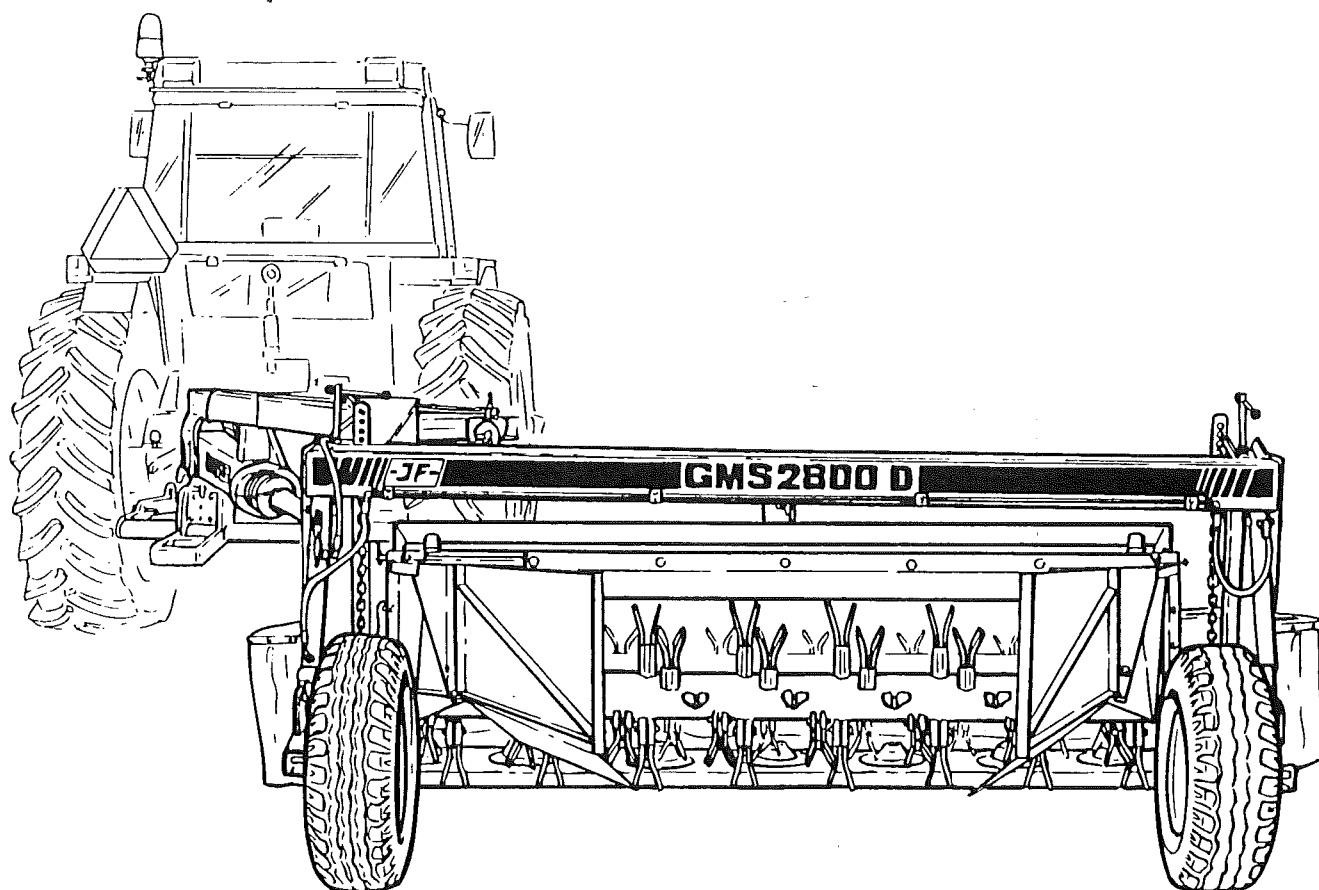




GMS/GCS  
2400D  
2800D  
3200D

# DISC MOWER

## Instruction Manual





## PROTECTIVE MEASURES

All guards must be correctly placed and checked before starting the machine.  
It is irresponsible to stay in the working area of the machine while its working organs are rotating.

Greasing, setting and adjustment of the machine is only to be done when it has been stopped and the PTO has been disengaged.

During transport on roads the machine must be marked with light and warning plates.

**Retighten all bolts and check adjustments after 2-4 working hours.**

Only use original JF-spare parts.

During road transport all hydraulic cylinders must be locked with the shut-off cock.

**Read the instruction manual before starting the machine.**

TECHNICAL DATA:	GMS 2400D GCS 2400D	GMS 2800D GCS 2800D	GMS 3200D GCS 3200D
Conditioning system	Fingers	Fingers	Fingers
Working width	2,4 m	2,8 m	3,1 m
Capacity	2,5 ha/h	2,8 ha/h	3,0 ha/h
Power requirement	40 kW/54 HP	50 kW/68 HP	60 kW/82 HP
Power take-out*)	1000 RPM	1000 RPM	1000 RPM
Oil take-out	1 double + 1 single-acting	1 double + 1 single-acting	1 double + 1 single-acting
Drawbar	Swivel headstock/ swing drawbar	Swivel headstock/ swing drawbar	Swivel headstock/ swing drawbar
Number of discs	6	7	8
Discs and knives of the contractor type	Standard	Standard	Standard
Floating suspension of the cutter bar	Standard	Standard	Standard
Conditioning rotor width	1,99 m	2,37 m	2,70 m
Conditioning elements	96 PE-fingers	120 PE-fingers	152 PE-fingers
Speeds:	Variable	Variable	Variable
- for grass, standard	900 RPM	900 RPM	900 RPM
- for clover and the like	670 RPM	670 RPM	670 RPM
Swath width	0,8-1,6 m	0,8 - 2,0 m	0,9 - 2,2 m
Transport width	2,5 m	2,9 m	3,2 m
Tyres	10x12/6	10x12/6	10x12/6
Weight	1200 kg	1300 kg	1640 kg

\*) Adjustable between 540 and 1000 RPM by interchanging the 2 pulleys

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

# INSTRUCTION MANUAL FOR DISC MOWER

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## **IMPORTANT!**

**Retighten the bolts on your new machine after a few hours work.**

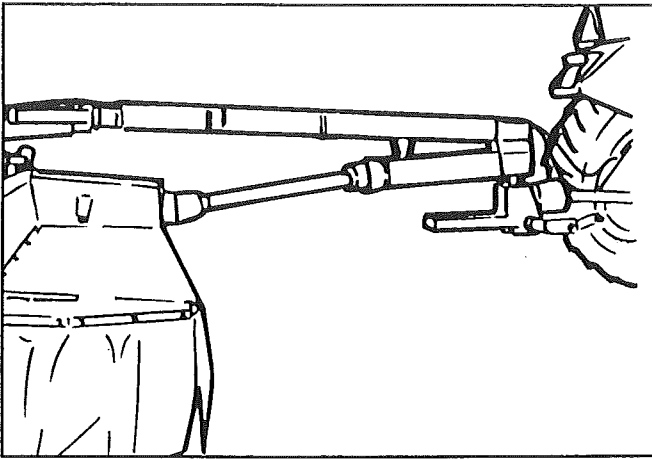


Fig. 1

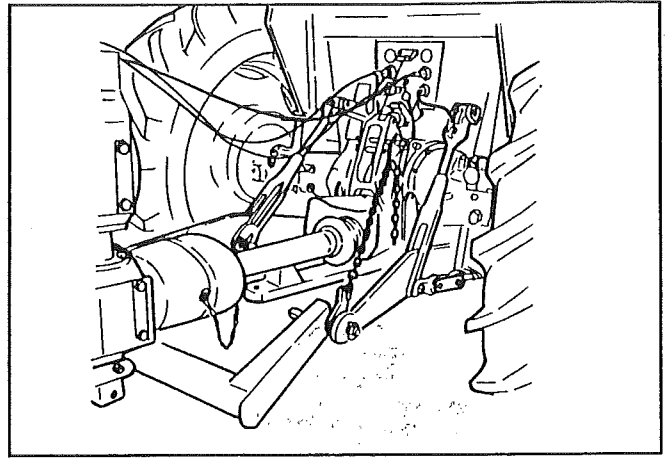


Fig. 2

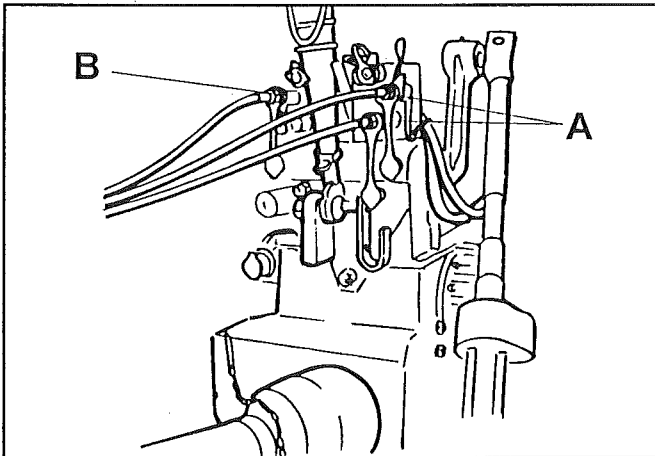


Fig. 3

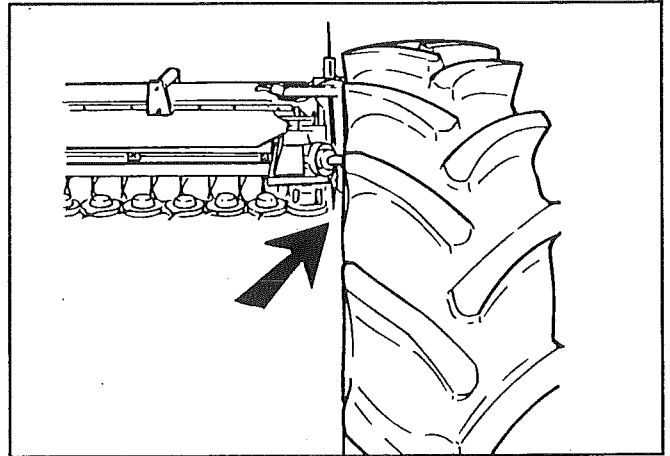


Fig. 4

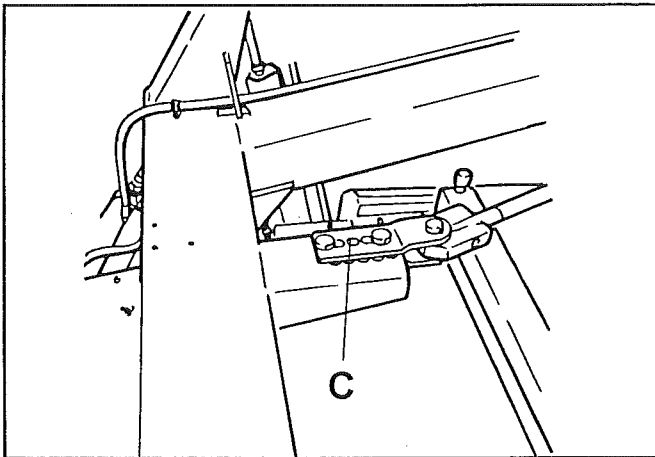


Fig. 5

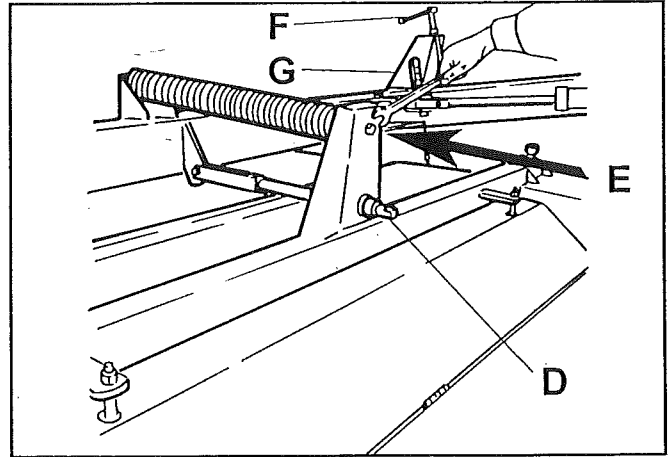


Fig. 6

## CONNECTION

- FIG. 1** Connect GMS/GCS to the tractor's lift arms. The dowels are intended for category II. For category III bushings can be supplied. The draw arms are adjusted to the same height and raised to a height where the PTO-shaft is straight.
- FIG. 2** Mount the supplied stabilizing chain. Connect the PTO-shaft to 1000 RPM on the PTO.
- FIG. 3** The hydraulic hoses for the drawbar cylinder are connected to the double-acting take-out **A** and the wheel cylinders to a single-acting take-out **B** on the tractor.

## GROUND PRESSURE RELIEF

- FIG. 4** The machine is swivelled to working position by means of the drawbar's hydraulic cylinder. Then the drawbar is adjusted so that the outer side of the tractor's rear tyre is in line with the point of the blade on the left disc.
- FIG. 5** The hydraulic cylinder is adjusted to max. swing in working position by mounting the clamp in the holes **C**.
- FIG. 6** When the angle of the cutting platform has been adjusted with the spindle **D** (steep angle - short stubble), the horizontal spring **E** is tightened so that it with a pressure of 20 kg is possible to move the cutting platform in the direction of **E**.

The pressure relief springs are now adjusted upwards with the handles **F** until the pressure of the cutting platform (guide shoes) against the ground is 0-30 kg on each side.

In principle the spring can be adjusted in such a way that the cutting platform is floating.

**Too hard tightening** of the springs may cause the cutting platform to roll on uneven ground which will result in uneven stubble.

**Too little tightening** may give excessive wear of the guide shoes and damage the grass.

Adjust the securing chains **G** with approx. 1 chain links' clearance downwards.

**N.B.!** When adjusting the spindle **D** (the inclination of the cutterbar) the ground pressure and the chain adjustment will change and **must therefore be readjusted**.

**At intervals it should be checked if the machine has the right ground pressure relief.**

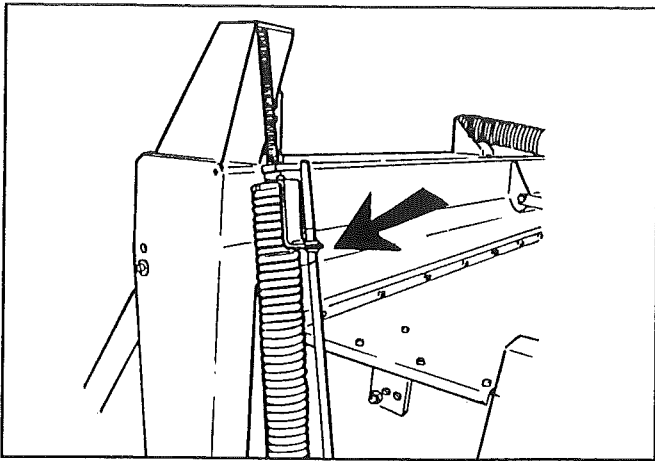


Fig. 7

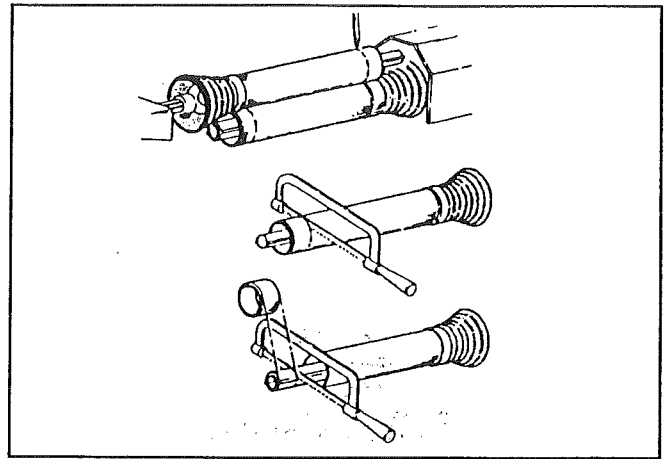


Fig. 8

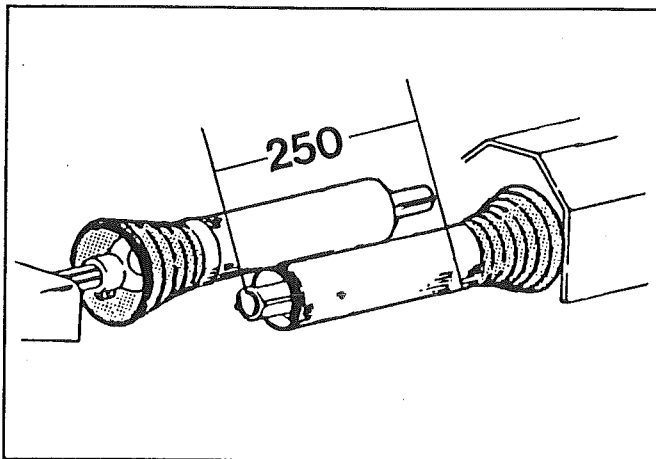


Fig. 9

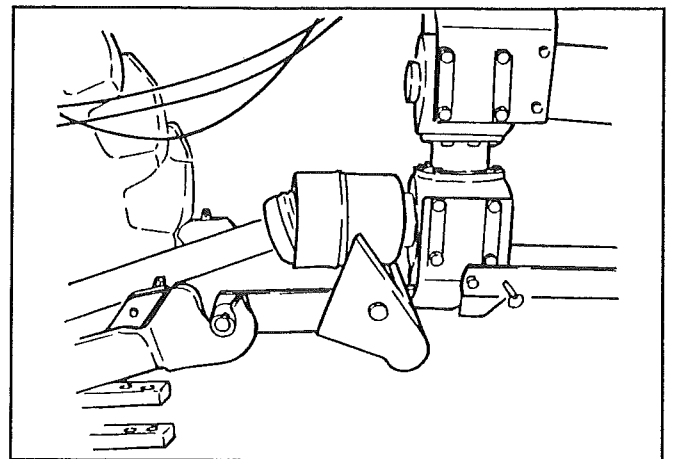


Fig. 10

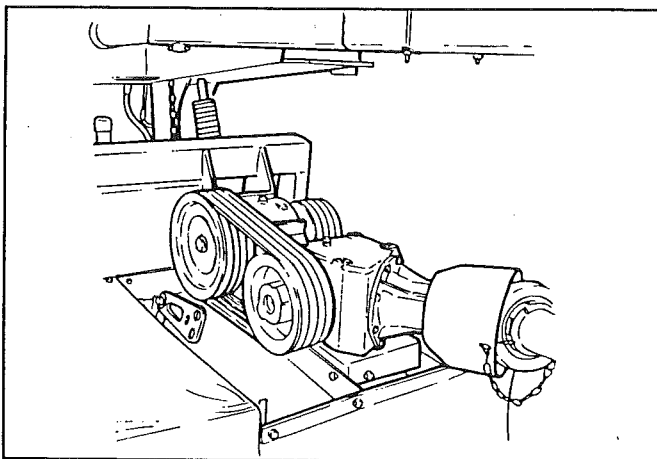


Fig. 11

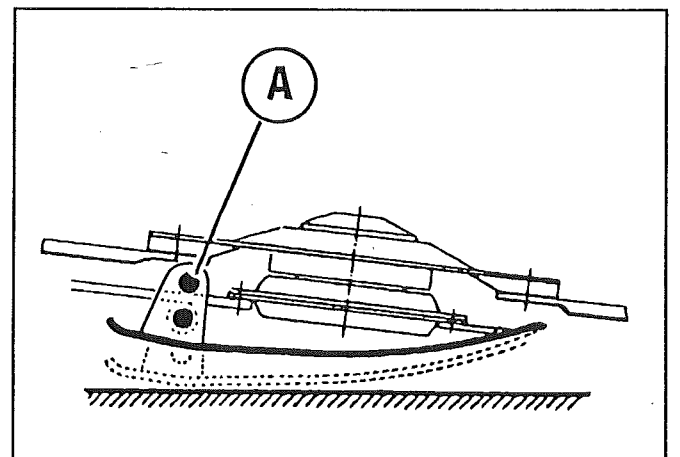


Fig. 12

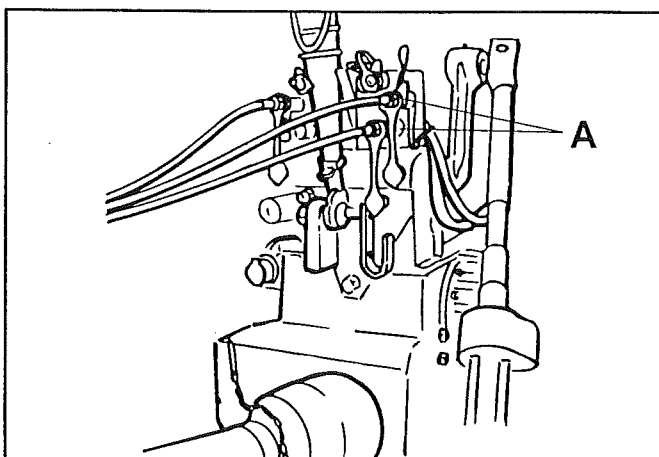


Fig. 13

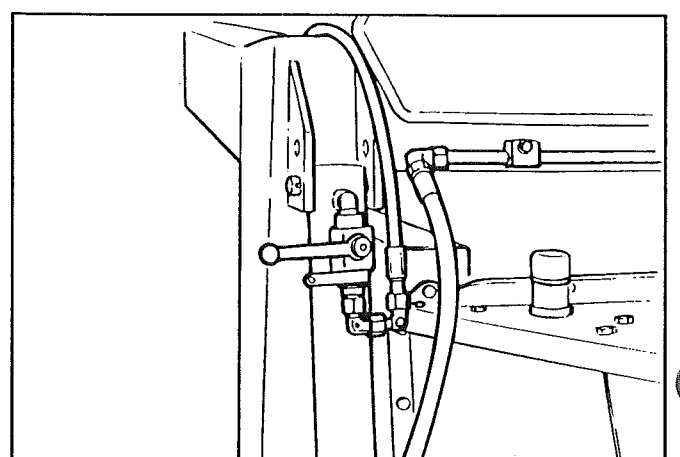


Fig. 14

## SPRING INDICATOR

**FIG. 7** When the machine has been mounted to the tractor in a certain height decided by the support chain, and when the machine has been balanced in both sides the spring indicator is adjusted.

The rod is adjusted in the height so that the hand is on level with the mark on the rod. Check during work this level is maintained. The adjustment is repeated if the tightening of the spring or the connection to the tractor is changed.

**FIG. 8** It may be necessary to adapt the length of the PTO-shaft, this is done in the following way: When shortening the shaft all 4 tubes must be shortened equally much. Tube and shaft ends are rounded by a file, cleaned of chips and greased again.

**FIG. 9** It is of greatest importance that the profile tubes have a length of contact of at least 250 mm in working position because of the safety pull.

**FIG. 10** The profile tubes must never be completely pushed together (bottom).

**The protection tube of the PTO-shaft must be secured by chains in both ends.**

## TEST DRIVING

When the PTO-shaft has been adapted and all guards are in place the test driving can begin. Before engaging make sure that all tools have been removed from the machine and that nobody is staying close to the machine. Couple with care and have the tractor run at a low number of revolutions for some minutes. If there are no jarring sounds and no unnatural shakings increase the speed to normal number of revolutions.

## RPM ON THE PTO

**FIG. 11** 1000 RPM. From the factory the machine is mounted for 1.000 RPM on the PTO. On tractors with 540 RPM the two pulleys on the bevel gears must be exchanged to obtain the right RPM on the cutterbar.

## ADJUSTMENT OF THE STUBBLE HEIGHT

**FIG. 12** This can be done either by displacing the guide shoes or by adjusting the spindle (see D fig. 6).

## WORKING POSITION - TRANSPORT POSITION

**FIG. 13** Readjustment from transport position to working position and vice-versa is done by means of the tractor's double-acting oil-take-out A.

**FIG.14** **NOTE!**  
**FOR ROAD TRANSPORT THE SHUT-OFF COCKS AT THE WHEEL CYLINDERS MUST ALWAYS BE CLOSED.**

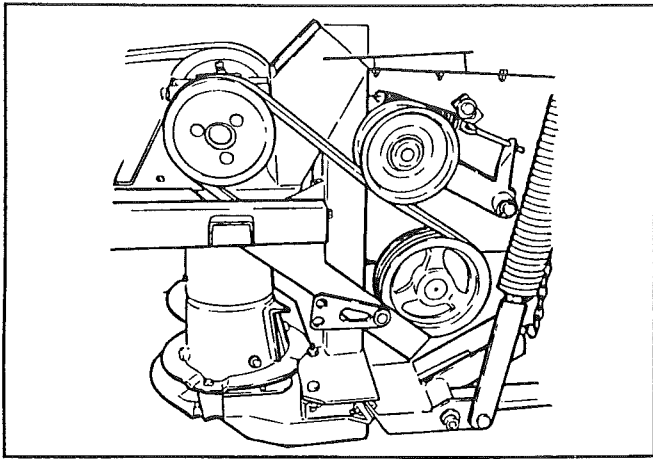


Fig. 15

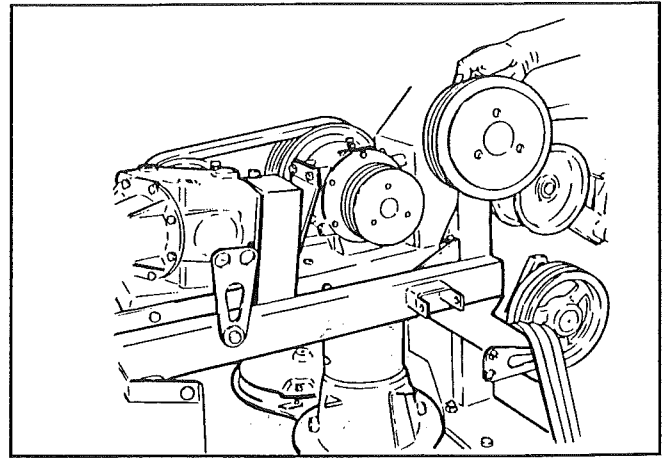


Fig. 16

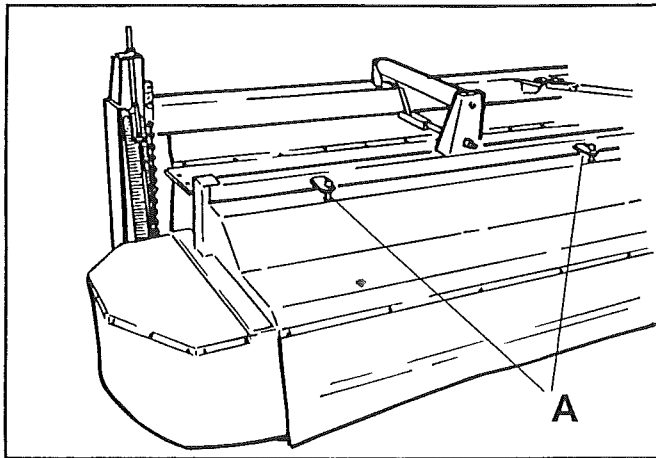


Fig. 17

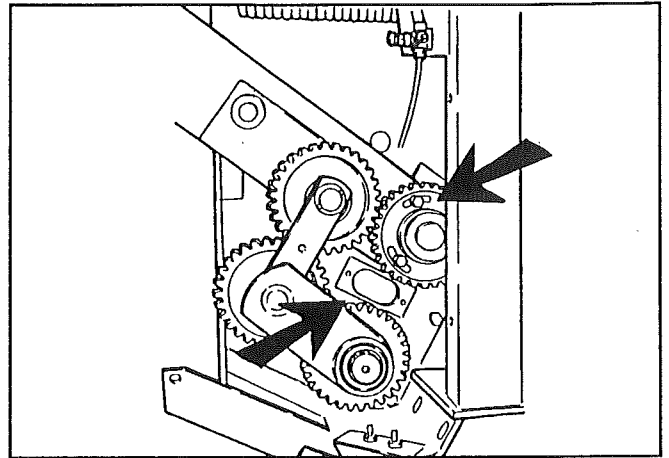


Fig. 18

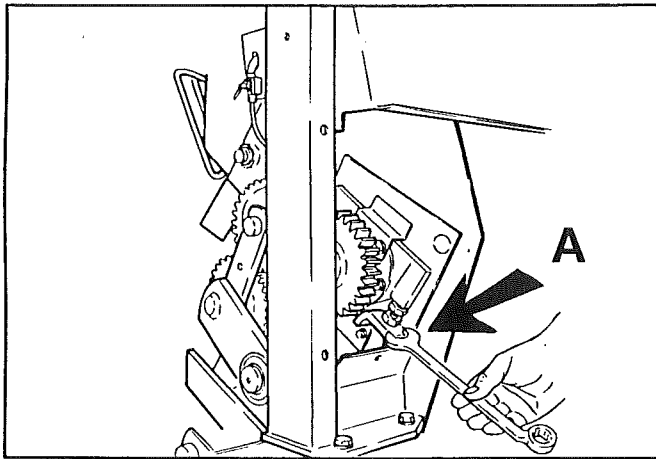


Fig. 19

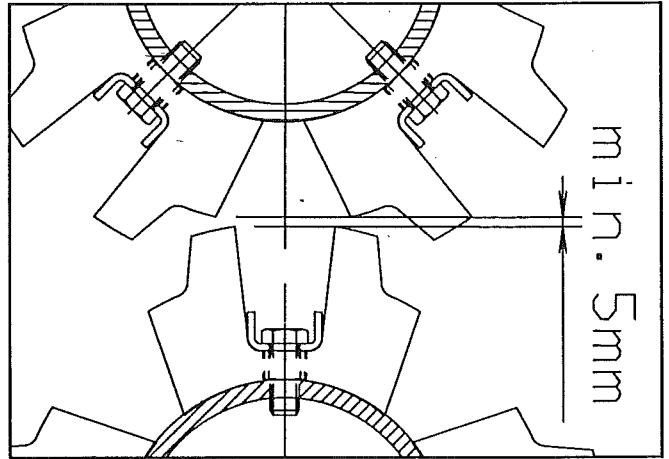


Fig. 19a



## READJUSTMENT OF THE CONDITIONING SPEED FOR GMS

**FIG. 15** The crimper rotor has 2 speeds 670 - 900 RPM.

**FIG. 16** When changing to 670 RPM the pulley on the gear is removed. The 3 supplied belts **1361-9729** are used.

**Strawy, ripe crop - high speed**

**Succulent, green crop - low speed**

### **CONDITIONING**

**FIG. 17** This can also be modified by changing the distance between the conditioning plate and the rotor. Adjust with the screws **A**.

**Large distance - moderate crimping**

**Small distance - vigorous crimping**

The adjustment should be adapted to the driving speed and the condition of the crop.

## SYNCHRONIZATION OF THE ROLLERS GCS

**FIG. 18** The rollers must always be correctly synchronized so that they keep step with each other, so that the rubber fillets on one roller moves precisely down between the rubber fillets on the other roller.

The synchronization can be checked through the inspection hole between the rollers. To readjust loosen the 3 bolts, turn the roller into the right position and tighten the bolts until the torque moment 20 kgm is obtained.

**FIG. 19** The rollers **must never** touch each other as this will give a bad working result and many vibrations in the machine. The distance between the rollers **must be 5 mm**.

**FIG. 19A** The distance is adjusted at the screw **A** equipped with a counter nut which must be tightened well after the adjustment. The adjustment is performed on both sides of the machine.

Jarring sounds or vibrations might be due to the fact that the rollers are positioned too close or that the synchronization is not correct.

**Check these adjustments at regular intervals.**

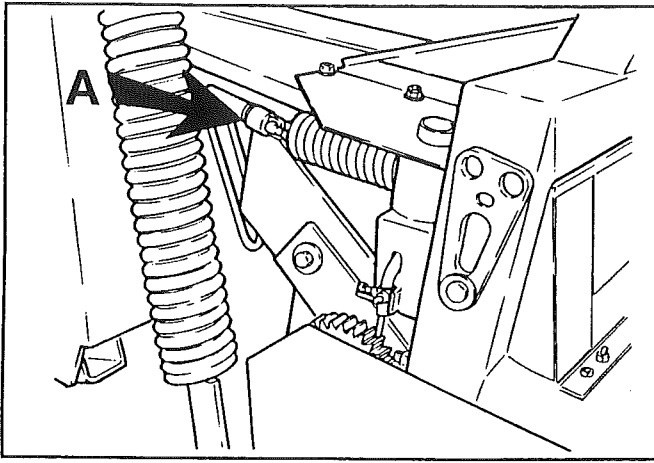


Fig. 20

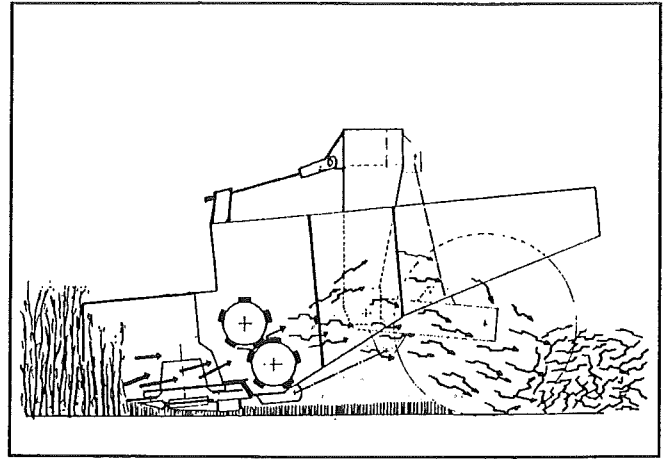


Fig. 21

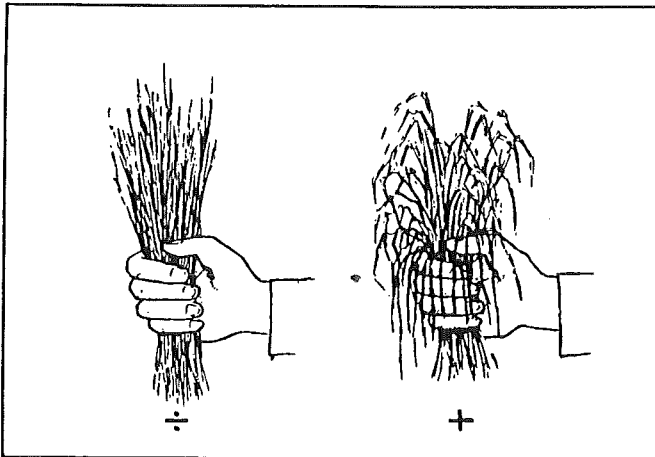


Fig. 22

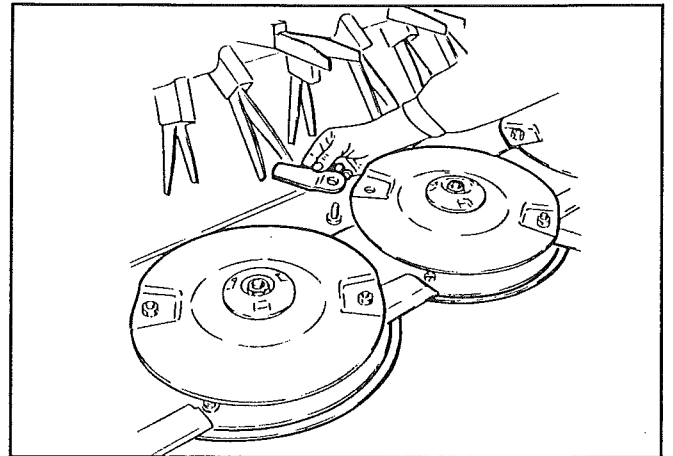


Fig. 23

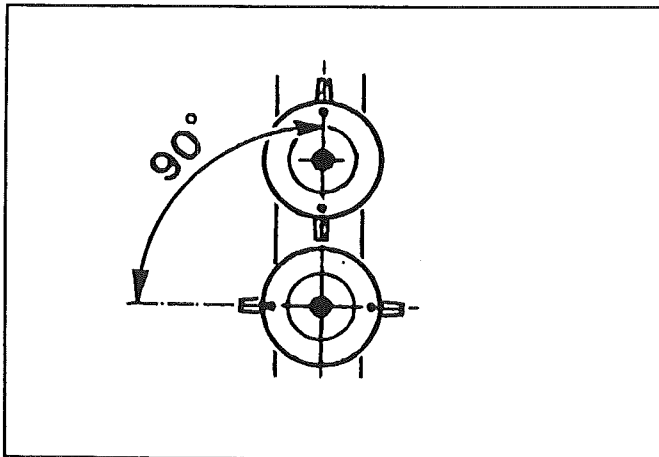


Fig. 24

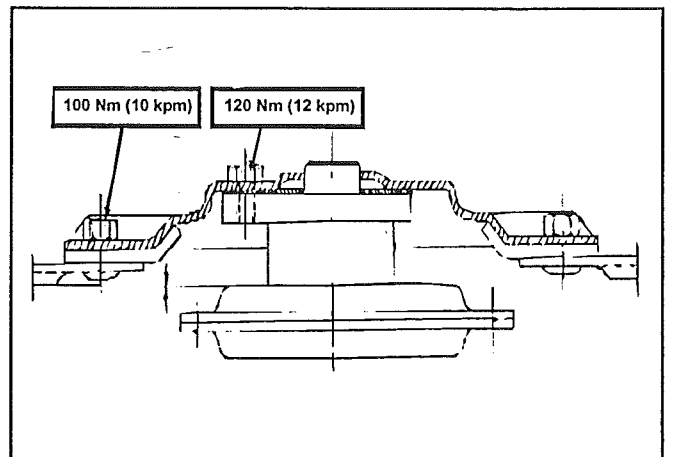


Fig. 25

## THE ROLLER PRESSURE

FIG. 20

To obtain a suitable roller pressure with large as well as small quantities of grass the upper roller is spring-loaded and at the same time the spring suspension gives the rollers the possibility of receding when a foreign body enters between the rollers.

The roller pressure is adjustable on both sides of the machine at the springs **A**. Do as follows: In clean grass you must **tighten** the springs. In clover, lucerne and other leafy crops you must **loosen** the springs. The springs must have the same tightening on both sides.

## CONDITIONING

FIG. 21

The conditioning must not be more vigorous than as to obtain a sufficiently quick drying. The right conditioning degree can be difficult to recognize, especially in clean grass.

The straws must be broken but not crushed. Crushed leaves and stems lead to unnecessary waste.

A too vigorous crimping can be recognized by the fact that the stems get an unnatural dark green discoloration and give off liquid.

**The reason might be:**

- that the rollers are placed too close to each other
- that the roller pressure is too high and
- that the driving speed is too low.

FIG. 22

Too light conditioning is characterized by the fact that the straws keep upright when a bunch is held in the hand.

**The reason might be:**

- that the roller distance is too great
- that the roller pressure is too small and
- that the driving speed is too high.

It can be difficult to decide if the conditioning is suitable but do not get tempted to exaggerate the conditioning. Usually it is sufficient even though it can not be seen on the grass.

## REPLACEMENT OF BLADES

FIG. 23

When replacing a blade the blade bolt is dismantled and pulled out under the disc. This can only be done with the blade in the rear position. The old blade is removed and the new one mounted with the blade bolt.

The blades can be used on both sides. They are moved to a rotor with the opposite direction of rotation.

FIG. 24

If the discs have been dismantled they must be mounted again with a displacement of 90°.

To obtain a satisfactory harvesting **it is important** that the blades are in order and sharp. If one or more blades are damaged or beaten wry by hard driving **they must be replaced immediately.**

**Damaged blade bolts or nuts must be replaced.**

FIG. 25

The bolt tightening must be as shown.

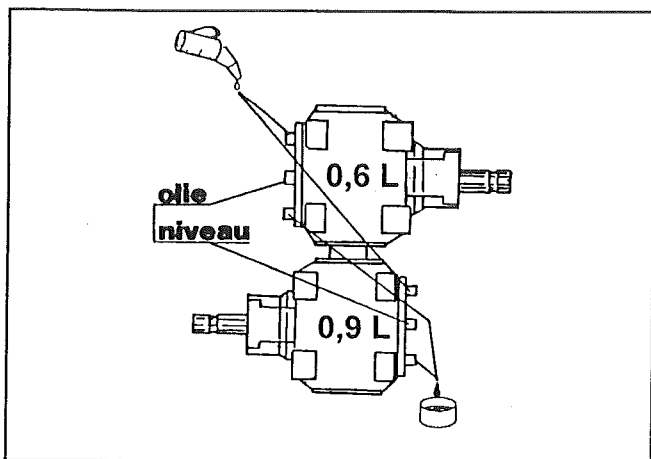


Fig. 26

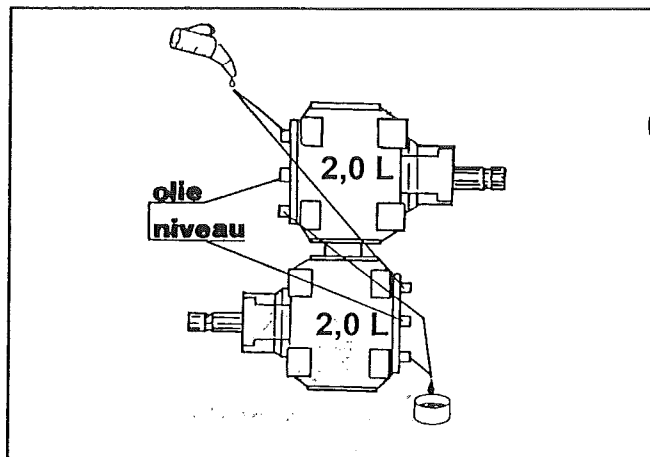


Fig. 26a

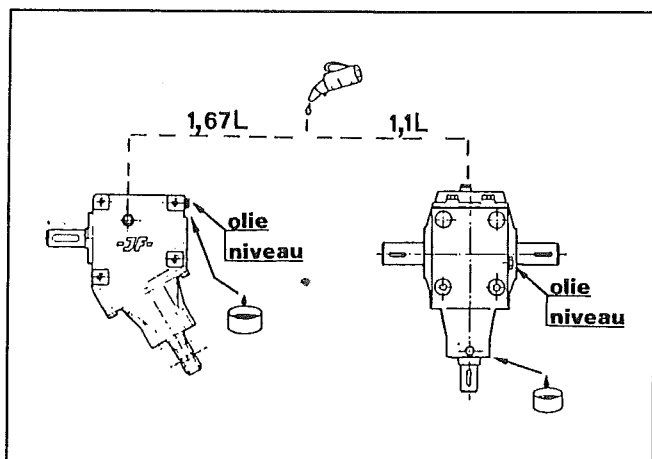


Fig. 27

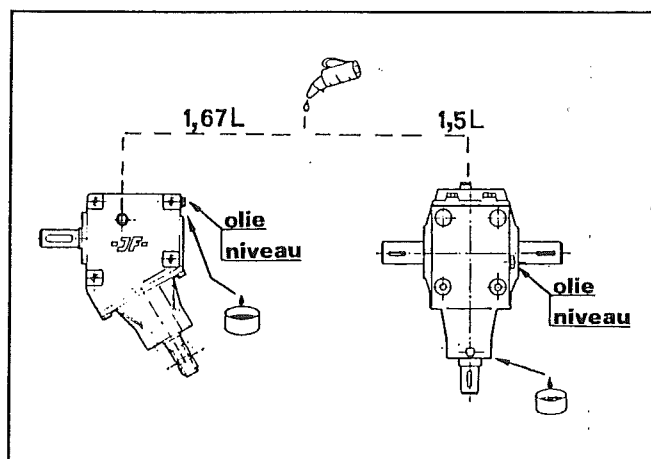


Fig. 27a

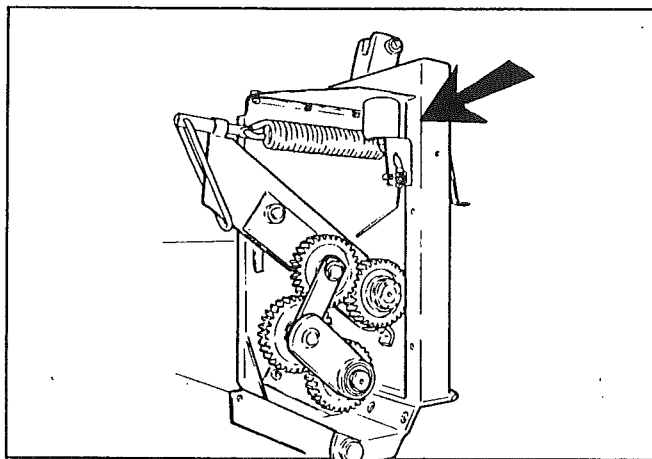


Fig. 30

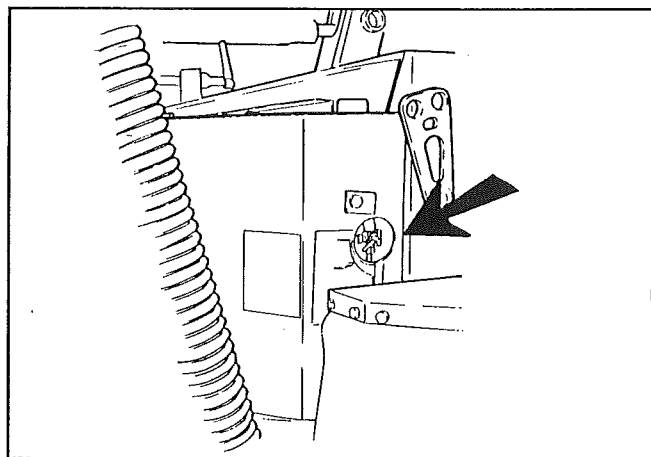


Fig. 31

## **LUBRICATION**

### **DOUBLE GEAR**

Oil type: **EP SAE 90 GL4 or GL5**

**FIG. 26**

<b>FIG. 26A</b>	GMS/GCS 2400D	0,6-0,9 l
	GMS7GCS 2800/3200D	2,0-2,0 l

### **BEVEL GEARS**

Oil type: **EP SAE 90 GL4 or GL5**

**FIG. 27**

<b>FIG. 27A</b>	GMS/GCS 2400/2800D	1,67-1,1 l
	GMS/GCS 3200D	1,67-1,5 l

The oil in the bevel gears must be renewed after the first 50 working hours and then after every approx. 500 working hours - or at least once a year.

### **GREASING - GMS**

#### **Grease once a day:**

Rotor bearings by crimper	2 nipples
PTO-shaft	4 nipples
Protection tube	4 nipples
All dowels	7 nipples
Bearing for wheel frame	2 nipples

#### **Grease once a year:**

Wheel hubs	2 nipples
------------	-----------

### **GREASING - GCS**

#### **Grease once a day:**

Roller bearings, rocker arm, belt tightener	7 nipples
PTO-shaft, protection tube	4 nipples
Dowels at wheel suspension, hydraulic cylinders and draw	11 nipples

#### **Grease once a year:**

Wheel hubs	2 nipples
------------	-----------

#### **Lubricate with oil when necessary:**

**FIG. 30** Oil tank for gear-wheel drive.

**FIG. 31**

The gear-wheel drive of the rollers is lubricated via drip lubrication. Fill up with ordinary engine oil. Before the work is begun adjust the tap to **"NORM"**. The gear-wheels should be just lightly greased. If the oil supply seems to be too large, close a little bit and vice versa. **REMEMBER** ..... to turn the tap completely off after harvesting and during storage.

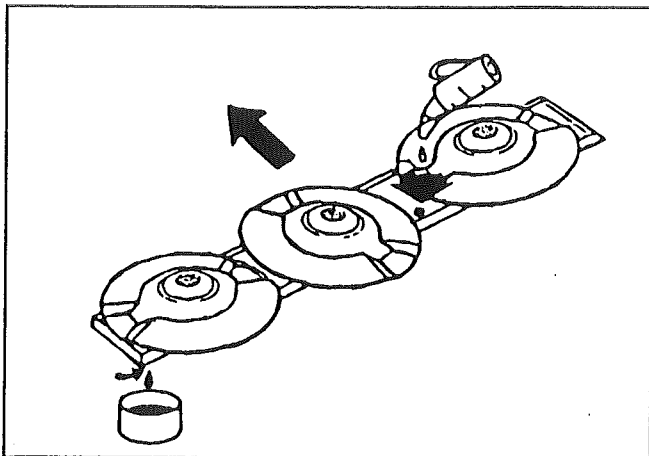


Fig. 32

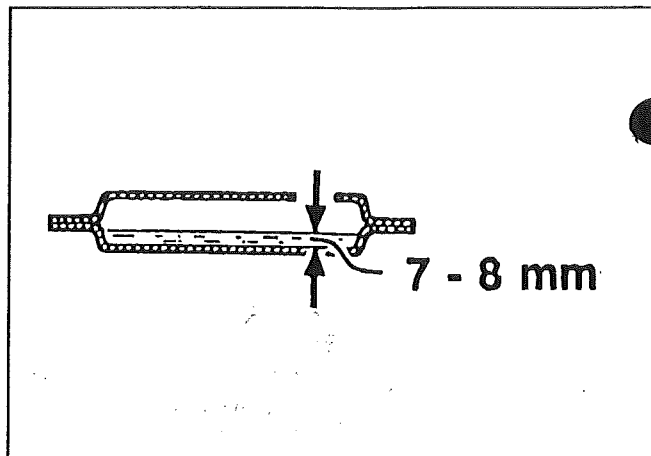


Fig. 33

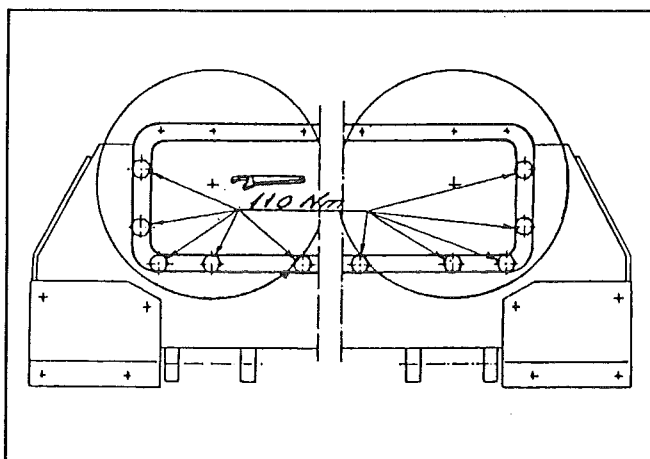


Fig. 34

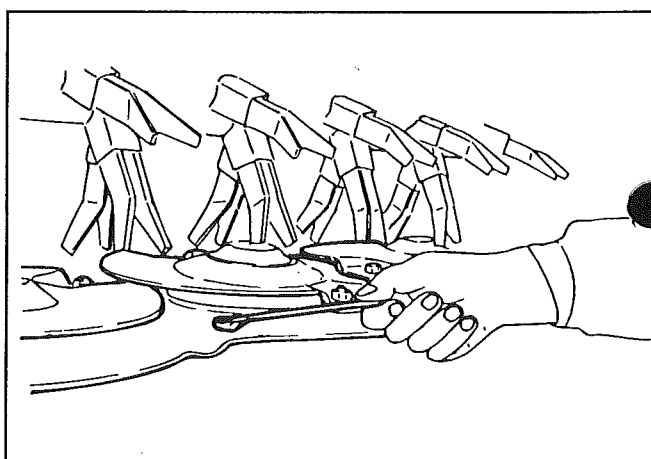


Fig. 35

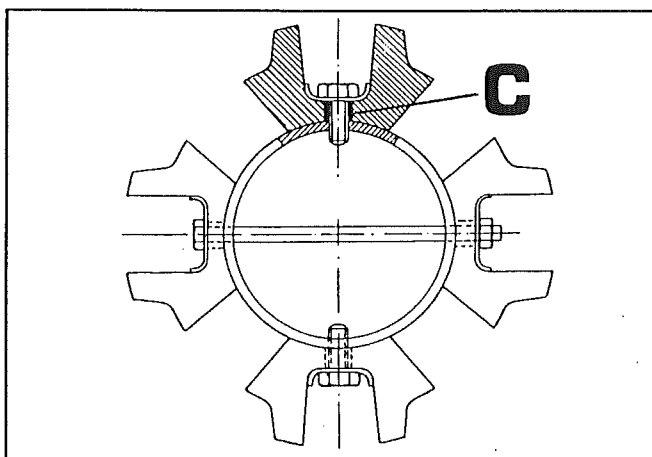


Fig. 36

FIG. 32

**OIL LEVEL IN THE CUTTERBAR**

The oil in the cutterbar is drained off by the plug in the left side of the bottom. The filling plug is placed on top of the cutterbar between the 2nd and the 3rd disc.

The filling plug is provided with a magnet which collects all possible chips and should be cleaned during every oil control.

FIG. 33

**OIL IN THE CUTTERBAR**

GMS/GCS 2400D	Oil contents:	2,00 l EP SAE 80 GL4
---------------	---------------	----------------------

GMS/GCS 2800D	Oil contents:	2,25 l EP SAE 80 GL4
---------------	---------------	----------------------

GMS/GCS 3200D	Oil contents:	2,25 l EP SAE 80 GL4
---------------	---------------	----------------------

OIL LEVEL	<p>7 - 8 mm when the cutterbar is horizontal.  <b>Check the oil level at regular intervals.</b>  <u>Never</u> fill up with more oil than prescribed.</p>
-----------	--

Oil renewal:	First oil renewal after appr. 10 working hours and then after every 100 working hours or at least once a year.
--------------	--

**N.B.!** Too much oil in the cutterbar will damage the bearings.

**MAINTENANCE**

FIG. 34      Check daily that all important bolts are tightened.

FIG. 35      The bolts at the cutterbar and the stone protectors should be checked at regular intervals.

Clean the machine carefully before winter storage. Dust and dirt absorb moisture which furthers rust.

**Be careful when cleaning with a high-pressure cleaner.** Never spray directly on the bearings and grease all grease-spots after cleaning.  
 A coating of rust-preventive oil (acid free) is applied.

**REPAIR OF ROLLERS**

FIG. 36      The rubber fillets have from the factory been fastened with screws. If, by an accidents, the thread is torn out in the tube a through-bolt M8x150 can be used. Such bolts are included in the tool packet. **Remember** the distance tube C under the steel fillet.

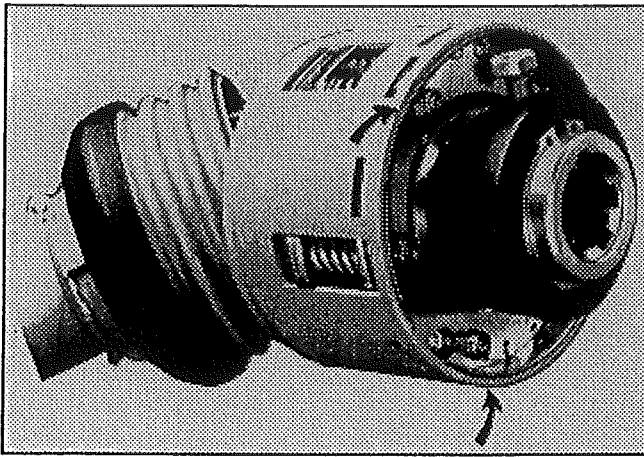


Fig. 37

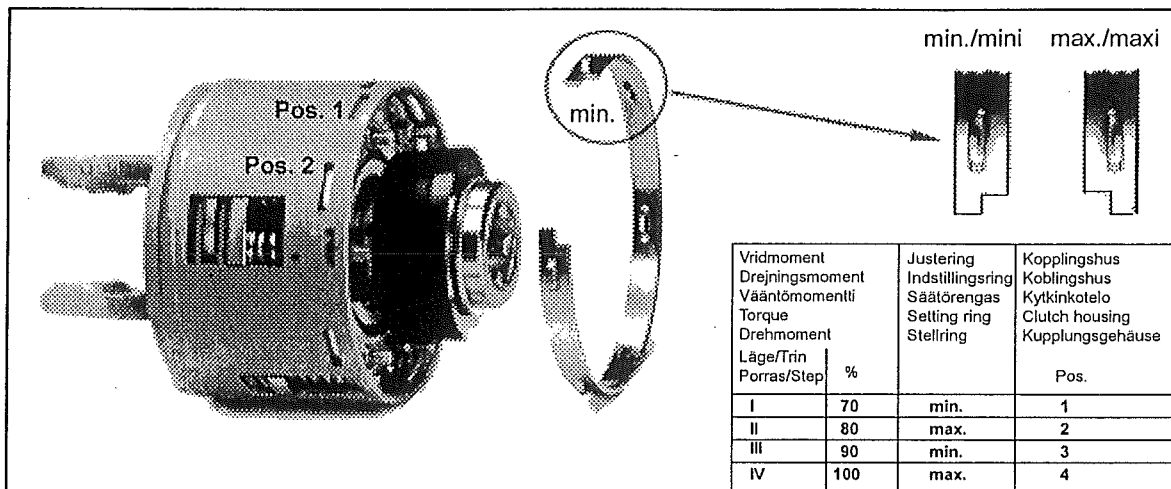


Fig. 38



## THE FRICTION CLUTCH

**FIG. 37**

To secure that the friction clutch functions in accordance with intentions the clutch must be "aired" at certain intervals.

Before the start of a new machine and after long time of standstill e.g. winter storage the clutch must be "aired" as follows:

The six nuts on the flange are tightened. This presses the springs together so that they do not press against the coupling discs and the clutch can rotate freely. **Let the clutch rotate for half a minute.** The nuts are loosened again until they are on a level with the thread on the bolts and the spring can press against the coupling discs.

**FIG. 38**

The torque in the friction clutch can be adjusted to four different stages by turning the setting ring and by means of two different openings in the clutch housing.

1. The setting ring has a minimum and a maximum position.
2. The clutch housing has two different openings in the height for the setting ring pos. 1 and 2.

**The adjustment can only be performed when the six nuts are tightened.** After the adjustment the nuts are loosened again to the end of the bolts.

DRIVING IN THE FIELD

FIG. 39

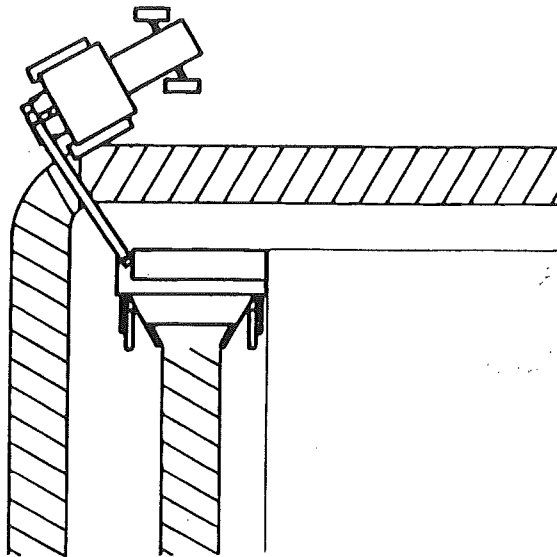


FIG. 40

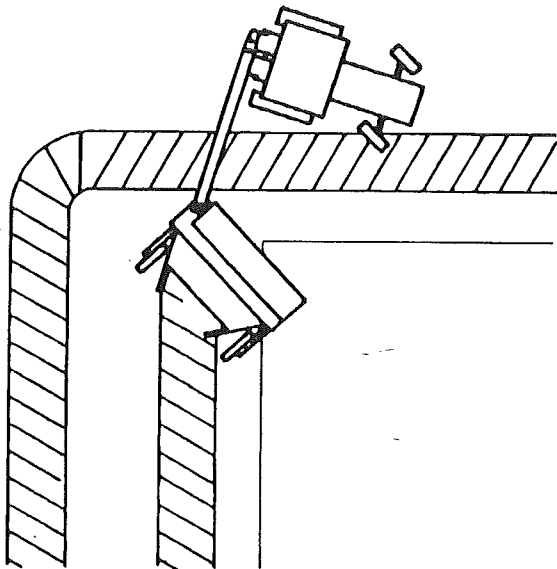
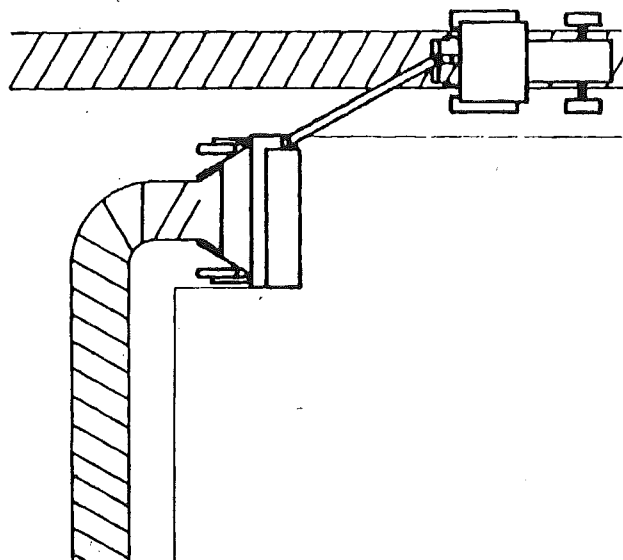


FIG. 41



# **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 due to causes from outside, 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 spareparts have been used.

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

JF is not responsible for the following costs:

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

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

The following is regarded as wearing parts:

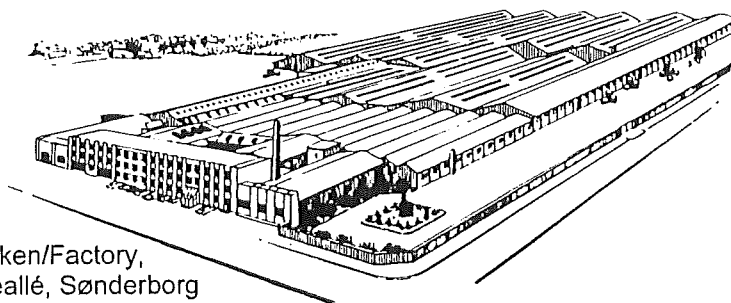
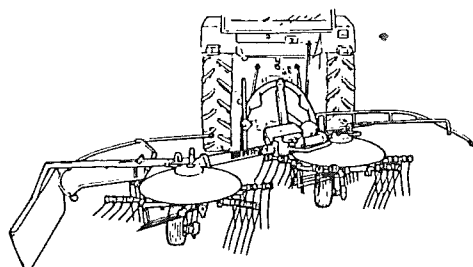
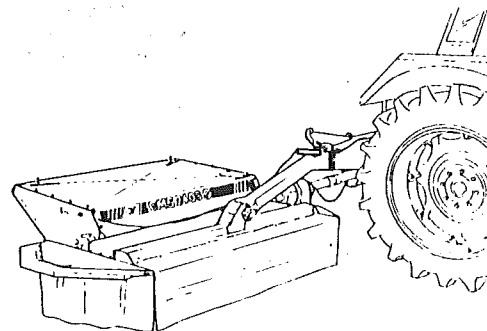
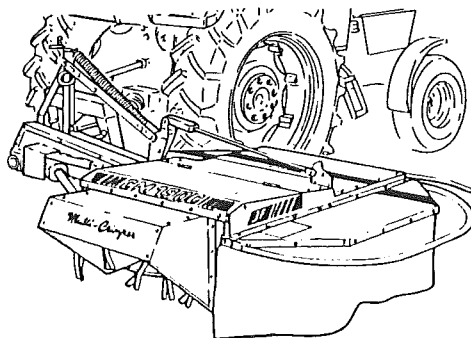
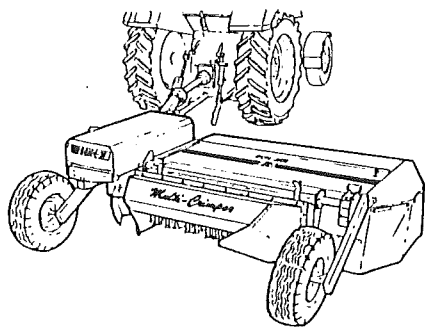
**Protective canvases, knives, knife suspensions, shearbars, guide shoes, stone protections, crimper parts, tyres, tubes, PTO-shafts, clutches, V-belts, chains, rake- and pick-up tines and beaterbars for farmyard manure spreaders.**

Besides, the user must note the following:

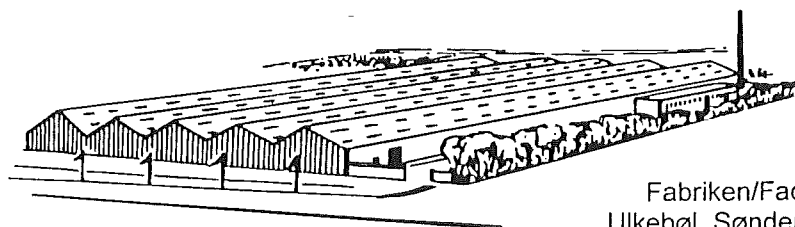
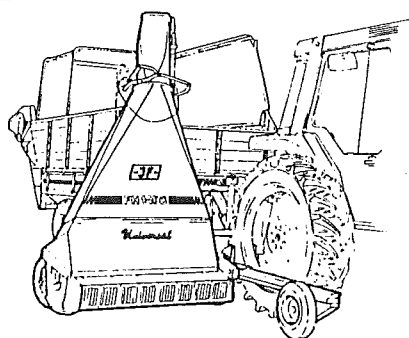
1. The warranty is only in force if the dealer has undertaken predelivery check and has given instruction to the end user in the use of the machine.
2. The warranty cannot be transferred to others without JF's written permission.
3. The warranty can be annulled if the repair is not undertaken immediately.



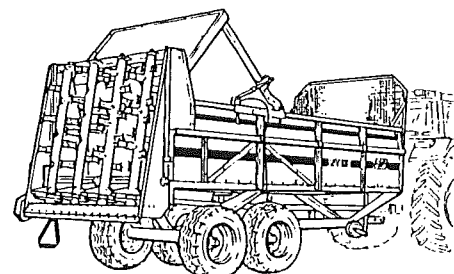
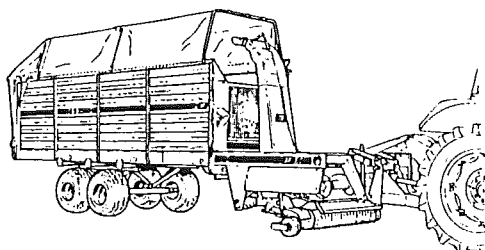
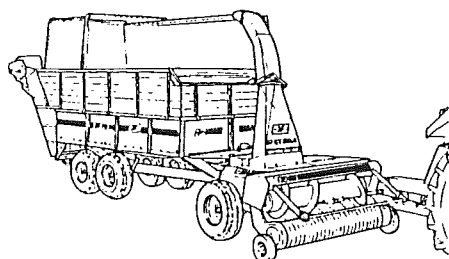
Et omfattende maskinprogram  
Ein Lieferprogramm mit Zukunft  
Progress In Farm Machinery  
Un programme de machines etendu



Fabriken/Factory,  
Lindeallé, Sønderborg



Fabriken/Factory,  
Ulkebøl, Sønderborg



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