on hilly ground and on steep slopes.
- when working where the cutterbar is tipped backwards (horizontal) to obtain a high stubble.
- when working in thin and short grass.

Under certain circumstances it can also be necessary to dismantle the flow intensifiers:

- when working in long, strong and heavy grass. The caps can prevent that the crop moves freely over the cutterbar because of the limited space between the conditioner plate and over the cutterbar.
- when working with a tractor with limited power, the machine cannot run with the correct 1000 rpm on the PTO, as the caps require extra power from the tractor.

CONDITIONER ROTOR

The main purpose of the conditioner is:

GD 2800 FM: - to condition the crop, lift and transport it backwards, so that a gathered swath can be made by means of the swath plates.

GD 3200 FM: - through the auger sections to gather the crop towards the centre of the rotor, to condition the crop, lift and transport it backwards to a gathered swath.

Fig. 3-10 PE fingers are mounted on the rotor, which have more considerable advantages:

- in many tests the fingers have shown an incredibly high wear resistance.
- the fingers have sufficient rigidity to perform an efficient conditioning between the conditioner plate and the rotor.
- the fingers are flexible and can bend for any foreign matter, which might get into the conditioner rotor.
- if a finger breaks of the rotor, there will be no metal in the swath, which could cause serious secondary damages.

The fingers are shaped, so that the grass is thrown in the correct angle, which gives a good chance of making an even gathered swath behind the machine.

3. ADJUSTMENT AND DRIVING

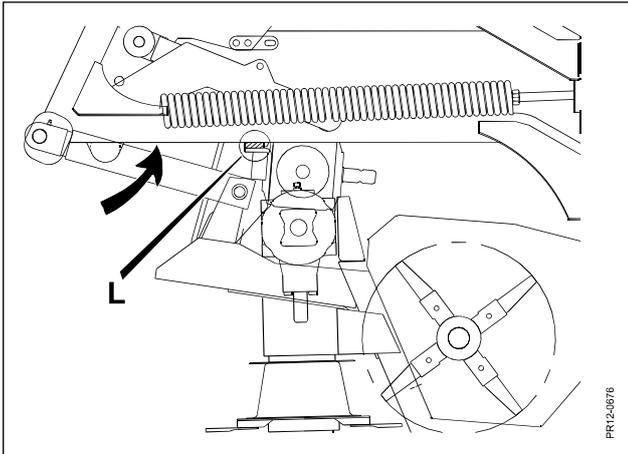


Fig. 3-11

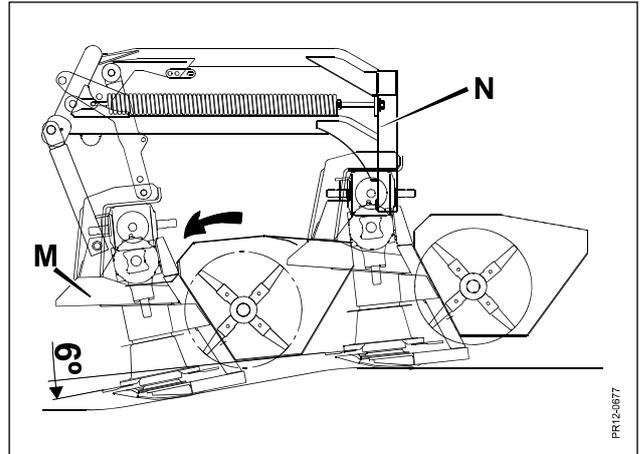


Fig. 3-12

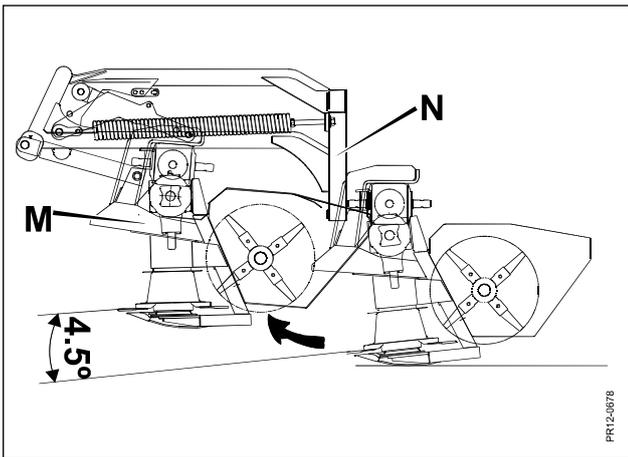


Fig. 3-13

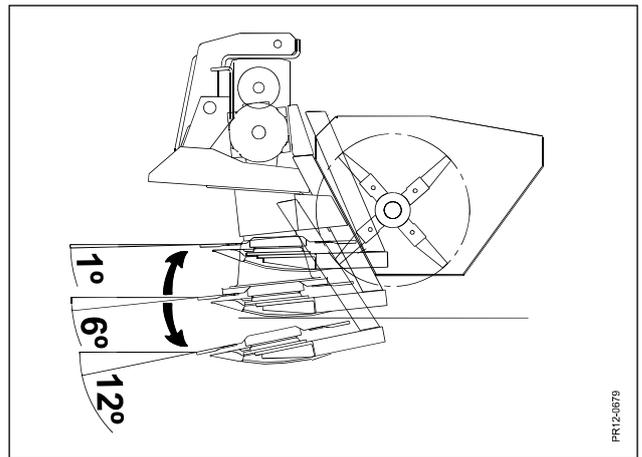


Fig. 3-14

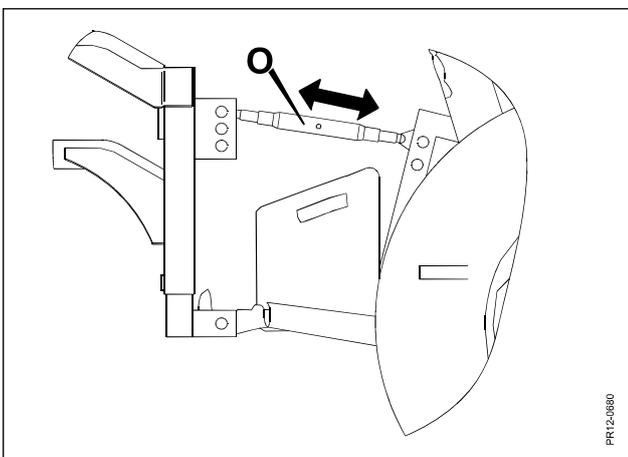


Fig. 3-15

ADJUSTMENTS

On **GD 2800 FM** and **GD 3200 FM** there are more elements, which must be adjusted correctly to obtain the optimum of the functions of the machines.

WORKING AREA

The cutting unit of the machine can move vertically in proportion to the carrying and pulling headstock. This enables the cutting unit to follow the ground, while the headstock follows the movements of the tractor.

Fig. 3-11 The cutting unit can move approximately 315 mm vertical in proportion to the headstock. It is the hydraulic cylinder of the machine, which limits the movement downwards, while a mechanical plastic stop **L** limits the movement upwards.

In section 2; CONNECTION AND TEST DRIVE the recommended basic adjustment from the factory is described. In this connection it is important that the clearance between the plastic stop and the headstock is approximately 170 mm. See this in fig. 2.6.

THE CUTTING ANGLE

The machine is constructed with the special "Front Contour" suspension, which has the effect that the cutting angle adjusts to the ground when working in the field. It is very useful when driving on hilly ground, as working with this suspension means an approximately constant stubble height.

Fig. 3-12 When the ground in front of the machine slopes down the cutting unit **M** moves forward in proportion to the headstock **N**. Simultaneously with this movement the cutterbar turns forward (max. 6 degrees), after which the stubble height stays at the wanted length.

Fig. 3-13 On the other hand, when the ground in front of the machine is rising, the cutting unit **M** moves up towards the headstock **N**, until the plastic stop goes against the headstock. At this movement the cutterbar is turned backwards (max. 4.5 degrees), which means that a reasonable stubble height is maintained and the risk of the blades colliding with the ground up front is minimised.

Fig. 3.14 Having the machine in the recommended basic position the cutting angle is approximately 6 degrees, when the machine is positioned at plane ground. When the machine is moving downwards the angle increases to approximately 12 degrees, while it when moving up hill is reduced to approximately 1 degree (the bar is almost horizontal).

Under certain circumstances it is required to increase or reduce the cutting angle to obtain a smaller or larger stubble height.

Fig. 3-15 It is possible to adjust the basic adjustment from the 6 degrees by prolonging or shortening the top link **O**. Using the basic adjustment the theoretical cutting height is approximately 55 mm and the actual stubble height is normally calculated as twice as much, i.e. approximately 110 mm.

3. ADJUSTMENT AND DRIVING

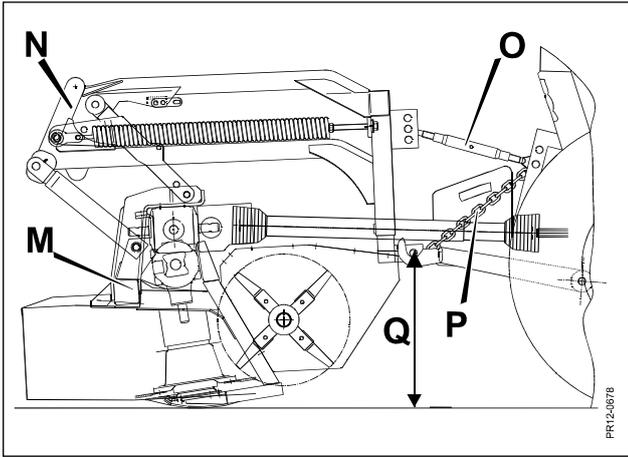


Fig. 3-16

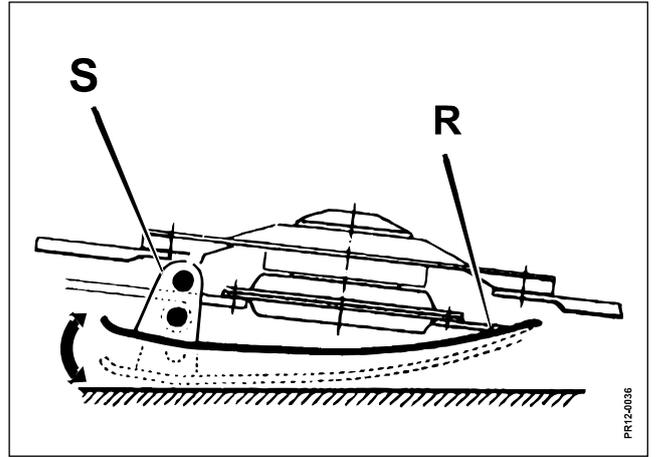


Fig. 3-17

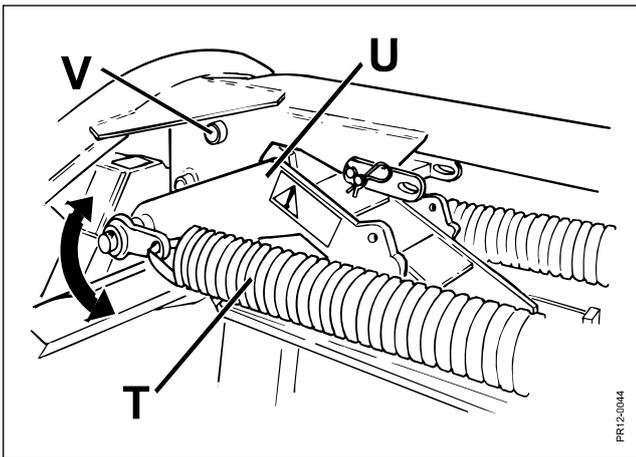


Fig. 3-18

3. ADJUSTMENT AND DRIVING

Below is shown the connection between the single conditions:

Length of top link	Cutting angle	Theoretical cutting height	Stubble height in practice
Normal	6 degrees	55 mm	110 mm
Shorter	1 - 6 degrees	55 – 70 mm	110 – 140 mm
Longer	6 – 12 degrees	35 – 55 mm	70 – 110 mm

When you change the cutting angle you also change the previous described basic adjustment (fig. 2-6).

Fig. 3-16 In order to obtain a new correct adjustment of the machine with the changed cutting angle the following must be made:

- 1) When changing the length of the top link **O** the wanted cutting angle is found.
- 2) In order to obtain a correct clearance of approximately 170 mm between the cutting unit **M** and the headstock **N** the limiting chains **P** must be adjusted in a length, so that the movement of the lift arms downwards is stopped in a new position **Q**, which then results in the correct clearance.
- 3) The cutting angle is controlled with the new position of the lift arms. If this new position diverge considerably from the wanted position the procedure must be made again.



IMPORTANT: If you want to work with a smaller stubble height than normal it is necessary to drive with the lift arms in a higher position than described above. Be aware that this causes a reduced clearance when transporting the machine in lifted position, as the rest of the lifting area for the lift arms now will be smaller than normal.

Fig. 3-17 If you want an extra high stubble, for instance when topping fallow fields it is possible to buy alternative skids from JF-Fabriken which are adjustable in the height. The skids are fastened on the machine frame with pins in the lower hole on the supports **S**. If a higher stubble is wanted the skids are moved downwards, so that the pins are fastened in the upper hole in the supports **S**.

RELIEF

In order to spare the stubble during work, reduce the wear on the skids of the machine, and to ensure a good ground following the machine is relieved by 2 horizontal strong relief springs.

Fig. 3-18 The relief system operates as follows:
The two relief springs **T** are fastened on pins on the centre parallel arm **U**. When the cutting unit moves up and down the parallel arm **U** turns around the pivot point **V**, and the arm on which the relief springs **T** are fastened moves up and down.
After this the relief system operates as an eccentric system, which gives an approximate constant relief of the cutting unit in all positions.

3. ADJUSTMENT AND DRIVING

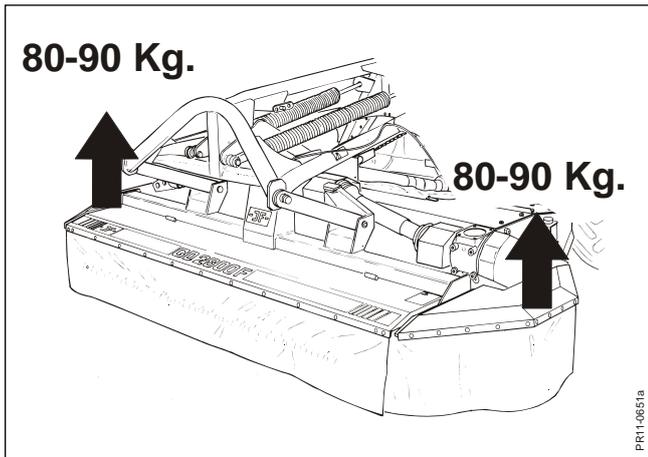


Fig. 3-19

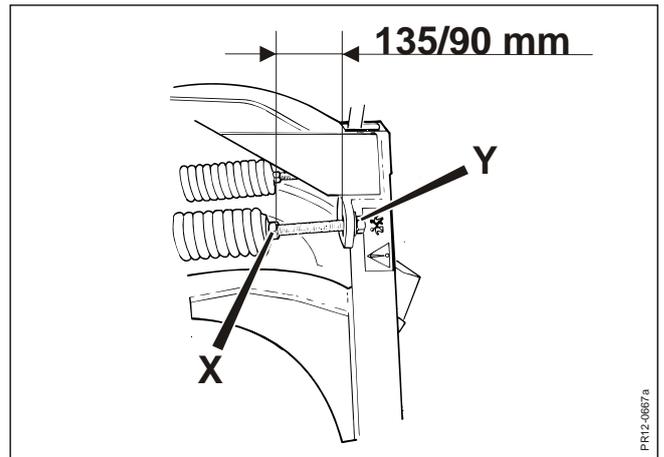


Fig. 3-20

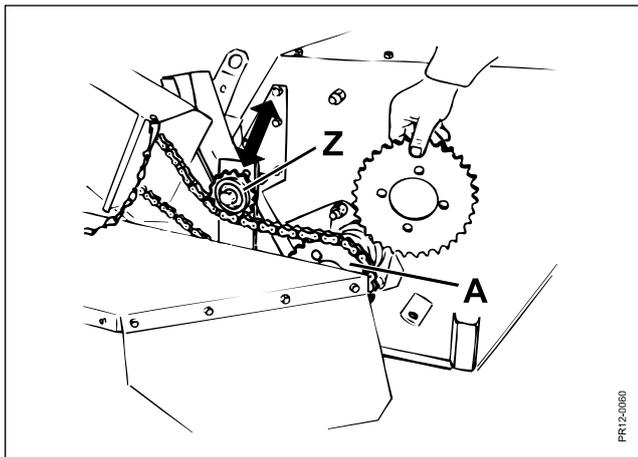


Fig. 3-21

3. ADJUSTMENT AND DRIVING

Of course, the relief system must be adjusted to the ground and driving conditions. At uneven ground conditions it might be necessary to reduce the relief (i.e. the ground pressure) to ensure a satisfactory ground following ability for the cutting unit.



IMPORTANT: When you use a front mounted machine you must be aware that it will be exposed to unevenness and holes in the ground before the tractor wheels do and that the machine must be able to move in the opposite direction of the movements of the tractor. Therefore you must reduce the forwarding speed when working with the machine with reduced relief on hilly ground to spare the cutting unit and to avoid strong collisions with unevenness.

Fig. 3-19 From the factory the relief system is adjusted, so that the pressure towards the ground is adjusted to the driving under normal circumstances. The weight in both sides is approximately 80 to 90 kg, when the machine is in the basic position on plane ground.

NB: The pressure towards the ground with the machine adjusted from the factory is larger than on the machines, which are mounted in a suspension behind the tractor. This is caused by the conditions that the machine is mounted in front of the tractor, and must be able to follow the ground independent of the tractor wheels. This results in the machine having to react relatively quickly on unevenness and a larger pressure towards the ground is necessary.

Fig. 3-20 The degree of relief can be increased or reduced by adjusting the set up of the two horizontal relief springs:

- 1) Counter nut **X** is loosened.
- 2) The thread spindle **Y** is turned to adjusted the set of the relief springs:

Turn clockwise \Rightarrow the relief spring is tightened \Rightarrow **the relief is increased.**
Turn counter clockwise \Rightarrow the relief spring is loosened \Rightarrow **the relief is reduced.**

- 3) When the wanted set up has been reached the counter nut **X** is tightened again.



IMPORTANT: From the factory the relief springs are set up, so that on **GD 2800 FM** there is approx. 135 mm and on **GD 3200 FM** approx. 90 mm free thread between the counter nut and the relief spring bracket on the headstock.

FINGER CONDITIONER

The conditioner on **GD 2800 FM** can drive with two speeds:

Normal	=	860 RPM
Reduced	=	700 RPM

The conditioner on **GD 3200 FM** can only run with normal speed = 860 RPM.
From the factory the machine is mounted to drive with normal speed; 860 rpm.

Fig. 3-21 If you want to reduce the speed on the rotor, you must replace the chain wheel with 27 teeth, which is situated on the rotor shaft with a chain wheel with 33 teeth from the delivered spare parts package. This is made as follows:

- 1) The tension wheel **Z** is loosened and moved backwards so that the chain is loose.
- 2) The chain wheel **A** on the rotor shaft is dismantled.
- 3) The other (larger) chain wheel from the spare parts package is mounted on the shaft.
- 4) The tension wheel **Z** is pressed against the chain and the chain wheel is tightened.

3. ADJUSTMENT AND DRIVING

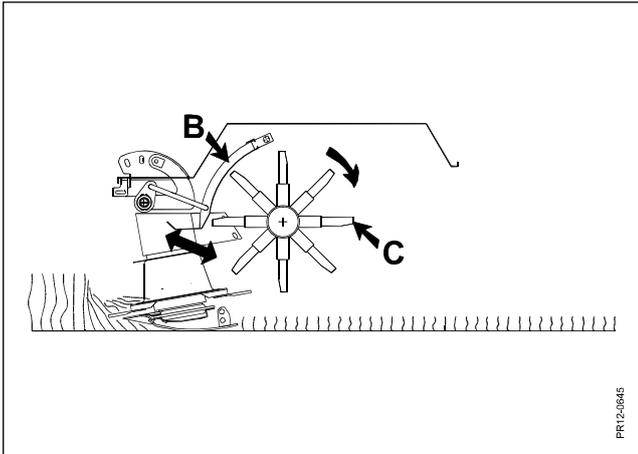


Fig. 3-22

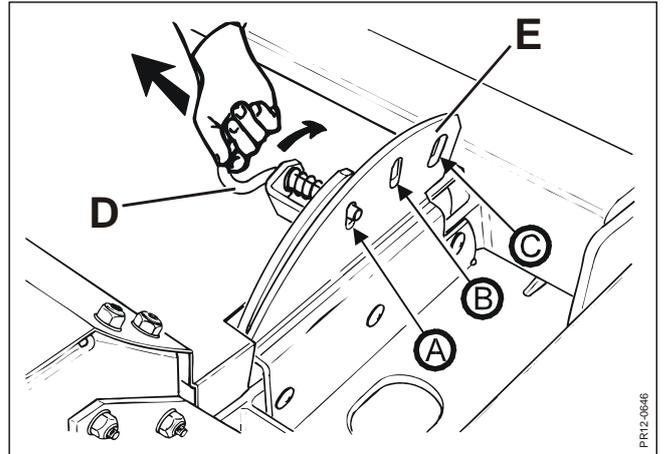


Fig. 3-23

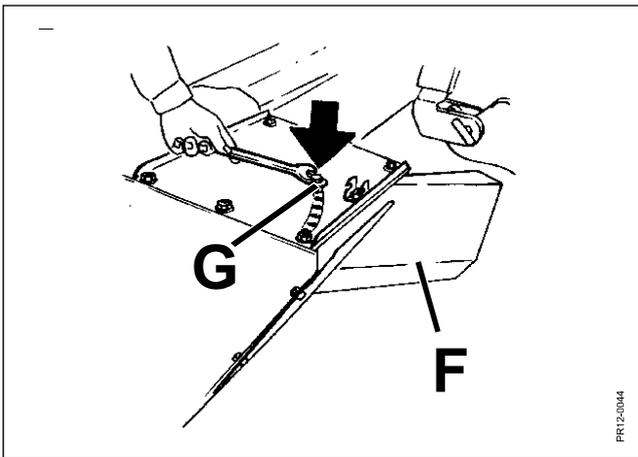


Fig. 3-24

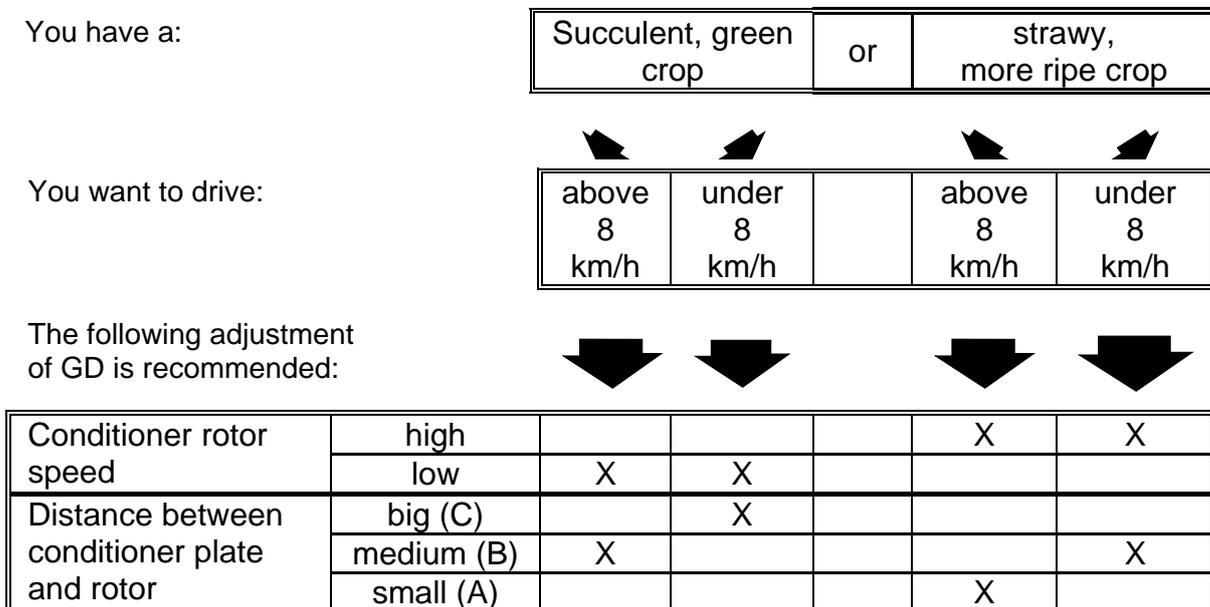
3. ADJUSTMENT AND DRIVING

The machine is equipped with a simple and easy operated system for central adjustment of the degree of conditioning.

Fig. 3-22 This degree of conditioning can be changed by adjusting the distance between the conditioner plate **B** and the conditioner fingers **C** on the rotor.
The golden rule is: The smaller the distance, the stronger the crop is conditioned.

Fig. 3-23 The system is operated by the handle **D**, which can be placed in 3 positions on the bracket **E**. The distance of the conditioner plate to the rotor is changed by moving the handle **D** to one of the other holes in the bracket **E**. If the handle is positioned in pos. (A), the distance between the conditioner plate and the conditioner fingers is very small, in pos. (B) the distance is medium and in pos. (C) the distance is large.

The adjustment of the system is dependent on various conditions. The optimum conditioning of the crop is obtained by the following adjustment of the conditioner plate:



From the factory the machine has been adjusted to a medium degree of conditioning in pos. (B).

This adjustment results in a satisfactory performance during normal conditions.

SWATH PLATES (GD 2800 FM)

The swath plates on the machine must ensure that the swath has the wanted shape and width. The crop is thrown from the conditioner rotor and backwards towards the swath plates, which then lead the crop together to an airy narrow swath with a rectangular cross section.

Such a swath means optimum conditions for both an efficient pre-drying and for a successive unproblematic gathering for a precision chopper or a baler.

Fig. 3-24 The width of the swath can be adjusted by turning the swath plates **F**. The bolts **G** on the upper plate are loosened and the plates are moved out or in.

NB: From the factory the swath plates have been adjusted to approximately 1.3 m swath width. If you want the Top Dry equipment for wide spreading you can buy it from JF-Fabriken.

WORKING WITH THE MACHINE

As the machine is mounted in front of the tractor many instructions are not necessary for working with the machine in the field. However, there are certain conditions, which must be pointed out:

TO START UP

When you come to the field, in which you are going to work, the following procedure must be observed:

- 1) The cutterbar is lowered down without you driving into the crop.
- 2) The lubricator is opened correctly (See section 4; GREASING – CHAIN DRIVE).
- 3) The PTO of the tractor is connected with the engine idling.
- 4) The number of revolutions of the engine is gradually increased until you reach the wanted 1000 rpm on the PTO.
- 5) Drive the tractor forward and lower the cutting unit into the crop.

NB: Normally the cutting tool (cutterbar, discs, and blades) are going to make some noise during the start up because of the high number of revolutions of the discs (3000 rpm).

The noise will be damped when the machine works in the crop.



IMPORTANT: When the machine is in working position and swathing, the single-acting hydraulic cylinder for lifting the machine must be in float position, so that the cutting unit can move freely and the Front Contour suspension operates at an optimum.

WORKING IN THE FIELD

There are various conditions that you have to be aware of when working with the machine.

Theoretically seen, it is possible to work with a forwarding speed of 19 km/h. However, you should adjust the speed to the conditions, i.e. how much crop you work in and the ground conditions.

The tractor driver must always have complete control of the tractor and must be capable of avoiding unevenness and foreign matter in front of the tractor and the machine.

The forwarding speed should be a bit lower than normal if:

- the ground is uneven or hilly
- the crop is lying down
- the crop is unusually high or thick

On the other hand the forwarding speed should be increased if:

- the crop is low and thinly covered
- the crop is mixed with for instance peas or the like.

As already mentioned it is important that you are especially aware when working on hilly ground. The forwarding speed should be reduced, and you must be aware of the movements of the machine compared to the ground conditions.

3. ADJUSTMENT AND DRIVING

On hilly ground there is a larger risk of the machine hitting a bank of earth or foreign matter, and you as the driver must minimise the risk of damage on the material.

REMEMBER: As long as the stubble stays uniform and the machine moves uniformly over the ground the forwarding speed is at a suitable level.



DANGER: When driving along fences and steep slopes you must always be careful and not drive too fast, partly because of foreign matters in the fence and partly because of the often varying soil conditions along steep slopes and fences.



IMPORTANT: **It is not possible to reverse the machine unless the cutterbar has been lifted off the ground using the lifting cylinder and the front lift to do so!**

As with other machines suspended in parallel arms you must be aware of traversing forces when driving in curves and on hilly ground.

The machine cannot be displaced to the side, as certain stability is ensured when forwarding and, therefore, there is no breakaway mechanism in the traversing direction.

During the swathing you must try to keep a constant number of revolutions on the PTO shaft (1000 rpm), so that the cutting tool of the machine can work at an optimum.



WARNING: The load on the whole transmission increases considerably when the number of revolutions is reduced and you are going to experience that in order to protect the transmission the friction clutch slides as intended when the machine is loaded.

Make sure to disengage immediately when the friction clutch slides and then examine the reason for the overload of the transmission.



DANGER: After long-lasting work with the machine the working temperature of the cutterbar is approximately 80 degrees, and you should be aware of the risks of being burned, if for instance you are going to replace some blades.

URNS

When turning in the field the cutterbar must be lifted off the ground and the number of revolutions should be reduced.

NB: When the machine at turns is lifted up noise might occur from the PTO shaft between the tractor and the machine. This is caused by the angle of the shaft and has no practical importance, as the torque of the shaft is very small in this situation.

Before the number of revolutions is increased again the cutterbar should be lowered into working position.

REMEMBER: The hydraulic outlet for the cylinder on the machine must be placed in float position after each turn.

3. ADJUSTMENT AND DRIVING

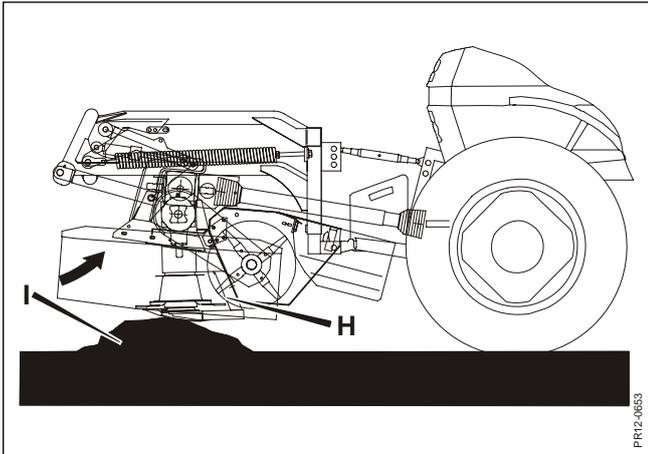


Fig. 3-25

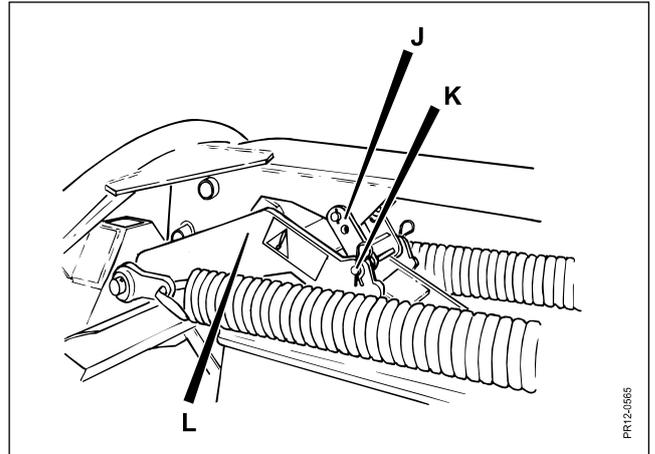


Fig. 3-26

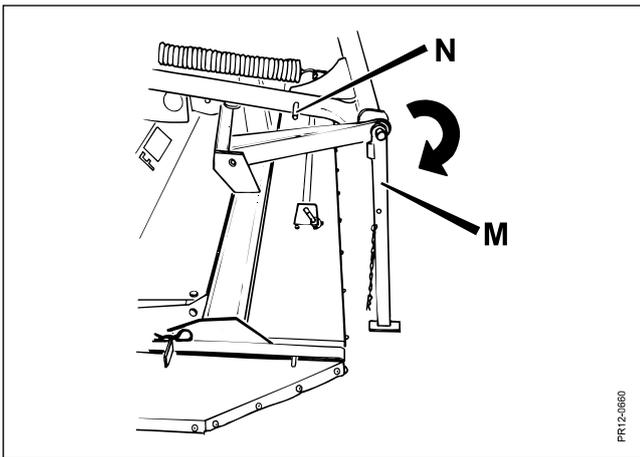


Fig. 3-27

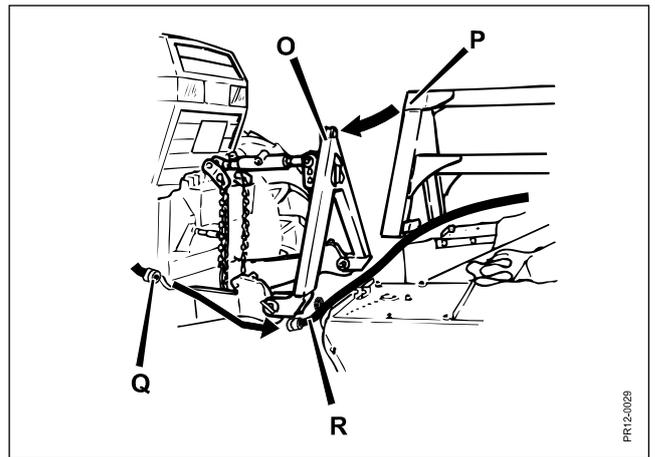


Fig. 3-28

3. ADJUSTMENT AND DRIVING

When turning on hilly ground or steep slopes, you should as far as possible turn the machine up against the hilly ground/steep slopes to ensure sufficient stability of the tractor.

Under any circumstance the forwarding speed should be reduced during turnings in the field.



IMPORTANT: The machine is not intended to be reversed in working position. Therefore, **always** lift the cutterbar off the ground when turning.

STONE RELEASE

If the machine hits an obstacle as foreign matter or unevenness on the ground the Front Contour suspension has been constructed to work as a stone release.

Fig. 3-25 When the cutting unit **H** hits an obstacle **I**, and you continue driving forward the cutting unit moves backwards and up and the cutterbar turns backwards. This means very good conditions for the cutting unit when sliding over the obstacle. Be especially aware of sudden movements and bumps to the cutting unit and reduce the forwarding speed considerably, disengage, come to a complete stop and examine the obstacle (the above goes especially for stony areas).



IMPORTANT: After a strong collision with an obstacle the machine should be checked for any damage made by the collision. This especially goes for the bearing parts and the cutting tool.

REMEMBER: The stone release is not constructed to be activated by overload from the side, which occur when turning the machine in working position.

TRANSPORT

Transport on public roads and outside the fields must be made with the machine lifted by means of the lifting cylinder on the machine and the front lift, **the transport lock must be correctly secured** and the guards must be folded up (**GD 3200 FM**) for minimum width.

Fig. 3-26 The transport lock **J** is positioned on top of the headstock. The machine is lifted and the lock is secured with the pin **K** in the holes on top of the centre parallel arm **L** and secured with cotters in both sides.



IMPORTANT: Remember to turn off the lubricator for the chain drive when the work has been done.

PARKING

The machine must always be parked on a plane and stable support. If this is not possible supports or plates must be used.

Fig. 3-27 Before you disconnect the machine jack **M** is turned from the locked horizontal position to the front of the machine by loosening the support at the pin **N** on the headstock. In this position the chain with cotter bolt is loose along the jack.

Fig. 3-28 The machine is lowered towards the ground, the length of the jack is adjusted so that it ensures the stability of the machine, and the A-frame **O** on the front lift is pulled downwards and out of the headstock **P**.

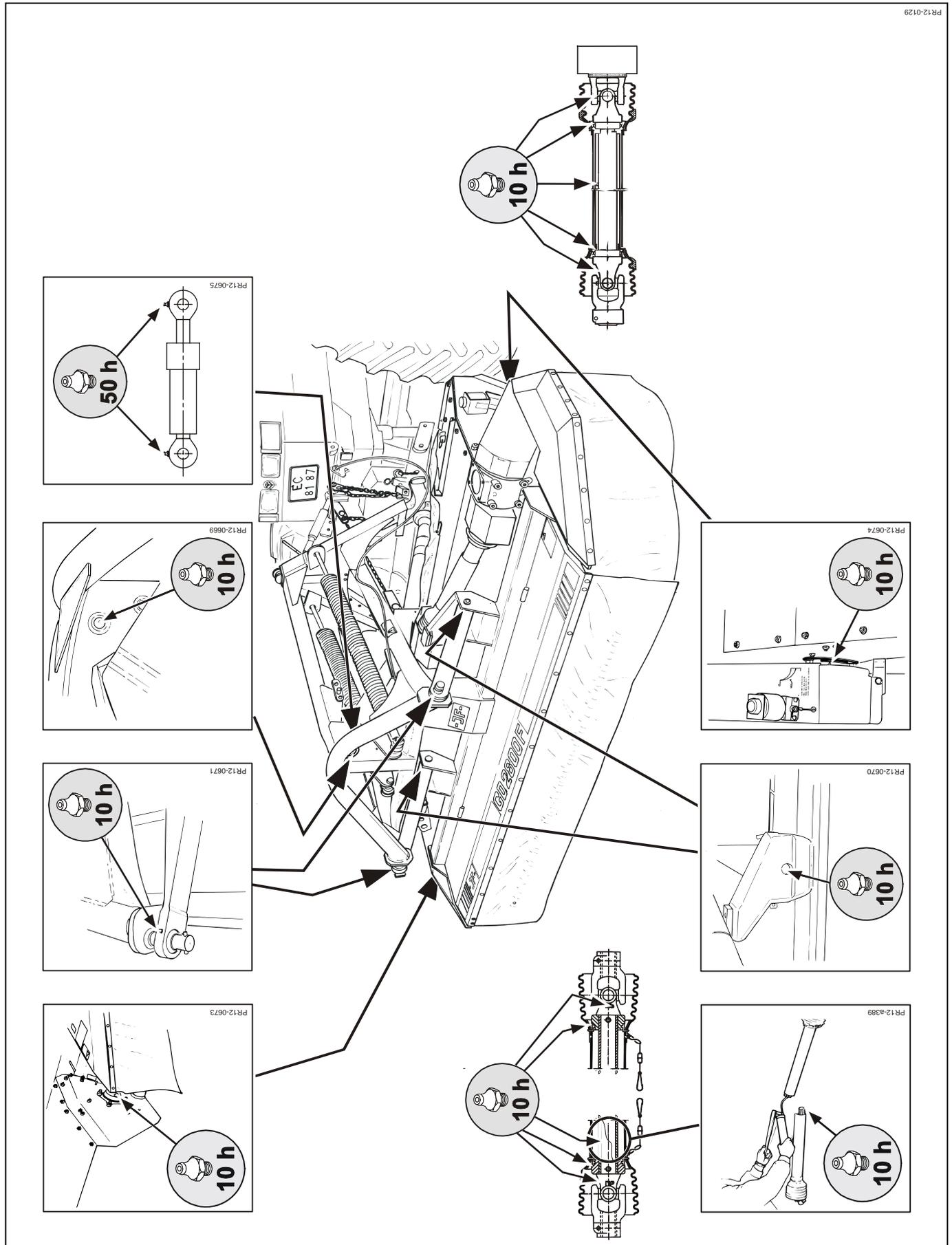


IMPORTANT: The hydraulic hose **Q** for the lifting cylinder is removed from the clutch **R** on the tractor. After this the tractor is reversed from the machine, which is now stably parked.

4. GREASING

Lubrication chart for disc mower type: **GD 2800 FM**

The lubricating spots shown must be lubricated according to the stated working hours.



4. GREASING

GREASING

Always make sure that the machine is properly and sufficiently greased before you start the work.

Go through the lubrication chart on the opposite page.

Type of grease: Universal grease of good quality.

4. GREASING

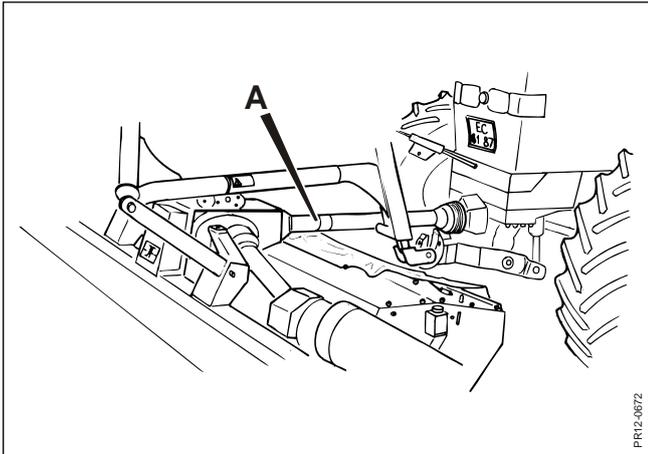


Fig. 4-1

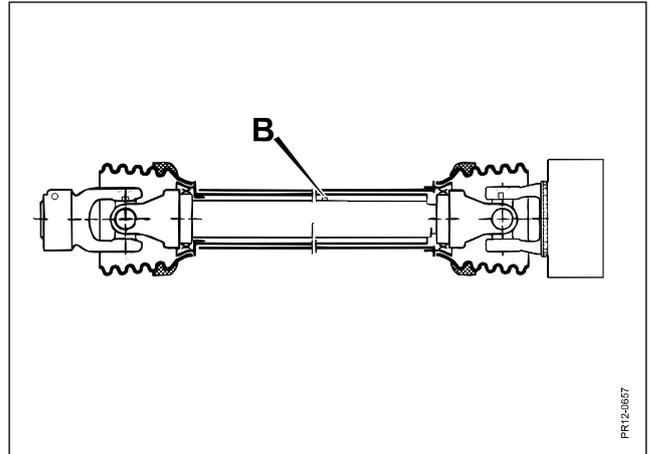


Fig. 4-2

4. GREASING

Movable mechanical connections are greased or oiled as required.



IMPORTANT–REMEMBER: *PTO shafts must be greased every 8 working hour.*

Pay special attention to the PTO shafts' **slidable profile tubes**.

They must be able to glide forwards and backwards when influenced by important moment loads during work.

If you do not grease the profile tubes sufficiently there will soon be considerable frictional forces in the profile tubes, which will then be damaged and in time also result in damage of shaft pins and gearboxes.

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

Fig. 4-2 The profile tubes in this shaft constantly moves compared to each other during work. Therefore the machine is equipped with a special shaft, in which the tubes can be greased from the outside by means of a central positioned grease nipple **B**, i.e. without having to separate the shaft.

4. GREASING

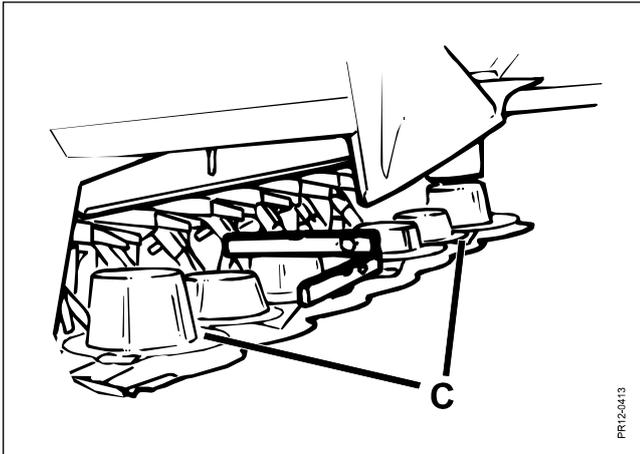


Fig. 4-3

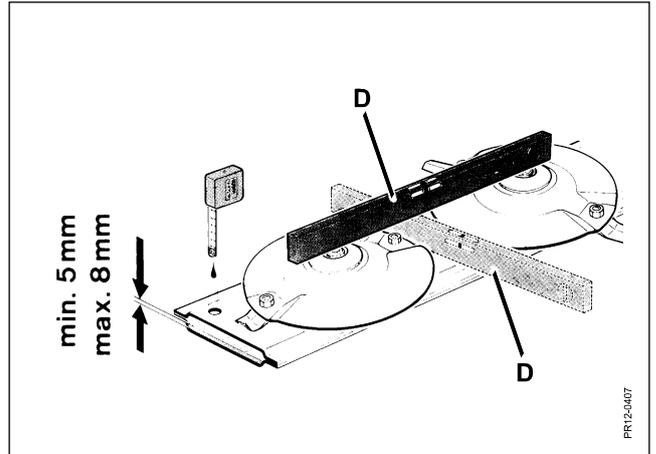


Fig. 4-4

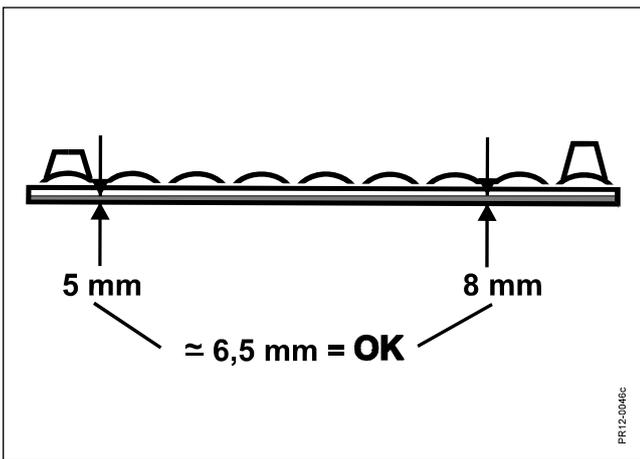


Fig. 4-5

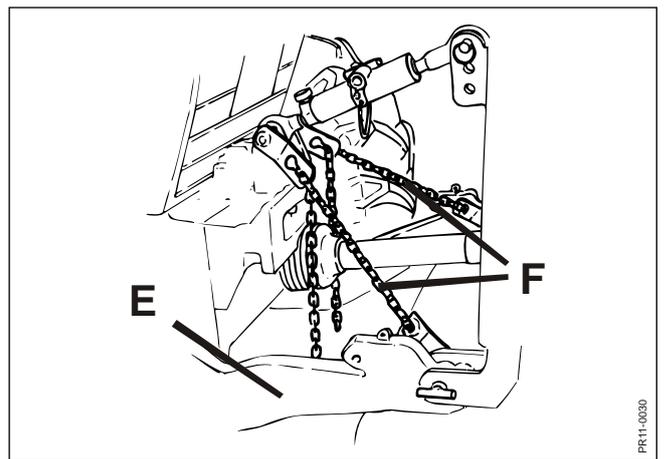


Fig. 4-6

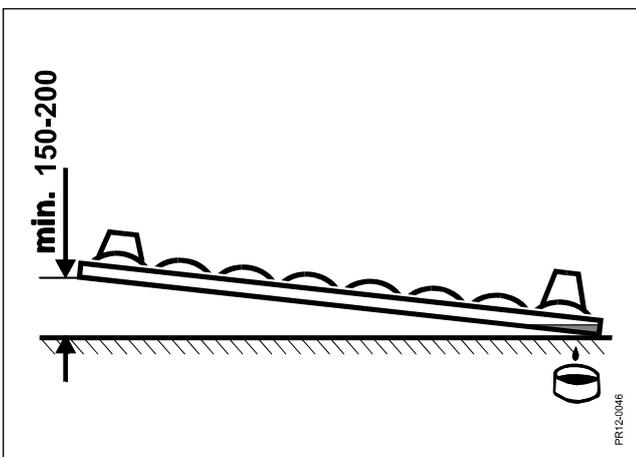


Fig. 4-7

MACHINE PARTS WITH OIL

CUTTERBAR

Correct content:



GD 2800 FM
GD 3200 FM

2.00 litre
2.25 litre

2 pcs. plugs for control of the oil level and filling are placed on top of the cutterbar:

GD 2800 FM: between the 1. and 2. disc in the right side, and between the 2. And 3. disc in the left side.

GD 3200 FM: between the 1. and 2. disc in the right and the left side.

Fig. 4-3 The oil level must be checked at one of the plugs **C** every day during harvesting.

Fig. 4-4 To check the oil level the cutterbar is put into horizontal position, which is checked with a level tube **D** both lengthwise and crosswise.

In order to facilitate the daily oil check we recommend you to have a permanent "oil measuring place" which can support the cutterbar when checking the oil level. This means that the check for horizontal cutterbar with level tube, as shown in fig. 4-4, will not have to be repeated at every oil level check.

Fig. 4-5 **Correct oil level:**  **5 - 8 mm** (average value)
The oil level must be an average of the measuring at both filling holes.
When the oil level has been checked, wait 3 minutes if the oil is warm, and then check again.
If the oil is cold you should wait 15 minutes before you check the oil level again.

Oil change:  The oil in the cutterbar must be changed after 10 working hours and then after every 200 hours of work or at least once per season.

The easiest way to change the oil is if you let the machine run for a couple of minutes so that the oil is warm. At the same time this will ensure that any impurities will be mixed with the oil and removed when changing the oil.

Fig. 4-6 Before changing the oil you should lift the machine in the front lift of the tractor and secure the position **E** of the lift arms by means of support chains **F**. Then tilt the suspension by lifting the right side of the suspension.

Fig. 4-7 **To ensure an optimum emptying when changing the oil the cutterbar is lifted at least 150-200 mm in the right side compared to horizontal position.**

In order to have access to the emptying plug in the left side of the cutterbar the outer skid has to be dismantled. Then the plug can be unscrewed so that the oil can run out by itself.

4. GREASING

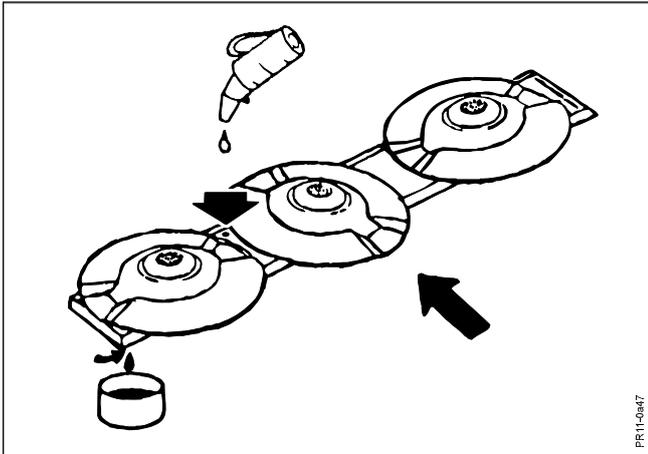


Fig. 4-8

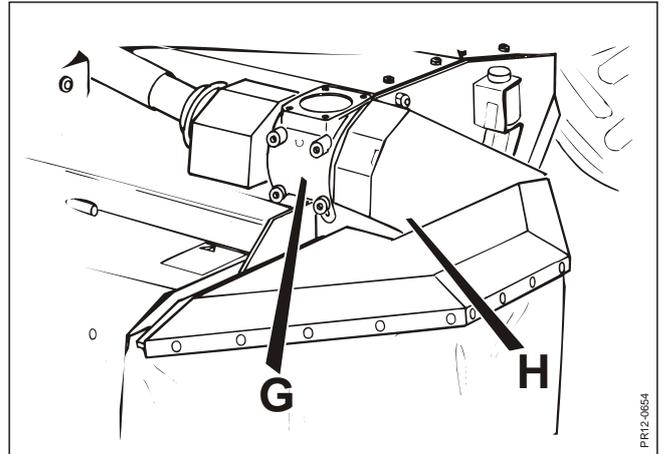


Fig. 4-9

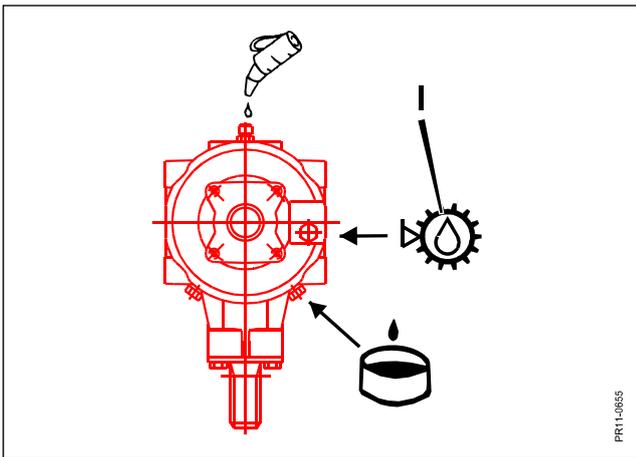


Fig. 4-10

4. GREASING

REMEMBER: To mount the plug again after emptying. The bottom plug has a magnetic piece for gathering metallic impurities. Therefore, the plug should be cleaned before it is remounted.

The cutterbar should be lowered again before oil is refilled into the cutterbar.

Fig. 4-8 When refilling the cutterbar with oil you must be aware that only a suitable oil must be used.

Correct oil type:

Only quality: API GL-4 SAE 80W

In certain countries this oil cannot be procured. In these cases an API GL-4 or API GL-5 SAE 80W-90 multi degree oil will be an acceptable alternative. Never use pure SAE 90W oil in the cutterbar.



WARNING:

Never use more or less oil than prescribed.

Too much oil as well as too little oil in the cutterbar will result in unintentional pressure and heating, which in time will damage the bearings.

BEVEL GEARBOX OVER THE CUTTERBAR

Fig. 4-9 This bevel gear **G** drives the cutterbar and the chain drive for the conditioner rotor.

Fig. 4-10 The bevel gear is seen from the left side of the machine.

Correct oil content:



1.1 litre

Correct oil type:

API GL4 or GL5 SAE 80W - 90

Correct oil level:



The oil level must be checked for every 80 working hour at the level screw **I**. The screw is visible when the other chain guard **H** (on fig. 4-9) is removed.

Oil change:



The first oil change is made after 50 working hours and then after every 500 working hours or at least once per season.

4. GREASING

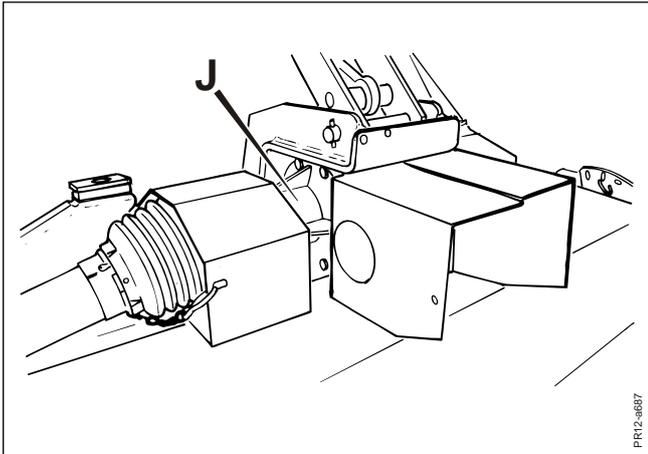


Fig. 4-11

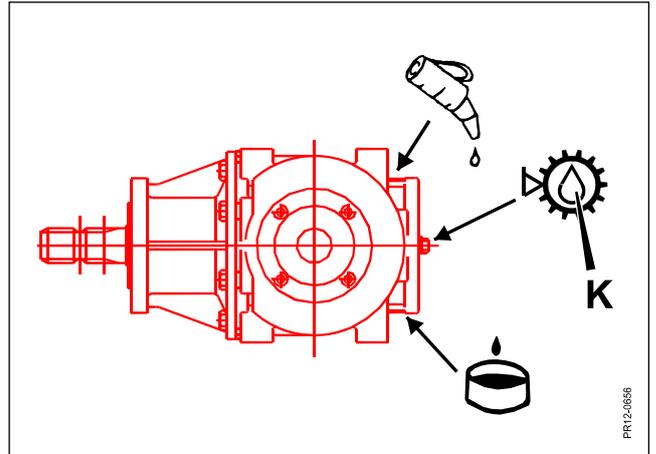


Fig. 4-12

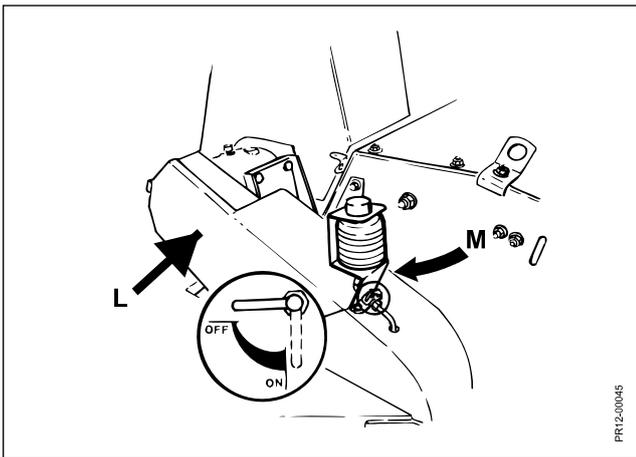


Fig. 4-13

4. GREASING

BEVEL GEAR IN THE CENTRE OF THE MACHINE

Fig. 4-11 This bevel gear **J** is positioned between the two PTO shafts of the machine. This is the gear, which is turned for reverse direction of rotation on the tractor PTO shaft.

Fig. 4-12 The gear is seen from the rear of the machine (from the tractor side).

- Correct oil content:**  1.7 litre
- Correct oil type:** API GL4 or GL5 SAE 80W - 90
- Correct oil level:**  The oil level must be checked for every 80 working hours at the level screw **K**.
- Oil change:**  The first change of oil is made after 50 working hours and then after every 500 working hours, however at least once per season.

CHAIN DRIVE

Fig. 4-13 On the left side of the machine is the chain drive **L**, which drives the conditioner rotor.

This chain drive must be oiled during operation and the chain must all the time be covered by an oil film to ensure a long life for chain and sprocket.

For this purpose a lubricator **M** has been mounted on the chain guard, which contains a little oil basin with a connected tube and ball valve and which leads the correct quantity of oil on the chain.

When the ball valve is in the OFF position, the oil basin is closed, and the oil runs out when the ball valve is in the ON position.

Before you start the machine, the oil supply is opened by putting the ball valve in a position between OFF and ON, **so that the oil drips on the chain**. (20-30 drips per minute is appropriate).

REMEMBER: The oil must only drip on the chain to ensure sufficient greasing of the chain and not run freely out of the basin.

Correct oil type: Oil with viscosity of approx. SAE 30W.
For instance saw chain oil, ordinary engine oil and very thin gear oil.

Correct oil level:  It must be checked regularly that there is sufficiently oil in the basin when working with the machine.



IMPORTANT: Do **not** use grease or another heavy lubricant, which only very hardly can run through the lubricator and down between the chain rollers.

4. GREASING

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

Fig. 5-1

5. MAINTENANCE

IN GENERAL



WARNING: In case of repair or maintenance of the machine it is especially important to ensure correct personal safety. Therefore, always park the tractor (if mounted) and machine in accordance with the **GENERAL SAFETY RULES** points 1 - 19 in the beginning of this instruction manual.

TIGHTENING OF BOLTS



IMPORTANT: Screws and bolts on your new machine must be retightened after some hours of work. Retightening is also required after repair.

Fig. 5-1 Correct tightening moment M_A (if nothing else is indicated) for bolts on the machine.

5. MAINTENANCE

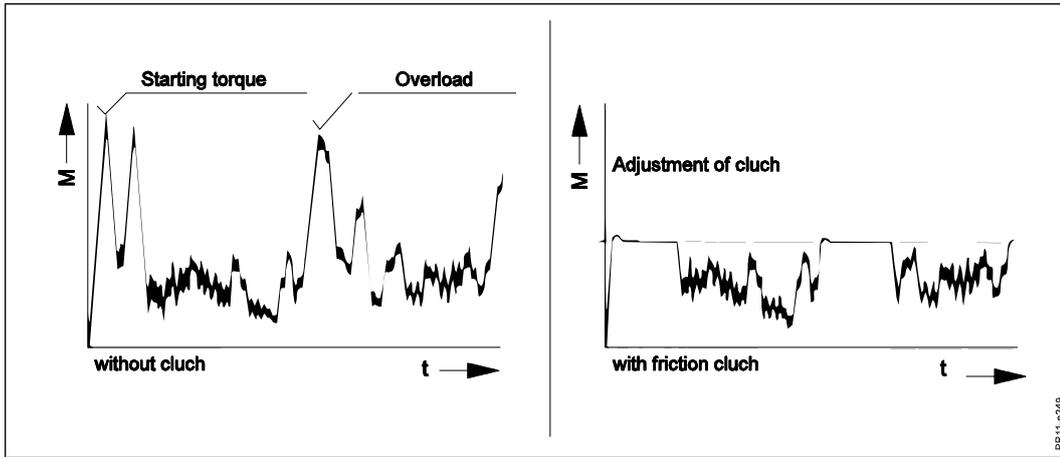


Fig. 5-2

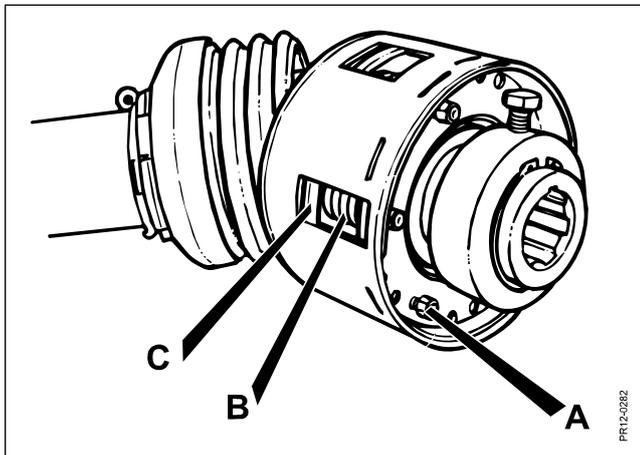


Fig. 5-3

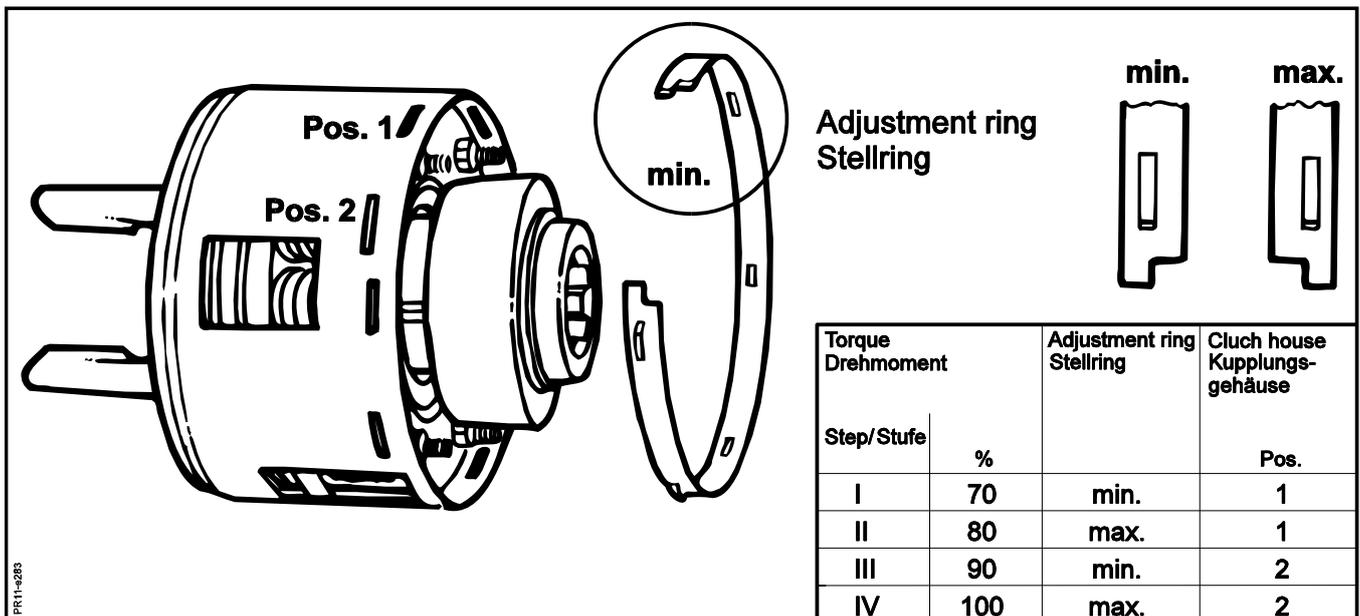


Fig. 5-4

FRICITION CLUTCH

Fig. 5-2 In order to ensure a long life for your tractor and machine the machine can be delivered with a friction clutch for the PTO shaft between tractor and machine.

Fig. 5-2 illustrates how the clutch secures the transmission against high torque peaks and at the same time is capable of transmitting the same normal torque while it slips.

The friction clutch must be maintained, which means that it must be "aired" at regular intervals, **as dirt and moisture may cause the friction clutch to "get stuck"**.

Fig. 5-3 **Before** the upstart of a new machine and after a longer period of standstill, for instance storage during the winter, the clutch is "aired" as follows:

- 1) The six nuts **A** at the flange are tightened. Hereby the springs **B** are pressed together so they do not press on the clutch plates **C** and the clutch is able to rotate freely.
- 2) **Let the clutch rotate for ½ a minute** disengaging dirt, coating material, and any rust that might be on the plates.
- 3) **The nuts A are loosened again**, until they are at level with the thread on the bolts, and the springs **B** again can press on the clutch plates **C**.

Fig. 5-4 The torque moment in the friction clutch is adjustable, however, you should not change the adjustment made by the factory without having contacted the dealer or the service department of the factory.

The friction clutch has 4 different torque adjustments. The adjustment can be changed by turning the adjustment ring **D** and choose between 2 different positions in the clutch housing.

1. The adjustment ring has a **minimum** and a **maximum** position.
2. The clutch housing has two different sets of slots **E** in the height, which the adjusting ring **D** can be mounted into, **pos. 1 and pos. 2, respectively**.

GUIDING TORQUE ADJUSTMENTS

PTO	Moment	Adjustment
1000	1200 Nm	Step II
1000	1500 Nm	Step IV

NB : As the machine cannot be adjusted to 540 RPM it is only on certain tractors with electro-hydraulic connection of PTO to the tractor that it is necessary to change the torque adjustment of the friction clutch.

5. MAINTENANCE

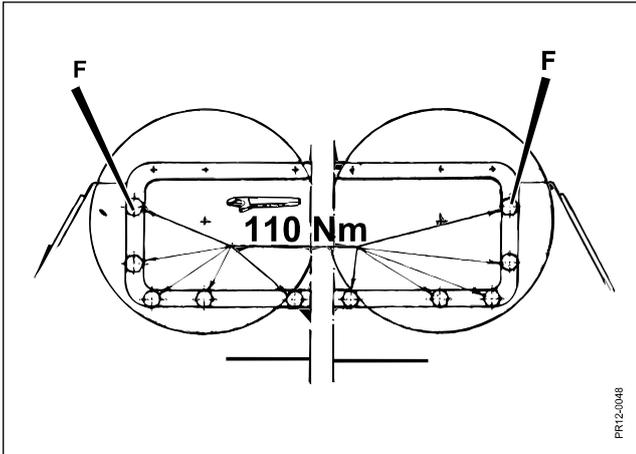


Fig. 5-5

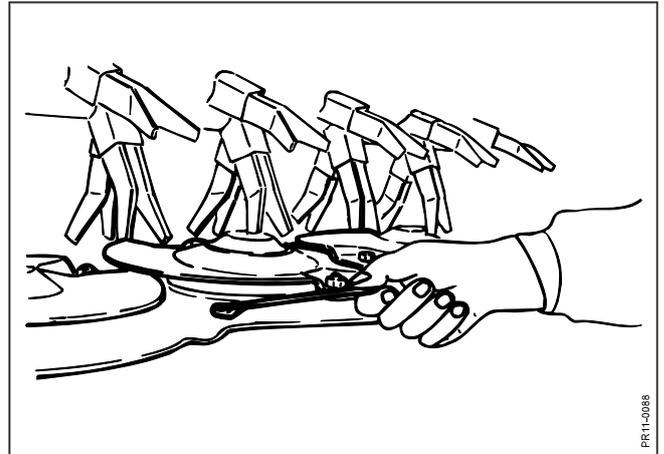


Fig. 5-6

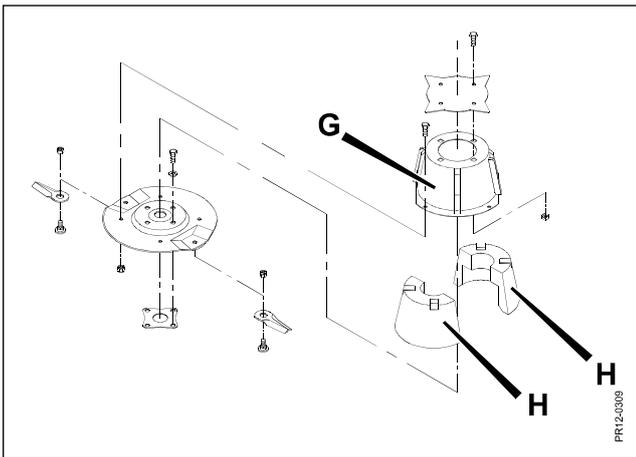


Fig. 5-7

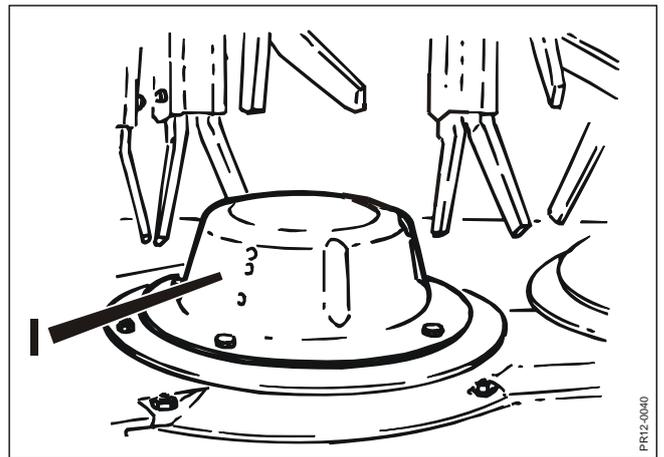


Fig. 5-8

5. MAINTENANCE

REMEMBER: Adjustment can only be made when the 6 nuts **A** (on fig. 5-3) are tightened. Having made an adjustment the nuts are loosened again to the end of the bolt.



WARNING: If the clutch is overloaded by slipping for a longer period it will be heated and thereby worn quickly. Superheating will damage the friction plates. If the clutch is blocked or partly set out of function in other ways the machine's factory warranty will be discontinued.

UNBALANCE CONTROL



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 at approximately 3000 RPM and a broken blade may cause serious injury to persons or material damage as a result of unbalance. When working with a closed tractor cabin the symptoms may be difficult to discover, and once in a while you have to get out and check if all blades and rotor fingers are intact. In the long run unbalance will cause fatigue fractures and serious damage.

We test drive all machines manufactured at JF-Fabriken and check for vibrations with special tools.

The first time you start the machine you should notice the noise and vibration level in order to have a standard of comparison.

Fig. 5-5 To avoid damaging vibrations in the cutting unit the cutterbar must be correctly tightened. The 4 bolts **F** in each side are tightened at torque **110 Nm** (11Kpm).

Fig. 5-6 Bolts at the stone protections and shears up front on the cutterbar must be checked regularly.

Fig. 5-7 The 2 big flow intensifiers **G** on the outer discs are filled with blocks of foam **H** to avoid unbalance. It is important that the blocks of foam remain undamaged so that the flow intensifiers are not filled with dirt and dust, which will cause unbalance.

Fig. 5-8 The low flow caps **I** on the rest of the discs should be straightened if they are misshapen and if necessary replaced by new ones. They should be dismantled and checked for dust, earth and the like 2-3 times per season.

CONDITIONER

Defect fingers on the conditioner rotor is replaced by new ones in order to have a constant optimum conditioning and transport of the crop. Furthermore, missing fingers or parts of fingers put the rotor into unbalance resulting in a reduction of the life of the bearings.

5. MAINTENANCE

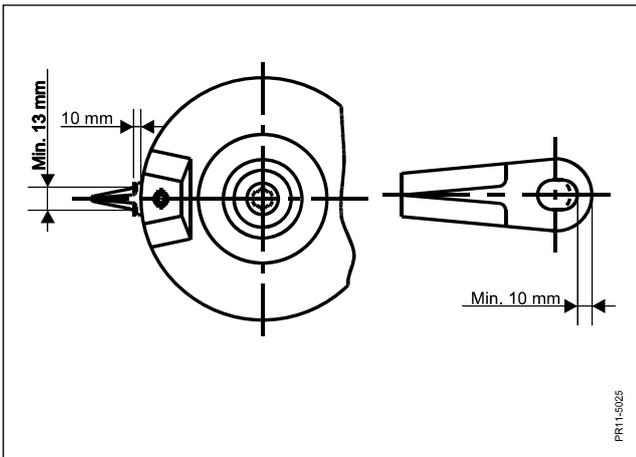


Fig. 5-9

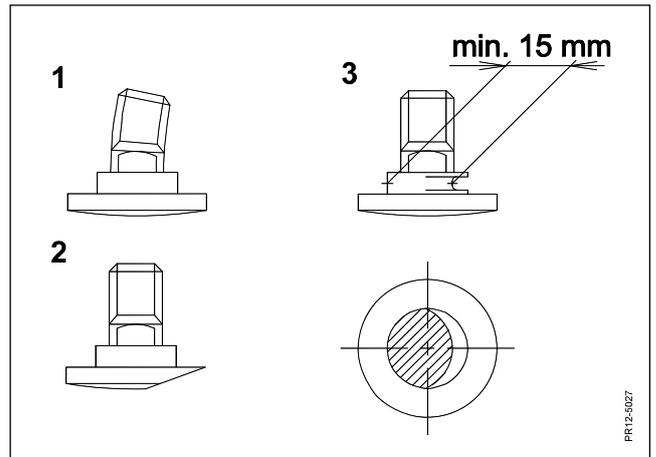


Fig. 5-10

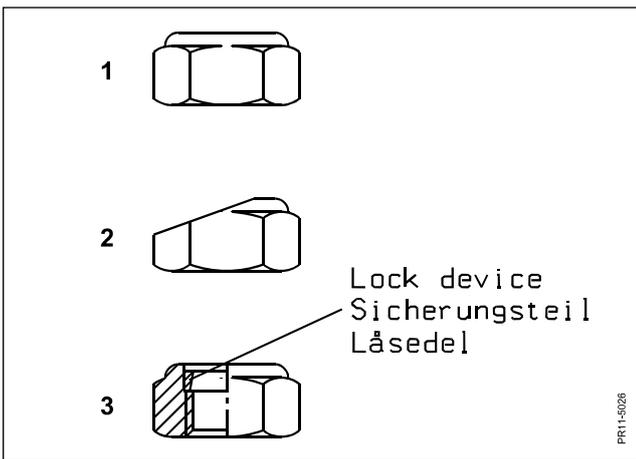


Fig. 5-11

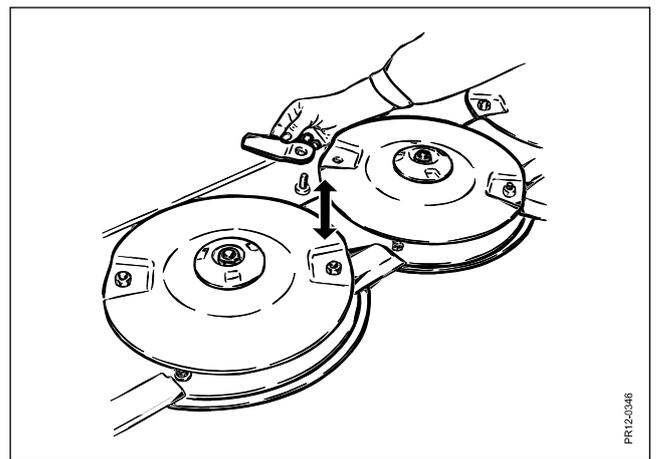


Fig. 5-12

THE CUTTERBAR – DISCS AND BLADES

Discs, blade bolts and blades are made from hardened, high-alloyed steel. This heat treatment results in a specially hard and ductile material, which can handle an extreme stress. If a blade or a disc is damaged no attempt must be done to weld the parts together as the generation of heat weakens the parts.

IMPORTANT: 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, or the like.

BLADES

Fig. 5-9 Blades must be replaced if:

- 1) the blades are bend or cracked,
- 2) the width is less than 33 mm measured 10 mm from the edge,
- 3) the metal thickness around the blade hole is less than 10 mm.

Blade bolts and nuts must also be checked periodically, in particular the tension of the nuts.

Always check these parts after a collision with foreign matter, replacement of blades, and the first time the machine is operating.

BLADE BOLTS

Fig. 5-10 The blade bolts must be replaced if:

- 1) they are deformed,
- 2) they have been worn one-sided,
- 3) their diameter is less than 15 mm.

NUTS

Fig. 5-11 The special nuts for the blade bolts are replaced if:

- 1) it has been loosened and tightened more than 5 (five) times,
- 2) the height of the hexagon is less than half of the original,
- 3) the locking device is worn or loose.

Fig. 5-12 The blades can cut on both sides. To utilise this the blades can be removed can be removed from one disc to another with the reverse direction of rotation.

To obtain a satisfactory harvesting, it is important that the blades and the shear bar are intact and sharp. If the blades are not sharp the power requirement will be unnecessarily increased; the cutting will be uneven resulting in slower regrowth of the grass.

5. MAINTENANCE

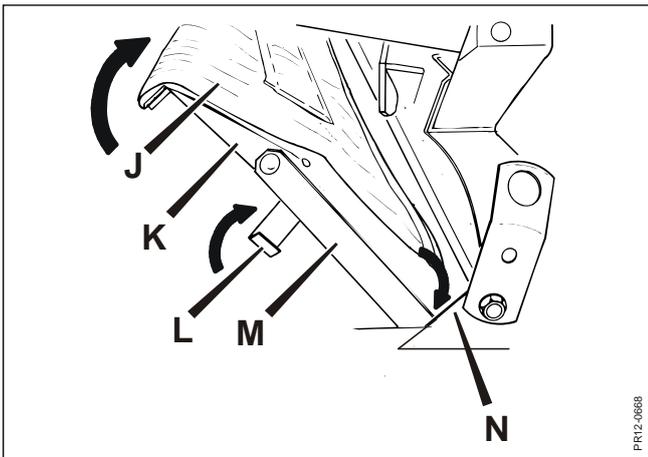


Fig. 5-13

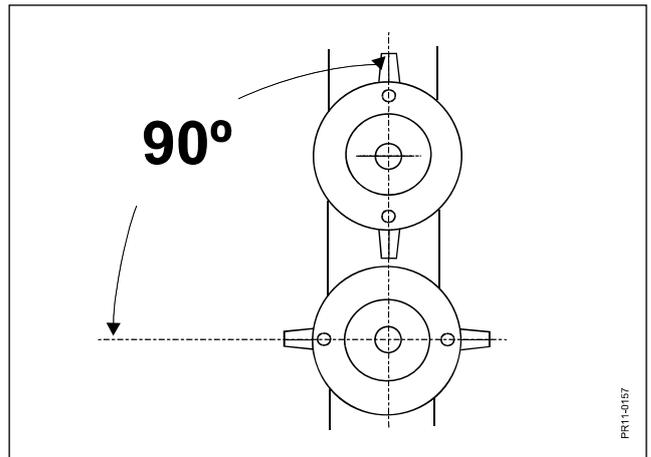


Fig. 5-14

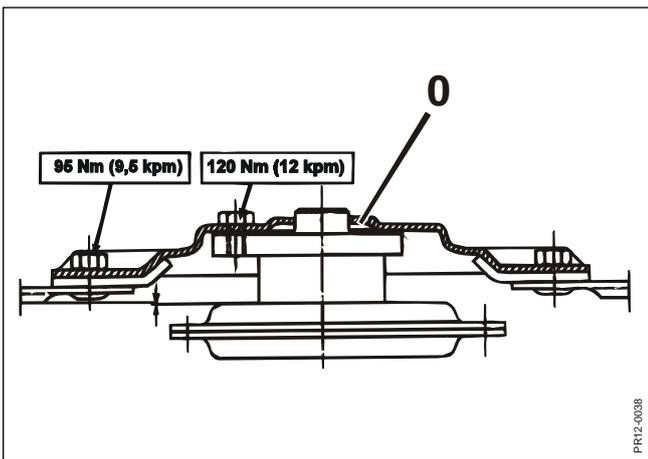


Fig. 5-15

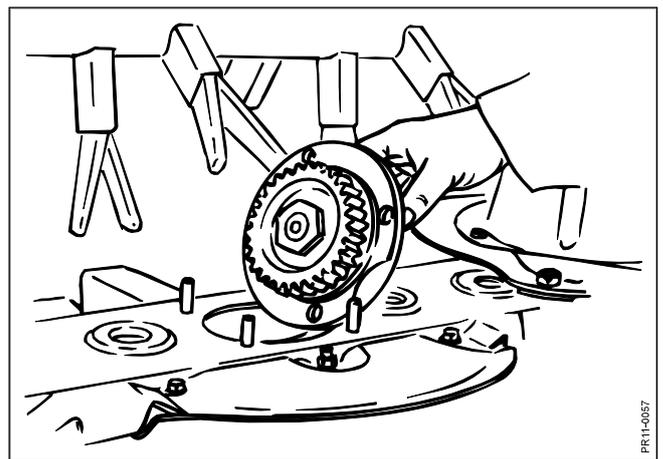


Fig. 5-16

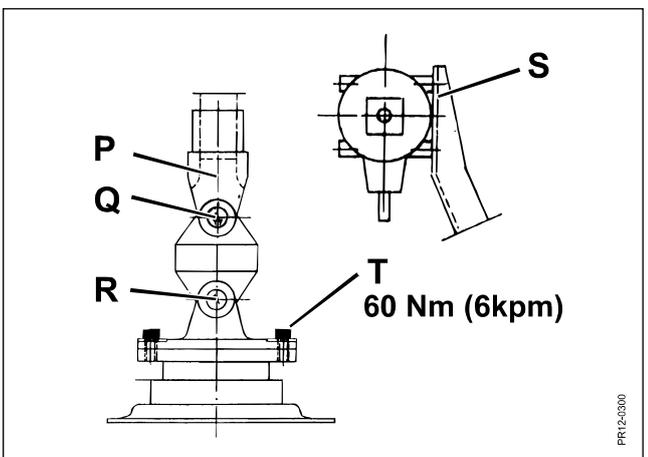


Fig. 5-17

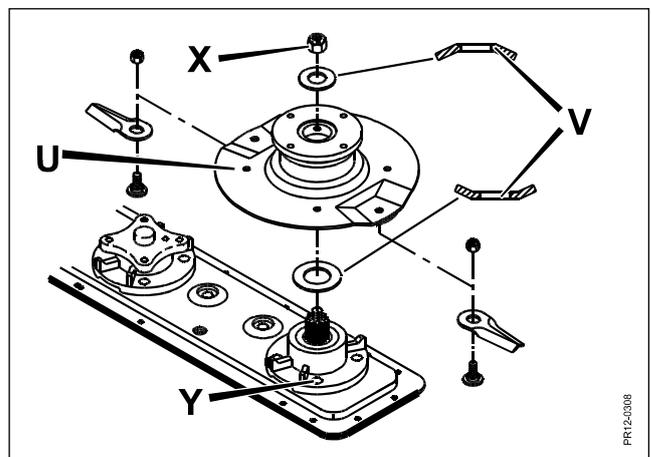


Fig. 5-18

REPLACING BLADES

Fig. 5-13 Before you replace blades or check discs, caps or the cutterbar, you can swing the front canvas **J** up over the front guard **K**. Then the lock **L** is disengaged with a screw driver, the protection is lifted up, and the protection holder **M** is hooked on the edge of the machine frame **N**.
Now you are undisturbed by the front canvas and protection and you have free access to the cutterbar.

Blades are replaced by dismounting the blade bolt and pull it down and out of the disc. This is done easiest when the blade is in the front position and the bolt is right above the hole in the centre of the stone protection.
The old blade is removed and a new one is mounted together with the blade bolt.

Fig. 5-14 If the discs have been dismounted they must be remounted staggered 90° in relation to the disc next to.

Fig. 5-15 Make sure that the bolts are tightened as shown:

- Discs fixed with four bolts must each be tightened to **120 Nm** (12Kpm).
- Discs fixed with central hub bolt must be tightened to **190 Nm** (19 Kpm).
- Blade bolts must be tightened to **95 Nm** (9.5 Kpm).

The height of the discs can be adjusted by mounting spacer **O** under the disc. This may be required by replacement of discs if the blades are not in the same height.



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

WHEN REPAIRING

Fig. 5-16 The **GD 2800 FM** and **GD 3200 FM** are equipped with cutterbars where the whole disc bearing housing can be dismounted in one piece. This is called a Top Service Cutterbar.

Fig. 5-17 The PTO shaft **P**, which run the cutterbar is greased for life.
For this PTO shaft goes the following:

- it should run with minimum angular deviation,
- the difference of dimensions by **Q** and **R** must maximum be 6 mm (+/- 3),
- an alignment is made at the overhead gear by displacing the gear in the oblong holes or by placing a filler at **S**.
- the bolts **T** are locked with LocTite and tightened with a torque of **60 Nm** (6 Kpm).

Fig. 5-18 When mounting the driving disc **U** in the left side:

- 1) The spring washers **V** are placed as shown with the curved side upwards and downwards, respectively.
- 2) The nut **X** is tightened to **190 Nm**.
- 3) The bolts **Y** fixing the disc bearing housing to the cutterbar are tightened to **85 Nm**.

6. VARIOUS

DRIVING TIPS AND FAULT FINDING

PROBLEM	POSSIBLE CAUSE	REMEDY
Uneven stubble or bad cut	<p>The cutterbar is too relieved</p> <p>The number of revolutions of the tractor is too low</p> <p>The blades are worn</p> <p>Discs, stone protectors or flow caps are deformed</p>	<p>Check the basic adjustment of the machine and if necessary reduce the relief by loosening the springs</p> <p>Check that the PTO speed of rotation of the tractor is 1000 RPM and not 540 RPM. Keep the number of revolutions constant</p> <p>Turn/remove the blades to another disc or replace the blades</p> <p>Replace the deformed parts</p>
Stripes in stubble	<p>The cutting angle is too large, the grass cannot get over the cutterbar</p> <p>Accumulation of material in front of the cutterbar</p> <p>Earth and grass settles around the cutterbar between the discs</p> <p>You work early in the morning where the grass is still very moist</p>	<p>Adjust the cutterbar to a more horizontal position by shortening the top link and then change the height of the lift arms to obtain a correct working position</p> <p>If possible increase the driving speed. If necessary mount flow caps on the discs</p> <p>Mount special sharp shearbars or replace the worn shearbars</p> <p>If possible increase the driving speed. If necessary mount flow caps</p>
Uneven flow through the machine	<p>The conditioner fingers can be worn or be missing</p> <p>The distance between the conditioner plate and conditioner rotor is too big</p>	<p>Replace the worn fingers and mount new ones where missing</p> <p>Adjust the conditioner plate to have a smaller distance to the rotor. The driving speed is increased</p>
The machine vibrates/uneven operation	<p>The blades can be deformed, damaged or missing</p> <p>Defect PTO shafts</p> <p>Defect bearings in the cutterbar or in the conditioner rotor</p> <p>Defect flow caps and flow intensifiers</p> <p>Earth and grass in the flow caps, and maybe missing foam blocks in the flow intensifiers</p>	<p>Replace or move damaged blades and mount new ones where missing</p> <p>Check if shafts are intact. Repair if necessary</p> <p>Check if bearings are loose or failed. Replace if necessary</p> <p>Replace flow caps and flow intensifiers</p> <p>Clean the flow caps and mount new foam blocks if necessary</p>
Gear or cutterbar is overheated	Oil level is not correct	<p>The oil level is checked and if necessary oil is refilled/emptied</p> <p>NB: The gear temperature max. 80 degrees, cutterbar temperature max. 90-100 degrees</p>

6. VARIOUS

PROBLEM	POSSIBLE CAUSE	REMEDY
The power requirement is unusually big	Part of the crop and dust have accumulated under the discs	Stop the engine of the tractor. Dismount the discs and clean cutterbar and discs. Check that the friction clutch is intact.
	Cord or wire has winded around a disc	Remove the foreign matters
The throw of cut off material in the left side of the machine, behind the disc cutterbar (GD 3200 FM)	Accumulated material behind the auger sections in the sides and/or around the rotor (GD 3200 FM)	Stop the machine and remove the material behind the auger sections and/or cut the rotor free of the material
	Cut off material has accumulated in front of the auger section and carrier on disc throws the material to the side	Check that the 2 pcs. carrier are fastened to the auger turn farthest to the left on the machine. It is possible to order special guards at JF-Fabriken, which close the opening

STORAGE

When the season is over the machine should be made ready for winter storage. First clean the machine thoroughly as dust and dirt absorb moistness and hereby increases rusting.



CAUTION: Be alert when cleaning with a high pressure cleaner. Never use a high pressure cleaner to clean the cutterbar and never clean directly on the bearings.



IMPORTANT: All greasing spots must be greased carefully right after having cleaned the machine.

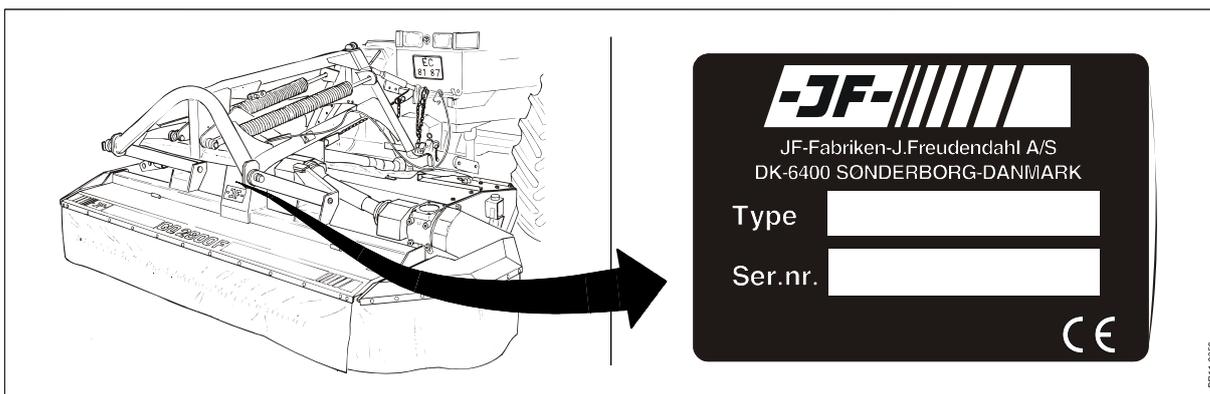
Below items are guiding instructions when preparing the machine for winter storage:

- The machine is checked for wear and defects.
Write down which wearing parts you will need before the next season and order the spare parts.
- Dismount the PTO drive shafts, clean and grease them. Remember to lubricate the profile tubes. The PTO drive shafts must always be kept in a dry place.
- Spray the machine with a thin coat of rust-preventing oil. This is especially important as regards all parts polished with use.
- The machine is stored in a ventilated engine house.

SPAREPARTS ORDER

When ordering spare parts please state type and serial No.
The information are on the machine plate, situated as shown below.

Soonest possible after delivery we request that you write these information on the first page of your spare parts book supplied with the machine, so that you have the information at hand when ordering spare parts



.ADDITIONAL EQUIPMENT

HIGH SKIDS

For topping of fallow fields a skid for higher stubble can be mounted.

SHARP SHEARBARS

When working in certain difficult crops it can be necessary to mount sharp shearbars between the discs. The shearbars reduce the risk of the crop hanging on the cutterbar and thereby resulting in stripes.

SCRAPPING

When the machine is worn-down it must be scrapped in a proper way.

Therefore, observe the following:

- The machine must not be placed somewhere outside and gear, cylinders and cutterbar must be emptied of oil. These oils must be handed over to a destruction company.
- Disassemble the machine and separate the individual recycling parts, for instance PTO shafts, hydraulic hoses, and components.
- Hand over usable parts to an authorized recycling centre. The large scrapping parts are handed over to an authorized 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 authorized 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 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 be clearly proved that JF has committed a fault.

The following is regarded as wearing parts:

Protective canvases, knives, knife suspensions, shearbars, skids, stone protections, conditioner parts, tyres, tubes, PTO shafts, clutches, V-belts, chains, rake and pick-up tines, and beaterbars for farmyard manure spreaders.

In addition the user must note the following:

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



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

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Dealer

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